

Evaluation of the water use licensing regime of the National Water Act in advancing
the protection and conservation of water resources

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CHAPTER 1: INTRODUCTION

1.1 Background

'Cultures in all parts of the world acknowledge the importance of water. Water is life. Without it, nothing organic grows. Human beings need water to drink, cook, wash and to grow food. Without it, we will die.'¹ Water also plays a central role in economic development, it is key to activities such as agricultural development, energy security, tourism and job creation, mining, industry and municipal water supply.² The Constitution of the Republic of South Africa, 1996 being the supreme law of the land, gives everyone the right to have access to food and water in section 27 (1) (b).³

In the Bill of rights, chapter 2 of the constitution the rights to (a)... an environment that is not harmful to their health or wellbeing; and (b) to have the environment protected, for the benefit of present and future generations, through reasonable legislative and other measures that— (i) prevent pollution and ecological degradation; (ii) promote conservation; and (iii) secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development are enshrined.⁴ The right to water as a necessity and a life enabler can therefore be linked to the right to human dignity as per section 10. Accordingly, it can be submitted that if one is denied the right to access to clean and protected water, they are denied their human rights.

Historically, access to water in South Africa has been dominated by those with access to land and economic power.⁵ Because of this fact, that water was linked to land it meant the majority of the marginalized citizens did not have access to clean water in particular the rural poor communities. Due to the water allocation pre -1994 being very indicative of the then regime, Woodhouse argues that the need to reform water law was more urgent than that of land reform and distribution.⁶

¹ *Mazibuko and Others v City of Johannesburg and Others* 2009 ZACC 28.

² Department of Water, '*National Water Resource Strategy*' 2013, <http://www.dwa.gov.za/documents/Other/Strategic%20Plan/NWRS2-Final-email-version.pdf> (accessed 10 December 2016).

³ Constitution of the Republic of South Africa, 1996, Section 27.

⁴ Constitution of the Republic of South Africa, 1996, Section 24.

⁵ Gabru N, '*Some Comments on Water Right in South Africa*', Potchefstroom Electronic Law Journal, 8:1, 2005, 1 at 2.

⁶ Woodhouse P, '*Reforming Land and Water Rights in South Africa*', The Institute of Social Studies, the Hague, 43:4, 2012,847 at 848.

Listed as the 30th driest in the world, South Africa is a semi-arid country with an average rainfall of 450mm per year which is well below the world average of 860mm per annum.⁷ The country's climate and in particular rainfall fluctuates very much. There is an estimation that by 2025 water demand will far exceed availability⁸. Distribution of use between the main water user sectors is shown in figure 1 below. Linked to food security in the country, agriculture is the biggest water user followed by industry and mining sectors. Electricity and gas account for the least use of water resources.

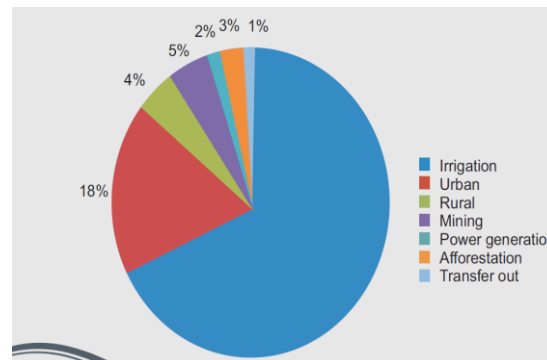


Figure 1: Water Use Distribution within economic sectors in South Africa (NWRS2, 2013)

With this scarcity of water and South Africa reported to be utilising about 98% of its supply in 2011, the use of water needs to be closely monitored.⁹ There is a need for regulators to have tools that ascertain supply, reduce wasting of water, protect water resources and ensure fair and just distribution.

After years of negotiations the Constitution of the Republic of South Africa was eventually passed into law and adopted in 1996.¹⁰ Section 27 of the Constitution guarantees among others the right to water and laws that would be passed afterwards are to ensure this right as well as the fulfilment of Section 24 with regards to protection of the environment (including water resources).¹¹ In 1997 the Water Services Act, 108 of 1997 was promulgated. This Act is concerned mainly with drinking water and its distribution as well as institutions responsible

⁷ Department of Water Affairs, 'Strategic Overview of the Water Use Sector in South Africa', 2013, <http://nepadwatercoe.org/wp-content/uploads/Strategic-Overview-of-the-Water-Sector-in-South-Africa-2013.pdf>, (accessed 25 June 2019).

⁸ Department of Water Affairs, 'Strategic Overview of the Water Use Sector in South Africa', 2013, <http://nepadwatercoe.org/wp-content/uploads/Strategic-Overview-of-the-Water-Sector-in-South-Africa-2013.pdf>, (accessed 25 June 2019) at 10.

⁹ Department of Environmental Affairs, 'The World cup legacy report: Water', 2011, <https://www.environment.gov.za/sites/default/files/docs/water.pdf> (accessed 24 October 2019).

¹⁰ Act 108 of 1996.

¹¹ Act 108 of 1996, Sections 24 & 27.

for this.¹² The water legislation that has been hailed as one of the best in the world, the National Water Act, 36 of 1998 was enacted in 1998.¹³

The National Water Act of 1998 is seen to be a radical departure from the 1956 Act, Singh argues that the people who control water have the power and influence over the distribution of wealth in society.¹⁴ In the past water was regulated and distinguished as private, public or riparian. This allowed for a lot of unfair access, distribution and marginalisation of certain groups.¹⁵ The 1998 act seeks to redress these imbalances and to involve the public in the protection, use, development and management of the water resources. The management and regulation of water has shifted focus since the promulgation of the 1998 National Water Act (the Act). Some of the notable differences between this and earlier water legislation is the view of Integrated Water Resource Management (IWRM) and that the environment needs water as well for the hydrological cycle to function and to be maintained in a healthy manner.¹⁶ This Act also introduces the concept of a public trusteeship which meant water is held in a trust for the benefit and use of everyone and the national government acting through the minister of Water Affairs being responsible for ensuring water is protected, used, developed, conserved, managed and controlled in a sustainable and equitable manner.¹⁷

The context outlined above indicates that conservation of South Africa's water resources is paramount. The principal Act that addresses water conservation is the NWA.¹⁸ This Act seeks to ensure that the nation's water resources are protected, used, developed, conserved, managed and controlled in ways which take into account amongst other factors (a) meeting the basic human needs of present and future generations; (b) promoting equitable access to water; ... and (f) providing for growing demand for water use'.¹⁹

¹² Woodhouse P, 'Reforming Land and Water Rights in South Africa', The Institute of Social Studies, the Hague, 43:4, 2012,847 at 848.

¹³ Schreiner, B, 'Viewpoint - Why has the South African National water act been so difficult to implement?' Water Alternatives 6(2), 2013, 239-245, <http://pegasysinstitute.org/wp-content/uploads/2014/04/Why-Has-the-South-African-National-Water-Act-Been-so-Difficult-to-Implement-Schreiner-2013-Water-Alternatives.pdf> (accessed on 22 June 2017).

¹⁴ Singh H, 'A Critical Analysis Of The Development Of Water Law In South Africa', 1999, <http://researchspace.ukzn.ac.za/handle/10413/5562> (accessed on 12 April 2017).

¹⁵ Singh H, 'A Critical Analysis Of The Development Of Water Law In South Africa', 1999, <http://researchspace.ukzn.ac.za/handle/10413/5562> (accessed on 12 April 2017).

¹⁶ Section 2 & Chapter 3 of the National Water Act, 36 of 1998.

¹⁷ Act 36 of 1998, Section 3.

¹⁸ Act 36 of 1998.

¹⁹ Section 2 of the National Water Act, 36 of 1998.

Whereas in the past access to water was primarily based on a system of riparian rights,²⁰ the National Water Act seeks to meet its objectives, including water conservation and equitable access, through an administrative decision-making system.²¹ One of the ways in which this is done is by means of licensing.

This dissertation seeks to evaluate the water use licensing regime in South Africa as a tool in meeting the objectives of the Act, with particular reference to the mining sector. The effectiveness of the water use licence administration of the National Water Act regime will be evaluated as a tool to conserve and protect water resources as well as mainly a tool to advance the rights to access to clean and protected water by all in South Africa. It does this through examining water use licensing in the mining sector, focusing on five relevant case studies. In the case studies, five water use licences for mining activities together with their corresponding compliance audits have been reviewed to assess compliance with conditions attached to the licence. The five mining operations, comprising of various types of mining fall within different mining provinces in South Africa.

1.2 The state of water resources in South Africa

The National Water Act introduces a few new concepts in comparison to the previous water laws such as the public trust doctrine as well as the Integrated Water Resource Management (IWRM).²² The introduction of the IWRM sees the Act aiming to achieve a balance between the development, use, protection, conservation, management and control of water resources.²³ In order to sustainably maintain water resources that are able to provide the necessary goods and services for use by communities there needs to be healthy water ecosystems. Section 3 of the Act provides for the public trusteeship doctrine in that the National Government acting through the Minister must ensure that water is protected, used, developed, conserved, managed and controlled in a sustainable and equitable manner, for the benefit of all persons and in accordance with its constitutional mandate.²⁴ This simply

²⁰ Tewari DD, 'A detailed analysis of evolution of water rights in South Africa: An account of three and a half centuries from 1652 AD to present', *Water SA* 35:5, 2009, 693 at 702.

²¹ Movik S & de Jong F, 'Licence To Control: Implications Of Introducing Administrative Water Use Rights In South Africa' *Law, Environment and Development Journal* , 7:2, 2011, 68 at 71.

²² Act 36 of 1998, Section 3.

²³ Movik S & de Jong F, 'Licence To Control: Implications Of Introducing Administrative Water Use Rights In South Africa' *Law, Environment and Development Journal* , 7:2, 2011, 68 at 70.

²⁴ Act 36 of 1998, Section 3.

means the state must manage the water resources in accordance with the constitution, for the benefit of all.²⁵

In South Africa, as expected of a developing water scarce country, water is not always available at the right time at the right place for developmental demands which may include infrastructural development for the advancement of the country.²⁶ Due to the high economic development drive in South Africa, as can be expected of a developing country there is great reliance on natural resources which has a potential of resulting in over-utilisation of water resources.²⁷ Many factors have altered and compromised both the quality and quantity of water in water resources around the country through abstractions, construction of dams and weirs, poor quality water discharges, land use activities and sand mining.²⁸ As a result of these factors the country is losing critical water resources.²⁹

There has been a drop in the aquatic ecosystem health across the country and increased stress on water resources.³⁰ The decline in the quality of water resources is attributed to increasing pressures from climate change, population growth, over utilization of the water resources, poor land-use practices and subsequent pollution.³¹ South Africa has been successful in developing policies, laws, programmes and systems aimed at water resources

²⁵ Young C, '*PUBLIC TRUSTEESHIP AND WATER MANAGEMENT: Developing the South African concept of public trusteeship to improve management of water resources in the context of South African water law*', University of Cape Town, 2014, https://open.uct.ac.za/bitstream/handle/11427/9537/thesis_law_2014_young_cl.pdf?sequence=1&isAllowed=y (accessed 01 September 2020).

²⁶ Department of Water, 'National Water Resource Strategy' 2013, <http://www.dwa.gov.za/documents/Other/Strategic%20Plan/NWRS2-Final-email-version.pdf> (accessed on 10 October 2019) at 37.

²⁷ Department of Water, 'National Water Resource Strategy' 2013, <http://www.dwa.gov.za/documents/Other/Strategic%20Plan/NWRS2-Final-email-version.pdf> (accessed on 10 October 2019) at 37.

²⁸ Department of Water, 'National Water Resource Strategy' 2013, <http://www.dwa.gov.za/documents/Other/Strategic%20Plan/NWRS2-Final-email-version.pdf> (accessed on 10 October 2019) at 37.

²⁹ Department of Water, 'National Water Resource Strategy' 2013, <http://www.dwa.gov.za/documents/Other/Strategic%20Plan/NWRS2-Final-email-version.pdf> (accessed on 10 October 2019) at 37.

³⁰ Department of Water, 'National Water Resource Strategy' 2013, <http://www.dwa.gov.za/documents/Other/Strategic%20Plan/NWRS2-Final-email-version.pdf> (accessed on 10 October 2019) at 37.

³¹ Department of Water, 'National Water Resource Strategy' 2013, <http://www.dwa.gov.za/documents/Other/Strategic%20Plan/NWRS2-Final-email-version.pdf> (accessed on 10 October 2019) at 38.

protection but implementation has proven to be a challenge.³² The main factors threatening the quality of water resources include eutrophication, microbial contamination, salinity, toxicants, altered flow regime, acid mine drainage, agricultural activities as well as suspended solids among others.³³ These challenges are not localised to certain parts but rather spread across the different water systems of the country.³⁴

1.3 Water in the mining sector

The mining sector is one of the key drivers of the South African economy.³⁵ Water being a catalyst for development and South Africa a developing country, it is no revelation that one of the biggest water user sectors in the country is the mining sector. This dissertation seeks to evaluate the water use licence (WUL) regime of the National Water Act, it does so through evaluation of the purpose of this tool and reviewing of WULs issued for mining activities. The review of WULs and their corresponding audits is done to evaluate compliance in one of the biggest water user sectors in the country. Water in mining is used mainly for mineral separation from waste; dust suppression; transporting tailings; equipment cleaning and for domestic uses within the mining operation premises.³⁶ Younger and Wolkersdorfer categorise water uses in a mining operation as direct and indirect.³⁷

Direct water uses refer to water that one may term as consumed or used in the mining operation itself such as mineral separation and as well dust suppression.³⁸ Indirect uses refer to water that would not be used in the mineral production process but would be accounted for in the water balance or total volume for the mine, such as supply of water to the nearby communities by the mine or evaporation from reservoirs and ponds.

³² Le Quesne T, Kendy E, & Weston D, *The Implementation Challenge: Taking stock of government policies to protect and restore environmental flows*, WWF Report 2010, http://awsassets.panda.org/downloads/the_implementation_challenge.pdf (accessed 10 October 2019) at 5.

³³ Department of Water, 'National Water Resource Strategy' 2013, <http://www.dwa.gov.za/documents/Other/Strategic%20Plan/NWRS2-Final-email-version.pdf> (accessed on 10 October 2019) at 41.

³⁴ Department of Water, 'National Water Resource Strategy' 2013, <http://www.dwa.gov.za/documents/Other/Strategic%20Plan/NWRS2-Final-email-version.pdf> (accessed on 10 October 2019) at 40.

³⁵ Antin D, *The South African Mining Sector: An Industry at a Crossroads*, 2013 Economy Report South Africa, Hans Seidel Foundation 1 at 1.

³⁶ Ossa-Moreno J, 'The Hydro-economics of Mining', *Ecological Economics*, 145, 2018, 368 at 369.

³⁷ Younger PL & Wolkersdorfer C, *Mining Impacts on the Fresh Water Environment: Technical and Managerial Guidelines for Catchment Scale Management*, *Mine Water and Environment* 23:1, 2004, 2 at 5.

³⁸ Younger, P L, Coulton, R H, Froggatt, E C, *The contribution of science to risk based decision-making: lessons from the development of full-scale treatment measures for acidic mine waters at Wheal Jane*, UK. *Sci. Total Environ* 338, 2005, 137 at 157.

It is crystal clear that water is key in an operation of a mine, but there are impacts that may be detrimental to both the quantity and/or quality of water resources such as groundwater depletion and pollution as well as diversion of streams and rivers.³⁹ Mining in its nature consumes, diverts and has the capability of severely polluting water resources.⁴⁰ Due to the aforementioned reasons, Gaikward *et al* describe water as mining's most common casualty.⁴¹

McCarthy addresses the fact that impacts from mining operations on the environment and mainly water resources may be evident for decades and therefore need to be managed.⁴² Impacts will vary depending on the type of mineral being mined, the sensitivity of the resources impacted as well the environmental management commitment and strategies employed by the mining companies at operation and post operation phase.⁴³ Mine water generally has elevated levels of suspended solids, leading to mobilization of elements such as iron, aluminium, cadmium, cobalt, manganese, zinc and also low pH.⁴⁴ The quality of the receiving water body, whether ground or surface water is then impaired deeming it unfit for use, and potentially having dire consequences for the health and well-being of people.⁴⁵

Acid mine drainage is generated by the formation of sulphuric acid when sulphur-containing minerals such as pyrite undergo weathering in the environment.⁴⁶ This is one the biggest concerns related to mining and in particular coal mining worldwide.⁴⁷ Acid mine drainage (AMD) has the potential to pollute and compromise the quality of water, affect soil as well as affect its use and productivity.⁴⁸ Treatment of water and soil associated with acid mine drainage requires

³⁹ Center for Environmental Rights, '*Full Disclosure: The Truth about Mpumalanga Coal Mines Failure to comply with their Water Use Licences*', 2019, <https://cer.org.za/news/new-full-disclosure-report-how-a-broken-regulatory-system-allows-mpumalanga-coal-mines-to-pollute-water-with-impunity> (accessed 18 October 2019), at 5.

⁴⁰ Gaikwad1 RW, Sapkal V S, and Sapkal R S, '*Acid Mine Drainage: A Water Pollution Issue In Mining Industry*', International Journal of Advanced Engineering Technology 2:4, 2011, 257 at 257.

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⁴² McCarthy TS, '*The impact of acid mine drainage in South Africa*', African Journal of Science 107: 5/6,2011, 712

⁴³ McCarthy TS, '*The impact of acid mine drainage in South Africa*', African Journal of Science 107: 5/6,2011, 712 at 712.

⁴⁴ Ochieng1 GM., Seanego ES & Nkwonta OI, '*Impacts of mining on water resources in South Africa: A review*', Scientific Research and Essays 5:22, 3351 at 3354.

⁴⁵ Feris L & Kotze LJ, '*The Regulation of Acid Mine Drainage in South Africa: Law And Governance Perspectives*', Potchefstroom Electronic Law Journal, 17:5, 2014, 2105 at 2016.

⁴⁶ Gaikwad1 RW, Sapkal V S, and Sapkal R S, '*Acid Mine Drainage: A Water Pollution Issue In Mining Industry*', International Journal of Advanced Engineering Technology 2:4, 2011, 257 at 257.

⁴⁷ Coil D, McKittrick E, Mattox A, Hoagland A, Higman B, Zamzow K, '*Acid Mine Drainage*', 2014, 2, <http://www.groundtruthtrekking.org/Issues/MetalsMining/AcidMineDrainage.html> (accessed 02 November 2019).

⁴⁸ Feris L & Kotze LJ, '*The Regulation of Acid Mine Drainage in South Africa: Law And Governance Perspectives*', Potchefstroom Electronic Law Journal, 17:5, 2014, 2105 at 2016.

a lot of money and time and is generally complex.⁴⁹ Therefore this means the intended use or previously possible use of the affected water may now no longer be possible as the quality is impaired.

Coal mining may be undertaken either through open cast or through underground methodologies. Since South African coal occurs in layers between sedimentary rocks, opencast mining involves blasting and removal of the rocks overlying the coal layer. The waste rock that contains no value is thus backfilled and covered with soil and the terrain is landscaped in an effort to rehabilitate.⁵⁰ When rainwater penetrates through the soil, the backfill acidified by pyrite will ultimately decant on the surface. This process generally commences a decade or more after mining ceases.⁵¹ With such an impact on both surface and groundwater the importance of water resource governance cannot be overemphasized within the mining industry with an effort to avoid, minimise and manage pollution, protect these resources and ensure equitable use.

South Africa mine water challenges can be attributed to the long mining history that the country has and the fact that the country is water scarce does not make the water availability and reliability any less challenging.⁵² While the acid mine drainage may manifest as more a groundwater challenge the interface between ground and surface water makes the problem much more than just a ground water matter, compromising readily and at times only available water sources to some communities.⁵³ With a shallow water table the upper soil profiles become severely contaminated by heavy metals due to capillary rise and evaporation of the groundwater.⁵⁴

⁴⁹ Gaikwad I RW, Sapkal V S, and Sapkal R S, 'Acid Mine Drainage: A Water Pollution Issue In Mining Industry', International Journal of Advanced Engineering Technology 2:4, 2011, 257 at 259.

⁵⁰ MarCarthy TS, 'The impact of acid mine drainage in South Africa', African Journal of Science 107: 5/6,2011, 712 at 716.

⁵¹ Hodgson FDI, Krantz RM, 'Investigation into groundwater quality deterioration in the Olifants River catchment above the Loskop Dam with specialised investigation in the Witbank Dam sub-catchment', Water Research Commission Report 291/1/98, 1998, 1 at 20.

⁵² Ochieng I GM., Seanego ES & Nkwonta OI, 'Impacts of mining on water resources in South Africa: A review', Scientific Research and Essays 5:22, 3351 at 3353.

⁵³ Center for Environmental Rights, 'Full Disclosure: The Truth about Mpumalanga Coal Mines Failure to comply with their Water Use Licences', 2019, <https://cer.org.za/news/new-full-disclosure-report-how-a-broken-regulatory-system-allows-mpumalanga-coal-mines-to-pollute-water-with-impunity> (accessed 18 October 2019), at 14.

⁵⁴ Ochieng I GM., Seanego ES & Nkwonta OI, 'Impacts of mining on water resources in South Africa: A review', Scientific Research and Essays 5:22, 3351 at 3353.

Naicker *et al* argue that groundwater contaminated as a result of mining activities is contributing significantly to the poor quality of surface water emanating from the Witwatersrand watershed.⁵⁵ This contamination does not only affect the pH of the water but is also contributing heavy metals to the surface aquatic environment.⁵⁶ With its ability to affect not only water resources at the source of the problem, acid mine drainage effects may persist for over ten kilometres from the source.⁵⁷ This again proves the significance of the AMD challenge where good water quality availability and protection is concerned.

The case of defunct and ownerless mines polluting water resources way beyond their life is not unique to any one catchment or water management area in South Africa but runs throughout the mining regions of the country.⁵⁸ Post-closure decant from defunct coal mines is estimated at 62 ml /d and in the order of 50 ml /d of acid mine water discharges into the Olifants river catchment.⁵⁹ It is clear, that significant volumes of polluted water need to be managed on a continuous basis for decades to come.⁶⁰ Most operational mines in KwaZulu-Natal, Mpumalanga and Gauteng currently have the groundwater levels kept well below ground level to allow for the effective operation of the mines as well as safe continuing of mining as described in the National Water Act's section 21 under water uses.⁶¹

Ramla and Sheridan explain that the existence or occurrence of AMD has been and is being experienced in different mining regions within South Africa, including the Witwatersrand gold fields, Mpumalanga and KwaZulu-Natal coalfields.⁶² Although dominant in the Gauteng, Mpumalanga and KwaZulu-Natal Regions, unfortunately the problem is not confined to these

⁵⁵ Naicker K , Cukrowskaa E & McCarthy TS, 'Acid mine drainage arising from gold mining activity in Johannesburg, South Africa and environs', *Environmental Pollution* 129, 2003, 29 at 40.

⁵⁶ Naicker K , Cukrowskaa E & McCarthy TS, '*Acid mine drainage arising from gold mining activity in Johannesburg, South Africa and environs*', *Environmental Pollution* 129, 2003, 29 at 40.

⁵⁷ Naicker K , Cukrowskaa E & McCarthy TS, 'Acid mine drainage arising from gold mining activity in Johannesburg, South Africa and environs', *Environmental Pollution* 129, 2003, 29 at 31-35.

⁵⁸ Feris L & Kotze LJ, '*The Regulation of Acid Mine Drainage in South Africa: Law And Governance Perspectives*', *Potchefstroom Electronic Law Journal*, 17:5, 2014, 2105 at 2110.

⁵⁹ Department of Water Affairs and Forestry, 'Olifants/ Doorn internal strategic perspective', 2005, <http://www.dwaf.gov.za/Documents/Other/WMA/17/OlifantsDoornISPFeb05full.pdf> (accessed 28 August 2019).

⁶⁰ Naicker K , Cukrowskaa E & McCarthy TS, 'Acid mine drainage arising from gold mining activity in Johannesburg, South Africa and environs', *Environmental Pollution* 129, 2003, 29 at 40.

⁶¹ Barnes MR & Vermeulen PD, '*Guide to groundwater monitoring for the coal industry*', *Water SA* 35:5, 2012, 831 at 832.

⁶² Ramla B & Sheridan C, '*The potential utilisation of indigenous South African grasses for acid mine drainage remediation*', *Water SA* 41:2, 2015, 247 at 248.

areas only as South African coal occurring in layers within sedimentary rocks, generally has the host rock containing pyrite.⁶³

For decades gold tailing dumps have been discharging polluted water in many mining towns.⁶⁴ As each of the mines closed predominantly in the Witwatersrand region more water accumulates underground which would have to be pumped out and with many interconnected mines the water would find its way into neighboring mines.⁶⁵

With mining having begun in the 1890s in the Middleburg/ Witbank areas, most of the mines in the area lie abandoned with some on fire and most decanting acid water.⁶⁶ This decant finds its way and ends up in the local river system, the Olifants through its tributaries.⁶⁷ The high salinity, low pH and high sulphates are evident even in Middleburg and Witbank dams, this impaired quality is seen to be worse during dry seasons and dilutions helps a little in the rainy seasons.⁶⁸

The effects are far reaching with some local water users such as companies having to import water from the eastern escarpment.⁶⁹ Not only does the impaired quality affect domestic or industrial water users but also aquatic life.⁷⁰ The Olifants river quality continues to deteriorate, with many companies continuing their exploration activities for coal increased pollution loads are expected.⁷¹

⁶³ Ramla B & Sheridan C, 'The potential utilisation of indigenous South African grasses for acid mine drainage remediation', Water SA 41:2, 2015, 247 at 247.

⁶⁴ Marcathy TS, 'The impact of acid mine drainage in South Africa', African Journal of Science 107: 5/6,2011, 712 at 712.

⁶⁵ Marcathy TS, 'The impact of acid mine drainage in South Africa', African Journal of Science 107: 5/6,2011, 712 at 712.

⁶⁶ Marcathy TS, 'The impact of acid mine drainage in South Africa', African Journal of Science 107: 5/6,2011, 712 at 712.

⁶⁷ Marcathy TS, 'The impact of acid mine drainage in South Africa', African Journal of Science 107: 5/6,2011, 712 at 713.

⁶⁸ Marcathy TS, 'The impact of acid mine drainage in South Africa', African Journal of Science 107: 5/6,2011, 712 at 714.

⁶⁹ Marcathy TS, 'The impact of acid mine drainage in South Africa', African Journal of Science 107: 5/6,2011, 712 at 716.

⁷⁰ Gaikwad RS, Sapkal VS, Sapkal RS, 'Acid Mine Drainage: A Water Pollution Issue In Mining Industry', International Journal of Advanced Engineering Technology 2:5, 2011, 257 at 258.

⁷¹ Marcathy TS, 'The impact of acid mine drainage in South Africa', African Journal of Science 107: 5/6,2011, 712 at 716.

Groundwater in the Johannesburg mining districts is heavily polluted and acidified as a result of pyrite oxidation in tailings.⁷² Where shallow water table exists the problem is not only limited to water resources but soil as well, as the upper 20cm of the soil profile in these areas is contaminated with heavy metals.⁷³ It is clear that the presence of acid mine drainage in the streams and rivers threatens the already scarce resource and ultimately human health and food security.⁷⁴

1.4 Statement of Purpose

Water use licences issued to water users contain conditions with which the licence holder must comply. The main purpose of these conditions is to protect water resources either from depletion due to uncontrolled or over use or adverse impacts from pollution. This dissertation will evaluate the water use licensing regime in South Africa as a tool in meeting the objectives of the Act, with particular reference to the mining sector.

1.5 Research Question

Does the water use licence regime of the National Water Act advance the purpose of water resources conservation and protection as spelt out in Chapter 2 of the Act?⁷⁵ In answering this question, it is necessary to consider how licensing attempts to achieve this and to what extent there is compliance from the licence holders and this case mining operations with licensing conditions. In relation to the latter aspect, the effects of non-compliance on water resources is considered.

1.6 Research Methodology

This dissertation involves desktop research, including consideration of relevant legislation, policy documents, and existing research on the subject matter.

⁷² OchiengI GM., Seanego ES & Nkwonta OI, 'Impacts of mining on water resources in South Africa: A review', *Scientific Research and Essays* 5:22, 3351 at 3353.

⁷³ Naicker K , Cukrowskaa E & McCarthy TS, '*Acid mine drainage arising from gold mining activity in Johannesburg, South Africa and environs*', *Environmental Pollution* 129, 2003, 29 at 31.

⁷⁴ OchiengI GM., Seanego ES & Nkwonta OI, 'Impacts of mining on water resources in South Africa: A review', *Scientific Research and Essays* 5:22, 3351 at 3356.

⁷⁵ The purpose of this Act is to ensure that the nation's water resources are protected, used, developed, conserved, managed and controlled in ways which take into account amongst other factors - (a) meeting the basic human needs of present and future generations; (b) promoting equitable access to water; (c) redressing the results of past racial and gender discrimination; (d) promoting the efficient, sustainable and beneficial use of water in the public interest;...

In considering the use of licensing in the mining sector, this dissertation will consider licences and compliance therewith in relation to five case studies. These are mining operations which have been issued water use licences for activities in the provinces of North West and Mpumalanga. These provinces are some of the biggest mining provinces of the country. The licences will be compared with audits conducted in relation to their compliance after issuance. The mining licences and corresponding audits have been selected at random, although within the stated provinces.

With over 500 mining operations reported in the country, an alarming 103 mines were, in 2014, operating without valid water use licences as revealed to Parliament by the then Minister of Water, Nomvula Mokonyane.⁷⁶ Due to the period when some of the mines started their operations it is expected that some (within the 500 reported operations) of them will already fall within the existing lawful use category of authorisations and thus not require a water use licence.

For maintaining confidentiality, identities of the mining companies have been concealed. Documents relating to the case studies to be discussed are kept with the author for verification should it be required.

The dissertation will consider whether there are any common trends in relation to the case studies in so far as compliance requirements are concerned and their aspects of non-compliance with licence conditions. The importance of this non-compliance in relation to the objectives of the Act is considered as well. The research will conclude by examining the weaknesses that exist in the implementation of the Act leading to non-compliances noted.

⁷⁶ National Assembly, '*Department of Water & Sanitation, Parliamentary question 1857 response*', 2014, https://drive.google.com/file/d/0B_-slGu8-FTxMEICVzFVR1VBa2s/view (accessed 06 September 2020).

CHAPTER 2: THE LEGISLATIVE REGIME

2.1 The concept of 'Water Use'

The National Water Act is hailed by the international water community as one of the best water acts crafted, some countries even using it as basis for drafting of theirs.⁷⁷ Its purpose is to ensure that the nation's water resources are protected, used, developed, conserved, managed and controlled in ways that ensure meeting basic human needs.⁷⁸ The Act is also aimed at promoting equitable access to water; redressing the results of past racial and gender discrimination; promoting the efficient, sustainable and beneficial use of water; facilitating social and economic development; protecting aquatic and associated ecosystems; reducing and preventing pollution and degradation of water resources; meeting international obligations and promoting dam safety.⁷⁹

The Act makes provision for the framework for the way in which water resources must be protected, used, developed, conserved, managed and controlled. The Act seeks to give effect to section 24 of the Bill of Rights in the Constitution, which states that everyone has the right to an environment that is not harmful to their health or wellbeing, and to have the environment protected for the benefit of present and future generations through reasonable legislative measures.⁸⁰ This Act also seeks to realise the right to access to water as enshrined in section 27 the Constitution of the Republic and consequently good water resource management will ensure everybody has access to clean water and therefore ensure the realisation of this Fundamental Human right.

Section 21 of the National Water Act contains a list of activities – all described as 'water use' - that require authorisation if one intends to undertake them. These activities include: (a) taking water from a water resource; (b) storing water; (c) impeding or diverting the flow of water in a watercourse; (d) engaging in a stream flow reduction activity contemplated in section 36; (e) engaging in a controlled activity identified as such in section 37(1) or declared under section 38(1); (f) discharging waste or water containing waste into a water resource through a pipe, canal, sewer, sea outfall or other conduit; (g) disposing of waste in a manner which may detrimentally impact on a water resource; (h) disposing in any manner of water which contains waste from, or which has been heated in, any industrial or power generation process; (i) altering the bed, banks, course or

⁷⁷ Schreiner B, 'Viewpoint – Why Has the South African National Water Act Been so Difficult to Implement?', *Water Alternatives*, 6:2, 2013, 239 at 239.

⁷⁸ Act 36 of 1998, Section 2.

⁷⁹ Act 36 of 1998, Section 2.

⁸⁰ Constitution of the Republic of South Africa, 108 of 1996, Section 24.

characteristics of a watercourse; (j) removing, discharging or disposing of water found underground if it is necessary for the efficient continuation of an activity or for the safety of people; and (k) using water for recreational purposes’.

A water use must be licenced unless it is listed in Schedule 1, is an existing lawful use, is permissible under a general authorisation, or if a responsible authority puts aside the need for a licence. There is no requirement for any registration of the water use under schedule 1 of the Act. This means there is less administrative requirements or demands on this use on the officials. Although the general authorisation and existing lawful use require registration with the department, they cater for low impact activities. The licence can be described as requiring detailed information from the users due to the impact of the activities to be authorised as detailed in sections concerned with the information requirements for a WUL application.⁸¹ The default position is that a water use requires a licence unless it falls into any of the three categories of exceptions as mentioned above.

The entitlement to use water in terms of Schedule 1 as described in section 4 of the Act refers to the use of water in or from a water resource for purposes such as reasonable domestic use, domestic gardening, animal watering, fire-fighting and recreational use.⁸² These are generally low volume use of water for mostly domestic purposes, they are set out in Schedule 1 of the Act do not require a water use licence.⁸³

General authorisation, the second tier of the permissible water uses may be published in a Government Gazette and may be restricted to either a geographical area, particular water resources, category of persons or time. Just as Schedule 1, general authorisation replaces the need for a licence.⁸⁴ Over the years as can be seen on their website, the Department of Water has gazetted a number of general authorisations with conditions attached to them for users qualifying for this level of authorisation.

The Act requires the minister to attach conditions to general authorisations that users of water will comply with. Such conditions may relate to the protection of a water resources

⁸¹ Act 36 of 1998, Section 40(2)(a).

⁸² Act 36 of 1998, Schedule 1.

⁸³ Ibid

⁸⁴ Act 36 of 1998, Section 22(1); 39.

in question, the management of water, the quantity and quality of the water use generally authorised.⁸⁵

An example of this is a general authorisation gazetted by the Department of Water Affairs under the Revision of General Authorisations for water uses sections 21 '(e)-engaging in a controlled activity identified as such in section 37(1) or declared under section 38(1)-, (f)- discharging waste or water containing waste into a water resource through a pipe, canal, sewer, sea outfall or other conduit, (g)-disposing of waste in a manner which may detrimentally impact on a water resource, (h)-disposing in any manner of water which contains waste from, or which has been heated in, any industrial or power generation process and (j)-removing, discharging or disposing of water found underground if it is necessary for the efficient continuation of an activity or for the safety of people'⁸⁶ This general authorisation gives details relating to areas excluded, duration of authorisation, limits in terms of quantity and quality of water etc.

In terms of section 22 (3) (a) of the Act, a responsible authority may dispense with the requirement for a licence for water use. This would be applicable in a case where the minister is tasked with the issuance of WULs is satisfied that a licence, authorisation or permit issued under any other legislation meets the purpose of the Act.⁸⁷

The last category of a permissible water use is what is termed the existing lawful water use where a user continues to use water under an existing authorisation in terms of previous laws.⁸⁸

Section 4 of the Act provides for the entitlement to continue with an existing lawful use (ELU) of water, as provided for in Part 3 (section 32-34) of the Act.⁸⁹ 'An existing lawful water use means a water use -(a) which has taken place at any time during a period of two years immediately before the date of commencement of this Act...'⁹⁰ There are additional conditions attached to water use being an ELU such as the requirement that the water use must have been authorised in terms of any other prior legislation. Generally, all

⁸⁵ Act 36 of 1998, Section 29.

⁸⁶ Department of Water Affairs, '*revision of general authorisation in terms of Section 39 of the National Water Act, 1998*', Notice no 655 of 13 September 2013.

⁸⁷ Act 36 of 1998, Section 22(3).

⁸⁸ Act 36 of 1998, Section 34.

⁸⁹ Act 36 of 1998, Section 4(2).

⁹⁰ Act 36 of 1998, Section 32(1).

water use commencing before 1998 is deemed to be existing lawful use (ELU) in terms of the NWA provided that there is proof of such water use taking place pre-1998.⁹¹ The existing lawful use must be verified and validated by the responsible authority. The water user must apply for the relevant category where the water use does not qualify as an existing lawful use. All existing lawful uses need to be registered. This covers the second category of permissible water use.

Of the above categories, a water use licence (WUL) is one that caters for higher impact activities or high volumes in terms of consumptive and discharge uses of water as listed in section 21 of the Act. The impact referred to above can be described as effects or consequences that the use of water or activity listed in section 21 would have on the resource where water is being used or the resource closest to the activity.⁹² This could be either ground or surface water.

The Act provides for the procedures to be followed when applying for a WUL as well as a gazetting of requirements and timeframes associated with the process. This dissertation aims to review the extent to which the water use licencing regime advances the protection of water resources as spelt out in the National Water Act. Water use licences from the mining sector and their corresponding audits will be reviewed to evaluate the extent to which conditions attain the objectives of the Act as well as the level of compliance to the conditions by the users.

There are a number of considerations a licensing authority has to make prior to issuing a water use licence. Section 22 (5) as well section 27 of the Act give details on these considerations. Section 27 lists relevant factors for consideration in making a decision on a water use licence application and will be discussed later in the upcoming sections of this dissertation. Section 22(5) speaks to the availability of the national water resource strategy; a catchment management strategy in respect of the water resource in question; a classification system for water resources as well as the class and resource quality objectives for the water resource in question.⁹³

⁹¹ Milk Producers Organisation, 'GUIDELINES TO WATER USE: *Authorisation and Registration for dairy farmers*', <https://www.mpo.co.za/wp-content/uploads/2017/10/Guidelines-to-Water-Use-authorisation-2017-ENG-1.pdf> (accessed 20 October 2019).

⁹² Act 36 of 1998, Section 41(2)(a).

⁹³ Act 36 of 198, Section 22(5).

A national water resource strategy provides a framework for the development, use, protection and management of water resources of the country while also providing for the management of water resources at a regional and catchment level.⁹⁴ A catchment management strategy as detailed in section 8 of the Act is established by a catchment management agency for the protection, use, development, conservation, management and control of water resources within its water management area.⁹⁵

The first stage in the protection process is the development by the Minister of a classification system for the nation's water resources. The system provides guidelines and procedures for determining different classes of water resources.⁹⁶ The classification system will among other things allow for the establishment of the procedures for the determination of the reserve as called for in section 16. 'A reserve can be divided into the basic human needs reserve and the ecological reserve'⁹⁷ The basic human needs reserve provides for the essential needs of individuals served by the water resource in question and includes water for drinking, for food preparation and for personal hygiene.⁹⁸ The ecological reserve relates to the water required to protect the aquatic ecosystems of the water resource. The reserve refers to both the quantity and quality of the water in the resource, and will vary depending on the class of the resource'.⁹⁹ A licensing authority will give effect or take into consideration the above and other factors in issuing water use licences.

2.2 Water Use Licensing

This section will deal with the procedure to be followed when applying for a licence to use water. Section 41 specifies that application for use of water must be made in a form to the relevant authority; detail all information pertaining to the water use; and accompanied by a prescribed processing fee. The same section in subsection 2 provides for the relevant authority to request any relevant, additional information in support of the application. The authority may request assessment such as environmental assessments to be conducted at the expense of the applicant for the purpose of the application and may invite other state authorities to give comment on the application.¹⁰⁰

⁹⁴ Act 36 of 1998, Chapter 2, Part 5.

⁹⁵ Act 36 of 1998, Section 8.

⁹⁶ Act 36 of 1998, Chapter 3, Part 1.

⁹⁷ Act 36 of 1998, Chapter 3, Part 3.

⁹⁸ Ibid

⁹⁹ Ibid

¹⁰⁰ Act 36 of 1998, Section 41.

In March 2017, almost 20 years after the promulgation of the Act the Department of Water and Sanitation gazetted the 'National Water Act, 1998 Regulations Regarding the Procedural Requirements for Water use licence Applications and Appeals'.¹⁰¹

In terms of Annexure A of these regulations, the applicant is required to conduct a pre-application inquiry with the responsible authority.¹⁰² This step is followed by the actual submission of the application after which the authority is to confirm receipt and a site inspection or visit be conducted for where the proposed activities would be taking place.¹⁰³ The purpose of this site visit is for the authority to advise and confirm the water uses that are being or will be triggered and needed to be applied for.¹⁰⁴

The applicant will after the site visit prepare and submit a technical report in support of the application. It is at this point that the authority may either accept or reject the application technical report. In the assessment public participation and comment from other state departments or authorities may be considered by the assessing authority.¹⁰⁵ The public participation process gives an opportunity to people who are affected by administrative action and the water use an opportunity to engage and be part of the process.¹⁰⁶ This process ensures alignment of the water use licence application process with the Promotion of Administrative Justice Act 3 of 2000, which provides for justice and fairness where administrative processes are concerned.¹⁰⁷

The Act in section 27 gives a list of considerations to be made by the authority in assessing granting licences. These considerations include – '(a) existing lawful water uses; (b) the need to redress the results of past racial and gender discrimination; (c) efficient and beneficial use of water in the public interest; (d) the socio-economic impact - (i) of the water use or uses if

¹⁰¹ Department of Water and Sanitation, 'National Water Act, 1998 Regulations Regarding The Procedural Requirements For Water use licence Applications And Appeals', Notice No 40713, of 24 March 2017.

¹⁰² Department of Water and Sanitation, 'National Water Act, 1998 Regulations Regarding The Procedural Requirements For Water use licence Applications And Appeals', Notice No 40713, of 24 March 2017, Annexure A-Summary of timeframes for receiving and steps in processing of a water use licence application.

¹⁰³ Ibid.

¹⁰⁴ Ibid.

¹⁰⁵ Ibid.

¹⁰⁶ King P & Reddell C, 'Public Participation and Water Use Rights', Potchefstroom Electronic Law Journal, 18:4, 2015, 942 at 946.

¹⁰⁷ Act 3 of 2000, Section 3(b).

authorised; or (ii) of the failure to authorise the water use or uses; (e) any catchment management strategy applicable to the relevant water resource; (f) the likely effect of the water use to be authorised on the water resource and on other water users; (g) the class and the resource quality objectives of the water resource; (h) investments already made and to be made by the water user in respect of the water use in question; (i) the strategic importance of the water use to be authorised; (j) the quality of water in the water resource which may be required for the Reserve and for meeting international obligations; and (k) the probable duration of any undertaking for which a water use is to be authorised'.¹⁰⁸ All the above processes and a decision made have to be done and communicated with the applicant (and parties that had objected to the application) within 300 days as per the regulations.¹⁰⁹

If the outcome of the process is the issuance of a water use licence, there will be conditions that are attached to the authorisation. Section 29 of the Act makes provision for the authority to specify in the licence conditions that may pertain to the protection of water resource, water management, return flows or discharges, treatment of waste & pollution control, the abstraction rates, location of storage facilities as well as conditions relating to ensuring compliance with the licence itself.¹¹⁰

Conditions relating to water management may specify management practices and general requirements for any water use, including water conservation measures to be taken by the water user.¹¹¹ Requiring the monitoring and analysis of and reporting on every water use and imposing a duty to measure and record aspects of water use, specifying measuring and recording devices to be used. Conditions may also require the preparation and approval of and adherence to, a water management plan.¹¹²

Other conditions may be prescribed which are necessary or desirable to achieve the purpose for which the licence was issued; which are necessary or desirable to ensure compliance with the provisions of this Act; specifying times when water may or may not be used; containing provisions for its termination if an authorised use of water is not implemented or not fully implemented; designating water for future or contingent use.¹¹³ The licensing authority may

¹⁰⁸ Act 36 of 1998, Section 27(1)a-k.

¹⁰⁹ Act 36 of 1998, Section 42.

¹¹⁰ Act 36 of 1998, Section 29(1).

¹¹¹ Act 36 of 1998, Section 29 (1)(b).

¹¹² Ibid.

¹¹³ Act 36 of 1998, Section 29(1)(g), (h) & (j).

attach any other conditions on the licence as agreed by the licensee. It is important that such conditions to be attached to the authorisation be reasonable, just and carry through the objectives of the Act in the protection and conservation of water.

Once issued, it is the duty of the licence holder to ensure compliance with conditions. Failing to comply with conditions attached to a permitted water use constitute an offence in terms of the Act.¹¹⁴ The Second National Water Resource Strategy (NWRS) puts an emphasis on compliance with the National Water Act in particular by the Water Service Authorities (WSAs) and a crucial part of this is obtaining and complying with the WULs.¹¹⁵ The compliance that is called for by the NWRS means meeting the terms or conditions of the WULs that are issued for the different users.

The NWRS states that where conditions for water use have been set, such conditions will have to be implemented and the Department will enforce compliance with such conditions.¹¹⁶ The authorities envisage that users will follow a path of continuous improvement in their use of water and compliance to issued water licences.

Section 53 of the National Water Act makes provision for consequences of contraventions of licence conditions. Should a holder of entitlement to use water contravene conditions of the licence the authority may direct the holder to, within a specified period rectify the contravention.¹¹⁷ If the holder of the licence fails to take the directed action within the specified period or any longer time allowed the authority may carry out any works and take any other action necessary to rectify the contravention and recover its reasonable costs from the person on whom the notice was served.¹¹⁸ The authority may also apply to a competent court for appropriate relief as may be necessary.¹¹⁹

The Act also makes provision for the authority to suspend or withdraw the licence in the event the holder of the licence has failed to comply with the conditions stipulated in the licence. This

¹¹⁴ Act 36 of 1998, Section 151(c).

¹¹⁵ Department of Water, 'National Water Resource Strategy' 2013, 68, <http://www.dwa.gov.za/documents/Other/Strategic%20Plan/NWRS2-Final-email-version.pdf> (accessed 10 December 2016).

¹¹⁶ Department of Water, 'National Water Resource Strategy' 2013, 57, <http://www.dwa.gov.za/documents/Other/Strategic%20Plan/NWRS2-Final-email-version.pdf> (accessed 10 December 2016).

¹¹⁷ Act 36 of 1998, Section 53(1).

¹¹⁸ Act 36 of 1998, Section 53(2)(a)

¹¹⁹ Act 36 of 1998, Section 53(2)(b)

may be done after the authority has given the holder of a licence a directive to rectify the non-compliance within a specified time and holder fails to do so.¹²⁰ An important part of this provision is that the licence holder is given a chance to make representations before the licence may be withdrawn or suspended. Should a licence be suspended or withdrawn, the water user may not then continue with the water use as that would constitute an offence.

Offences in terms of this Act include failure to comply with conditions attached to permitted water uses and the failure to comply with a directive issued in terms of section 53.¹²¹ Persons who fail to comply with the Act or conditions of licences issued under the Act are guilty of an offence. They are liable, on the first conviction, to a fine or imprisonment for a period not exceeding five years, or to both a fine and such imprisonment. In the case of a second or subsequent conviction, they are liable to a fine or imprisonment for a period not exceeding ten years or to both a fine and such imprisonment.¹²²

The Act is mainly premised around the objective of protecting and conserving water resources. The Act provides for water uses that when one intends undertaking require to be authorised, it also provides for the process as well as conditions to be attached to said authorisations. With the numerous water users that are authorised around the country, the impact and threats some of their activities pose on the water resources conditions need to bring across the very objective of protection and conservation. Over and above users complying with conditions of licences issued to them, the regulator has a role of enforcement that they need to play.

It has been highlighted in sections above how mining operations have the potential to negatively impact water resources compromising both water quality and consequently the security of supply. This is due to various factors such as the fact that mining itself as an activity requires water, that some operations may take place close to water bodies, the disposal of waste water emanating from operations after processing as well the groundwater ingress that may be experienced in underground mining. Mining itself as an activity can disrupt pre-existing hydrological pathways within host rock.¹²³ Mineral separation and processing is also a water

¹²⁰ Act 36 of 1998, Section 54(3).

¹²¹ Act 36 of 1998, Section 151(1).

¹²² Act 36 of 1998, Section 151(2).

¹²³ Younger, P L, Coulton, R H, Froggatt, E C, *The contribution of science to risk based decision-making: lessons from the development of full-scale treatment measures for acidic mine waters at Wheal Jane*, UK. Sci. Total Environ 338, 2005,137 at 137.

intensive process and produces waste as well waste water which requires treating and disposal.¹²⁴ Mining operations may also have a need to remove water that has entered mining operations (dewatering) and this may result in loss of groundwater quality.¹²⁵ In line with section 21 of the Act as described above mining has the potential to trigger a few water uses such as the section 21 (a) for the abstraction of water from water resources for use their processes; section 21 (b) for the storage of water prior to use; section 21(f) for the disposal/ discharge of waste water or contaminated water from their operations into water resources; section 21(g) for the storage facilities of waste water prior to treatment or disposal and/or dust suppression as well as 21(j) for the dewatering activity.

¹²⁴ Ibid.

¹²⁵ Barnes MR & Vermeulen PD, '*Guide to groundwater monitoring for the coal industry*', Water SA 35:5, 2012, 831 at 832.

CHAPTER 3: CASE STUDIES

In attempting to evaluate the potential effectiveness of water use licences in ensuring water resources protection and conservation, in this chapter an analysis of coal and gold mine licences as well as their corresponding audits will be conducted. In reviewing the audits the focus will be placed on non-compliances noted in particular for conditions that seek to advance water resource protection and conservation. Five mining licences are chosen randomly with their corresponding audits. The mining operations are in the provinces of North West and Mpumalanga, some of the dominant mining provinces and in particular for coal mining in South Africa.

3.1 Case Study 1

Audit Facility 1 is an open cast coal mining operation in the Northwest Province that commenced in the early 1950s. The mine was issued with a Water use licence in terms of Chapter 4 of the Act in October 2012 by the Department of Water Affairs. This facility is authorised for the following activities/ water uses taking place within their site: section 21 (a) - for the abstraction of groundwater for the processing plant, game and livestock watering; section 21 (b)- storage of water in an earth dam; section 21 (e)- watering grazing land with treated effluent from a sewage treatment facility; section 21 (g)- septic tanks, waste water treatment facility that has sludge drying beds and ponds, evaporation ponds and material and waste stockpiles.

A compliance audit for this facility was conducted based on the WUL and all its conditions in 2015. Some significant non-compliances that relate directly to the provisions of the Act that detail conditions that may be on a water use licence and are in line with the conservation and protection of water resources are detailed below.

- Some water uses, including waste water holding facilities, that are taking place on site are not authorised in the WUL and therefore are unlawful. This constitutes an offence in terms of the National Water Act, since any person that is undertaking water use defined in section 21 is required to be authorised.
- As a condition in the 2012 water use licence, a licence holder is required to conduct an internal audit of their operation against the conditions of the water use licence on a yearly basis with the first one taking place within three months of issuance of the authorisation. No internal audit was conducted and submitted to the authority

at the time of the audit. The condition calling for an internal audit of the activities against the licence conditions is clear and reasonable, more so considering that at the time of issuance of the licence the facility was already fully in operation. This condition is in line with the provisions of section 29(1) that call for monitoring and reporting on water uses being undertaken.

- After an internal audit is conducted corrective action should ideally be undertaken on the non-compliances raised, this would then be verified also in the external audit by an independent party. No external audit was conducted for some years. The requirement in the authorisation is that an annual external audit of the water use activities against the conditions of the licence is conducted and a report submitted to the authority. This condition is unambiguous, reasonable and attainable.
- The WUL calls for implementation of measures towards an awareness to staff members on water demand and water management within the site. This had not been done at the time of the audit (2015), although the condition does not contain timeframes by when this should be established and implemented. The promotion of water demand and water management is in line with the principles of the act and is emphasised in the National Water Resources Strategy 2013.¹²⁶ In light of the importance of this, the condition can be seen as reasonable
- Water in storage facilities must be metered and recorded according to a condition in the licence requirement which is consistent with provisions of section 29 requiring water users to measure and record the water used. The condition required the licence holder to measure and record the water abstracted for use on their site. This was not taking place at the time of the audit and there was no evidence of this taking place. The licence authorises that a specific volume of water be abstracted from a water resource and stored. If this water is not metered compliance cannot be determined. There is no guarantee that the authorised amount is being abstracted and stored.

¹²⁶ Department of Water, 'National Water Resource Strategy' 2013, 68, <http://www.dwa.gov.za/documents/Other/Strategic%20Plan/NWRS2-Final-email-version.pdf> (accessed 10 December 2016) at 53.

- The monitoring and analyses methods for quality of waste water could not be proven to be those accepted or in line with the South African Bureau of Standards (SABS) as per the requirement of the authorisation. In proving compliance or non-compliance where water quality is concerned it is important that facilities such as laboratories and methods used are accredited otherwise the integrity of the analysis becomes questionable.

The audit found that the licence holder had complied with some of the licence conditions. An overall score of 67% compliance was determined by this audit. The conditions that the licence holder has failed to comply with do seek to advance the objective of protecting the water resources.

As a summary, Table 1 below lists conditions the water use licence holder has been found to be the non-compliant with.

Table 1: Caste Study 1 non-compliance aspects

Summary of main non-compliance aspects	
1	Unauthorised/unlawful water uses
2	Water use licence internal and external audits
3	No staff awareness raising on water demand and water management
4	No metering and recording of water used
5	No proof that water quality analysis/measurement are being conducted by an accredited laboratory

3.2 Case Study 2

This facility is a coal mining operation in the Mpumalanga Province that was issued with a water use licence in August 2012. The open cast mining operation started its mining operations in the early 1990s. Water uses include the taking of water from a water resource for use in their operations- s 21 (a); the storage of water in holding dams- s 21 (b); mining through a pan- s 21 (c); Slurry dam, septic tanks and pollution

control dams- s 21(g) as well as s 21 (j)- for the removal of water found underground for the continuation of mining and for safety.

An audit was conducted in 2015 on the facility against the WUL issued in 2012 and generally on the requirements of the National Water Act. The WUL has a total of 211 conditions which must be complied with by the licence holder, some of which are directly related to water resource conservation and protection. In this audit the licence holder complied with 76% of the conditions. Most of the non-compliance relates to conditions requiring reporting, the update and submission of reports and water quality and quantity reports. Some of the conditions not complied with include:

- It is a requirement that a person who is undertaking an activity that constitutes a water use does so under authorisation in terms of the Act. Some water use activities are taking place without authorisation within the facility. These additional water uses found to be taking place on site but not forming part of the licence included taking of additional volumes of water from points not authorised in the licence as well as an additional slurry dam that was not authorised.
- No internal audit of the facility's activities against the water use licence conditions was conducted or submitted to the authority, as was a requirement of the licence.
- The WUL requires that the licence holder conducts awareness and puts measures in place relating to water demand and water conservation management. No evidence could be found of this having been done within this facility. The promotion of water demand and water management is in line with the principles of the act and is emphasised in the National Water Resources Strategy 2013.¹²⁷ In light of the importance of this, the condition can be seen as reasonable
- Water kept in water storage facilities was not metered for measured or recorded in any manner. The licence authorises that a specific volume of water be taken from a water resource and stored. If this water is not metered compliance cannot be determined. There is no guarantee that the authorised amount is being stored.

¹²⁷ Department of Water, 'National Water Resource Strategy' 2013, 68, <http://www.dwa.gov.za/documents/Other/Strategic%20Plan/NWRS2-Final-email-version.pdf> (accessed 10 December 2016) at 53.

- The National Water Resource Strategy mentions mining as one of the main contributors to water quality problems in the country due to acidity and increased metal content. The authorisation issued to this facility requires the water user to monitor the quality of waste water in the slurry and evaporation dams for management of potential impacts onto groundwater. Monitoring results are not being submitted to the authority by the licence holder even though this is a condition in the water use licence.
- Consistent with s29 of the Act calling for water management plans to be developed, submitted and complied with, the licence requires the water user to continually submit updates to the integrated water and waste management plan (IWWMP) on an annual basis. At the time of the audit compliance to this condition could not be proven in that updates of the IWWMP had been submitted.

As a summary, Table 2 below lists conditions the water use licence holder has been found to be the non-compliant with.

Table 2: Case Study 2 non-compliance aspects

Summary of main non-compliance aspects	
1	Unauthorised/unlawful water uses
2	Water use licence internal audit
3	No staff awareness raising on water demand and water management
4	No metering and recording of water used
5	Water quality monitoring and submission of results to the authority
6	Updating and submission of the IWWMP

3.3 Case Study 3

An external audit was conducted in 2015 by an independent party at this coal mining facility. This is an open cast coal mine as well as a crushing plant in Mpumalanga

Province. The coal is being supplied to different buyers including those using the coal for power generation. A licence was issued for this operation in February 2011 for a number of water uses that are taking place on site. These water uses include: the taking of water from a borehole-section 21 (a); storage of water in dams-section 21 (b); the diversion, altering and impeding of a river- section 21 (c) & (i); the construction and operation of slurry dams, pollution control dams and return water dams- section 21 (g); as well as the removal of water found underground for safety and continuation of working- section 21 (j). The licence was issued for a period of eleven years. Non-compliances recorded at the time of the audit include:

- There were thirteen water uses taking place on site without authorisation. These were water uses that did not form part of the water use licence being audited and included additional abstraction boreholes, additional stream diversions and polluted water dams.
- There was no internal audit conducted and reported on to the issuing authority according to the requirements of the licence.
- The licence calls for an external audit of the water use licence to be undertaken by an independent party and submitted to authorities as means of compliance verification on annual basis. There are gaps in the conducting and submission of the external audit, on some years there is proof of the audits being conducted and non on some other years.
- There was no record of the water conservation and water demand awareness being conducted or measures being put in place. The water use licence in line with water conservation requires that the water user put in place measures for water conservation and water demand management within their operations.
- Consistent with s29 of the Act calling for water management plans to be developed, submitted and complied with, the licence requires the water user to continually submit updated to the integrated water and waste management plan (IWWMP) on an annual basis. At the time of the audit this was not being done.

- The WUL calls for the monitoring of ground water levels but this hasn't been done by the licence holder.

According to this audit, the facility achieved 76% compliance with the water use licence issued to them. It is rather concerning that the licensee was issued with the WUL in 2011 and that in an audit conducted in 2015 they are non-compliant on some important conditions such as the submission and updates of documents such as the IWWMP. One other non-compliance that is notable is that of failing to monitor ground water levels since they are abstracting ground water for use in their operations.

As a summary, Table 3 below lists conditions the water use licence holder has been found to be the non-compliant with.

Table 3: Case Study 3 non-compliance aspects

Summary of main non-compliance aspects	
1	Unauthorised/unlawful water uses
2	Water use licence internal and external audit conducted and submitted to the authorities
3	No staff awareness raising on water demand and water management
4	Updating and submission of the IWWMP
5	Monitoring of groundwater levels

3.4 Case Study 4

A Water use licence was issued in the year 2010 for water uses including the altering characteristics of a water course for a river crossing s21 (c) & (i) and also s 21(g) for return water dams, storm water dams and tailings dams on site this facility that started operation in 1979. This operation is based in the North-West province and currently reworks old mine tailings that were deposited when the mine was previously in operation mining gold.

This WUL has 196 conditions. With a 74% compliance score achieved on an audit conducted in 2015 some significant non-compliances that relate directly to the provisions of the Act that detail conditions that may be on a water use licence and are in line with the conservation and protection of water resources are detailed below.

- Even though this facility has a valid water use licence, there were water uses taking place on site without authorisation. The water uses taking place without authorisation were taking of water from a resources and the storage of waste contaminated water.
- There was no proof of an internal audit of the water use licence since issuance having being done and/or submitted to the authority as it was a condition of the licence that an internal audit be conducted on an annual basis and within a month of completion of a report, such a report be submitted to the authority.
- No monitoring and reporting of groundwater levels to the authority as a requirement of the WUL issued to the licensee.
- The WUL also calls for the update and submission of the water balance, at the time of the audit this had not been done. A water balance would detail actual volumes of water being abstracted, used on site and account for losses and savings where they exist. The update of a water balance would assist the licence holder in ensuring that there are no losses of water, water is used efficiently within the site and to also inform improvement methods to be employed on site. The reporting of this information would prove if the licence holder is compliant or not.
- There was no proof found that the licensee is conducting surface water (rivers and streams nearby) monitoring on resources that are potentially impacted by their operations.

Table 4 below lists conditions the water use licence holder has been found to be the non-compliant with.

Table 4: Case Study 4 non-compliance aspects

Summary of main non-compliance aspects	
1	Unauthorised/unlawful water uses
2	Water use licence internal audit conducted and submitted to the authorities
3	Monitoring of groundwater levels
4	Updating and submission of a water balance for the mining operation
5	No surface water monitoring

3.5 Case Study 5

This audited facility is a gold mining company that started its operations in the 1940s in the North West province of the country. Its Water use licence was issued in the year 2013 for water uses: taking water from a resources s 21 (a); storing water- s 21(b); waste disposal site (with a potential to contaminate water resources), dust suppression with potentially contaminated/ contaminated water, pollution control dams and drying beds for sludge- s 21(g); river crossing- s 21(c & i); and the removal of water found underground for safety and/ or continuation of working s 21(j).

The WUL has 140 conditions but not all of them are capable of being audited. Some of the conditions that were excluded were conditions that related to construction activities that had long taken place at the time of the audit. An audit was then undertaken on operational conditions. Of the number that was assessed in the year 2016 a 71% compliance was achieved by the licensee. The 29% non-compliance level noted included such contraventions as:

- It is a requirement that a person who is undertaking an activity that constitutes a water use does so under authorisation in terms of the Act. There were some water uses taking place including new or non-authorized water storage dams and river crossings.
- Consistent with s29 of the Act calling for water management plans to be developed, submitted and complied with, the licence requires the water user to

continually submit updated to the integrated water and waste management plan (IWWMP) on an annual basis. At the time of the audit this was not being done. Internal and external audits on the water use licence conditions on site not being conducted and report not submitted to the authority as a requirement of the WUL.

- The WUL calls for the flow meters to be inspected and kept in working order on a regular basis and this had not been taking place at the time of the audit. The presence and working order of flow meters will ensure that the water abstracted and used on site is within the allowable limits as per the WUL issued

- There is a condition in the WUL that calls for the minimising of water intake from the resource through reuse and newer technologies, this had not been achieved at time of the audit.

Table 5 below lists conditions the water use licence holder has been found to be the non-compliant with.

Table 5: Case Study 5 non-compliance aspects

Summary of main non-compliance aspects	
1	Unauthorised/unlawful water uses
2	Water use licence internal audit conducted and submitted to the authorities
3	Updating and submission of the IWWMP
4	Maintenance and inspection of water meters
5	Reduction of the use of water in the process trough re-use and recycling initiatives

3.6 Common Trends

There are some similarities in relation to the conditions that licence holders – all involved in gold and coal mining in two provinces - are failing to comply with. Conditions in the licences are similar, meaning there is quite a number of general conditions applicable to all or most facilities and then of course there will be differences in relation to site- or operation-specific conditions.

All of the mines audited and discussed above were issued with water use licence well after operations commenced. It is important to note that their water use licence contained conditions relating to construction even though this phase of the mining operations had long passed. This then makes the conditions irrelevant in that the construction and establishment of the mine had long been done at the time of the issuance of the licence. It also makes the conditions difficult to audit for compliance as the auditor may have difficulty establishing compliance with conditions issued well after construction where such conditions would not have applied.

The National Department of Water Affairs evaluates water use authorisation applications and issues water use licences in the regional offices located in the nine provinces of the country, but being one authority there should be uniformity in how conditions are crafted.

The most common non-compliances noted through the audits include –

- Water uses taking place on site without the necessary or required authorisation, even though an authorisation with some water uses exists for the facilities¹²⁸;
- Non- submission of internal and/ or external audit reports as a requirement of the WUL¹²⁹;
- Failure to meter water and record volumes¹³⁰;
- Ground and/ or surface water monitoring¹³¹;
- Water conservation and demand awareness among staff members and the measures being or to be employed by the facility in realising water conservation and responsible water use and ¹³²
- Submission of the IWWMP¹³³

¹²⁸ With reference to case studies 1, 2, 3, 4 &5.

¹²⁹ With reference to case studies 1, 2, 3, & 4.

¹³⁰ With reference to case studies 1, 2 &5.

¹³¹ With reference to case studies 2, 3 & 4.

¹³² With reference to case studies 1, 2 & 3.

¹³³ With reference to case studies 2, 3 & 5.

These and other common conditions where compliance was not achieved for most or some of the audits are seen as some of the key contributing factors in failing to advance the purpose of the Act. A discussion of these conditions is detailed below.

3.6.1 Failure to submit internal and/ or external audit reports to the authorities

The most common condition throughout the Water Use Licences issued by the Department of Water is that both internal and external audits of the water use licence be conducted and reports be submitted to the authority within specified periods. The condition requires that the reports to these audits be submitted within a month of completion to the authority. All the five licence audits reviewed were found to be non-compliant with the condition that requires for the audits to be conducted and reported on.

The WUL audits revealed that with some facilities only the internal audit had been conducted or both the internal and external audits had not been conducted and/ or submitted to the authority as per the condition.¹³⁴ An assumption can be made from this finding that most facilities do not audit their own compliance (self-checks) with the authorisation they hold neither do they make use of external parties to verify compliance that is called for in the WUL. If the licence holder cannot measure their compliance, it raises question of whether conditions relating to the conservation and protection of water resources are being monitored for compliance.

3.6.2 Recording of volumes of water/ metering

The licences require that the licensee/ licence holder installs and maintains in a sound manner flow meters. It also requires that these be calibrated at specified intervals. Two of the audits reviewed above found that the licence holder had not installed flow meters at their water abstraction and storage facilities and therefore were not recording their flows or both. This non-compliance means that the licence holder cannot prove that the amount of water used is actually that which is authorised in the WUL. This impacts on the water use and conservation as there is no accounting for the volumes of water used against that which is authorised. This failure to measure and record volumes of water also directly impacts the call for water conservation and demand programmes called for in all the water use licences. The Department of Water stated that water supply deficits are not always necessarily the result of water resource shortages but rather of poor water supply management, one of the water management problems cited is the

¹³⁴ With reference to case studies 1, 2, 3, 4 &5.

lack of metering information.¹³⁵ If the authorities are unable to produce realistic water balances for water management areas or catchments implementing correct strategies for water conservation becomes a difficult task.

One of the benefits that the licensing authority would obtain from having sight of what volumes water users are taking from the resources as authorised would be the ability to do their checks and balances based on actual factual information derived from recording of water uses. They would also be able to re-allocate to other users if there is surplus water in the resource. Whether the users are taking the allowable limit of water cannot be proven and therefore compliance is unclear.

3.6.3 Water conservation and demand management

Water conservation is described as the minimization of loss or waste, the care and protection of water resources and the effective and efficient use of water.¹³⁶ Three of the WULs call for the licence holder to put in place measures for water conservation and water demand management within their operations. This condition requires the licensee to implement water conservation, use and demand management measures within their site.¹³⁷ This is to reduce the water intake, manage, use, and promote conservation as well as to promote reuse and recycling of water all in an effort to conserve and protect the resource.¹³⁸ This is provisioned for in chapters one and two of the Act. Such a condition promotes responsible use of water, investigation and implementation of efforts to reduce the stress on the resources and thereby conserving water in the resources of an already water scarce country. Most of the audited facilities have failed to prove the implementation of measures related to the conservation of water within their sites. They have also not provided any proof that they have in the past or are currently training their staff members or providing awareness around the water conservation and water demand management which is a condition of the licences.

¹³⁵ Department of Water, 'National Water Resource Strategy' 2013, <http://www.dwa.gov.za/documents/Other/Strategic%20Plan/NWRS2-Final-email-version.pdf> (accessed on 10 October 2019) at 24.

¹³⁶ Department of Water, 'National Water Resource Strategy' 2013, <http://www.dwa.gov.za/documents/Other/Strategic%20Plan/NWRS2-Final-email-version.pdf> (accessed on 10 October 2019) at 52.

¹³⁷ With reference to case studies 1, 2 & 3.

¹³⁸ Department of Water, 'National Water Resource Strategy' 2013, <http://www.dwa.gov.za/documents/Other/Strategic%20Plan/NWRS2-Final-email-version.pdf> (accessed on 10 October 2019) at 52.

3.6.4 Annual update and submission of the IWWMP

An Integrated Water and Waste Management Plan (IWWMP) is meant to assist mines and industries who apply for a WUL. The IWWMP is a management plan and requires approval in conjunction with the WUL by the licensing authority at the time of application¹³⁹. The main aim of the IWWMP is to provide the regulatory authorities with focused and structured information to meet their general information needs as well as to express the required management measures and actions to achieve the water and waste related performance on an ongoing basis. This document is also meant to provide direction and guidance to the water user on water and waste management of any activity within their operation.

All of the WULs reviewed for this study had as part of their conditions a requirement for the update and submission of the Integrated Water and Waste Management Plan (IWWMP) for the facility where the water uses are taking place. The update is required to be done and submitted on an annual basis. This document is meant to provide the regulatory authorities with focused and structured information on the management measures and actions to achieve the water and waste related performance on an on-going basis particularly in mining operations. This document will state the current situation, highlight on challenges and also outline actions to be taken in rectifying non-compliances in any. Three out of the five WUL audits found that the facilities had failed to update and submit their IWWMP annually to the authorities.¹⁴⁰ This means the authorities who are concerned with compliance with these WULs have no sight of changes that may have taken place at the WUL holders sites, no view of compliance levels or initiatives put in place to better manage water use.

3.6.5 Ground and or surface water monitoring, compliance with specified standards report compilation and submission

60% of the facilities audited and discussed above have not complied with a condition on the monitoring and submission of water quality reports for either ground or surface water or even both.¹⁴¹ Some of the facilities were found to be conducting the monitoring of water quality but have not complied with the specified limits as stipulated in the licences. This potentially

¹³⁹ GCS Consulting, 'Integrated Water And Waste Management Plans (IWWMP)', <http://www.gcs-sa.biz/wp-content/uploads/2016/04/Integrated-Water-and-Waste-Management-Plans-IWWMP.pdf> (accessed 25 September 2019).

¹⁴⁰ With reference to case studies 2, 3 & 5.

¹⁴¹ With reference to case studies 2, 3 & 4.

compromises the water quality of receiving environment particularly in cases where effluent is being discharged onto resources.

3.6.6 Unlawful water uses taking place within audited facilities

In earlier chapters of this dissertation water uses are described and the need for authorisation in terms of one of the permissible categories is detailed. When one is undertaking a water use they have to fall within one of the four categories of either Schedule 1, general authorisation, existing lawful use or have a water use licence. All the facilities audited have water uses that are taking place within their sites without any form of authorisation, despite the fact that they have an existing authorisation for some water uses. These water uses are not authorised within these licences being audited and not in any other form. This according to the s 151 of the Act is an offence. With such a high number of facilities that are authorised still undertaking some water uses without any form of authorisation or unlawful a question of whether WULs are effective in what they are meant to achieve is posed.

This dissertation focuses on facilities that have water use licences and a review on whether they are able to comply with conditions or not, one can however not ignore the glaring finding of unauthorised water uses taking place at these facilities. The finding that all the licenced facilities reviewed in the case studied still have additional water uses that are unlawful brings into question the compliance state of the facility for the licences themselves but more so the enforcement action by the minister who is tasked with the duty to protect and conserve water resources. It would be expected that if authorities were monitoring compliance and even enforcing it they would be aware of the additional water uses taking place at these and possibly other facilities that possess WULs but still undertake additional water uses without any authorisation. This also means the authorities have accurate information on how water is used and without that information efforts to protect and conserve water become inadequate.

The conditions that licence holders are seen to be mostly non-compliant with are similar between the audited facilities, are related to monitoring, reporting and record keeping. This suggests already that water use licence regime of the Act has not been successful in achieving the purpose of water resource protection which this dissertation is addressing. There is also a question of what the authorities that administer the Act are doing about the non-compliance. It is very clear that there is a general trend of non-compliance with some important water use licence conditions by licence holders. The question then is what the consequence, if any, for offenders is. The

sections to follow will answer the question of whether any consequences exist for those who fail to comply and ultimately where the WUL has succeeded in advancing water resource conservation and protection.

3.7 Consequences of non-compliance

The National Water Act is administered by the Department of Water [and sanitation]. In terms of this Act the minister has the responsibility to ensure that water resources are used, protected and developed in a sustainable manner and this includes regulating water use in the country.¹⁴² In regulating water use the Act makes provision for water use authorisation and with this comes the duty to ensure compliance with these authorisations and in this particular case, licences.

The water use licences issued to water users carry conditions that have to be complied with. Some of these conditions include the need to monitor and report on the quality and quantity of water used or disposed. While this is a duty of the water user or licensee the authority also has a duty to enforce the conditions of the licence.

If water users at the time of inspections, audits or anytime during the licence validity period are found to be non-compliant, the authority has to take steps towards correcting the non-compliance and even taking punitive measures against the offender. Chapter 16 of the National Water Act lists with penalties acts and omissions that constitutes offences. This chapter further gives powers to courts and water institutions to prosecute for such offences.

Section 151 of the Act states that it is an offence for one to use water unless as permitted by the Act.¹⁴³ Being licenced to use water alone is not enough as there is still a requirement under subsection 1(c) for a permitted user to comply with the conditions attached to a permitted use of water. A consequence to these offences is provided for in subsection (2) as 'Any person who contravenes any provision of subsection (1) is guilty of an offence and liable, on the first conviction, to a fine or imprisonment for a period not exceeding five years, or to both a fine and such imprisonment and, in the case of a second or subsequent conviction, to a fine or imprisonment for a period not exceeding ten years or to both a fine and such imprisonment'.

Section 53 of the Act makes provisions for the licensing authority to, by notice in writing to a person who contravenes any condition of a licence (authority to use water) to 'direct that person, or the owner of the property in relation to which the contravention occurs, to take any action

¹⁴² National Water Act, Act 36 of 1998, Section 3.

¹⁴³ Act 36 of 1998, Section 151 (1) (a).

specified in the notice to rectify the contravention, within the time (being not less than two working days) specified in the notice or any other longer time allowed by the responsible authority’.

Should such action as prescribed in subsection 1 above not taken within the time specified the responsible authority may then carry out the required work in an effort to rectify the contravention such as those relating to water resources protection measures and recover reasonable costs from the water user who was issued with a notice.¹⁴⁴ The licensing authority may also apply for appropriate relief from a competent court if the specified action is not taken by the water use licence holder.¹⁴⁵

In effort to assess compliance of water user licence holders with authorisations they hold, five water use licences and their corresponding audits were assessed. It was founded that a number of similarities exist on conditions not complied with. The Act makes provisions for dealing with contraventions by water users such as directing contraveners to take necessary rectifying actions within a specified period of time, approaching competent courts, fines or imprisonment. It is not clear how the licensing authority has been able to enforce compliance through the above means as there are no published cases or reports by the responsible authority on this subject.

The non-compliances founded during the audits are mainly against conditions that seek to advance the very purpose of the National Water Act, to conserve and protect water resources. It is not clear what action the Department has taken against the mining companies, no information could be found on corrective or punitive action taken by the Department. Looking at reports and statistics on compliance/ legal action it is highly likely that no legal action was taken against the mining operations found to be non-compliant.

3.8. Enforcement Challenges

The non-availability of information on performance or compliance of water users makes it easy for offenders to hide behind privacy and confidentiality. The Department of Water does not make available compliance information for water users to the public. The Department was in 2019

¹⁴⁴ Act 36 of 1998, Section 53 (2).

¹⁴⁵ Ibid.

reported to have only 35 compliance and enforcement personnel for the entire country and had not published a single compliance and enforcement report.¹⁴⁶

Between the year 2016 and 2017 three hundred and twenty one (321) facilities were inspected, 76 of which were found to require enforcement action¹⁴⁷. Enforcement action can be any of the actions as described in sections above dealing with noncompliance and prescribed under sections 51 and 151 of the Act. Depending on the nature of the non-compliance, the action may be criminal, civil or administrative.

In the year 2017/ 18, 489 facilities were inspected and 132 of them required enforcement action to be taken by the Department.¹⁴⁸ This shows an increase of about four percent of non-complying water users, it is not an ideal situation. It is not known, but remains a possibility that offenders may be same in both compliance periods confirming the notion that there is no consequence for offenders. This lack of enforcement from the authority brings about a question of whether the contraveners, as noted in the case studies discussed in the past chapter, were actually brought to book.

Over the years, the Department had zero convictions for criminal offences, meaning no serious action has been taken against those who do not comply with the Act.¹⁴⁹ In spite of widespread non-compliance as can be seen in the case studies above and in the state of water resources of

¹⁴⁶ Center for Environmental Rights, ‘*Full Disclosure: The Truth about Mpumalanga Coal Mines Failure to comply with their Water Use Licences*’, 2019, 11 <https://cer.org.za/news/new-full-disclosure-report-how-a-broken-regulatory-system-allows-mpumalanga-coal-mines-to-pollute-water-with-impunity> (accessed 18 October 2019).

¹⁴⁷ Department of Environmental Affairs, ‘*National Environmental Compliance and Enforcement report 2016/17*’, 2017, 21, https://www.environment.gov.za/sites/default/files/reports/nationalenvironmentalcomplianceandenforcementreport2016_17.pdf (accessed 20 October 2019).

¹⁴⁸ Department of Environmental Affairs, ‘*National Environmental Compliance and Enforcement report 2017/18*’, 2018, 19, https://www.environment.gov.za/sites/default/files/reports/nationalenvironmentalcomplianceandenforcementreport2016_17.pdf (accessed on 20 October 2019).

¹⁴⁹ Center for Environmental Rights, ‘*Full Disclosure: The Truth about Mpumalanga Coal Mines Failure to comply with their Water Use Licences*’, 2019, <https://cer.org.za/news/new-full-disclosure-report-how-a-broken-regulatory-system-allows-mpumalanga-coal-mines-to-pollute-water-with-impunity> (accessed 18 October 2019) at 11.

the country it is reported that only one water use licence has ever been suspended since 1 January 2008.¹⁵⁰

Earlier in 2019 Minister of Water reported 115 mines known to be operating without a proper water licence in place.¹⁵¹ This represents a significant increase from 2014, when the South African Human Rights Commission found 39 mines in non-compliance.¹⁵² The failure by the department and minister as a custodian of water resources to uphold the Act are evident in both offenders who use water without the necessary authorisations and those who fail to comply with conditions of the Act. The focus of this evaluation is on water use licence holders but it becomes almost impossible to ignore the alarming numbers of water users whose activities pose a potential impact on water resources yet remain unlicensed. This validates the very finding that the water use licence regime of the Act has not been adequate in ensuring water resources are conserved and protected. Violators are spread across every province and include major corporations. Apart from investigating identified as well as reported non-compliances regularly there is not much that the department is doing to bring offenders to account.¹⁵³ The fact that there is no consequence for failing to comply with the law demonstrates the failure of the minister to carry out the mandate to protect and conserve water resources for current and future generations.

¹⁵⁰ Center for Environmental Rights, '*Full Disclosure: The Truth about Mpumalanga Coal Mines Failure to comply with their Water Use Licences*', 2019, <https://cer.org.za/news/new-full-disclosure-report-how-a-broken-regulatory-system-allows-mpumalanga-coal-mines-to-pollute-water-with-impunity> (accessed 18 October 2019) at 11.

¹⁵¹ Oxpeckers Investigative Environmental Journalism, '*Sweeping water permit violations at mines across SA*', <https://oxpeckers.org/2019/05/water-permit-violations-at-mines/> (accessed on 20 October 2019).

¹⁵² Oxpeckers Investigative Environmental Journalism, '*Sweeping water permit violations at mines across SA*', <https://oxpeckers.org/2019/05/water-permit-violations-at-mines/> (accessed on 20 October 2019).

¹⁵³ Oxpeckers Investigative Environmental Journalism, '*Sweeping water permit violations at mines across SA*', <https://oxpeckers.org/2019/05/water-permit-violations-at-mines/> (accessed on 20 October 2019).

CHAPTER 4: CONCLUSION

In the National Water Act having an aim to control and manage water resources for the beneficial use of all, the concept of private water from the 1954 Act was done away with and replaced with the appointment of the Minister of Water Affairs as the trustee of this public resource.¹⁵⁴ This meant that the water resources belong to the public and national government through the minister would manage these water resources in a manner beneficial to the public. As the public trustee of the nation's water resources, government through the minister of water has the duty to protect, develop, conserve, manage and control in a sustainable manner all water resources of the country.

The current deteriorating state of the nation's water resources does not at all suggest that the minister has succeeded in her quest of protecting and conserving water resources for present and future generations. This is supported by the fact that none of the five operations that are a subject of this research that undertake activities that have negative impacts on the quality and quantity of water resources have been able to achieve a 100% compliance with the conditions of their WULs and these facilities continue to operate with no consequence. Having failed to fully comply with the issued authorisations, the performance of the mining operations has shown a significant departure from the conditions of the WULs they hold. The failure of the minister as a trustee of the nation's water to protect and conserve water resources is further sustained by the fact that 60% of our rivers' ecosystems are threatened and 23% are critically endangered; 65% of our wetlands are threatened and 48% are critically endangered; 18% of South Africans rely on communal taps, whilst another 9% rely directly on springs, rivers and wetlands.¹⁵⁵ The question remains that what then happens to those who fail to comply with the law and upholding of the principles of protection and conservation of the water resources according to the law.

The public trusteeship ideology of the National Water Act gives effect to section 24 of the constitution in ensuring that 'everyone has the right to an environment not harmful to health or well-being, and to have the environment protected, for the benefit of present and future generations, through reasonable legislative and other measures that: a) prevent pollution and

¹⁵⁴ Center for Environmental Rights, '*Full Disclosure: The Truth about Mpumalanga Coal Mines Failure to comply with their Water Use Licences*', 2019, <https://cer.org.za/news/new-full-disclosure-report-how-a-broken-regulatory-system-allows-mpumalanga-coal-mines-to-pollute-water-with-impunity> (accessed 18 October 2019).

¹⁵⁵ Center for Environmental Rights, '*Full Disclosure: The Truth about Mpumalanga Coal Mines Failure to comply with their Water Use Licences*', 2019, 11 <https://cer.org.za/news/new-full-disclosure-report-how-a-broken-regulatory-system-allows-mpumalanga-coal-mines-to-pollute-water-with-impunity> (accessed 18 October 2019).

ecological degradation; b) promote conservation; and c) secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development'. The public trusteeship does not only give effect to s 24 of the constitution but through the wise management of raw water sources, will also promote the right of access to 'sufficient' water in s 27(1)(b) of the Constitution, and the rights to equality and dignity, protected in s 9 and 10, respectively.

It therefore can be concluded that the failure to protect and conserve water resources and to ensure supply of water is indeed an infringement of human rights and a violation of the highest law of the country. While water users are guilty of not complying with the law, it is clear that there is a great lack of willingness to enforce laws from the authority's side. Whether it is resources, skills or funds that contributes to the minister's inability to do anything about this gross violation of the law is unclear at this stage however the lack of political will is palpable and is also playing a big role in the State's failure to enforce compliance.

It is clear that over the last twenty years the Department of Water has not been successful in ensuring that licence holders and water users in general comply with the law. In failing to uphold the very law that is their mandate, they have consequently failed to realise and fulfil the objectives of the act in protecting and conserving water resources.

Issue of water use licences can take a very long time with some licences issued after eight years of applications being with the assessing authority.¹⁵⁶ The process of applying for a water use licence is somewhat spelt out in the Act but the processes followed tend to differ depending on the regional office with which one is applying. It can be concluded that this unclear non-uniform process, unregulated timeframes and discrepancies within the Department itself have led to many water users opting for undertaking water uses without the necessary authorisations.

Another shortfall that has been noted with the delay in the issue of licences is that the licences contain irrelevant conditions. Some facilities have conditions that pertain to construction of facilities yet the licence is issued more than a decade into operation. This means that these

¹⁵⁶ Center for Environmental Rights, 'Full Disclosure: The Truth about Mpumalanga Coal Mines Failure to comply with their Water Use Licences', 2019, 11 <https://cer.org.za/news/new-full-disclosure-report-how-a-broken-regulatory-system-allows-mpumalanga-coal-mines-to-pollute-water-with-impunity> (accessed 18 October 2019).

conditions become inapplicable and unenforceable. Conditions contained in water use licences must be specific to both the site, the user and the stage at which it is issued. It is an ideal situation that water use licences are issued prior to a water use activity taking place.

The Act has provided for non-compliance and remedies for such but the Department has been unable to enforce their very laws. This failure is reflected in the status of water resources of the country. It is however not necessarily as much a reflection of water users, even though they also have a role to play. It is rather a clear display of a collapse of the system on the side of the regulator. The minister needs to ensure those who fail to comply with conditions of their licences and therefore negatively impacting on water resources take responsibility for their actions.

One other challenge that has led to this is the shortage of resources, mainly people with the number of enforcement officials for the country not being proportional to that of users and operations requiring attention.¹⁵⁷ The number of officials becomes insignificant when compared to the number of water users, both lawful and unlawful. If the minister is to uphold the objectives of the Act there need to be resources to ensure this happens and the people must be correctly skilled.

All of the licences that are reviewed for this study require licence holders to submit updated integrated water and waste management plans as well water quality monitoring reports and results. Two of the water users in the case studies have failed to meet this requirement, while others have submitted and received no response from the Department. The aim of the IWWMP is to provide the regulatory authorities with focused and structured information to meet their general information needs as well as to express the required management measures and actions to achieve the water and waste related performance on an ongoing basis. This demonstrates a dismal failure on the part of the Department. It creates an impression that they are unable to enforce the very licences they issue, proving the very point that there is no consequence for non-compliance.

As a common condition the Department requires that licence holders conduct internal and external audits within their facilities and external audit reports are to be submitted on an annual

¹⁵⁷ Center for Environmental Rights, 'Full Disclosure: The Truth about Mpumalanga Coal Mines Failure to comply with their Water Use Licences', 2019, <https://cer.org.za/news/new-full-disclosure-report-how-a-broken-regulatory-system-allows-mpumalanga-coal-mines-to-pollute-water-with-impunity> (accessed 18 October 2019) at 11.

basis to the Department. Similar to the IWWMP submissions, this has been a lack from the side of licence holders as well as the authority side in terms of enforcing.

It can be submitted that the water use licence has failed to be a tool to uphold and advance water resource protection and conservation. This failure is purely due to lack of enforcement from the regulator. The National Water Act makes provision for the use, the management, development and protection of water. It also provides for compliance, enforcement and further makes provisions for remedies for failure to comply with its provisions, excellent as the provisions and the Act itself is, implementation has proven to be unsuccessful. There may be many reasons that have led to this collapse such as resources and skills but this does not take away the fact that in failing to realise the objectives of the National Water Act the minister has contravened the constitutional rights of present and future generations, the rights to access to water and to a protected environment.

Bibliography

Journal Articles

1. Gaikwad1 RW, Sapkal V S, and Sapkal R S, '*Acid Mine Drainage: A Water Pollution Issue in Mining Industry*', International Journal of Advanced Engineering Technology 2:4, 2011, 257.
2. Gabru N, '*Some Comments on Water Right in South Africa*', Potchefstroom Electronic Law Journal, 8:1, 2005, 1.
3. King P & Reddell C, '*Public Participation and Water Use Rights*', Potchefstroom Electronic Law Journal, 18:4, 2015, 942.
4. Marcathy TS, '*The impact of acid mine drainage in South Africa*', African Journal of Science 107: 5/6, 2011, 712.
5. Movik S & de Jong F, '*Licence to Control: Implications Of Introducing Administrative Water Use Rights In South Africa*' Law, Environment and Development Journal, 7:2, 2011, 68.
6. Naicker K , Cukrowskaa E & McCarthy TS, '*Acid mine drainage arising from gold mining activity in Johannesburg, South Africa and environs*', Environmental Pollution 129, 2003, 29.
7. Ochieng1 GM,. Seanego ES & Nkwonta OI, '*Impacts of mining on water resources in South Africa: A review*', Scientific Research and Essays, 5:22, 3351.
8. Ossa-Moreno J, '*The Hydro-economics of Mining*', Ecological Economics, 145, 2018, 368.
9. Ramla B & Sheridan C, '*The potential utilisation of indigenous South African grasses for acid mine drainage remediation*', Water SA 41:2, 2015, 247.
10. Schreiner B, '*Viewpoint – Why Has the South African National Water Act Been so Difficult to Implement?*', Water Alternatives, 6:2, 2013, 239.
11. Tewari DD, '*A detailed analysis of evolution of water rights in South Africa: An account of three and a half centuries from 1652 AD to present*', Water SA, 35:5, 2009, 693.
12. Woodhouse P, '*Reforming Land and Water Rights in South Africa*', The Institute of Social Studies, the Hague, 43:4, 2012,847.

13. Younger PL & Wolkersdorfer C, '*Mining Impacts on the Fresh Water Environment: Technical and Managerial Guidelines for Catchment Scale Management*', Mine Water and Environment 23:1, 2004, 2.

Internet Based Sources

1. Center for Environmental Rights, '*Full Disclosure: The Truth about Mpumalanga Coal Mines Failure to comply with their Water Use Licences*', 2019, <https://cer.org.za/news/new-full-disclosure-report-how-a-broken-regulatory-system-allows-mpumalanga-coal-mines-to-pollute-water-with-impunity>, (accessed 18 October 2019).
2. Coil D, McKittrick E, Mattox A, Hoagland A, Higman B, Zamzow K, '*Acid Mine Drainage*', 2014, 2, <http://www.groundtruthtrekking.org/Issues/MetalsMining/AcidMineDrainage.html> (accessed 02 November 2019).
3. Creamer Media Engineering News, '*103 mines have no water-use licences – Minister*', 2014, <http://m.engineeringnews.co.za/article/103-mines-have-no-water-use-licences-minister-2014-10-09>, (accessed on 15 December 2019).
4. GCS Consulting, '*Integrated Water And Waste Management Plans (IWWMP)*', <http://www.gcs-sa.biz/wp-content/uploads/2016/04/Integrated-Water-and-Waste-Management-Plans-IWWMP.pdf>, (accessed 25 September 2019).
5. Le Quesne T, Kendy E, & Weston D, '*The Implementation Challenge: Taking stock of government policies to protect and restore environmental flows*', WWF Report 2010, http://awsassets.panda.org/downloads/the_implementation_challenge.pdf (accessed 10 October 2019) at 5.
6. Milk Producers Organisation, '*GUIDELINES TO WATER USE: Authorisation and Registration for dairy farmers*', <https://www.mpo.co.za/wp-content/uploads/2017/10/Guidelines-to-Water-Use-authorisation-2017-ENG-1.pdf>, (accessed 20 October 2019).
7. Singh H, '*A Critical Analysis Of The Development Of Water Law In South Africa*', 1999, <http://researchspace.ukzn.ac.za/handle/10413/5562> (accessed on 12 April 2017).

8. Oxpeckers Investigative Environmental Journalism, 'Sweeping water permit violations at mines across SA', <https://oxpeckers.org/2019/05/water-permit-violations-at-mines/>, (accessed on 20 October 2019).
9. Young C, 'PUBLIC TRUSTEESHIP AND WATER MANAGEMENT: Developing the South African concept of public trusteeship to improve management of water resources in the context of South African water law', University of Cape Town, 2014, https://open.uct.ac.za/bitstream/handle/11427/9537/thesis_law_2014_young_cl.pdf?sequence=1&isAllowed=y (accessed 01 September 2020).

Case Law

1. *Mazibuko and Others v City of Johannesburg and Others* 2009 ZACC 28.

Statutes

1. National Environmental Management Act, 107 of 1998.
2. National Water Act, 36 of 1998.
3. Constitution of the Republic of South Africa, 1996.

Regulations

1. Department of Water Affairs, 'Revision of General Authorisation in terms of Section 39 of the National Water Act, 1998', Notice no 655 of 13 September 2013.
2. Department of Water and Sanitation, 'National Water Act, 1998 Regulations Regarding The Procedural Requirements For Water use licence Applications And Appeals', Notice No 40713, of 24 March 2017.

Government Reports

1. Department of Environmental Affairs, 'National Environmental Compliance and Enforcement report 2017/18', 2018, https://www.environment.gov.za/sites/default/files/reports/nationalenvironmentalcomplianceandenforcementreport2016_17.pdf , (accessed on 20 October 2019).

2. Department of Environmental Affairs, '*National Environmental Compliance and Enforcement report 2016/17*', 2017, 21, https://www.environment.gov.za/sites/default/files/reports/nationalenvironmentalcomplianceandenforcementreport2016_17.pdf, (accessed 20 October 2019).
3. Department of Environmental Affairs, '*The World cup legacy report: Water*', 2011, <https://www.environment.gov.za/sites/default/files/docs/water.pdf> (accessed 24 October 2019).
4. Department of Water Affairs and Forestry, '*Olifants/ Doorn internal strategic perspective*', 2005, <http://www.dwaf.gov.za/Documents/Other/WMA/17/OlifantsDoornISPFeb05full.pdf>, (accessed 28 August 2019).
5. Department of Water, '*National Water Resource Strategy*' 2013, <http://www.dwa.gov.za/documents/Other/Strategic%20Plan/NWRS2-Final-email-version.pdf> (accessed 10 October 2019).
6. Department of Water Affairs, '*Strategic Overview of the Water Use Sector in South Africa*', 2013, <http://nepadwatercoe.org/wp-content/uploads/Strategic-Overview-of-the-Water-Sector-in-South-Africa-2013.pdf>, (accessed 25 June 2019).
7. Hodgson FDI, Krantz RM, '*Investigation into groundwater quality deterioration in the Olifants River catchment above the Loskop Dam with specialised investigation in the Witbank Dam sub-catchment*', Water Research Commission Report 291/1/98, 1998.