



The State and Water Resources Development through the Lens of History: A South African Case Study

Larry A. Swatuk

University of Waterloo, Ontario, Canada; lswatuk@uwaterloo.ca

ABSTRACT: This article sets contemporary challenges to good water governance in South Africa within an important historical context. While it is correct to say that 'the world water crisis is a crisis of governance', it is problematic to assume that all states can follow a similar path toward environmentally sustainable, economically efficient and socially equitable water resources governance and management. The nexus of decision-making power varies within and beyond states, and over time. Gramsci (1971) describes this as the "constellation of social forces". Where this constellation of social forces achieves consensus, a 'historic bloc' is said to emerge giving rise to a particular state form. The South African state form has varied greatly over several centuries, giving rise to various historic blocs. The resulting body of laws and policies and the varied forms of infrastructure that were developed to harness water for multiple social practices over time constitute a complex political ecological terrain not easily amenable to oversimplified frameworks for good water governance. This article outlines the role of water in the history of South Africa's multiple state forms. It shows that over time, water policy, law and institutions came to reflect the increasingly complex needs of multiple actors (agriculture, mining, industry, cities, the newly enfranchised) represented by different state forms and their characteristic political regimes: the Dutch East India Company; the British Empire; the Union of South Africa; the apartheid and post-apartheid republics. Authoritarian, semi-authoritarian and democratic state forms have all used central-state power to serve particular interests. Through time, this constellation of social forces has widened until, today, the state has taken upon itself the task of providing "some water for all forever" (slogan of the Department of Water Affairs). As this article suggests, despite the difficult challenges presented by a mostly arid climate, this means 'adding in' the water demand of millions of people, but not 'allocating out' those privileged under other constellations of social forces as they contribute most substantially to economic growth. The implication, therefore, is a modified hydraulic mission involving significant new infrastructure and, in all likelihood, inter-basin transfers from beyond South Africa's borders.

KEYWORDS: South Africa, apartheid, historic bloc, constellation of social forces, water resources, agriculture, industry, mining, cities

INTRODUCTION

Much has been written about the role of the state in water resources development and management, with the present focus on 'governance' being but one example. In the mainstream literature, particular assumptions about both 'states' and water resources have led scholars and experts toward the view that sustainable, equitable and efficient water resources management is achievable through the practice of good water governance (Swatuk, 2009). Governance is then presented as a template that includes, inter alia, extensive public consultation and participation, as well as transparent decision making by accountable authorities. Very little is ever said about the political philosophy that underpins this argument. 'The sustainable, equitable and efficient state is a liberal state' is taken as axiomatic. Such a perspective contrasts 'good' and 'bad' governance as being the dominant characteristics of, respectively, liberal and illiberal states. Such a binary masks the more complex realities underpinning state 'behaviour'.

In this article, I utilise a neo-Gramscian perspective on state formation, as developed by Cox (1987), to illustrate how the South African state form has changed over the course of the last two centuries and into the 21st century (Cox, 1987; as applied to South Africa generally, see Swatuk, 1998). What I show is how South African state behaviour reflects the competing interests of dominant actors in what Robert Cox describes as a 'historic bloc'. To quote him at length:

In order to comprehend the real historical world it is necessary to consider distinctive forms of state. The principal distinguishing feature of such forms are the characteristics of their historic blocs, i.e. the configuration of social forces upon which state power ultimately rests. A particular configuration of social forces defined in practice the limits or parameters of state purposes, and the modus operandi of state action. The notion of a form of state implies that during certain periods of history some states are based on comparable configurations of social forces and animated by a similar *raison d'état* (Cox, 1987).

Approaches to water resources management (WRM) within the South African state form reflect both the interests of dominant actors and more generally held understandings of what 'water' is and what it is for. Given the central role of water in economic development and social reproduction – and therefore political power – it is surprising to note that so little has been written about water resources management in the context of changing state forms (cf. Wittfogel, 1957). This article shows how changing South African state forms have continued to make it possible for dominant actors to use central state power to pursue and ultimately realise often controversial and, by no means, always sustainable, practices of water resources development and management. As will be shown, various discourses – of progress, development, security – are brought to bear in support of particular practices. In the apartheid era, dominant actors justified harnessing water in terms of economic development, building of the 'modern Western state', and keeping white South Africa safe from communism and the 'black peril'. The dominant actors of the post-apartheid era have altered this narrative: harnessing water for economic development, poverty alleviation and justice for all.

Managing water from the centre of state power is nowhere as easy today as it was throughout the high modern era (interestingly, a period that coincides with the 'hey-day' of apartheid social engineering – 1940s through to about 1985) (see Hall et al., 1992, for a discussion of 'high modernity'). The neo-liberal discourse reflects the interests of the most powerful actors across the so-called 'developed' state forms. Contemporary fascination with 'participatory development' and 'good governance' constitute the parameters within which politically, economically and militarily weaker 'developing' state forms such as South Africa must shape their water policies. Nevertheless, dominant actors within South Africa press for resource management decisions that require significant central state support and intervention.

This article therefore is not about South Africa; rather, it is about understanding the contemporary South African state form and the challenges it faces for water resources management through the lens of history. Thus, this is very much a tale of several 'South Africas': colonial, pre-apartheid, apartheid and post-apartheid – state forms that are at once centralised and participatory; authoritarian and democratic; and unitary and pluralistic. The resulting body of laws and policies and the varied forms of infrastructure developed to harness water for multiple social practices over time constitute a complex political ecological terrain not easily amenable to over-simplified frameworks for good water governance. What, then, are the implications for sustainable WRM, and what are the implications for poverty alleviation in post-apartheid South Africa?

The article proceeds as follows. Section 2 discusses both Cox's neo-Gramscian theoretical understanding of the state and its application in the pre-apartheid and apartheid South African cases. Sections 3 and 4 describe the management of water under the colonial/post-colonial and apartheid periods. Section 5 describes the character of the newly emergent, post-apartheid state form and the challenges such a constellation of social forces present for the sustainable, equitable and efficient management of 'some water, for all, forever'. In general, the article suggests that present-day water policy, practice and management are the result of historical dynamics not easily displaced by

generalised discourses of 'good water governance'. Therefore, understanding South Africa's complex history of water management, in particular the web of powerful actors, interests and motives that lie at the heart of decision making, is the necessary starting point for uncovering reasonable ways forward for integrated water resources management (IWRM).

STATE THEORY AND THE SOUTH AFRICAN STATE FORM

The dominant discourse of (neo)liberalism would have us believe that the state is a 'thing', an instrument to be arranged in such a way that civil society and the private sector are able to maximise self-directed goals that are additive, resulting in a collectively realised 'greater social good'. From a critical theoretical perspective, however, "the state is a complex terrain shaped by the interplay of political leaders, officials, class and allied actors and social divisions" (O'Meara, 1996). As such, the particular form of a state will change as the constellation of social forces changes within it. For Cox (1986), "[t]he configurations of social forces upon which state power ultimately rests' constitutes a 'historic bloc'. A particular configuration of social forces defines in practice the limits or parameters of state purposes, and the *modus operandi* of state action, defines, in other words, the *raison d'état* for a particular state" (Cox, 1986). The actions taken in the name of the state represent the distillation of interests of dominant social forces within the state, themselves influenced by the actions of other states and non-state actors in the international system. At certain points in time, a hegemonic bloc may arise whereby dominant actors across states regard particular ways of knowing and ordering the world to be universal truths. Gramsci (1971), states it thus: "[t]he temporary universalisation in thought of a particular power structure, conceived not as domination but as the necessary order of nature". For Cox (1986), a neo-liberal world order has emerged on the basis of the like-minded perspectives of an emergent 'transnational managerial class'. This class constitutes a nascent historic bloc, simultaneously in competition and cooperation with, but carefully setting the rules of the game through, a variety of institutions (banking systems; bond-rating agencies; militaries) and organisations (e.g. the informal World Economic Forum; the formal G-8). For Cox (1986), hegemony is constituted imperfectly at the periphery of the world system. This is well illustrated by the case of South Africa.

Within a state, the power and configuration of a historic bloc grows out of the social relations of production: what and how a society produces wealth and reproduces itself. The present South African state form reflects its unique history as an outpost of monopoly capitalism (Bond, 2006; Makgetla and Seidman, 1980). Between 1910 and 1994, South Africa's state form was dominated by two distinctly different historic blocs, the first led by English mining capital, the second by Afrikaner nationalist forces. Each historic bloc dissolved due to a combination of domestic and world order pressures which, together, initiated changes in the configuration of social forces within the state. Since 1994, the African National Congress (ANC) has led a 'government of national unity' in the attempt to reconcile antagonistic elements within the state in order to achieve hegemony by consensus. At the same time, the ANC is forced to grapple with the socio-economic and socio-political strictures laid down by the principal supports of a dominant neo-liberal world order.

It is generally well known that South Africa's wealth derives primarily from monopoly capital's successful exploitation of the country's vast mineral resources: diamonds, gold, titanium, uranium, coal, to name some. In the beginning, this wealth accrued primarily to English colonists; the battle for hegemony having been fought and won against early settlers known colloquially as *boers* (Afrikaans for 'farmers'), in a long series of skirmishes culminating in the South African War of 1899-1902.

Perhaps less well known is the significant contribution of (colonial, settler, independent state and primarily white) agriculture not only to national wealth but to the shape and texture of South Africa's current socio-ecological problems. The expansion of colonial settlement was made possible by a combination of factors over time, in particular, the use of state power in alienating land 'owned' by indigenous Africans, creating a legal structure in support of farming efforts (e.g. private property rights, government subsidies for crop-production and water resources development), and ensuring social

order and control (Beinart, 2003). Until the discovery of diamonds at Kimberley in 1867, and gold on the Witwatersrand in 1886, the export of wool and ostrich feathers had been the primary sources of wealth generation of English and Afrikaner farmers (Beinart, 2003).

Over time, farming and mining developments resulted in massive social upheaval as indigenous peoples were coerced into wage labour and a hitherto haphazard pattern of regional migration was made routine and bureaucratised (Denoon with Nyeko, 1972). After 1910, when South Africa became a self-governing state,¹ an ill-formed historic bloc emerged based partly on race and partly on complementary economic interests, with English mining and Afrikaner agricultural capital as predominant social forces in South Africa. This uneasy alliance was made firmer by deliberate British policy to extend state support to industry, agriculture and municipalities.

South Africa's primary commodity producing economy was transformed by the Second World War. To quote O'Meara (1996) at some length:

The Government poured millions into the development of the local steel, chemical, textile and armaments industries. As Germany's submarine warfare sharply reduced the flow of imported manufactures, flourishing local industries expanded to take up the slack. This led to a far-ranging extension of South Africa's industrial base... With its industries working at full capacity to meet wartime demand, its ports jammed with allied shipping on one of the world's crucial trade routes, its gold paying for much of the allied war effort, its farmers scrambling to produce the food for its army and for besieged Britain, South Africa's GNP grew by almost 70 percent in just six years between 1939 and 1945... A founder member of the IMF, South Africa was listed among the world's 10 richest countries at the end of the war.

The war effort had a profound effect on South Africa's social relations of production. In macroeconomic terms, industry came to the forefront, displacing mining and agriculture in terms of its contribution to GDP. Industry also transformed the social geography of South Africa as thousands of Afrikaners and indigenous Africans became urbanised members of an industrial proletariat centred in the Transvaal. This transformation, in particular the influx of so many blacks into urban areas, laid the groundwork for the Afrikaner-based Nationalist Party (NP) victory of 1948 (see Heard, 1974, for a comprehensive empirical study of South African elections during this period).

THE APARTHEID-STATE FORM

While racial segregation had been a hallmark of colonial and Union government policy at least since the late 19th century, apartheid became the driving force behind NP policy. According to O'Meara (1996), while "apartheid remained a fairly vague set of principles rather than a fully worked-out programme, the slogan performed a double ideological function". On the one hand, "it gave expression to a very broad sentiment among most Afrikaners, regardless of social class, that the rapid urbanisation of blacks during the 1930s and 1940s... threatened both their precarious places in the urban environment and their specific interests". On the other hand, "the 'apartheid principle'... operated... to condense into a symbolic whole the divergent interests of each of the class forces within the nationalist alliance" (O'Meara, 1996).

Over the next 40 years, the NP used the power of the state not merely to engage in reprehensible forms of social engineering, but to deliberately foster the development of Afrikaner industrial and finance capital (Grundy, 1986; O'Meara, 1996). The heavy-handed state response to any form of protest – be it internal, or beyond its borders – was further justified in terms of the Cold War, wherein the NP portrayed South Africa as a South Atlantic bulwark against 'the Red peril' (Heard, 1974).

The prolonged period of crisis in the world economy which began in the early 1970s and which culminated in the dissolution of the neo-Keynesian hegemonic bloc from about 1981, and the

¹ The defeat of the Afrikaners by the British in the South African Boer War (1899-1902) paved the way for the creation of the Union of South Africa, a self-governing Dominion within the British Empire. The Union brought together the Afrikaner republics of the Orange Free State and the South African Republic, and the British Cape and Natal colonies (Davenport, 1986).

reorganisation of capitalist interests around neo-liberalism, thrust South Africa into serious 'organic' crisis.² In the estimation of Davies and O'Meara (1984), South Africa's late-1970s-initiated policy of 'total strategy'³ represented

a response to an organic crisis and an attempt to reconstruct the political, ideological and economic conditions of stable capitalist rule. These policies did not simply emerge. They were produced out of deep political conflict within the ruling class and the consolidation under [former South African President] P.W. Botha of a new political alignment of class forces (cf. Grundy 1986).

However, by 1985, the total strategy was an undeniable failure. Yet, Botha's response to crisis was anything but enlightened. When he challenged the international community to 'do your worst' in his classic 1985 'crossing the Rubicon' speech, he was virtually abandoned by all of the most powerful business and political factions within the historic bloc.

As early as 1977, white business began to lobby for a more creative strategy. Mainly English-speaking business people began to highlight the economic costs of apartheid and argue in favour of 'reformed capitalism'. In essence, employers' organisations "were calling for a new hegemonic project" (O'Meara, 1996).

As if to highlight the emerging two-track nature of South African 'foreign' policy, shortly following Botha's 1985 speech, representatives of Anglophone capital travelled to Lusaka for talks with the ANC (O'Meara, 1996). This was followed by "the dramatic 1987 session with a range of Afrikaner intellectuals and opinion leaders in Dakar" (Saul, 1993). In August 1988, the Gencor-sponsored Consultative Business Movement was inaugurated and issued a challenge to South African business: "to define the real nature of their power, and to identify how they can best use this not inconsequential power to advance the society towards non-racial democracy" (O'Meara, 1996).

P.W. Botha was formally replaced as President of South Africa by F.W. de Klerk in February 1989. As the Mass Democratic Movement's defiance campaigns grew in strength, and as international pressure for change increased, it soon became clear to De Klerk that Nelson Mandela had to be released from prison. Between Mandela's release on 2 February 1990, and the ANC walkout of negotiations in April 1991, the NP took a hard line. This hard line position was reaffirmed following the March 1991 whites-only referendum which the NP organised in order to secure a mandate to negotiate a non-racial constitution with the ANC (Adam and Moodley, 1993).

The President could have seized this opportunity to move ahead quickly. Instead he chose to interpret the vote as a mandate for a white veto in the new constitution. He stressed *ad nauseam* the NP 'bottom line' that 'power-sharing' and not majority rule was the only form of democracy acceptable to the NP. The ANC would have to accept this or no negotiations were possible (O'Meara, 1996).

² According to Cox, "[t]wo outcomes are possible in an organic crisis: either the constitution of a new hegemony or caesarism, i.e. the freezing of unresolved contradictions ... In order to bring about structural change in the economy it is necessary to realize a realignment of social forces, either by consent (through hegemony) or by the more or less forcible stabilization of contradictory forces (through caesarism)" (1986).

³ According to O'Meara (1986), "[t]he Department of Defense had argued (in 1977) that South Africa faced a 'total onslaught'. It advocated the coordinated mobilization of the full range of resources at the disposal of the state in order to preserve the 'free enterprise system'. This was the Total Strategy, and it was a strategic shift away from the cruder forms of apartheid. It sought to restructure specific aspects of apartheid capitalism in order to preserve its basic parameters, to defuse developing mass unrest, and to reduce South Africa's international isolation. And the Total Strategy had both domestic and regional components. The doctrine of Total Strategy argued that 'middle-class blacks' had to be given a stake in, and begin receiving the 'benefits' of, the system – to give them 'something to defend in the revolutionary war' against the perceived 'Marxist threat'. It sought to divide black opposition along class lines by separating the black middle class from the black workers. In southern Africa, Pretoria used both carrot and stick in an attempt to restructure regional relations in its favor. Through the carrot of what can be termed 'formative action', it sought to create a network of economic, political, and security relationships that would persuade neighbouring states that it was in their interests to cooperate with Pretoria. However the stick of destabilization was used frequently against countries that would not cooperate".

The result of such 'obstinacy', O'Meara (1986) states, "was perhaps the most dangerous six months in South African history". In April 1992, Chris Hani was assassinated; in May, negotiations collapsed. This was followed by 'Mandela's referendum', a 'mass action campaign' which brought the country to a standstill. In June 1992, 43 ANC supporters were massacred in the Boiphatong squatter camp. This was followed in August by the killing of 50 ANC supporters by Ciskei soldiers near Bisho. It was at this point that all actors took a step back. In September, the ANC and the NP signed the Minute of Understanding.

From then on the key buzzwords leading toward multi-party elections slated for April 1994 became 'transformation through negotiation'. Adam and Moodley (1993) explain "negotiations grant all major forces a stake in a historic compromise by which each party stands to gain more than it would lose by continuing the confrontation". All major forces did indeed gain a stake. The ANC obtained 62.7% of the vote, reassuringly short of the two-thirds necessary to write the permanent constitution alone; the NP got 20.4%, so six cabinet seats and a Deputy Presidency; and Buthelezi's Inkatha Freedom Party (IFP) gained 10.5% of the national vote, and three seats in the cabinet (Southall, 1996).

The nearly mathematically perfect election results were due more to elite bargaining than serendipity, however. In order to "save the election process from complete collapse and produce results acceptable to the leader of the ANC, NP and IFP", party leaders sat together with the Chairman of the Independent Electoral Commission, Judge Johann Kriegler, and 'awarded' each other votes (Good, 1997).

WATER IN COLONISATION AND STATE-MAKING IN PRE-APARTHEID SOUTH AFRICA

Missing from most of this story is water. Yet water is at the heart of all human development. The ability to harness the resource has determined the complexity of civilisation and fuelled the definition of 'power' in social order (Wittfogel, 1957). The human and physical geographies of apartheid reflect the presence or absence of water, as well as its capture and the uses to which it was put. The alienation of competing groups of people from desirable land and water resources constitutes the primary driver of all human history, not just that of the African subcontinent (Keegan, 1994). This is especially so in South Africa, where carving a little Europe out of the mostly arid African veld was no easy feat, given the radical differences in climate and hydrology.

- South Africa has close to the lowest conversion of rainfall to usable runoff from rivers of all countries in the world (e.g. South Africa 8.6%; Australia 9.8%; Canada 66%);
- South Africa has a surface area of 1.22 million km², of which about one-sixth has no significant surface runoff. The only water available here is brackish groundwater;
- In comparison with average rainfall of the world, estimated at 860 mm/yr, the mean annual rainfall of South Africa fluctuates around 475 mm/yr. This results in a mean annual runoff of 50-60 billion m³ (50-60 km³);
- South Africa's exploitable surface resources have been estimated at between 24 and 34 billion m³/yr. An educated 'guesstimate' of exploitable groundwater adds another 25 billion m³/yr (derived from Davies and Day, 1998).

In South Africa, the modern era began with the arrival at the Cape of Good Hope of the Dutch East India Company (DEIC) in 1652, and continued through numerous waves of settlement, competition, warfare, and European expansion into the African interior. This history is generally written with an emphasis on land: its acquisition; people's alienation from it; the determined 'taming' of an ever-expanding 'frontier'. Interwoven in this story, but less well told, is the role and place of water. In South Africa, there is a written and documented history of the evolution of water law; and there is an unwritten and implied history of 'water apartheid' that one must deduce from the progressive alienation of indigenous

peoples from their settled lands, initially through conquest and subsequently through the façade of the application of the rule of law.

Water law evolved directly to serve the interests of the dominant actors in a given physical/legal space, such as the settlements at the Cape, Natal, Transvaal and the Orange Free State. The form of law reflected the extent of 'state power' (Herbst, 2000). Initially, at the Cape, Roman-Dutch law was applied by, and in service to, the DEIC. All water was for the Company; other uses were at the discretion of the Company. The DEIC, through the legal notion of *dominus fluminis*, retained priority in all uses of water. Land for farming was leased out for limited periods of time (with exceptions). For the DEIC, water was a precious commodity while the extent of settlement and the reach of the Company were limited.

With the English occupation of 1806 came a new policy of landownership and water rights. Under English rule, lessees were given title to the land on condition that they pay an annual tax. Attached to this ownership was the right 'to the exclusive and unlimited use and enjoyment of all water rising on his own land' (Tewari, 2006). This is commonly understood as the 'riparian principle'. Over the first 150 years or so of British rule in the colony (and later the Union), groundwater was treated much the same way (Tewari, 2006). Prior rights were also established whereby those who had secured their water right 'first in time' were entitled to their allocation before those gaining rights thereafter. This position became codified in law in 1856 and was extended gradually across what is present-day South Africa, beginning "with Act 32 of 1906 in the Cape, continued with Act 27 of 1908 in the Transvaal, and was completed with Act 8 of 1912 of the Union of South Africa which applied to all the provinces of South Africa" (Bate and Tren, 2002).

At the heart of water law development under the British was a desire to extend the reach of the state, to advance settlement into the interior of South Africa, and to turn the region's resources to the development of the Empire (Beinart and Hughes, 2007).⁴ Prior to the discovery of precious minerals and metals, 'resource exploitation' meant commercial agriculture (e.g. meat, wool, ostrich feathers, wine, soft citrus, oranges, wheat). Beinart and Hughes (2007), describe the motives behind colonial irrigation policy as: (i) to encourage agricultural settlement; (ii) to enhance political stability; (iii) to increase food production; (iv) to build state revenues; and (v) to improve communications, including the development of railways. These motives applied equally to India as they did to Egypt or South Africa.

Farmers, and Afrikaner farmers in particular, were notoriously individualistic. While they took to riparian rights, and welcomed a variety of state supports (e.g. in veterinary medicine), they were less willing to invest in large-scale, state-promoted but private enterprise-developed irrigation projects such as large dams. Experience had demonstrated the difficulties of impounding water across most of settler-inhabited South Africa (see Beinart, 2003, for details). Irrigation tended, in the period up to the end of the South African War, to be dominated by small-scale private enterprises involving direct diversion of river water through rudimentary means.

The last-quarter of the 19th century witnessed rapid changes across the South African landscape. Lessons from across the Empire were being brought to South Africa by the likes of people such as William Willcocks, whose 1901 report led to the creation of the Irrigation Departments of the Cape and Transvaal (Beinart and Hughes, 2007). Willcocks brought direct experience with irrigation practice in Egypt and India. Around the turn of the 19th century, French and German forestry experts were appointed to the Cape and Natal to help with resource conservation. This was a time when Enlightenment science was being brought to bear across much of the world. In South Africa this included development of environmental regulation to "conserve and enhance water supplies through far-reaching forestry and engineering projects" (Beinart, 2003). By the 1890s, deep-boring and windmill technology was being applied to irrigation projects (Beinart, 2003). The confluence of social forces within the Cape saw private entrepreneurs, farmers and politicians united in their effort to increase agricultural production and to use state-power to ensure the realisation of long-term gains. Given that

⁴ This was not unique to South Africa, but, as Beinart and Hughes (2007) point out, standard operating procedure across the empire.

landownership was a prerequisite for enfranchisement, it was perhaps inevitable that state, civil society and private-sector interests overlapped significantly, with people such as John Molteno (first Cape Prime Minister under responsible government, landowner and sheep farmer), Thomas Smartt (elected MLA, member of the Progressive Party, and sheep farmer), and Henrich du Toit (sheep farmer and Chairperson of the Drought Commission Report of 1923) being cases in point (Beinart, 2003).

Growing demand on the mines and towns pressed the new Union of South Africa toward more central state involvement in water resources development. From a dusty, ad hoc settlement developed around mining in 1886, Johannesburg's population had grown to a quarter of a million by 1914 (Parnell, 1988). These people needed to be fed. In addition, the outbreak of bubonic plague in Johannesburg and Cape Town around 1901 highlighted the need for better water and sanitation.

To facilitate adequate water for Johannesburg and the mines, the Rand Water Board was created in 1903. Agricultural expansion came under the purview of the newly created Department of Irrigation (Section 1, Act 8 of 1912) that would work in concert with local Irrigation Boards ("now constituted to create new sources of supply") and River Boards (that "exercised control over the natural sources of supply and supervised distribution according to pre-existent right") (Bate and Tren, 2002).

The socio-political goals of water management led to the increasing interference of state-makers in irrigation schemes, as well as chronic overspending on uneconomic activities. Such follies of decision were made 'affordable', however, by the key contribution of the mining industry through taxation to the income of the Central State and the continuing subsidisation of farming activities.

By the beginning of the high-modern age (circa 1920-1950), South African water law was being reformed to cater to the needs of expanding cities and industries. Act 46 of 1934 (Sections 14-23) made it possible for the first time for the water court to grant permission "to anyone with secondary (i.e. industry) rights, to use that water on non-riparian land. This was the first legal separation of public water and riparian land" (Bate and Tren, 2002).

Hidden beneath this narrative of the state undertaking a 'hydraulic mission', is the profound impact and importance of race-based decision making (e.g. the Native Land Act 1913 and the Urban Areas Act 1923). Extensive agriculture, by definition, requires a great deal of land. Horticulture (particularly of citrus) and viticulture require irrigation water. By turns, then, the power of the state was used to displace Africans from river valleys (where irrigation through diversion was practised) and from across the veld (where they practised transhumance, hunting, and some crop production). In urban areas, natives were blamed for the occurrence of plague. Called by historians 'the sanitation syndrome', this saw the conflation of disease with the presence of Africans (and, increasingly, Asians) in admittedly crowded, urbanising spaces (Parnell, 1988; Swanson, 1977). Early 20th century efforts to segregate people based on race faced resistance, to be sure; but it helped pave the way for the NP-orchestrated 'grand apartheid' social-engineering that emerged after World War II. It also ensured abiding water scarcity, food insecurity, housing and sanitation problems for the black majority, so acting as a catalyst for black political organisation.⁵ Most importantly, it marks out the significantly wider parameters of water resources management in the post-apartheid era: people left to fend for themselves and excluded from colonial and state-building projects, now expect support and redress for the wrongs of the past.

WATER AND APARTHEID

It is an accident of history that apartheid-based rule emerged at the confluence of (i) post-WW II reconstruction based on Keynesian principles of state-directed development; (ii) the age of high-modernity; (iii) the emergence of the Cold War; and (iv) the emergence of the 'Third World' as an object of socio-economic development. While South Africa's great mineral wealth was turned toward

⁵ Jacobs' (2003) important study of displacement and dispossession in Kuruman, and Tropp's (2006) equally important and somewhat parallel study on the Transkei make for harrowing reading.

financing systematic and legally codified racial segregation – including the harnessing of water for white social and political power – these actions were justified on the basis of the four points above: i.e. apartheid necessitated significant central state intervention; scientific advances would facilitate the mastery of nature; resistance to the apartheid project was a communist plot; and non-white people needed significant 'engineering' (i.e. 'white science') for social development.

Because of South Africa's limited arable land and water resources, 'separate development' perhaps inevitably necessitated 'grand apartheid' engineering, whereby the black majority was shifted into arid homelands, some of whom were allowed temporary residence in peri-urban locations during periods of formal employment. Thus, as a new Water Act was being devised for white South Africa in the 1950s, so too was the newly installed Nationalist Party led by D.F. Malan devising legislation to limit the movements, and livelihood possibilities (especially property rights) of black people throughout the country.

In the words of the then Minister of Water Affairs and Forestry, Kader Asmal (in DWAF, 1997):

South Africa's water law comes out of a history of conquest and expansion. 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.

During the 1940s and 1950s, the South African economy underwent significant processes of industrialisation and mechanisation. Under the leadership of the ultra-Afrikaner nationalist, D.F. Malan, the South African government took concerted effort to build up Afrikaner capital in relation to English capital, and to strengthen agriculture – rural white South Africans constituting the primary basis for NP electoral power. According to O'Meara (1996):

The rapid growth of the share of Afrikaner entrepreneurs in private manufacturing after 1948 is explained by four major factors. The profusion of state corporations and parastatals under National Party rule placed Afrikaners in positions of control in key manufacturing sectors. Secondly, government contracts and subsidies benefited particularly the Sanlam industrial investment subsidiary, Federale Volksbeleggings. Thirdly, the three major Afrikaner financial groups, Sanlam, Old Mutual and Volkskas, began to diversify their holdings, moving into manufacturing in the 1950s. And finally, the drop in share prices and flight of foreign capital following Sharpeville in 1960 was seized upon by Sanlam and Old Mutual in particular as a golden opportunity to increase their shareholdings in a wide range of manufacturing and other companies.

The general outcome of this exercise was the creation of "what had not existed before – a class of Afrikaner financial, mining and industrial capitalists" (O'Meara, 1996).

As Afrikaners moved into industry, they tended to hire Afrikaners. This led to a consistent increase in the number of Afrikaners in 'white collar' jobs throughout the 1940s-1970s. It also led to a decline in the number of Afrikaners on the farms, as many moved to the cities in search of economic opportunity. Farming became mechanised agribusiness, with the average size of holdings increasing from 736.5 ha in 1951 to 978.8 ha in 1960 and 1,134.4 ha in 1976.

The average annual *real* incomes of white farmers grew by a whopping 7.3 percent between 1960 and 1975. Yet here too the larger agricultural undertakings were the major beneficiaries. However, most white farmers were virtually totally dependent on numerous forms of state support. A commission of inquiry into agriculture reported in 1972 that the various forms of state assistance provided 20 percent of an average white farmer's income. Even more important in sustaining the position of white farmers were the numerous and very strict labour controls at the heart of apartheid policies. These meant that black agricultural wages barely increased from 1866 to 1966 ... Two aspects stand out here. The first was the rising indebtedness and hence long-term vulnerability of white farmers. Secondly, white farmers looked to the state to solve their problems. In particular, they feared any relaxation of this array of state supports for agriculture (O'Meara, 1996).

Agricultural, industrial and urban expansion all required more water. Given South Africa's seasonal pattern of rainfall, this meant capturing storm water run-off through enhanced storage capacity through both on-farm small dam construction, and state-initiated large-dam construction.⁶ To facilitate this, a comprehensive review of existing water legislation was undertaken during 1950-52, eventually leading to the Water Act 54 of 1956. Among other things, water continued to be divided as private and public. Individuals could continue to exploit their water resources through riparian rights; the state, however, would exercise much greater control of 'normal' and 'surplus' (i.e. storm water) water in public rivers. Thus began the rapid acceleration of inter-basin transfer and large dam building-projects across South(ern) Africa.

Standing as the symbol of the power of 'separate development' as well as man's capacity to bend nature to his will, the H.F. Verwoerd dam was commissioned in 1972 and is named after the then-Prime Minister of South Africa. The multi-purpose dam is the largest reservoir in South Africa, serving not only municipalities with drinking water and recreation, but hydropower, flood control and irrigation water. It constitutes the centrepiece of the complex *Orange River Project* that also includes significant inter-basin transfers, and carries water to six of South Africa's nine provinces.⁷

It is important to locate apartheid-era water resources planning in the southern African regional context as well. The Kariba dam on the Zambezi river, for example, is also a product of the high-modern age. Also, about the time of the commissioning the H.F. Verwoerd dam, Portugal undertook the project on building the Cahora Bassa dam on the lower Zambezi. Today, these and other hydro-power projects constitute major nodes of the southern African Development Community's regional electricity grid (see Swatuk, 1997, 2008 for further discussions).

The region's overlords have long fantasised about the role that Africa's larger rivers – the Congo, the Zambezi – may play in the development of, in turns, Empire, South Africa (as Union, apartheid and post-apartheid Republics), and the region's smaller states. Among others, the Lesotho Highlands Water Project (LHWP) constitutes an important example of the power of South African social forces in commanding environmental and resource use decision making in the region.

According to Thabane (2006), the waters rising in the mountains of Basutoland had been a concern of those downstream at least since the first decade of the 20th century. Initially these concerns involved not the waters themselves, but the silt that they carried. Farmers downstream complained that the Basotho were not 'managing' their environment satisfactorily, so resulting in the rapid silting-up of dams. Among other things, afforestation and dam-building projects were proposed, with the first dam sites proposed for the lowlands (Thabane, 2006). The idea of a dam, not in the lowlands but in the mountains, and the importance of significantly augmented water supply for industrial South Africa, first gained momentum in the 1950s when the Basutoland Government commissioned Cape Town based engineering firm Ninham Shand who concluded that it was "economically feasible to develop regional schemes in the uplands of Basutoland for the supply of water and power both to western Basutoland and the Orange Free State" (in Thabane, 2006). Through time, the proposed water transfer scheme gained and lost momentum in tune with regional and national politics. It was only after the 1986 military coup that overthrew the now-independent Lesotho's Prime Minister Leabua Jonathan, replacing him with Maj. Gen. Metsing Lekhanya, that a deal was finally agreed upon. Implementation was entrusted to parastatal bodies in each country, the Lesotho Highlands Development Authority (LHDA) and the Trans-Caledon Tunnel Authority (TCTA). A Joint Permanent Technical Commission (JPTC) was also created. The multi-billion dollar project was financed by a wide variety of sources, including the World Bank and the African Development Bank, among others. Among other things, under the

⁶ South Africa's coefficient of variation of mean annual run-off (MAR) is 117%. This may be compared with coefficients of variation of MAR of 20% for Canada, 38% for the USA and 23% across the African continent (Davies and Day, 1998).

⁷ While Verwoerd claimed the credit (and so, too, that of his government), the project was first proposed by A.D. Lewis, then Administrative Head of the Department of Irrigation, in 1928. The project was tabled as a White Paper in 1951 and work began 'soon thereafter' (see www.dwaf.gov.za/orange/Mid_Orange/overview.htm for details). Today the dam is called the Gariiep.

terms of agreement, the LHWP would provide, first and foremost, water to South Africa and electricity to Lesotho. Upon commissioning of the Katse dam (after the completion of Phase 1A of a multi-year, multi-phase project) in 1998, South Africa's President Mandela claimed the project to be "a resounding success", while Minister of Water Affairs and Forestry, Kader Asmal, described it as part of the region's "renewal and renaissance" (Addison, 1998).

Despite serious controversies attached to the project regarding the displacement of people, high ecological costs, and corrupt business practices (see Pottinger, 1998), the LHWP illustrates quite clearly the way in which powerful social forces within the South African state, across the region, and in the world at large use state power (e.g. through treaties and contracts) and discourses of mutual benefit to capture water resources for narrow social ends. Moreover, these interests transcend the specific regime form: conversations around the LHWP were ongoing for most of the 20th century. That Mandela and Asmal would declare as a success a project wrought by their colonial, pre-apartheid, and apartheid predecessors, undertaken in questionable circumstances, and discussed only at the centres of political power is testimony to the centrality of water in state-building and development. Whether the regime is authoritarian, democratic, or otherwise, seems not to matter. What matters is the constellation of social forces.

The number of large dams in South Africa doubled from 50 to 100 between 1920 to 1940. Over the next 40 years, however, this number would rise to 500, levelling off at around 520 ten years later. "To keep up with demand, as many dams were built between 1971 and 2000 as the 12 generations of European settlers built between 1652 and 1970". Approximately 50% of mean annual runoff (MAR) is captured across South Africa, with only about 8% returning to the sea in rivers (Davies and Day, 1998).

While water was being harnessed to the needs of an industrialising, urbanising, apartheid South Africa, it was being systematically denied to the vast majority of the people living in the country. Apartheid urban planning grudgingly acknowledged the need for blacks to reside nearer to their places of work, in the cities. De facto settlement on the fringes of urban South Africa forced government to upgrade facilities and provide (minimal) basic services. The primary intention of urban planning was to limit the desirability of urban life outside the Bantustans. Blacks were to be encouraged to live in one of ten designated 'homelands', whose sham governments were fully funded by the apartheid regime. Throughout South African history, and especially after 1948, there were numerous attempts to remove people from urban centres, but these were never fully followed through as the townships served as a convenient location for much needed cheap black labour (Wylie, 2001; Parnell, 1988).

These push/pull factors ensured ongoing service problems for South Africa's burgeoning townships. As people were pulled to the area looking for work, apartheid policy attempted to organise the townships on the basis of ethnic categories so complementing the drive for 'self-government' and 'separate development' among the races. However, despite the need for a pool of reserve labour, government revenues devoted to township management were limited, property rights non-existent, and black business opportunities severely curtailed, so reluctant were apartheid's administrators to make these areas attractive for black settlements. They were to serve as dormitories of reserve labour and nothing more. Thus the simultaneous push from government to send people 'back' to their 'homelands'.

The homelands, or Bantustans, were dismal places in their own right, and constituted land least desirable to white South Africans. For example, the ultimately 'independent' Republic of Bophuthatswana was a discontinuous amalgam of more than 20 separate segments of arid lands, considered devoid of minerals or other forms of exploitable wealth, each piece separated from the other by white farms, towns, and mining enterprises (Jacobs, 2003).

According to the Government of South Africa's official website:

The truth was that the rural reserves were ... thoroughly degraded by overpopulation and soil erosion ... Forced removals from 'white' areas affected some 3.5 million people and vast rural slums were created in the homelands, which were used as dumping grounds. The pass laws and influx control were extended and

harshly enforced, and labour bureaus were set up to channel labour to where it was needed. Hundreds of thousands of people were arrested or prosecuted under the pass laws each year, reaching over half a million a year from the mid-1960s to the mid-1970s. Industrial decentralization to growth points on the borders of (but not inside) the homelands was promoted as a means of keeping blacks out of 'white' South Africa (www.info.gov.za/aboutsa/history.htm#segregation).

Progressive intellectuals argue that agricultural production in the homelands suffered from discriminatory policies regarding "land rights, pricing, marketing, extension, research and infrastructure" (Lipton and Lipton, 1994 in Porter and Phillips-Howard, 1997). While these facts are undeniably true, in the context of post-apartheid South Africa it is perhaps more important to point out that the homelands are overwhelmingly overpopulated, overstocked, arid, and rain-poor areas lacking in non-agricultural employment opportunities that will never provide food security for the people living there. "In the homelands, arable land availability in the early 1980s averaged only 1.3 ha per family, compared to 4.3 in the rest of South Africa, where yields were six or seven times higher" (Porter and Phillips-Howard, 1997).

Thus, the interrelation between water management, intra-white political competition, and apartheid social engineering may be summarised as follows.

- Evolving water law reflected, first, the extent of state power and, second, the attempt to reconcile competing and increasingly complex interests over time;
- State power came to be centrally involved in harnessing water to satisfy the interests of dominant social groups: i.e. white farmers; industrialists; companies; and cities.
- Given the ideological orientation of the apartheid regime, most of these decisions were taken irrespective of economic viability/profitability. For instance, taxation from mine revenues was redirected to the creation and subsidisation of irrigation projects. With the eventual imposition of international sanctions, government undertook numerous 'self-sufficiency' projects (e.g. oil from shale, agricultural commodity production, support for industries irrespective of their non-adherence to laws regarding pollution) that cost the state economically and the land in terms of ecosystem degradation (Cock and Koch, 1991).
- Complex demands of building a viable, Western-style, racially segregated state in a mostly arid or seasonally watered part of Africa placed incredible stress on all sources of surface water.
- While harnessing the region's surface waters unsustainably, inequitably and inefficiently to satisfy the interests of competing and historically confrontational elements of a white minority, the apartheid regime reorganised historical patterns of black settlement in such a way that they were systematically starved of the principal means of sustaining their livelihoods: land and water.
- Facilitating and legitimating these activities were multiple discourses of security (from the black and red perils), state-centred development, and modernity.

Ultimately, the system collapsed under the weight of its own uneconomic behaviour, concerted political resistance, and the fortuitous (for the black majority at least) collapse of the Berlin Wall and the fall of the Soviet Union.

THE POST-APARTHEID STATE FORM AND THE CHALLENGES OF A MODIFIED HYDRAULIC MISSION

The shift from apartheid to so-called 'post-apartheid' was facilitated through more than 40 years of organised political resistance culminating in a 'negotiated revolution'. At independence in 1994, the ANC-led Government of National Unity (GNU) inherited a state form whose institutional structures were designed to marginalise and oppress the majority of people living within South Africa's territorial

borders. As a result, in the mid-1990s at least 32% of South Africans were unemployed; Africans themselves constituted 95% of South Africa's poor; between 12 and 14 million people were without access to safe water; and more than 20 million lived without adequate sanitation.

European 'success' at 'taming' South Africa is illusory at best. The veneer of a high-modern neo-European country has been laid down at great environmental and social expense (Bond, 2002; Beinart, 2003; Beinart and Hughes, 2007). Many of these problems are interrelated. For example, driving Africans off their land and concentrating them by force in arid areas have resulted in severe land degradation. Prohibiting them from owning land acted as a disincentive to invest and initiated widespread 'tragedy of the commons' across the so-called homelands. Creation of the homelands as simultaneously dumping grounds and labour reserves ensured that Africans felt at home neither in the townships (their 'dormitories') nor in the homelands. Lacking opportunity in the rural areas, however, has led (and still leads) to migration to the cities in search of work. As a result, urban areas are dramatically overcrowded. The environmental footprint of the urban/peri-urban areas increases daily. Backward fuel switching in built-up areas, and continuing use of traditional wood fuel sources in squatter and informal settlements have led to widespread deforestation, further soil erosion, hardening of the soils, and increased susceptibility to flash floods as infiltration is limited and run-off enhanced (Cock and Koch, 1991; Davies and Day, 1998).

This is but one example of the environmental and social costs of state-building in South Africa. The post-apartheid challenge comprises a Gordian knot of five interrelated factors: (i) use the power of the state in support of the needs of the majority, (ii) address the environmental consequences of unreflective modernisation, (iii) generate the income to do so, (iv) achieve buy-in from the dominant economic and political actors in the country, (v) without alienating hegemonic global forces.⁸

To address this challenge, the initial ANC-led Government of National Unity chose water as a focal point in building the post-apartheid state. Across the society there has been an important shift in the processes of decision making. Whereas centralised, secretive processes of decision making were the hallmark of the apartheid regime, the post-apartheid government has emphasised consultation, participation, openness, access to information and consensus-building. In the words of Dan O'Meara (1996), "[w]hile relations of domination and rule persist in Nelson Mandela's South Africa, the mechanism and forms through which domination is secured are, happily, quite simply *not* what they were under P.W. Botha or H.F. Verwoerd, If this is not so, what was the whole anti-apartheid struggle about? Why waste one's time engaging in 'political' struggle"?

While specific requirements vary, it is undeniable that everyone needs water. It was perhaps serendipitous that the post-apartheid moment came at the same time that the world was discussing the Dublin Principles in the context of an emerging 'world water crisis'. The construction of 'crisis' facilitates consensus-building. As shown above, under apartheid rule 'crisis' in the form of the 'black' and 'red' perils was constructed to elicit consensus among the white minority. It drove all policy and justified among other things a high-modern hydraulic mission that included free water for those in support of minority rule. Its partiality, however, was its undoing.

A national mission in support of sustainable water management – 'some water for all forever' – is inclusive.⁹ It was no accident that the post-apartheid government articulated the right to water in the new constitution and followed this up in the Water Services Act of 1997 and the National Water Act of

⁸ Without doubt, the constellation of social forces has changed in post-apartheid South Africa. The negotiated revolution left many of the most powerful economic actors in place. The dominant global discourse of neo-liberalism promises swift retribution (through, for example, disinvestment, a run on local currency, etc) for what might be regarded as a 'heavy-handed' state (cf. post-2000 Zimbabwe under Mugabe), so any attempt to dislodge those at the 'commanding heights' of the economy (by using mechanisms initially concocted to put them there in the first place) would mean committing economic and therefore probably political suicide.

⁹ Most of what follows is based on a 3-year study of water governance in South Africa, commissioned by the South African Water Research Commission and undertaken by the author, Lewis Jonker of the University of Western Cape and a cohort of graduate students. Details may be found in Jonker et al., 2010.

1998. Combining free basic water with water for the environment as 'the reserve' sent a powerful signal to all those with water that the new government would use the power of the state to support the most vulnerable before it supported anyone else. Doing away with 'private water', 'riparian rights', and 'priority in time' raised the ire of those who had long benefited from such laws, but these actions were taken in line with emerging global best practice, so buttressing difficult national decisions with international legitimacy. At the same time, the government showed those with water that it was not simply going to take it away from them and give it to the poor and disempowered, deserving of it though they were. Everyone would receive free basic water. Deliberate steps would be taken to make more water, partly through demand management: e.g. progressive tariff and taxation policies; removal of alien species via a 'working for water' programme; leak detection and repair in urban areas; incentives for farmers to shift toward more efficient use of surface water and groundwater; encouragement toward more sustainable farming practices through better crop choice; incentives for industry to move toward water-saving practices; enforcement of the 'polluter pays principle'; commitment to full cost recovery. All of these actions sent the proper signals to South Africa's upstream and downstream neighbours. Kader Asmal, as the first Minister of Water Affairs and Forestry in the post-apartheid GNU, stated unequivocally at a 1997 SADC-EU meeting in Maseru that Mozambique would get enough water and that the old apartheid perspective that any water crossing the border was water wasted was a relic of the past. South African military assistance to Mozambique during the dramatic floods of 2000 was further illustration of South Africa's commitment to sustainable regional water management – that water would be considered carefully in terms of the watershed, not just in terms of national borders.

Difficult times and difficult decisions lie ahead, however. While there may be a consensus developing around support for the goal in principle of IWRM, the realisation of these ideals in practice is proving more difficult. This reflects abiding difficulties across South African society. As elsewhere, globalisation has created winners and losers across South Africa. The South African economy shed more than one million jobs in the first post-apartheid decade. Fault lines have appeared within and between the major political parties. Capital flight and the out-migration of skilled workers to other countries limit the capacity of the state and the society to shift toward more sustainable, equitable and efficient processes of wealth creation. Ethnic power is once again being mobilised.

Despite the great strides made in revising South Africa's water laws and policies, implementation that is true to these ideals is proving more difficult.¹⁰ The delay in further progress around water resources management symbolises the current tension between the pressure for continuity and the need for change.¹¹ Large dam-building and inter-basin transfer projects are once again on the planning table, for what everyone can agree upon is more water for all. This marks continuity with past practice, albeit with the needs of the dispossessed and disempowered now factored into the equation.

South Africa, it seems to me, stands once again at a crossroads. The historic bloc that emerged after 1948 arrogated to a small cohort within the central government the capacity to make all meaningful decisions. The negotiated revolution of 1989-94 that initially gave rise to a government of national unity and a seemingly new consensus has faltered. To reiterate a point made earlier, "two outcomes are possible in an organic crisis: either the constitution of a new hegemony or caesarism, i.e. the freezing of unresolved contradictions... In order to bring about structural change in the economy it is necessary to realise a realignment of social forces, either by consent (through hegemony) or by the more or less forcible stabilisation of contradictory forces (through caesarism)" (Cox, 1986). The country seems to be moving toward caesarism, i.e. the forcible stabilisation of several contradictory forces: big business,

¹⁰ For details, see Ntloko et al., 2010.

¹¹ In discussing the early 'framing' period with key interviewees (KI), one could not help but reflect upon the demeanour of those being interviewed: they spoke with excitement, even reverence, for the energy of the time. According to one KI, "[w]e believed what we were doing was right; we didn't care how long or how hard we worked". Similarly, when discussing the difficulties encountered during the rollout period, KIs were uniformly deflated. To quote but one KI: "I guess we didn't think about what it would take to enact all of the new laws we were creating. We were a bit naïve".

industry and agriculture in support of neo-liberalism and a slightly modified 'business as usual'; radical populism seeking use of the state through Jacob Zuma to redress the panoply of wrongs done under both colonialism and apartheid; and a moderate-middle inclined group of actors torn between continuity and change. Water policy and practice in this South Africa reflects such contradictions. Indeed, the emergent 'forced stabilisation' is dependent upon each group's ability to access water of sufficient quality and quantity.

For example, South Africa is the world's third largest exporter of citrus, constituting about 10% of world citrus trade, and employing approximately 100,000 workers. Government's aim over the course of 2006-10 was to grow this sector by 30%, and to facilitate better services to the 2,200 small farmers (i.e. those cultivating less than 100 trees), in addition to ensuring growth among the 1,400 large commercial producers. At the same time, urban and peri-urban dwellers are engaged in a never-ending cycle of 'service delivery protests', wherein access to potable water serves as a crucial symbol of the post-apartheid state's Constitutional commitment to supporting human rights. Mining development, tourism expansion, and urban upgrading may all be added to this list, and all require water. It is unlikely that further movement toward the ideals of IWRM will be realised until more water is harnessed, and this includes the great rivers of the wider region.

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REFERENCES

- Adam, H. and Moodley, K. 1993. *The negotiated revolution: Society and politics in post-apartheid South Africa*. Johannesburg: Jonathan Ball.
- Addison, G. 1998. A case of dam it and be damned. *Saturday Star* (Johannesburg). 7 November 1998.
- Bate, R. and Tren, R. 2002. *The cost of free water: The global problem of water misallocation and the case of South Africa*. Johannesburg: The Free Market Foundation.
- Beinart, W. 2003. *The rise of conservation in South Africa: Settlers, livestock, and the environment 1770-1950*. Oxford: Oxford University Press.
- Beinart, W. and Hughes, L. 2007. *Environment and empire*. Oxford: Oxford University Press.
- Bond, P. 2006. *Looting Africa: The economics of exploitation*. London: Zed Press.
- Bond, P. 2002. *Unsustainable South Africa*. Pietermaritzburg: University of Natal Press.
- Cock, J. and Koch, E. (Eds). 1991. *Going green: People, politics and the environment in South Africa*. Oxford: Oxford University Press.
- Cox, R.W. 1987. *Production, power and world order: Social forces in the making of history*. Cambridge: Cambridge University Press.
- Cox, R.W. 1986. Social forces, states and world orders: Beyond international relations theory. In Keohane, R.O. (Ed), *Neorealism and its critics*, pp. 204-254. New York: Columbia University Press.
- Davenport, T.R.H. 1986. *South Africa: A Modern History*. Second Edition. London: MacMillan.
- Davies, B. and Day, J. 1998. *Vanishing waters*. Cape Town: University of Cape Town Press.
- Davies, R. and O'Meara, D. 1984. The state of analysis of the southern African region: Issues raised by South African strategy. *Review of African Political Economy* 29: 64-76.
- Denoon, D. with Nyeko, B. 1972. *Southern Africa since 1800*. London: Longman.
- DWAF (Department of Water Affairs and Forestry). 1997. White paper on a national water policy for South Africa. Pretoria: DWAF.
- Good, K. 1997. *Realizing democracy in Botswana, Namibia and South Africa*. Pretoria: Africa Institute of South Africa.
- Gramsci, A. 1971. *Selections from the prison notebooks of Antonio Gramsci*. Translated by Hoare, Q. and Nowell Smith, G. London: Lawrence and Wishart.
- Grundy, K. 1986. *The militarization of South African politics*. Bloomington, Indiana: Indiana University Press.

- Hall, S.; Held, D. and McLennan, G. 1992. Introduction. In Hall, S.; Held, D. and McGrew, T. (Eds), *Modernity and its futures*, pp. 1-11. Cambridge: Polity Press.
- Heard, K. 1974. *General elections in South Africa 1943-1970*. Oxford: Oxford University Press.
- Herbst, J. 2000. *States and power in Africa. Comparative lessons in authority and control*. Princeton, N.J.: Princeton University Press.
- Jacobs, N.J. 2003. *Environment, power and injustice: A South African history*. Cambridge: Cambridge University Press.
- Jonker, L.; Swatuk, L.; Matiwane, M.; Mila, U.; Ntloko, N. and Simataa, F. 2010. Exploring the lowest appropriate level of water governance in South Africa. Report to the Water Research Commission, Project K5/1837/1. Pretoria: Water Research Commission.
- Keegan, J. 1994. *A history of warfare*. Toronto: Vintage.
- Lipton, M. and Lipton, M. 1994. *Restructuring South African agriculture*. Institute of Development Studies Bulletin 25(1): 24-29.
- Makgetla, N. and Seidman, A. 1980. *Outposts of monopoly capitalism: Southern Africa in the changing global economy*. Westport, Conn: Lawrence Hill; London: Zed Press.
- Ntloko, M.; Swatuk, L. and Jonker, L. 2010. Institutional change for effective water governance in post-apartheid South Africa. Paper presented at the annual WaterNet/SADC/GWP symposium, Victoria Falls, Zimbabwe, October.
- O'Meara, D. 1996. *Forty lost years: The apartheid state and the politics of the National Party, 1948-1994*. Johannesburg: Ravan.
- O'Meara, D. 1986. Destabilization in Southern Africa: Total strategy in total disarray. *Monthly Review* 37(11): 51-68.
- Parnell, S. 1988. Land acquisition and the changing residential face of Johannesburg, 1930-1955. *Area* 20(4): 307-14.
- Porter, G. and Phillips-Howard, K. 1997. Agricultural issues in the former homelands of South Africa: The Transkei. *Review of African Political Economy* 24(72): 185-202.
- Pottinger, L. 1998. All wet: The World Bank and the Lesotho dam. *Southern Africa Report* 13(4): 21-24.
- Saul, J. 1993. *Recolonisation and resistance in southern Africa in the 1990s*. Toronto: Between the Lines.
- Southall, R. 1996. Beyond the 'double whammy': The new South Africa in the new world order. *Third World Quarterly* 15(1): 121-137.
- Swanson, M.W. 1977. The sanitation syndrome: Bubonic plague and urban native policy in the Cape Colony, 1900-1909. *The Journal of African History* 18(3): 387-410.
- Swatuk, L.A. 2009. Toward good water governance: Knowledge is power? In Alaerts, G.J. and Dickinson, N.L. (Eds), *Water for a changing world – Developing local knowledge and capacity*, pp. 249-258. Balkema, Leiden: CRC Press.
- Swatuk, L.A. 2008. A political economy of water in Southern Africa. *Water Alternatives* 1(1): 24-47.
- Swatuk, L.A. 1998. Re-making the state: Assessing South Africa's developmental agenda. Southern African Perspectives No. 71/72. Bellville: Centre for Southern African Studies, University of Western Cape.
- Swatuk, L.A. 1997. Tapping Congo's wealth. *African Agenda* 15: 40-42.
- Tewari, D.D. 2006. An evolutionary history of water rights in South Africa. In Tvedt, T. and Oestigaard, T. (Eds), *A history of water 3: The world of water*, pp. 157-82. London; New York: I.B. Tauris.
- Thabane, T. 2006. Developing Lesotho's water resources: The Lesotho highlands water scheme. In Coopey, R. and Tvedt, T. (Eds), *A history of water 2, The political economy of water*, pp. 368-89. London; New York: I.B. Tauris.
- Tropp, J.A. 2006. *Natures of colonial change. Environmental relations in the making of the Transkei*. Athens, Ohio: Ohio University Press.
- Wittfogel, K. 1957. *Oriental despotism: A comparative study of total power*. New Haven: Yale University Press.
- Wylie, D. 2001. *Starving on a full stomach: Hunger and the triumph of cultural racism in modern South Africa*. Charlottesville: University of Virginia Press.