

The political economy of water management: Neoliberalism and social resistance in South Africa

by Patrick Bond, Senior Professor of Development Studies and
director of the Centre for Civil Society, University of KwaZulu-Natal, Durban, South Africa
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1. Introduction

Awareness of the deep politicisation of water management is now a critical component in any analysis either of bulk resources or of consumption of water and sanitation services at household scale, the supply and demand sites that typically divide the field (Strang 2004). From urban political economy (Swyngedouw 1996) to more Foucauldian readings (Ruiters 2007), the hydropolitical process has come under increasingly sophisticated scrutiny. In South Africa, where neoliberalism has been actively promoted in nearly all policy spheres, including water, there is a renewed interest by critical scholars in Gramsci. Recent research has unearthed techniques underlying the bourgeois-nationalist 'Passive Revolution' undertaken by the African National Congress (ANC) since 1994. Carolyn Basset (2008) considers the country "a successful Passive Revolution on the part of capital, strengthening the future prospects of the biggest firms, the mining conglomerates and financial services companies, by incorporating elements of the black middle class under a majority government but shutting out the working class and the poor." Water is part of this equation, in ways that unveil new aspects of class and geographical segregation, as a study of Durban will illustrate.

In such an arrangement, Richard Seymour (2013) argues, "bourgeois domination is secured through molecular transformations in the composition of social and productive forces which become the matrix of new changes," including what we can understand as the imposition of neoliberalism as a condition for the transition from apartheid to formal democracy (Bond 2014). Because of the Passive Revolution's "cynical, bureaucratic power bloc manoeuvring" (Seymour 2013) and patronage politics, the apparent success of the post-apartheid project is reflected in the ANC's repeated re-elections with at least a 60 percent majority. This is surprising in a context of extremely high levels of popular rebellion and repeated economic crisis events (e.g. at least eight currency crashes in 20 years) caused, in no small part, by what Gill Hart (2013) terms 'de-nationalisation' of capital (i.e., financial flight by white-owned corporations). But Hart also sees a dialectic through the ANC's 're-nationalisation' associated especially with the need to fuse *neoliberal public policies* with *populist politics* during the reign of Jacob Zuma since 2009 (hence Fanon complements Gramsci in the post-colonial African context). Crucially, Hart (2013) insists, if the Passive Revolution "involves the overthrow of some older social forms and the institution of new ones, combined with a deliberate and structural pacification of subaltern classes – it combines, in other words, both a 'progressive' or 'modernising' revolution of sorts, and its passive deformation."

Even though the Passive Revolution is typically a national-scale project, for Hart (2013), “Broadly speaking, local government has become the impossible terrain of official efforts to manage poverty and deprivation in a racially inflected capitalist society marked by massive inequalities and increasingly precarious livelihoods for the large majority of the population.” Taking municipal-scale hydro-politics as her case study, Fiona Nash (2012, 17) argues that Durban officials’ objectives included “the selective incorporation of civil society demands through a participatory process” and “potential spaces for imagining alternatives outside of the neoliberal paradigm have been narrowed.” The question this article poses, is whether at municipal scale, the celebrated Durban water model does indeed reflect a sustainable local instance of the Passive Revolution, or whether its internal contradictions – especially in relation to water and sanitation – could prove overwhelming.

To examine this case properly requires taking up the perspective of urban political ecology introduced by Erik Swyngedouw (1996, 65), in which a city’s water flows can be used to “narrate stories of people and powerful socio-ecological processes that produce urban spaces of privilege and exclusion.” For various reasons, Durban is probably the optimal site of hydro-political enquiry in South Africa, for here, extremely unequal socio-ecological and political-economic processes mean the Passive Revolution – especially a core neoliberal policy based on cost-recovery (Section 2) – often attracts an Active Counter-revolution. This we see through the following: untenable peri-urban and urban water pollution with severe externalities (Section 3); a turn to neoliberal water pricing (and mass disconnections) alongside a Free Basic Water tariff which led to dramatic declines in poor people’s consumption (Section 4); and a celebrated water-less sanitation policy rife with problems (Section 5). The contradictions thus generated could ultimately threaten the Passive Revolution, as the technicist strategies become more politicised.

2. Neoliberal water’s socio-ecological, political-economic contestations in Durban

The neoliberalism imposed on South Africa required strong nationalist overtones, as well as tokenistic welfarist concessions (the core Passive Revolution components). Its durability remains to be seen, but sharp contradictions are evident. The case of Durban helps us assess whether this sort of framing, from national context downwards, fits the politics of municipal water and whether Ethekewini Water and Sanitation (EWS) is run in a manner that complies with the Gramscian argument.¹ Four eloquent bureaucratic/expert practitioners of this Passive Revolution in Durban – Teddy Gounden, Bill Pfaff, Neil Macleod and Chris Buckley (the latter is a closely allied University of KwaZulu-Natal academic, justly lauded for his technical interventions) – explain how “provision of free sustainable basic sanitation” follows from the serious practical problem of state legitimation they faced:

¹ South Africa’s third largest metropolitan area, Durban (or ‘Ethekewini’) has an exceptional reputation for water and sanitation delivery (Wilson 2006). Durban won a 2002 *National Geographic* award for sanitation, a 2003 Dubai International Award for Best Practices (for sewage disposal education), the 2003 South African national ‘Excellence in Innovation’ award, the Ford Foundation’s 2003 Impumelelo Award, and ‘best municipal delivery’ and ‘Blue Drop’ awards in the last half of the 2000s. As Bill Gates (2010) blogged, Macleod “has been a leader in thinking through how to improve sanitation for the poor in Durban.”

In-house full-pressure water supply and flushing toilets linked to waterborne sewerage and wastewater treatment plants *represent the ideal to which most of the population aspires*. However, the South African government has recognized that it is neither *technologically* nor *financially* feasible, nor necessarily *environmentally sustainable*, to provide these levels of service to all. In particular, peri-urban and rural populations are *unsuited* to the provision of such services, owing to factors such as land ownership, housing density, mobility of the population, terrain and accessibility (emphasis added) (Gounden et al 2013).

Gounden et al (2013) are correct about the overarching demand – especially flush toilets – from ordinary civil society activists, particularly at a time when racial equity demands run into the barrier of class privilege. But they are incorrect that it is technologically infeasible to provide water-borne sanitation to everyone; after all it was feasible for a medium-sized country to build and test nuclear weapons (in 1978) or host a soccer World Cup (in 2010) with massive stadium construction and refurbishments. Their contention that the ‘financially feasible’ sanitation strategy would be to deny water to poor people is a political value judgment, just as is their view that it is only the distant areas – outside the city’s so-called ‘Sanitation Edge’ (renamed Urban Development Line) (Figure 1) – that cannot be served for environmental reasons, while those who live in settlements closer to the city centre are justified to have full water-borne access.

As for the environmental sustainability of their chosen sanitation strategy, Gounden et al (2013) ignore critical cultural factors associated with the use and re-use of human excrement, as noted below. Indeed the approach Gounden et al (2013) adopt for sanitation mirrors the modified-neoliberal strategy celebrated in *Science* magazine several years earlier: “a quarter of a million households in the Durban area had no access to clean water or sanitation. To jump-start improvements, Macleod got permission from the city in 1996 to provide a daily 200-liter water ration – a policy that became a national goal (Koenig 2008, 744).

In reality, however, the city’s water system is breaking down, and a systematic analysis of the causes is crucial, especially because they relate to broader neoliberal policies and practices, including malpricing of water and artificial fiscal austerity. That breakdown can be quantified in rough terms, because whereas Macleod promised that by 2010 ‘everyone’ in Durban would have access to basic water and sanitation (Koenig 2008, 744), it is apparent in 2013 that *many hundreds of thousands of residents of shack settlements still do not*. In surveys by the SA Cities Alliance, a network associated with the World Bank, Durban led South Africa’s major cities in the *decline* in the supply ratio of (in-house) water to residents during the early 2000s. In 1996, 62 percent of Durban residents had water within their household, but by 2004 the rate was reduced to 50 percent due mainly to municipal boundary changes. The growth in population without adequate sanitation rose from 30 percent in 2001 to 32 percent in 2004 (SA Cities Alliance, 2006, 3). Even as recently as 2007, municipally-sponsored water customer Focus Groups in three representative working-class and poor areas identified an awareness of unaffordability (at more than 75 percent of those surveyed) and city-society conflict (between 20 and 50 percent of those surveyed) (Wilson, Malakoana and Gounden 2008, 142-146).

The number of Durban's low-income inhabitants without direct water supplies soared simply due to the new boundary demarcation in 2000, but meanwhile, government's national-local financing flows fell short in the wake of substantial real budget cuts during the 1990s (Bond 2000) and inadequate 'Equitable Share' funding (which was not in any case earmarked for water) available during the 2000s. Structurally, the society was experiencing a dramatic increase in unemployment during the late 1990s, doubling from 1994 levels of 16 percent. The Gini coefficient measuring income inequality continued to rise steadily from 1994 throughout the 2000s (Bond 2010b). Over the entire post-apartheid period, according to the SA Labour and Development Research Unit in 2010, "poverty incidence barely changed in rural areas, while it increased in urban areas" (Leibbrandt et al 2010, 36).

Instead of making much more substantial investments in water infrastructure, offering more subsidies for operating and maintenance, and regulating water pollution, in 1994 the national government turned to an explicitly neoliberal strategy. Strongly influenced by the World Bank and neoliberal donor agencies, the Department of Water Affairs and Forestry adopted a 'width not depth' approach to many basic need services, including housing, water/sanitation and electricity, with adverse implications for both the retail-level supply and related bulk infrastructure (Bond 2002, 2006, 2014, McDonald and Pape 2002, McDonald and Ruiters 2004). The roll-out of water services proceeded with concern for quantity (number of communities connected to collective taps), not quality or sustainability in mind. Taps were often far from homes, and a large share broke down when people attempted to access pipes for direct connections. The percentage of GDP devoted to water, gas and electricity actually declined after 1994, and the number of municipal engineers halved (Bond 2010b, 2014).

In Durban, controversies emerged when water officials were challenged by civil society over various aspects of water delivery. As Nash (2012) argues, concessions were made by Macleod, which she argues were cooptive, setting back the struggle for longer-term campaigning for a fully liberatory mode of eco-social relations. Just as the 1973 dockworker strikes in Durban's harbour signaled the beginning of a major trade union movement that became the continent's strongest and a decisive factor in ending apartheid, there was a seminal 1999-2000 mobilisation of thousands of the city's Chatsworth neighbourhood residents. Nearly unique in Durban's history, it brought poor and working-class people of Indian and Zulu ethnicity together in a rare alliance, heralding not only the new post-apartheid urban social movements, but also an intense set of battles over water access and pricing, leading to widespread illegal reconnection of water once supplies were disconnected (Desai 2002, Bohmke 2003).

The broken pipes associated with illegal reconnections contribute a small amount to a 40 percent rate of unaccounted-for-water (Assaf 2011, 55). One response by city officials is "rectification of unmetered connections and informal settlement metering," as well as "new supply pressure zones to reduce average water pressure" (Assaf 2011, 55), even though high pressure is a crucial factor in tap water's ability to provide hygienic cleansing to

eradicate water-borne disease carriers, a major factor in KwaZulu-Natal's extreme public health burden (especially of sexually-transmitted diseases).

Community resistance using illegal reconnections led to harsh municipal reactions, especially during times when much higher water prices were imposed, e.g. a 39 percent increase in July 2011 at a time the inflation rate was less than 6 percent. Some community groups were coopted into reducing community water consumption through a 'Citizens' Voice' strategy involving the country's main water NGO, Mvula Trust (Water Information Network South Africa 2009). The objective was to save water by denying it to low-income people through technologies explored below. But notwithstanding some concessions in 2008, including a higher level of Free Basic Water for low-income residents (Bond and Naidoo 2008, Nash 2012), contradictions and social strife remained acute.

For households, the sources of conflict included disconnections, pricing debates and service-level controversies relating to household water and sanitation (as discussed below in Sections 4 and 5). For water resources management including bulk supply and disposal, the main frictions resulted from the city's failure to adequately invest in and maintain the water services infrastructure, especially bulk supply, sewage piping and stormwater drainage, as we see next (Section 3). In turn, this neoliberal contradiction threatened the future viability of the city's neoliberal tourist Local Economic Development strategy, especially when sanitation polluted Durban's famous beaches and, in 2008, the city's 'Blue Flag' beach status was retracted as a result of high E.coli counts in ocean water near a half-dozen river mouths.

3. Sewage spills, river pollution and Blue Flags

By the end of 2007 it was suddenly evident that Durban municipal officials had deprioritized water health, neglected pipe maintenance and redirected needed funds away from sewage station infrastructure. Formal sanitation was nearly nonexistent in the low-income settlements that emerged over the prior fifteen years, with a typical shack settlement of several thousand residents often serviced with only a handful of chemical toilets. The catalyst for widespread civic concern and embarrassing press reports was the appearance of tens of thousands of dead fish in Durban's harbour during the December 2007 holidays, but concern reached a peak when the city's once proudly-acclaimed Blue Flag beach status was revoked a few months later.

According to award-winning environmental journalist Tony Carnie (2008a) of *The Mercury* newspaper, nearly two months passed before it was determined that the failure of a city sewage works was responsible for the 2007 fish kills, in part because of municipal obstruction of information: "The findings by the Council for Scientific and Industrial Research follow repeated denials by municipal manager Mike Sutcliffe that raw sewage spills were the primary cause of the massive die-off of fish and other marine life just after Christmas Day."²

² A few months later, Sutcliffe was awarded two Association of American Geographers public service awards.

This was not the first time that the Umhlatuzana River, feeding the harbour, suffered extreme pollution, but on no prior occasion in living memory was the damage so severe (Carnie 2008b). A few weeks later, Carnie (2008g) alleged that in providing only partial reports about the broken pipes to Council, “Sutcliffe appears to have gone out of his way to discredit or suppress much of the evidence,” which included the leading municipal water expert’s testimony: “the fish kill is directly attributable to the amount of nutrients built up from sewerage inflow that entered the bay, and no other causes.”

Another study of Durban’s rivers emerged at the same time, within the national Department of Water Affairs and Environment’s *State of South Africa’s Rivers Report* on the Umngeni and neighbouring river catchments, and “highlighted several cases of broken sewage pipes and overflows and poor treatment at several eThekweni municipal sewage works,” according to Carnie (2008f). At a time the national guideline for acceptable E.coli recreational contact was 100 parts of faecal pollution per 100ml (Carnie 2008j), “poor management of human activities and infrastructure relating to faecal contamination” affected some of Durban’s major rivers: “Isipingo River above the Isipingo waste Water Treatment Works, E.coli count up to 10,000,000,000,000 and exceeding 100,000,000 60 percent of the time. (Cause: broken sewers in uMlazi Township). uMngeni River at Kennedy Road, E.coli up to 1,080,000. (Cause: Informal Community on the banks of the Palmiet River.) This is an example of the impact that a community on a small river can have on a larger river!” (South African Department of Water Affairs and Environment 2008).

Much of the faecal contamination logically followed the failure of Durban authorities to offer adequate sanitation in shack settlements (‘informal communities’) which in turn created vast public health threats across a very large geographical area. Macleod (2008b) explained this logic:

A piped sewerage system is not economically justifiable in rural areas, where the densities are too low, and in these areas onsite sanitation is the only viable option available. The rapid densification of the municipality has led to the run-off of untreated sewerage and polluted storm water into a number of rivers. It can be reasonably expected that the housing backlog will be eradicated by 2015 and only then will the problems faced through informal settlement pollution washing into the streams, be finally solved.

The first sentence above is contradicted by the second, because “rapid densification” should be the basis for running subsidised sewage pipes to even informal settlements (the main reason for not doing so is that that would entail recognizing the validity of these areas, which were often gained in social struggles through illegal land invasions). The third sentence puts the onus for sanitation on housing construction yet even at that point there were persistent crises in the municipality’s housing department, leading to widespread scandals over improperly-constructed residences by developers with close political connections to the ruling party, as the Manase Report released in mid-2013 conclusively proved. There was no hope of eradicating the housing backlog by 2015, and indeed ultimately Macleod (2008b) conceded defeat: “It cannot be expected, however, that the

rivers in our fast-growing municipality, at the levels of poverty and abuse of the sewerage system we experience, will return to a pristine condition.”

No one expected ‘pristine’ rivers, but the penalty for the sanitation crisis was severe: the Blue Flag controversy that lasted from 2008-13. Several urban beaches are the core attraction behind the city’s leading position in domestic tourism, and because of the sanitation crisis they also suffered severe reputational decline. The initial reasons for revoking the Blue Flag status at the two main beaches (North and Addington) were “poor quality of ablution facilities, litter problems and poor beach sand quality” but according to Carnie (2008e), subsequent “regular tests showed the two beaches had been unable to comply with World Health Organisation and South African standards for recreational water quality” and in February 2008, the faecal pollution counts were 9.6 times higher than was considered acceptable.

Although the city’s project executive for coastal and catchment policy, Andrew Mather, reacted logically – “We are trying to find out what the problem is as quickly as possible, and then rehabilitate our Blue Flag programme” (Carnie 2008i) – it soon dawned on the officials how difficult it would be to solve long-standing problems of inadequate maintenance. Sutcliffe and Macleod then argued against the Blue Flag criteria on grounds of inconsistent bacterial measurements between different temperature zones. Sutcliffe also claimed (without specific evidence other than hearsay) that Blue Flag South African coordinator Allison Kelly was “involved with some oppositional groups who have their own agendas to portray our city poorly. Kelly thinks the developing world must have different standards applied to our beaches” (Christianson 2008). His attempt to have her fired from the Blue Flag programme (bragged about in Sutcliffe and Macleod 2008) was rejected by the international Blue Flag headquarters in Copenhagen, which declared her work “outstanding” (Carnie 2008k). With a certain populist logic, Sutcliffe and Macleod (2008) ultimately denied that there was anything to worry about: “Our beaches are packed in spite of Ms. Kelly and others doing their best to portray us in a poor light.” There was, in this vitriol, only a hint that the city’s own infrastructure lacked the physical investment required to adequately dispose of both sewage and stormwater in ways that didn’t threaten public health. The failure to retain Blue Flags designation on six beaches was one crucial indicator of this threat, even if Sutcliffe and Macleod claimed otherwise.

In mid-2011, Macleod’s department issued a water quality report on the full 175 rivers and tributaries in the Durban metropolitan area, which found 90 of them “near natural,” “good” or “fair.” But instead of testing E.coli and faecal pollution counts, “those involved in the programme studied the state of living organisms in the water” (SAPA 2011). It is evident from Durban’s monthly website updates that there is no overall progress and that erratic measurements mar the monitoring system. Moreover, there is a race/class/geographical factor that has not been officially acknowledged but that is evident in reports of beachwater quality. Distinctions are typically stark between ‘excellent’ water quality from central Durban northwards in the near lily-white, rich suburbs; ‘moderate’ quality at the point the (mainly white) Bluff area moves southwards from largely upper-class to middle-class neighbourhoods; to ‘poor’ quality where black South Africans swim at Treasure Beach

southwards (<http://www.durban.gov.za/beachwater>).³ (In 2013, 18 months after Sutcliffe departed his office, his successor S'bu Sithole announced Durban's application for Blue Flag status for just four of the city's beaches, mainly in the primarily-white, upper-class areas of North Durban, where the sanitation crisis was not so severe.)

4. Demand, disconnections and pricing

It is worth stressing that the basic problem is not personalities or bureaucratic agency, but structural denial of funding. Former water director-general Mike Muller pointed to Durban's failure to invest adequately in water infrastructure expansion in early 2011: "Durban is actually the most vulnerable metro at the moment... I think we need to panic at the right time and the right time is now" (*Sunday Independent* 2011). Macleod agreed, "We are at a point where our dams are unable to sustain the current demand over an extended period" (Savides, 2011). Macleod had advocated that a new dam to supply Durban (at Spring Grove) be built in 2006, "but construction work has not even started" in 2011, and further dam building estimated to cost \$2.5 billion was also proposed, following Spring Grove. The main reason for the shortfall was that after early 2006, decisions on Durban municipal investments were subordinated to the construction of the Moses Mabhida Stadium for the 2010 World Cup, which subsequently failed to attract sufficient events and crowds to cover its operating and maintenance costs, much less provide the state a return on the \$430 million capital investment (Bond and Cottle 2011).

Macleod could have adopted a different strategy, 'demand-side management' of water – such as luxury consumption taxes on hedonistic consumers and formal restrictions – which could potentially have achieved major savings that would *not* in turn have required new supply-side enhancements. These, however, required political will, because dramatic increases in the price of water for high-volume residential and commercial, industrial, and agricultural users, as well as direct controls on water use, could certainly lower demand but would have generated opposition from powerful interest groups. To date, Alex Loftus' (2004, 2005, 2006) Oxford University doctoral research about household water (including revelations of 1000 families disconnected from full, high-pressure water supply *every day* in 2003), and the 2005 study of household water price elasticity by Reg Bailey and Chris Buckley, have offered the main data for critical assessment of Durban retail water policies and practices.⁴ These studies reflected two of the most important demand-side aspects of post-apartheid water: how much it would cost residents to consume, and whether rising prices were offset by sufficient Free Basic Water.

³ Also telling is that from the Bluff northwards, the city's famed shark nets to prevent attacks are installed, but not further south – in the coloured and Indian areas – until they resume at the white-dominated resort town of Amanzimtoti.

⁴ In another study, 2008 comparative retail water price data were analysed by the Centre for Applied Legal Studies, Centre on Housing Rights and Evictions and Norwegian Centre for Human Rights (2008), and only Msunduzi (Pietermaritzburg) charged urban South Africans a higher price for a typical low-income consumption level of 12 kl/hh/month at full pressure: R50 (Msunduzi was R55). (At semi-pressure water level, the price was R35.) In contrast, Cape Town's price was only R10 for 12 kl/hh/month.

Bailey and Buckley (2005) identified a doubling in the real price of Durban water to consumers who regularly paid their bills from 1997 to 2003, and using house valuations as a proxy for wealth, assessed the differential impact of the price rises by estimating the price elasticity of water across three bands of approximated wealth (for details see Bond 2010a, 456-457). In short, a price elasticity of -0.55 for the third lowest-wealth residents of Durban meant a 32 percent decline in per household monthly consumption (from 22 to 15 kl/hh/month), but for the middle- and highest-wealth two thirds of the city's regular bill-paying water customers, there were much smaller price elasticities (-0.15 and -0.11 respectively). One might reasonably conclude that poor people were, in relation to their ability to pay, overcharged; and wealthier people were undercharged.

In the 6-20 kl/month range of water consumption, the United Nations Development Programme's (UNDP's) 2006 *Human Development Report* showed that Durban's prices were far higher than other Third World cities (UNDP 2006, 91). Reflecting how little this seemed to matter, however, Macleod testified in a 2007 affidavit to the Johannesburg High Court about the UNDP's analysis of Durban's rising block tariff without apparent acknowledgement of the very high relative price increases in the key consumption range (6-20 kl/hh/month) as a problem. Instead, the increases within the context of a rising block tariff were "an important part of the legislative framework for acting on the *right to water*" (Macleod 2007, 11, emphasis added) in spite of the evidence provided by Bailey and Buckley (2005) that the price elasticity was so high that low-income residents had cut back their consumption dramatically.

Given Durban's excessive average water price increases beginning in the late 1990s, the retail controversies that arose during the early 2000s concerned the size of the initial block of free water, and water disconnections. Why was the Free Basic Water amount of 6 kl/hh/month chosen? In testimony to the Johannesburg High Court, Macleod (2007, 3) explained that Durban's 1997 model, which became the basis for Department of Water Affairs and Forestry's subsequent national policy, was adopted because "approximately 7 litres of water was used per person per day as this was generally the amount that an individual could physically carry and could afford." Rather than human need, the biophysical limits of water transport, typically by women or children, became the baseline.

But administrative cost factors were apparently also important, and in motivating a free supply of (just) 25 litres per person each day, the national water minister at the time, Ronnie Kasrils, couched his justification partly in the narrow terms that Durban provided him. "It would save money because local authorities would not be saddled with the problem of administering large numbers of small accounts," he told a media briefing in February 2000 (Bond 2002). To achieve administrative savings in billing, Durban therefore began to provide a 200 liter drum to poor households in formal housing units, which "could be filled once a day with clean drinking water ... at a minimal charge", according to Macleod (2007, 3). But when, during 1998, "it became apparent that the amount of money that was collected by the Council for the water supply was in fact equivalent to or less than the costs of administering the collection of the amounts from the relevant communities," Durban switched to a free provision of the basic amount, according to Macleod (2007, 4).

Nevertheless, for consumption on a billed meter (not the houses with 200 liter drums), this was an era in which the bulk water supplier to Durban, Umgeni Water, was itself facing financial (and managerial) problems, and its price increases to Durban were passed on to consumers (Loftus 2005). Loftus (2003) questioned Macleod regarding low-income Durban residents' difficulties paying their water bills given these price increases: "He openly admitted to roughly 1000 disconnections taking place across the municipality daily. This shouldn't be viewed as a problem, he assured me, there is no need to adjust the tariffs or increase the free water allowance, rather the disconnections are (once again) merely a mechanism of financial management."

The Durban Concerned Citizens Forum was the initial advocacy group that took Macleod to court to try to halt disconnections (Desai 2002). In 2000, the case of Christina Manquele (a single mother of seven) initially resulted in a court-ordered reconnection, after Manquele could not pay her \$2000 water bill and claimed the disconnection was unconstitutional (Bohmke 2003). With more than 10,000 Umlazi township residents in the same situation, having recently been disconnected, the court ultimately ruled against Manquele, finding that by using more than the 6 kl/household/month then available, she had forfeited any right to free water. However, at that point, Macleod announced that instead of outright disconnections, 'flow limiters' would be installed, an important distinction (Loftus 2005, 193). But the limiters were often physically removed or sabotaged by local water activists (Desai 2002). As for those on the formal metering system, the fast-rising water price continued to compel low-income people to cut consumption (Bailey and Buckley 2005), even though AIDS, cholera and diarrhoea were all rife during this period.

Further impetus for market-related pricing and disconnections came from the central government. The Department of Water Affairs and Forestry was initially advised by World Bank water expert John Roome (1995, 52) to avoid a cross-subsidised water system (especially free water for the first block of consumption) and instead, to disconnect households which were not paying. The first post-apartheid Minister of Water, Kader Asmal, proceeded to authorise disconnections, including in the former Bantustan areas that had received free supplies during apartheid, such as Ngwelezane in rural KwaZulu-Natal, which in 2000 became the epicentre of a major cholera epidemic (Bond 2002). The costs associated with treating epidemic victims were far greater than the benefits in cost-recovery: around \$7/connection was raised from those who could afford to pay, but in Ngwelezane, that left hundreds of families disconnected from formerly free, clean water, to then draw on polluted surface water supplies.

In addition, the Department of Constitutional Development and the national Treasury established 'Project Viability' in 1997, encouraging water and electricity disconnections of residents who were in arrears on payments. The tougher the credit control, the higher the municipality's credit rating (Bond 2000). In 2002-03, according to the SA Cities Network (2006), Durban disconnected 40,000 more of its residents than it connected to electricity, and this alongside a strong reserves fund earned the city an AA rating for municipal bonds. The philosophy of disconnection was important, according to Macleod in December 2004 (cited in Parikh 2006), because "We run exactly like a business except that we're not operating as a profit maker or a loss maker; we have to pass on tariffs to recover our

costs... The basic reality is that this is not a socialist state, we're not into free gifts, this is no free lunch." Even without formal privatization, the *commodification* of water was an explicit objective of Durban water.

In 2005, the local Ecopeace party's sole city councillor, Alan Murphy, requested a shift in municipal water policy to write off water-related arrears and redistribute water from industry and high-wealth homeowners to low-income, low-consumption Durban residents. The reply from Macleod (2005) was stark: "Any increase in the water price to Id customers (Industrial, Commercial, Institutional) sends a negative signal to potential investors and will further reduce our potential to create jobs."

In fact, to his credit, within three years Macleod changed his mind and expanded the Free Basic Water supply by 50 percent, from 6 to 9 kl/hh/month (Nash 2012). Yet here too there was a neoliberal turn: the new policy was mediated by a return to indigency policy, with people living in houses valued at more than \$28,000 disqualified from free services. South Africa's real estate bubble was so severe during the 1997-2008 global property boom – with a 389 percent real price increase (compared to the second highest, Ireland, at half that) – that this was not an appropriate level. Nor would the choice of property value as proxy for wealth reflect the need for desperately-overdue process of racial and class integration in post-apartheid South African cities and towns (Bond 2010b).

What this entailed, technically, was the refilling of the 200 liter drums, formerly once each day and in future 1.5 times a day, and then moving from installing a ground tank drum to a yard tap with flow limiter (Gounden et al 2012). Various explanations can be given for this laudable increase in Free Water, including the embarrassing findings of Bailey's research; a national 'Water Dialogues' multi-stakeholder process (in which Macleod was a central participant) that more clearly spelt out rationales for increasing water to low-income households (Galvin 2009); and a Focus Groups strategy that taught Macleod more about consumer grievances (Wilson, Malakoana and Gounden 2008). Bottom-up articulations of grievances, including protests at City Hall over inadequate water and sanitation as well as the rise of localized 'service delivery protests' (Bond 2010b, 2011b) may also have affected municipal water policy. These in turn may well, as Nash (2012) argues, contribute to cooptation of civic groups, if the gains are not followed up with further-reaching 'non-reformist reforms' (Bond 2014).

Some activists seek transformative reforms in South Africa by invoking Constitutional language ensuring socio-economic rights. The main water rights case took place in Soweto, Johannesburg during the 2000s, as five black women fought for a larger free water allotment (50 liters per person per day) starting in 2003. They ultimately failed in the Constitutional Court in October 2009. There, a neoliberal ruling in *Mazibuko et al v Johannesburg Water* overturned seminal findings in favour of the Soweto activists in April 2008 (High Court) and March 2009 (Supreme Court), which human rights activists had hoped would substantially expand water access (Bond and Dugard 2008, Bond 2013).⁵ The Constitutional Court had refused to become involved in setting policy and implementation

⁵ During this period, Macleod was a board director of Johannesburg Water.

guidelines that would give meaning to the following promise made by the ruling African National Congress (ANC) just before the 2000 municipal elections: “The ANC-led local government will provide all residents with a free basic amount of water, electricity and other municipal services so as to help the poor. Those who use more than the basic amounts, will pay for the extra they use” (ANC 2000). Johannesburg Water officials had, in 2001, distorted what could have been a progressive rights-based mandate, by adopting a tokenistic free water allocation (6000 litres per household per month which for a family of eight is 25 per day), refusing to allocate on a per capita basis (hence biasing against large, low-income households), and then raising the second block of consumption to an extremely high level (Bond and Dugard 2008). Activists demanded a different tariff curve, one that would start with a larger lifeline block, followed by higher tariffs rising quickly after a luxury consumption level (typically above 30 kl/hh/month). Where this left Durban’s residents, in the wake of the Phiri judgment, was with a mix of grievances, in which much more high-profile protest activity was registered against other service shortfalls, not water (Mottiar and Bond 2012). But the relationship of inadequate services for low-income Durban residents to the inadequate maintenance in the system as a whole may provide new insights into nature-society linkages which will have longer term consequences. This is especially obvious when it comes to sanitation, and nowhere more extreme than in the choice of a flush toilet versus a dry toilet.

5. Urinary diversion beyond the ‘Sanitation Edge’

Starting at the level of the household, Macleod (2008a, 2) acknowledged that with the city’s expansion in 2001, there were 200,000 families – roughly a third of the population – without basic sanitation. Many lived beyond ‘the sanitation edge’, a vast peripheral band of the municipality in which it was deemed fiscally unrealistic to lay sewage lines. Across the city, there were 60,000 pit latrine toilets that had filled and the city was unable to fulfill its commitment to a “free basic sanitation service in the form of one pit emptying every five years,” Macleod (2008a, 7) conceded at the 2008 Africa Sanitation conference in Durban. Indeed many pits were unlined with the “toilets subject to catastrophic collapse”, many were “constructed in inaccessible locations,” and there was high variability in content, size and cost of emptying. The cost of emptying each pit averaged \$120 per pit, compared to “the cost of constructing new single Ventilated Improved Pit-latrines (VIP) type toilets: \$140 to \$420”, making the process “uneconomic” (Macleod 2008, 7).

By that stage, according to Simphiwe Nojiyeza and Baruti Amisi (2008, 2), Durban still suffered from “148,688 pit latrines without ventilation as well as 41,880 chemical toilets. Bucket latrines have been reduced to 9270.” VIPs were increasingly filled up but not being emptied in Durban and across South Africa. Yet on a 2010 visit, philanthropist Bill Gates (2010) was convinced during his tour of VIP projects: “Neal showed me the VIP toilet – which isn’t as fancy as its name suggests, but is a breakthrough in basic sanitation through the use of simple ventilation methods and other inexpensive construction methods, such as installing a fly screen on the ventilation pipe.”

However, because VIPs were increasingly unattractive to the municipality due to excessively high emptying costs, Macleod (2008a, 7) turned to “the use of double pit, urine

diversion (UD) toilets, outside the urban edge.” This in turn permitted further transfer of sanitation maintenance responsibilities away from the state. As Gounden et al (2013) explain, “The UD toilet consisting of two chambers is constructed above or slightly below ground. The pedestal is designed to allow urine to flow to a soak away, while the faecal matter collects in the first chamber... The householder is required to remove the contents, dig a hole and bury the contents on site. The pedestal is moved back to the now empty first chamber.”⁶ The UD will become “the future of toilet technology” in the Third World, according to a *Guardian* report (Kaye 2012).

For the UD technology to prevent contamination of the solid with the liquid requires consistent hygienic education. Contamination is a frequent problem, in a context of high rates of diarrhea (oftentimes associated with AIDS-related opportunistic diseases, since Durban has the world’s highest level of urban HIV+ prevalence), humid weather, hilly slopes, poor drainage and turbulent rain. Nevertheless, according to Macleod (2008a, 8), the 63,000 new UD toilets constructed by 2008 were “able to be emptied by households at an affordable cost” and they used “minimum amounts of water, if at all.” (Indeed the UD is designed to *not* use any flushing mechanism, and a 2010 innovation was to begin paying residents for collection/recycling of urine from UDs in view of a coming ‘peak phosphate’ problem faced in commercial agriculture, for an estimated \$4/month per household.)

The capital cost of each UD toilet was an average of \$500, but municipal maintenance costs fell away because “emptying is the responsibility of the household, with entrepreneurs already offering their services at \$4 per chamber emptied” (Macleod 2008, 8-9). Macleod (2008a, 8-11) claimed that “follow up visits after construction have increased acceptance levels and emphasised the family’s responsibilities for maintenance of the toilet. The period needed for follow ups extends to years” because of the need to “evaluate acceptance of the solution and to confirm that the hygiene messages have been internalised.” It was this innovation that most impressed a *Science* journalist (Koenig 2008, 744) who termed UD the ‘best solution’ to Durban’s sanitation challenge.

Yet complaints about the UD system were increasingly common in some sites beyond the sanitation edge, such as Inanda Dam. As community organizer Dudu Khumalo remarked about the Umzinyathi and KwaNgcolosi pilot communities, “These communities are repelled by human excrement as fertiliser, because of the many diseases surrounding them, compared to cow-dung. The burden of cleaning is left to women. Other creative opportunities for bio-gas are also foreclosed by UDs” (Bond, Amisi, Khumalo and Nojiyeza 2008). Journalists at Durban’s *Daily News* picked up the story in mid-2010: “Local residents

6. There is a substantial difference between the UD device chosen in Durban (without water and with maintenance/cleaning responsibility completely devolved to the household) and UN Habitat’s recommended low-cost sanitation system. The latter has various advantages over the UD system, and has witnessed more than a million installations in India: “The twin-pit system uses 1.5-2 litres of water per use in a flush toilet that is connected to two pits that allows recharging of the soil and composting, and a close-loop public toilet system attached to a bio-gas digester” (Reddy 2007). And as an aside, the matter of sanitation is not only important for residents at home, but for workers or those in transit across the city, especially in commercial areas. In early 2008, there were only 42 public toilets across Durban’s entire metropolitan area (not including sports facilities) (Savides 2008).

who complained are aghast, not only at the unbearable stench, but the thought of digging out their own waste and using it on their vegetable patches” (Adriaan, Ngcobo and Mngoma 2010).

By early 2014, a municipal/academic survey of 17,000 recipients of the UD toilet made it evident that the system had failed, and a new strategy would be required (Coertzen 2014). Fully 99 percent of respondents observed that a flush toilet inside their house would be optimal; many used the flush toilet at work in the city but when back in peri-urban home areas were unhappy about substandard sanitation. Foul smells were the biggest problem, causing 80 percent dissatisfaction. On the one hand, diarrhoea reports suggested a 40 percent improvement, as a result of having access to sanitation, but on the other hand, the fact that widespread diarrhoea made drying excrement difficult wasn't surveyed. There were inadequate instructions on emptying the excrement, include digging a pit and planting a papaya tree. The suggestion of privatizing the task of emptying the buckets was used by 10 percent (but payment price was not known). The pilot project on paying people for their urine for the phosphate content was proceeding, with hundreds of people participating. But by 2014 the overwhelmingly negative reaction was forcing another municipal rethink, with a new strategy of converting the UD's into low-flush systems with mini septic tanks.

6. Conclusion

The analysis above is dire in part because expectations have always been high for Durban as a result of professional hype about water/sanitation management, as well as the expectation that civic groups would play a strong countervailing role as watchdogs. The hype and awards won by Macleod were, one might conclude, unwarranted. But the overarching “overthrow of some older social forms and the institution of new ones, combined with a deliberate and structural pacification of subaltern classes,” as Hart (2013) puts it, is a useful way to understand the Passive Revolution's impact in Durban's water system. One reason was the failure to budget and spend sufficient funds on low-income Durban residents' water and sanitation needs as well as on bulk infrastructure expansion and infrastructure maintenance, while another was civil society's failure. Consider each in turn.

First, as was becoming clear by the time of the 2010 World Cup soccer tournament, the South African state had vast quantities of funding at its disposal for infrastructure, having spent in excess of \$20 billion on the games, new and revamped stadia, and a new fast train in Johannesburg and airport in Durban (Bond and Cottle 2011). However, in part because the attention given to the World Cup and its associated above-ground infrastructure (e.g. in Durban highway widening and flyover construction in addition to the new airport), municipalities didn't pay enough attention to below-ground infrastructure such as household sanitation, and sewage and stormwater pipe rehabilitation that could have employed many more people and met basic needs. The *Financial Mail* (2010) observed the state “neglecting infrastructure maintenance” with “no budget for repairs and maintenance in most municipalities in 2009/2010. It appears to have been absorbed into the other expenditure line items.” The same problem was also identified by former Director-General

of Water Mike Muller (2007), who addressed the class implications: “The weak conditionality in the Division of Revenue Act, which regulates the municipal transfers, now has clear incentives for municipalities *not to extend services to the unserved.*” [emphasis added]

These are some of the finer details associated with a Passive Revolution: depoliticizing neoliberal rule overlaid with nationalist rhetoric and tokenistic welfare policies. An Active Counter-revolution, in contrast, would mean at minimum policies that incentivize spending on water and sanitation infrastructure so to avert the damage done, even in Durban, at both the retail and bulk levels. To achieve that will take sustained pressure from civil society.

But second, civil society ultimately failed to contest neoliberalism in the water sector. Looking at the access, pricing and service-level quality problems, there are two ways to understand the inability of low-income civil society organisations to address Durban’s water/sanitation management failures: by deriding urban social movements as ineffectual because they were *uncivilized* (Wilson 2006), or because they were *too* civilised. The most recognised advocate of the latter position is Ashwin Desai, author of the seminal book *We are the Poors* (Desai 2002) but he backtracked on his own expectations for Durban’s urban social movements, because of “the emergence of oligarchies and bureaucracy within movements and the need to police ones area in order to ensure the ability to ‘speak’ for the community” (Desai 2010).

These are profound critiques, and for community movements, they imply a need to transcend the individualist and consumerist orientation of the ‘right to water’ narrative, as a result of the disastrous outcome of relying upon a juristic strategy in Soweto (Bond 2013), and to move to a ‘commons’ approach. The latter would also permit, as Karen Bakker (2007:436) argues, a tighter integration of the microeconomic consumption battles with the hydro-ecological context in which bulk water is delivered (or not, in times of shortages, underinvestment and climate change) and sanitation/sewage carried away and treated (or not, when maintenance is not performed): “The biophysical properties of resources, together with local governance frameworks, strongly influence the types of neoliberal reforms which are likely to be introduced.” The point here would be for civic activists to more forcefully campaign against luxury water consumption by rich and corporate customers, and by extension dispute Durban’s need for expensive bulk-water enhancements. By linking the environmental and economic in this political-ecological manner (Swyngedouw 1996), we may better connect the dots between bulk water collection in the Inanda Dam, the ecological health of Durban’s rivers, the various acts of water consumption (and wastage), and the disposal of water into the Indian Ocean.

In Durban the evidence has accumulated that the city’s finances, including water tariffs, provide the rationale for the various neoliberal policy decisions, but also the potential solution to the multiple water crises if a different regime one day takes power. Yet notwithstanding the shortcomings of Durban’s social movements in addressing these crises during the 2000s, we might argue, nevertheless, that a few real concessions (not reformist cooptation) occurred in the process, including the \$5 million refurbishment and upgrading

of infrastructure in Chatsworth in partnership with the Westcliff Flatdwellers' Association (Bond and Naidoo 2008), notwithstanding that it was riddled with corruption (Manase Report 2012). Also in mid-2008, the move from 6 to 9 kl/household/month of Free Basic Water led to a demonstrable improvement in access for hundreds of thousands.

Indeed, there is no question that during the late 1990s and 2000s in Durban, a dramatic water delivery roll-out occurred, thanks to engineering experience, political pragmatism and the water department's fiscal resources. Yet we have also seen how this strategy was often self-sabotaged by an austerity mentality pervading decisions ranging from lowest-cost household sanitation to deferred sewage pipe maintenance, as well as the pricing, disconnections and Free Basic Water controversies noted above. A review of the core contradictions associated with Durban's management of bulk and retail water/sanitation suggests that in a neoliberal context amidst the highest rate of income inequality in any large country anywhere, South Africans will have to continue with protests characteristic of uncivilised society, in order to achieve more civilised hydro-political-ecological outcomes.

Does this analysis, in sum, preclude Passive Revolutionary euphoria by the ANC, especially its Durban rulers? The city is extremely important, as host of the largest ANC branch, as the home base for the president, and as the site of most of the largest elite conferences held in Africa (including the 2011 UN COP17 Climate Summit and the 2012 World Toilet Organisation summit) (Bond 2011). But the contradictions here are extreme, as the pages above demonstrate. It is true, as Hart (2013) puts it, that "analyses of neoliberalism in terms of class project, economic policy and governmentality remain necessarily partial, since they take hold on terrains that always exceed them" – hence her exploration of Passive Revolution and de-nationalisation/re-nationalisation tensions, including at municipal scale (in small cities not far from Durban).

But if the terrains are themselves exceeded by their internal contradictions, as in Durban's hydro-political ecology, what this analysis of neoliberal policies and projects suggests is that the turn to Passive Revolutionary conjecturing may be premature. This may be proven true, not only if an Active Counter-revolution does one day emerge from South Africa's extremely volatile polity, but if the failures of what might be better considered *neoliberal nationalism plus tokenistic welfarism* become as obvious as has the fall of the Blue Flags on Durban's beaches thanks to sanitation shortfalls during a time of self-satisfied hydro-political managerialism.

References

- Adriaan, T., W. Ngcobo and N. Mngoma 2010. We have to live with that smell. Daily News, 25 August.
- Bailey, R. and C. Buckley 2005. Modelling Domestic Water Tariffs. Presentation to the University of KwaZulu-Natal Centre for Civil Society, Durban, 7 November.
- Bakker, K. 2007. The 'Commons' Versus the 'Commodity': Alter-globalization, Anti-privatization and the Human Right to Water in the Global South. *Antipode*, 39 3. pp.430-455.
- Bohmke, H. 2003. The right to water: The Manqele case. Durban, http://www.africanwater.org/right_to_water_manqele_case.htm
- Bond, P. 2000. *Cities of Gold, Townships of Coal*, Trenton: Africa World Press.
- Bond, P. 2002. *Unsustainable South Africa*, London: Merlin Press.
- Bond, P. 2006. *Talk Left Walk Right*, Pietermaritzburg: University of KwaZulu-Natal Press.
- Bond, P. 2010a. Water, Health and the Commodification Debate, *Review of Radical Political Economics*, 42, 4, pp.445-464.
- Bond, P. 2010b. South Africa's Bubble Meets Boiling Urban Social Protest. *Monthly Review*, June, pp.17-28.
- Bond, P. (ed) 2011, *Durban's Climate Gamble*. Pretoria: University of South Africa Press.
- Bond, P. 2013. Water rights, commons and advocacy narratives, *South African Journal of Human Rights*, 29, 1, June, p.126-144.
- Bond, P. 2014. *Elite Transition: From Apartheid to Neoliberalism in South Africa* (3rd Edition). London: Pluto Press.
- Bond, P., B. Amisi, D. Khumalo and S. Nojiyeza 2008. The neoliberal loo. *Znet Commentaries*, 19 February.
- Bond, P. and E.Cottle 2011. Economic promises and pitfalls of South Africa's World Cup' in E.Cottle (ed.), *South Africa's World Cup: A legacy for whom?*, Pietermaritzburg, University of KwaZulu-Natal Press.
- Bond, P. and J. Dugard 2008. The Case of Johannesburg Water: What Really Happened at the Pre-paid Parish Pump. *Law, Democracy and Development*, 12 1. pp.1-28.
- Bond, P. and O.Naidoo 2008. Partial victories for civil society. *The Mercury*, 13 May.
- Carnie, T. 2008a. City refuses to release second probe: Sewage killed fish, says report. *The Mercury*, 18 February.
- Carnie, T. 2008b. City sues over blocked sewer. *The Mercury*, 18 February.
- Carnie, T. 2008c. Skills needed to keep the water running. *The Mercury*, 26 February.
- Carnie, T. 2008d. Durban mops up: Storm knocks out refineries. *The Mercury*, 13 March.
- Carnie, T. 2008e. Durban beaches under threat: Red flag for blue flag beaches. *The Mercury*, 14 March.
- Carnie, T. 2008f. Sewage spills into rivers: Fears over poor water treatment. *The Mercury*, 26 February
- Carnie, T. 2008g. Council coy as sewage leaks blamed: Bad whiff about fish kill reports. *The Mercury*, 6 March.
- Carnie, T. 2008h. Water courses awash with sewage: Safety threat to city rivers. *The Mercury*, 31 January.
- Carnie, T. 2008i. Durban Beaches Under Threat: Red flag for blue flag beaches. *The Mercury*, 14 March.
- Carnie, T. 2008j. High levels of E.coli found in Durban rivers. *The Mercury*, 31 January.
- Carnie, T. 2008k. Blue Flag body spurns Sutcliffe. *The Mercury*, 27 March.
- Carnie, T. and K.Padayachee 2009. Water quality under microscope: Fears over KZN lagoons and beaches. *The Mercury*, 23 March.
- Centre for Applied Legal Studies, Centre on Housing Rights and Evictions and Norwegian Centre for Human Rights 2008. *Water Services Fault Lines: An Assessment of South Africa's Water and Sanitation across 15 Municipalities*, Johannesburg, Geneva and Oslo.
- Coertzen, M. 2014. Urine Diversion in Durban. Interview, 14 January, University of KwaZulu-Natal.
- Desai, A. 2002. *We are the Poors*, New York, Monthly Review Press.
- De Boer, H. 2007. Embarrassing meaning of "eThekweni" revealed, Daily News, 22 August.
- De Boer, H. 2008. New policy proposed for Durban beaches. Daily News, 14 March.
- Galvin, M. 2009. Straight talk to strengthen delivery in the water services sector. Durban, *The Water Dialogues*, www.waterdialogues.org.
- Gates, B. 2010. Simple advances, amazing benefits in Africa. *The Gates Notes*, 18 March, <http://www.thegatesnotes.com/Topics/Health/Simple-Advances-Amazing-Benefits-in-Africa>

- Gounden, T., B. Pfaff, N. Macleod and C. Buckley 2013. Tackling Durban's sanitation crisis head on <http://www.infrastructurene.ws/2013/01/09/tackling-durbans-sanitation-crisis-head-on/>
- Kasrils, R. 2001. Speech by the Minister of Water Affairs and Forestry at the opening of the Durban water recycling plant, 25 July, Durban.
- Kaye, L. 2012. What is the future of toilet technology?, *The Guardian*, 9 October, <http://www.theguardian.com/sustainable-business/future-toilet-technology-sanitation-water>
- Koenig, R. 2008. Durban's poor get water services long denied, *Science*, 319, pp.744-748.
- Leibbrandt, M. Woolard, I. Finn, A. and Argent, J., 2010. Trends in South African Income Distribution And Poverty Since the Fall of Apartheid. OECD Social, Employment and Migration Working Papers No. 101. Southern Africa Labour and Development Research Unit, School of Economics, University of Cape Town, Cape Town.
- Liefferink, M. and E.van Eeden 2011. Proactive environmental activism to promote the remediation of mined land and acid mine drainage. Paper presented to the Integrated Water Management conference, Toronto, March.
- Loftus, A. 2003. Personal communication. Oxford.
- Loftus A. 2004. Free Water as Commodity: The Paradoxes of Durban's Water Service Transformations. In D McDonald and G Ruiters eds *The Age of Commodity: Water Privatization in Southern Africa*. London, Earthscan
- Loftus, A. 2005. A Political Ecology of Water Struggles in Durban, South Africa. Doctoral thesis in the School of Geography and the Environment, University of Oxford.
- Loftus A. 2006. The Metabolic Processes of Capital Accumulation in Durban's Waterscape. in N Heynen, M Kaika and E Swyngedouw eds. *In the Nature of Cities*, London, Routledge Press.
- Macleod, N. 2005. Water arrears write-offs. Reply to Councillor Alan Murphy, Durban, 12 September.
- Macleod, N. 2007. Answering affidavit of Neil Macleod, Head: Water and Sanitation of the eThekweni Municipality. 8 January, *Mazibuko & Others v City of Johannesburg & Others*: www.law.wits.ac.za/cals.
- Macleod, N. 2008a. Reaching Low Income Communities: Experiences from eThekweni, Durban. presentation to the AfriSan conference, February.
- Macleod, N. 2008b. We are committed to cleaner rivers. *The Mercury*, 19 February.
- Maluleke, S. 2009. Dangers lurking in our sea water: Warm, salty water is an ideal environment for this bacterial infection to spread. *Daily News*, 26 March.
- McDonald, D. and Pape, J. 2002. *Cost Recovery and the Crisis of Service Delivery in South Africa*. Pretoria: HSRC and London: Zed Books.
- McDonald, D. and G.Ruiters Eds 2004. *The Age of Commodity: Water Privatization in Southern Africa*. London: Earthscan.
- The Mercury 2011. Durban beachfront revamp at risk from rising sea levels, *The Mercury*, 6 September.
- Mottiar, S and Bond, P. (2012). Discontent and social protest in Durban. *Politikon*, 39, 3, 1-23.
- Muller, M. 2007. Parish pump politics. *Progress in Development Studies*, 7, 1, pp.33-45.
- Naidoo, 2010. The Making of "The Poor" in Post-apartheid South Africa. PhD thesis, School of Development Studies, University of KwaZulu-Natal, October.
- Nojiyeza, S. and B. Amisi 2008. The challenges of eradicating bucket sanitation in SA. Paper presented to the AfriSan conference, Durban, February.
- Pullan, G. 2008. Poor quality beaches will be their legacy. *North Coast Courier*, 10 September <http://www.northcoastcourier.co.za/2010/09/08/10-september-4/>
- Padayachee, K. 2010. Blue Flag rethink for Durban beaches. *Sunday Tribune*, 29 January.
- Reddy, A.P. 2007. World Toilet Summit: Sanitation Beyond Septic Tanks and Sewers. *InterPress Service*, 6 November.

- Roome, J. 1995. Water Pricing and Management: World Bank Presentation to the SA Water Conservation Conference. unpublished paper, South Africa, 2 October.
- Ruiters, G. 2007. Contradictions in Municipal Services in Contemporary South Africa: Disciplinary Commodification and Self-Disconnections, *Critical Social Policy*, 27, 4, pp.487-508.
- Ryan, M. 2008. Sewage spill decimates fish. *Sunday Tribune*, 16 March.
- Sanpark 2009. Media release: Crocodile deaths continue in the Olifants River.
http://www.sanparks.org/parks/kruger/news/2009/crocodile_deaths.php
- Savides, M. 2008. Taxi rank toilets pushed past the limit. *The Mercury*, 14 January
- Savides, M. 2011. Water shortages loom for Durban. *Reuters*, 6 March.
- South African Cities Alliance 2006. Annual Report, Cape Town.
- South African Department of Water and Environment 2008. State of the South African Rivers Report: uMngeni and Neighbouring Rivers and Streams, Pretoria,
http://www.dwa.gov.za/iwqs/rhp/state_of_rivers/state_of_umngeni_02/dams.html.
- South African Treasury 2008. Local Government Budgets and Expenditure Review. Pretoria,
<http://www.treasury.gov.za/publications/igfr/2008/lg/2008%20LG%20Budgets%20and%20Expenditure%20Review%20%28full%20document%29.pdf>
- Sunday Independent 2011. Water crisis looms. <http://www.sundayindependent.co.za/water-crisis-looms-1.1029065>, 19 February.
- Sutcliffe, M. and N.Macleod 2008. City Manager's Newsletter: Easter beaches. Durban, 24 March.
- Turton, A. 2008. Three strategic water quality challenges that decision-makers need to know about and how the CSIR should respond. Keynote address to Centre for Scientific and Industrial Research, Pretoria, 18 November.
- United Nations Development Programme 2006. Human Development Report, New York.
- van der Merwe, C. 2008. SA s water market could benefit from more PPPs, *Engineering News*, 10 October.
- Water Information Network South Africa 2009. Public accountability through "Ciizens Voice", Cape Town,
http://api.ning.com/files/gLpl-APb6KjU59T9XOXGrDauGUatOIfUghJVi9iyzKNQ-Lrrlem2HjBnu0qcVJ3xnvwZyltcFRPk*yKbUnmg36QuSnWPIY/Lesson20.pdf
- Wilson, Z. 2006. Hydropolitics of water and sanitation delivery: The case of Durban. presentation to the International Society for Third-Sector Research, Bangkok, 4 July.
- Wilson, Z., W. Malakoana and T. Gounden 2008. Trusting consumers: Involving communities in municipal water service decision-making in Durban, South Africa. *Water SA*, 34, 2.

Figure 1: Durban's "Sanitation Edge"



Source: Neil Macleod, 2008