

Emfuleni's wastewater crisis, 2018-2021: The history of a Vaal sub-catchment problem

Johann WN Tempelhoff¹
North-West University
johann.tempelhoff@nwu.ac.za

Abstract

In 2018 the collapse of the wastewater infrastructure of Gauteng's Emfuleni Local Municipality was responsible for a severe fish-kill in the Vaal River Barrage. Even communities downstream of the Barrage were affected. The disaster was most evident at the riverside holiday town of Parys, tourism operations on the riverbank in the Vredefort Dome World Heritage Site and the Bloemhof Dam. Emfuleni's crisis was the result of almost two decades of delays and underinvestment in the maintenance and upgrade of a local wastewater system earmarked for regional service delivery.

Today's Emfuleni has an illustrious history, dating back to the founding of the industrial towns of Vereeniging (1891) and Vanderbijlpark (1943). Both are situated downstream of where the Klip, Blesbokspuit and Suikerbos rivers fork into the Vaal River. Thanks to local coal mining, electricity generation and copious water supplies, industrial development thrived in the twentieth century.

The 1994 demise of South Africa's white-ruled governance system paved the way for a post-apartheid non-racial democracy. At this time there were significant changes in governance, demographics and economic development. Local population growth and the concomitant regional post-industrial development continue to have a profound impact on the Vaal River Barrage and the downstream communities.

This study highlights the Integrated Vaal River system, the historical origins of today's Emfuleni, and culminates with a discussion on the disaster of 2018 and its aftermath up until 2021.

Keywords: Integrated Vaal River System (IVRS); Vaal River Barrage; Emfuleni Local Municipality (ELM); wastewater infrastructure; Wastewater Treatment Works (WWTW); Save the Vaal Environment (SAVE); Department of Water and Sanitation (DWS).

¹ Extraordinary professor in the Faculty of Humanities at North-West University Vanderbijlpark Campus. Email: johann.tempelhoff@nwu.ac.za. This article is based on two reports of which the first was a pro bono submission to the South African Human Rights Commission. The second report was funded by the European Union. A special thanks to fellow water researcher, Martin Ginster, and language editor, Dr Bridget Bushell-Theron for reading the manuscript and giving much valued comments. NWU ethics clearance: NWU-00618-18-A7 (2018-2022).

Introduction

In June 2018 there was a public outcry when untreated sewage spilled into the Loch Vaal section of the Vaal River Barrage from Emfuleni's Local Municipal wastewater treatment works in the Rietspruit catchment. Waterfront homes and popular local tourist destinations bore the brunt of an environmental disaster that had been some time in the making. Fish kills were prevalent in the Barrage. The raw sewage spill also affected Vaal River communities as far as the town of Parys and Vredefort Dome World Heritage Site. Since then, Gauteng's provincial government and the national Department of Water and Sanitation (DWS) have intervened frequently in attempts to mitigate the persistence of a simmering environmental health hazard.

For two decades measures to safeguard the environmental health of thousands of residents of Sebokeng in the Rietspruit sub-catchment of the Barrage yielded mixed results.² There simply was no systemic regime of consistency on the maintenance and upgrade programme for the two local wastewater treatment works of Rietspruit and Sebokeng. By 2021, the status of the critical environmental health crisis was at a standstill; it remained a project under construction largely because of the inability of the relevant authorities to pay for a R2,2bn rescue project, of which only R258million had been made available at the end of the 2020/21 financial year.³

The onset of Emfuleni's wastewater crisis should be seen against the backdrop of the countrywide drought (2014-2019). Drought disaster conditions foregrounded the crisis of collapsing municipal water and wastewater systems in many parts of South Africa. Two prime examples of what was happening in many other parts of the country were: Cape Town's "Day Zero", when the drought-stricken Western Cape's critical water storage facilities almost dried up, leaving more than three million Peninsula residents practically waterless;⁴ and Emfuleni's crisis by 2018 that stood out as a grim reminder of what happens when a wicked raw wastewater problem presents itself in a complex river system like that of the Integrated Vaal River System (IVRS).⁵

In the discussion to follow attention is given to the IVRS and the catchment of the Vaal River Barrage. Then follows an exposition of Emfuleni's historical development as an urban industrial node since the late nineteenth century. The narrative culminates

2 JWN Tempelhoff, "Civil society and sanitation hydropolitics: A case study of South Africa's Vaal River Barrage", *Physics and Chemistry of the Earth, Parts A/B/C* 34, 3, 2009, pp. 164-75 (available at <https://doi.org/10.1016/j.pce.2008.06.006>, as accessed on ca 2017-2018).

3 DWS IVRSSSC, "Continuation of the Integrated Vaal River System Reconciliation Strategy Study – Phase 2: Strategy steering committee Meeting 5: Agenda and presentations 25 February" (Pretoria, DWS, 2021), p. 17.

4 WP Visser, "A perfect storm: The ramifications of Cape Town's drought crisis", *The Journal for Transdisciplinary Research in Southern Africa*, 14(1), 2018, pp. 1-10 (available at <https://doi.org/https://doi.org/10.4102/>, as accessed on ca 2017-2018); J Tempelhoff, "The rise (and fall?) of resilience in dealing with Cape Town's water crisis (2015-2018)", P Juuti, H Mattila, R Rajala, K Schwartz, C Staddon, *Resilient water services and systems: The foundation of well-being*, (London, International Water Association (IWA), 2019), pp. 111-148.

5 JWN Tempelhoff, "When things 'fall apart': The 2017-18 sewage spills in the Vaal River Barrage catchment: Report to the South African Human Rights Commission", [5.2], 2019, North-West University, Vanderbijlpark.

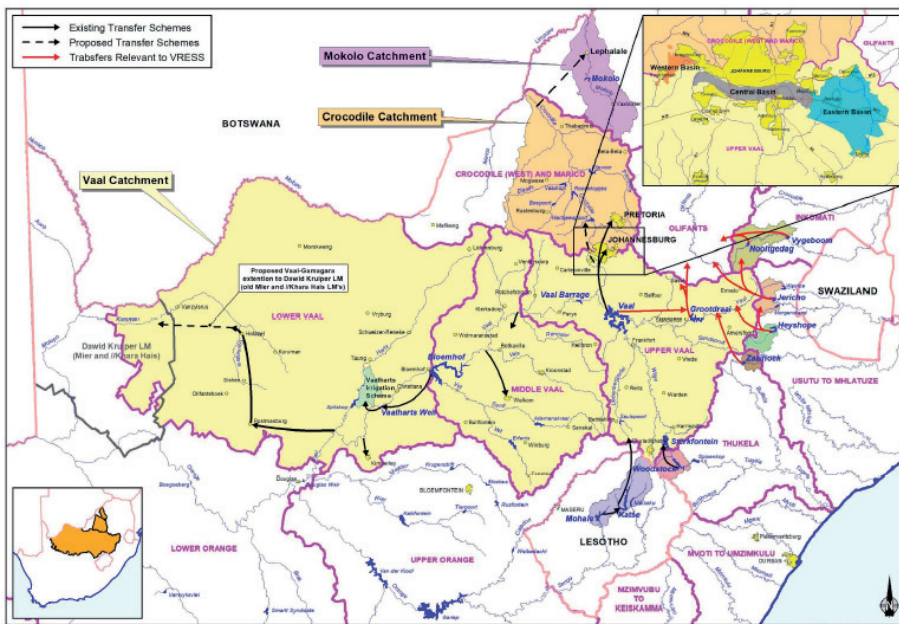
with the onset of Emfuleni's current wastewater crisis in 2018.

The integrated Vaal River System (IVRS) and the Vaal River Barrage

The IVRS

In southern Africa the 1300km-long Vaal River is at the heart of a catchment of 192 000km² – the eighth largest of its kind in southern Africa. The Vaal River is a tributary of the larger Orange River catchment in central South Africa. However, the Vaal has played an extraordinary role in the country's economic development. By the 1980s, what is today's Integrated Vaal River System (IVRS) was already providing water resources for generating 50-60% of South Africa's gross domestic product (GDP) in the future Gauteng Province.⁶

Map 1: The Integrated Vaal River System, where complex water transfer systems contribute to planning consistent water supplies in many parts of South Africa. Gauteng's AMD basins are magnified in the top right block



Source: DWS, *Continuation of the Integrated Vaal River System dws Reconciliation Strategy Study (PHASE 2)*, Department of Water and Sanitation (Pretoria, Department of Water and Sanitation, February 2018), p. 6.

6 E Braune and KH Rogers, *The Vaal River catchment: Problems and research needs*, 143 (Foundation for Research Development, South African National Scientific Programmes, 1987), p. 1; Anon., "Acid mine drainage Witwatersrand central basin: Project: Technical excellence category", *Civil Engineering/Siviele Ingenieurswese*, 2015, 10, pp. 17-18 (available at <https://doi.org/doi:10.10520/EJC180506>, <https://journals.co.za/doi/abs/10.10520/EJC180506>, as accessed on ca 2017-2018), Pretoria.

The modern history of the Vaal revolves around the rise of gold mining on the Witwatersrand and Johannesburg in the 1880s and the subsequent industrial, commercial and financial urban development of what became the most populous region of South Africa. Copious water supplies were in high demand. Gold, coal, electricity and water supplies were key drivers of development. Although the Witwatersrand and Free State gold mines peaked in the 1970s and drifted into closure by the 1990s,⁷ the IVRS remains vital to the management and storage of water resources that are instrumental in generating 50% of the country's GDP and 85% of its crucially important electricity supply in the year 2000.⁸

Water transfer systems in South Africa date back to the 1940s,⁹ and later became the hallmark of more advanced transboundary water transfers in a country considered to be the thirtieth driest in the world with a meagre 465mm average annual rainfall.¹⁰ By the 1980s the national Department of Water Affairs (DWA) worked on a variety of complex transfers for securing more supplies of water. This process implied generating hydro-electric power supplies for peak times. More sophisticated communications technology and advanced planning and performance management monitoring systems enabled engineers hydrologists and water management experts, to develop an advanced monitoring programme in the 1990s.¹¹ The system now constantly reports on: real-time flows; the amount of water available; current sectoral requirements; and a systemic water balance reconciliation in the upper, middle and lower sections of the IVRS.¹²

The Vaal River Barrage

The far smaller catchment of the Vaal River Barrage¹³ extends over a surface area of 600km², about 0.2% of the Vaal catchment in parts of southern Gauteng and the northern Free State. The Barrage structure is a medium-sized weir – a construction project of the Rand Water Board (Rand Water) in the period 1916 to 1922 to provide pumped water supplies for the Witwatersrand's gold mines and burgeoning urban

7 CJH Hartnady, "South Africa's gold production and reserves", *South African Journal of Science*, 105(9-10), 2009, pp. 28-29.

8 AR Turton, "The political aspects of institutional developments in the water sector: South Africa and its international river basins" (PhD, University of Pretoria, 2003), p. 205.

9 A Conley, "The Department of Water Affairs a tradition of engineering excellence", *Civil Engineering*, 30(5), 1988, p. 223.

10 Department of Water and Sanitation (DWS), Pretoria, National water and sanitation master plan, October 2018, p. 9 (available at <https://bit.ly/341NJ5N>, as accessed on ca 2017-2018).

11 PG van Rooyen, RS McKenzie, and JI Rademeyer, "Lessons learned from three decades of water resource planning of the Integrated Vaal River System" (The hydro-illogical cycle: Predicting and managing droughts 19th SANCHIAS Symposium, Skukuza, Kruger National Park, University of KwaZulu-Natal, Pietermaritzburg, 18-20 September 2018); JI Rademeyer, "Presentation to major Vaal River stakeholders: Historic overview" (Pre-consultation meeting: Vaal River System stakeholders, Emerald Casino, DWAF, 29 July 2005).

12 Department of Water Affairs and Forestry (DWAF), Internal strategic perspective Vaal River system: Overarching, Directorate: National Water Resource Planning, WMAs No 8,9, & 10, 2004, pp. vi-vii; Chapters 2-3.

13 The Barrage (64km) only extends over a distance of 4.9% of the length of the Vaal River.

settlements.¹⁴ The Barrage is 64km downstream of the Vaal Dam and is a national departmental dam completed in 1938 with subsequent capacity upgrades into the 1980s.¹⁵

By 2000, the Vaal River Barrage catchment was home to 10 million people, while also servicing some 13 600 wet industries and 21 wastewater treatment works.¹⁶ Nowadays, apart from high quality water inflows from the Vaal Dam, the Vaal Barrage receives copious amounts of treated and untreated wastewater flows from the sub-catchments of the Rietspruit, Blesbokspruit, Taaiboschspruit, Leeuwspruit, Klip River and Suikerbosrand River. These streams carry stormwater, industrial and domestic sewage wastewater from southern Gauteng and parts of the northern Free State. In the 2000s, the Rietspruit alone carried upstream wastewater amounting to more than 70% of its average night flow, in the Emfuleni residential areas of Sebokeng and Evaton.¹⁷ In addition, since the 2010s, the catchment has conveyed treated acid mine drainage (AMD) from special processing plants¹⁸ at old worked-out gold mining areas in the central and eastern basins of the Witwatersrand, via the Klip River¹⁹ and the Blesbokspruit.²⁰

Emfuleni's urban industrial origins

Today's Emfuleni is situated on the Vaal River's banks where pristine Vaal Dam water, blended with Southern Gauteng's treated wastewater and stormwater, flow further downstream through the Vaal River Barrage to support water needs in the middle Vaal and further downstream when required. The local municipality's origins date back to 1891 with the founding of Vereeniging – a riverine industrial coal mining town. Downstream of where the Klip River flows into the Vaal, the new settlement soon became a busy urban node where Witwatersrand residents enjoyed regular visits, travelling by road or train to the Vaal to relax and experience the impressive river or indulge in water sports. Vereeniging was also linked to gold mining operations on the Witwatersrand. Copious Rand Water Board water supplies, local coal, and a network of power stations generating electricity, fed into the Witwatersrand's water-

14 JWN Tempelhoff, "Time and the river: Observations on the Vaal River as source of water to the Witwatersrand 1903-24", *Historia*, 46(1), 2001, pp. 247-270.

15 R Kriel and R Van der Walt, *Vaal Dam* (Pretoria, Department of Water Affairs and Forestry, ca 2000s), pp. 1-14.

16 F van Wyk, "An integrated manual for the management, control and protection of the Vaal River Barrage reservoir" (MSc, University of Johannesburg, 2001), p. 5.

17 K Wall, "Challenges facing municipal infrastructural management in South Africa", *Town and Regional Planning*, 51(4), 2007, p. 31.

18 S Naidoo, *Acid mine drainage in South Africa: Development actors, policy impacts, and broader implications* (Pretoria, Springer, 2017), pp. 41-72.

19 TS McCarthy, "The impact of acid mine drainage in South Africa", *South African Journal of Science*, 107(5), 2011, p. 4; MS Humphries, TS McCarthy, and L Pillay, "Attenuation of pollution arising from acid mine drainage by a natural wetland on the Witwatersrand", *South African Journal of Science*, 113, 2017, pp. 1-9.

20 M Lourenco and C Curtis, "The influence of a high-density sludge acid mine drainage (AMD) chemical treatment plant on water quality along the Blesbokspruit Wetland, South Africa", *Water SA*, 47(1), 2021, pp. 35-44.

energy nexus, which was vitally important to regional socio-economic growth and development.

By the 1940s, the Vaal Triangle (largely today's Emfuleni), experienced the onset of rapid industrialisation and urbanisation. The trend dovetailed with McNeill and Engelke's "great acceleration" discourse on the origins of the global Anthropocene phenomenon.²¹ One spin-off was Vanderbijlpark, a new town not far from Vereeniging, which by 1944 mushroomed on the Highveld grasslands north of the Vaal River Barrage. The town was a product of the state-owned Iron and Steel Corporation (Iscor) that established a modern steel plant.²² Vanderbijlpark was the first of many "instant towns" that sprung up wherever there were mining and industrial prospects. Prime contemporaneous examples include the gold mining industrial towns, of Welkom/Virginia²³ and the coal mining town of Sasolburg, where the state-owned industry, Sasol, started using the Fischer-Tropsch process for manufacturing liquid fuel products from coal.²⁴

The renowned physicist and trusted government advisor, Dr Hendrik van der Bijl (1887-1948), after whom the town was named, managed the local public corporation (Vesco) responsible for the development of the future city.²⁵ The planners were well-informed on the latest international town planning trends in the United Kingdom, United States of America and Sweden.²⁶

The planners' prime focus was the wellbeing of the white working class. Homes for an unskilled African workforce were far less commodious than those of their white counterparts. Africans were accommodated in basic mortar and brick housing, with planners working within the parameters of government policy guidelines. Like their white counterparts, many Africans came from rural areas and their housing was considered "appropriate". The state's emergent apartheid policies, especially after 1948, stressed that African labourers in urban areas were "temporary sojourners". Ultimately, they had to return to their rural "homelands". Only under certain circumstances, could long-time urban African families reside permanently in new townships.

21 JR McNeill and P Engelke, *The great acceleration: An environmental history of the Anthropocene since 1945* (Cambridge, MA, Belknap of Harvard University Press, 2014).

22 PJJ Prinsloo, *Die geskiedenis van Vanderbijlpark* (Vanderbijlpark, Potchefstroomse Universiteit vir Christelike Hoër Onderwys, 1994), pp. 82-90.

23 E Nel and T Binns, "Decline and response in South Africa's Free State goldfields: Local economic development in Matjhabeng", *International Development Planning Review*, 24(3), 2002, pp. 255-258.

24 SS Sparks, "Apartheid modern: South Africa's oil from Coal Project and the history of a South African company town" (PhD, University of Michigan, 2012), Chapters 3 and 4.

25 R Van Niekerk and MF Van der Walt, "Dr. H.J. van der Bijl se filosofiese denkraamwerk – 'n histories-filosofiese oorsig", *Koers-Bulletin for Christian Scholarship/Bulletin vir Christelike Wetenskap*, 61(3), 1996, pp. 293-297.

26 L Brockett, "The history of planning South African new towns: Political influences and social principles adopted", *New Contree*, 16, 1996, pp. 162-64; PR Anderson, "The planning and development of new towns, with special reference to Vanderbijlpark", *Civil Engineering = Siviele Ingenieurswese* 1958, v8i8, 1958; RP Jansen van Rensburg, "Die beslaggewing van dorpsontwikkeling en bestuur in Vanderbijlpark gedurende 1943-1952" (MA, Potchefstroom University for CHE, 1992), p. 51.

Vanderbijlpark's benchmark was Vereeniging, where local mining and industrial operations attracted many rural Africans, who began to settle there from the early twentieth century. Africans working at local industries like the Union Steel Corporation (USCO) foundries, were initially housed in a poorly planned township called Top Location on the outskirts of Vereeniging. Top Location was a typical informal settlement, notable for inferior water and sanitation services.²⁷ This was in line with the government's segregation policy in the period 1905 to 1948. The forerunner of apartheid, this policy aimed at residential separation of whites and communities of colour in urban areas.²⁸

In the 1930s each stand in Top Location had a bucket-system toilet, emptied three times a week. Later, public ablution facilities were provided with showers and flush toilets for males and females alike, while 26 taps with potable water served to distribute supplies throughout the township.²⁹ While Vereeniging's white residential areas were provided with water-based sewage systems in the early 1930s, Top Location's African residents were not as fortunate. Residents and local health officials warned town councillors of impending environmental health hazards in Top Location, but their pleas were ignored.³⁰

In 1942, Vereeniging Town Council approved the blueprint for its new "model township" of Sharpeville to replace Top Location. It was well-planned, with a limited number of hostels and orderly rows of brick houses with basic community water and sanitation facilities that were compliant with essential health standards.³¹ While the first extension was under construction, water was available free of charge, but clusters of 14 houses had to share a communal tap and two township bathing houses. By 1946 many of the homes had their own taps, toilets and bathrooms.³² Meanwhile, in Top Location, the population continued to increase. The township's informally sub-divided and "rented" facilities enabled new residents to squat in small, over-crowded backyard spaces, while in Sharpeville, sub-divisions were prohibited.³³ Sharpeville was a practical guideline for Vanderbijlpark's future African townships of Bophelong and Boipatong.

27 PJJ Prinsloo, *Die geskiedenis van Vereeniging* (Vanderbijlpark, PU for CHE, 1992), pp. 100-102.

28 S Parnell, "Creating racial privilege: The origins of South African Public Health and Town Planning Legislation", *Journal of Southern African Studies*, 19(3), 1993, pp. 171-72; M Chaskalson, "The road to Sharpeville" (African Studies Seminar, University of the Witwatersrand, African Studies Centre, September 1986).

29 PJJ Prinsloo, *Die geskiedenis van Vereeniging*, pp. 100-101.

30 ME van Zyl, "Swart verstedeliking in Vereeniging 1923-1960" (PhD, Vista University, 1993), pp. 65-72.

31 MW Willemsse, "Die vestiging en uitbouing van munisipale bestuur en voorstedelike ontwikkeling in Vereeniging tot 1992" (MA Thesis, Potchefstroom University for CHE, 1999), pp. 111-113.

32 M Menye, "Exploring the continuities and discontinuities in South African political violence: The Sharpeville, Bhishe and Marikana massacres" (M. Phil, Nelson Mandela University, 2018), p. 18; T Lodge, *Black politics in South Africa since 1945*, 6th edition (Longman, 1989, 1983), p. 206; T Lodge, *Sharpeville: An apartheid massacre and its consequences* (Oxford, Oxford University Press, 2011), p. 79; I Jeffrey, "Cultural trends and community formation in a South African township: Sharpeville, 1943-1985" (MA, University of the Witwatersrand, 1991), pp. 59; 63.

33 M Chaskalson, "The road to Sharpeville", pp. 10-12.

One of the major differences between development in the two towns where whites lived was that Vereeniging's white residential area was well under way before attention was given to African housing.³⁴ In Vanderbijlpark, housing developments for both black and white residents were almost simultaneous. The first local black township (NW2) was approved in February 1945 in the western areas of town. Temporary accommodation was first provided in huts for about 3 000 African males, before construction began on 500 houses at a cost of £300 per unit. Each house had a plot of land, two bedrooms, a lounge, kitchen and a bathroom with toilet. The homes were replete with in-house electricity, water, and sanitation services.³⁵

For Vanderbijlpark's white residents, standards were similar to urban housing in the more populous north. They were modern with spacious erven and proper water, wastewater and electricity services. Each of the 22 new residential suburbs had public spaces, park lands, "green lungs", local school facilities, shopping centres, as well as churches for most religious denominations. Later, Iscor recruited qualified immigrants from Europe to join the ranks of the local white workforce. Though there was "proper integration", town planners also made provision for the "unique" cultural, social and housing needs of new immigrant Portuguese, Dutch, Hungarian, Indonesian, German and Greek communities.³⁶

Iscor's African workers became disgruntled. They complained that their housing was not of the same quality as those of white residents.³⁷ Their discontent with residential inequality came to the attention of the town's fathers, who chose to ignore it. They argued that parastatal institutions like Iscor, were anyway subject to the new policy guidelines of the National Party that came to power in 1948. Indeed, planners studying local development in the 1950s, described local township conditions as "favourable". Vanderbijlpark and its African residential areas, at the time, had been developed to provide the needs of industry and a future resident population of 120 000 people of colour and 90 000 whites.³⁸

The African population in the Vaal Triangle region increased substantially over the years. Little wonder then that on 21 March 1960, Vereeniging's Sharpeville was the epicentre of a countrywide protest where 7 000 local residents came out in protest against the inequities of apartheid. More than 69 people were killed when police opened fire on protesting residents. The incident caught the attention of the world's

34 ME van Zyl, "Swart verstedeliking in Vereeniging 1923-1960", pp. 73-74.

35 RP Jansen van Rensburg, "Die beslaggewing van dorpsontwikkeling en bestuur in Vanderbijlpark gedurende 1943-1952", pp. 134-135.

36 PJJ Prinsloo, *Die geskiedenis van Vanderbijlpark*, pp. 136-139; 303-308.

37 AMM Weber, "Die georganiseerde kultuurlewe van die blanke gemeenskap van Vandernijlpark in die tydperk 1942-1992" (PhD, PU vir CHO, 1997), pp. 53-58.

38 PR Anderson, "The planning and development of new towns, with special reference to Vanderbijlpark", p. 200; DM Calderwood, "Town planning and housing with particular reference to the social and economic aspects", *Civil Engineering*, 8(8), 1958, pp. 190-195.

news media.³⁹ The apartheid system was to blame for the political fall-out and anger of Sharpeville residents. Much of the frustration had also been caused by local overcrowding, population growth and few prospects of an improvement in local African living conditions.

Government, headed by the prime minister, Dr HF Verwoerd, was swift in its response to the Sharpeville unrest. Suppression followed as protests spread. Urban informal squatter settlements were demolished countrywide, forcing the government to spending vast sums of money on new “ethnic” subdivided townships. Thousands of people were relocated. Although black housing was better than before, the prime obstacle was government’s commitment to the development of the “independent homelands” and the relocation of the “surplus” African urban residents. Those who were unemployed and homeless in the urban areas ultimately had to return to their “homelands”.⁴⁰

The township of Sebokeng was proclaimed in 1965, west of the white residential areas of Vanderbijlpark and Vereeniging. The National Party government was keen to provide housing for Africans employed at local industrial and commercial operations. Bantu Administration authorities were appointed to run the townships and relocated “surplus” employed workers of Sharpeville, Boipatong and Bophelong, to Sebokeng. The African townships were separated with extensive “green lungs” of open veld and wetlands, from white residents in the urban areas of Vereeniging, Vanderbijlpark and Meyerton, further north.⁴¹

Today the greater and integrated Sebokeng and Evaton areas of Emfuleni extend over a distance of almost 35km alongside the N1 highway between Vanderbijlpark and the Grasmere Toll Plaza, south of Johannesburg. Its origins date back to 1986 when government finally allowed for African from rural farms and small towns to settle in urban areas, often illegally on land where informal settlements spontaneously mushroomed.⁴² By the 1990s the Vaal Triangle’s white urban conurbations of Vereeniging, Vanderbijlpark, Meyerton, and Sasolburg (in the Free State), had marginalised African residents from the predominantly white-owned river-front areas, the white suburbs and central business districts.

Wastewater infrastructure

People of colour were at first excluded from reasonably acceptable local wastewater

39 PJJ Prinsloo, *Die geskiedenis van Vereeniging*, pp. 120-22; T Lodge, *Sharpeville: ...*, pp. 1-29; S Dubow, “New approaches to high apartheid and anti-apartheid”, *South African Historical Journal*, 69(2), 2017, p. 305.

40 A Mabin and D Smit, “Reconstructing South Africa’s cities? The making of urban planning 1900-2000”, *Planning perspectives*, 12(2), 1997, pp. 206-208.

41 MW Willemsse, “Die vestiging en uitbouing van munisipale bestuur...”, pp. 142-146.

42 O Crankshaw, “Apartheid and urbanisation on the southern Witwatersrand”, *African Affairs*, 92(366), 1993, pp. 31-51.

infrastructure services. For example, in 1943, Vanderbijlpark's health committee, established a small wastewater treatment system on the farm Zuurfontein. Sewage from the area where Africans were settled, flowed freely into the nearby grasslands and wetlands, before meandering into the Vaal River Barrage.⁴³ Once Vanderbijlpark became a municipality in 1952, work started on the construction of the Rietspruit wastewater treatment works.⁴⁴ When the plant came online, Bophelong and Boipatong's wastewater was absorbed into the system. Apart from the Rietspruit wastewater treatment works, both the Leeuwkuil (at Vereeniging) and Sebokeng wastewater treatment works, which respectively became operational in 1955 and 1965-1968, were situated close to the townships of Sharpeville, Bophelong and Sebokeng.⁴⁵

Conflict in the 1970s: Peak gold production and growing unemployment

By the 1970s the Vaal Triangle was part of South Africa's industrial heartland, along with Pretoria, Johannesburg and the Witwatersrand. Urbanisation persisted. The Vaal Triangle's African townships became a springboard for Lesotho nationals and residents of the homelands of QuaQua, KwaZulu-Natal and Transkei for taking the leap to seek jobs in *eGoli* (Johannesburg) before finally relocating to Soweto. As South Africa's gold mining started declining, the economy showed signs of exhaustion. This was at the time of the 1973 global energy crisis.⁴⁶ Violent waves of African labour strikes gained momentum, and government, for the first time since 1948, softened its stance marginally and granted African labourers the right to form legal trade unions.⁴⁷ The measure proved futile and labour relations declined. African unemployment persisted in the townships and yet more people drifted in. Townships had become vastly overpopulated and new land for township development was scarce.

As the neighbouring colonies of Mozambique and Angola, became independent, following a *coup d'état* in Portugal in 1975, there was growing socio-political and economic insecurity in the crowded Witwatersrand townships. Further unrest was sparked by 1976 Soweto student uprisings that soon resonated throughout South Africa.⁴⁸ The Vaal Triangle's townships were hotspots, with school-going youths demanding an end to apartheid and that proper education and better living

43 PJJ Prinsloo, *Die geskiedenis van Vanderbijlpark*, pp. 108-114.

44 R van Niekerk, "Die vestiging en uitbreiding van plaaslike bestuur in Vanderbijlpark gedurende 1952-1959" (MA, Potchefstroom University for CHE, 1992), p. 134.

45 PJJ Prinsloo, *Die geskiedenis van Vereeniging*, p. 175.

46 CJH Hartnady, "South Africa's gold production and reserves", pp. 328-329; CH Feinstein, *An economic history of South Africa: Conquest, discrimination and development* (Cambridge, Cambridge University Press, 2005), p. 202.

47 R Davies, "Capital restructuring and the modification of the racial division of labour in South Africa", *Journal of Southern African Studies*, 5(2), 1979, pp. 187-194.

48 SM Fourie, "Die impak van militêre aktiwiteite op die Vaaldriehoekse samelewing in die tydperk 1974-1994" (PhD, PU vir CHO, 2002), pp. 42-48.

conditions be provided.⁴⁹ International pressure was exerted on the government and sanctions were crippling the economy. Countering the unrest by declaring states of emergency was becoming increasingly difficult to control.

The 1983-1984 constitutional option

In an attempt to stifle the discontent, the government introduced new constitutional measures in 1983-1984, providing for an unpopular tricameral national parliament for whites, coloureds and Asians, that excluded black South Africans. The government insisted that Africans had their “own parliaments” in the independent and self-governing homelands but Africans were reluctant to accept this. In the country's urban areas, regional services councils were established and the first steps taken to create black local municipal authorities.⁵⁰ As for Sebokeng and its neighbouring townships, they were incorporated into the Lekoa Municipality.⁵¹ In the 1983 dispensation township residents had to pay rent, property tax and rates for municipal service delivery for water, electricity, sewage and wastewater services. By 1987, non-payers were subject to potential eviction from their homes.⁵²

Government's tricameral “reform” was doomed from the outset. Black South Africans disliked the separate municipal authorities. It ostensibly promoted the “ethnic” needs of Africans, Asians, Coloureds and Whites,⁵³ but the black majority refused this compromise which still left them powerless. Protests continued and non-payment for municipal service delivery persisted.⁵⁴ Activists vowed to make the country “ungovernable”. Local protests were particularly intense and violent in the Pretoria-Witwatersrand-Vereeniging region.⁵⁵

Local African leaders exploited the situation. Residents of Sebokeng, where the protest was vociferous,⁵⁶ heeded to the call not to pay any rent, rates and taxes. Local politics now shaped communities' resistance, with substantial support from the countrywide United Democratic Front (UDF) that was instrumental in creating cohesion in the absence of leaders of banned organisations, such as the African National Congress (ANC) and the South African Communist Party (SACP) that

49 JL Olivier, “Causes of ethnic collective action in the Pretoria-Witwatersrand Triangle, 1970 to 1984”, *South African Sociological Review*, 1990, pp. 98-108.

50 P Morris, “Black housing – weapon of apartheid – What will change?”, *The Sash*, 28 February 1985, p. 7; D Jensen, “Swart rade byeën oor plaaslike besture”, *Die Vaderland*, 1984.

51 PJJ Prinsloo, *Die geskiedenis van Vereeniging* (PU vir CHO, Vanderbijlpark, 1992), p. 122.

52 D Luthayi, “Eviction swoop”, *City Press*, 2 August 1987, p. 1.

53 D Simon, “Crisis and change in South Africa: Implications for the apartheid city”, *Transactions of the Institute of British Geographers* 14(2), 1989, pp. 189-206.

54 M Swilling, “The United Democratic Front and township revolt in South Africa” (Johannesburg, University of the Witwatersrand, History Workshop, 1987).

55 Redakteur, “Ná agt jaar,” *Beeld*, 5 September 1984, p. 8; T van der Westhuizen, “Politiek die oorsaak sê Viljoen”, *Rapport*, 25 September 1984, p. 8; Politieke redaksie, “Oproermakers is tóg gevang in skoonmaakaksie”, *Beeld*, 29 Oktober 1984, p. 2.

56 PJJ Prinsloo, *Die geskiedenis van Vanderbijlpark*, pp. 586-588.

had been banned and exiled since the 1960s.⁵⁷

The Vaal River becomes “a dirty sink”

Even if black South Africans had embraced the apartheid-style local government system, it would not have resolved the growing wastewater pollution problems in the Vaal River Barrage. In the 1970s, the environmental journalist, James Clarke, prophetically, alerted the public to the danger of pollution in the Vaal River Barrage. He warned that it was a “dirty sink” of a river that could simply not hold out.⁵⁸ Local residents and business concerns had also begun to complain. The Vaal River Barrage was a popular tourist destination for residents of the Witwatersrand’s metropolitan areas,⁵⁹ but the river now carried a hefty pollution weight, with scientists warning of the high rate of organic waste causing eutrophication and algal blooms in the river system.⁶⁰ Prime culprits were the over-worked urban wastewater treatment works and also the nitrates and phosphates released by fertilisers used in the farming industry.

In the 1980s the urban industrial conurbations of today’s Emfuleni in Gauteng and Metsimaholo in the Free State, experienced rapid industrial growth and development as South Africa drifted into the so-called Border War against the liberation forces of Namibia’s Swapo, South Africa’s banned ANC, Mozambique’s Frelimo, and their Cuban allied forces in Angola.

Preparing for South Africa’s transition

The international collapse in 1989 of the Cold War and the demise of the global East-West political divide, opened the way for the South African government and leaders of the liberation movements to start negotiations for a new, non-racial democracy. As the Border War drew to a close, the Vaal Triangle drifted into a state of post-industrial development and uncontrolled urban population growth. With an estimated resident population of 1,8 million people, the industries of Vereeniging, Vanderbijlpark, Meyerton and Sasolburg (Vaal Triangle) was the eighth most populous region in South Africa by the early 1990s.⁶¹

57 J Seekings, “Trailing behind the masses: The United Democratic Front and township politics in the Pretoria-Witwatersrand-Vaal region, 1983-1984”, *Journal of Southern African Studies*, 18(1), 1992, pp. 93-114; SM Fourie, “Die impak van militêre aktiwiteite op die Vaaldriehoekse samelewing in die tydperk 1974-1994”, pp. 44-48.

58 J Clarke, “Water – use it again ... and again”, *The Star*, 6 March 1978, p. 11.

59 JWN Tempelhoff, “Civil society and sanitation hydro-politics: A case study of South Africa’s Vaal River Barrage”, *Physics and Chemistry of the Earth, Parts A/B/C*, 34(3), 2009, p. 168.

60 E Braune and KH Rogers, *The Vaal River catchment: ...*, pp. iii; 4; 16.

61 SM Fourie, “Die impak van militêre aktiwiteite op die Vaaldriehoekse samelewing in die tydperk 1974-1994”, p. 12.

At the time the demand for steel, previously stimulated by the South African arms industry diminished.⁶² The 1994 transition to a “new” South Africa speeded up the post-industrial process in the Vaal Triangle. State-owned enterprises, like Iscor, started changing.⁶³ Iscor was privatised and then sold off to the multi-national steel company Arcelor Mittal, relieving the former parastatal of the responsibility of dealing with a legacy of ground and surface water pollution in the Vaal River Barrage.⁶⁴ Before 1990, Iscor had employed almost 50 000 people of all races. By 2015, employment stood at a mere 4 500.⁶⁵ In the years to come that number would diminish further because of the global drop in the demand for steel.

Similar downscaling operations and transitions followed at Sasolburg's state-owned Sasol, which had already been privatised in 1979.⁶⁶ Local coal mining operations peaked in the 1990s. While Eskom's Lethabo power station relied increasingly on lower grade coal, by the mid-2000s the Sasol fuel from coal plant at Sasolburg transitioned to natural gas, imported by pipeline from neighbouring Mozambique.⁶⁷ Despite the decline in local coal mining operations the urban population kept on growing. Since the mid-1980s, the influx declined temporarily because of the government's attempts to stifle unrest and uphold a failed system of apartheid-style municipal government.⁶⁸

South Africa's political transition

When in 1994 the new government of national unity came to power under President Nelson Mandela and a strong ANC alliance, the objective was to use local government as primary driver of development programmes to eradicate apartheid's legacy. Government was committed to providing housing, water, sanitation and energy for all South Africans so that even the poorest of the poor could lead decent lives.⁶⁹ A new Reconstruction and Development Programme (RDP) was the master plan to provide housing for all the country's previously disadvantaged people. However, the on-going culture of non-payment for municipal services, dating back to the 1980s, worsened service delivery by local authorities. This posed a significant

62 SM Fourie, “Die impak van militêre aktiwiteite op die Vaaldriehoekse samelewing in die tydperk 1974-1994”, pp. 333-354.

63 PJJ Prinsloo, *Die geskiedenis van Vanderbijlpark*, pp. 297-299.

64 V Munnik, “Discursive power and environmental justice in the new South Africa: The Steel Valley struggle against pollution (1996-2006)” (PhD, University of the Witwatersrand, 2012), Chapter 10.

65 M Hlatshwayo, “Community responses to declining industries – South Africa”, *New Agenda: South African Journal of Social and Economic Policy*, 66, 2017, p. 23.

66 S Sparks, “Between ‘artificial economics’ and the ‘discipline of the market’: Sasol from parastatal to privatisation”, *Journal of Southern African Studies*, 42(4), 2016, pp. 711-724.

67 I Madamombe, “Pipeline benefits Mozambique, South Africa”, *AfricaRenewal Online*, 2007 (available at <https://www.un.org/africarenewal/magazine/october-2007/pipeline-benefits-mozambique-south-africa>, as accessed on ca 2017-2018).

68 H Sapire, “Politics and protest in shack settlements of the Pretoria-Witwatersrand-Vereeniging region, South Africa, 1980–1990”, *Journal of Southern African Studies*, 18(3), 1992, pp. 690-693.

69 K Eales, “Water services in South Africa 1995-2009”, B Schreiner and R Hassan, 2, *Transforming water management in South Africa* (Heidelberg, Springer, 2011), p. 35.

threat to environmental health conditions. The unvarnished reality is that local authorities could not secure sufficient revenue from service users to pay for bulk services from regional water boards and electricity utilities.

Environmental health threats mounted with alarming alacrity. New porous international borders between southern African states meant that waterborne diseases (typhoid, diarrhoea, and cholera) could wreak havoc in the country's riverine water catchment areas.⁷⁰ In September 1997, eight wastewater treatment works in metropolitan Johannesburg had either run out of chlorine, or collapsed as a result of power outages and misjudgements in dosing.⁷¹ It transpired that four of the city's wastewater treatment works were working to sub-standard health requirements. This had an impact on the Vaal River Barrage in that it had to absorb considerably more of southern Gauteng's upstream sewage and industrial wastewater. The new Emfuleni Local Municipality's southern boundary line was the Vaal River Barrage – the “ultimate sink”, and a “dirty sink” of wastewater.

In November 1997, both Rand Water and the national Department of Water Affairs and Forestry (DWA) took steps to halt the pollution in the Klip River. Only then did the East Rand Water Care Company (ERWAT), established in 1996, own up and admit that one of its wastewater treatment plants had been responsible for a “30-minute-long” inflow of sewage sludge containing high levels of *Faecal coliform* and *E. coli* bacteria.⁷² That small window of evidence was destined to become the focus of growing civil society activism. The state of the Vaal River Barrage, in terms of sewage contamination, has not significantly improved since the late 1990s.

A new municipal dispensation post-2000

The change in South Africa's system of municipal governance in 2000-2002 had a profound impact on infrastructure development. An estimated 1 000 pre-1994 municipalities were reduced to 284, of which eight were metropolitan municipalities, 44 were district municipalities and the remaining 232 local municipalities were clustered into district municipalities. In theory this seemed to be a viable new system. It was part of what was said to be a new development state. However, the obvious flaws soon became apparent. Although there was a public commitment to pay for municipal service deliveries of water and electricity, this did not materialise. Not in 2002 – or at any stage thereafter. Whenever local authorities tried to secure payment for services from residents, there were protests. By 2005, South Africa's 23 largest municipalities had failed to collect 60% of service delivery payments from

70 J Schafer, “The African renaissance in Mozambique”, *Indicator South Africa*, 15, 1998, pp. 71-76; Anon., “Cholera: The South African situation”, *Modern medicine in South Africa*, 23(4), 1998, p. 12.

71 J Cameron, “Jo'burg's disease time bomb: Eight sewerage works allow raw waste into our rivers”, *Saturday Star*, 27 September 1997, pp. 1-2.

72 J Ballenger, “Water affairs to act on Klip River pollution”, *Business Day*, 13 November 1997, p. 7.

local residents. Some municipalities resorted to pre-paid water metres,⁷³ but these seldom yielded the desired results.⁷⁴

Despite emergent post-industrial regional development, more people continued to drift into the townships of Sebokeng, Bophelong, Boipatong, Sharpeville and into informal settlements from the rural areas and neighbouring states. Between 1996 and 2013 the annual population growth of Emfuleni rose from 0.7 to 1.3% per annum.⁷⁵ By 2018 an estimated 88.8% of the comprehensive Sedibeng District Municipality's population were resident in the urban areas, with Emfuleni Local Municipality home to 80.9% of the estimated 805 000 residents of the Sedibeng District Municipality.⁷⁶ In mid-2017, South Africa's population reached 56.52 million and Gauteng, the most populous province (14.3 million people) was home to 25% of the country's people.⁷⁷ Unemployment soared to an all-time high. By 2018 about 60% of Emfuleni's (economically active) population was unemployed. Young people made up a staggering 45% of Emfuleni's economically active population. Most remained unemployed.⁷⁸

Emfuleni's failing sanitation infrastructure

In the mid-2010s, estimates suggested that 90.9% of Emfuleni's population had access to adequate sanitation services.⁷⁹ These projections were nowhere near the mark. Rapid population growth, lack of proper maintenance (in some cases non-maintenance) and incomplete upgrades, took their toll on existing wastewater infrastructure. Emfuleni's 44 pump stations and 2500km of pipelines reticulating wastewater between the plants of Leeuwkuil, Rietspruit and Sebokeng, were unable to cope with the increasing wastewater flow.

Emfuleni was not the only culprit. There were frequent upstream pollution events. Culprits were seldom taken to book. The tragedy was that the regional water catchment was at its lowest point in the Vaal River Barrage.

73 G Ruiters, "Contradictions in municipal services in contemporary South Africa: Disciplinary commodification and self-disconnections", *Critical Social Policy*, 27(4), 2007, p. 488.

74 J Dugard, "Rights, regulation and resistance: The Phiri Water Campaign: Current developments", *South African Journal on Human Rights*, 24(3), 2008, pp. 593-611; P Bond and J Dugard, "The case of Johannesburg water: What really happened at the pre-paid 'Parish pump'", *Law, Democracy & Development*, 12(1), 2008, pp. 1-28.

75 Emfuleni Local Municipality, *Executive summary* (North-West University, Vanderbijlpark, September 2014 2015), p. 3.

76 GZ Teklehaimanot et al., "Population growth and its impact on the design capacity and performance of the wastewater treatment plants in Sedibeng and Soshanguve, South Africa", journal article, *Environmental Management*, 56(4), 2015, p. 985.

77 StatsSA, *Mid-year population estimates: 2017* (Pretoria, StatsSA, 2017), pp. 2; 14.

78 Emfuleni Local Municipality, *Integrated development plan (IDP): 2018/19* (Emfuleni Local Municipality, Vereeniging, 2018), pp. 2; 26.

79 GZ Teklehaimanot et al., "Population growth...", p. 985.

Precursors of Emfuleni's 2018 infrastructure collapse

A countrywide drought beginning in 2014, was at first beneficial for Emfuleni's fragile wastewater infrastructure. With water restrictions and technical regional water demand strategies in place and less water leaking from municipal pipelines, there were fewer reports of collapsing wastewater systems.⁸⁰ Then suddenly, in February 2017, the Upper Vaal River catchment received vast amounts of stormwater in the wake of Cyclone Dineo, which swept through southern Mozambique and north-eastern South Africa.⁸¹ This unexpected flood of rainwater brought a temporary halt to local drought conditions in the Upper Vaal River catchment. At the same time the floods exposed the region's dysfunctional wastewater infrastructure. Emfuleni was by no means alone in this evidence of severe dysfunctionality. An assessment of wastewater treatment works in South Africa in 2017 reported that only 7% of the country's 824 wastewater treatment works (primarily operated by local authorities) were in a sound condition.⁸²

It was alleged that inferior municipal governance systems were at fault. But the origins of the problem lay deeper. The festering symptoms of a widespread state of "things falling apart",⁸³ reflected on the performance of the national Department of Water and Sanitation (DWS). In late 2017, the South African Water Caucus, an influential NGO, alerted the government to serious departmental lapses.⁸⁴

The prequel to Emfuleni "falling apart"

In the same year, 2017, Rand Water, entered into a three-year agreement with Emfuleni Local Municipality at the request of the department of the DWS. The regional potable water service provider, Rand Water, whose water supply comes ostensibly from the Vaal Dam and the Lesotho Highlands, has been involved in the Emfuleni Local Municipality area since the 1970s.⁸⁵ Five decades later, its officials still collaborated with Emfuleni's municipal water services division. In addition, since the 1990s, Rand Water branched out into wastewater and helped out Emfuleni's Sebokeng, Rietspruit and Leeuwkuil wastewater treatment works.⁸⁶ Collectively, as

80 Anon., "Pipeline troubles in Deneysville", *Vaalweekblad*, 26 May 2015.

81 G Kaiser and N Macleod, "Cape Town – where we've been and where we want to go", *Civil Engineering*, 26(9), 2018, p. 10.

82 S Kings, "South Africa's shit has hit the fan", *Mail & Guardian*, 21 July 2017, p. 10; Anon., "Municipal failure the cause of SA's sewage mess", *Legalbrief: Environmental*, 9 October 2018 (available at <https://goo.gl/YKv5tI>, as accessed on ca 2017-2018).

83 JP Petersen, *12 Rules for life: An antidote to chaos* (London, Penguin Random House, 2018), pp. 17-22; 156-157; 365-366.

84 SAWC Task Team, *Report on the state of the Department of Water and Sanitation*, South African Water Caucus (South African Water Caucus, November 2017).

85 JWN Tempelhoff, *The substance of ubiquity: Rand Water 1903-2003* (Vanderbijlpark, Kleio Publishers, 2003), pp. 302-304.

86 JWN Tempelhoff, and All Rand Water Portfolios, *In pursuit of excellence: Rand Water 2003-2013* (Vanderbijlpark, Kleio, 2015), pp. 21-22; 74; 129-142.

shown in 2017, these plants were operating at a compliance rate of 90%, while the under-performing Leeuwkuil plant (21%) was in an upgrade phase – ultimately to be incorporated into a new Sedibeng Regional Sanitation Scheme (SRSS).⁸⁷

The “honeymoon” collaboration period for Emfuleni’s wastewater sector and Rand Water did not last long. In September 2017, angry residents on the Vaal River Barrage’s Loch Vaal reported that sewage spills were reaching an all-time high.⁸⁸ In the Klip River tributary, water quality researchers found traces of synthetic chemical pollutants used in antiretroviral drugs.⁸⁹ Furthermore, reports circulated in the public domain that people were becoming ill after coming into contact with Vaal River water.⁹⁰ Local residents were up in arms and grew more vociferous. The Vaal NGO, Save the Vaal Environment (SAVE), was first out of the blocks.⁹¹ It held a public meeting where experts reported on Emfuleni’s wastewater woes and SAVE’s legal advisor, Jeremy Ridl, warned that legal steps would follow against Emfuleni Local Municipality.⁹²

“Things falling apart” in South Africa in 2018

In February 2018, President Jacob Zuma was recalled by the ruling ANC. Evidence surfaced of widespread corruption in state-owned enterprises and government departments. It appeared that the Zuma presidency had closed its eyes to a comprehensive process of “state capture” by unscrupulous business people, while officials protected the country’s president from prosecution.⁹³ On the economic front, South Africa took a hard knock. Foreign investments were on the decline.⁹⁴

Only when Zuma’s former deputy, Cyril Ramaphosa, took over in February 2018, did government regain credibility. The national Department of Water and Sanitation (DWS) was in a bad state. It was alleged that construction and maintenance projects had been disrupted by unlawful practices.⁹⁵ Fortunately, the Trans-Caledon Tunnel Authority (TCTA), responsible for raising loans on international markets for water infrastructure projects, was unscathed and able to continue plans to raise loans to

87 Rand Water, *Annual report 2017*, Rand Water (Glen Vista, Rand Water, 2017), p. 102.

88 S Bega, “Vaal River pollution dangerous for all life: Source of ongoing sewage spills is from broken and ageing infrastructure”, *Saturday Star*, 23 September 2017, p. 4.

89 C Schoeman, M Dlamini, and OJ Okonkwo, “The impact of a wastewater treatment Works in Southern Gauteng, South Africa on efavirenz and nevirapine discharges into the aquatic environment”, *Emerging Contaminants* 3(2), 2017, pp. 95-106.

90 S Bega, “Fisherman catches flesh-eating bug”, *Saturday Star*, 23 December 2017, p. 7.

91 J Tempelhoff, V Munnik, and M Viljoen, “The Vaal River Barrage, South Africa’s hardest working water way: An historical contemplation”, *The Journal for Transdisciplinary Research in Southern Africa*, 3(1), 2007, pp. 122-124.

92 SAVE, “Press statement,” *Newsletter: Press statement*, 29 November, 2017.

93 J Pauw, *The president’s keepers: Those keeping Zuma in power and out of prison*, 1 (Cape Town, Tafelberg, 2017).

94 Staff writer, “How the Zuma years killed foreign investment in South Africa”, *BusinessTech* (News), 17 October.

95 H Muller, “Corruption leaks into the Lesotho Highlands Project”, *Plumbing Online*, 26 August 2016.

fund the second phase of the Lesotho Highlands Water Project (2015-2027).⁹⁶

Nor was “the falling apart” only about corruption and politics. The country’s aggravating drought disaster conditions persisted, literally up to 2020. Two sectoral events stood out as pointers. Both were indications of compromised water security. Most prominent in the public eye was the “Day Zero” threat of potable water supplies to the city of Cape Town and parts of the Western Cape (2017-2018).⁹⁷ The second water event was the unfolding state of “things falling apart” in Emfuleni’s wastewater infrastructure, a disaster that caused severe pollution in the upper Vaal River in 2018.⁹⁸ Both events exemplified the vulnerability of South Africa’s water infrastructure.

Emfuleni “falling apart”

Since 2017, intermittent sewage spills have caused serious pollution events on the Vaal River Barrage. However, the blame cannot be placed exclusively on dysfunctional wastewater infrastructure. In Gauteng Province water sector specialists have been working on non-revenue water since the early 2010s. By 2014, extensive research by these experts suggested that Rand Water’s pipelines had no leaks, but that the picture was different once Rand Water’s supplies flowed into Gauteng’s municipal pipeline systems.⁹⁹ In 2019, experts pointed out that Johannesburg, Midvaal and Ekurhuleni each lost on average 40% of their potable water because of leaking municipal pipelines. Emfuleni was a cut above the others, losing 50% of its drinking water into the ground.¹⁰⁰

Emfuleni’s wastewater infrastructure was unable to cope with mass inflows. The municipality chose to ignore all warnings and urgent pleas to address the issue. In February 2018 in the Southern Gauteng division of the High Court of South Africa, Judge Vally ordered that Emfuleni’s leadership had to hold monthly public meetings with residents to inform them of progress in dealing with the municipality’s wastewater situation.¹⁰¹ But Emfuleni did nothing; it had “fallen apart”. At the end of 2017, the mayor resigned under a cloud of scandal.¹⁰² The municipality’s revenue

96 JWN Tempelhoff (Personal collection-hereafter JTP), Personal disclosure DWS insider, Pretoria, 27 February 2018.

97 WP Visser, “A perfect storm: ...”, pp. 1-10; JWN Tempelhoff, “The rise (and fall?) of resilience in dealing with Cape Town’s water crisis (2015-2018)”, pp. 111-148.

98 JWN Tempelhoff, “When things ‘fall apart’: The 2017-18 sewage spills in the Vaal River Barrage catchment: Report to the South African Human Rights Commission”.

99 DWS, Water Services: Macro planning, A 2011/12 assessment of non-revenue water & losses in South Africa, (Pretoria, DWS, August 2014).

100 M Muller et al., *Water Security Perspective for the Gauteng City-Region: Securing water for continued growth and well being*, Gauteng Provincial Government (Johannesburg, Gauteng City-Region Observatory, August 2019), p. 27.

101 B Vally, “Draft order: Save the Vaal Environment (applicant) and Emfuleni Local Municipality (first respondent) and Dithaba Oupa Nkoana (second respondent)”, Case number 3950/18, ed. High Court of South Africa (Gauteng local division) (Johannesburg, High Court of South Africa, 2018).

102 S Jimta, “New mayor welcomed”, *Daily Sun*, 1 December 2017.

losses were in excess of R1 billion and it had the dubious status of being one of 30 South African local authorities that collectively owed the state R10.7bn in unpaid bulk water bills.¹⁰³ With government consent, Rand Water reduced Emfuleni's water supply by as much as 60% as a result of an outstanding account of R431.7 million.¹⁰⁴ Relations between Emfuleni and Rand Water were at an all-time low.

In mid-June 2018 the Gauteng Provincial government placed Emfuleni under financial administration.¹⁰⁵ At the time, the municipality owed the national power utility, Eskom, R678 million and Rand Water R441 million.¹⁰⁶ Local environmental health conditions had deteriorated markedly. In all suburban areas uncollected municipal refuse accumulated on sidewalks. Piles of black plastic bags littered suburban streetscapes. Emfuleni's basic health and sanitary management had collapsed.¹⁰⁷

In June 2018, Emfuleni's sewage crisis peaked. More dead fish started floating on the river's surface, killed by the raw sewage flowing into the Vaal River Barrage. The media soon reported on the dreadful state of the river downstream in the Free State town of Parys. The local water purification plant was dysfunctional and the environmental health of the river in the popular tourist areas of the Vredefort Dome, a renowned World Heritage Site, was also compromised.¹⁰⁸ Local farmers and nature conservationists reported the death of endangered indigenous fish species, primarily the large-mouth yellowfish (*Labeobarbus kimberleyensis*).¹⁰⁹ They described the fish kill as the worst in years.¹¹⁰ In mid-July SAVE's management met with the Gauteng premier, David Makhura.¹¹¹ SAVE was not satisfied with the outcome and threatened to go back to court, to have Emfuleni's compliance orders of February 2018 reviewed.¹¹²

Emfuleni's residents were angry. A former local councillor witnessed "with a heavy heart... how the light ... in his parents' eyes [had faded]".¹¹³ A local academic lamented the short-sightedness of political leaders who seemed incapable of creating

103 M Van Wyngaardt, "Water dept will throttle water supply to 30 municipalities as R10.7bn debt piles up", *Engineering News*, 27 November 2017.

104 L Sifile, "Treasury asked to intervene over unpaid water bills", *Times*, 27 November, 2017, p. 2.

105 N Njilo and N Gous, "Makhura puts Emfuleni under administration", *Times*, 12 June 2018, p. 3.

106 Emfuleni Local Municipality, "Draft financial recovery plan" (Emfuleni, Emfuleni Local Municipality, September 2018), p. 17.

107 Redaksionele kommentaar, "Siek gesondheidsdienste stort in duie", *Vaalweekblad* (Vanderbijlpark), 16-18 August 2017, p. 6.

108 Anon., "Vaal-rioolbesoedelings ramp", *Parys Gazette*, 30 July 2018; Anon., "Visvrektes: Monsters van Vaal se water vandag geneem", *Parys Gazette*, 24 Julie 2018.

109 S Hills, "Sequence of four photos showing fish kills and severely polluted water in the Vaal River at Vermaas Drift, near Orkney in North West Province", WhatsApp, 15 August, 2018.

110 Anon., "Visvrektes: Monsters van Vaal se water vandag geneem", *Parys Gazette*, 24 Julie 2018.

111 Anon., "High level meetings over water pollution", *Vaalweekblad*, 16 July 2018.

112 Yellow Fish Working Group, "SAVE Newsletter September 2018", (YWG, 17 September 2018) (available at <https://goo.gl/bFPbfq>, as accessed on ca 2017-2018).

113 K Chabalala, "Emfuleni crying out for clean government", *Sowetan*, 2 November 2017, p. 15.

a better future for the people.¹¹⁴ A public commentator defined the “failing” local government,¹¹⁵ while another argued the river was like “a dirty toilet”. These were symptoms of defeat and disorientation.¹¹⁶ In an act of indignation, activists rushed into Emfuleni’s municipal offices, submitting a strongly-worded memorandum to management, and then flushed the entrance to the building with a messy concoction of sewage and dead fish, to protest against the municipality’s abysmal service delivery.¹¹⁷

On 11 August 2018, SAVE’s lawyer, Jeremy Ridl, addressed a packed public meeting at a popular riverfront resort. The NGO was on the warpath.¹¹⁸ There had been talks with influential members of the ruling ANC,¹¹⁹ but this had not yet borne fruit. Nothing appeared to be happening. SAVE’s vice-chairperson, Maureen Stewart, took the DWS to task, alleging they had made “false statements” about the cause of the fish kills.¹²⁰ The new minister for water and sanitation, Gugile Nkwinti, agreed and he in turn pointed a finger at the department.¹²¹ SAVE’s members and water quality experts knew, from experience, that local fish kills were caused by sewage spills.¹²²

Residents of Sebokeng also took the government to task. In 2015, former DWS minister, Nomvula Mokonyane, had promised to make 6 000 jobs available at the Sebokeng wastewater treatment works.¹²³ Since 2017 an angry group protested for days at the entrance of the treatment works, preventing officials and contractors from reporting for work on the plant and construction site. The protestors wanted the “promised” jobs. Frequent work stoppages followed. Delays in completing the Sebokeng regional wastewater project, implied significant financial losses. Minister Nkwinti negotiated with the protestors and managed to convince them, with financial support, to allow work on the project to be resumed.¹²⁴

Emfuleni’s crisis reverberated downstream of the Barrage. Two videos on YouTube went viral with local waterfront property owner, Johan de Klerk, explaining how

114 TK Pooe, “When do we admit SA has failed?”, *Sunday Independent*, 8 July ca 2018, p. 14.

115 J Venter, “SA’s most important river in a state of crisis”, *Farmers Weekly*, 13 August, 2018, p. 13.

116 S Zwane, “Vaal River like a dirty toilet”, *Daily Sun*, 27 July 2018, p. 4.

117 Anon., “Dooie vis en vrot water vir Emfuleni”, *Vaalweekblad*, 15 Augustus 2018; “Dooie vis en vrot water vir Emfuleni”, *Vaalweekblad*.

118 B Vally, “Draft order: Save the Vaal Environment (applicant) and Emfuleni Local Municipality (first respondent) and Dithaba Oupa Nkoana (second respondent)”.

119 TPA TOA/20180811, “Audionote: SAVE public meeting, Stonehaven, 11 August” (Personal notes and Audionote, 2018).

120 S Bega, “Activists pick out ‘fishy’ claim”, *Saturday Star*, 18 August 2018, p. 2.

121 Yellow Fish Working Group, “SAVE: M Plant to Minister Gugile Nkwinti, Minister of Water and Sanitation 15 August 2018” (Zuurfontein, SAVE, 17 September 2018 2018) (available at <https://goo.gl/2fw3D>, as accessed on ca 2017-2018); Anon., “Municipal failure the cause of SA’s sewage mess”, *Legalbrief: Environmental*, 9 October 2018.

122 S Mashaba, “Council blamed for sewage spillage into Vaal River”, *Times*, 15 August 2018, p. 2.

123 SANEWS, “Sedibeng sewer scheme brings relief to residents”, *Engineering News*, 13 May, 2015.

124 H Sithole, “Department of Water and Sanitation internet article: Minister Nkwinti and Sebokeng residents find common ground on Sedibeng Regional Sanitation Scheme”, *News Release*, 19 July, 2018.

painful it was for him, as sporting fisherman, to see masses of dead fish floating on the Vaal River. Despite receiving some not-so veiled threats to his personal safety, he was determined to call the public to action. He wanted public engagement in dealing with what was nothing less than the random and careless destruction of the environment by the political authorities at local government level.¹²⁵

By the end of August 2018, the Vaal Action Group (VAG),¹²⁶ replete with science advisors, a private company capable of solving the water spill, legal experts and many enthusiastic supporters, had had enough. They started rescue operations in the vicinity of Parys and the Vredefort Dome.¹²⁷ An artist and activist resident of Parys placed a work of art depicting a yellow fish under the town's bridge across the Vaal River. The art piece was titled: "Broken". It featured pieces of the famous Dome's red granite rock and was in the shape of the threatened indigenous yellow fish. It created awareness of the "broken", damaged state of the river and its vulnerability to human negligence and neglect.¹²⁸

Emfuleni's crisis even reverberated in the National Assembly. In August 2018 the Legislative Assembly's water and sanitation portfolio committee visited Emfuleni.¹²⁹ By November 2018, the Portfolio Committee on Water and Sanitation reported that the work stoppages at the Sebokeng Regional wastewater construction site had accumulated to R89 million in losses as a result of work stoppages.¹³⁰ But through all of this, the government's response to the crisis can best be described as "remaining placid". However, NGOs like SAVE and VAG, had a different agenda. Civil society stood up against what it considered to be the unjust treatment of a living river. Apart from ongoing deliberations on social media and news reports, the people at large sided publicly with the NGOs in raising a collective voice of protest. There had been fish kills before in the Vaal River Barrage, but in discussions local residents agreed that the sewage spills of August 2018, were "the worst in living memory".¹³¹

125 "Vaalrivier", *Youtube*, updated 25 Julie 2018 (available at https://www.youtube.com/watch?v=E0nCfum_-F4, as accessed on July 2018); "Vaalrivier contamination – Update", *Youtube*, updated 10 August 2018 (available at https://www.youtube.com/watch?v=_UASqI0I4iM, as accessed on 22 September 2018).

126 "Vaal Action group", 2018 (available at <http://www.vaalactiongroup.co.za/about-vag/>, as accessed on 22 September 2018).

127 TPA/TOA/20180825, "Vaal Action Group meeting, Parys, 25 August", 2018.

128 TPA 20181017 Email correspondence. D Terblanche (Parys) to E Tempelhoff on 16 October, "Yellowfish rock art: Statement on Vaal River at Parys", (16 October, 17 October 2018 2018).

129 ANA, "Faulty treatment units the cause of Vaal River contamination", *The Citizen*, 20 August 2018 (available at <https://goo.gl/BeL7vB>, as accessed on ca 2017-2018).

130 PMG, ATC181121: Report of the Portfolio Committee on Water and Sanitation on an oversight visit to the North West, Free State and Gauteng Provinces, from 13-17 August 2018, Dated 21 November 2018 (Cape Town, 2018).

131 S Bega, "Vaal River suffocates under filthy wave of raw effluent", *Saturday Star*, 28 July 2018.

The quest for recovery: DWS steps in

As the minister of Water and Sanitation, Nkwinti was firm in his resolve to deal with the Vaal River crisis.¹³² He was well-informed on the severity of the issue.¹³³ Many sections of the Sebokeng plant (electrical pumps, engines and wiring systems) had been submerged in raw sewage.¹³⁴ Work stoppages were to blame. Then followed a futile attempt at turning all the country's wastewater treatment works into national key-points.¹³⁵ Significant components of Emfuleni's wastewater infrastructure had been subject to destruction and copper-cable theft.¹³⁶ The government's resolve was to put things together again.

The SA Human Rights Commission joins the fray

In September 2018, the South African Human Rights Commission (SAHRC) announced it would be investigating the issue of pollution on the Vaal River. Locals were critical of the whole debacle, pointing fingers at "politicians who steal our money and hence sabotage the sewerage works".¹³⁷ However, for some it was an opportunity to let off steam. Critics remained cynical of the SAHRC's ability to make a difference.¹³⁸

On 3 September 2018 members of the Human Rights Commission (SAHRC) visited Emfuleni. The team's leader, Buang Jones, told the media that the state of the wastewater treatment works was a matter of grave concern.¹³⁹ On 25–27 September the SAHRC commissioners held public hearings in Vanderbijlpark, taking evidence from numerous civil society organisations, such as SAVE, the Vaal Environmental Justice Association (VEJA), the Federation for a Sustainable Environment (FSE), the Emfuleni Ratepayers Association (ERPA),¹⁴⁰ as well as representatives of the faith-based organisations operating in Boipatong, Sharpeville, Bophelong, Sebokeng and Evaton.¹⁴¹ At subsequent meetings of the SAHRC in Johannesburg in November

132 PMG, Department of Water and Sanitation irregular, fruitless and wasteful expenditure: Hearing (Cape Town, Parliamentary Monitoring Group (PMG), 2018).

133 PMG, GE Nkwinti, Budget Vote 36: Department of Water and Sanitation 2018/2019 financial year (Cape Town, Parliamentary Monitoring Group, 2018).

134 E Tempelhoff, "Werk begin oplaas", *Beeld*, 1 Augustus 2018, p. 4.

135 PMG, "Water and Sanitation Master Plan; Legislation: DWS briefing, with Minister, 29 August" (Cape Town, Parliamentary monitoring committee, 2018) (available at <https://goo.gl/zFqmuH>, as accessed on ca 2017-2018).

136 DWS, *Annual report 2017/18*, Department of Water and Sanitation (Pretoria, Department of Water and Sanitation, 21 September 2018), pp. 11-12.

137 T Kubheka, "Social media comments to: SAHRC announces inquiry into Vaal River pollution", *Eyewitness News*, 3 September 2018.

138 M Lindeque, "Social media comments to: SAHRC probe into Vaal River contamination to get underway", *Eyewitness News*, 25 September 2018.

139 B Bingwa, "SA Human Rights Commission to hold inquiry into the Vaal river pollution", *702 News* (Johannesburg), 4 September 2018.

140 TPA/TOA/20180926, "SAHRC Vaal River Barrage pollution, SAHRC hearings, Vanderbijlpark, 26 September", 2018.

141 TPA/TOA/20180925, "Day 1: SAHRC hearings Stonehaven on Vaal", 2018, Oral history.

2018 and February 2019, commissioners took evidence from government officials,¹⁴² and industries using the Vaal River Barrage and its upstream water resources.¹⁴³ The commission took a wider view of things by listening to the evidence of Ekurhuleni Metropolitan Municipality, Midvaal Local Municipality, as well as the City of Johannesburg's wastewater treatment sector.¹⁴⁴ The commission clearly had sufficient information at its disposal on the Emfuleni wastewater crisis. For residents of Emfuleni the SAHRC proved to be of value at the time – even if it only meant restoring dignity to the whole debacle by focusing on a human rights perspective.

A new approach: The SANDF and the Vaal River crisis

Meanwhile, in October 2018, at the time of his mid-term budget speech, the new finance minister, Tito Mboweni, hinted that the South African National Defence Force (SANDF), would be deployed in Emfuleni.¹⁴⁵ Special measures were in the pipeline, he said, to fund the infrastructure works in collaboration with the municipal management and the private sector.¹⁴⁶

The SANDF Genie Corps had previously been deployed in the Democratic Republic of the Congo (DRC) where they had helped by doing essential repairs and maintenance to existing water and sanitation infrastructure. It was agreed that the SANDF presence would be of significant value in Emfuleni.¹⁴⁷ At first there were critical public comments.¹⁴⁸ Even SAVE had reservations,¹⁴⁹ but the promise of a Defence Force presence did have a calming effect on the residents.¹⁵⁰ Once the contingent of 200 SANDF members arrived at Emfuleni on 23 November 2018, their presence was evidence that something was “at least being done” in an attempt to put things in order.¹⁵¹

The SANDF made many friends. Colonel Andries Mahapa, a jovial, but firm commander, became a friend of key stakeholders. By January 2019 the number of

142 TPA/TOA20181119, “Audionote: SAHRC, Session Jhb Council Chamber DEA and Midvaal LM, 2018.11.19”, 2018.

143 TPA/TOA20181120, “Audionote: SAHRC, Session JoBurg Theatre, Braamfontein 2018.11.20”, 2018.

144 A Mthethwa, “More money, more time needed to fix contamination in river system”, *Daily Maverick*, 21 February 2019; “Audionote: SAHRC hearings Constitutional Hill, Arcelor Mittal, DWS Gauteng, SASOL Whistle blower”, 2019.

145 C Ramaphosa, “President Ramaphosa’s statement on Nhlanhla Nene”, Statement by the presidency of the RSA, *Sowetan Live* (Johannesburg), 10 October 2018; Live newsfeed team, “OVERVIEW: Mboweni is in, Nene is out – 5 things you need to know”, *News 24*, 9 October 2018.

146 PMG, Minister T Mboweni, Medium term budget policy statement: The economy at a crossroads (Cape Town, Parliamentary Monitoring Group, 2018), pp. 9-10.

147 J de Lange, “Weermag maak hulle reg vir Operasie Vaalrivier”, *Netwerk 24 Rapport* (Johannesburg), 28 October 2018.

148 L Louw-Vaudran, “Should the army be cleaning up South Africa’s rivers?”, *Daily Maverick*, 9 November 2018.

149 S Bega, “Tito to Vaal rescue”, *Saturday Star*, 30 October 2018.

150 SAVE, “Response to finance minister’s mid term policy statement re Vaal River crisis”, *News Release*, 25 October 2018.

151 BC Simelane, “Army experts step in to assist Emfuleni municipality with sewage problems”, *Daily Maverick*, 26 November 2018.

soldiers working on the Vaal River sewage crisis had increased to 300. The SANDF wanted to have “everything in order” within a year.¹⁵² Almost exactly a year later, by December 2019, ERWAT, Ekurhuleni’s wastewater company, took over from the SANDF, who had at least worked on: safeguarding infrastructure; unblocking clogged treatment systems; and getting 24 dysfunctional pump stations operational.¹⁵³

At grassroots level in the townships of Emfuleni, residents were in a bad place. Middle class residents of Sebokeng complained about struggling to make ends meet and finding the funds to pay their home loans, while municipal service disruptions affected the ambiance of otherwise cheerful neighbourhoods. At Sebokeng’s hostels, an area of the township where families were living in small confined spaces in long blocks of non-detached residences, there were complaints that raw wastewater often flooded their homes. Overworked pipelines leaked into open gutters and flowed freely in the streets. Small children were even building mud castles with wet soil they collected in sewage canals. Domestic animals, goats, pigs, cats and dogs, roamed the streets scavenging for morsels to eat.¹⁵⁴

In Peacehaven, a former white suburb of Vereeniging, local sewage pump stations were often out of order and residents then resorted to the random release of raw sewage into canals on sidewalks. Streams of sewage then flowed into the Vaal River Barrage upstream of a local waterfront hotel.

Securing funds for Emfuleni’s recovery

Although in his annual State of the Nation (SONA) speech presented on 7 February 2019, President Ramaphosa singled out the problems being experienced with severe pollution of the Vaal River and indicated government’s support in addressing the issue, funds were not forthcoming.¹⁵⁵ Finance minister Mboweni reaffirmed government’s commitment to spend public money on infrastructure, but Emfuleni was not singled out.¹⁵⁶ According to experts Emfuleni’s Sebokeng WWTW upgrade required at least R1.1 billion,¹⁵⁷ and there were estimates that work would take two years for the project to be completed.¹⁵⁸ Simply put, the government did not have the money to finance the Emfuleni project. In 2019, the country went to the polls

152 P Phakgadi, “SANDF sends more engineers to sort out Vaal River contamination”, *News24*, 14 December 2018.

153 News24Wire, “SANDF to withdraw from Vaal River intervention project by Friday”, *Engineering News*, 27 January 2020.

154 JWN Tempelhoff et al., *The Anthropocene and the hydrosphere A case study of sanitation governance in Emfuleni Local Municipality (2018-19)*, The Research Niche for the Cultral Dynamics of Water (CuDyWat) at North-West University (Vanderbijlpark, 2019.09.09 2019), pp. 42-44.

155 C Ramaphosa, 2019 State of the Nation Address (Cape Town, Parliamentary Monitoring Group, 2019).

156 T Mboweni, 2019 budget speech, RP18/2019, p. 16 (Pretoria, Communications directorate, 2019).

157 N Gous, “R240m keeps Vaal River clean-up going, but project needs R1.1bn”, *Times Live*, 21 February 2019.

158 A Mthethwa, “More money, more time needed to fix contamination in river system”, *Daily Maverick*, 21 February 2019.

for the national elections. The ANC won under Ramaphosa's leadership and Lindiwe Sisulu became the new Minister of Human Settlements, Water and Sanitation.

In late 2019, SAVE held meetings with the East Rand Water Care Company (ERWAT) and Gauteng Province officials on the essential repair work to be carried out on Emfuleni wastewater pipelines. By January 2020 it was evident to SAVE, that ERWAT's operations were not satisfactory. The new Water and Sanitation minister, Lindiwe Sisulu, meanwhile stepped in and at a public meeting in Vereeniging took a hard-line approach. ERWAT had until June 2020 to resolve the pipelines and pump station issues that were still not resolved. she said. Rand Water had meanwhile once again offered to assist and had joined as one of the implementing agents for Module 6 at the Sebokeng WWTW.¹⁵⁹ They were the obvious favourites to take over the work.

Although "infrastructure development" had been identified as an important focus in the comprehensive plans of the Department of Water and Sanitation when Ramaphosa's first term began,¹⁶⁰ government was unable to raise the necessary funds. Even the work carried out by the SANDF team in Emfuleni had been hamstrung by the lack of government funding.¹⁶¹ Furthermore, the city council, by that time under a well-meaning mayor, Rev. Gift Moerane, was unable to be of service, because the municipality remained under financial administration.

At a public meeting held in January 2020, the minister, Lindiwe Sisulu, managed to win the confidence of Emfuleni residents when she told a public meeting it would take three years to restore the wastewater system. She wanted things to be done much sooner.¹⁶²

Then, on 27 March 2020, South Africa shut down as a precautionary measure in combatting the global outbreak of the COVID-19 pandemic. Despite this setback, work at the Sebokeng plant continued as part of the "essential services" category of work that was permitted despite the pandemic. However, intermittent protest action interrupted work at the Sebokeng site between July and December 2020.¹⁶³ Water sector monitoring operations were resumed in the Upper Vaal management area in the second half of 2020.¹⁶⁴ Work had it that Module 6 of the Sebokeng wastewater treatment works was commissioned in December 2020.¹⁶⁵ In early 2021, Minister Lindiwe Sisulu once again communicated with stakeholders in Emfuleni and told SAVE's management that there would be a formal takeover of Emfuleni's wastewater

159 TPA/TOA 20210508, Phone interview Maureen Stewart, SAVE, 8 May 2021.

160 DWS, *National water and sanitation master plan: Plan to action*, Department of Water and Sanitation (Pretoria, 2018) (available at <https://bit.ly/3u74hnr>, as accessed on ca 2017-2018).

161 JWN Tempelhoff et al., *The Anthropocene and the hydrosphere A case study of sanitation governance in Emfuleni Local Municipality (2018-19)*, pp. 71-72.

162 VEM, "Great start for the Vaal River clean-up project", *Vaal Express Media* (Online), 24 January 2020.

163 TPA/TOA 20210508, Phone interview Maureen Stewart, SAVE, 8 May 2021.

164 VBMA KRE, "Minutes of the Klip River Forum, Zoom Virtual platform, on 4 August 2020", 2020 (available at <https://bit.ly/3cihGU9>, as accessed on ca 2017-2018).

165 TPA/TOA 20210508, "Phone interview Maureen Stewart, SAVE, 8 May 2021".

infrastructure by the DWS, but that before the department was legally empowered to do so it first had to contend with Section 63 of the Water Services Act of 1997. She stressed that the department's legal team had started working on the matter.¹⁶⁶

SAHRC releases report

On 17 February 2021 the South African Human Rights Commission released its long-awaited report on Emfuleni.¹⁶⁷ The hard-hitting report stressed that the human rights of local residents had been violated by the local municipality's inability to ensure proper operations at its wastewater works for several years. The Vaal River Barrage had become a major health hazard. The crisis had compromised water security and posed a potential threat to 19 million residents of Gauteng. The commission also warned that a number of strong, legitimate damage claims had been laid against the Department of Water and Sanitation and that these might even lead to hearings in South Africa's Constitutional Court.¹⁶⁸

Although the commission's report had an immediate effect, there were soon signs of lethargy on the part of government and Emfuleni Local Municipality to step in and take pro-active measures. They had "dodged the bullet" for so long it was almost as if they were immune to criticism. Apart from the formal commissioning of Module 6 of the Sebokeng wastewater treatment works, the ill-functioning infrastructure system remained poor. At its 23 February 2021 meeting with stakeholders the management of the IVRS Reconciliation Committee explained that the wastewater treatment works of the Leeuwkuil (Vereeniging) and Sebokeng were 40-50% over-used, while SAVE's insider information had it that the Rietspruit plant was only 30% operational. Of the 44 pump stations serving the system, seven were operational, while 24 were operating, but required attention. The key issues, experts pointed out, was the need for DWS to formally take charge of appointing contractors on the project; and preventing vandalism and community upheavals. There remained a dire need for sufficient human resources capacity to operate and manage the systems in Emfuleni. The management of the IVRS Committee was aware that only R268 million of an estimated R2.2bn had been paid for the Emfuleni upgrade at the time.¹⁶⁹

In April 2021 when Emfuleni announced its annual increase of the rates on service delivery and taxes, there was an outcry. Residents pointed to the rank ineptitude

166 N Richards, "Water and sanitation dept to take over Emfuleni's water works", *The Citizen*, 20 February 2021; JTP, Phone interview Maureen Stewart, SAVE, 8 May 2021.

167 South African Human Rights Commission (SAHRC), *Final report of the Gauteng provincial inquiry into the sewage problem of the Vaal River*, South African Human Rights Commission (Johannesburg, 17 February 2021).

168 S Bega and JWN Tempelhoff, "Emfuleni's wastewater crisis and the Vaal River Barrage" (U3A Joburg East Branch monthly meeting Online Zoom, U3A, Johannesburg, 10 May 2021).

169 DWS IVRSSSC, "Continuation of the Integrated Vaal River System Reconciliation Strategy Study – Phase 2: Strategy steering committee Meeting 5: Agenda and presentations 25 February".

of the municipality and its abject failure to render adequate water and wastewater services.¹⁷⁰ Residents in the predominantly black formal and informal residential areas of Emfuleni complained bitterly about the smells and the ongoing wastewater leaks.¹⁷¹ As for SAVE, they once again started contemplating more legal steps against Emfuleni for its poor performance in terms of basic service delivery.¹⁷² In May 2021, residents of Vereeniging's Three Rivers residential area reported 81 water leaks without receiving appropriate responses from the local authority.¹⁷³ It was all too apparent that the legacy of Emfuleni's wastewater crisis was still in the doldrums.

Conclusion

Emfuleni's failing wastewater infrastructure had suffered from years of neglect and insufficient maintenance and upgrade programmes. Residents had put up with this poor service delivery since mid-2010. The pollution of the Vaal River Barrage and the unacceptable, unhygienic conditions in nearby townships were a severe threat to human and environmental health. Despite the fact that substantial amounts of public money had been spent on repairs to the Sebokeng regional wastewater system, it was still not operational. The deteriorating social-ecology of a former dynamic industrial urban community situated on the banks of the Vaal River Barrage was clearly in a bad space. Furthermore, the environmental health of its scenic river waterscapes had a profound effect on residents' mental health.

An April 2021 *Mail & Guardian's* editorial comment, summed up the debacle accurately when it commented:

The Vaal can be saved, but the biggest problem is the time it is taking to save it – [this is] time the economically depressed region doesn't have... Private infrastructure projects and government housing schemes that will bring jobs and boost investment are on hold because of the collapsed wastewater system and other service-delivery issues... Tourism is a major opportunity for the riverfront ... but nobody wants to sit next to a sewage-infested river... The Vaal is suffering the effects of bureaucracy and a lack of government funding. And there's no urgency on the part of officials to fix this dangerous mess.¹⁷⁴

By mid-2021 there was a sense of persistent uncertainty about the ongoing COVID-19 pandemic and the very real possibility of a third wave of infections in

170 G Welman, "The rot and rotten goings-on in Emfuleni municipality", Opinion, *Mail&Guardian* (Johannesburg), 22 April 2021.

171 S Bega and M Zali, "Sewage poisons the Vaal", Environmental News, *Mail & Guardian* (Johannesburg), April 3-6 May 2021.

172 TPA/TOA 20210508, Phone interview Maureen Stewart, SAVE, 8 May 2021.

173 C Cloete, "Dit lek orals water in Vereeniging", *Vaalweekblad* (Vanderbijlpark), 7 Mei 2021 (available at <https://bit.ly/3o2AZol>, as accessed on ca 2017-2018).

174 Editor, "No urgency to fix the Vaal sewage crisis", Editorial comment, *Mail & Guardian* (Johannesburg), 29 April 2021 (available at <https://bit.ly/2Rs2Su5>, as accessed on ca 30 April 2021).

South Africa. Political parties had their work cut out for them as aspiring local council candidates as the country prepared for local elections. Meanwhile, the precious Vaal River keeps flowing silently on its long journey of 1 300km from the Drakensberg grasslands, through the Vaal River Barrage, to the Atlantic Ocean in the west. It is patient; but how patient can South Africans be?