Chapter 2
The Kunene River's State-Centric Hydropolitical History

Abstract The hydropolitical history of the Kunene River is usually recounted from a state-centric perspective. I start the Kunene River's hydropolitical history in the days when colonists colonised South West Africa. It is therefore a very Eurocentric rendition of the river basin's hydropolitical history. Even so, since the days of the early German colonists, water and the implementation of water infrastructure, played a significant role in building a Westernised state entity. The centrality of water infrastructure for irrigation and hydro-electric production also played a role after South Africa's mandate over South West Africa. This culminated in a number of initiatives and studies to tap the potential of the Kunene River, which also led to a number of bilateral agreements between Portugal and South Africa over the sharing and utilisation of the Kunene River's water resources. It was in the 1960s that the exploitation of the Kunene River took off, with the construction of Ruacana for hydro-electric generation to be used in the then South West Africa. In the 1970s, war between the newly independent Angola and South Africa had severe ramifications for further developments along the Kunene's course. The civil war in Angola and the border war between Angola and South Africa defined the way forward regarding the Kunene's development. It was only after Namibia's independence and the short-lived end of the Angolan civil war that the Namibian government initiated plans for Epupa's construction.

Keywords Hydropolitical history · Colonisation · Angola · Border War · South Africa · Kunene River · Calueque

In this chapter I, recount the hydropolitical history of the Kunene River starting in the pre-First World War era up to Namibian independence in 1990. The purpose is to highlight the views, perceptions and expectations from state and non-state actors regarding the development of the Kunene River and which type of actor dominated during the development of the river's resources. I highlight the various treaties signed between colonial and post-colonial governments, the scientists that had grand plans for the waters of the Kunene and the statesmen with their visionary politics that looked towards the Kunene not as a natural phenomenon with aesthetic

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beauty but a natural phenomenon to be utilised for human benefit in an arid environment. Because the region is not well endowed with water, the authorities that held sway over South West Africa in the past implemented a number of so-called coping strategies (e.g. Turton and Ohlsson 1999) to compensate for an environment that is 'against' human development. One of the coping strategies is to construct water resource projects to store and transport water from where it is in abundance to where it is needed (Devereux and Naeraa 1996; Turton and Ohlsson 1999; Heyns 2003). In the case of the Kunene River, as opposed to other parts of Namibia, the coping strategies had more to do with the generation of hydro-electricity than with the provisioning of water to an ever increasing human and animal population. The coping strategies involved the construction of a number of hydro-power plants, with the adaptive behaviour forming part of the hydro-political history of the Kunene River (Meissner 2000a, 2005; Meissner and Jacobs 2016). Until the early 1990s, it was mainly state entities that exhibited this type of adaptive behaviour in the river basin, with non-state actors playing a lesser role or played a role in the service of the state. I should also note here that the hydropolitical history is presented as state-centric not because non-state actors were not involved but because historians and commentators on the Kunene's development have over the years highlighted the activities of the state in the river's development. In other words, non-state entities were involved, especially the indigenous peoples living in the river basin but they were merely ignored as 'participants' in the river's development. Instead, they were looked upon as beneficiaries of development and therefore not 'worthy' of writing about.

2.1 Colonists' Early Plans for the Kunene

At the turn of the nineteenth century two German colonists, Brincker and Gessert first suggested that the Kunene be dammed to supply water to parts of *Deutsch Südwest-Afrika*. This was not an unrealistic proposition, since engineering was one of Germany's core colonial enterprises. During the thirty years of German occupation of *Deutsch Südwest-Afrika* (1885–1915), the colonial rulers of the country constructed railroads, roads, mines and water supply systems; sunk thousands of boreholes to tap groundwater resources and built hundreds of small dams for impounding water (Harring 2001).

Early on during German occupation, the colonial states started to play a prominent role in the water politics of the Kunene River. On 30 December 1886, the governments of Germany and Portugal (colonial ruler of what is today Angola) delineated the border between their respective territories or spheres of influence. The boundary line followed the course of the Kunene River from its mouth to the Ruacana Falls (Fig. 2.1) just south of Humbe. From this point, the border stretched along the parallel 17°23′ South latitude to the Okavango River in the east. The border then courses along the Okavango River to Andara and finally stretched in an

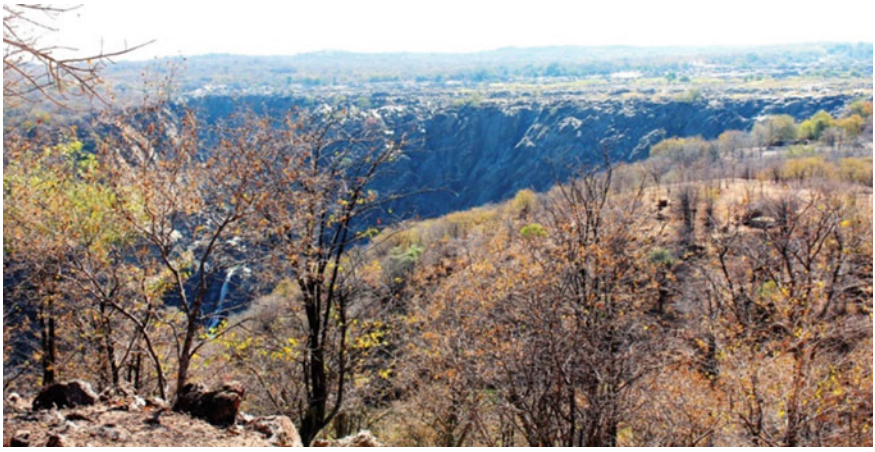

Fig. 2.1 The Ruacana cataract

easterly direction to the Catima rapids on the Zambezi River (RSA 1964), giving Namibia some access to the Zambezi River.

Germany lost the First World War and as a consequence had to relinquish its colonial territories to the victors. However, it lost South West Africa to South Africa in 1914. When South Africa occupied South West Africa in 1914 and started its administration of the territory as a League of Nations mandate after the end of the First World War, the development of the Kunene River was undertaken to facilitate the overall development of South West Africa. The Kunene's development was not approached in a piecemeal fashion by South Africa. The overarching strategy of developing South West Africa was exemplified by the following statement of Dirk Mudge, the South African Member of the Executive Council (MEC) and acting administrator of South West Africa in 1976: '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: 31, 40). It was not only about the economy and creating viable jobs; South Africa also came under severe pressure from the international community regarding its continued occupation of South West Africa (more on this later on). Even so, the Kunene's development, since South African occupation up to independence in 1990, was not an end in itself but a means to a number of ends. I will discuss these ends in the remainder of the chapter. For now, and since the Kunene is an international river, it was necessary for the colonial authorities that governed Angola and South West Africa, to come up with some agreement regarding the sharing of the river's water resources. Institutionalised international agreements and cooperation formed part of the coping strategies envisaged by the colonial powers. Nevertheless, it was not always easy to develop the Kunene River because international and domestic political and socio-economic

factors had a profound impact on the different states' projected plans (Meissner 2003, 2005; Meissner and Jacobs 2016). Said differently, the engineering planning and execution of such projects may, in themselves, appear to be very daunting tasks. The implementation of large-scale water infrastructure projects become even more formidable when taking into consideration political and socio-economic factors operating as active variables in such projects' implementation.

2.2 Cooperation Between Portugal and South Africa: 1926–1975

Initially the forces that controlled Angola and South West Africa cooperated over the sharing and utilisation of the river's water resources. Even so, it was not only states, their governments and officials that played a role in the river's development, but also individuals outside the sphere of government.

Prof. E.H.L Schwarz, from Rhodes University's Geology Department, proposed to dam the Kunene some distance above the Ruacana Falls with the intention to divert water onto the Ovamboland plain and subsequently to fill the Etosha Pan to the south. Schwarz (1919: 116) argued that '…the water would flow far up the Ovambo River; the water if kept at a steady level would percolate through the sandy country between the Ovambo River and the Okavango, and would eventually reopen the channel connecting the two rivers.' Should this happen, a large water body would form, creating an extended evaporating surface of more than 8000 km^2. The main idea was to alter the rainfall patterns over the Angolan Highlands and the flow of the Kunene, Okavango, Linyati and Zambezi Rivers would subsequently increase (SESA 1973). Prof. Schwarz also believed that the Etosha Pan would provide extra rain for the entire South West Africa (Schwarz 1919).

The short account of the Schwarz Plan indicates that academic interest in the Kunene River basin and further afield started before the 1920s. Although Schwarz's 'fantastic' scheme was never implemented because of the huge expense and impractical nature of the idea, it was investigated in 1927 by a Joint Technical Commission in accordance with the 1 July 1926 agreement between South Africa and Portugal. The Joint Technical Commission found the entire idea indeed to be impractical.

Before the July 1926 treaty, South Africa and Portugal signed an agreement on 22 June 1926. This first agreement was in relation with the border between the two colonial powers, while the second agreement's purpose in July of the same year to regulate the use of the Kunene's water for irrigation, hydropower and storage (Union of South Africa 1946). It is not impossible to conclude that the proviso of storing the river's water would have been the impetus for the Joint Technical Commission to investigate the Schwarz plan. The agreement regarding the border between Angola and South West Africa reaffirmed the border demarcated between

Germany and Portugal in 1886. Regarding the Schwarz plan, interestingly enough it was again investigated in 1945 by the South African Department of Irrigation and was finally dispelled as too fantastic, although criticism towards the plan had already surfaced after Schwarz published the idea in 1919. Nevertheless, in 1920, Mr. Kanthack, chair of the Ovamboland-Angola Boundary Commission, undertook a hydrographical study of the Kunene River. This study indicated the hydro-electric generation potential of the Kunene (Union of South Africa 1946; RSA 1964; SWAA 1967).

With the signing of the July 1926 agreement, the Joint Technical Commission between the two neighbouring countries was established. This Commission was also known as the Kunene Water Commission and its purpose was to investigate the feasibility of the three provisos stipulated by the agreement: irrigation, storage and hydro-power generation using the Kunene's gradient and water. The two states established the Commission to investigate the feasibility of damming the Kunene and diverting the stored water into Ovamboland. The agreement between the two countries indicated that 'The Government of the Republic of Portugal concedes to the Government of the Union of South Africa the right to use up to one half of the flood water of the Cunene River for the purposes of inundation and irrigation in the mandated territory' (Wellington 1938: 26; Namibia 1990a; Harring 2001).

The two colonial powers discussed the plans for the utilisation of the Kunene's water in Ovamboland at a conference held between 13 and 23 July 1927, at Olushandja in South West Africa. At this conference it became clear to both state parties that the plans for diverting water into South West Africa 'presented a far more difficult problem than was originally anticipated and much more extensive investigations will be required before a complete solution can be arrived at' (Wellington 1938: 26). The South African government therefore did not immediately commenced with the development of infrastructure on the Kunene after the signing of the July 1926 agreement (Vigne 1998; Harring 2001; Meissner 2004, 2005).

From this we can see that during the 1920s states started to exert direct influence and control on the water politics of the Kunene River basin. Even so, private (Schwarz) and public (Kanthack) individuals were also involved. In the case of Schwarz, and although his plan was investigated twice by the South African government, he did not have a lasting influence over the Kunene River's hydropolitical history. Kanthack, as a public official, was able to influence the future trajectory of the Kunene's development with his hydrographical study. What is also not known is that Ernest Openheimer, co-founder of the Anglo-American Corporation and Consolidated Diamond Mines of South West Africa, envisaged that one of his companies would build a dam on the Kunene River to supply water to South West Africa's mining industry. In addition, before 1926, Jan Smuts, as prime minister of the Union of South Africa, tried to redraw the Angolan border to include in the territory of South Africa, the dam site at Calueque, but to no avail (Wellington 1938; Harring 2001; Meissner 2004, 2005). It is not impossible to conclude that Jan Smuts had modern day land grab in mind to secure natural

resources (the dam site and a portion of the river's basin and by default more water) for the Union of South Africa.

Various individuals therefore had visions of the Kunene River's development. Although these visions did not produce the desired results for the respective individuals, the visions did create a sense of the socio-economic potential that can be tapped, so to speak, from the Kunene River's land and water resources. In the case of the individual visions, we can conclude that the ideas were constitutive and not causal in a linear sense of the word by directly leading to water resource development projects. Another reason for the vision's constitutive nature is that no development immediately took place because Angola and South West Africa had no great need for the river's water and the schemes (e.g. dam at Calueque) proved too difficult to implement. What this furthermore indicates is that structural causal mechanisms like bilateral state agreements are not always and immediately responsible for the implementation of joint projects between countries on transboundary rivers.

In the Kunene River's case, it was only in the 1960s that joint cooperation and the so-called sharing of benefits (e.g. Sadoff and Grey 2002; Qaddumi 2008) got off the ground. In this regard, Sadoff and Grey (2002) note that if states have sufficient incentives to cooperate, they will do so. This is a very simple rule when it comes to transboundary river cooperation. In the case of the Kunene there was no immediate cooperation, and the cooperation between the two state entities turned quite sour after Angola got its independence from Portugal in 1975. In this regard Phillips et al. (2006) state that a silver bullet approach to interstate cooperation, like benefit sharing is often illusive. In would therefore appear that Sadoff and Grey's (2002) benefit sharing causing interstate cooperation either need revision or better qualification.

2.2.1 The Rationale for Economic Development

From the time South West Africa was colonised by the Germans to the 1960s, the low level and decentralisation of economic activity did not justify a countrywide electricity supply network. Before the expansion of the electricity grid, each power consumer (local authorities, mines and other users) had to generate its own power. This resulted in high power costs, mainly due to high transport-related fuel costs because diesel-powered generators were used for electricity generation (Olivier 1979; Meissner 2004).

It was only in 1962 that the South African government mandated the Odendaal Commission to investigate the socio-economic potential of South West Africa and to prepare measures to stimulate the country's development. In 1964, with the publication of the Commission's Report (RSA 1964), the Odendaal Commission recommended, among others, that the water resources of the Kunene River be used for generating hydro-electric power and to supply water to Ovamboland. In the report the Commission noted that it '…sees the generation of electricity on the

Kunene, commencing on a large scale at Ruacana and then further downstream at Odorusu, Epupa Falls and Marienfluss, as the most important contribution the State could make towards the further economic development of South West Africa.' The Commission expected that the development of hydro-electric power stations along the river would make a substantial economic contribution to the increased and accelerated development of the country. To further this aim, the government established the South West Africa Water and Electricity Corporation (SWAWEK) as a utility to develop the power and water potential of South West Africa. It was during this time (mid-1960s) that SWAWEK put plans forward for the construction of the Epupa Dam (RSA 1964; Rhoodie 1967; Showers 1996). The state-centric coping strategies to get socio-economic development in South West Africa off the ground therefore started in earnest in the mid-1960s. In order to realise the implementation of the coping strategies, international cooperative agreements between the colonial powers were deemed necessary.

The plan to develop South West Africa led to yet another agreement[1] in 1964, between Portugal and South Africa, with respect to rivers of mutual interest to both Angola and South West Africa (the Kunene and Okavango Rivers). This agreement also involved the proposed Kunene River Scheme. In 1969, the two colonial powers signed another agreement[2] regarding the construction of water resource projects on the Kunene River. This agreement covered the following infrastructure (1) a dam at Gové in Angola, completed in 1975, to regulate the flow of the Kunene River, (2) a dam at Calueque (completed in the mid-1970s) upstream from Ruacana for further regulation of the river in conjunction with the requirements of the Ruacana power station, (3) a hydro-electric power station at Ruacana with a capacity to generate 240 MW (completed in 1978) to supply South West Africa and southern Angola with electricity and (4) a pumping station at Calueque for irrigation of Ovamboland (Rhoodie 1967; Heyns 2003; Meissner 2004). A fourth dam had already been built in the 1950s at Matala in Angola to generate 40 MW of electricity. This dam fell outside the scope of the 1969 agreement between Portugal and South Africa. The dam at Matala was also used for irrigation purposes. That said, presently there are four large structures across the Kunene River, namely Gové, Matala, Calueque and Ruacana. To oversee the implementation of the projects stipulated in the agreement, the two governments established a Permanent Joint Technical Commission (PJTC) (Olivier 1979; Conley 1995; Heyns 2003; Meissner 2004). This institutional arrangement further strengthened functional cooperation between Portugal and South Africa regarding the development of the Kunene River's water resources. Infrastructural coping strategies like the ones across the Kunene River therefore do

[1] *Agreement between the government of the Republic of South Africa, and the government of the Republic of Portugal in regard to rivers of mutual interest and the Cunene River scheme*, of 13 October 1964.

[2] *Agreement between the government of the Republic of South Africa and the government of the Republic of Portugal in regard to the first phase development of the water resources of the Cunene River basin*, of 21 January 1969.

not only need material resources and engineering knowledge, but also the negotiation of international collaborative agreements between states.

Even so, as the above-mentioned projects neared completion, the governments remembered that the Kunene had further untapped hydroelectric potential because of the other cataracts and waterfalls along its course. After the government completed the Gové Dam and Calueque Barrage, the flow of the Kunene River was more easily regulated and it became technically viable to continue the development of the hydroelectric potential downstream from Ruacana. In the late 1970s, SWAWEK estimated the potential of the river to be 1560 MW that could be generated at eight sites along the river (Olivier 1979). This type of thinking was still prevalent in Namibia after independence in 1990, with the new post-colonial government regarding the river as a source of sustainable energy for Namibia's post-independence socio-economic development agenda (Pers. comm. P. Heyns, 17 November 2002). This means that the coping strategies the colonial powers initiated 40 years ago was still relevant when the Namibian government proposed its intention to construct Epupa. This also means that there was a lull in the development of after the completion of the Ruacana project since the Epupa hydro-electric powerplant was only mentioned after Namibia's independence in 1990. In this regard, Harring (2001: 53) states that '[i]f the South Africans and Portuguese were still in power the Epupa Dam might have been built by the colonial powers by the 1970s, without any feasibility study.' This statement contains some of the clues as to why the colonial powers did not construct Epupa in the 1970s. Politics and international relations were important causal mechanisms in Epupa being postponed (Meissner 2004, 2005). Socio-economic development was another reason.

The Ruacana hydro-electric scheme was, during the 1960s and 1970s, able to produce enough energy for South West Africa's needs. This made a further hydro-electric power plant at Epupa, or any other site on the Kunene for that matter, redundant. Said differently, I am of the opinion that it would have been a total waste of resources to construct the Epupa Dam at the time of Ruacana's construction. I am therefore critiquing Harring's (2001) argument that colonial occupation of Angola and South West Africa was an independent causal mechanism for the construction of hydropower plants on the Kunene River. By the mid-1970s, the long world economic boom—lasting from the early 1930s to the 1970s—was ending. Inflation in South Africa was also on the increase and the financial resources of the state were stretched to the limit. In 1974, the gold price was US$198 per fine ounce and South Africa's economic growth was 8.3 %. By 1976 the gold price had decreased to US $103 per fine ounce, while the South African economic growth rate had contracted to only 2.9 % in 1975, 1.3 % in 1976 and zero in 1977 (Barber and Barratt 1990). This decline in the country's economy meant that the government found it difficult to finance infrastructural projects like large dams and hydro-electric power plants.

Portugal and South Africa, in particular, were intent on implementing the Calueque and Ruacana schemes, regardless of the economic situation. In 1972, the South African Prime Minister, John Vorster, promised the Ovambo Executive Council (OEC) that the Calueque and Ruacana projects would be 'zealously

defended.' The Portuguese colonial authorities in Angola preferred more grandiose water resource projects on the Kunene River, but lacked the financial means to implement them.

According to Christie (1976), the people of Angola and South West Africa were, however, not consulted on the construction of the dams at Calueque, Gové, Matala and Ruacana. One of the explanations for this lack of consultation with the affected people was the authoritarian character of the Portuguese and South African governments that controlled Angola and South West Africa, respectively. Another explanation was that the Calueque and Ruacana schemes have been seen by experts and security analysts not only to foster socio-economic development in northern South West Africa, but also to bolster South Africa's domination of Southern Africa. These water resource projects were also constructed within the context of the discourse of world industrialisation and capitalism. South West Africa's natural resources were, therefore, extracted to boost the South African economy and by so doing shore up its regional hegemonic status. Nevertheless, according to Christie (1976: 32), to extract valuable natural resources (minerals), large volumes of energy and water are needed, 'systematically produced, and distributed as commodities.'

This does not mean that there was absolutely no opposition to these schemes. Groups and individuals raised opposition to both Calueque and Ruacana. The South West Africa People's Organisation (SWAPO), for instance, was against the two projects. So too was the head of the Anglican Diocese of Damaraland, Richard Wood. In 1974, he stated that '[t]he schemes are not being carried out in consultation with the people.' He also said that the water is welcomed, but the plans represent 'an extrapolation of White hopes for the future of the country' (Christie 1976: 41). The Namibian bishop of the Evangelical Lutheran Church, Dr. J.L. de Vries, similarly argued in 1974 that '[t]he Ovambo people are very anti-government. It is not that they do not want development, but that they are against schemes imposed from above.' De Vries furthermore said that 'we feel that the system is run without consultation. We feel that we stand aside from the development of the country.' He was also of the opinion that the Kunene projects were being implemented to serve the military aspirations of South Africa. Likewise, in 1974 a Namibian in Windhoek told Christie: [W]e are against these schemes. They are not for the people of Namibia. They are for exploitation, not for anything else. The government talks as tough the whole purpose is for the Ovambo—I am sure it is not' (Christie 1976: 42). These opposition voices towards the two schemes were the harbinger of things to come when the Namibian government announced its plans for Epupa in the early 1990s. Despite the protestations and voicing of opposition towards the Calueque and Ruacana schemes, the Portuguese and South African governments implemented them. This was not the case for the proposed Epupa Dam, which has not yet been constructed. There is therefore a history of opposing water resources schemes in that part of the Kunene River basin where the proposed Epupa Dam was supposed to be constructed.

2.3 The Border War: 1975–1988

Despite the lack of consultation and opposition to the Kunene projects, Angola's domestic political situation took a turn for the worst in the mid-1970s. From 1975 to around 1990, when Namibia gained independence, and well after Namibian independence, events in Angola would have a detrimental impact on the water politics of the Kunene River, especially regarding the operation of the infrastructure on the river as well as inter-state cooperation.

2.3.1 Angola's Independence and the Outbreak of War

Angola gained independence from Portugal on 11 November 1975. Immediately after it gained independence, civil war broke out involving both internal and external forces. The civil war was one of the main political reasons why the Epupa Dam was not constructed in the period 1975–1994.

The Angola civil war had a profound impact on the dynamics of water politics in the Kunene River. Furthermore, with fighting concentrated in the southern part of Angola and in particular in Angola's *Cunene* province, the Ruacana hydroelectric complex was seen as an important strategic asset by the warring parties. This strategic importance was highlighted in 1975, while the civil war was still in its early stages, when South Africa became involved in the conflict, although the dam was not the main reason for the country's involvement (McGowan 1999; Meissner 2000b, 2004).

Prime Minister John Vorster was reluctant at first to become involved in the Angolan civil war.[3] In effect, South Africa did not want to offend Portugal and international opinion by interfering directly in what was still a Portuguese affair. After Cuba became engaged in the war, on the side of the *Movimento Popular de Libertação de Angola* (MPLA) (which became the Angolan government after independence), South Africa got alarmed. Not only did South Africa suddenly had a pro-communist government as a neighbour, while South Africa aligned itself with the anti-communist ideological stance of the West, it also had another pro-communist government in the form of Cuba intervening in the domestic politics of this newly independent pro-communist neighbour. The Cuban factor was therefore a critical factor in South Africa's decision to become militarily involved in Angola (Barber and Barratt 1990).

More than that, throughout the conflict, the Cuban issue was central to South Africa's policy on both Angola and South West Africa. South Africa's first

[3]At a cabinet meeting held in 1978, it was the hawkish Defence Minister P.W. Botha who insisted that 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 into the so-called hawks (De Klerk 1998).

intervention in Angola was in August 1975, when the South African Defence Force (SADF) intervened to 'protect' the joint Kunene River project at Calueque. The causes of this action were clashes between the MPLA and the *União Nacional para a Independência Total de Angola* (UNITA) and harassment of workers at the dam site by both organisations. South African troops went into Angola to occupy and 'defend' the dam.[4] To elaborate further, Calueque, inside Angola, supplied water from the Kunene to central Ovamboland. Without water, the development of this area would be drastically inhibited. It was widely accepted in international fora, especially the United Nations, that South Africa was illegally occupying Namibia. Calueque and Ruacana were therefore situated on territory, which South Africa may not have defended legitimately. Nonetheless, the harassment of workers led to a halt of work and caused the possibility that no water would be supplied to Ovamboland (Christie 1976; Steenkamp 1990) and South Africa decided to move troops to the dam site.

As indicated, the action by the SADF highlights the strategic importance of the Ruacana-Calueque scheme for South Africa's hold on South West Africa. Obviously, South Africa did not only intervene in the Angolan conflict to take possession of Calueque and to defend the water resources of SWA; it was also a question of South Africa's security concerns centred on the presence of communism in its sphere of influence (Steenkamp 1990). Three aspects had an impact on these fears: Soviet and Cuban involvement in Angola; the threat they and other communist collectivities posed to Namibia (and consequently South Africa) and the military threat to the Kunene River project. As two observers put it, '[t]he underlying, but unspoken, motive was thus to ensure a non-hostile, co-operative Angola, with Soviet influence eliminated, which would not threaten Pretoria's dominance in Southern Africa, particularly in Namibia' (Barber and Barratt 1990). That said, the August 1975 intervention into Angola was not only to secure water resources from Calueque, but had a much wider ideological motivation.

Although the August 1975 Calueque incident was a catalyst to South Africa's military involvement in Angola, for it gave South Africa a foothold in that country, it certainly was no water war (e.g. Meissner 1998). Other countries also became involved in the Angolan conflict, namely the United States, Zambia and Zaire (Barber and Barratt 1990). The Angolan conflict was a classic example of a Cold War proxy military quarrel, fought along the ideological lines of the East–West divide. Ruacana and Calueque therefore played a small role in the war, but both sides saw them as strategic assets. In addition, a number of African leaders both supported and appealed to South Africa to become involved in Angola. They were Kenneth Kaunda (Zambia), Mobutu Sese-Seko (Zaire), Felix Houphouet-Boigny (*Côte d'Ivoire*), Julius Nyerere (Tanzania) and Leopold Senghor (Senegal)—who

[4]The Portuguese ambassador to South Africa protested against the action, but no assurances could be given by him regarding the safety of the workers and the pump station and the South Africans remained at Calueque (Steenkamp 1990).

also feared communist expansion throughout Africa (Steenkamp 1990; Barber and Barratt 1990).

Except in 1988, no action took place at the Calueque Dam for the remainder of the war, although it remained a source of friction (Steenkamp 1990). The outbreak of war nonetheless had a negative impact on the relationship between South Africa (and by implication South West Africa) and Angola regarding the Kunene River project. By 1979, South West Africa considered extending its electricity supply-lines to South Africa after the Ruacana hydroelectric plant was not delivering its full capacity due to the war. Because Angola and South Africa could not agree on the operation of Ruacana, work on the project was suspended. Angola also refused to close the sluice gates of the Ruacana Weir and to complete work on the Calueque Dam. Consequently, the powerplant could only operate at 120–160 MW of its full capacity (Financial Mail 24 August 1979). Inter-state relations therefore had a debilitating impact on the development of the Kunene River's further development. The physical security threat emanating from the civil war in Angola and South Africa's subsequent involvement in Angola, opened an urgent 'security space' in the Kunene River that might have otherwise remained closed (Warner and Meissner 2008) had Angola not spiralled down into the quagmire of civil war.

Nevertheless, the power grid between South Africa and SWA was completed in the early 1980s after Ruacana proved incapable of producing electricity at full capacity (*The Cape Times* 22 February 1980; Meissner 2004). This highlighted South West Africa's dependence on South Africa for electricity and the importance of the Kunene River project for the country. As the 1980s progressed, it was still not possible to tap the Ruacana and Calueque's full potential because of the antagonistic relationship between Angola and South Africa. The same happened to the Cabora Bassa hydroelectric scheme in Mozambique after the civil war broke out there (*Business Day* 23 March 1987; Meissner 2004; Isaacman and Isaacman 2014).

The Angolan government obviously used the Ruacana and Calueque dams as a lever to strengthen its position in its war against South Africa. By not allowing for the completion of the project, it meant that water to Ovamboland and electricity to Namibia could not be delivered. This made South African operations in the war difficult. However, because South Africa extended its power grid northwards into South West Africa, it had a balancing effect on Angola's influence (Meissner 2000b). To a certain extent, the extended power line lowered Angola's strategic leverage over South Africa.

Nevertheless, during the Brazzaville Round of peace talks, South Africa negotiated with the Angolan delegation over the status of the Kunene River scheme. The importance of the project to the drought-stricken Ovamboland was pointed out by South Africa. The Angolan side reacted positively to this notion and undertook not to cut water and power to Ovamboland (*Die Burger* 29 June 1988; Meissner 2004, 2005). The assurance from Angola not to disrupt the scheme indicated that, as talks to end hostilities progressed, so did steps to co-operate regarding the development of the Kunene River. It also showed the importance of the Ruacana-Calueque scheme, not only to South West Africa but also to Angola.

2.3.2 *The Attack on Calueque*

The promise not to disrupt the Kunene River scheme was however short-lived. The strategic importance of the Ruacana-Calueque project was again emphasised in June 1988 when Cuban and Angolan forces launched an attack on the Calueque barrage, first by land and then by air. During the attack, the Angolan and Cuban forces inflicted considerable damage on the dam wall, the pipeline and the power supply to the installation (Figs. 2.2, 2.3, 2.4 and 2.5). As already mentioned, the attack and damage took place at a time when Ovamboland was not only suffering from a severe drought but when negotiations between South Africa, Angola and Cuba were already in progress in an attempt to end the conflict (*Die Burger* 29 June 1988; Barber and Barratt 1990; Meissner 2004).

The attack took place after Angola's assurance that the water and power would not be cut. The explanation for this reversal of the assurance could be the Cuban factor. Strategic analysts argue that the Cubans apparently wanted to inflict as much damage as possible on the South African forces and persuaded the Angolan forces to jointly attack the Calueque barrage. At the time, a military expert, 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 attack on Calueque by Angola and Cuba turned out to be the last effort to influence and/or end the conflict through military means. After the withdrawal of South African and Cuban forces from Angola in 1988, bilateral cooperation in the Kunene River basin would start anew. Yet, the spectre of Angola's continuing civil war and the involvement of external parties added a new dimension to the

Fig. 2.2 Damage to the Calueque Barrage, June 1988

Fig. 2.3 Damage to the Calueque Barrage, June 1988

Fig. 2.4 Damage to the Calueque Barrage, June 1988

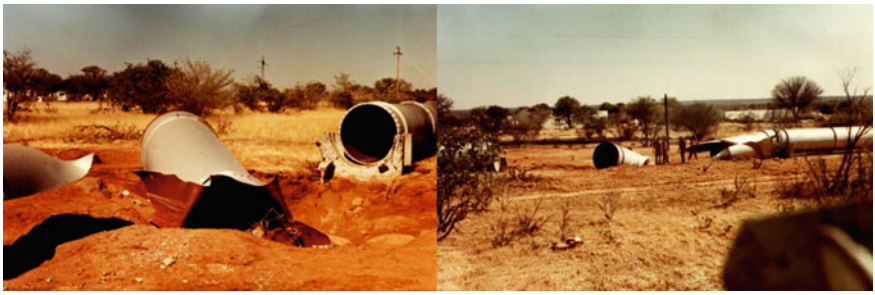

Fig. 2.5 Damage to the pipeline after the attack on Calueque, June 1988

hydropolitics of the Kunene River during the 1990s (Meissner 2004). The attack on the Calueque barrage was part of a wider-ranging conflict between Angola and Cuba at the one end and South Africa at the other, indicating that the Kunene River involved security and risk concerns (Warner and Meissner 2008) for the countries controlling its geographic basin. With the end of the Cold War and Namibia gaining independence, the security concerns shifted from military security to energy security as Namibia started planning for the proposed Epupa Dam. The situation would again evolve into human security as indigenous peoples, particularly the OvaHimba, started a campaign against the proposed hydro-electric power station.

2.4 Peace and Renewed Cooperation Between Angola and Namibia

Peace came to the border area between Angola and Namibia in April 1989 with the implementation of the United Nations' Resolution 435 and the election of the Namibian constituent assembly seven months later. Immediately after the restoration of peace, the two countries started to revive the Ruacana hydropower scheme. Delegations from Angola and Namibia met in Windhoek, the Namibian capital, in May 1989 to reactivate the 30 year old 1969 agreement between Portugal and South Africa.

At the meeting the parties discussed the establishment of a Joint Technical Committee (JTC), which in fact was reconsolidated, and to formulate plans to repair the Gové Dan, which was damaged during the Angolan civil war (Barber and Barratt 1990; Meissner 2003, 2004). To maintain momentum for the newly established Committee, the two governments organised a second meeting in June 1989 in Luanda, the Angolan capital. At this meeting the damage to the Gové Dam was discussed. The two delegations furthermore deliberated on whether foreign assistance was needed to repair the installation since Angola had difficulty raising the funds internally (*Die Republikein* 13 June 1989; Meissner 2004). Although the result of the meeting was not clear, it appears that the governments decided that

repairs to Gové would be executed at a later stage due to the ongoing Angolan civil war. Nonetheless, in June 1989, the Administrator General of South West Africa approved the Namibian component of the JTC. The Committee met for a third time in Windhoek to start planning Ruacana's activation (The Windhoek Advertiser 12 July 1989; Meissner 2004, 2005). Cooperation between the two countries gained further momentum when Namibia became independent on 21 March 1990 (Meissner 2000b; Meissner and Jacobs 2016).

After Namibia's independence the stage was set for greater cooperation between Angola and Namibia on the Kunene River. The Namibian government could now proceed with socio-economic development as it saw fit because it was no longer governed as a mandated territory, but had full sovereign independent status. The Namibian government realised that the country needed electricity to power its numerous mining operations and provide employment to its citizens, and again the government considered a number of coping initiatives to achieve this. These initiatives requiring negotiated settlements with the country's neighbours (Meissner 2000b). The agreements were significant developments representing contractual arrangements that further cemented water resources cooperation between Angola and Namibia (Meissner 2004). From a state-centric perspective, the institutional arrangements were put in place by the two governments so they can get cooperation over their shared water resources off the ground.

On 18 September 1990, Angola and Namibia signed two separate agreements concerning cooperation on the Kunene River and general cooperation.[5] The agreement regarding the Kunene River reactivated the three previous bilateral agreements of 1926, 1964 and 1969 between South Africa and Portugal. The 1990 agreement had a number of aims. The first aim was to conclude the uncompleted Ruacana-Calueque water scheme. Through the agreement the two states also established a Joint Operating Authority to ensure the maximum beneficial regulation at Gové needed for optimum power generation at Ruacana as well as controlling water withdrawal along the Kunene's middle reaches. The Authority's objective was also to ensure the continuous operation and adequate maintenance of the Calueque water pumping works and Ruacana's diversion weir. The agreement's third objective was to allow the PJTC, established in terms of the 1969 agreement, to evaluate the development of further schemes on the Kunene to accommodate the present and future electricity needs in both countries (Namibia 1990a; Meissner 2000b; Heyns 2003). The agreement of general cooperation created the Angolan-Namibian Joint Commission of Cooperation (JCC), which was to deal with joint cooperative endeavours on a number of issues, one of which was water. This Commission was a legacy of the friendly relations that existed between Angola and SWAPO in the years before Namibia's independence (Namibia 1990b; Meissner 2000b).

[5]*Agreement between the government of the Republic of Namibia and the Government of the People's Republic of Angola in regard to the development and utilization of the water potential of the Kunene River*, of 18 September 1990.

2.5 Epupa Discussions Get Underway

Projections in the early 1990s of Namibia's electricity consumption indicated that the country would only need an additional source of electricity after the year 2000. The government identified three possible energy sources, namely an additional interconnected power line to South Africa; a gas-fired power station supplied from the offshore Kudu gas field in the country's southern Atlantic waters and hydropower from Epupa. The Epupa was at that time the most viable and in 1991 Namibia entered into discussions with Angola on the prospects of constructing the envisioned dam. These discussions culminated in the Hydroelectric Generating Scheme Agreement[6] signed between the two countries in Lubango, Angola on 24 October 1991. The central purposes of this agreement were 'to attain self-sufficiency in electric energy (for Namibia) … to develop jointly a new hydroelectric scheme … at the most suitable location that can be found in the Epupa region or other location' (NamPower 1995: 2). In total, the Kunene River is governed at an interstate level by nine written agreements on shared water resources between the two countries, together with another agreement regarding general cooperation and the other concerning the border's demarcation between Angola and Namibia. What is interesting though is that one of these agreements deals with the generation of hydro-electric power in the Epupa region or somewhere near Epupa. This indicates that the two states, like there colonial predecessors, institutionalised transboundary water cooperation through international agreements before actual construction began. It was as if Angola and Namibia were repeating history in their endeavours to manage the Kunene River as a transboundary water resource.

The two agreements signed in 1990 and the one in 1991 demonstrate not only the importance of international rivers to Namibia's socio-economic well-being but also the amicable nature of relationships between Angola and Namibia over shared water resources. According to Heyns (2003: 11), '[t]he future development of the Kunene basin received immediate attention under the auspices of the PJTC. A pre-feasibility study on the proposed Epupa Dam hydropower scheme was completed in September 1993. The subsequent feasibility study on this project commenced towards the middle of 1995 and called for a complete re-evaluation of the hydropower potential of the lower Kunene.' The pre-feasibility and feasibility studies are further indications of the institutionalised nature of transboundary water resource management. Pre-feasibility and feasibility studies may be required by domestic legislation and international norms and practices. Yet, they are usually conducted from a positivist philosophy of science perspective. This means that the natural environment is usually the object of such studies. For instance, is the geology suitable for the construction of a dam's physical infrastructure and is the river's run-off enough to justify a dam with such huge expense? Should a social

[6] *Protocol of Agreement between the Government of the Republic of Namibia and the Government of the People's Republic of Angola on the Development of a Hydroelectric Generating Scheme, in Principle in Principle on the Cunene River*, signed at Lubango, Angola on 24 October 1991.

impact assessment form part of feasibility studies, they are usually conducted in terms of costs versus benefits: how many people should be relocated, at what cost of compensation so that the rest of society can benefit. In other words, there is a specific thinking informing the generation of knowledge contained in such studies. However, different types of thinking (taking into account not only objective scientific research but also more interpretivist and subjective types of research) by project planners are necessary. This will help to enhance their understanding of the social phenomena around large scale water infrastructure projects (Morrison-Saunders and Retief 2012; Meissner 2015). That said, feasibility studies are not mere 'tick box' exercises, so to speak, needed for the approval of projects like the planned hydro-power station. At a political level this may be the case, but society is not only governed by top-down political arrangements emanating from government at national level. Society is also government by the perceptions and expectations of citizens that are affected by top-down governmental plans.

Irrespective of the bilateral cooperation since 1990, the water politics in the Kunene River basin dramatically changed in the early part of the 1990s. In the first instance, the internal conflict in Angola took a turn for the worse after the breakdown of the Lusaka Accord of 1994 signed by the belligerent parties in the civil war. In addition to the civil war, interest groups became involved in the implementation of the Epupa's potential development and this elevated the dynamics of the Kunene's hydropolitics to a new level. The one variable is not more important than the other. The reader should read both these factors in the Kunene River basin in conjunction with one another to get to a nuanced understanding of the proposed Epupa Dam's hydropolitics and governance. Even so, and although the Angolan civil war had a profound impact on the proposed Epupa Dam's hydropolitics, I am more interested in how the interest groups influenced the politics around the potential project. The interest groups were, after all, directly involved in the 'controversy' around the planned hydro-electric installation.

2.6 Angola's Civil War, 1990–2003

Since Namibia's independence in 1990, the Angolan civil war and the involvement of interest groups had an influence on the Namibian government's decision to proceed with Epupa. Here I will discuss the influence of the civil war. After the end of the Cold War, the conflict in Angola seemed to be on the wane. The two warring parties, the MPLA and UNITA, signed the Bicesse Accords in 1991. The Accords were, nevertheless, not fully implemented because UNITA challenged the results of the 1992 presidential elections (Boulden and Edmonds 1999). Challenging the presidential results was the harbinger of a troubled political climate in Angola during the closing years of the twentieth century.

The second phase of the Angolan civil war started at the end of October 1992 and lasted, officially, until 20 November 1994. In 1994, the MPLA leader President José Eduardo dos Santos and UNITA's leader Dr. Jonas Savimbi signed the Lusaka

Accord in the Zambian capital. The two parties had been negotiating the peace deal for just over a year, following UNITA's announcement of a unilateral cease-fire in Abidjan on 14 September 1993 (Cleary 1999). When the cease-fire broke down, renewed fighting erupted between the MPLA and UNITA. The Angolan government simply ignored UNITA's termination of hostilities, disregarded the ensuing peace negotiation in Lusaka and deployed better armed units with new weapons against strongholds held by UNITA (Cleary 1999). It was as if the Angolan government wanted to crush the rebels once and for all.

The renewed fighting had a negative influence on the Angolan economy. Cleary (1999: 146) sums this up as follows: 'What little was left of Angola's economy after almost sixteen years of civil war was destroyed between 1992 and the end of 1994. The GDP [gross domestic product] declined by seventy per cent over three years; total external debt, as percentage of GDP, almost quadrupled, as did military spending, while social expenditure was halved.' Not only was Angola suffering from severe economic dislocation, but a landmine problem also increased the seriousness of the country's economic woes (Boulden and Edmonds 1999). Since Namibia had signed an accord with Angola to jointly implement the planned Epupa hydropower scheme, the situation in Angola did not bode well for the Angolans to become partners in the endeavour, especially when seen in the light of the economic calamity that engulfed the war torn state.

How did the civil war affect the Kunene River's hydropolitics after 1992? Between 1992 and 1998, the war in Angola was one of the most important factors impacting the Kunene's hydropolitics. The decision to build the dam at Epupa or Baynes Mountain resided with the Angola-Namibia PJTC. During 1998 and 1999 several meetings of the PJTC, to discuss the proposed projects had to be postponed because of the security situation (The Namibia 25 June 1998; Meissner 2004, 2005). The war was not the only variable affecting a decision on Epupa's future. In July 1998, the PJTC had to put off a decision on the project after it had realised that the feasibility study on the project was incomplete (The Namibia 10 July 1998; Meissner 2004).

In 1999, the PJTC decided that a meeting should be held in 2000 to make a decision on the proposed Epupa project. The postponement of the decision caused frustration on the Namibian side, because if the planned 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 be affected by this and thus Namibia's long-term economic prospects (The Namibian 23 August 1999). International politics, and more specifically the domestic political situation in a neighbour, was an important variable in the proposed hydro-power station's implementation and the socio-economic development of a country like Namibia. Economic growth is an important aspect for a fledgling democracy like Namibia. If the economy does not perform to expectations and creates enough employment opportunities, it could spell disaster to Namibia's democratic transition.

The Angolan civil war therefore influenced Namibia's socio-economic welfare prospects. At the same time, Angola and Namibia were in disagreement on the sites of the proposed dam; Angola opted for Baynes Mountain while Namibia favoured

Epupa. The Angolans argued that a dam at Baynes would mean that the Gové Dam could be renovated. This in turn would bring much-needed development to Angola's Huambo Province. The Baynes site, the Namibians argued, was too small despite its environmental and social advantages for Angola. Furthermore, the Baynes Dam would supply expensive electricity for very short periods only. The Epupa site was also regarded by Namibia as a prestige site (NamPower 1995; Pers. comm. P. Heyns, 17 November 2002; Meissner 2004). Moreover, as NamPower stated, '[t]here is no indication that Angola will, in the near future, require substantial amounts of electricity from the proposed Epupa power station and also no indication that the power station could be interconnected with the proposed Angolan network for many years to come' (The Namibian 13 July 1998; Meissner 2004). In respect with the last point made by NamPower, namely the link-up with the Angolan electricity network, the proposed Epupa Dam, if built at the time it was proposed, would be a proverbial white elephant, because Angola would not be able to derive any benefit from it (NamPower 1995). In other words, Namibia argued that Angola would like to get more and direct benefits out of the Kunene's further development, and such benefits could only be realised with a dam at Baynes Mountain. It seems as if Angola's national self-interest was also at play in the argument between the most viable sites.

As a policy issue, the rehabilitation of Calueque and Gové is also linked to the differences in opinion of the Angolan and Namibian governments on the construction of a dam at Epupa or Baynes Mountain. In July 2000, the Angolan government announced that it did not view Epupa as a priority. The rehabilitation of the Calueque scheme and Gové was a much greater and immediate need for the Angolan government. In response to a question from the media, the Angolan Minister of Energy and Water Affairs, Luis da Silva, said that the Angolan government had not yet indicated when Angola might agree on a site for the hydroelectric scheme. His Namibian counterpart, Jesaya Nyamu, indicated that the Epupa scheme was not linked to plans for Calueque and Gové's rehabilitation and that the Namibian government did not see these Angolan projects as obstacles to the project (The Namibia 24 July 2000; Meissner 2004).

In 2002, the civil war in one of Africa's longest domestic conflicts ended. On 22 February 2002, UNITA's leader Jonas Savimbi was killed in battle and 18 days later UNITA's General Antonio Dembo was also killed by MPLA forces. These deaths signalled the end of the civil war (Meissner 2002, 2004). On 25 February 2002, President José Eduardo dos Santos, called for a cease-fire. Six weeks later, on 4 April 2002, the Angolan armed forces and UNITA signed the cease-fire agreement and with the signing Dos Santos announced that 'the war is over and peace has come back for good' (Cape Argus 5 April 2002; Porto and Clover 2002; Meissner 2004).

The Angolan and Namibian governments yet again started negotiations, in December 2002, to rehabilitate the Gové Dam. Other future objectives regarding the Kunene, namely the restoration of the Matala irrigation scheme, the rehabilitation and completion of the Calueque Barrage and plans to upgrade the pumping

station at Calueque to extract the agreed 6 m^3/s from the Kunene for transfer to Namibia, were also in the offing (Heyns 2003; Meissner 2004).

In 2004, I asked whether or not these developments will usher in sustainable peace in Angola? I speculated that if peace in Angola is sustainable it will hold enormous potential for Angola, Namibia and the Southern African region (Cape Argus 5 April 2002; Meissner 2004). It would appear as if the peace is sustainable and this has already had an influence on the existing installations on the Kunene River.

It was only in 2012 that *Gabinete para a Administração da Bacia Hidrográfica do Rio Cunene* (GHABIC), the Angolan authority responsible for managing of the Kunene River basin, appointed consulting engineers Aurecon, AECOM and Viaponte, to provide project management services for Calueque's rehabilitation. These services included technical assistance for the design review of the structure and construction supervision. The rehabilitation project will, according to Aurecon be concluded in December 2015, including repair of the embankments, the installation of 10 radial gates, repair and reinforcement of the concrete structure as well as the completion of infrastructure such as an airstrip and roads. A pump station on the south bank of the Kunene River will provide water to a new irrigation project in Angola and provide 6 m^3/s to Namibia (the agreed volume). On the northern side of the barrage engineers will install a pump station to supply water for irrigation in Angola (Aurecon 2015).

In 2011, *BloombergBusiness's* Latham (2011) reported that the Gové Dam would start producing hydroelectric power in that year although it only started producing hydropower in 2012. According to reports, the Brazilian construction group Odebrecht rehabilitated the hydropower plant. The dam was inaugurated in August 2012. This was after the dam was partially destroyed in 1990 with reconstruction work starting in 2001. With three turbines, the dam is capable of producing 60 MW of electricity servicing around 30,000 consumers (Macauhub 2012).

Together with Calueque and Gové, Matala Dam was also rehabilitated. Part of the rehabilitation was to strengthen the structure, which was constructed in 1954. The reconstruction of the dam also included repair to the dam and the roadway bridge adjacent to the dam. The project was awarded in 2010 to SNC-Lavalin and included modernisation of the dams 36 spillways with the installation of 8 new spillways (SNC-Lavalin 2015).

In addition to the rehabilitation of the three dams, the Ruacana hydroelectric station was also expanded. In 2012, a new turbine was switched on. The expansion meant that a fourth turbine had been installed by engineers. This increased the power plants generating capacity from 240 to 330 MW. Even though the capacity had increased, the expansion project was not enough to cater for Namibia's energy needs. There was, in 2012, a shortfall of 550 MW. Namibia also spent some N$55 million on replacing the turbine runners between 2014 and 2015. This allowed Ruacana to increase its generation capacity from 322 to 347 MW (Hydro Review 2012; Graig 2014).

I don't think that it is the rehabilitation of the various water and hydropower projects that is delivering sustainable peace in Angola. It is rather a case of the

citizens of Angola taking the initiative to sustain peace in a country with vast resource potential. I am saying this because in hydropolitics we tend to ignore the role and involvement of individuals in their endeavours to drive change. We ignore how individuals drive and steer hydropolitics because we are focusing too much on the natural resource we need for our survival. The attack on Calueque in June 1988 is a typical example. The photos I presented show the damage inflicted on the structure and pipeline. The photos are a snapshot of the aftermath and not the actual event. Had I had photos or video footage of the actual event, it would probably have showed the signs of the battle: smoke rising into the air, aircraft flying overhead, bombs exploding and even soldiers either attacking or defending the structure. We therefore might have seen people in their various roles. If not, and if we only saw smoke rising and bombs exploding, we would have to imagine what these were a result off: people initiating and executing certain actions to reach a specific objective or, said differently, armed forces attacking Calueque to inflict damage onto the structure and soldiers defending it to prevent damage. The point is people or individuals were involved in the action against Calueque and this is what we often forget when analysing hydropolitics. This argument would also apply to the current situation with all the rehabilitation projects going on in Angola's portion of the Kunene River; people are initiating and executing the rehabilitation of the existing water and hydropower projects to tap their potential and services for socio-economic development. In the next chapter, the role and involvement of individuals and groups of individuals come to the fore more explicitly in the hydropolitics of the proposed Epupa Dam. This will paint a vivid picture, so to speak, as to what people, and more specifically individuals, are capable of in hydropolitics.

Be that as it may, the implications of sustainable peace concerns regional stability, socio-economic development using the resources of the river as well as the spread of democratic principles. Notwithstanding these prospects, internal political dislocation in Angola, like the civil war and its end, is not the only variable influencing hydropolitics in the Kunene River basin. In the mid-1990s, and even today, the dynamics of the Kunene River's water politics took on a new dimension. This was due to the appearance of a different kind of actor—the interest group—that produced and projected a new type of hydropolitics. This new water politics concentrated on the proposed Epupa Dam and involves the lobbying efforts of interest groups to influence the Namibian government not to construct the dam (Meissner 2004, 2005; Meissner and Jacobs 2016). I am saying that there are different types of hydropolitics depending on the involvement of actors, the structures they put in place to install and advance their authority, and the causal mechanisms they constitute, how they produce knowledge to inform agency and vice versa and how they communicate with one another. This chapter indicated a state-centric type of hydropolitics. The next chapter will investigate a hybrid type of water politics where individuals, interest groups and states are involved in the utilisation of the Kunene's water resources. This implies that hydropolitical changes depend on the types of actors involved and how research scientists represent the hydropolitical situation; either as state-centric or individual specific.

2.7 Conclusion

The state-centric hydropolitical history of the Kunene River basin has a particular character; that of the role and involvement of state actors in the development of the Kunene River's water utilisation infrastructure and the top-down implementation of water resource management projects. Be that as it may, science is also presented in this history. Yet, science played a prominent role only in the early 1920s receiving a reaction from government in that decade and much later after the major drought of the early 1930s. I should also add that science, especially engineering, played an important part during the planning and development of the various water projects like Calueque, Gové, Matala and Ruacana. Even so, science stood in service of the government's plans to harness the Kunene's water resources for socio-economic development and as part of the colonisation of Angola and South West Africa.

The disruption of the river's infrastructure occurred as states and non-state entities within states vied for national and regional domination in the form of a Cold War proxy conflict. In Angola's case, the start of the civil war between the MPLA and UNITA shortly after independence defined how the infrastructure would be utilised, if at all, during the protracted conflict. What is more, Gové and Matala, for instance, became targets of the belligerent parties to inflict damage on the Angolan state and economy. This was also the case with South Africa's military intervention in the late 1970s and the attack on Calueque in June 1988. The damage inflicted on Calueque is part of the proxy Cold War confrontation between Angolan and Cuban forces, supported by the Soviet Union, on the one hand, and South Africa with some support from the West, on the other.

With the collapse of the Soviet Union in the late 1980s and Namibia gaining independence in 1990, the scene was set for cooperation between the newly independent state and its war ravaged neighbour to the north. The short end of the civil war in Angola did not help to get development in the Kunene on a sound footing despite the various agreements signed between Angola and Namibia. In my opinion, the effect of the civil war in Angola, long after its end in the early 2000s, still has a bearing on the Kunene's state-centric hydropolitics. Angola has placed more emphasis on the rehabilitation of the infrastructure inside its portion of the Kunene River basin than Namibia's proposed Epupa Dam. Calueque, Gové and Matala had been rehabilitated. In future, there might be new bilateral projects on the Kunene River, especially downstream from Calueque and Ruacana; Calueque and Gové are important in regulating the Kunene River's flow so that Ruacana and any other hydro-power plant built downstream from Ruacana in future can operate optimally.

That said, policy planners and implementers should not be blind to the fact that there is also a part of the Kunene's hydropolitical history that is dominated by interest groups' transnational role and involvement. Not only are these interest groups from outside the river basin, Angola and Namibia, they reside inside the river basin, directly utilising its water and terrestrial resources. The OvaHimba and other ethnic groups, for instance, have a direct interest in how Angola and Namibia, and any of their future partners, plan and implement infrastructure projects on the

Kunene. In the next chapter, I will outline this non-state centric type of hydropolitics indicating how interest groups can, just like governments, forge transnational links with other individuals and groups in lobbying against large-scale transboundary water infrastructure projects.

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