

Who Runs the Orange River Oasis? A Case Study of the Midstream Orange River Oasis, Northern Cape Province, South Africa

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Abstract This chapter examines the conflicts among water users in the particular setting of a fluvial oasis, the largest in South Africa, which stretches along the Orange River for almost 300 km between the Karoo and Kalahari deserts, from Boegoeberg Dam to Augrabies Falls. Since the end of the nineteenth century, the White, predominantly Afrikaner farmers who colonised this area, dispossessing the Coloured farmers and then using their workforce, levelled the alluvial sandy dunes, built canals and planted crops in less than 60 years, from the 1880s to the 1950s. Although controlling water was a shared objective among Afrikaner farmers, English businessmen and colonial hydraulic engineers, the question of who should control the water and for what purpose raised endless conflicts in colonial society. Following the completion of the Orange-Fish Inter-basin transfer (1977) and the Lesotho Highland Water Project (1998–present), the central government has the possibility of diverting a large amount of the Orange water flow outside the basin. Today, there is a growing fear in the lower reaches that if severe drought affects the Gauteng area, the decision will be made to divert all the water towards the political and economic heart of South Africa. Using an approach based on political ecology and environmental history, this chapter investigates the complex links between local and national institutions that are in charge of water management, in the context of an institutional setting rapidly evolving since the end of apartheid in 1994. It also examines how the perspective of water shortages impacts the economy of this oasis in the context of globalisation.

Keywords South Africa · Inter-basin transfers · Apartheid · Hydropolitics

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1 Introduction

Water management issues have been debated at the highest State level in South Africa since the establishment of the first colonial settlements. The first colonial rulers considered the control of water resources a key element in the success of their settlements, and this effort to tame “predictably unpredictable” South African rivers was seen as a major task for all the ruling bodies in the country. As A. Turton (et al.) wrote in 2005: “*From the beginning of South Africa’s history, water has played an important role in the shaping of the country, not only demographically but also politically*” (Turton et al. 2005: 15).

As a result, the South African waterscape is today one of the most transformed in the world, only to be compared with the American West. South African authors could write correctly that: “*water is flowing [in this country] towards money and power.*” (Basson 1997). Although controlling water was a shared objective among Afrikaner farmers, English businessmen and colonial hydraulic engineers, the question of who should control the water and for what purpose raised endless conflicts in colonial society.

This chapter will examine these conflicts in the particular setting of the fluvial oasis, which stretches along the Orange River for almost 300 km between the Karoo and Kalahari deserts, from Boegoeberg Dam to Augrabies Falls. It is the largest fluvial oasis in Southern Africa and has been developed since the end of the nineteenth century. The White, predominantly Afrikaner farmers who colonised this area, dispossessing the Coloured farmers and then using their workforce, levelled the alluvial sandy dunes, built canals and planted crops in less than 60 years, from the 1880s to the 1950s.

However, being located more than 800 km from Cape Town and Pretoria, far from any important trade route, the farmers, close to bankruptcy, very soon asked for external financial and material support. They gained it quite easily, due to the strategic location of the oasis, not far from the Namibian border, and the importance of farmers’ associations in the newly formed Union of South Africa in 1910. Nevertheless, since the beginning, gaining funds has meant losing part of the control over water.

This loss of control, albeit marginal until the first Government Water Schemes (GWS) were built in the 1960s, began to be problematic when the huge dams of Bloemhof, Gariëp and Van der Kloof were built in the 1970s far upstream. Following the completion of the Orange-Fish inter-basin transfer (1977) and the Lesotho Highland Water Project (1998–present), the central government has the possibility of diverting a large amount of the Orange water flow outside the basin. Today, there is a growing fear in the lower reaches that if severe drought affects the Gauteng area, the decision will be made to divert all the water towards the political and economic heart of South Africa.

Using an approach based on political ecology and environmental history, this chapter will investigate the complex links between local and national institutions that are in charge of water management, in the context of an institutional setting

rapidly evolving since the end of apartheid in 1994. It will also examine how the perspective of water shortages impacts the economy of this oasis in the context of globalisation.

2 A “Nile” in South Africa?

Between Boegoeberg¹ Dam and Augrabies Falls, the Orange River² stretches for almost 300 km between the Karoo and Kalahari deserts (Fig. 1). In this region, summers are extremely hot (the average maximum daily temperature reaches 35 °C in January) but frost occurs during winter. At Upington, the rainfall is 190 mm and at Kakamas 130 mm, while the mean annual evaporation reaches around 2667 mm (Swanevelder 1981). This long oasis, populated by around 150,000 inhabitants,³ is therefore totally dependent on the water of the Orange River.

2.1 A Long Fluvial Oasis

The Orange River basin covers an area of approximately⁴ 1,000,000 km² with a mean “natural” annual run-off of 11.2 km³. Its sources are located in the small landlocked kingdom of Lesotho and it runs first south-west and then north-west before its confluence with the Vaal. This river is often considered in South Africa as being a river basin in its own right (Turton et al. 2005: 93). The river course between the Vaal confluence and Augrabies Falls is divided into two distinct parts.⁵ In the upper stretches, irrigated agriculture is not widely developed, whereas after Boegoeberg Dam, a large and continuous fluvial oasis has been built between the Karoo and Kalahari deserts.

This area could also be split into two rather different parts: from Boegoeberg Dam to a few miles upstream of Upington, the river valley is quite narrow (2–5 km), with a rather continuous and gentle slope, but from Upington to Augrabies Falls, the character of the valley changes rapidly. The river acquires a braided habit favouring the accumulation of silt to the lee of the more resistant rocks, and depositing

¹Also known as Buchuberg Dam.

²The name Orange River was given in 1777 by Colonel Robert Jacob Gordon after the House of Orange, kings of the Netherlands. It was known as Gariep (Great) River by the Khoi-Khoi. In Lesotho, it is known as Senqu River.

³The oasis is now divided into two local municipalities: Kai Garib, around Kakamas (pop. 65,869); and Khara Hai, around Upington (pop. 93,494).

⁴As large parts of the basin are endoreic, its area varies according to different authors.

⁵In the various reports of the Department of Water Affairs, the whole area between the Orange/Vaal confluence and the mouth is labelled as the “Lower Orange”.

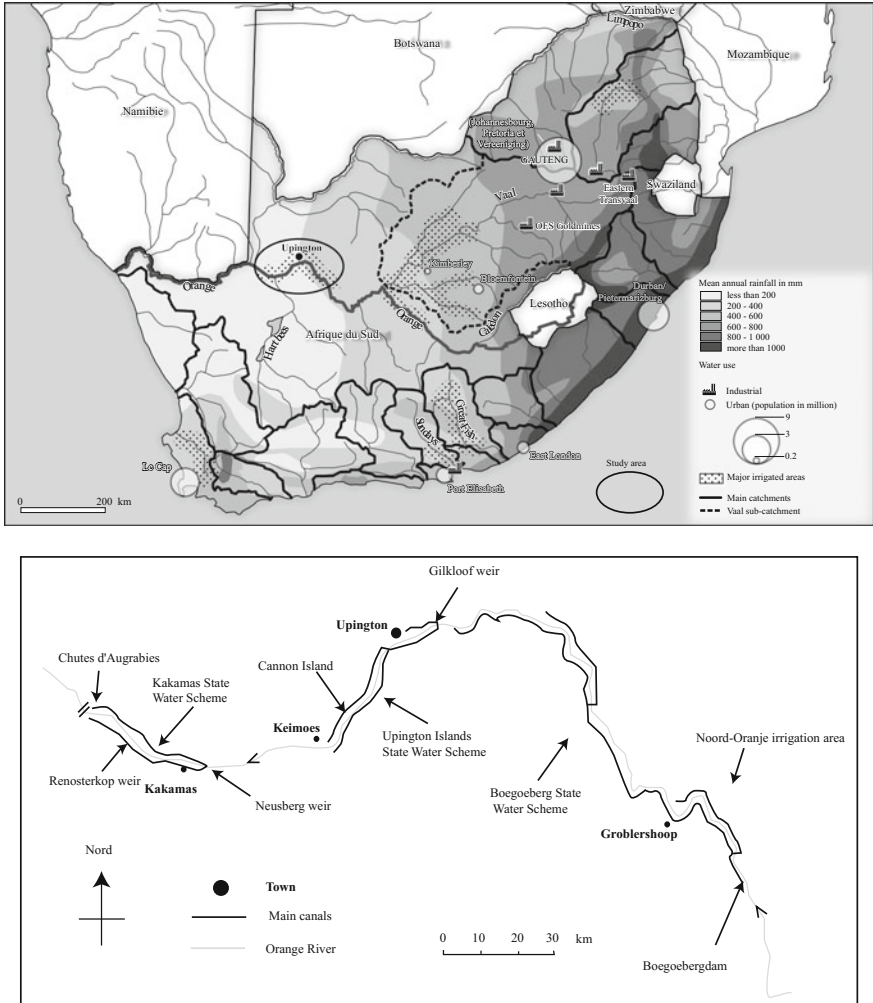


Fig. 1 Orange River Basin and close-up of the Boegoeberg/Augrabies stretch

numerous elongated islands, such as Kanon Island, 10 km long and 3 km wide (Swanevelder 1981: 35).

The downstream “natural” limit of this oasis is formed by the Augrabies Falls, where the river plunges 60 m over an almost sheer drop and then passes through a long gorge.⁶ Shortly after the Augrabies Falls, the Orange River forms the border between South Africa and Namibia for almost 400 km, cutting a deep valley, until it reaches its mouth in the Atlantic Ocean.

⁶The total drop is around 160 m.

2.2 A “Predictably Unpredictable” Allogenic River

In its middle reaches, from a hydrological point of view, the Orange River has two main characteristics. Firstly, its allogeny: although only 4% of the basin area lies in Lesotho, 41% of the mean annual run-off (MAR) comes from the Kingdom, and 46% from the Vaal and the Caledon. The oasis is, therefore, totally dependent firstly on Lesotho and secondly on powerful water users in the Vaal basin, such as the Johannesburg metropolis and the industries of the Gauteng region, the irrigators in the Vaal Basin, and users who depend on the water transfer from the Upper Orange to the Fish River Valley and Port Elisabeth.

The second characteristic of the Orange River is the high natural variability of the annual run-off. Like many other South African streams, the flow of the Orange River is “predictably unpredictable” (Davies and Day 1998). At Boegoeberg, the “natural”⁷ Mean Annual Runoff (MAR) is $327 \text{ m}^3 \text{ s}^{-1}$ or 10.3 km^3 (DWA 1992), with high flows during the summer months (January to March) and low flows during winter. However, depending on the rainfall in the Lesotho Highlands, large variations have been monitored. Before the construction of big dams, the river often almost ceased to flow during the winter months and during the hydrologic year 1932–1933, the total run-off was only 1.3 km^3 at Boegoeberg.

On the contrary, the occurrence of destructive floods is well acknowledged. Flows greater than $8000 \text{ m}^3 \text{ s}^{-1}$ were measured in 1934, 1944, 1950, 1958, 1967, 1974 and 1988. The maximum flow was measured in 1925 in Boegoeberg at $16,200 \text{ m}^3 \text{ s}^{-1}$ in March, before the construction of big dams. Nevertheless, a flood of $5200 \text{ m}^3 \text{ s}^{-1}$ occurred in January 2011, causing heavy damage to the irrigation infrastructures, one year after the 2010 flood. According to HOFFIE JOUBERT, chairperson of Agri Northern Cape’s Irrigation and Water Affairs, “*the total flood damage in Northern Cape amounts to R932 million [...] About 800 commercial farmers in the Lower Orange were hit by the floods, of which nearly 30% may not be able to continue farming. More than 5,000 permanent and seasonal farm workers are affected, and food security is also at risk*” (quoted in *Farmer’s Weekly*).⁸

2.3 A “Nile” Too Far from South Africa’s Economic Heart?

These two combined features, allogeny and variability, led the first explorers to describe the Orange River as the “Nile” of South Africa. In 1877, J.C. Brown wrote: “*From periodically overflowing its banks, and depositing alluvial karoo-mud, the best of manures, this river has been called the Nile of South Africa, and we*

⁷The “actual” MAR is thought to be around 5.5 km^3 , due to diversions (see below for details).

⁸24 February 2012: “The Lower Orange River was hit by floods twice in a row in 2010 and 2011” by Annelie Coleman.

question whether anywhere in Egypt the husbandman reaps more than a hundredfold from his seed, which is here common” (Brown 1877: 260). Sixty years later, C. Birkby used almost the same words, declaring that: *“this river, which the natives and the older Boer folk still call the Gariiep, is the Nile of South Africa.” Periodically it overflows its banks and like the Nile leaves a dressing of rich silt that forms soil of amazing fertility*” (Birkby 1936: 222).

Yet, it is a poor, distant Nile, far from being the heart of the country, and reports from irrigation engineers, since the end of the nineteenth century, have been much less enthusiastic. F.E. Kanthack wrote in 1917 about the Orange River: *“From the point of view of practical irrigation, however, it has a most unsatisfactory flow. Like so many of our South African rivers, it fails just at the time when water is most urgently required, in the spring and early summer months of August, September and October, and the flow even at the best times, in these months, is quite insufficient to meet the requirements of even the little bit of irrigation at present established”* (U.G. 29-17: 35).

In fact, the history of the Orange River fluvial oasis could be read through the tensions between the “dream” of a cornucopian valley in the desert and the harsh reality of agricultural development on alluvial soil plagued with drought and floods, and far from any important market. Upington is located more than 800 km from Johannesburg and Cape Town, via long and poorly maintained roads crossing hostile deserts.

3 A History of Violent and Conflictive Settlements

Located at the northernmost periphery of Cape Colony, the Orange River was not reached by European voyagers before the end of the eighteenth century, almost 120 years after the foundation of the city of Cape Town in 1652. The first White settlements were not established before the end of the nineteenth century.

Little is known about life in the valley before the arrival of the first Europeans. Wilcox (1986: 20) gave a picture that may not be far from reality: *“here was semi-desert to the north and to the south, with the Great River the only perennial river for some 300 km and with but a few springs, so grazing cattle was only seasonal, after the scanty rains. For the Hottentots, therefore, not agriculturists and only occasional hunters and fishers, access to the Orange River Valley for much of the year was practically vital. The competition was made yet fiercer by the migration of other Hottentot tribes ... from the southern Cape where they were being ousted by the European farmers. The increasing population of Hottentots and their livestock drove out the wild game on which depended the Bushmen, who had prior occupation of the valley.”*

3.1 A “Lawless Frontier”

Due to population displacements in the rest of the colony, according to Penn (1995) “by the 1780s, the river had become a zone of terror where frontiersmen of varied origins—Europeans, slaves, “Bastaards,” Khoi, “Bastaards-hottentots, San and Oorlams⁹—formed predatory commando gangs which robbed weaker groups of their livestock” (Penn 1995). Moreover, for almost a century, as Wilcox (1986: 54) wrote: “The region of the Orange River at this time has a claim to have been the most lawless frontier in the world compared to which the American “wild west” was highly civilised.” This also adds weight to the comparison between South African and American waterscapes.

In 1847, the Orange River formed the frontier of the British Cape Colony with Griqualand to the east and British Bechuanaland to the west. However, the frontier was far from being controlled, and several military expeditions were sent in order to pacify the zone and stop the raids that were made towards the southern parts of the colony. Sir Water Currie, who commanded the Colony forces during the two so-called Kora wars (or Koranna wars), reported about the Upington Islands that “I used to think that the Fish River was a stronghold, but it stands nowhere in comparison with this water jungle.” According to Ross (1975: 562), “until they were finally crushed in 1879, the Kora formed the most significant non-“bantu” adversaries of the expansion of the colony.”

It was not until the end of the nineteenth century that the frontier of Cape Colony was pushed further north, where it still stands, and that the region of Upington became “pacified” from the colonial point of view.

3.2 The Hidden Face of Irrigation

When the frontier was fixed in the newly formed magisterial district of Gordonia¹⁰ that covered most of the fluvial oasis from Boegoeberg to Augrabies Falls, “the inhabitants of Gordonia were mainly Baster (a term of flexible applicability), with a few whites at first largely related to them by marriage, as well as remnants of Kora, San and some Xhosa” (Legassick 1999: 374). Even at the beginning of the twentieth century, in the 1904 census, 1712 Europeans, 2370 “Hottentots,” 1245 “Kafir and Bechuana,” and 3888 “Mixed and Others” were counted.

In a small museum in Upington, at the beginning of the twenty-first century, the history of irrigation was presented as follows: in the 1870s, Reverend Schröder arrived in the underdeveloped region and dug the first furrow in the 1880s in order

⁹According to Penn (1995), Bastaard—white-Khoi, or white-slave; Oorlam—Khoi who had acquired some cultural colonial trappings.

¹⁰It was named after Sir Gordon Sprigg, who was prime minister of Cape Colony four times between 1878 and 1902.

to irrigate the islands in the river. Later, Boer pioneers settled in the region to make it one of the most productive agricultural regions in the country. Further downstream, the story was almost the same, with the foundation of the Kakamas Labour Colony in 1897 by B.J.P. Marchand for the then so-called “Poor Whites.”

Recent research has described a quite different story. According to Legassick (1999), most of the land was already cultivated by “Baster” farmers (latterly considered Coloureds), such as the Abraham September family, in the 1870s. Some irrigation works were already in place when Reverend Schröder arrived. The “Basters” were then progressively ousted from their land by Boer farmers. In 1882, 81 farms were allocated to Basters; in 1893, there were only 33 against 44 White farms while in 1920, only 6 farms were still owned by Basters.

The dispossession of Basters by mostly Afrikaner farmers is acknowledged by administrative reports. For instance, E.A. Nobbs wrote in 1903: “*Mr Schroeder [...] worked here among the Korannas, and later it was a flourishing Bastards settlement, now the land is mostly in the hand of Boers.[...] the number of Bastards holding land is steadily diminishing*” (Cape of Good Hope 1904a: 40).

The story of irrigation is still subject to debate and conflicting memories in the region. C.M. Gouws reported that during her visits to Upington in 2005: “*For the white irrigation farmers, the legacy of Reverend Schroder as the “father” of Upington and the innovator of the canal is clearly important. [...] More than once, when respondents were interviewed and asked for comments on the matter, their reactions had a racist undertone. One of the farmers said bluntly that Abraham September’s legacy is nothing more than digging a little furrow to direct sewage away from his house to the river.*” (Gouws 2012: 143).

3.3 A Stronghold of Apartheid

During the segregation (1910–1948) and apartheid (1948–1994) eras, the oasis was one of the regions where racial policies were strictly enforced. Coloured property, under the Group Area Act,¹¹ was restricted to a small reservation at Eksteenkuil, upstream of Keimoes, and most of the Coloured population, who formed the vast majority of the workforce, were employed on White farms in very poor conditions. According to Reverend Abrahamson, quoted in Robbins (1986: 156), in the 1980s: “*Whites have swindled the Coloureds out of a lot of their land. Most of it, in fact. And the Group Area Act hasn’t helped us at all. I know a young fellow who can no longer inherit his father’s freehold land because it has been proclaimed White. If you want to see apartheid, go to the drive-in, either here or in Keimoes, and look at the wall built down the middle.*”

¹¹The Group Area Act was passed by the South African parliament in 1950. It assigned racial groups to specific areas and put a strong control on the acquisition and possession of property by different racial groups. This Act gave a legal basis for forcibly removing the non-Whites living in “White” areas.

On the contrary, White farmers benefited from State subsidies, not only for agriculture but also for educational grants, improved access to urban services and support for agricultural cooperatives.¹²

It was the period of the most impressive development of the oasis. From a few hectares at the beginning of the twentieth century, the Beplanningkomitee vir Benede-Oranjerivier (1973) listed 38 major irrigation schemes in 1973, with 22,630 ha irrigated. In less than 50 years, almost all the islands in the river between Boegoeberg and Augrabies were transformed into highly productive commercial farms, all owned by White, mostly Afrikaner, farmers. Gordonia, in the middle of the apartheid era, was typical of South African society at that time: the Whites were less than 25% of the total population but owned 100% of the land and almost all the economic power. Moreover, the percentage of Whites was slowly decreasing, from almost 42% in 1921 to 25% in 1961 and less than 10% now.¹³

This brief historical overview of the Upington area shows that lawlessness, dispossession, segregation and apartheid were its main features: the history of the oasis is far from peaceful. This historical background explains the composition of the population dominated by a vast majority of Coloureds, of mixed descent, who were dispossessed, exploited and politically marginalised until less than 25 years ago. This is why the region is still an illustration of a highly divided society, between White farmers, still owning much of the land and wealth of the region, and Coloured workers. Increasing unemployment and crime rates, higher than the South African average,¹⁴ are the direct heritage of this violent past.

4 “Of Land and Water,” Government and Farmers: Who Is in Control?

The history of water management reflects the profoundly unequal national policies of segregation. Due to the special features of the hydrology of the Orange River, the oasis waterscape is the result of a complex nexus of competition between local farmers, irrigation engineers and the central government. Twenty years have passed since the end of apartheid but little has changed, notably due to the inertia of

¹²For instance, the Orange River Wine Cellars Co-op Ltd. was founded on 23 December 1965 in order to help the farmers produce wine.

¹³The population in Gordonia Magisterial district in 1921 was 7800 Whites, 9500 Coloureds and 980 Bantus; in 1960 it was 17,960 Whites, 44,400 Coloureds and 10,314 Bantus. In the municipality of Khara Khais (the boundaries are different), the racial makeup in 2011 was 23.1% Black Africans, 65.2% Coloureds and 9.9% Whites.

¹⁴Which is already very high at 31/100,000 (world average 6/100,000).

hydraulic infrastructures. In any attempt to understand what is happening in this oasis today, the impact of “antecedent political systems” must be fully considered.

4.1 “Land Pirates” and Water Wars

As mentioned above, the Orange River was a loosely controlled frontier and, for a long period, it was unclear to whom land, water rights and power were supposed to belong.

It was generally assumed that most of the land in the valley was crown or government property. F.E. Kanthack assessed in 1917 that “*along the Orange River, below Prieska, the Government owns an immense amount of land on both banks and also many islands in the river*” (Union of South Africa 1917: 33). However, in 1904, a report to the director of irrigation stated that “*uncertainty exists regarding the ownership of the islands. Most of them appear to be undoubtedly crown land, but some at least are claimed by the owner of adjoining farms.*” (Cape of Good Hope 1904b: 7).

Consequently, these documents suggest that most of the land was settled without legal property rights. For example, in the late 1920s, poor White farmers began to clear and strip an island downstream of Upington, which is now known as Cannon Island, to expand cropland. They were firstly considered “land pirates,” but eventually these illegally acquired properties were secured in 1936 by the Crown Land Act.

Like land properties, water rights were also plagued with uncertainty. F.E. Kanthack described in 1917 the local “water wars” that were directly linked to the “predictable unpredictability” of the river flow. “*In a dry year, he wrote, a state of anarchy may be said to prevail along the river. Weirs and dams are breached by lower owners, generally with the aid of explosives*” [...] *Farmers suddenly find that water which should naturally flow down to them has been diverted. The injured farmer promptly retaliates by blasting a reef somewhere else, and it goes on until a lucky flood puts an end to these illegal practices.*” [...] *During times of very low water, irrigators have been known to claim their rights to water and defend their unlawful acts with the aid of a rifle*” (Union of South Africa 1917: 33).

However, such a situation was considered unacceptable for an irrigation engineer like F.E. Kanthack; therefore, he advocated “*a complete [governmental] control of the water in the river at reasonable intervals, so that an equitable distribution of water can be effected in each section of the river controlled,*” saying in the same report that “*the irrigation works on the islands are very primitive*” (Union of South Africa 1917: 33).

The Orange River irrigation history illustrates the long-term fight to control land and water between irrigation engineers and farmers, Irrigation Boards and the Department of Irrigation (created in 1910, the Board became the Department of Water Affairs after 1956), with tensions rising from below, such as the difficult balance between subsidies and control.

4.2 *Subsidies and Control*

Even when the irrigation rights were partially settled through the establishment of Irrigation Boards, there were unresolved problems, such as funding and the risk of bankruptcy, which led farmers to ask for government subsidies. In exchange, the Department of Irrigation negotiated the entire control of the Boards. However, the farmers, through the Riparian Rights,¹⁵ their influence on the local offices of the Department of Irrigation and their political power at the national level, managed to secure a large control over water, in spite of government investments in the construction of hydraulic infrastructures. Most of the time, the central government took control of the water infrastructures for a few years only, and then handed over their management to the local Irrigation Boards.

The following analysis of three case studies, namely Kakamas, Upington and Boegoeberg, which cover most of the fluvial oasis, shows the complex history of irrigation institutions.

At the lower end of the oasis, a few kilometres above Augrabies Falls, irrigation began with the foundation of the Kakamas Labour Colony for Poor Whites in 1897. However, despite the involvement of the colonists, the Labour Colony soon asked for support.¹⁶ Following this 100% subsidy, the Kakamas management board was still empowered to “*control and maintain irrigation work and to distribute water therefrom until 1964, when the Kakamas irrigation works were handed over to the State by the Supervision and Control and Authorised Agent of the Dutch Reformed Church*” (ibid). The reason given was that: “*All the irrigation schemes in the Republic as well as abroad are subsidised to a greater or lesser extent on the grounds that not only the irrigators but all the sections of the community derive benefit from the undertaking and it is therefore not proposed that the irrigators under the Kakamas Government Scheme should repay the full cost of the betterment works*” (ibid: 4).

A similar pattern was observed in the Upington area, where several Irrigation Boards were established in the first decades of the twentieth century, such as Straussburg in 1925 and Louisvale in 1918, in order to settle disputes about water rights. In the latter, for instance the farmers were unable to repay their loans so, as in Kakamas, they asked for government help in exchange for losing part of their control of water. According to a 1966 report: “*in 1921 an irrigation loan of 8,000 rand was granted [...] by 1936 the amount due, including interest, amounted to R. 9,000. The Parliamentary Select Committee, however, agreed to write off the*

¹⁵Reaffirmed in the Irrigation Act of 1912.

¹⁶“Subsequent to the establishment of the Union in 1910, State financial aid, in the form of loans, was granted to the Settlement for the construction of canal and betterment works and a total amount of R 95,250 was made available. In 1950, a subsidy of 50% was granted by the State in respect of the cost of this work [...] It soon became evident that the Management Board would be able to achieve little unless a higher subsidy was made available to it [...] The Program of R. 500,000 was thereafter proceeded with on the basis of a State subsidy for the full amount (for 1955–1956), then 850,000 in 59–60, with 100% subsidy” (Republic of South Africa 1965: 2).

amount [...] *The Ministry of Water Affairs administered the scheme during the construction of the new canal in 1936, but the Board resumed full control in 1941*" (Republic of South Africa 1966: 4).

The story of Boegoeberg is slightly different because, in this area, the government was involved in the construction of this scheme from the beginning. The Department of Irrigation was very reluctant to build a dam in Boegoeberg, and motions brought before parliament regarding the irrigation of this area were rejected in 1895 (after reports made in the 1890s) on the grounds that it would be too expensive. The Boegoeberg scheme was also discarded in a 1917 report and in A.D. Lewis' report for the years 1928–1929, stating that this scheme "*is likely to be exceedingly expensive on account of the great length of furrow compared with the limited extent of irrigable land and the necessity for storage provision*" (Union of South Africa 1930: 36). The only reason why the Boegoeberg dam was finally built is the world economic crisis of 1929, which contributed to the enrolment of unemployed workers for the construction of hydraulic infrastructures, as occurred in the US. According to Turton et al. (2005: 164): "*The Director of Irrigation received "sudden instructions," in 1930 to organise and start with the construction of irrigation works at Buchuberg, Oukloof and Kalkspruit. Regarding the Buchuberg scheme, his instructions were, to start "construction as soon as possible to provide employment for white people."*"

Three elements can be derived from these examples that still shape the mid-stream Orange River oasis waterscape.¹⁷ Firstly, the situation of the oasis, which is located far from major markets, has been very fragile and has remained disconnected from South African economic centres. The variability of the river, with dry years and destructive floods, has posed a constant threat to the farmers' economic status, and they have never been in a position to be resilient without external help. Therefore, although the farmers presented themselves as pioneers in a harsh environment, the oasis was always dependent on the State. In 1973, for instance, only 8223 irrigated ha belonged to "independent" Irrigation Boards while 10,319 ha were included in GWS.

Secondly, the Department of Irrigation (1910–1956) and then the Department of Water Affairs (1956–1994) have been reluctant to invest large amounts of money in this remote area. In 1909, F.E. Kanthack (Director of the Department of Irrigation from 1910 to 1920) wrote that "*Every Island in the river is not irrigable. [...] Any large comprehensive scheme for the irrigation of vast areas is, I think, out of the question. Markets are very limited now, and the very costly land reclamation works are only possible now on account of high level yields and very big prices*" (Cape of Good Hope 1910). In 1929, his successor at the head of the Department from 1921 to 1941, A.D. Lewis, stated: "*My chief and great regret in presenting this summary is that I cannot put forward for the Orange a single scheme of any magnitude and of such merit as to justify the great optimism which at present prevails*" (Union of

¹⁷For a comprehensive view of the Orange River Basin irrigation history, see Turton et al. (2005: 88–262).

South Africa 1930: 24) and a few pages later he added: “We have got to face that South Africa will never be a great irrigating country” (ibid: 30).

Thirdly, interactions between farmers and water engineers in this region have been fuelled by continuously strained relations, which were not improved with the implementation of large inter-basin transfer (IBT) schemes in the 1960s. This, in turn, exacerbated the tensions that still prevail today.

4.3 The IBT in South Africa: A River No Longer?

This loss of control by the farmers, albeit marginal when the State-controlled works started in the 1920s and even when the State decided to build the Boegoeberg dam in the 1930s, began to be problematic when the large dams of Bloemhof, Gariep and Van der Kloof were constructed in the 1970s far upstream. Following the completion of the Orange-Fish inter-basin transfer (1977) and the Lesotho Highland Water Project (1998–present), the central government has the possibility to divert a large amount of the Orange water flow outside the basin (Fig. 2). There is a growing fear in the lower reaches that if a severe drought were to affect the Gauteng area, all available water would be diverted towards the political and economic heart of South Africa, that is the Gauteng.

The fears of the farmers of the Upington area were aroused by declarations, notably those of preminent scientists such as D.C. Midgley, who wrote in the *South African Journal of Sciences* at an opening conference about the Orange River Development Project: “the primary objective of the ORDP is to transform this

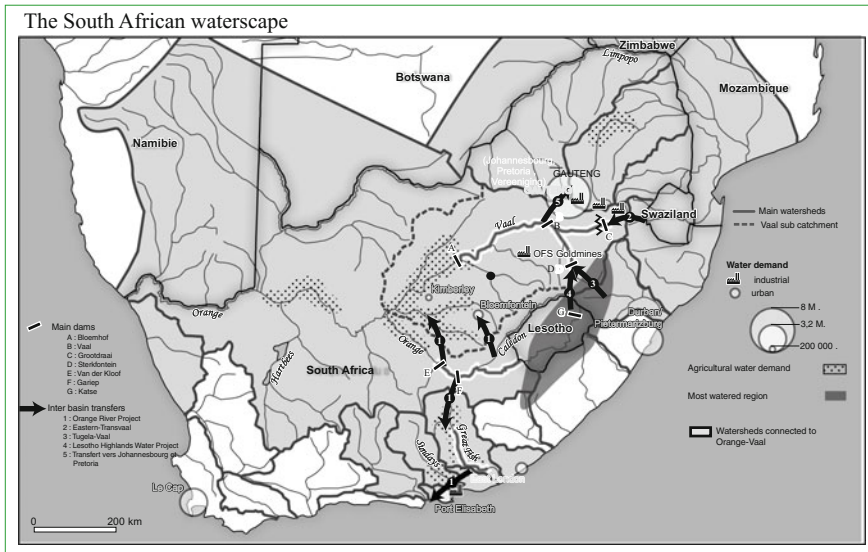


Fig. 2 Inter-basin transfer (IBT) in South Africa

intermittent isolated river [...] into a perennial distributary system, designed to spread the benefits of a controlled water supply far into the Karoo and into the Kalahari [...] If we are to survive, the former pattern of small plot irrigation settlements must surely give way to large, highly organised scientifically operated farms” (Midgley 1963: 461–462).

His predictions have almost entirely come true, with the flow of the Orange River profoundly altered on the one hand, and placed under the control of the Department of Water Affairs, on the other. As a result, the Vaal River has been completely disconnected from the Orange River. About 10% of the total “natural” MAR, which is more likely to be 20% of the actual run-off, if the Vaal is no longer considered a tributary of the Orange, could be diverted towards the Fish River out of the basin at Gariep Dam (known as H. Verwoerd dam when it was constructed). In the case of low rainfall on the Lesotho Highlands, almost 80% of the flow could be diverted. In this perspective, the Upington area may be considered the “sink” of the Vaal system, which is still centrally controlled by the DWA (Bourblanc and Blanchon 2014).

As predicted by Midgley at the local scale, all the Irrigation Boards were put under the control of the State, with the implementation of GWS covering the Upington area and Kakamas in the 1960s in exchange for large investments. As stated in different White Papers, the schemes were to be directly controlled and administered by the State. Although the farmers still controlled the land and retained a formal control over water allocation, by the end of the 1980s, they had lost most of the actual control of water flows to the DWA. By this time, the DWA, alongside the State and Parliament, was still almost entirely managed by people “that could be trusted,” mostly Afrikaners. However, since 1994, the situation has evolved towards the inclusion in government institutions of a previously excluded black majority.

5 Losing Control Over Water, Opening New Markets: The Oasis in the Globalised “New” South Africa

Along the Orange River, as in the American West, for most of the twentieth century, two roughly equivalent centres of power competed: “*a private sector of agriculturists and a public sector made up of bureaucratic planners and elected representatives*” (Worster 1985: 51). However, as D. Worster noted “*Neither group is autonomous. Both need each other, reinforce each other’s values, compete for the upper hand without lasting success, and finally agree to work together to achieve a control over nature that is unprecedentedly thorough*” (ibid).

However, with the end of apartheid, the fragile Orange River hydraulic arrangements collapsed. In the “new” South Africa, where the vast majority of the population has been dispossessed and deprived of the profits derived from water infrastructures, the water control apparatus (and its chief profiteers, the White farmers) has been criticised, and a new water law was designed in order to change radically the water management system.

Meanwhile, the economic situation of the country has changed dramatically, particularly for White commercial farmers: new markets have emerged with the end of the economic boycott, while farming subsidies have almost completely disappeared.

As a result, these two “revolutions” have profoundly affected the Orange River oasis waterscape.

5.1 Losing Control Over Water? from the Texts to their Implementation

As far as the water sector is concerned, a new water act was passed in 1998 (Act 36 of 1998) replacing the 1956 one.

This new act proposed a complete reframing of South African water policy, with a strong political commitment to erase the injustice of the apartheid era.¹⁸

Two new institutions were defined:

- at the basin level, Catchment Management Agencies (CMA) would have to “investigate and advise on the protection, use, development and control over water in the catchment, and develop a catchment management strategy”;
- at the local level, water would be managed by newly formed Water Users Associations (WUA), which were supposed to replace the Irrigation Boards.

The CMAs were also supposed to be the symbol of the post-apartheid water policy, shifting the power from the highly centralised and powerful Department of Water Affairs in Pretoria to the local communities, notably “disadvantaged persons or communities which have been prejudiced by past racial and gender discrimination in relation to access to water” (RSA 1998: 90). According to the DWAF, “*the purpose of establishing these agencies is to delegate water resource management to the regional or catchment level and to involve local communities*” (RSA 1998: 85). Besides, the existing water rights would be transformed into water licenses, which would be delivered by the DWAF.

This new water law aimed to open up a new era for the oasis, with a local control of water resources and a shift of power from White farmers to a larger community of water users.

¹⁸In the introduction of the White Paper on National Water Policy, it is stated that: “The colonial law-makers tried to use the rules of the well-watered colonising countries of Europe in the dry and variable climate of Southern Africa. They harnessed the law, and the water, in the interests of a dominant class and group which had privileged access to land and economic power.

It is for this reason that the new government has been confronted with a situation in which not only have the majority of South Africa’s people been excluded from the land but they have been denied either direct access to water for productive use or access to the benefits from the use of the nation’s water” (RSA 1997).

As for the implementation of CMAs, in a press release in March 2012, the South African Minister of Water Affairs stated: “*The Minister decided to reduce the number of CMAs to nine from the original proposal of 19 CMAs. This is due to a number of reasons including the technical capacity required to staff CMAs, and the challenges such a large number of institutions poses to the Department of Water Affairs (DWA) in regulating their performance.*” The above-noted necessity to reduce the number of CMAs is not particular to the Lower Orange CMA, which was supposed to cover the basin from the Orange–Vaal confluence to the mouth, but demonstrates that there will be no locally defined water strategy in the near future.

Whereas the recent literature provides several comments on the difficulties encountered by the CMAs and the water licensing process, at the local level the Water User Associations appear to be well-functioning institutions. Three of them were created along the oasis, at Boegoeberg (covering most of the ex-Boegoeberg GWS), Upington and Kakamas. As a witness of these WUAs in 2000, I noticed that they were clearly dominated by White farmers in the region: at the Kakamas WUA Steering Committee, 8 of the 15 members were White farmers, with only one representative of “emerging farmers” (i.e. Coloured) and one representative from the DWA (Blanchon 2003). A few years later, the same situation was acknowledged in the Upington Islands WUA, which “*is monopolised by irrigation farmers and the irrigation boards that served them in the past. In contrast to the (developing) LOCMA, the UIWUA seems to be functioning remarkably well. In many respects its operations are even better than those undertaken by the Khara Hais Local Municipality. This local authority is in disarray*” (Gouws: 169).

In this area, WUAs are the only efficient water institution, which in turn raises serious doubts about how little the water control has changed, 17 years after the passing of the new water law. Furthermore, there is evidence that White farmers have “regained” control over DWA engineers, in particular at the local level through their appropriation of WUAs. This is also a consequence of the loss of resources by DWA local offices (capacity and funding) since 1994.

5.2 *Entering the World Markets*

The end of apartheid has also introduced changes into the economic situation of the oasis with, on the one hand, the end of farm subsidies and, on the other hand, the opening of markets and thus new investment opportunities.

At the beginning of the 1990s, the most profitable crop was raisins for the local market, which were cultivated on the alluvial islands of the Orange River. However, as soon as the economic sanctions were lifted, it appeared that this region was particularly suitable for the cultivation of table grapes, especially for European (and secondly North American) customers. Due to its position in the Southern Hemisphere and its huge insolation, table grapes can be harvested in December, and thus be ready for the Christmas holidays, when the demand (and prices) soars.

Nevertheless, the shift from raisins to table grapes demands a huge investment and is very risky. The prices can drop very quickly after Christmas, and the production of grapes varies greatly from year to year. Only a few White commercial farmers could make the transition, and move from a labour-intensive farming to a highly capital-intensive commercial agriculture. One example is Karsten Farms, which is located not far from Upington and has 866 ha under irrigation, using an average amount 10,000 mm of water per hectare per year (Gouws 2012: 148). Most of the White farmers, whose properties seldom reach 30 ha, could not afford to make such investments, and there is a growing gap between large and small commercial farmers.

These processes have led to one of the most remarkable changes in this oasis waterscape: the “outer land” (Fig. 3), located outside the alluvial islands, which was

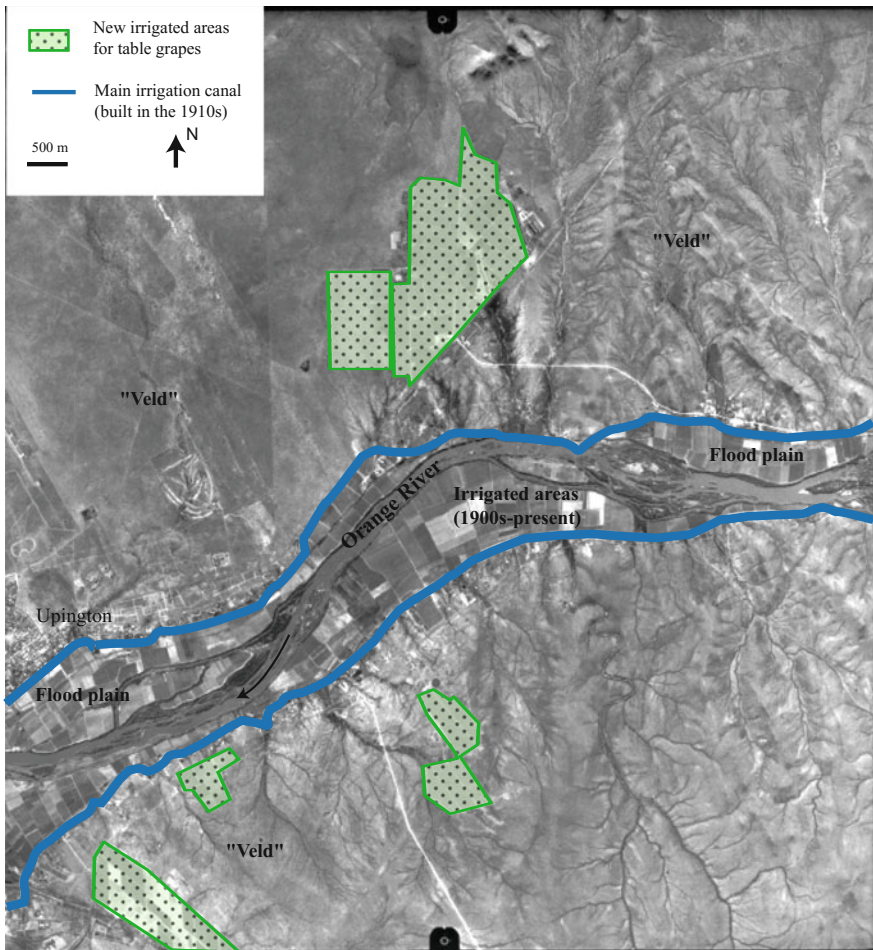


Fig. 3 New development on the “outer land”

used by pastoralists and never before irrigated, has now become the site of the most profitable South African agricultural development. This change was linked with the establishment of a local water market in the late 1990s (Armitage 1999). Irrigation farmers who do not use their water rights sell them at an average price of 5000 to 15,000 m³/ha to table grape growers in the “outer land” (Armitage et al. 1999).

5.3 *The Fate of the Oasis*

With the development of the “outer land,” it seems that the Orange River oasis has largely taken advantage of the end of apartheid, and that it is well placed in a globalised economy. However, the recurrent problems of the oasis—climatic variability, lack of control over its water resources and remoteness—have not disappeared.

Climatic variability poses a serious threat to the economic viability of the table grape industry: early summer rains in the first ten days of December can delay the harvest until after Christmas and generate huge losses for farmers, as the prices drop by almost 50% in January.

Moreover, the oasis is still under threat of a “water management-induced” water scarcity. The absence of a local CMA underlines that the power of water management at the national scale remains in the hands of the DWA central office. Local authorities have already complained about this situation. For instance, in 1995, the premier of Northern Cape Province, in a letter to K. Asmal, Director of the DWA, wrote that: “*the Vaal, major tributary of the Orange River System, does not contribute to flow in the Orange River any longer, except during major floods [...]* Although the province has jurisdiction over the biota of the Orange River [...] the management of the water resource as such is a national function. The province is thus unable to control the most important physical factor affecting the integrity of the riverine environment and its ecosystems” (Letter from Dipico to K. Asma 1995).

This situation is entirely acknowledged by the National Water Strategy, which stated: “*the Lower Orange Water Management Area is without doubt the WMA most impacted upon by upstream development. It is the most downstream of 5 CMAs covering the Orange/Vaal Basin, with extensive Inter Basin Transfers into and from most of the WMAs*” (Proposed First Edition National Water Resource Strategy August 2002, p. D14.4). As stipulated by the new water act, a reserve of water must be provided for the survival of Namibia and the Orange River estuary. Consequently, a report concluded unsurprisingly one year later that “*Apart from the development of an additional 4,000 ha irrigation for the settlement of emerging farmers, no meaningful change in the requirements for water are foreseen in this sub-area* (p. 27)” (M.S. Basson, J.D. Rossouw, National Water Resource Strategy).

In this perspective, several calculations in a DWAF report emphasise that it would be more in line with national legislation to supply more water to the Gauteng province than to the Lower Orange CMA.

	Orange River	Gauteng	Ratio
Production (Rand per cubic metre)	0.81	198	1:244
Jobs (Jobs per million cubic m)	24	1940	1:80

Source Orange River Development Project Replanning Study, Comparative Economic Impact Analysis, 1999

Since 2010, it is clear that the fluvial oasis position is deteriorating, notably as a new dam—Polihali—is under construction in the Lesotho highlands in order to transfer more water to the Gauteng. This new transfer is planned to become effective in 2018 and, in the event of a dry year, as much as 50% of the flow could be diverted to Gauteng from the Lesotho Highlands. Considering that a reserve (a minimum flow) must be retained for Namibia, virtually no water would be left for the Orange River fluvial oasis.

As the political and economic weight of the oasis is insignificant compared to Gauteng province, if a drought occurs in the Orange–Vaal River upper basin, this scenario could not be excluded, and the latest economic boom of the oasis would be put to an end.

6 Conclusion: From Climatic Variability to Man-Made Uncertainties

Twenty years after the end of apartheid, the situation of the Orange River fluvial oasis has radically changed. The old system of water management and control, which relied on weirs and canals watering alluvial soils, has been gradually replaced by large pumps, removing water directly from the river to the “outer land.” This is where the economic future of the area now lies, with a highly productive use of water. Table grapes are producing “more cash per drop” than any other variety of crops in the oasis, which illustrates the “water use efficiency” policy of the DWA.

However, as the hydraulic variability of the Orange River has been progressively reduced by large dams and IBTs, new uncertainties have appeared. In a globalised economy, the oasis is more dependent on fluctuations in world fruit markets and currency exchange rates than variations in the Orange River flow. Moreover, a democratic South Africa faces “majority choices” to divert water to the most populated places rather than to a remote oasis.

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