ENHANCING THE WATER USE AUTHORISATION FRAMEWORK: SIMPLIFIED FOR SMALL IMPACT PRODUCTIVE USERS

Report to the

Water Research Commission

By

Pegasys Institute

WRC Report No. 2536/1/17

ISBN 978-1-4312-0945-3

January 2018

Obtainable from

Water Research Commission
Private Bag X03
Gezina, 0031

orders@wrc.org.za or download from www.wrc.org.za

Printed in the Republic of South Africa

EXECUTIVE SUMMARY

The research project entitled "*CMA Water Allocation Process Requirements and their Enforcement*". [WRC project code: K5/2536] sought to examine the existing water use licencing framework, as well as the accompanying policies and practices in South Africa's water management areas. The aim is to identify and address the challenges in the framework that prevent equitable access to existing water resources focused on small impact productive uses and users to enhance socio-economic development.

The project developed a simplified framework for water use authorisation that should result in improved efficiency of the current system, envisioning shorter turnaround times – especially for the smaller impact users – as well as enhanced pro-poor support to engage in the authorisation process easing access to water and therefore contributing to improved livelihoods for the poor. The project builds on the existing system(s) developed by the Department of Water and Sanitation (DWS) and catchment management agencies (CMAs), such as the "One Environmental Authorisation", Water Allocation Reform (WAR), and Electronic Water Use Licence Application and Assessment System (e-WULAAS) to enhance the process of water use authorisation.

The project had the following objectives to contribute towards inclusive socio-economic growth by enabling easier access to water for smaller impact users:

- Consider existing good international practice in terms of water use authorisation.
- Propose an improved pro-poor framework that facilitates comprehensive assessment for existing and proposed water allocations for small impact productive uses to ensure an integrated, transparent and simple process for issuing licenses through CMAs.
- Recommend approaches to improve compliance, monitoring and enforcement (CME) of water use authorisation.
- Propose institutional arrangement options for an improved process ensuring stakeholder satisfaction and adequate recourse in line with legal provisions.
- Propose reasonable application fees that correspond with the types of water use licence application requested by water users.

From these objectives, the project worked towards attaining the following key deliverables of the project.

- **Deliverable 1:** Inception Report – which defined the scope of work and expected outcomes.
- **Deliverable 2**: Good Practice Report – for lessons from other countries comparable to South Africa.
- **Deliverable 3:** Draft Improved Framework – which drafted the proposed improvements to existing framework.
- **Deliverable 4:** Final Improved (Simplified) Framework for Water Use Authorisation – the final product reflecting the proposed simplified framework to support pro-poor socio-economic growth.

The project examined water abstraction licence procedures for both surface and groundwater practised by both the CMAs and proto CMAs, as guided by the national water authority – the DWS. In the process, the study delved into understanding the current practice in South Africa as well as international practice for lessons and comparisons on CME aspects of water licencing. The project kicked off with an inception report that clarified the activities of the project and set the tone of the work to be done in agreement with the WRC project management team and the Reference Group.

The process of developing a simplified framework broadly involved three phases of a literature review, consultations with stakeholders in South Africa, and examination of international good practices. The review involved the examination of international practices on water use authorisation for lessons on good practices for South Africa. After evaluating several countries, the project team and Reference

Group agreed to the following countries, citing similarities in the nature of water resources challenges and general comparable similarities with South Africa: Australia, Brazil, Costa Rica, Mexico and Zimbabwe. Simultaneously, the review entailed examining the status quo of the existing framework for water use authorisation in South Africa with the purpose of identifying the gaps in business process, policies and practices that derail pro-poor access to, and use of water for productive uses by small impact users of South Africa.

Consultations were organised with key stakeholders and informants to substantiate the findings of the status quo and good practice review of documents. A range of stakeholders and key informants who participated included the chief executive officer and officials from the two operational CMAs, proto CMAs, and some key informants working in the DWS. The project team also reached out to both large and small impact users – specifically organised groups of struggling rural black farmers in Mpumalanga to get the focus users' perspective. In addition, other subject experts, technical experts in the private sector, and civil society were also consulted. Among users consulted were: Sasol in Rosebank, Gauteng; small sugarcane outgrowers under TSGro[1]/TSB[2] in Mpumalanga; rural farmers under the African Farmers Association of South Africa; as well as the Centre for Environmental Rights. These users were consulted to better understand first-hand the challenges and opportunities experienced by users in using the current water use authorisation framework.

In consultation with the Reference Group, the project embarked on developing an improved framework for water use authorisation taking into consideration the analysis of key features, strengths and weaknesses of the existing framework as practised by the CMAs, international good practices and user experiences in using the framework and processes of the CMAs for licencing.

Findings

The proposed simplified existing framework has potential to address the existing challenges experienced by CMAs in addressing transformation. This will be done by promoting access to water for productive uses and is proposed to prioritise transformation in the case of the small impact users. This imperative will be built into the way in which the system is designed and operationalised.

Lessons from international practices and the review of South Africa's Water Use Authorisation business process gave rise to the following key findings:

Time frames: The water use authorisation business process, developed by the DWS – while generally applicable – had not been designed to specifically address the needs of smaller impact (productive) uses and users. The proposed improved framework specifically incorporates a shortened process for smaller impact users.

Existing system and capacity: For small impact productive uses, the system for application of licences is administratively too onerous. The Water Allocation and Resource Management System (WARMS) and e-WULAAS still have challenges, but it is proposed that CMAs cooperate with agricultural and environmental departments and existing structures to support small impact users. This is aligned to the One Environmental System created by the DWS, The Department of Mineral Resources and the Department of Environment Affairs to further improve integrated licencing and streamlining the licencing processes.

Improved framework: The existing framework of DWS was simplified to be pro-poor to enable small impact users based on lessons from good practice and consultations with stakeholders, as follows:

- Targeted support for small impact users to enable pro-poor socio-economic growth while focusing enforcement on the big impact users. This way, the limited CME capacity of the CMAs is maximally used to address key challenge of CME among the fewer bigger impact

[1] Programme of TSB supporting small-scale sugar cane outgrowers

[2] Transvaal Sugar Board, now part of RCL (Rainbow Chickens Limited)

users. (The 2016 general authorisation has inevitably imposed unnecessary control over the smaller impact users, which arguably impedes transformation.) A targeted approach to licencing is needed that supports small impact users to not only access, but also get involved in the productive use of the water resource acquired towards better livelihoods, which then counts as true transformation. To achieve this, regulatory activities should be focused on large volume and impact users, while access to water and support for small impact users should be prioritised.

- Using existing institutional capacity and structures can potentially improve the licencing process. Existing departments can be tapped using their field extension officers to carry out some functions of licencing applications to support poor farmers (resource-poor farmers and historically disadvantaged individuals) while doing their other work. Other institutions such as water user associations and irrigation boards could be approached to assist the licencing process.
- The proposed simplified authorisation system for small impact users as proposed will significantly reduce the administrative burden and time frames.
- Priority general authorisations could also be considered for small impact productive users, and water allocation priorities could be reconsidered. Providing some form of entitlement certificate of equal legal status as a licence or existing lawful use to users falling within general authorisations could also be considered.
- For the longer term, the current legislative review presents an opportunity to entrench the parity principle and targeted approach in legislation – perhaps licencing only for large impact users – in terms of volume and quality.

The targeted and differentiated approach is also proposed for CME to focus limited capacity on enforcement of the large impact users. In addition, all environmental CME functions could be managed within a single institution. Other proposed improvements for CME include:

- Updating of administrative penalty regulations.
- Improvement of the recording of enforcement dats.
- Cooperation between the CME functions of various institutions/departments.

ACKNOWLEDGEMENTS

The Pegasys Institute would like to acknowledge and thank the following individuals and participants for contributing to this study:

- The Water Research Commission (WRC) for providing support for the research.
- The Reference Group for providing invaluable comments and direction.
- The following institutions and individuals for providing their perspectives and input:
    - The Breede–Gouritz Catchment Management Agency.
    - Inkomati–uSuthu Catchment Management Agency.
    - The Department of Water and Sanitation.
    - The participants of the WRC Think Tank Workshop held on 30 November.
    - Mr Don Blackmore for providing perspectives on the water use authorisation system in Australia.
    - Ms Andrea Bernatzeder from the Department of Agriculture, Forestry and Fisheries for input on their differentiated approach.

REFERENCE GROUP MEMBERS

Mr Wandile Nomquphu	Water Research Commission (Chairperson)
Dr Bongani Ncube	Cape Peninsula University of Technology
Mr Martin Ginster	Sasol
Mr Maxwell Sirenya	Mzimvubu–Tsitsikamma Proto CMA (Acting CEO)
Dr Thomas Gyedu-Ababio	Inkomati–uSuthu Catchment Management Agency (CEO)

TABLE OF CONTENTS

EXECUTIVE SUMMARY iii
ACKNOWLEDGEMENTS vi
REFERENCE GROUP MEMBERS vii
TABLE OF CONTENTS viii
LIST OF FIGURES xi
LIST OF TABLES xii
LIST OF ABBREVIATIONS xiii
CHAPTER 1 1
1 INTRODUCTION 1
1.1 Overview 1
1.2 Project Background 1
1.3 Justification 2
1.4 Specific Objectives of the Project 3
1.5 Approach and Methodology 3
1.6 Report Structure 4
CHAPTER 2 5
2. GOOD PRACTICES IN WATER USE AUTHORISATION AND ENFORCEMENT: LITERATURE REVIEW 5
2.1 Introduction 5
2.2 Purpose of This Chapter 5
2.3 Australia 5
2.3.1 Water use authorisation process and system 6
2.3.2 Procedure for obtaining a water use licence/authorisation 6
2.3.3 Water trading 7
2.3.4 The Murray–Darling Basin (UNEP, 2012) 8
2.3.5 Challenges in water use authorisation 8
2.3.6 CME challenges 9
2.3.7 Lessons for South Africa 12
2.4 Brazil 12
2.4.1 Water use authorisation process and system 12
2.4.2 Procedure for obtaining a water use licence/authorisation 13
2.4.3 Challenges in water use authorisation 15
2.4.4 CME challenges 15
2.4.5 Lessons for South Africa 18
2.5 Costa Rica 18

2.5.1 Water use authorisation process and system ... 18
2.5.2 Procedure for obtaining a water use licence/authorisation ... 19
2.5.3 Challenges in water use authorisation ... 20
2.5.4 CME challenges ... 20
2.5.5 Lessons for South Africa ... 22
2.6 Mexico ... 22
2.6.1 Water use authorisation process and system ... 22
2.6.2 Procedure for obtaining a water use licence/authorisation ... 23
2.6.3 Challenges in water use authorisation ... 24
2.6.4 CME challenges ... 25
2.6.5 Lessons for South Africa ... 26
2.7 Zimbabwe ... 26
2.7.1 Water use authorisation process and system ... 26
2.7.2 Procedure for obtaining a water use licence/authorisation ... 27
2.7.3 Challenges in water use authorisation ... 28
2.7.4 CME challenges ... 28
2.7.5 Lessons for South Africa ... 30
CHAPTER 3 ... 31
3 ANALYSIS OF THE WATER USE AUTHORISATION STATUS QUO ... 31
3.1 Introduction and Background ... 31
3.2 Purpose of the Chapter ... 32
3.3 Methodology ... 32
3.4 Results and Discussion ... 33
3.4.1 Water use authorisation ... 33
3.4.2 Authorisation categories ... 33
3.4.3 WULA process ... 35
3.5 CME ... 40
3.5.1 The complexity and objectives of CME ... 41
3.5.2 Compliance monitoring ... 42
3.5.3 Sub-programme enforcement ... 45
3.5.4 CME challenges ... 47
3.5.5 Interdepartmental cooperation ... 48
3.5.6 Lack of coordination leads to CME failures ... 49
3.5.7 Response to complaints ... 50
3.5.8 Criminal proceedings ... 50
3.6 Synthesis and Conclusion ... 52

3.6.1 Current water use authorisation practices ... 52
3.6.2 Enforcement ... 53
CHAPTER 4 ... 55
4 PROPOSED FRAMEWORK FOR WATER USE AUTHORISATION FOR SMALL IMPACT PRODUCTIVE USERS ... 55
4.1 Introduction ... 55
4.2 Development of the Enhanced Water Use Authorisation Framework ... 55
4.2.1 Review of current framework ... 55
4.2.2 Successes with the current authorisation framework and features ... 57
4.2.3 Other challenges with the current authorisation processes and practices ... 57
4.2.4 Opportunities for improvement ... 60
4.2.5 Shortcomings of the current system that hamper transformation ... 60
4.3 Enhancing the Existing Framework for Small-scale Productive Users ... 61
4.3.1 Mechanisms for achieving transformation in access to water resources ... 62
4.3.2 Framework for determining water availability ... 67
4.3.3 Proposed simplified process for smaller water use licences ... 67
4.3.4 CME ... 70
4.3.5 Institutional arrangements ... 71
4.4 Synthesis and Conclusion ... 73
4.5 Opportunities for Further Research ... 74
REFERENCES ... 75
ANNEXURES ... 79
Annexure 1: Current Water Use Licencing Business Process ... 79
Annexure 2: Recommended Water Use Licencing Business Process ... 80
Annexure 3: Business Process for Licencing Water Use in Pongola–Mzimkulu Proto CMA (KZN) ... 81

LIST OF FIGURES

Figure 1: Water resource challenges in Brazil 12
Figure 2: Water use categories 33
Figure 3: Flow diagram of water use authorisation 35
Figure 4: Responsibilities of the DWS head office chief directorate compliance monitoring 42
Figure 5: Business flow for compliance monitoring (DWS, 2014) 43
Figure 6: Enforcement business process flow diagram (DWS, 2014) 46
Figure 7: Targeted approach 62
Figure 8: Authorisation category 68
Figure 9: Water user categorisation 68
Figure 10: Small-scale application support 69
Figure 11: Overall licence application process 69

LIST OF TABLES

Table 1: Summary of water use licence requirements in Australia 6

Table 2: Key offences and associated penalties related to the taking of water (for 2014–2015) 9

Table 3: Issue of direction 10

Table 4: List of WMA (CMAs and proto CMAs) in South Africa 31

Table 5: Compliance of users monitored by compliance monitoring in 2014/15 (DWS, 2014) 42

Table 6 : Most prevalent crimes reported by DEA (NECER, 2012:12) 44

Table 7: Enforcement actions recorded 2014/2015 (Source: DWS, 2014) 46

Table 8: Number of existing cases under investigation and enforcement results by Blue Scorpions and environmental management inspectors (EMIs) 48

Table 9 : Sectoral break down of cases reported and investigated nationally (DWS, 2014) 49

Table 10: National criminal enforcement statistics as reported in NECER (2012) 51

Table 11: Severity of farming challenges for different types of female farmer in selected areas of the Eastern Cape (Denison et al., 2015) 59

Table 12: Typology of types of female HDI farmer in selected areas of the Eastern Cape (Denison et al., 2015) 63

LIST OF ABBREVIATIONS

AYA	Institute of Water and Sewerage (Costa Rica)
CER	Centre for Environmental Rights
CMA	Catchment Management Agency
CME	Compliance Monitoring & Enforcement
CONAGUA	Comisión Nacional del Agua (Mexico)
DAFF	Department of Agriculture, Fishery and Forestry
DEA	Department of Environmental Affairs
DMR	Department of Mineral Resources
DWA	Department of Water Affairs (2009–2014 and before 1992)
DWAF	Department of Water Affairs and Forestry (1992–2009)
DWS	Department of Water and Sanitation (since 2014)
DPIPWE	Department of Primary Industries, Parks, Water and Environment (Australia)
DRDLR	Department of Rural Development and Land Reform
EIA	Environmental Impact Assessment
ELU	Existing Lawful Use
EMI	Environmental Management Inspector
e-WULAAS	Electronic Water Use Licence Application and Assessment System
HDI	Historically Disadvantaged Individual
ICE	Institute of Electricity (Costa Rica)
IUCMA	Inkomati–uSuthu Catchment Management Agency
LAAC	Licence Assessment Advisory Committee
MINAET	Ministry of Environment, Energy and Telecommunications (Costa Rica)
NECER	National Environmental Compliance and Enforcement Report
NPA	National Prosecuting Authority
NWA	National Water Act, No. 36 of 1998
NWRS	National Water Resource Strategy
NWRS2	National Water Resource Strategy, Second Edition, 2013
NWUAAAC	National Water User Authorisation Assessment Advisory Committee
PAIA	Promotion of Access to Information Act, No. 2 of 2000
REPDA	Registro Público de Derechos de Agua (Mexico)
RoR	Record of Recommendations
RPF	Resource-poor Farmer
SAPS	South African Police Service
SENARA	National Groundwater, Irrigation and Drainage Agency (Costa Rica)
V&V	Validation and Verification

WAR	Water Allocation Reform
WARMS	Water Allocation and Resource Management System
WMA	Water Management Area
WRC	Water Research Commission
WUAAAC	Water User Authorisation Assessment Advisory Committee
WULA	Water Use Licence Application
ZINWA	Zimbabwe National Water Authority

CHAPTER 1

1 INTRODUCTION

1.1 Overview

This report has been prepared by the Pegasys Institute under the project "*CMA Water Allocation Process Requirements and their Enforcement*" – Project reference Number K5-2536. The project aimed to enhance the existing water use authorisation framework for catchment management agencies (CMAs) (and proto CMAs) towards more equitable and pro-poor access to water, to improve the efficiency of the current system processes, and to envision shorter turnaround times for licence application processes. To contribute to this aim, the project team embarked on reviewing the existing framework and practices in the CMAs and proto CMAs to identify strengths, inefficiencies and gaps that could be addressed/improved to achieve an integrated and more effective process for water authorisation by CMAs.

1.2 Project Background

Water is a resource recognised not only as a social but also as an economic good due to the role it plays in the production of all goods and services that support human health and well-being (Booker et al., 2012). The development of communities has been tied closely to the ability by actors/governments to effectively harness water resources. For instance, the development of early civilisations such as Mesopotamia was possible due to their ability to develop infrastructure used to store and convey water to points of use. Nevertheless, it has been reported that when resources such as water are in abundance, there is no need to develop rules and regulations over its use (Bruns et al., 2005). Conflicts over access and use arise when the resource supply and quality dwindle, and this calls for institutionalisation of water allocation regulations.

Since South Africa is a water-scarce country, regulation of access and use of water for productive purposes has been heavily regulated since the 18th and 19th century (Tewari, 2009). From the pre-colonial era through to the modern post-democratic dispensation, the evolution of the water allocation laws has been necessitated by the increased pressure on the available water resources. For South Africa, the promulgated laws governing water use allocation continued to receive attention despite some significant differences in the principle approach to the water rights system.

That notwithstanding, there is undoubted evidence of the growth of water demands in South Africa especially due to increased urbanisation and the associated demand for domestic water services, increased development, increased agricultural production and the need to sustain the environment. These increases occur in the context of increasing scarcity due to climate change. Furthermore, the quality of water resources is declining due to pollution related to various economic activities in the municipal, agricultural, industrial and mining sectors.

Most catchments in South Africa are fully or overallocated with availability of water gradually decreasing further and with associated water quality deterioration – though this varies greatly across catchments. In this context, it is necessary to reduce consumption of water by all water users and uses (use less water more efficiently to achieve the same or increased production), while at the same time making water available for economic development and specifically small-scale productive uses (equitable water allocation) (reference California example) and for previously disadvantaged individuals and users.

This is achievable: in the American state of California, for instance, the total water use recorded in 2001 was less than it was in 1975 amidst a population increase of 60% and an increase in gross state production (by 2.5 times). California reuses up to 670 000 acre-feet of municipal waste water annually. The recycled water, which was initially only used for agriculture, is now utilised for a wider set of applications including geothermal energy production, groundwater recharge, landscape irrigation, and industrial use. Water reuse thus provides an alternative, reliable, local water supply that reduces vulnerability to droughts among other constraints.

The water resource challenges in South Africa must therefore be seen in the context of policies intended to redress the historical unjust allocation of water among different users in the country. At the dawn of democracy, this evidence necessitated that the 1956 Water Act be repealed to give historically disadvantaged individuals (HDIs) access to water, as well as to manage scarce water resources.

Despite the efforts by the Department of Water and Sanitation (DWS) and the two existing CMAs in reforming the water allocation process, access to water resources (especially for HDIs) has been challenged by the complexity of the water authorisation process(es) and subsequent inability of the custodians to adequately allocate and authorise use, monitor compliance and enforce water use authorisations. Unauthorised/illegal water use and pollution of water resources further aggravate the situation.

The Water Authorisation and Licencing Framework developed by the DWS has undergone numerous revisions to provide water resource managers with the ability to manage the allocation and authorisation of water users. The One Environmental System is an initiative to further improve integrated licencing and streamline the licencing processes under the DWS, the Department of Mineral Resources (DMR) and the Department of Environment Affairs (DEA). Under this system, the ministers of the various departments agreed on aligned and consistent time frames to consider and issue the permits, licences and authorisations in terms of their respective legislation. They further agreed to synchronise the process for the issuing of permits, licences and authorisations within a maximum 300-day period, and provided a 90-day extension to allow the completion of legislative resolution in cases of an appeal.

Despite the improvements made by these efforts, the current framework – while constantly under review for improvement by the DWS – still reflects outstanding process and efficiency challenges in terms of pro-poor access and turnaround times for acquiring water licences by small impact users. Furthermore, the revised general authorisations also pose some challenges, which constrain the use of water by the poor.

The decision to engage CMAs in water use authorisation processes presents various opportunities for framework and process improvements to begin to address many of the challenges for pro-poor access and shorten process time frames. The revised framework discussion in Section 4 explores these opportunities and proposes systematic process shifts that will address the challenges.

1.3 Justification

The principle of decentralising water resources management to the catchment level is that the management of water will improve. Since the introduction of the National Water Act, No. 36 of 1998 (NWA), several challenges have been experienced in the water use authorisation processes. While many of the initial challenges have been resolved, and improvements have continued to be made over time, there are still outstanding challenges. A critical issue that must be addressed is pro-poor water authorisation. This must be done through a system that is designed to support the equitable allocation of water to poor and HDIs within catchments. The delegation of water use authorisation and allocation functions to CMAs therefore presents a significant opportunity to address this and many other challenges by designing an improved system/framework.

The project situated the process in a larger strategy designed to enable optimal use of limited resources in ensuring the effective control of water use by CMAs.

Understanding the challenges with the current water use licence application (WULA) process in DWS, and recognising that CMAs will be responsible for water allocation and authorisation, makes this period of transition an appropriate time for the entire system to be professionally re-engineered. This should include setting up an electronically managed workflow process, which as intended by the Electronic Water Use Licence Application and Assessment System (e-WULAAS), to do the following:

- Ensure a smooth flow of documents.
- Identify bottlenecks easily and rectify them.
- Establish clear time frames for the various steps in the assessment process.

Moreover, such a comprehensive system supported by regulations (and enforcement), should where appropriate, allow for concurrent/simultaneous processing of WULAs and environmental impact assessments (EIAs), where the use of water and approval thereof by the CMAs are guided by the commitments made in the Environmental Management Plan that seeks to mitigate the impacts of water user activities/projects as identified in the EIA.

Among the challenges yet to be examined further is the lack of adequate capacity, which results in delays in the licencing process. The design of an effective allocation and authorisation process for CMAs will need to be aligned with available and future potential human, financial and systems capacity. An effectively designed system should also significantly reduce the workload of individual case officers and create the room for continual improvement of the decision-making process. This project will, therefore, contribute to defining a more effective system of processing water use allocation and licence applications in CMAs to enable addressing this task effectively while at the same time addressing the critical issues of water reform and reallocation.

1.4 Specific Objectives of the Project

The objectives of the project were to:

- Conduct comprehensive benchmarking with existing good/international practice in terms of water use authorisation and licencing.
- Propose an improved framework that facilitates comprehensive assessment for existing and proposed water allocations to ensure an integrated, transparent and simple process for issuing of licenses through the CMAs.
- Recommend approaches to improve compliance, monitoring and enforcement (CME) of water use.
- Define the required resources as well as propose the institutional arrangement options for an efficient process to ensure stakeholder satisfaction and adequate recourse in line with legal provisions.
- Propose reasonable application fees that correspond with the types of WULAs requested by water users.

1.5 Approach and Methodology

The approach to this project consisted of four phases, as follows:

- ***Inception phase:*** To agree on the project scope, activities and timelines with the client and stakeholders.
- ***Analysis*** of the current practice in South Africa for water allocation and issuing of licenses.
- ***Lessons from international practice (good and bad)*** in terms of water allocation and licencing systems; including other departments that have more efficient/user-friendly client interfaces and quick turnaround times. Case studies identified for this project include Australia, Brazil, Costa Rica, Mexico and Zimbabwe. The selection criteria for these examples were countries with similarities to South Africa in terms of climatic conditions, socio-economic disparities, similar administrative water governing structures, and generally countries that may have some good lessons for South Africa's water sector.

- ***Development of improved water use authorisation/licencing process framework*** for consideration (and use) by CMAs. This was developed based on the lessons from stakeholder inputs to build on current practice/processes within CMA and proto CMA units as well as alignment with the DWS. It also included an assessment of required resources and institutional arrangements and recommendations on reasonable application fees.

The process of developing an improved framework for water use authorisation broadly took on the following steps:

- Literature review on status quo and good practice.
- Consultation with stakeholders.
- Analysis of current framework.
- Development of the improved framework.

Literature review

A review of literature was conducted to examine and understand strengths, weaknesses and opportunities within the current framework for water allocation and authorisation developed by the DWS. To gain sufficient background understanding of the current framework, the project team conducted a review of current and historical documents on South Africa's Water Use Authorisation policy, regulation and practice. The NWA, the National Water Resources Strategy (NWRS), second edition, (2013 – NWRS2) and the DWS and CMA's Guidelines for Water Use Authorisation Application Process, and the recently revised Water Use Licencing Business process map were some of the documentation reviewed.

The review also involved the study of good practice from five countries including Australia, Brazil, Costa Rica, Mexico and Zimbabwe for lessons around determining water availability, practices of water use authorisation, compliance and enforcement, and fees for WULAs. Specific focus was placed on the role of CMAs assuming full delegation of functions in line with water use authorisations by the department.

Stakeholder consultations

A range of stakeholders and key informants were engaged in project consultations. Formal and informal consultations were held with key stakeholders including officials in the DWS, CMA and proto CMA officials, technical experts in the academic, public, private sector and civil society sectors. The consultations and engagements took the form of meetings, telephonic and electronic communication, and some written inputs from participating CMAs, proto CMAs/regional offices and users.

Analysis of current framework and development of the improved framework

The project team in consultation with the Reference Group embarked on developing an improved framework for water use authorisation. It considered the analysis of the key features, strengths and weaknesses of the existing systems, lessons from good practice and experiences by users of the framework and process (DWS, CMAs, and water use applicants).

1.6 Report Structure

The report has been structured as follows. Chapter 1 introduces the overall project and spells out the objectives and approach that was used to achieve these objectives. Following hereafter is a presentation of literature review on the good practices in water use authorisation from few selected countries from the around the world in Chapter 2. These countries were selected specifically because they share some similarities with the water sector of South Africa. After doing this, the report provides a synthesis on the current water use authorisation framework in Chapter 3, looking at the way it is implemented and challenges that are faced in the process. The report in Chapter 4 then uses the findings from Chapters 2 and 3 to propose a framework that can be applied specifically for the small-scale productive users of water resources at the scale of a catchment. Chapter 5 presents some concluding remarks.

CHAPTER 2

2. GOOD PRACTICES IN WATER USE AUTHORISATION AND ENFORCEMENT: LITERATURE REVIEW

2.1 Introduction

The water use authorisation processes in South Africa have undergone a range of changes since the introduction of the NWA in 1998. While many improvements continue to be made with time, there are still some outstanding challenges. For instance, pro-poor water authorisation is a critical issue that remains to be addressed. This would be possible through a system designed to support the equitable allocation/reallocation of water to poor and HDIs within catchments. Delegating water use authorisation and allocation functions to CMAs therefore presents a significant opportunity to address this and many other challenges through the design of an improved system/framework. In addition, the lengthy turnaround times of the current water authorisation processes is caused by inefficiency of certain aspects of the process. The involvement of CMAs in water use authorisation offers the opportunity to address many of these issues by aligning and improving current processes.

As highlighted in the previous chapter, this project intends to propose streamlining existing water use application and authorisation processes for the CMAs with the aim of improving process efficiency for shorter turnaround times and improved pro-poor access to water. The report considers international practices and lessons for developing an improved framework for an integrated and more effective process for water allocation and the processing of water use applications for licences.

2.2 Purpose of This Chapter

This chapter serves as a review of international good practice in water use licencing systems from selected countries with similar contexts to draw lessons for South Africa. The review of select countries licencing systems is not exhaustive; but focuses on key areas for the countries:

- An overview of how the water use authorisation/licencing process works.
- Challenges in water use authorisation/licencing.
- CMEs.
- Lessons for South Africa.

There is deliberate reference to good practice rather than best practice as the authorisation system must be adapted to and be relevant to local conditions and capacity. In this context, it is unlikely that there is one system anywhere that can be considered “best practice”, but rather that there are several options that provide lessons and that can be considered to achieve better practice.

The countries identified by the Reference Group for the good practice review are Australia, Brazil, Costa Rica, Mexico and Zimbabwe. These countries were selected because they are like South Africa, either in terms of climatic and water resource conditions, socio-economic disparities or administrative water governing structures. The sections that follow present the findings from these case studies.

2.3 Australia

Australia is like South Africa in terms of water resources availability and distribution with a relatively wet narrow coastal strip and a dry interior. It differs from South Africa in its development as well as that most large urban centres are located on or near the coast. Australia has a sophisticated water allocation system. Water is seen as an economic good, with trading of water being a part of the system and transfers being regulated. States are responsible for water use authorisation, with the federal government awarding rewards or penalties based on catchment performance. Understanding that water availability within the system is crucial, and ongoing modelling is done to determine water availability. Water for different uses has different risk profiles, and the price of water for different uses varies.

2.3.1 Water use authorisation process and system

Australian water use policy went through a series of reforms in the last few decades, resulting in a system where water is traded. As a result, water is allocated where it has the highest economic value. The water trading system has some innovative features like separating the management of entitlements from licencing; setting the goal of full costs recovery; reducing transaction costs to a minimum; and defining different levels of security entitlements. Unbundling water rights, water licences and water allocations means that different authorities are responsible for different aspects of the system (Arcadis, 2012).

A water licence gives the holder the right to take water under the Water Management Act, 1999. With few exceptions, a person must have a water licence if they intend to take, divert or store surface water for commercial farming purposes [Department of Primary Industries, Parks, Water and Environment (DPIPWE)]. If the land includes the frontage of a lake or river, then there is a right to take water under Part 5 of the Act. This is commonly referred to as riparian rights. This allows water to be taken for stock and domestic use without a licence. There are limits to the volume of water that may be taken under this right. Riparian rights are solely for stock and domestic purposes and do not allow irrigation for grazing animals, growing crops or for other commercial uses. Domestic use may also be restricted in summer by regional water restrictions. For other purposes, a water licence is required. A water licence is owned by the person/s identified (or listed) on the licence and is not tied to a property.

The conditions under which licences are required or not required are summarised in Table 1.

Table 1: Summary of water use licence requirements in Australia

A water licence is needed to:	A licence is not required to:
• Take water from a water source for agricultural or other commercial purposes.	• Take groundwater for any purpose, unless in a groundwater area or required under a water management plan.
• Take water directly to a farm from a water source.	• Take water directly to generate small-scale hydroelectricity provided the requirements of the Act are satisfied (DPIPWE can provide advice).
• Take water by pumping into a dam from a water source.	• Take limited volumes of water for stock and domestic purposes if one has riparian rights.
• Take water for stock and domestic purposes if the property does not have riparian rights (riparian generally means if a stream is within or on a property title boundary).	• Take water for firefighting.

Having a licence to obtain water means that applicants are then eligible to access water, but a licence does not entitle them to a specified amount of water. Allocations are done seasonally and are based on the available water in the dams.

Water entitlements are mandatory for all users and no new entitlements are given anymore. New irrigators need to get their water entitlements on the water market. The trading system has proved to be useful in times of drought in allocating the water to where it has the most value. During the drought of 2007–2008, this meant a change of water entitlements from dairy and rice producers to horticulture.

2.3.2 Procedure for obtaining a water use licence/authorisation

The DPIPWE procedure for obtaining a water use licence is as follows:

- The applicant makes an appointment with a consultant of the DPIPWE to discuss their proposal.
- The DPIPWE visits the site and discusses the proposal with the applicant.

- A report is prepared on the site visit and other supporting documentation is attached.
- The application is advertised for a 14-day period for representations (objections). The application, report and any representations received are assessed. The DPIPWE will then judge the validity of any public objections submitted as part of the application process. Licences must not contravene any water management plans or jeopardise any ecological or commercial values of the specific region of the application.
- When approval for the water licence is given or refused, both the applicant and those making objections are advised. A further 14 days is allowed for successful applicants to request a review of licence conditions, or unsuccessful applicants and those with public objections to appeal the decision to the Resource Management and Planning Appeals Tribunal (Appeals Tribunal).
- Where a review of the licence decision or an appeal has been undertaken, the application will be subject to their outcome.
- Once a water licence has been issued, it becomes a property right and is not specifically attached to the land title but is the property of the landowner.

2.3.3 Water trading

Selling water allocation is a private matter between individuals. However, approvals must be obtained from the DPIPWE prior to the transfer taking place. For trading to take place, the following must be adhered to:

- Release of water from storages must not harm the environment.
- The party receiving the water must have a licence to take water out of the water resource at their point of diversion, unless the point of diversion is located in an irrigation district. This may either be obtained with the allocation from the seller, or an application for a new water licence must be submitted with the transfer application. An emergency short-term temporary transfer may be available to a person who is not a licensee where the department is satisfied that it is necessary to relieve a significant water shortage. Such transfers cannot be approved for periods longer than 21 days.
- Before the DPIPWE issues a licence and approves the transfer, it will need to be satisfied that arrangements have been put in place to manage the water leaving the dam and being diverted from the watercourse. Normally, this requirement will be covered by a legal agreement between the parties concerned. Before water licences and allocations are leased or sold, the parties must ensure that approval has been given by the department to transfer the licence(s) and/or the allocation(s) under Part 6 (Division 4) of the Water Management Act of 1999.
- Transfers can either be for a limited period (temporary transfer) or on a permanent basis (absolute transfer).

Conditions may be placed on the transfer to protect the rights of other users and the environment. These conditions may include the installation of metering devices downstream of the dam and at the point of diversion, as well as a requirement to read and report on water diverted through the meter on a regular basis.

Approval to transfer may not be allowed where:

- The proposed transfer is not consistent with a relevant water management plan or the objectives of the Act.
- The transfer would have a significant adverse impact on any licensee or a person taking water under Part 5 of the Water Management Act of 1999 (persons taking water for stock, domestic use and firefighting).

- The proposed taking or using of water may contravene the Environmental Management and Pollution Control Act of 1994.
- The proposed transferor or transferee have been convicted of an offence against the Act or has accepted a water infringement notice.
- The proposed transferor or transferee has not paid any fee or other amount payable under the Act.

The department collects a fee for the administrative cost of selling the water. Furthermore, those buying water also pay for the cost of delivery. In dry years, the cost of water increases, and people can make money from selling water entitlements.

2.3.4 The Murray–Darling Basin (UNEP, 2012)

In Australia's Murray–Darling Basin, water trading is used as one of the ways to facilitate adjustment in the face of extreme changes in water availability. The development of the system has been a journey. Initially, irrigators where granted a licence to irrigate an area of land, but as the industry matured, meters were installed, and irrigators charged only for the volume of water they diverted. In Victoria, a sales water system was used to achieve rationing in dry years. When it became clear that the Murray–Darling Basin could not sustain any further expansion of irrigation, a limit or cap was placed on water use in the basin. Governments then began experimenting with the idea that irrigators could agree to transfer water entitlements and water allocations from one person to another. Two markets soon emerged:

- A within season market for allocations that had been made to an irrigator and could be used more profitably elsewhere.
- A permanent water market involving an agreement to permanently shift a licence from one irrigator to another.

The principle underpinning this was that a person would only be allowed access to more water if they could find someone who would agree to take less water. The fact that the system also had installation of meters and a strong institutional system made this type of system possible. To aid the process, standardised contracting systems were put in place. When all parties agree, money changes hands and the licence system adjusted.

The trading system has resulted in a rapid, market-driven increase in water use efficiency and a rapid increase in the value of water licences. As this occurred and to facilitate the further development of these markets, formal water entitlement registers and bank-like allocation systems were established. Currently, it is possible to register a mortgage over an entitlement and trade allocations over the internet. Those wanting water can log onto the internet and see how much water is left in their account. The last steps in this reform process involved redefining entitlements as shares and unbundling licences into their component parts so that shares, allocations, use approvals, delivery rights, salinity impacts etc., can all be managed at different scales.

2.3.5 Challenges in water use authorisation

The overallocation of the available water is generally problematic, with the amount of water set aside for environmental purposes being too limited. The challenge is that too many water rights have been distributed, not leaving enough water for the health of the ecosystem. Furthermore, while in a system where sale of water is not possible, there will always be people who do not use all their rights, thus creating an extra buffer for the ecosystem. In a water-scarce system where trading is possible, all rights are exercised. Thus, once trading comes into place though, all rights are exercised through the sale of water and there is therefore less water for the ecosystem. To tackle the problem of overallocation, the Australian government is buying back water rights from farmers. There have been challenges in getting farmers on board though, leading to less water being bought back than anticipated.

2.3.6 CME challenges

Education and informal warnings are often the first step taken with any licence compliance activity. Formal action may be taken if a licence holder either intentionally or consistently breaches their licence.

There are several penalty measures available, both under the Water Management Act of 1999 and the Water Management Regulations. Formal action includes fines and a system of demerit points similar to that used for traffic offences. Anyone who does not meet the requirements of their water licence may be subject to fines, or, if warranted, prosecution. In the case of repeated offences, an accumulation of demerit points can lead to the suspension or cancellation of a water licence.

The serving of infringement notices or prosecution for unauthorised taking of water is only pursued as a last resort and only where circumstances warrant it. Once an infringement has been served, any non-payment will be enforced through the Monetary Penalties Enforcement Service.

Table 2: Key offences and associated penalties related to the taking of water (for 2014–2015)

Offence	Maximum Penalty	Infringement Notice Penalty	Demerit Points
Taking water otherwise thatn under Section 48 of the Act (which is water mainly for stock, domestic and firefighting)	$2800 plus a daily penalty of $280	$140	2
Taking water without a licence	$70,000 plus a daily penalty $7000	$350 for 1st offence $700 for 2nd offence (within 1 year) $1400 for 3rd offence (within 2 years)	Nil
Breaching a licence (includes taking water in excess of an allocation of limit from a source not specified on a licence or outside the take period)	$70,000 plus a daily penalty $7000	$350 for 1st offence $700 for 2nd offence (within 1 year) $1400 for 3rd offence (within 2 years)	4
Contravening a notice of water restrictions	$70,000 plus a daily penalty $7000	$350 for 1st offence $700 for 2nd offence (within 1 year) $1400 for 3rd offence (within 2 years)	4
Failure to provide details of financial interest in a water licence	$1400	$140	2
Failure to produce licence for inspection	$1400	$70	0.5
Failure to comply with the direction of an Authorised Officer	$7000 plus a daily penalty of $700	$140 plus daily penalty of $70	4
Conveying water via a watercourse without or in contravention of a watercourse authority	$7000 plus a daily penalty of $700	$350 for 1st offence $700 for 2nd offence (within 1 year) $1400 for 3rd offence (within 2 years)	Nil

The levels of penalties are outlined below.

The cancellation, suspension or amendment of a licence or permit

What can the department do?

Under the Rights in Water and Irrigation Act of 1914, the department has the authority to initiate an amendment to the terms, conditions and restrictions of the licences issued. In certain circumstances, the department may by notice in writing given to the licensee:

- Vary the duration of a licence.
- Vary, add to or remove and term, condition or restriction included in the licence.
- Include any new term, condition or restriction.

The department may also cancel or temporarily suspend a licence in certain circumstances. One such circumstance is where a licensee or agreement holder is convicted of an offence against the Rights in Water and Irrigation Act of 1914, or has failed to comply with any term, condition or restriction of a licence.

The options available to respond

If a licence holder receives written notice that the department proposes to amend, suspend or cancel a licence, the licence holder has a right to be heard by, or make a written submission to the department if he/she is aggrieved by the decision. The department must then have regard to the submission made, prior to reaching a final decision.

Under the Rights in Water and Irrigation Act of 1914, a licence holder may also have a right to apply to the State Administrative Tribunal to request the review of a departmental decision to amend, suspend or cancel a licence.

The issue of a direction

A direction is a written notice given under the provisions of the Rights in Water and Irrigation Act of 1914, directing a specific action to be undertaken by the recipient within a specified time frame.

The Department of Water (on behalf of the Minister for Water) has the power to issue a direction to any person, irrespective of whether they hold a licence or permit in proclaimed or unproclaimed groundwater and surface water areas across the state. A contact person and their details are included on the correspondence send with the notice.

Table 3: Issue of direction

Conditions under which the Department of Water can issue a direction	Uses/utility of a direction
• The taking or use of water is unauthorised. • Water is being improperly used or wasted. • All reasonable steps to minimise degradation of the water resource are not being taken. • The use of water is having a harmful effect or is not being used to the best advantage. • The taking of water is interfering with or causing damage to someone else's water rights or land. • The taking of water should not, in the public interest, be permitted to continue. • The waters, bed or banks of a watercourse have been obstructed or interfered with by an unauthorised person. • The Minister for Water has made an order declaring a water shortage, or a determination that water is likely to be insufficient to meet demand.	• A direction provides the reason and the remedy required to manage impacts on the water resource or another person. • Order the repair, alteration closure, or partial closure of a bore or well. • Regulate the amount of water, or the rate at which it may be taken, from a bore or well. • Stop or limit the taking of water, or the purpose for which water is used. • Impose conditions on the taking of water. • Order any other actions the department considers necessary to prevent the unauthorised use of water or degradation of the water resource. • Order the restoration of the bed or banks of a watercourse by a person convicted of an offence under the Rights in Water and Irrigation Act 1914.

Licence holder's options when they receive a direction

If one receives a direction, they are required to comply with the terms and conditions of the direction. Failure to comply with a direction is an offence and may carry a maximum penalty of $5000 and a daily penalty of up to $500. If one would like to object to the direction, or to any of the terms of the notice, they may contact the Department of Water who will conduct a review. The contact person whose details appear on the correspondence received with the notice will be the liaison person for the case.

A licensee will be notified of the outcome of the review, and of the reasons for the decision. However, in some cases the department has the option of varying or revoking a notice. Under the Rights in Water and Irrigation Act of 1914, one may also have a right to apply to the State Administrative Tribunal to request the review of any term, condition or restriction included in the direction. The applicant/licensee has 28 days from the date they receive the direction to request that the decision be reviewed. A State Administrative Tribunal fee may apply when proceeding with a review application.

The issue of an infringement notice

An infringement notice is a written allegation that a person has committed a specific offence that offers the alleged offender the option of paying a modified penalty to dispose of the matter. Paying an infringement is not an admission of guilt and no criminal conviction is recorded.

An infringement notice will only be issued if:

- The department has sufficient evidence that an offence has been committed.
- The alleged offence is one that can be dealt with by an infringement notice.
- It is believed that the offence was committed within the relevant time frame for issuing notices.

Options for recourse

If a licensee receives an infringement, they are required to pay the modified penalty within 21 days of the notice being issued. If they wish to do so, but are unable to make payment within this time frame, they may apply to the Department of Water for an extension. If they do not pay the modified penalty:

- The penalty may be recovered by the Fines Enforcement Registry; or
- A prosecution notice may be issued against them for the alleged offence, and the matter will be dealt with by a court.

There are no provisions in the legislation for a review process for infringement notices; however, each Act that allows for the issue of an infringement notice also provides a mechanism for the withdrawal of an infringement notice within 28 days. A licensee should contact the department if they believe that they have grounds to request withdrawal of an infringement notice through the contact or liaison person.

Prosecution action

In responding to an alleged offence, the Department of Water may seek to have a sanction imposed on an alleged offender by a court, and a criminal conviction recorded.

All the offences contained within the legislation administered by the Department of Water are simple or summary only offence, and are heard in a magistrate's court. Ordinarily any hearings will take place in the court responsible for the local area in which the offence is alleged to have been committed.

The Department of Water generally adopts a strategy of escalation when responding to alleged non-compliance. The department's primary focus is to encourage and promote voluntary compliance through education and awareness. However, in response to serious or repeat offences, the department may escalate its response to directions, infringements and even prosecution. The department will only commence prosecution action when:

- There are reasonable prospects of securing a conviction.
- It is in the public interest to do so.

Options for recourse

Should a licensee receive a prosecution notice, they have the option to:

- Plead guilty in writing by endorsing a plea and returning it to the court.
- Plead not guilty in writing and request a trial.
- Ask for full disclosure of evidence prior to committing to a plea.
- Appear at court and enter a plea.

2.3.7 Lessons for South Africa

- Australia has a sophisticated water use authorisation/licencing system that incorporates modelling to understand water availability in catchments; good CME; an unbundling of water licences and allocations; and water trading. This system has come about through decades of evolution. South Africa should, over time, test what is possible given the resource constraints in the country. In this way, an appropriate water use licencing/authorisation system can be developed in South Africa.
- Given the evolution that the system has undergone, it appears that water users have a good understanding of the current system in place and the impact of water scarcity. Awareness of water resource management and the role of water use licences in water resource management should be improved in South Africa to improve buy-in.
- The organisation doing water use authorisation/licencing must have the resources – capacity/ skills and systems to manage a good system if there is scarcity of water. Thus, in South Africa, CMAs should be sufficiently capacitated for authorisation. One of the challenges in South Africa, for example, has been inappropriate licence conditions due to lack of skills.
- In Australia, a certain amount of water is held by a "commonwealth water holder". This person holds the water right for the environment. South Africa should consider whether a similar principle can be followed for transformation in access to water, where a certain amount of water is held for transformation purposes (for productive use).
- Water trading in countries like Australia (and other countries in this review) has helped individual irrigators manage and respond to external drivers by allowing more flexible production decisions. Flexibility improves cash flow, debt management and risk management. The reintroduction of water trading should be considered in South Africa.

The CME system in Australia has matured over time and is deemed appropriate, acceptable and easy to use by both the regulators and the users.

2.4 Brazil

2.4.1 Water use authorisation process and system

Brazil and South Africa face similar development situations, with great disparities between rich and poor, but a different water resource situation in that it generally has a fair amount of raw water available. There are however water deficits in some regions of the country, as shown in Figure 1.

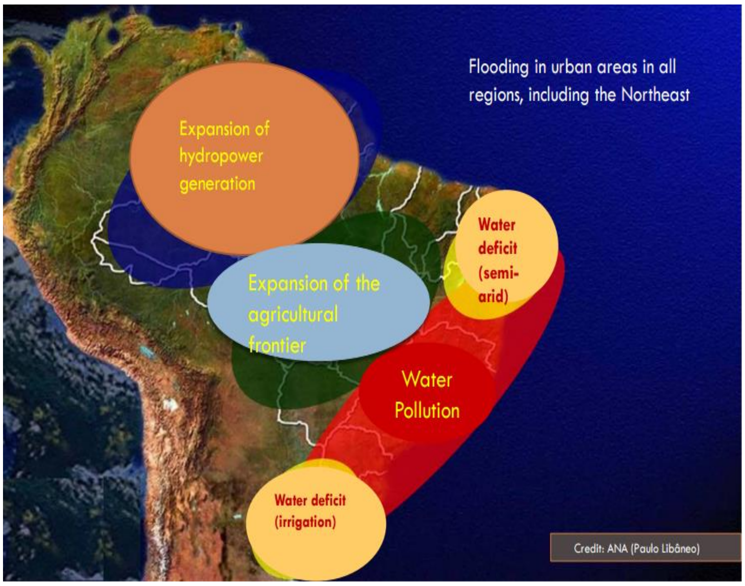


Figure 1: Water resource challenges in Brazil

With the Brazilian Constitution of 1988 private and municipal ownership of water was relinquished, and the foundations/principles for water resource management are as follows (Johnsson, 2014):

- Water, a public good of public domain.
- Recognition of water as a finite and vulnerable public good that has a big economic value.
- In situations of scarcity, the primary use is human and animal consumption.
- Multiple uses of water.
- River basin is the unit of planning and management.
- Integrated management, decentralised and participatory.

All waters are either federal or state property. Federal water is defined as any river, lake or watercourse that crosses or borders two or more states. State waters are defined as all groundwater and surface watercourses that do not borders or cross two states. Procedures for cooperation between national and state agencies as far as water use is concerned was not established initially. This was rectified with the new National Policy for Water Resources (1997) that established that all water resources management must have the catchment basin as its territorial unit.

All water bodies are classified according to the predominant uses of water (Johnsson, 2014). Thus, both state and federal authorities together control water use including abstractions, effluent discharges, and dams or dikes. One of the challenges in Brazil is that state and federal agencies are still at different technical stages as far as implementing water resource management policy is concerned, and many states have not yet implemented efficient processes. For federal waters, the National Water Agency is responsible for the technical analysis and issuing of water use rights. At the state level though, there are several possible scenarios:

- Water use rights applications for projects that are not subject to environmental licenses are directly submitted to the State Water Agency.
- Water use rights applications for projects that require environmental licencing are considered within the environmental assessment and are evaluated by the Environmental Agency in an integrated process.
- Water use rights applications for large projects – regardless of whether they are subject to environmental licencing – must be decided by Water Basin Committees or the State Water Resources Council.

2.4.2 Procedure for obtaining a water use licence/authorisation

Federal Law 9433/1997 regulates the allocation of water use rights for the following activities:

- Abstraction of surface water.
- Exploitation of groundwater.
- Effluent discharge.
- Hydroelectric power.
- Other water uses or interferences that alter quantity, quality or the existing regime in a watercourse.

A licence is not required for meeting the needs of small population groups in rural areas, and diversions, catchments and discharges that are considered insignificant (Salman & Bradlow, 2006). The definition of what is insignificant is not immediately clear.

There are no provisions that give specific guidance on how rights to use water should be allocated. The statute does, however, require that water use plans should be developed for each river basin and state as well as for the entire country, and that authorities classify bodies of water according to the principal uses of the water body. This is to ensure that (Salman & Bradlow, 2006):

- The quality of the water is compatible with the most demanding use of each particular water body.
- The cost of combating water pollution is reduced through preventive action.

There are no provisions in the National Policy for Water Resources that specifically address transfer of water rights (Salman & Bradlow, 2006). In general, water allocation is based on conservative/restrictive criteria, including the following (Johnsson, 2014):

- Only a small fraction of the minimum flow reference is grantable.
- The maximum instantaneous flow rates are granted.
- There is no seasonal flexibility.
- Large water security to established and regularised users.
- New users are admitted if do not compromise pre-existing users.

This grant system works well only in basins without quali-quantitative water stress (Johnsson, 2014).

At the state level, there is no stepped procedure for obtaining a water use licence, whereas environmental licenses have a set procedure. As a result, each state has its own rules. Some states have the possibility of provisional water use authorisation before awarding full water use rights. The provisional water use authorisation is considered important for large projects as it secures a reserve of water during the planning period of the project, which can take several years. Usually, the provisional water use rights are valid for two years; but this is deemed inadequate for large projects.

At the federal level, there is a clear procedure for mining projects that require water use rights as established by Resolution 29 (2002) by the National Water Resources Council. This resolution established an effective instrument to obtain authorisation for all mining projects. The resolution requires reporting for a list of uses or interferences of mining with water resources, including:

- Abstraction of surface or groundwater as an input to the production process.
- Discharge of industrial effluents into watercourses.
- Exploitation of groundwater with the aim of dewatering.
- Diversion, straightening and channelisation of streams required for prospecting and mining.
- Construction of dams for retention of sediments and fine particles.
- Construction of dams for the regularisation of flow.
- Systems for tailings and waste disposal.
- Exploitation of minerals in water bodies.
- Water abstraction and effluent discharge for the transport of mining products (sludge pipelines).

This resolution is considered to be beneficial since all mining projects in the country are subject to the same methodology to obtain authorisations relating to water resources, and because the resolution requires that the whole water balance of a project is integrated in one report, considering impact on quantity and quality of surface and groundwater.

There are however challenges with implementing this resolution at state level. Most states have not yet adjusted their technical, political and administrative structure for implementing Resolution 29. Thus, while Brazil does have an adequate legal mechanism to evaluate the interferences of mining projects with water resources, this is still not applied countrywide; the state of Minas Gerais (where many mines are located) is also yet to implement the Resolution.

2.4.3 Challenges in water use authorisation

Responsible entities

Brazil has a good framework for water use authorisation, but it needs more effective application and coordination between the states and the federal agencies. One of the challenges is that the responsible entity is not established easily. Although the definition of projects subject to environmental licences is clear, the definition of the entity that evaluates the water use rights is not. Particularly, when the studies to define the interferences with water resources are not carried out at the same time as the environmental studies and the water use rights are applied for at a different time from the environmental licencing process. Sometimes in this situation, the environmental authorities understand the water use rights as separate from an environmental licence, to be investigated with a different analysis and a different focus. This results in duplication of work and loss of time.

Another challenge is that the definition of large projects is vague although there is a normative deliberation from the State Water Resources Council establishing the criteria for large projects. The deliberation, however, uses subjective terms, thus leaving the decision regarding whether the application is submitted to the Water Basin Committee or the State Water Resources Council to the technicians.

In doubt, most mining projects are considered large ones. This has led to concern in the mining industry because the committee and council members are elected from non-governmental organisations, water users and representatives of municipalities and state or public entities. The result is that large mining projects depend on the approval of non-governmental organisations and municipalities, while technical analysis is given less weight. Thus, the approval of the right to abstract water from a watercourse is decided based on social or political aspects with participation from local residents or politicians representing municipalities.

A further challenge is that divided water ownership is still a weakness of the licencing process, causing a lack of coordination between the states and the federal agency. Here, concerns include missing integration between databases. While the legal framework at national level supports efficient licencing by the National Water Agency, both the law and its execution are less perfected at state level and state agencies struggle with effective application.

No countrywide stepped procedure

For water use rights, there is no countrywide stepped procedure, unlike the environmental licenses. Each state has its own rules, and some states implement provisional water use authorisation before awarding full water use rights.

Mining

Even though there is a resolution that details how mining water use rights should be applied for, most of the states have not yet adjusted their technical, political and administrative structure to implement Resolution 29.

2.4.4 CME challenges

The Brazilian Constitution sets out the general principles upon which the country’s entire environmental protection legal and regulatory systems are based (Mazza, 2016). The Federal Constitution of 1988 assimilated the width and breadth of legal concepts embedded in the United Nations Convention on the Human Environment as enacted in Stockholm in June 1972. The Stockholm Convention and its declaration, along with the provisions on the matter adopted by the Portuguese, Greek and Spanish Constitutions, have served as the basis and inspiration to create the Brazilian environmental protection system (Mazza, 2016).

The Constitution sets out the fundamental principles regarding:

- The natural resources of the biosphere (air, soil, fauna and flora).
- The relationship of men with these elements aiming at their collective protection and preservation.
- The broad participation of various sectors of society in the protection of their interests.
- The role of the public prosecutor's office in the enforcement of such provisions.
- Sanctions against violations by individuals and legal entities on both criminal and administrative levels (ibid).

The Brazilian environmental legal system is composed of the following main statutes applicable to water use compliance and enforcement:

- Federal Law 6,938/1981, which creates the National Environmental Policy and establishes the Environmental Permitting Process and the Civil Liability system for environmental damages.
- Federal Law 9,433/1997, the National Policy on Water Resources, which regulates water use.
- Federal Law 9,605/1998, which establishes criminal sanctions and provides for administrative offences against the environment.
- Federal Law 9,966/2000 on the prevention and control of pollution caused by oil and other hazardous substances.
- Federal Law 9,985/2000, which establishes the National System for Environmental Protected Areas, the main code on biodiversity preservation enforcement tools.
- Federal Law 12,305/2010 establishes the National Policy for Solid Waste, being the main legal framework regulating obligations on the generation, transport, management and destination of solid waste.
- Complementary Federal Law 140/2011 disciplines the enforcement rights of authorities at all levels of administration.
- Federal Law 12,651/2012, the Brazilian Forestry Code, which regulates the protection of Legal Forestry Reserves and the Permanent Protected Areas.
- Decree 8,124/2013, the National Contingency Program for oil pollution in Brazilian waters.

The main environmental agencies at federal level include:

- The Brazilian Institute for Environment and Renewable Resources, in charge of enforcing environmental statutes and regulations and performing the environmental permitting of activities located in strategic areas and those with regional impacts, besides nuclear-related activities.
- The Chico Mendes Institute for Preservation of the Environment and Biodiversity, which is in charge of management and enforcement of environmental policies in federal protected areas.
- The National Environmental Council, which creates the directives aimed at countrywide application.

Compliance monitoring enforcement operations

In Brazil, enforcement takes place at the federal, state and local levels. The respective environmental authorities are in charge of regulating technical aspects of relevant environmental matters in their areas of influence, as well as implementing measures to prevent and remediate impacts and punish their perpetrators (Mazza, 2016).

Environmental authorities are assisted at all levels as required by a specialised police force and prosecutors in their law enforcement actions. The police force gets involved in on-site inspections and implementation of coercive measures to prevent environmental damage or its escalation. Prosecutors represent the public interest in prosecuting those responsible for non-compliance with applicable environmental laws, including judicially enforcing remediation measures and damages compensation (ibid).

Types of administrative, civil and criminal penalties can be imposed for violations of environmental laws

Offenders (persons or legal entities) are subject to criminal and administrative sanctions, as well as liability for repairing any damage caused to the environment or to third parties. To this end, the three types of liability – civil, administrative, and criminal – are independent and can be enforced simultaneously. These are briefly outlined below.

- **Administrative penalties** imposed for administrative offences include:
  - Fines of up to R$/BRL50 million, depending on the offender's capacity to pay, the seriousness of the offence, and the offender's track record in terms of environmental offences committed, if any.
  - Embargo of construction or activities.
  - Demolition of construction works.
  - Total or partial suspension of activities.
- **Criminal liability** requires demonstration of causal link, proof of fault or wrongful intent on the part of the offender. In addition to penalties that involve deprivation of liberty (individuals), there are penalties that involve restriction of rights, such as loss of tax benefits and incentives, suspension or cancellation of permits and prohibitions against contracting with the government (legal entities and individuals).
- **Civil law penalties** require all those who directly or indirectly caused damage to the environment to be held liable, severally or jointly, to repair the damage, regardless of whether fault is proved on the part of the agents (strict liability).

Given the above, a licence can be partially or entirely suspended:

- If the awardee fails to comply with the terms of the award or fails to use the resources for three consecutive years.
- Disaster; necessary to avoid environmental degradation.
- Need to provide for priority uses.

Current trends or issues in environmental policy, regulation and enforcement

Anything related to access and sharing of the country's biodiversity and alternative sources of energy is currently at the centre of the regulation and enforcement efforts in Brazil. Also, in view of the recent major incidents in oil and gas, chemicals and mining exploration facilities, governments, regulators, environmental, health and safety authorities and their respective agencies are under pressure to tighten procedures for issuance of licences and authorisations. Given this development, all procedures related to environmental permitting and operational safety are being reviewed or revised.

In general, the Constitution, and the reforms passed in the years following it, solidified four key principles of Brazil's environmental policy. It sets minimum air and water standards at the federal level, with the states given the option of strengthening them to fit their particular environmental concerns. Fines became another integral component of regulation, and importantly, flexibility was designed to allow regulators and polluters the opportunity to negotiate the size and timing of penalties.

Although there have been some notable improvements, the World Bank report (Salman & Bradlow, 1996) noted that government had limited capacity for enforcement, uneven application of the law in the private and public sectors, high costs and expenditures were needed for monitoring and compliance, and poor coordination of responsibility and administration across the three levels of government.

2.4.5 Lessons for South Africa

- Brazil has defined a specific process to be used for mining applications that incorporates water use applications, since mining has a significant impact on water quality. Mining water use applications have historically been problematic in South Africa, and the development of a single authorisation system for mining could benefit South Africa as well.
- Brazil does not require water use licences for use of water by small population groups in rural areas and for diversions, catchments and discharges that are considered insignificant. South Africa has a similar system through its Schedule 1 use, but should possibly use general authorisations more widely for use of small amounts of water.

2.5 Costa Rica

2.5.1 Water use authorisation process and system

Costa Rica is divided into three major drainage basins encompassing 34 watersheds with numerous rivers and tributaries, one major lake used for hydroelectric generation, and two major aquifers that serve to store 90% of the municipal, industrial, and agricultural water supply needs of Costa Rica.[3] Both total and per capita water usage is very high in comparison to other central American countries, but when measured against available freshwater sources, Costa Rica uses only 5% of its available supply. Urbanisation is increasing, and as it does, demand for water is expected to rise exponentially in the coming decades. There is ample water, but the threat of widespread contamination to the aquifers is legitimate as untreated waste water, storm water, and industrial effluents infiltrate subterranean supplies.[4]

Costa Rica has an abundance of water resources, but experiences high demand for water resources by urbanisation, industry, irrigation and hydroelectricity. Thus, water demand is expected to increase exponentially. Furthermore, contamination of water resources by untreated waste water, storm water, unsustainable land use, and industrial effluents are threats to the sustainability of the resource. There is a serious concern that poor water quality is limiting water availability or accessibility (Guzmán-Arias & Calvo-Alvarado, 2013).

The legislative framework for water resources management is also problematic: water legislation is old and confusing, and there are at least 30 different laws that regulate the sector. The 1942 Ley de Aguas No. 276 (Water Law No. 276) declares water a public good under national ownership. The hierarchy of uses is as follows: domestic, agricultural, hydro and industrial. The 1942 Water Law gives the Water Department of the Ministry of Environment, Energy and Telecommunications (MINAET) primary authority for administering and managing water resources (Guzmán-Arias & Calvo-Alvarado, 2013). On 31 March 2014, the Costa Rican Congress passed the new Water Law.[5]

---

3 Food and Agricultural Organization (FAO). (2000). Aquastat country overview: Costa Rica (in Spanish). FAO. Retrieved 2010-01-28.

4 Espinoza, A., Morera, A., Mora, D., and Torres, R. (2003). Calidad del agua potable en Costa Rica: Situación actual y perspectivas (PDF) (in Spanish). Organización Panamericana de la Salud. pp. 4–32.

5 http://www.gwp.org/en/gwp-in-action/Central-America/News-and-Activities-GWP-Central-America/New-Water-Law-approved-in-Costa-Rica/

Under the 1942 law, the Water Department of the MINAET is the state agency in charge of all public waters, and grants or deny water concessions. According to Decree No. 26635 of 1997, the Water Department's mission is to manage water resources efficiently throughout the country, ensuring sustainable development through its legal and rational directives. This has been problematic given the lack of resources (human and financial) for monitoring and surveillance of the concessions (Guzmán-Arias & Calvo-Alvarado, 2013).

The legal and institutional setting for water allocation in Costa Rica is complex, with the MINAET being one of the institutions that can grant concessions.[6] More specifically, the Legislative Assembly can also grant rights and concessions for water use in accordance with its constitutive laws to the Costa Rican Institute of Electricity (ICE) and Institute of Water and Sewerage (AYA[7]) (OECD, 2015).

Some of the key characteristics of the allocation regime in Costa Rica include (OECD, 2015):

- Groundwater and surface water are publicly owned.
- Irrigation is the major water user (70.8% of mean annual inflow/recharge).
- Water resources are considered neither overallocated nor overused.
- If an entitlement is not used in a given period, it will be lost (use it or lose it).

The Ministry of Environment and Energy serves as a guiding document on allocation. However, the limits on consumptive use are not linked to this plan (OECD, 2015).

There are both individual entitlements and collective entitlements [to an institution representing water users (like water user associations)] or to a community. In the case of collective entitlements, the Ministry of Energy and Environment grants a concession to each society of water users according to the Water Law No. 276. These societies have the authority to decide the form of water distribution among their members internally through agreements of its general assembly of members, or through its own regulation if any (OECD, 2015).

Water concessions are linked with property titles, and are defined in terms of both the purpose that the water may be used for as well as the maximum volume that may be taken in a given period specified in the entitlement. Entitlements can be granted for a period of up to 30 years (assigned administratively depending on use) with the expectation of periodic renewal. Nonetheless, a renewal request might be denied under exceptional circumstances, such as water scarcity or a breach in the terms of the concession (OECD, 2015).

Users who are not required to hold a water entitlement to abstract water are (OECD, 2015):

- There is a right of common use for domestic uses including firefighting when direct access to water from rivers is possible without using infrastructure or river diversion, according to the Water Law No. 276.
- In addition, water for hydropower (ICE) and water for water supply for human use and drainage get concessions from the Legislative Assembly. All concessions are recorded in the Register of Concessions.

2.5.2 Procedure for obtaining a water use licence/authorisation

Water entitlements are granted through prior appropriation, where reliability is a function of the year when the entitlement was first issued. In order to obtain a new entitlement or to increase the size of an existing entitlement, an assessment of third party impacts and an EIA needs to be carried out, and existing users must forego use. If an entitlement is not used in a given period, it will be lost (use it or

[6] The Ministry of Environment and Energy (Water Management Office) sets national policies; plans administration of water resources across the country; issues concessions for the use of hydrological resources in accordance with national laws; and consults with the Costa Rican AYA and the National Service for Subterranean Water, Irrigation, and Drainage (SENARA).

[7] Instituto Costarricense de Acueductos y Alcantarillados

lose it). Trading, leasing or transferring entitlements is not possible. Entitlements are not differentiated based on the level of security of supply (OECD, 2015). The rights granted by water concessions can be modified according to the Water Law No. 276 under certain technical and legal conditions that prove the need for temporary or permanent redistribution of water and their associated rights.

The assignment of water quantity is made according to the matching schedule, daily, weekly, monthly, seasonally or annually. There is a distinction in the allocation regime in normal circumstances and during extreme/severe water shortages.

Under certain technical and legal conditions that prove the need for temporary or permanent redistribution of waters and their associated rights, the rights granted by water concessions can be modified according to the Article 37 of Chapter VII of the Water Law No. 276. Any change in the water concession must be backed by technical studies that must be notified to the affected concessionaires. In such cases, the General Law of the Public Administration No. 6227 provides appropriate legal remedies for the affected individuals by granting due process.

2.5.3 Challenges in water use authorisation

Multiple institutions

MINAET and three other agencies are the core institutions responsible for Costa Rica's water management:

- Costa Rican AYA – national water potable system operator responsible for potable water, sanitation and sewerage.
- Costa Rican ICE – responsible for hydropower production and for concessions for hydropower projects.
- The National Groundwater, Irrigation and Drainage Agency (SENARA[8]) – responsible for irrigation, drainage and flood protection.

ICE is Costa Rica's largest surface water user but is exempt from surface water concession system (Paniagua & Reilly-Brown, 2013). The main problem with the existing framework is that there is no single institution responsible for planning and managing water resources. Different agencies also play similar roles with the result that there is an overlap in many functions resulting in low efficiency in activities. Furthermore, the responsibility for administrative and technical aspects is diluted, creating gaps in planning and research. For example, information on physical assessment of water resources and resource utilisation is found in different formats and is messy, and non-existent in some cases. (Guzmán-Arias & Calvo-Alvarado, 2013).

Since 2000, there have been reforms to water resources management to adjust fees; to promote new economic tools in the management of water rights; and to improve administrative processes for water concessions. Currently, a complete reform of the Water Law is under consideration (OECD, 2015).

2.5.4 CME challenges

Garrido et al. (2014:346) state that Costa Rica has different conceptualisations of water charges that evolved since the enactment of the 1942 Water Law. Presently, users must pay a charge, namely, the environmentally adjusted water use charge (*Canon ambientalmente ajustado por aprovechamiento de aguas*), which has two components:

a) An aggregate value that differs on the type of use (hydropower, agricultural, household consumption or industrial), and takes cost estimates and marginal valuations into account.
b) A payment for the water environmental service.

[8] Servicio Nacional de Aguas Subterráneas

In general, the water charge (canon) in Costa Rica is considered a success story, with benefits identified in (a) the more efficient water allocation mechanism and reduced pressures; (b) the revalorisation of the water resources; and (c) stakeholder's participation in designing the instrument (La Costa Rica, 2012).

Inspired by the Colombian programme, Costa Rica implemented an environmental fee for discharges, which puts a price on each kilogramme of chemical oxygen demand and total suspended solids discharged. The Costa Rican programme also faced implementation difficulties. It was challenged in court by the sugar cane industrial-agricultural union on the basis that the fee was a tax – something that could only be decreed by the congress. The appeal was ruled against by the Supreme Court. The Ministry of the Environment approved a new decree (No. 34431) in 2008, which changed the amount and structure of the fee. Other implementation difficulties were related to the lack of trained personnel, of databases, and of monitoring equipment. The collection of fees was estimated to be only 80% of the total potential and as such prevented the purchasing and installation of treatment plants and monitoring equipment (Garrido et al., 2014:354). Costa Rican regulators found that the most difficult sources of pollution originate from public utilities providing water services such as sanitation, drinking water, and irrigation (La Costa Rica, 2012).

There are many limitations at administrative and judicial level to ensure an appropriate level of enforcement and compliance of environmental legislation in Costa Rica. The Concession of Use and Reuse of Water Fee was established in the General Water Law No. 276 by MINAET (Garrido et al., 2014). The Water Discharge Fee was established by MINAET to ensure a healthy and ecologically balanced environment. This law requires that anyone using public bodies of water to dispose liquid waste must pay a fee. The fee is more focused on achieving a social objective and lessening the guilt associated with waste disposal in public water sources than actually achieving environmental consciousness.

Paniagua and Reilly-Brown (2013) argue that the 1942 Water Law gives MINAET primary authority for administering and managing water resources. Through the *Direccion de Aguas* water authority, MINAET and three other agencies (AYA, ICE, and SENARA) are the core institutions responsible for water management in Costa Rica. Water use functions entail, among others, water concessions; register/authorise; well construction; National Water Policy; collect water; and pollution fees. The CME structures in Costa Rica comprise the following institutions with varying but complimentary functions:

- Ombudsman (*Defensoría de los Habitantes*).
- Environmental Administrative Tribunal (TAA).
- Environmental Prosecutor (*Fiscalía Ambiental*).
- Constitutional Court (*Sala Cuarta*).

Challenges remain despite the existence of these institutions and the various instruments they apply for CME. Some of the challenges include water quality concerns, particularly sewage (urban) and pesticide pollution (rural). Paniagua and Reilly-Brown (2013) reiterate that there is weak enforcement and lack of interinstitutional coordination.

The International Network for Environmental Compliance and Enforcement held a workshop in Costa Rica in 2002. One of the key case studies presented was on environmental law enforcement and compliance in Costa Rica by Carolina Mauri (2002) focusing on water pollution with toxic substances. In October 1999, a Criminal Tribunal sentenced a Costa Rican property owner to five years in jail and the payment of civil compensation in the amount of $4570 for "moral damages" for dumping poisonous substances into a river, polluting fresh and underground waters in a rural community of San Rafael de Tarrazu in the province of Cartago (Mauri, 2002:185).

The property owner used the substances in his coffee plantation but dumped leftover residues and cleaned his contaminated equipment in the river. The evidence included water tests from the National Water and Sewage Company, medical reports from victims and testimony from witnesses who saw on several occasions how the defendant dumped the substances into the river. The Environmental Prosecutor, in coordination with the local Court Prosecutor, played an important role demonstrating to the judges that there was enough evidence to sentence the defendant, who violated several articles of the Health Law, the Wildlife Conservation Law and the Forestry Law.

The decision in this case was particularly significant because it has been very difficult historically to sentence responsible parties in environmental crimes. The case received great attention from the press and was considered an important step forward for environmental enforcement in Costa Rica. It was particularly important for future environmental prosecution because of important advances in data collection and management, evidentiary requirements (burden of proof issues) and legal procedure (ibid).

2.5.5 Lessons for South Africa

- The legal and regulatory framework for water use authorisation/licencing in Costa Rica is outdated and complicated, resulting in challenges in water resources management. The legal and regulatory framework for authorisation should be appropriate, and reviewed from time to time for appropriateness.
- The existence of multiple institutions granting authorisations for water use results in a complex and fragmented system, and should be avoided or strongly coordinated.

2.6 Mexico

2.6.1 Water use authorisation process and system

Mexico faces similar development challenges to South Africa, and is generally also fairly water scarce. Water resource management is one of Mexico’s critical environmental issues, and one that impacts heavily on the economy. The country is slightly less than 2 million km^2 in size and the population has quadrupled from 25 million in 1950 to 100 million (Garduno, 2005). Population growth has occurred nationwide, but has been greater in the semi-arid and arid north, northwest, and central regions, which are the regions with greater economic activity and where the major water shortages are.

The use of water in Mexico is primarily governed by the National Waters Law. According to this law, Mexican waters are national property. Some waters may be subject to private property provided that applicable rules are met (The Law Library of Congress, 2013). The use of water is by concessions granted by the federal government through its National Water Commission, namely, *Comisión Nacional del Agua* (CONAGUA). The National Water Commission with the assistance of regional offices, irrigation districts, and other entities are the administrators of the water system in Mexico. The Commission is responsible for water policy, granting water concessions, standards for water quality, collecting water taxes and water investment programmes.

Domestic and municipal water rights have a priority over other kinds of uses (DOF, 2014: art. 22). In case of competition for the same resource, these uses will have a priority, and they pay a lower tariff than industry and commerce. Agricultural users receive an economic incentive in the form of an electricity subsidy for pumping water. Most agricultural users do not use water meters; therefore, they almost never pay for the water they consume. Industrial and commercial uses have a higher tariff for the volume of water they use, which is usually around double the price paid by domestic users (CONAGUA, 2014a). In fact, they are the only sectors that pays for water, because many municipalities lag years behind in their payments to CONAGUA (Reis, 2014).

Water concessions indicate the amount of water authorised for extraction, the specific use for such water, the location of the point of extraction, and the term of the concession. A concession may be granted for a term of five to 30 years. Groundwater abstraction is allowed with a permit that specifies the annual volume allowed, which is based on the discharge of the well and the irrigated area. The National Waters Law also provides for conservation and protection of the quantity and quality of water

(The Law Library of Congress, 2013). Those who hold water concessions for agriculture must comply with environmental standards and requirements applicable to the discharge of water and the prevention and control of pollution resulting from substances that may contaminate water.

Each November, the National Water Commission in Mexico decides how much surface water will be allocated to each district the next year. This is based on scientific data (such as water levels in the dams and lake, precipitation forecasts based on the last year's rainfall, surface run-off) and negotiations with the irrigation districts, which communicates to the Commission how much water they want. Following the district allocation, negotiations take place internally to allocate water to the sub-irrigation units. This allocation is top-down and based on how far the modules are located from the dam, the amount of surface and the irrigation calendars. Each district develops a yearly irrigation plan where members (farmers) decide together which crops to grow next year based on the water allocation.

The tariff structure for water abstraction is differentiated[9] and this together with incentives such as not charging irrigation when users comply with their entitlement, and exempting industries from their waste water disposal levy during the time they build their treatment plant, have resulted in water savings.

2.6.2 Procedure for obtaining a water use licence/authorisation

Water is a property of the state, and water rights can only be authorised after the River Basin Organisation (directly under the rule of the water authority) registers the water right application in the public registrar of water rights, namely, *Registro Público de Derechos de Agua* (REPDA) for a determined period of time. The water right can be revoked under special circumstances, such as lack of compliance with the Water Law regarding consumption, discharge and monitoring, non-payment for the water used, droughts, and aquifer overdraft.

Water concessions must indicate the amount of water authorised for extraction, the specific use for such water, the location of the point of extraction, and the term of the concession. A concession may be granted for a term of five to 30 years, and may be extended if a request for its extension is made at least six months before the expiration of the concession.

The application for water right must include the following, according the National Waters Act (DOF, 2014: art. 22):

- Name and address of the applicant.
- The catchment, aquifer, hydrological region, municipality and location where the application for a water right applies.
- The point of extraction of the water.
- The volume required on a yearly basis.
- Water use category.
- The location of the discharge and the conditions of quantity and quality.
- Description of the infrastructure to extract the water and to treat it before discharge, as well as the economic and environmental cost of the infrastructure, according to the General Law of ecological balance and protection of the environment.
- Duration of the water right demanded (no less than five years, no more than 30 years).
- The applicant must apply as well for a discharge licence, unless for agricultural use.

The following should also be annexed to the application:

- Proof of ownership or possession of the property where water will be extracted, together with a sketch of the localisation of the property and the points of extraction and discharge.

[9] Industry is charged the highest tariff, municipal water utilities an intermediate tariff, and irrigation, which was exempted until 2003, now is charged a very low tariff and only for the abstracted volume exceeding the user's entitlement.

- Evaluation of environmental impact – demonstrating no harm to the environment or to third persons – when requested by the water authority.
- The sketch of the water infrastructure (boreholes, pumps, canals, funnels, or other kinds) as well infrastructure for water treatment and discharge.
- Technical documentation supporting the volume of water required.
- A map indicating the location of the territory, with reference points that allow the localisation of it, the water extraction point, and the discharge point.

The water authority has 60 working days to answer the application. To award the water right, first, there must be a legislative decree of water availability for the basin published in the Official Journal of the Federation (DOF) based on a yearly average water availability study made by CONAGUA, and such a study should be revised every three years.

Water trading

If the legislative decree of water availability in a given basin reports deficit, the only way to get water access is through a transmission of water right from another user, with or without intermediation of Water Banks (CONAGUA, 2012). Water Banks have a list of water users willing to transmit their water rights to a waiting list of applicants in search for them, paying only an administrative fee to the water authority. However, due to corruption and a lack of oversight, a black market of water rights exists, where users sell and buy water rights for considerable sums of money.

2.6.3 Challenges in water use authorisation

Overallocation of water

The allocation of the next year's water is based on the previous year's rainfall. This may lead to overallocation of water.

Access to water

If the region where an interested applicant wishes to get a water right is characterised as a prohibition zone, meaning that the underlying aquifer is overexploited and cannot withstand more extractions, the only way to get a water right is via the transmission of water rights. Currently, more than 55% of the Mexican territory is under this regime (CONAGUA, 2014b).

If several applicants wish to be awarded more volume than the limited water available, the water authority can issue a tender. Alternatively, the water authority will work on the basis of first come, first served. If several applications occur at the same time, the water authority will choose the application that offers the best terms and conditions that guarantee the rational use, reuse and restoration of the water resource.

Renewal of licences

In order to renew the water right after the period of concession has concluded, the water user needs to file an application five to six months before the water right ends. If no application is filed six months before, the water authority will consider the water user to be renouncing their water right. However, a common complaint is that users only get a copy of the water title, not the original file, limiting the procedures a user can make (Aboites et al., 2008).

Registration of existing users

A new Water Law and regulations came into effect in December 1992 and January 1994, respectively, which provided for only a three-year period to register the estimated 300 000 existing users. This period was insufficient. As a result, in 1995, 1996, 2001 and 2002, the President issued decrees to extend the period and pardon the arrears of water charges owed by those who applied for water abstraction and waste water discharge permits. Water legislation provided for five- to 50-year permit duration. However, according to the 1996 decrees, all applicants were issued 10-year permits.[10]

As a result of the Presidential decrees, as well as media campaigns and meetings with water users, by mid-2000, most users (330 000) had been granted abstraction permits and these were recorded in the Water Rights Public Register. Ultimately, since some of the river basins and aquifers where applicants were granted permits without conducting water balances studies are water scarce, this was accepted as an ecological price that had to be paid to register all existing users to set the stage for sustainable water resources development and management. As a result, many river basins and aquifers were overallocated. Furthermore, numerous users declared that they were using greater volumes than the real volumes they were using to obtain legal permits for such amounts. Finally, due to the push for getting the process done, the Register is not regarded as being accurate. The problems caused by an accelerated formalisation process have remained.

Though Congress approved the law on National Waters in December 1992, it took until 2000 (eight years) to design the implementation tools and receive and register applications for water entitlements and for waste water discharge permits from existing users and waste water dischargers (Garduno, 2005), and the process has been fraught with difficulties.

2.6.4 CME challenges

The use of surface water exceeds the supply (river run-off) in all but the wettest years. The water scarcity gap between the available surface water and the demand for it is believed to be between 1.6 and 1.8 billion m^3 per year. As the groundwater aquifers are also overexploited, with about 1200–1300 million m^3 per year, this gap is an underestimation. The overexploitation is a rough estimation as there many illegal wells, and it is thought that even the legal wells extract more water than allowed. Consequently, water sometimes stops flowing in certain parts of the River Lerma (basin closure).

The main source of the water problem in the Lerma-Chapala Basin is the lack of control on the amount of water extracted. There is hardly any water metering in the basin. Inspections are carried out, but there are too few inspectors for the number of landowners in the region. In Guanajuato alone, there are over 25 000 little landowners. The government hoped to counter the problem by installing the COTAS with the intention of self-regulation. These water user associations did not get any actual legal power; hence they were powerless to make a difference. Any water restrictions are not followed by the farmers and any effect of more efficient irrigation techniques goes lost in expanding the irrigated area. When the government wants to decrease water use, farmers protest it.

Much of the official information on underground water availability still relies on studies done decades ago (CONAGUA, 2002). There is also a lack of monitoring for real abstraction of the amount stated in the water rights of the users, so much that real abstraction overshoots the amount registered in REPDA, constituting this mismatch as illegal abstractions, which are quite common in the country (Cartocrítica, 2014). Many sources can cite figures of abstraction with wildly different numbers, therefore creating a big uncertainty of where the water is really going, and how much water is really abstracted (Reis, 2014). Some high-level officials from CONAGUA have declared privately that the number of wells in Mexico City is double that than legally authorised, while in other parts of the country the ratio is even worse (Barkin, 2011). A similar situation is described in Aboites, et al. (2008). Only 33% of the members of an irrigation district in Guanajuato were registered as water users in REPDA. This is due to the lack of compliance to the Water Law.

Although users are obliged to use water meters, most agricultural users do not use them. Even though the industry is more regulated, there are few inspectors to monitor the activities of each economic unit. For example, in the Santiago River Basin, there are only two inspectors for an area with thousands of

[10] This was deemed to be a short enough duration for the government to be able to rectify a grant when users ask for permit renewal, but long enough to improve information on water availability (considering both quantity and quality) and on water uses to make a decision based on studies.

economic units, taking years, even decades to make a whole round of inspection to all economic units (McCuligh, n.d.). Even if some irregularities are found in a given economic unit, such as an overextraction of the current water right, the company can pay off a 'coyote' (black market of water rights broker with technical and legal expertise, as well as networking inside the water authority) to find a way to 'regularise' the water right. It is done by buying water rights from farmers who overestimated their own needs at the beginning of the Water Act of 1992, and have a water right with a larger volume than they use (Reis, 2014). After they have transmitted their water right, there is no real guarantee they are using less water, as they do not have water meters; therefore, the water use may have increased. This phenomenon of pervasive corruption in the water authority, which allows the existence of a black market of water rights, is described in detail by Reis (2014). As water has a high value in the black market (as much as €2 million for 1 million of m^3), even in the event of an improved water efficiency in the industry or agriculture, rarely any economic unit will prefer to leave water in the aquifer, but instead sell that surplus to another economic unit in need for water (ibid.).

2.6.5 Lessons for South Africa

- The turnaround time for water use applications is 60 working days. This is a tight turnaround time. Appropriate and differentiated turnaround times should be considered for South Africa.
- CME – there are few inspectors to monitor the activities of each economic unit, as an example, in the Santiago River Basin, there are only two inspectors for an area with thousands of economic units, taking years, even decades to make a whole round of inspection to all economic units.
- Black market of water rights because of corruption – there is pervasive corruption in the water authority that allows the existence of a black market of water rights as described in detail by Reis (2014).

2.7 Zimbabwe

2.7.1 Water use authorisation process and system

Water is a core development issue in Zimbabwe, which is a mostly semi-arid country with limited water resources. Zimbabwe faces a wide range of water challenges that can be exacerbated by climate change, from supply shortages to falling groundwater levels.[11]

Water use in Zimbabwe is determined through the Zimbabwe Water Act of 1998. While water allocation was the responsibility of the Water Court before the 1998 Water Act, this function was delegated to the catchment councils under the new Water Act (Manzungu & Machiridza, 2005). Thus, the Water Act of 1998 sets the parameters of access and use of water, and provides for the establishment of catchment and sub-catchment areas based on hydrological boundaries. These areas form the basis for water management in Zimbabwe (Mtisi, 2011). Thus, with the Water Act of 1998, the whole water sector was decentralised. The country was subdivided into seven river basins of approximately 80 000 km^2. Each of these basins was subdivided into five to six logical sub-basins (UNEP, 2014).

The Catchment (River Basin) Authority comprise the catchment council, which consists of direct water users, and an executive who is appointed and employed by the Zimbabwe National Water Authority (ZINWA) (UNEP, 2014). The Act stipulates that there must be equal representation of all water users in the area concerned when forming catchment councils. The new legislation is designed specifically to ensure that people in the communal and resettlement areas are involved in water management (UNEP, 2014).

According to the Water Act, the Minister of Rural Resources and Water Development has the authority (and obligation) to establish catchment councils in consultation with the newly established ZINWA.

[11] http://www.worldbank.org/en/news/feature/2015/02/19/addressing-climate-change-threats-zimbabwe-water-resources

Thus, authority was bestowed on seven catchment councils to set up the management of the use of water in the catchment areas under their jurisdiction. Catchment councils have several tasks: assisting in the preparation of outline plans; determining applications and granting permits for the use of water; regulating and supervising the use of water by permit holders; and ensuring compliance with the Water Act. The powers of the councils therefore include issuing water use permits for a given duration. Thus, in principle, the council has full autonomy in the allocation of water (UNEP, 2014).

Sub-catchment councils have the power to levy rates upon permit holders in the areas for which they are responsible; this enables them to cover their expenses. The sub-catchment councils oversee the monitoring and the day-to-day management of the water use. In some instances, the boundaries of the sub-catchment councils coincide with the former boundaries of the river boards, thus giving a sort of administrative continuity (UNEP, 2014).

Key tenets of the Act are as follows (Manzungu & Machiridza, 2005):

- The state owns all surface and underground water. Except for primary purposes (mainly for domestic uses such as drinking, cooking and washing), any use of water would need approval by the state.
- Water permits, which are valid for a limited time sufficient to earn back money invested to develop facilities, are issued instead of water rights in perpetuity.
- The priority date system was replaced with proportional water allocation.
- The polluter pays principle was evoked where people who cause pollution of water pay for expenses for removing the pollution.
- The environment is regarded as a legitimate user of water competing with other users such as industrial, agricultural, mining and domestic users.
- Water is managed by catchment areas, as rivers do not match political or administrative boundaries. All people with an interest in the use of water must be involved in making decisions about its use and management. Identified groups include representatives from communal, small-scale commercial and large farms and mines, as well as urban representatives from industry, manufacturing and municipalities. These replace the river boards (who used to supervise day-to-day management) and the advisory councils (who used to assist in water planning) and have the responsibility of granting water permits, a function previously carried out by the Administrative Court.
- Water is recognised as an economic good. People who use water must pay for it.
- ZINWA operates as a commercial enterprise. However, government ensures that the poor and disadvantaged continue to have fair access to water.

The introduction of water permits for raw water (and agreement water contracts, for agreement water, which are not legally tied to land) has provided a basis for broad-based access to water (Mtisi, 2011).

2.7.2 Procedure for obtaining a water use licence/authorisation

Access to water depends on the type of water an individual wants to obtain. For surface water and groundwater, a water user goes to the sub-catchment council. For agreement water, users go to ZINWA sub-office. This represents a significant achievement of the water reform as it untied land and water, and devolved the responsibility for water application from the Water Court in Harare to local sub-offices (Mtisi, 2011).

Although the division of institutional roles suggests that there is clarity, the reality is that the system is complex because there are parallel institutional processes at play within the water reform (Mtisi, 2011).

The process is roughly as follows:

- All applications for a permit to abstract water within the jurisdiction of the catchment council should be forwarded to the catchment council.

- The catchment council should assess and process the application within a month of its submission.
- An application form must be lodged in the prescribed manner.
- The catchment council must notify the applicant and any other persons whose interests are likely to be affected by the application, and a given period by which objection and comments may be lodged must be given.
- The applicant must be allowed time to make representations before the catchment council at a time and date set by the council.
- The records submitted for the application and other information for consideration by the catchment council must be kept in the custody of the catchment manager.
- The records must be open for inspection by any member of the public during normal office hours.
- The mining commissioner must transmit an application, which has been lodged with him with a report by a government mining engineer, to the appropriate catchment council.

The Minister – in consultation with the catchment council – must from time to time set the permit application processing fees to cover the pertinent costs.

2.7.3 Challenges in water use authorisation

Decentralisation and access to water

Some research indicates that decentralisation to catchment and sub-catchment levels has in some cases resulted in a concentration of influence to a few already powerful individuals (Kujinga & Manzungu, 2004 in Manzungu & Machiridza, 2005).

Primary water use

The concept of primary water use is generally accepted but the current Water Act does not specify the quantities, with the catchment councils setting the limits. There is a sense that the rights of communities can be infringed upon without clarity; therefore, there is a need to review and expand the definition of primary water use (Manzungu & Machiridza, 2005).

Costs associated with applying for a water permit

There are significant costs associated with applying for water permit. These costs include buying the application form and paying an application fee. Furthermore, completing a water permit application form demands a level of technical knowledge that in itself represents a cost. For instance, an applicant must indicate the amount of water they intend to abstract in megalitres per second. Since this is not considered common technical knowledge among communal and resettlement farmers, there is a cost associated with determining this information (Mtisi, 2011).

Multiple institutions

In some instances, water users are not aware which institution to consult regarding their water needs. Thus, the classification of water into raw water and agreement water, and the establishment of two distinct institutions for water management for these two types of water have created a complex institutional environment for accessing water (Mtisi, 2011).

2.7.4 CME challenges

In Zimbabwe, as an example, water users monitored water meters in a neighbouring area that was in the same part of the river basin (Jaspers 2001). Because of the interdependency of the users, this appeared to be a very effective instrument of monitoring. Through the mechanism of social control, enforcement took care of itself (UNEP, 2014).

Monitoring and investigating cases

Through an effective, accurate, and well-resourced monitoring and investigation system, catchment councils and ZINWA used to have capacity to detect any unauthorised use of water through physical analysis and inspections (Mtisi, 2008; ZINWA, 1998). Monitoring and investigation of non-compliance with water use is the primary responsibility of catchment councils while quality standards are the duty of officers and inspectors in the Pollution Control Unit in terms of the Water (Waste and Effluent Disposal) Regulations and the Environmental Management Act (EMA, 2008).

Monitoring and inspection of water use licences has been hampered by the economic problems facing the country. Thus, the CME units are facing critical financial and human resources problems. Many water quality experts and technicians have left Zimbabwe, and most water quality monitoring stations do not have modern laboratory equipment and continuously struggle with transport and fuel shortages. A combination of these factors has affected the ability of the CME unit to conduct quarterly water quality compliance inspections. Further, inspectors may find it difficult to monitor compliance at night as the Water Act and the Water (Waste and Effluent Disposal) Regulations only allow them to access disposal sites during normal working hours to do inspections and collect water samples.

Use of criminal sanctions

Criminal law is the most widely used method of enforcing environmental law, although its effectiveness is a subject of debate in many jurisdictions. Accordingly, the Water Act in section 68 and the Environmental Management Act in section 57 prohibit water pollution and make it an offence punishable by a fine or imprisonment. A spot fine can also be levied on a polluter in terms of Statutory Instrument 30 of 2005. For example, Mutare City Council was criminally charged and convicted of polluting Sakubva River and for failing to apply for an effluent discharge permit. Nonetheless, the major criticism against using criminal sanctions in promoting compliance with environmental law is the low penalties or monetary fines paid by those convicted of polluting water. The fines lost value and failed to keep up with the hyperinflation experienced by the country pre-2008. Since then, it became evident that setting rigid fines without periodic reviews is not the most effective way. Things have changed significantly with the introduction of a multicurrency regime, where such penalties became a deterrent again.

Despite the low monetary penalty, the judgment is theoretically significant as the court, in addition to the fine, may order the offending party to repair or pay for the damage by contributing to community initiatives for the affected areas. The other challenge is that some offenders fail to comply with the court order citing lack of financial resources. Another handicap for using criminal sanctions to enforce water use licence compliance and quality standards through the judicial process is the lack of appreciation and awareness of the elements of environmental crimes by magistrates, prosecutors, police officers, and even water quality inspectors. Additionally, while water use violation cases require expert evidence, enforcement has also been hampered by the long delays in the judicial process in Zimbabwe. Despite these challenges, it would seem the fear of prosecution is a considerably heavy deterrent helping to keep users compliant.

Use of civil remedies

Civil law remedies are an equally important method of compelling compliance with water legislation in Zimbabwe for those who suffer personal or economic harm by claiming compensation and applying for court orders compelling violators and polluters to stop polluting water sources, cease violating their water use licence requirements and/or to take other measures. Until recently, not many people relied on civil law remedies to enforce water quality legislation or environmental legislation. The major hindrance to access to justice for many communities is the aspect of legal standing *(locus standi)*. However, the Class Actions Act (Chapter 8:17) provides scope for public interest litigation, but the limitation is that before instituting legal action on behalf of others, a person is required to make an application to the High Court to have their legal standing tested and confirmed by the court before instituting the legal action. In the same vein, there are conceptual constitutional problems in enforcing water and environmental rights in Zimbabwe. Although the Environmental Management Act promotes environmental rights, these rights are not enforceable as they are just statements of intent.

2.7.5 Lessons for South Africa

- Zimbabwe's new Water Act was promulgated in 1998 – the same year that NWA was passed in South Africa. In Zimbabwe, seven catchment councils have been created that have addressed licence applications/permits for some time now, which has resulted in broader access to water. The fast-tracking of creating CMAs and delegating licencing to CMAs in South Africa – as envisioned in the NWA – should be prioritised.
- ZINWA is both a player and referee for all water behind dams (agreement water) and there are ongoing discussions to form an independent regulator.
- Despite resource capacity limitations (human and financial), water users monitored water meters in a neighbouring area that was in the same part of the river basin because of the interdependency of the users. This appeared to be a very effective instrument of monitoring through the mechanism of social control where enforcement largely took care of itself despite the existence of various instruments.

CHAPTER 3

3 ANALYSIS OF THE WATER USE AUTHORISATION STATUS QUO

3.1 Introduction and Background

The water use authorisation processes in South Africa have undergone a range of changes since the introduction of the NWA in 1998. While many improvements continue to be made with time, there are still some outstanding challenges. For instance:

- Pro-poor water authorisation is a critical issue that remains to be addressed sufficiently, but is aligned to national development goals. This could be possible through a system that is designed to support the equitable allocation/reallocation of water to poor and HDIs – especially emerging and resource-poor farmers (RPFs). Water use authorisation administered by CMAs therefore presents a significant opportunity to address this and many other challenges through the design of an improved system/framework.
- The lengthy turnaround times of the current water authorisation processes caused by inefficiency of certain aspects of the process.

The involvement of CMAs in water use authorisation offers the opportunity to address many of these issues by aligning and improving current processes. This project intends to propose improvement of existing water use application and authorisation processes for CMAs, with the aim of improving process efficiency for shorter turnaround times and improved pro-poor access to water. The report considers international practices and lessons for developing an improved framework for an integrated and more effective process for water allocation and the processing of water use applications for licences.

This report focuses on the role of CMAs (including proto CMA units in DWS regional/provincial offices) in improving processes regarding authorisation and licencing. The NWA provided for the progressive establishment of CMAs throughout South Africa. According to section 78 of the NWA, the aim of setting up CMAs was to delegate water resource management to the regional/catchment level and to involve local communities and water users within the framework of the NWRS. As a result, there are currently two CMAs in operation and seven proto CMAs. These water management areas (WMAs) are listed in the Table 4.

Table 4: List of WMA (CMAs and proto CMAs) in South Africa

Berg–Olifants
Breede–Gouritz
Inkomati–Usuthu
Limpopo
Mzimvubu–Tsitsikamma
Olifants
Orange
Pongola–Mzimkulu
Vaal

CMAs (including proto CMAs currently situated with in DWS regional offices) play a significant role in water use authorisation including WULA processing from engagement with potential water user pre-consultations, through information gathering, preliminary assessment among other related tasks such as CME of licencing conditions. In carrying out these WULA tasks, several challenges are experienced ranging from a lack of dedicated human capacity, lack of technical skills required for technical assessments among others.

3.2 Purpose of the Chapter

In this chapter, the water use authorisation processes are assessed to identify the challenges, understand the causes, and reflect on and make suggestions on possible opportunities for improvement of processes.

It documents the experiences by the CMAs and users regarding WULA processes, paying specific attention to system delays to understand their root cause and possible ways of addressing these. It is important to note that the findings in this chapter will form the basis for developing recommendations for more streamlined processes that address the challenges identified. Upon examining and developing a good understanding of process challenges around licencing as experienced by the CMAs, other departments such as the DMR, the DEA, and users of water in the various catchments and other stakeholders, the report will form the basis for developing a framework to help address the challenges by streamlining existing WULA processes. The aim is to improve process efficiency, envision shorter turnaround times and improve pro-poor access to water as an enabler for socio-economic development.

Ultimately, this chapter presents the current practices and framework for water use authorisation/ licencing in South Africa based on the information gathered from relevant stakeholders and literature reviews. By examining current practice for water use authorisation in South Africa, the findings will set the grounds for developing a more robust framework by borrowing from good practice knowledge in similar countries, towards integrated and more effective processes around water use authorisation.

The chapter places its focus on:

- Supporting CMAs to improve water use authorisations in general (not just WULAs), but specifically focusing on pro-poor systems and processes, thus ensuring that HDIs and RPFs are given sufficient preference and processes simplified and streamlined for this purpose.
- Doing CMEs of existing water use authorisations.
- Integrating authorisation processes between three government departments based on an agreement called the One Environmental System.

The chapter has been organised as follows: The presentation of the method that was followed while developing the status quo. The results from this review are presented in the sections that follow and are subdivided into two sub-sections. The first sub-section focuses on the water use authorisation framework and the second sub-section focuses on CME.

3.3 Methodology

This report is based on an approach involving the review of literature, and consultations with stakeholders including CMAs, DWS officials and users. Although much input was received, insufficient engagement with users and user groups has been achieved. More of these will be undertaken for the next deliverable.

The process lasted for just over three months ending July 2016. Information was gathered through consultations and review of literature from online sources such as the DWS websites, documents and information from meetings with as shared by the DWS, the CMAs and proto CMAs/regional officials and documents and information sourced from other stakeholders among them civil society and water users. Among documents received was the water use licence business process developed by the DWS.[12] Key experts on water allocation, poverty, gender and civil society were also consulted and their views concerning the process were duly considered. Water users and other stakeholders were also approached, and their inputs considered. Among users and stakeholders approached on water use licence issues was the Centre for Environmental Rights (CER).

[12] DWS Water Use Licencing Business Process, 12 March 2015, Presentation by Vernon Blair – WUL Directorate

This status quo report considers the information from these key sources to understand bottlenecks within the water use licence processes, and identify gaps and opportunities in the current system to provide the foundation for recommendations to be made for improved and more aligned processes for water use authorisation. The proposed framework, which is to be developed at a later stage, will aim to address these challenges identified.

3.4 Results and Discussion

3.4.1 Water use authorisation

This section examines the processes and practices around the authorisation of water for use in South Africa's diverse WMAs and catchments. South Africa is a water-scarce country and this scarcity is manifested by:

- A relatively narrow wet coastal strip widening to the east with short fast-flowing rivers with relatively little opportunity for impoundment. Contrary to this, much of the economic development occurs west of this historically where large mineral deposits occur, resulting in Gauteng being the main urban conglomerate.
- Frequent droughts (average once every five years) with periodic catastrophic level droughts.

Authorisation of water use is therefore a way of managing the use of water while protecting the water resources and the environment for the future.

In this section, the process of applying for any form of water authorisation from when a potential user expresses interest in using water to acquiring legal authorisation is examined.

In examining the process, we identify challenges facing water authorisation in various WMAs and catchments, CMAs, proto CMAs, and the country at large based on the processes and practices in place.

3.4.2 Authorisation categories

The NWA provides for four legal water use categories, namely:

- Schedule 1.
- General authorisation.
- Existing lawful use (ELU).
- Licenced water use.

Figure 2: Water use categories

These uses are discussed with the potential applicant during the pre-consultation phase with the CMA/ proto CMA officials. Except for Schedule 1 use, there is a requirement for the registration of all section 21 (a) “taking” water from both ground and surface water. The registration is to be done by the relevant department/authority, whether a CMA, proto CMA (regional office) or the DWS itself. The four water use categories are briefly discussed below.

Schedule 1 use

Under the NWA, this category allows anyone to take small amounts of water from the water resource without requiring a licence. Uses such as household washing, cooking or drinking, watering small food gardens, and tending domestic animals that are not commercial are permissible under this category. For all such uses, the user is not required to register or have a licence.

General use authorisation

A general authorisation allows the use of larger volumes of water over and above Schedule 1 use. The use of water under a general authorisation does not require licencing, but the general authorisation volumes vary from one area to another based on the availability of water in the catchment. It is promulgated by Government Gazette from time to time. It is a requirement that all general authorisation use be registered with the relevant authority (CMA/proto CMA). Users/applicants may get such information from the CMAs, proto CMA or regional offices during pre-consultation, or from the Government Gazette.

ELU

ELU allows for the continuation of water use that was legally recognised before the NWA came into effect, which includes permits issued in terms of the 1956 (old Water Act) as well as uses that did not require permits in terms of the old 1956 Water Act, such an irrigation and forestry. These users need not apply for a licence, but are required to have registered their use by the year 2000, two years after the NWA of 1998 came into effect.

All non-permitted (in terms of the old Act) uses (particularly irrigation and forestry – defined as a stream flow reduction activity) must be is verified through a process commonly referred to as validation and verification (V&V). Validation is the initial process to determine the ELU. Verification is the consultative process with users to confirm the use. The DWS has set a target date for all verification to be completed by March 2017 and CMAs are currently ELUs – <u>a verified ELU letter carries equal legal status to a licence</u>.

If any catchment has a deficit, compulsory licencing may be applied after completing verification whereby all users and/or uses may be restricted to achieve a balance, or reallocate water for other uses/users. During the compulsory licencing process, users with verified ELUs may be required to apply for new licences.

Licenced water use

A licence is a requirement for any water use activity that exceeds the general authorisation. Once a licence application has been logged successfully, the DWS has set a time frame of 300 days for the licence to be approved and issued. However, this is the maximum for complex integrated licences, where simpler licences should take much less time. Previously, some WULAs took years to finalise, which led to a large backlog. Project Letsema was initiated by the DWS to address this backlog.

A licence is issued with specific conditions and a time frame, which may vary between five and 40 years. Some generic conditions accompany the licence together with specific conditions that are usually guided by the record of recommendations (RoR) document, arising from the technical assessment of the WULA.

Without a water use authorisation as defined in the four options above, it is illegal to carry out any water use activity.

The sections that follow examine the process of applying for a licence to use water in South Africa; otherwise known as the WULA process. The focus is on the role of CMAs and proto CMAs and how these WULA processes can be improved. Figure 3 is a generic flow diagram of the broad steps expected from the WULA process.

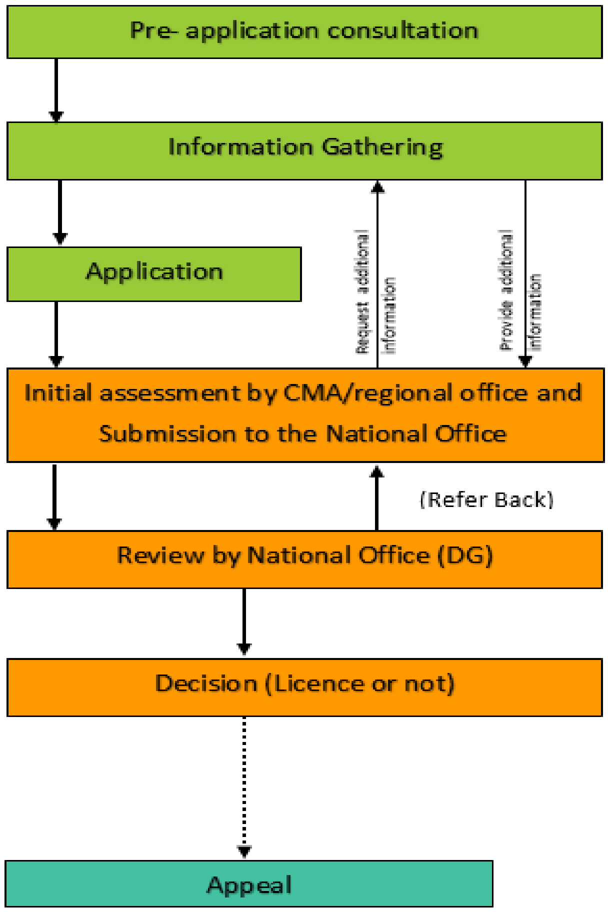


Figure 3: Flow diagram of water use authorisation

3.4.3 WULA process

The business process map developed by DWS outlines the generic process and highlights the role players at different stages within the process. The DWS water use licence business process diagram is attached in Annexure 2.

The entire process of WULA may be broken down into the following four phases:

- Phase I : Pre-application consultation or needs assessment.
- Phase II : Application and information gathering should a water use licence be required.
- Phase III : Legal and technical assessment, evaluation and input.
- Phase IV : Assessment review, recommendation and decision, and appeal (if required).

Each are discussed in the sections that follow and the discussions incorporate the findings from consultations with users, service providers and literature review.

Phase I: Pre-application consultation or needs assessment

The WULA process is triggered by an applicant intending to use water for the first time, or expand their existing use approaches the CMA. The applicant is expected to visit the relevant office (CMA, proto CMA, or regional office of DWS) for assistance and/or guidance.

A relevant licencing official will advise the applicant whether a licence is required. It is a requirement for the CMAs and proto CMAs to receive and attend to applicants, and they are expected to have the relevant knowledge on water use to engage with and adequately advise the potential applicants.

This official pre-assesses the information provided by the applicant and (may request technical input from technical and legal advisors)[13] to determine the water use category based on the water requirement (quantity), availability of water in the specific area/catchment, and initial assessment of risk of activities. Once it has been established that a licence is not required (Schedule 1, ELU or general authorisation), the applicant's use is registered, and the applicant is advised to start using the water as either a Schedule 1 or a general authorisation.

Experiences

In a bid to understand the challenges regarding pro-poor water allocation and access, the consultations tried to determine whether there were any measures in place to promote community awareness of the WULA processes, and especially if poor rural communities were made aware of the various water use authorisation types and applications (Schedule 1 and general authorisations). The consultations also sought to find out whether there were any community-based programs to assist rural people in application processes – especially those that were situated far from the CMA offices as this could mean exorbitant transport costs for the poor. These were sighted as some hindrances on the opportunities of the rural poor using water productively.

The following were the observations/findings on the process:

- The process outlined requires that the applicant trigger the process of application by approaching the relevant office for advice, which implies that the potential user must be aware of this process. In some areas there is not sufficient awareness activity on water use that targets the rural poor communities (HDIs and RPFs), which increases the risk of illegal water use activities.
- Furthermore, since all potential applicants/users are expected to visit the CMAs for consultations, there may be a significant transport cost implication. This raises concerns of affordability for the rural poor, which is likely to discourage potential water users from starting productive water uses to improve their livelihoods.
- All CMAs have catchment forums that should meet quarterly. These forums should be used, among others, to address communities and water users on issues within the catchment. In the Limpopo and Inkomati–Usuthu WMA areas, while all applicants are encouraged to visit the relevant licencing offices for consultations, the catchment forums could be better used to inform and engage potential water users. The forums are used to share relevant information on the catchment including water use. During forum meetings, communities are encouraged to report any suspected cases of illegal water use in the catchment, which are then lodged with the CME office for follow-up. It is during these engagements that communities and users can learn about the catchment and opportunities for water use, and interested members are then encouraged to visit the office for application to proceed.

It remains to be seen whether there will be any field/community-based application processes for remote rural communities encouraged/practised by the licencing offices through, for example, their field extension officers.

[13] DWAF. (2007) Generic Water Use Authorisation Application Process: Internal Guideline, August 2007.

In the Limpopo proto CMA, the communications unit occasionally circulates promotional material in communities especially prior to a significant event for the catchment. It was unclear whether information on general authorisations or water licencing was, however, included in this. This could be a significant missed opportunity to promote awareness on water use licence and general authorisations among communities and potential water users. In another catchment, however, there was a sense that the CMA communications unit was not as active in promoting any useful material to communities regarding water licencing, but were engaged in other community engagements.

Opportunity

Field extension officers from the different government departments such Department of Agriculture, Fishery and Forestry (DAFF), DEA and DWS can circulate application information and forms to interested rural communities to assist with the application processes, thereby reducing the burden of transportation costs as they can acquire the necessary documents and offer pre-application consultation without having them to visit the CMA /proto CMA office.

Phase II: Application and information gathering

Once a WULA official has determined that a licence is required, the applicant is advised to prepare for application, and is informed of the requirements necessary to lodge a licence application. The applicant proceeds to gather and submit the information requested. The WULA official assesses the completeness of the information and informs the applicant of any missing pieces. Once these have been provided, the WULA is successfully logged. This and other phase processes are clearly marked out in the water use licence business process map developed by the DWS (Annexure 2).

Experiences

Most CMAs implement the water use licence business process as developed by the DWS, with some making improvements relevant to their areas to meet their users' needs. In 2007, the DWS published guidelines for the generic water use authorisation processes (DWAF, 2007). In addition, the department has recently developed a business process map[14] for water use authorisations, which the CMAs and proto CMA have adopted. An example has been made here of the steps developed in the WULA business process for one of the proto CMAs (see Annexure 1 for details).

Step 1: Pre-WULA Log

- The new application is received and registered by the CMA (or relevant office).
- A tracking number is assigned to the WULA.

Step 2: Assignment of the WULA

- The WULA is handed over to relevant official/assessor for pre-screening.

Step 3: Administrative and technical screening

- The WULA is assessed to determine completeness of information.

For incomplete information, a letter is drafted to notify the applicant of the missing information, which should be responded to in 30 days.

If information is complete, however, an acknowledgement letter is written to inform the applicant that the WULA is complete and has been successfully logged for assessment.

[14] DWS Water Use Authorisation Business Process Map

Application fees

Once all requirements are in order, the applicant pays an application fee, upon which the application is logged. The licence application fee has been maintained at R114 (R100 plus 14% VAT) since 2007.

While licence application fees have not increased since 2007, perceptions vary on the adequacy of the fees. In one of the catchments, the fees had been found inadequate by the CMA and had been revised on the basis that the fee was inadequate for the work that goes into the licence application process itself. They also argued that the fees had never been revised since they were set years ago. Given the different categories of users, varying from smaller users to much larger users such as mines, there was a sense that fees needed to be revised and varied according to user applicant's category in terms of extent of work that goes into the WULA process.

In one of the CMAs, the fees were revised at the catchment level and currently, to as high as R22 000 depending on the level of work required for the application process. These revised fees had been published through a local newspaper and are currently the fees being charged for licence applications. There was, however, also a sense from others that the fees were adequate and were simply as an administrative means of aiding the application process.

Opportunity

A view clearly expressed was the need to revise and standardise a fee structure for uniformity across all WMAs, while allowing various CMAs to set fees based on the agreed structure.

Phase III: Legal and technical assessment

Once the complete information has been availed, the WULA is technically and legally assessed. Steps 4 to 6 outlined below are drawn from the WULA processing route.

Step 4: Technical assessment

- The WULA is legally assessed and the CME is informed of the legal standing (lawful or unlawful) of the proposed water use. If the activity is illegal, a letter (30-day notice) is drafted to inform the applicant. If necessary, a site visit is arranged to ascertain the use.
- At this stage, specialists are consulted on the application information where required. The determination of the reserve is requested.
- Written inputs from section managers are obtained.
- An RoR is drafted along with the Decision Document for signature.
- A presentation is made to the Licence Application Advisory Committee (LAAC).

Step 5: Quality check

- Quality review and amendment of RoR by the supervisor/technical head.
- Specialist comments are incorporated correctly.
- The reserve is incorporated – correct template is followed.

Step 6: Regional sub-water user authorisation assessment advisory committee (WUAAAC)

- Regional WUAAAC gives a recommendation.
- Amendments/quality review of RoR and licence are completed.
- Proto CMA/CMA manager and WUAAAC chairperson approves, then submitted to Director: Regulation to sign.
- If decision at this stage is NO, then WULA reverts to Step 4 on technical assessment.
- If decision is YES, then WULA proceeds to Step 7, which is the recommendation by the regional WUAAAC. Figure 2 outlines the steps that follow thereafter until step 10 where the decision is communicated to the applicant.

Phase IV: Assessment review, recommendation and decision

This is the final phase of the WULA process leading to the decision on whether to award or deny the applicant the licence. The process can be outlined as follows, but may vary among the different areas of application (CMAs, proto CMA, or regional offices):

- Once the CMA/proto CMA manager has reviewed and endorsed the RoR, it is submitted to the chairperson of the provincial/regional WUAAAC to sign off.
- The RoR, both hard and electronic copies, are sent to the sector leader for quality checking, and the RoR is registered on the National WUAAAC (NWUAAAC) list prior to a case officer presenting the case to the NWUAAAC.
- If a decision is changed at the NWUAAAC, clarity will be requested from the regional/CMA/ proto CMA office responsible.

The NWUAAAC also performs a quality check of the licence application and the RoR.

- **Director General's decision:** A decision is made by the Director General based on the RoR to either approve or deny the licence application.
- **Water Allocation and Resource Management System (WARMS) system registration**: Once the licence application has been approved, its particulars are loaded onto the WARMS database by the technical officer at the CMA/proto CMA.
- **SAP system registration:** The approved licence is also recorded to the SAP system for billing water used by the applicant.
- A **registration certificate** for the licence is issued to the applicant/new user.
- The application is issued along with a set of licencing conditions, which guide the lawful use under the licence.

Experiences

Approval: There many comments that the processes involved too many parties having to endorse/sign at several steps, which contributed to the delays in processing licences.

Licence conditions: Many comments indicated that often licence conditions are:

- Critical specific conditions (e.g. volumes, quality, reporting) left out, or stated incorrectly to the extent that these cannot be followed.
- Incorrect conditions drafted or applied (e.g. groundwater conditions used for surface water taking).
- Too generic or long – often copied from general conditions guidelines without considering applicability.
- This links to the capacity issues and constraints raised earlier.

WARMS: There was a sense that the WARMS system was inaccurate in terms of data captured, and that it was an outdated system that needed an upgrade. The process of verification currently underway was contributing much to rectifying the inaccurate information captured on the system. This system is critical in ensuring proper water use and authorisation.

e-WULAAS: This is an online system developed by the DWS to ease capturing and processing of licencing data online. The department has finalised the e-WULAAS system and was training CMAs staff. Comments were made that during the development of the e-WULAAS system, CMAs and proto CMAs had only been marginally involved.

General authorisations: There were reports that some licencing officials/offices were asking applicants to apply for general authorisations, this being attributed to either the lack of proper understanding of licencing, but also to the concern of overuse of water in some catchments beyond sustainable levels. Such issues need to be addressed to determine appropriate general authorisations.

Human resource and technical capacity challenge: Consultations identified that the offices handling water use authorisation at the CMAs often lacked sufficient and/or dedicated and/or technically capacitated staff to address certain complex WULAs. This is a critical challenge for efficiency and quality of the WULA processing.

CMA delegations*:* With effect from 10 June 2016, sub-delegations to CMAs and proto CMAs were promulgated. Prior to this, CMAs/proto CMAs processed licence applications, and then forwarded them to the DWS Head Office for approval.

Application backlog: Notably, there had been a directive from the department for all backlog WULAs to be addressed by March 2016. The Inkomati–uSuthu Catchment Management Agency (IUCMA) and Olifants WUAAAC had accumulated about 300 applications in backlog, but they were almost completed at the time of the consultations.

V&V: The target for completion of verification has been set for March 2017. Completing the process of verification will enable reallocation of water to address equity issues. At the time of completing these consultations, the IUCMA reported that they had completed verification (V&V) in their WMA.

Mining licences: The DWS could not object to mining licences being issued regardless of their impact or use non-compliance because there is no legal framework to support such objection.

Intent for integration among government department authorisation processes: An agreement between the ministers of DWS, DEA and DMR sets the basis for improved integration and alignment among the three departments for the various required authorisations entitled One Environmental System. This entails that all environment related aspects will be regulated through the National Environmental Management Act (No. 107 of 1998) and that all environmental provisions will be repealed from the Mineral and Petroleum Resources Development Act (No. 28 of 2002). It further states that the Minister responsible for environmental affairs will set the regulatory framework and norms and standards, and that the Minister responsible for mineral resources will implement the provisions of the National Environmental Management Act (No. 107 of 1998) and the subordinate legislation as far as it relates to prospecting, exploration, mining or operations. The agreement states that the Minister responsible for mineral resources will issue environmental authorisations in terms of the National Environmental Management Act (No. 107 of 1998) for prospecting, exploration, mining or operations. The Minister responsible for environmental affairs will be the appeal authority for these authorisations.

Finally, the three ministers also agreed to align the time frames and processes for their authorisation processes. The DMR and DEA refer their applicants to the DWS relevant offices (CMAs) to apply for water use licencing.

3.5 CME

South Africa is faced with increasing water scarcity. Water is required for all life and development and is therefore either a catalyst or inhibitor of a developing economy. In addition, there is a need to address past imbalances, the impacts of climate change causing increased resource variability, as well as increasing environmental pressures, which all create a situation of uncertainty that requires the appropriate governance responses. There has been considerable attention on the various institutional aspects of the water resource management governance framework, and the work being done on the water use licencing framework. However, there is a very serious need to focus attention upon compliance with the law as a key element of this governance framework.

This requires elevating compliance as a priority where recognition of improving compliance as a key element of the "rule of law" is clearly gaining momentum. It is essential to establish a consolidated and coordinated approach by combining the efforts of various government departments and other key institutions in advancing the rule of law and good governance, through increased focus on compliance and enforcement. The next step entails strengthening the foundations of compliance where effective policies, including those relating to compliance, must be based on understanding the reasons for non-compliance, the various water resource circumstances as well as the needs of the various water users.

Policymakers must understand various water users and how to change behaviour to enhance compliance and provide a guidance to strengthen approaches, especially regarding the role of civil society. To enhance compliance, there is a need to empower citizens to participate in governance. Although the institutional framework provides the basis for such participation, without structured activities and forums, the ability of civil society to engage on matters of compliance is eroded. This requires capacity building initiatives that will be driven through the various institutions such as CMAs.

Given the foregoing, it is important to note that the DWS adopted the Compliance Monitoring Strategy in February 2015 to improve the CME. Moreover, the 2014/2015 financial year marked the first year for the DWS to publish a report on CME. The intention of the report is to reflect annually on the compliance and enforcement activities over the period of a financial year. Previously this information was reflected in limited detail in the annual report of the department.

3.5.1 The complexity and objectives of CME

The DWS, in its NWRS2, recognises CME as a priority focus area for 2013–2018 setting the framework within which the country's water resources will be managed. As CME functions are devolving to catchment level, in future, reporting on CME will include the actions and activities of CMAs with regulatory oversight from the department (DWS, 2014). However, the CME needs to consider the following key issues:

- National Water Amendment Act, 2014.
- Regulations regarding the procedural requirements for water use licences.
- Water use licencing business process.
- The envisaged e-WULAAS.

Through the Compliance Monitoring sub-programme, the DWS (2014/5) developed new and reviewed existing regulations, including:

- Regulations for irrigation metering (the draft regulations were published in December 2014 for public comment). This will enable the metering and measuring of the users' irrigation water).
- Regulations for genus exchange (to be published for public comment in October 2015). The aim of the regulations is to enable genus exchange without the need for a new water use licence – previously not possible under the conditions of old permits).
- The declaration of unconventional gas exploration and production as a controlled activity notice of intent was published in 2013. This will require activities involving hydraulic fracturing, underground coal gasification to comply with Chapter 4 of the NWA requiring water use authorisations.

This clearly points towards the realisation that CME is inherently complex and requires requisite instruments and special skills for effective monitoring and enforcement. This provides clarity for the objectives of CME, which include the following:

- Monitoring and reporting (including as set in licence conditions).
- Promote compliance.
- Guide regular, strategic, effective and efficient monitoring of compliance with all DWS legislation.
- Provide prompt and effective enforcement action in the event of a suspected contravention of DWS legislation, including criminal prosecution.
- Inform all stakeholders of the principles that will guide enforcement action in the event of suspected contraventions of DWS legislation.
- Achieve progressive improvement of compliance with DWS legislation.

Henceforth, this chapter will focus on the respective CME measures and steps as stipulated in the applicable sections of the NWA and attendant regulations. That will be followed by an analysis of what is happening in practice as observed from literature review and consultations with key actors including the DWS, DEA, DMR, CMAs (including proto CMAs in DWS regional offices), and civil society. The analysis serves to provide an understanding of the challenges and inflection points within the CME sector and how that can be improved.

3.5.2 Compliance monitoring

Compliance monitoring comprises a range of activities including inspections, self-monitoring by institutions such as DWS, CMAs, proto CMAs and regional offices, monitoring of the media, taking samples and reviewing complaints. These provide a basis for identifying and documenting non-compliance followed by a basis for enforcement actions where needed, and thereafter, for monitoring and evaluating actions taken (redress). While the DWS would like to establish a more regular regime of compliance monitoring than what is routine in nature, the limited resources and skills available both at national and regional levels mean that there will be a more targeted and strategic focus until relevant capacities have been developed. Although these may vary from WMA to WMA, the national priorities for compliance monitoring largely include:

- Mining water use.
- Waste water treatment works.
- Agricultural water use.

The compliance monitoring units monitor compliance to standards, conditions of authorisations and regulations across the full water value chain in a way that triggers appropriate enforcement or other regulatory enhancing action.

- Develop national systems, strategies, procedures and protocols required to enable effective compliance monitoring.
- Develop and maintain the national compliance information management system.
- Provide training and support to officials in DWS and its institutions to effectively carry out their compliance monitoring responsibilities.

- Coordinate planning and reporting of compliance monitoring in the Annual Performance Plan and Outcome 10 for DWS and its institutions.
- Compile the annual compliance monitoring report.
- Coordinate compliance promotion activities.
- Develop appropriate training material for compliance inspectors.

Figure 4: Responsibilities of the DWS head office chief directorate compliance monitoring

Table 5: Compliance of users monitored by compliance monitoring in 2014/15 (DWS, 2014)

Institution	No. of facilities inspected	No. of non-compliant	Enforcement action required
Mining	113	39	39 enforcement action required
Industry	22	–	
Agriculture	44	–	17 pre-directives recommended
Stream flow reduction activity	23	–	–
Public institutions	54	–	–

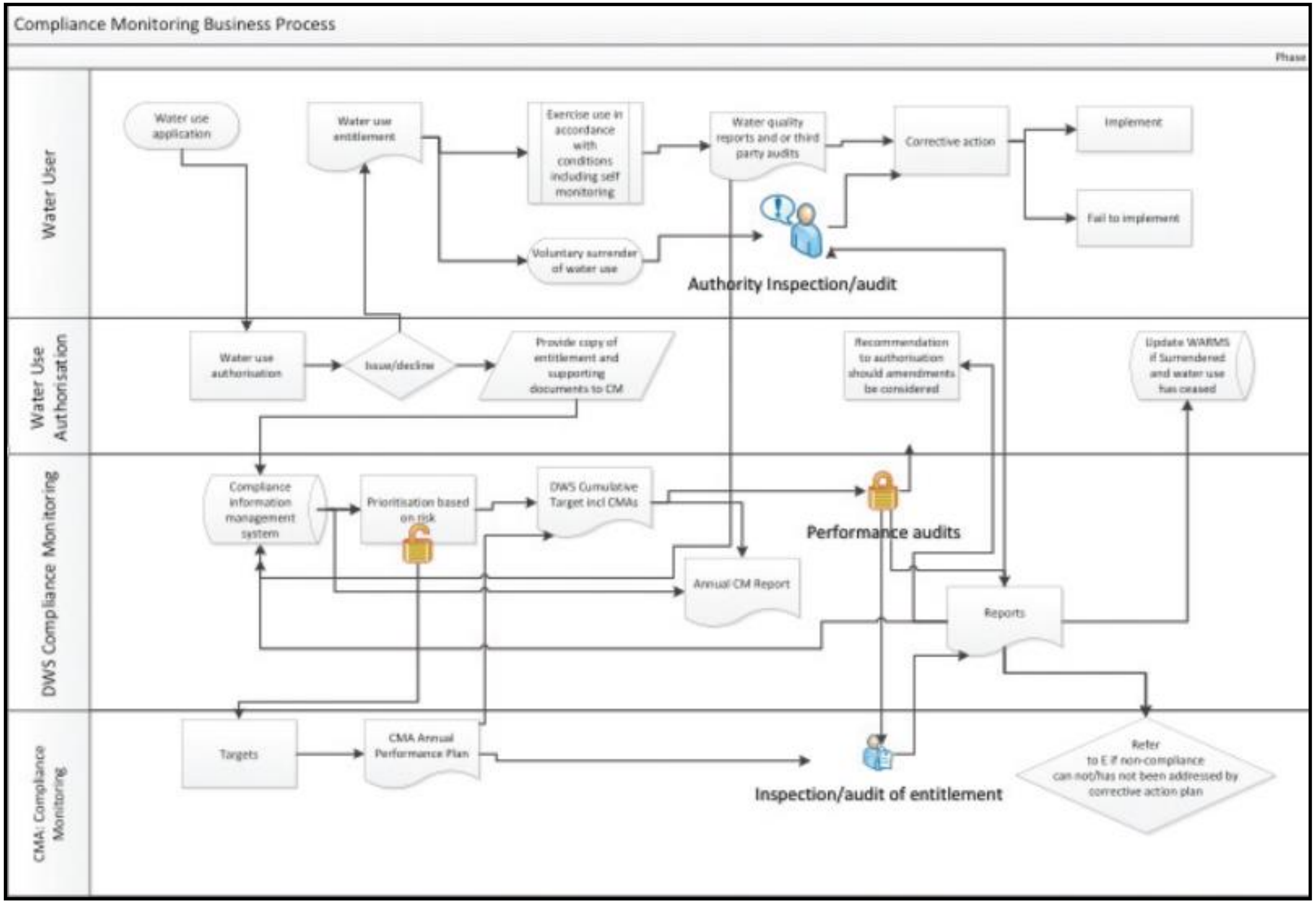


Figure 5: Business flow for compliance monitoring (DWS, 2014)

Table 6 : Most prevalent crimes reported by DEA (NECER, 2012:12)

PROVINCE	INSTITUTION	PREVALENT CRIMES (NUMBER OF INCIDENTS REPORTED)
National Institutions	SANPARKS	NEM: Protected Area Act (Illegal hunting of rhino in a national park) (**286**)
	Environmental Quality and Protection	NEMWA (Unlawful disposal of waste) (**59**)
Western Cape	Department of Environmental Affairs and Development Planning	NEMA (Unlawful commencement of listed activities) (**196**)
	CapeNature	G.N. R1111 of 1998 (Driving in the coastal zone without a permit) (**53**)
Kwa-Zulu Natal	Department of Agriculture & Environmental Affairs	NEMA (Unlawful commencement of listed activities) (**100**)
	Ezemvelo KZN Wildlife	Ordinance 15,1974 Parks (Permit contravention / No permit) (**426**)
	Isimangaliso Wetland Authority	NEM: PAA Section 50(5)& Regulations Section 4(1)(g) (Illegal development) (**7**)
Gauteng	Department of Agriculture and Rural Development	ECA (Unlawful commencement of listed activity) (**92**)
Limpopo	Department of Economic Development, Environment and Tourism	LEMA (Illegal cutting and collection of wood) (**701**)
Eastern Cape	Department of Economic Development and Environment Affairs	NEMA (Unlawful commencement of listed activity) (**191**)
	Eastern Cape Parks and Tourism Agency	NEM PA Act and ECPTA Act (Illegal hunting inside protected area) (**7**)
Free State	Department of Economic Development, Tourism and Environmental Affairs	Ordinances No.8 of 1969 (Illegal hunting and possession of wild animals) (**9**)
Mpumalanga	Department of Economic Development, Environment and Tourism	NEMA (Illegal commencement of listed activities) (**23**)
	Mpumalanga Tourism and Parks Agency	NEM:PAA Act 10/98 sec 5 (Rhino poaching) (**28**)
Northern Cape	Department of Environment Affairs and Nature Conservation	NEMA 24F (Illegal commencement of listed activity) (**24**)
North West	Department of Economic Development, Environment, Conservation, and Tourism	Ordinance 12 of 1983, (Illegal hunting and netting) (**31**)

3.5.3 Sub-programme enforcement

The enforcement unit ensures that a set of actions (administrative, criminal and civil) are taken against non-compliance (DWS, 2015). The unit provides strategic guidance in achieving a compliant society. This is done through investigations and proactive awareness to prevent transgression and rectify the contraventions in terms of the NWA (ibid).

The purpose of the Chief Directorate: Enforcement includes:

- Enforcing compliance with water related legislation.
- Working with other law enforcement agencies to develop appropriate enforcement tools to ensure compliance with applicable legislation.
- Ensuring successful prosecution of transgressors.
- Benchmarking best practices internationally.
- Documenting lessons learnt on case law.

The purpose of enforcement is to ensure that preventative or remedial action is taken to protect the environment or to secure compliance with a regulatory system (DWS, 2013). Enforcement is structured around a key set of principles including: proportionality; consistency; transparency; and targeting.

Enforcement mechanisms include:

- **Informal measures** – refers to measures either not specifically prescribed by the legislation, or the use of alternative measures that do not have enforcement as their primary objective.
- **Administrative measures** – typical administrative enforcement measures include the issuing of directives, notices or orders.
- **Criminal cases** – the criminalisation of certain acts of non-compliance allows for prosecution as an enforcement tool.
- **Civil cases** – these tools are only available in limited circumstances, but may be appropriate in some urgent matters.

It is important to note that when the business flow diagram in Figure 6 was developed, it was meant to work in conjunction with the delegations that were gazetted to the CMAs. However, with the withdrawal of the WULA processing delegations in 2015, it is not clear yet what functions the CMAs can meaningfully perform in this regard. Besides, the capacities and staffing issues within both the DWS, CMAs and sector departments are still not desirable.

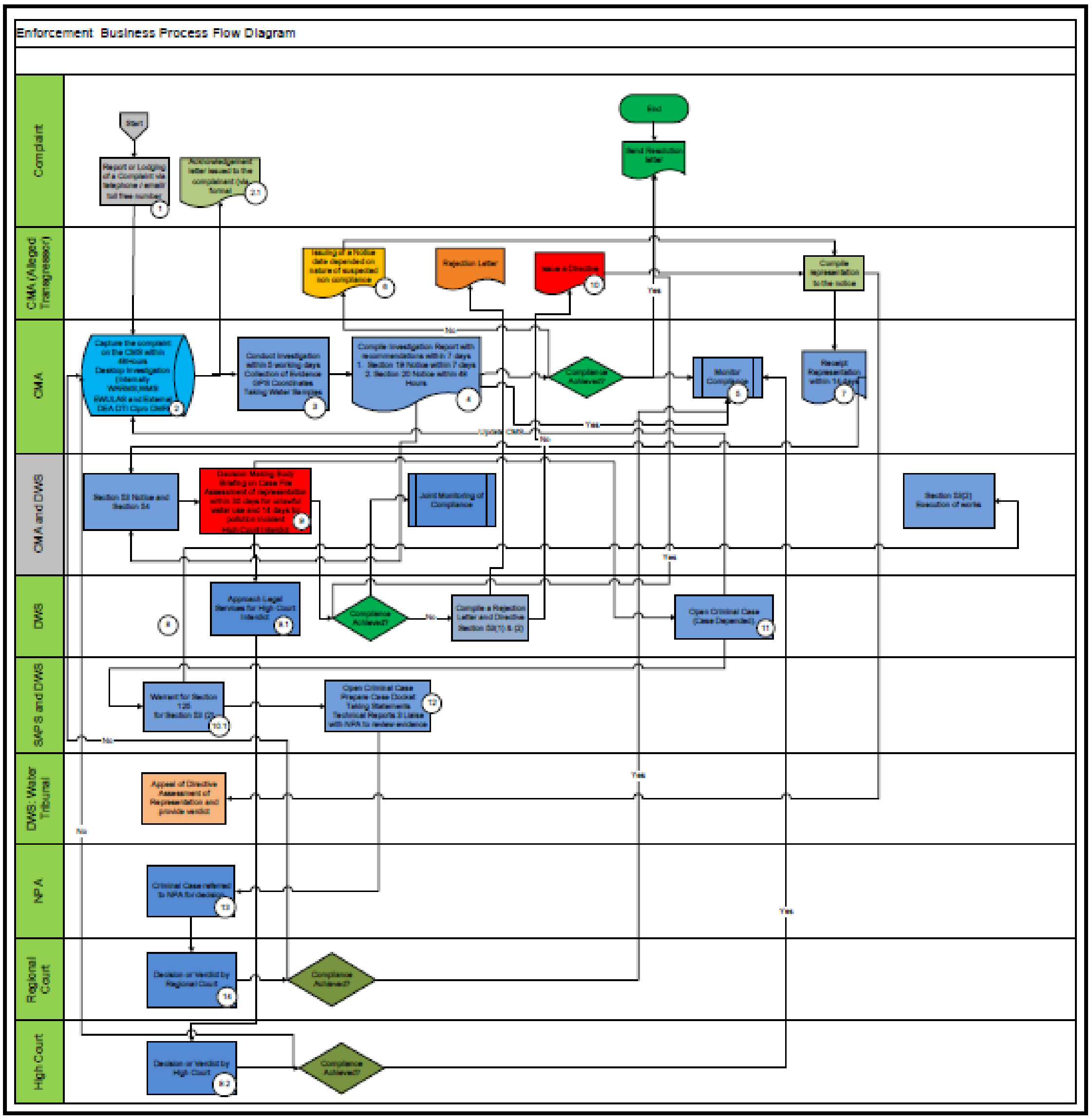


Figure 6: Enforcement business process flow diagram (DWS, 2014)

Table 7: Enforcement actions recorded 2014/2015 (Source: DWS, 2014)

Performance Programme Indicator No	Performance Indicator	Planned Target 2014/2015	Actual Achievement 2014/2015	Deviation from Planned Target to Actual Achievement for 2014/2015	Comment on Deviations
61	Percentage of reported noncompliant cases investigated	100%	266 cases were investigated: 99% achieved	Variation caused by cases being reported at the end of Financial Year 2014/2015 and were investigated at the beginning of Financial Year 2015/2016 –under by 1%	The remaining cases are still under investigation and have not been finalised yet

3.5.4 CME challenges

Broadly, there remains a challenge in enforcing compliance of local government, which must comply with Chapter 3 of the Constitution in general and the Intergovernmental Relations Framework Act 13 of 2005 in particular. This challenge constrains expedient enforcement actions that the enforcement unit can take to attain speedy compliance since the departments must also adhere to section 154 of the Constitution (DWS, 2014: 18). An example is the Ngaka Modiri Molema District Municipality, which falls within both the Limpopo and Vaal WMA and, on which section 139(1)(b) of the Constitution has been invoked by the North West Province. Consequent to that, the Minister of the Department Water Affairs (DWA) issued a directive in terms of section 41(1)(ii) of the Water Services Act to Sedibeng Water to assist the municipality to attain compliance with their waste water treatment works (ibid). The enforcement unit had issued a pre-directive to the municipality but had to suspend it for the duration of the constitutional intervention. The department has drafted an enforcement protocol (intergovernmental enforcement framework) to ensure that local government achieves compliance (ibid). The ensuing sections provide the key challenges within the CME sector historically and progressively through the years as reported by the respective departments as well as studies by researchers and civil society organisations. Generally, it would seem the key focus areas for CME remains the large mining and agricultural sector users.

CME often suffers from a lack of political and institutional priority given to it and is further limited in terms of criminal prosecution to punish and disincentivise non-compliance. It can be strengthened through greater resourcing of the so-called Blue Scorpions and the incorporation of administrative penalties for non-compliance (CER, 2011).

There is limited information publicly available about the compliance and enforcement capacity and results within the DWS and CMAs. The most regular information is obtained through questions posed to the Minister of DWA or the DWS in Parliament (ibid: 10).

Capacity and staffing issues – Too few “Blue Scorpions” (CER, 2011:10)

In August 2011, the minister (DWA) reported to Parliament that there were 29 posts in the CME unit within the DWA’s head office of which eight were vacant at the time. According to the Minister, only the Mpumalanga regional office has a fully functional CME unit with eight posts. “All other regional offices utilise staff from various components to carry out CM AND E related activities.” In January 2012, DWA reported to a multi-stakeholder forum that there were only 14 officials in the unit.

In contrast, as at March 2011, the Environmental Management Inspectorate had approximately 183 inspectors in national and provincial government responsible for CME of NEMA, the National Environmental Management: Waste Act, 2008 and the National Environmental Management: Air Quality Act, 2004.

In September 2010, the most senior dedicated position in CME in DWA was a director, followed by two deputy directors (one in the Western Cape, and one in DWA head office). Although DWA has indicated plans to elevate the relevant Chief Directorate (which includes the CME unit) to a branch headed by a Deputy Director General, it is not clear when this would take place, and whether funding had been secured for this purpose.

In January 2012, the Minister reported to Parliament the existing number of cases under investigation by the Blue Scorpions and also reported the enforcement results to Parliament for the period 1 April 2011 to January 2012 (CER, 2011:12; see also DWS, 2014). Researchers at the CER further observed that although these figures are difficult to verify, anecdotal evidence available to civil society suggests that non-compliance is significantly more far-reaching than is represented in the cases presented by the Minister (see Table 8). However, it can also be argued that if these figures are correct, and ignoring for the moment the complete lack of criminal prosecution in the DWS results, they are achieving a great deal. This is especially so considering that there were only somewhere between 14 and 21 Blue

Scorpions undertaking all this enforcement action for the entire country (DWA; 2010; CER, 2011; CER, 2013; DWS, 2014). Table 8 provides the number of cases investigated and the results.

Table 8: Number of existing cases under investigation and enforcement results by Blue Scorpions and environmental management inspectors (EMIs)

Number of existing cases under investigation by the Blue Scorpions (as of January 2012)	Enforcement results for the period 1 April 2011 to January 2012	Enforcement results achieved by EMIs in 2010–2011
• 85 cases in the agricultural sector under investigation for failure to apply for verification of lawfulness of existing water use and failure to take action specified in notices to rectify contraventions. • 18 cases in mining sector related to non-compliance with water use licence conditions or operating without water use licences or authorisation. • 42 cases in which water services authorities have failed to prevent and remedy the effects of pollution, such as poorly operating waste water treatment works. • 8 cases in which other organs of state have failed to prevent and remedy the effects of pollution.	• 107 pre-directives issued (authorising provision not specified), 91% of which were in Gauteng, Free State and Mpumalanga. • 32 notices issued (authorising provision not specified) (nil in each of Gauteng, Northern Cape, Western Cape and Eastern Cape). • 26 directives issued: 0 in each of Limpopo, Northern Cape, Eastern Cape and KwaZulu-Natal. • 0 criminal charges laid for transgression of NWA.	• In 2010–11, EMIs issued 326 pre-directives and pre-notices. • In 2010–11, EMIs issued 221 directives and compliance notices. • In 2010–11, EMIs had opened 738 criminal dockets.

3.5.5 Interdepartmental cooperation

Recent studies done by the CER (CER, 2016: 57) regarding the DWS, DEA and the DMR indicate that there is very little public information on the CME action carried out by the DWS and the DMR within the mining regions of Mpumalanga Province, and in South Africa in general. This, it is argued, has often led researchers to primarily rely on written replies to the Promotion of Access to Information Act, No. 2 of 2000 (PAIA) requests and parliamentary responses (to questions) provided by the respective departments, particularly DWS. In 2015, in a written reply to a parliamentary question, the Minister reported to Parliament that 201 inspections were scheduled and conducted nationally by DWS across all sectors during the 2014/2015 financial year to assess compliance with the NWA, where Mpumalanga had a total of 73 compliance inspections, of which 59 were for the mining sector (CER, 2016; DEA, 2011).

Another case raised by the CER (2016) is the veracity and reliability of the figures reported on CME by the key departments. There is a sense that the reported figures of inspections conducted do not necessarily match nor fall within the reasonable proportionate capacities given the number of personnel doing the inspections. For example, in response to a PAIA request submitted by the CER in June 2015, the DWS indicated that between 1 April 2013 and 31 March 2015, the DWS inspected 55 Mpumalanga mines for compliance with the NWA (ibid: 57). However, all the inspections appear to have taken place in 2014/2015. Notably, only two officials ostensibly conducted compliance inspections at these 55 mining operations (by 2016 there were 239 authorised mines in Mpumalanga). This is even though monitoring compliance against water use licences for 55 mining sites also requires checking and verifying results at hundreds of monitoring points. Given these numbers, 55 water use licences conducted by two officials, it is reasonable to conclude that the inspections could not have been more than superficial or at least overstated. On the other hand, if these numbers are correct, it could also be concluded that the efficiency levels of the two staff members might be an exception rather than the norm, which is highly unlikely. This is further compounded by the official figures reported in the DWS CME Annual Report in Table 9.

Table 9 : Sectoral break down of cases reported and investigated nationally (DWS, 2014)

Sector	Complaints reported (14/15)	Investigations conducted (14/15)	Non-compliance letters*	Notices issued*	Directives	Criminal cases opened
Agriculture	75	75	54	59	15	1
Government (National/Provincial)	32	32	8	7	7	0
Industry	23	23	0	7	6	3
Local Government (Water Service Authorities/Water Service Providers)	39	38	2	11	4	0
Mining	90	89	2	46	21	8
Private Use	3	2	0	0	0	0
Tourism	7	7	0	2	1	1
All Sectors	269	266	66	132	54	12

* Letters, notices and directives are linked to 2013/2014 and 2014/2015 cases (directives included)

3.5.6 Lack of coordination leads to CME failures

Generally, it seems that the Department of Water Affairs and Forestry (DWAF), DWA and DWS have not been very successful in stopping illegal water use by mines (CER, 2016:58). For example, at a DWA parliamentary briefing on the Blue Scorpions and the setting up of a compliance and enforcement unit (in 2010), the Parliamentary Portfolio Committee on Regulation stated that “it seemed as if the DWA did not take the committee seriously” (ibid). This was primarily based on the observation by the committee that the same answers that were given years before were still being given to date. As a result, the committee could not understand why mines were permitted to begin operations without water licences. The DWA should consider the cumulative effect of all the water use licences that were issued as well as the illegal use of water by mines, yet seemed reluctant to take strong action some users or user groups should not continue illegal water use simply because they have access to legal and other resources (ibid: 58) The DWA did not seem effective at stopping certain users like mines from using water illegally, though the Minister reported that nationally in 2014:

- 81 investigations were completed.
- 23 cases were in the process of being investigated.
- 43 notices of intention to issue a directive were issued.
- 12 directives were issued.
- 6 criminal cases were opened.

Given the considerable number of mines operating without water use licences, the number of pre-directives and directives issued, and the number of criminal cases opened are too low. The implication of this for CME is that if the law is not properly enforced, the regulatory regime is undermined. This is further compounded by the clear conflicts between the various authorities’ mandates: when the Minister of DMR was asked why some mines were permitted to begin operating without valid water use licences (and whether the DMR would consider suspending the commencement of mining for mines waiting for their licences to be approved by the DWS), the Minister stated that water use licences “are issued in accordance with legislation administered by the DWA and the latter department is the competent authority to comment in this regard” (ibid: 58).

On the contrary, as observed and argued by the CER (2016), the DWS does not have the power to suspend mining licences pending compliance with the NWA, whereas non-compliance with the NWA constitutes non-compliance with the Mineral and Petroleum Resources Development Act, No. 28 of 2002, and the DMR does have the power to suspend mining licences for such non-compliance. The Minister of Mineral Affairs' answer makes it clear that compliance with water laws seems to be of less interest to the DMR.

The DEA National Environmental Compliance and Enforcement Report (NECER) provides an overview of environmental compliance and enforcement activities undertaken by the various environmental authorities over the period of a financial year (DEA, 2012). However, the NECER acknowledges that it focuses solely on the activities of "environmental" authorisations; and does not reflect the compliance and enforcement work being undertaken by other "related" sectors, such as the DWA, DAFF, Mineral Regulation, Labour and Health. Moreover, the indicators included in the report are primarily output based (for example, reflecting the number of inspections or investigations) and do not link with outcomes (for example, reduction on pollution load or health of ecosystems). Finally, the statistics reflected in the NECER reports emanate directly from the input received from the respective environmental authorities without independent auditing/verification of the input conducted by DEA or any other third party.

Lack of coordination is continuing despite the signed agreement among the three ministers of DWS, DMR and DEA, which includes alignment between the time frames and processes for authorisation processes

3.5.7 Response to complaints

Studies by the CER further noted that the DMR and the DWS does not undertake adequate inspections in response to complaints of violations of licences, or illegal activity (ibid: 58). It seems that the DMR either ignores complaints of violations, refuses to get involved in any enforcement action despite reports of non-compliance, or even actively resists enforcement action against mining companies in violation.

There is a sense that neither the DWS, nor the DMR issues enough statutory notices directing mining companies to undertake legally required activities, or to stop unlawful activities. These notices are known as directives or orders. When they are issued, they are often of poor quality and cannot withstand a legal (court) challenge (CER, 2016:61). When asked why directives were not automatically issued when the DWS became aware of non-compliance, the Minister of DWS responded that it was due to "the variance in technical nature, [the] different processes involved as well as the complexity of each case" (ibid).

From this observation, it would seem there is a measure of caution, perhaps even fear, about enforcement action within the DWS, as the Minister added that "it can happen that High Court Orders and civil claims for compensation be lodged against DWA for irresponsible directives and criminal actions". CER (2016) argued that this caution simply causes paralysis and a failure of compliance with the law. In August 2015, the DWS responded to a PAIA request submitted by the CER, which indicated that 42 directives and 138 pre-directives had been issued under the NWA to mines, industrial facilities, and water services authorities since April 2013.

3.5.8 Criminal proceedings

Neither department institutes sufficient criminal court proceedings.

DMR

The CER (2016:61) noted that the department "does not actively participate in and, in some cases, passively resists criminal prosecution, even in cases where this is clearly the appropriate course of action".

There have been a handful of cases of criminal prosecution for mining companies, including: S v Anker Coal and Mineral Holdings SA (Pty) Ltd; S v Golfview Mining (Pty) Ltd; S v Nkomati Athracite (Pty) Ltd;

S v Vunene Mining (Pty) Ltd; and, S v Bosveld Phosphate (2015) (CER, 2016:61; see also Schreiner et al., 2009). However, most of these cases were initiated by either the affected communities, or by civil society. There is little evidence to illustrate that the DMR attempted to assist the National Prosecuting Authority (NPA) with any prosecution case, rather, the department left the DEA and DWS to deal with these matters. To this end, one has to note that it is difficult to extract any relevant information from the DMR. For example, in a 2013 parliamentary response, the Minister was questioned about dockets that had been opened with the South African Police Service (SAPS) for criminal contraventions; dockets that had been handed over to the NPA; and guilty verdicts and sentences handed down. This illustrates the challenges with CME across departments especially where evidence, cooperation and support expected from partner departments and state actors is not always forthcoming.

DWS

The DWS seemed to have a better record than the DMR. For example, in November 2015, the Minister of DWS stated that 13 cases out of the 296 investigated nationally resulted in criminal charges being laid for non-compliance with the NWA (CER, 2016:61). Furthermore, in a 2015 parliamentary reply, the Minister said the DWS had opened 67 cases with SAPS for contraventions of the NWA where 58 were opened for engaging in water uses without authorisation, and one was opened for not complying with water use authorisations (ibid). Importantly, it was observed that the highest monetary fine following a conviction for transgressing the NWA was reported to be R1 million. It was also stated that no imprisonment terms have been obtained for such offences (CER, 2016). A later 2015 parliamentary reply provided further detail on the 67 cases where it was reported that since the inception of the NWA (in 1998), six cases have been successfully prosecuted, 56 criminal actions under the Act are currently pending, and the NPA declined to prosecute five cases.

DEA

The DEA seem to have a better track record regarding CME and prosecution of cases. Table 10 illustrates this point.

Table 10: National criminal enforcement statistics as reported in NECER (2012)

	2009-10FY[2]	20010-11FY	2011-12FY
Criminal Enforcement			
Criminal dockets	2877	718	1080
J534s issued		1615	1498
Cases handed to NPA	282	234	201
Arrests by EMIs	2384	1988	1339
NPA declined to prosecute ("nolle prosequi")	214	21	20
Acquittals	1026	22	7
Convictions	673	72	82
Section 105A agreements (plea bargains)	134	19	13
Amount of admission of guilt fines paid (total amount)	R 2,509,793	R 867,010	R 470,080.00
		1245	759

3.6 Synthesis and Conclusion

3.6.1 Current water use authorisation practices

Since the enactment of the NWA 36 of 1998, significant progress towards addressing challenges in the water use authorisation processes has been addressed. Systems such as e-WULAAS and WARMS have been developed to improve efficiency in the capture and processing of information, and there is a process in place to integrate the two systems. Training on the e-WULAAS is ongoing for staff and student trainees. Of significance to this report is the development of a business process map for the WULA process (Annexure 2) by the DWS, which has been adopted by the CMAs and proto CMAs. The V&V process to enable reallocation of water as well as the project Letsema that target licence application backlogs are also milestones. The V&V process has been recently completed in the IUCMA and others continue to work towards the completion deadline set.

Remaining challenges regarding water use authorisation are:

- **Onus on applicants**: Since it is the duty of an interested applicant to trigger the process of application and it is a requirement for them to approach the relevant office, the issue of affordability for rural communities to make the necessary trips is a key consideration that reflects the lack of pro-poor access to application processes. It remains to be established as to whether there could be community-based application processes for remote rural communities encouraged/practised by the licencing offices through, for example, their field extension officers.
- **Application forms for licencing**: These are filled only at the CMA only once the applicant engages, and there seemed to be no community-based application filling of forms.
- **Catchment forums and newsletters**: These could be key modes of communication for awareness on water use. It remains to be established to what extent these catchment forums address pro-poor access to water through, for example, the use/availability of general authorisations for RPFs, which do not require a licence.
- **Illegal water use**: It was evident that several illegal water use activities are practised in catchments.
- **Licence fees:** There were varying perceptions with some viewing licence fees as adequate at R114 (VAT inclusive), while others viewing them as inadequate for the amount of work that went into the licence application process.
- **Appropriate licence conditions:** Some users have reported that inappropriate licence conditions are sometimes set, some that cannot be complied with or some that are not applicable.
- **Approvals:** There is a sense that the number of signatures required to endorse the WULA process was too many, which contributed significantly to the delays in processing licences.
- **WARMS:** The WARMS system is thought to contain relatively inaccurate data and that it is an outdated system that needs an upgrade.
- **e-WULAAS:** During the development of the e-WULAAS system, there was reputedly limited consultations and/or involvement of the CMAs and proto CMAs.
- **General authorisations:** General authorisations are not being used sufficiently to promote rural poor livelihoods. In stressed catchments, CMAs may be hesitant to promote general authorisation use, while others simply do not have adequate awareness about the opportunity of using the general authorisation.
- **WULA backlogs:** Some catchments still must reduce backlogs on licence applications. The IUCMA together with the Olifants proto CMA had 300 licences in backlog at the time of these consultations.

- **Interdepartmental cooperation:** It remains to be established if the DMR, DEA and the DWS are able achieve integration in practice. There was a practice of referrals where the various departments refer their applicants to the CMAs to apply for licencing.
- Addressing these issues would significantly improve process efficiencies and promote the sustainable development of water resources in South Africa's catchments.

3.6.2 Enforcement

There are various measures and mechanisms through which enforcement can be done which require (CER, 2011; DWS, 2013; CER, 2016:73):

- Investing in CME capacity.
- Instituting a comprehensive CME programme.
- Implementing a proper administrative penalty system.
- Ensuring transparent reporting of results.

It is a common understanding that the lack of enforcement undermines the regulatory regime, which in turn prejudices those who do comply, while those considering compliance are discouraged from doing so (CER, 2016: 73). For CME to be effective, this will require improving the DEA, DMR and DWS' CME systems. The main issue is lack of political and management prioritisation of CME and to this end, there was a clear observation that CME of water and environmental laws must become a political and management priority within the DEA, DMR and the DWS. The CER (2016: 73; Schreiner et al., 2009) also recommended that it is vital for there to be a national champion for CME in the national departments, to drive and support the roll-out of effective programmes.

The next key issue is the capacity and staffing issues that need to improve within the CME. It is abundantly clear that there is a need for more trained and appropriately qualified CME officials with the necessary power to fulfil this function within the respective departments. Again, the CER observed that it is important to understand that an "appropriate" qualification is different for different functions (CER, 2011; CER, 2016). For example, "*an official responsible for compliance inspections requires good technical knowledge that may include chemical engineering, geology, hydrology, or environmental science; an official responsible for criminal investigations requires a background in criminal law and proceedings, and investigation skills (such as those required by SAPS detectives); an official responsible for civil enforcement requires a qualification in constitutional, administrative and environmental law and litigation*" (ibid: 73).

Despite this clear need for specialised skills and training, both the DWS and the DMR have ostensibly decided to design and implement their own training courses for compliance and enforcement. This is despite the training requirement for their officials being very similar to the training that was painstakingly developed by the DEA at great expense. Again, this shows the lack of integration and cooperative efforts by the sector departments. It was highlighted that the DWS CME officials do not receive any formal training from that department, and training is done on the job instead (see CER, 2016). Moreover, it has been documented that the DMR course is only a three-week basic training course, and an observation was made that it is not possible to provide adequate training to officials in three weeks expecting them to exercise this function effectively and efficiently (CER, 2016:73).

Thirdly, a proper compliance and enforcement strategy and policy including clear operating procedures for CME is required to effectively implement CME. This requires collaboration among sector enforcement agents such as the Environmental Management Inspectorate, the Blue Scorpions, the Green Scorpions, the SAPS and the NPA. This collaboration must be driven and supported by top management in the various departments (CER, 2011; CER, 2016). Historically, there has been poor collaboration between environment authorities and the DMR in particular, and much work needs to be done to improve these working relationships that have developed between the Environmental Management Inspectorate, the SAPS and the NPA.

Finally, there is a call for CME to shift towards increasing criminal penalties for environmental violations, particularly in terms of the NWA, and prioritising the development and implementation of a proper administrative penalty system for environmental and water violations. Such a system will deter offences being committed by instituting meaningful monetary penalties that adequately punish corporate entities that violate the law (CER, 2016). The administrative penalty system is an essential enforcement tool in any regulatory system. The growing trend internationally is shifting away from criminal penalties towards administrative or civil penalty systems, because criminal prosecution is frequently time-consuming, difficult and ineffective (ibid: 74). This is particularly relevant in South Africa, where the criminal justice system is already overburdened. To this end, environment authorities have already started to explore how administrative penalties could improve compliance with environmental laws, and the DMR and the DWS should grab the opportunity to benefit from this work. Arguably, administrative penalties are quicker and simpler than court proceedings, could reduce the burden of time and worry placed on businesses under threat of prosecution, while allowing regulators to restrict prosecution to the most serious cases, where the stigma of a criminal prosecution is required.

CHAPTER 4

4 PROPOSED FRAMEWORK FOR WATER USE AUTHORISATION FOR SMALL IMPACT PRODUCTIVE USERS

4.1 Introduction

This chapter provides a description of the proposed revised framework for water use authorisation for CMAs resulting from the year-long research process (March 2016 to Feb 2017). It begins by recapping the key highlights and features of the process of examining the existing framework and current CMA practices for gaps, opportunities and strengths as well as reviewing international good practices for lessons. It then describes the proposed improvements to South Africa's Water Use Authorisation and Licencing process framework for consideration (and use) by CMAs.

Further, the report discusses and recommends practical improvements to the current framework for water use authorisation in South Africa to be more pro-poor to encourage socio-economic development through small-scale productive uses of water. It highlights key features of the current framework (and practices), which are then addressed in the proposed features of the improved framework. Thus, in reflecting on the challenges within the existing framework, we provide strategic thinking around processes to be revised within the current framework towards improved process efficiency and pro-poor access to water use. The revised framework aims to achieve an improved overall effectiveness of water use authorisation, with a pro-poor focus.

This chapter addresses four critical areas:

Improved Authorisation Framework – These sections outline a revised framework for authorisation, based on legal and other tools available. Here, we propose some adjustments regarding the way available tools are implemented, new approaches, as well as longer term suggestions regarding legislative amendments.

Water Use Authorisation/Licencing Process and Licence Application Fees – This section proposes an improved water use authorisation/licencing process for CMAs based on the good practice and status quo analysis, as well as proposed fees for processing of licence applications.

CME – This section proposes an improved CME framework based on the good practice and status quo analysis.

Institutional Arrangements – This section recommends improvements to institutional arrangements and resource requirements for water use authorisation/licencing for the CMAs.

4.2 Development of the Enhanced Water Use Authorisation Framework

This section presents the proposed changes to the current framework for water use authorisation and licencing for consideration and (use) by CMAs. It must be noted that the proposed framework is not a new system altogether, but rather proposes a way of optimising the current system to streamline some existing bottlenecks identified and experienced by both users and managers. Before proposed improvements and optimisation aspects of the framework, an overview and highlights of the authorisation framework in its current form is provided.

4.2.1 Review of current framework

The application for a licence to use water may be perceived to contain four broad stages as follows:

- The pre-application consultation or needs assessment.
- The application and information gathering.
- Assessment, evaluation and review.
- Recommendation and decision.

The described process details can be seen in the revised DWS water use licencing business process framework (DWS, 2015).

This section reflects on key features and process challenges experienced in the current framework for each of the process phases. The report reflects on process limitations for both the user/applicant and the CMAs who are the service providers.

Pre-application consultation or needs assessment

The framework requires all applicants intending to use water in any catchment to take on the responsibility of approaching the CMA (or proto CMA) to consult on intended use.

While the process in its current form is helpful, it does not provide a proactive approach where the CMAs deliberately try to initiate the application process for disadvantaged groups such as poor black rural communities and HDIs who are likely to face challenges initiating the process.

Through consultations with stakeholders, we learnt that the outreach process of assisting poorer applicants is being practised by some CMAs and proto CMAs; however, incorporating it into the business process and planning for it logistically would be advantageous in promoting pro-poor productive uses.

Application and information gathering

Should the pre-application consultant indicate the need for a licence, then the applicant is required to apply for a licence. This process requires that the applicant gather requested information and fill out the application form. Provisions are also made for this application online.

Some of the challenges identified with the application and information gathering are as follows:

- All licence applicants regardless of the volume or complexity of use are subjected to the same business process. Less complex and smaller use applicants are subjected to the same lengthy process as the more complex/larger users.
- The lack of resources by some applicants (whose uses are deemed high risk by the consultation process) to process required information for the Level 2 Technical Assessment (which may include detailed quantitative modelling and specialist investigations).
- Delays in hydrological reserve determination have been observed to prolong the application process in some cases.

Assessment, evaluation and review

During this phase of the application, the following challenges were identified:

- A key challenge experienced by CMAs is the lack of competent technical capacity for assessments, which is reported to contribute to unnecessary delays to the application process. The indecision resulting from a lack of technical knowledge by some assessing team members prolongs the process.
- Currently, the framework provides that reserve determination is conducted per licence application. There is no proactive reserve determination practice by CMAs, which is a missed opportunity to lessen the time frame for the applications in specific areas.

Recommendation and decision

If the RoR resulting from the technical assessments recommends the issuance of a licence, the RoR and draft licence is sent to the Director General's office where the approval of the licence will be made. The following challenge was identified in this phase:

- In the current delegations, all licence approvals are reserved for the Director General of the DWS. This current arrangement where the approving authority is the Director General places a disproportionate burden on the Director General's office to the extent that this causes delays and unnecessarily lengthens the licence approval process.

Overall, the WULA business process provides for a maximum of 300 days within which a successfully logged licence application can be processed and approved. Within this time frame, the process provides 147 days and 153 days for the initial external and internal processes, respectively.

4.2.2 Successes with the current authorisation framework and features

This section highlights the key success attributes of the water use authorisation and licencing framework.

- The existing framework outlines a systematic business process for licencing across South Africa. While it does not differentiate the process, it speaks to all users/applicants. The process has been used successfully to process licence application processes.
- The registration of water use authorisations on the e-WULAAS and WARMS systems is a useful record management system, despite some challenges with accuracy of information captured on WARMS and the need for rectification of such, to promote compulsory licencing.
- The e-WULAAS and WARMS systems have already been integrated and demonstration conducted, and now await rolling out the use of the system to the CMAs and users.
- Projects Letsema (2009–2014) and Ku-hlula (2015–2016) have been key successes initiated by the department to clear the backlog of licences.

4.2.3 Other challenges with the current authorisation processes and practices

There have been several challenges as in making the authorisation system pro-poor, and we dwell on some of these below.

- Onerous licencing administrative systems in practice essentially discriminate against the poor, thereby achieving the opposite of the policy intention.
- Limited proactive institutional support efforts from government departments for poorer applicants (users) to not only support the access to water but also sustainable utilisation, affordability and management of the acquired water. There are instances where poor users have acquired licences, but failed to get the required support to sustain activities resulting in escalating unpaid water bills.
- The CMA and proto CMA units have not always been sufficiently capacitated to deal with the administrative and legal challenges resulting from water use authorisation, which negatively impacts on equity and transformation.
- Recent years have seen increasing constraints on water use for smaller users. The revised general authorisation (2016) further limits the amount of water to be accessed under the general authorisation. This impacts negatively on already existing general authorisation users, and limits the level of production under the new general authorisation. Existing users are required under the new general authorisation to apply for licences for their existing use (or reduce their general authorisation to fit within the revised volumes), further impacting on poorer users.
- There is a significant gap in institutional coordination among government entities on the utilisation of existing capacity e.g. field officers across departments to promote proactive application for disadvantaged applicants in the field.

In practice, priority has not always been given to equity in water allocation, and there has been some tension between water for equity, water use efficiency and water for new development.

By far, most water use in South Africa is held under ELUs and licences. With verification taking so long, this has resulted in a situation where, in practice, most water rights in South Africa are still held by (mostly white) commercial irrigation farmers. One of the aims of the DWS Water Allocation Reform

(WAR) Programme15 was to replace ELUs with one of the other water use entitlements under the NWA (Anderson et al., 2007). Schreiner and Van Koppen (2014b) also note that the initial expectation was that ELU rights would be replaced by licences, possibly for amended (reduced) volumes of water, through a compulsory licencing process driven by the DWS. This would help avail water for pro-poor uses contributing equity in access to water. However, the reform process has been drawn-out with the result that such uses have become entrenched.

Because of ELU, most of the water in South Africa is in the hands of white farmers. In rural South Africa, 1.2% of the population controls 95% of water used and, hence, also determines whether and how benefits of such water use trickle down. The large majority of 98.8% of the population has only access to 5% of the water resources (Cullis & Van Koppen, 2008).

In the discussion regarding the DWS WAR programme, the tension between economic productivity and the need for equity began to surface, particularly as far as ELU is concerned. The result has been the entrenching of water use by existing users (Movik, 2009). Furthermore, it was also determined that ELU would have to be determined accurately before compulsory licencing could commence, to avoid any accusations of arbitrary reallocation. Existing uses, therefore, would have to be validated; meaning that the current use had to be accurately quantified, and verified[16], i.e. checking the legal status of the use (whether it was considered as lawful under the previous Act) (Movik, 2009). Attempts to determine the extent of lawfulness of existing users through the V&V process have proven to be difficult and time-consuming (Movik & De Jongh, 2011).

Certain aspects of the current licencing administrative systems have discriminated against the poor in practice, thereby achieving the opposite of the policy intention

Current licencing systems result in injustices for the poor and women in two main ways (Schreiner & Van Koppen, 2014b):

- They consolidate historical injustices in that while customary water use systems are supported by the new NWA(reference), they are not prioritised; and
- They discriminate against small-scale users who are obliged to go through the onerous bureaucracy and cost of applying for a licence.

While the NWA and policy framework for water use authorisation supports customary water use systems, they are not sufficiently prioritised within the current authorisation system (Malzbender et al., 2015).

Furthermore, the administrative burden associated with the licencing system discriminates against small-scale users. The NWRS2 has acknowledged this by saying that "current licencing processes are often costly, very lengthy, bureaucratic and inaccessible to many South Africans". The burden of licencing processes thus sits disproportionately with small-scale, remote, and often legally illiterate users, especially women, who often want to use a bit of water at disproportionate costs through the licencing system (Schreiner & Van Koppen, 2014a). Thus, the cost of applying for licences for the poor has resulted in equity and transformation challenges as far as access to water for small-scale and HDIs is concerned. What is required is a more flexible, less resource-intensive system that fits with capacity, while taking local circumstances into account (Movik & De Jongh, 2011).

Access to water is about more than just enabling authorisation of water use

Access to water resources for small-scale users and HDIs is not only an issue of the authorisation system in use. It has been found that there is a disconnect between water reform processes and other processes, which would stimulate development for RPFs and HDIs. For instance, water reform

---

[15] The DWS's WAR is aimed at promoting beneficial use of water in the public interest in a manner that supports fair and equitable allocation of water resources to all South Africans.

[16] The department's V&V is a process to understand legal water use to eradicate illegal water use. This process forms part of the process that eventually leads to compulsory water licencing for all water users.

processes have been pursued in parallel to other processes such as land reform and agricultural support, with insufficient integration between processes. Thus, many land reform programmes have failed because of the unavailability of water (Nortje et al., 2014).

For example, in engaging with stakeholders in the Inkomati catchment regarding access to water for HDIs, it became clear that access to water cannot be isolated from several other issues including access to funding for on- and off-farm infrastructure[17] and coordination between government stakeholders regarding assistance to HDIs for farming activities. Thus, an entitlement to use water is by no means the only requirement for ensuring poverty alleviation and the equitable use of water for productive purposes. Factors such as the availability of land, financial resources, skills, and markets also play a pivotal role (Anderson et al., 2007).

This type of information is corroborated in a Water Research Commission (WRC) study (Denison et al., 2015) that looks at the severity of farming challenges for different types of HDI farmer in selected areas of the Eastern Cape. For equity farmers, land use rights and land control rights are major challenges, while for food growers (subsistence farmers) and small food businesses, water infrastructure is the most severe challenge. For those pursuing farming as a commercial enterprise, farming knowledge and skills, land control rights, water infrastructure, fencing, ability to self-finance and access to markets are all major challenges.

Table 11: Severity of farming challenges for different types of female farmer in selected areas of the Eastern Cape (Denison et al., 2015)

	Type B Food–Grower	Type C Food-Cash	Type D Business	Type E Equity
Constraints *land area*	*isitiya/igadhi*	*Igadhi/intsimi*	*intsimi*	*intsimi*
Farming knowledge and skills	2	2	4	0
Land use rights	1	1	3	4
Land control rights	1	1	4	4
Water resource availability	1	2	2	0
Water infrastructure	4	4	4	0
Fencing	2	3	4	2
Mechanisation	1	3	3	0
Labour	1	2	2	0
Access to inputs	2	2	2	0
Ability to self finance	1	3	4	0
Access to markets	1	2	4	0
Score (indicative ranking only)	**17**	**25**	**36**	**12**

Key: Farmer assessed level of severity of farming challenge

Critical (4) | Serious (3) | Moderate (2) | Manageable (1) | Lessee problem (0)

Thus, not only is there a need to transform the implementation of the water use authorisation system so that it enables socio-economic development, but there is also a need to recognise that socio-economic development requires that access to water is seen in conjunction with issues related to land and infrastructure among others.

DWS has not been sufficiently capacitated to deal with administrative and legal challenges that affect equity and transformation: DWS is responsible for enabling HDIs and RPFs to access water resources in the context of scarcity in South Africa. As far as legal challenges are concerned for instance, the department lost a case heard at the Water Tribunal. An applicant, whose application for water use had been rejected, argued that equity cannot be taken as the highest priority among the various criteria for water allocations. Thus, the possibility of legal challenges has resulted in a challenge to the department's capacity to achieve WAR (Schreiner & Van Koppen, 2014a).

[17] The department has recognised that there has been limited infrastructure development for smaller scale productive water users who cannot pay the capital investments (DWA, 2013). In 2004, the DWA established a small national fund for RFPs, which is mainly used to promote rainwater harvesting at homesteads (DWAF, 2004). However, formalisation and implementation through the regional offices has been slow.

4.2.4 Opportunities for improvement

One Environmental Authorisation System

The One Environmental System was initiated on 8 December 2014[18] between the DMR, DEA and DWS. The three ministers agreed on fixed time frames to consider and issue permits, licences and authorisations in their respective legislations. They further agreed a 300-day time frame for licence processing, and provided a 90-day extension allowing for the completion of legislative resolution in cases of an appeal.

Targeted support for RPFs

There is an opportunity for CMAs to offer targeted support to support the access to water by poor applicants and further support their productive use of the same. This approach would reduce the prevalence of failed water uses resulting from the lack of support to farmers (logistical and/or skills training) in using the water productively.

Explore groundwater potential for RPFs and HDIs

The use of groundwater for agricultural purposes has not been explored adequately in various catchments. In the search for alternative water options, groundwater may well be the alternative if the use falls within the recommended existing abstraction levels guidelines.

Utilising existing institutional structures

There is potential for fast-tracking the licencing process by using the existing structures in the various government departments (that use field extension officers) and institutions (such as water user associations and irrigation boards). The water licencing process could benefit from using field extension officers of other departments to help with reaching out to help poorer communities with licence application processes.

4.2.5 Shortcomings of the current system that hamper transformation

While the policy and principles of DWS show a commitment to equitable allocation of water, transformation in allocation has not been achieved due to the practicalities of how the authorisation system is operationalised. Importantly, transformation in allocation of water resources is being sought in the context of increasing water scarcity as well as significant challenges with water quality. It is further disquieting to note that while the NWA of 1998 has been lauded for its progressive nature, achieving reform as far as access to water resources is concerned has proven to be difficult for several reasons, as detailed above:

- Priority has not been given in practice to equity in water allocation, and there has been some tension between water for equity and water use efficiency.
- Licencing administrative systems have practically discriminated against the poor, thereby achieving the opposite of the policy intention.
- Lack of supporting mechanisms by government for poorer users to access water, that is, access to water is about more than just enabling authorisation of water use.
- DWS has not been sufficiently capacitated to deal with administrative and legal challenges that affect equity and transformation.
- Increasing constraints on smaller users – the general authorisations were revised in 2016, further limiting the amount of water that can be accessed by poorer communities.
- Lack of technically sound capacity within the relevant government structures slowing assessments of licences.

[18] https://www.environment.gov.za/mediarelease/oneenvironmentalsystem

4.3 Enhancing the Existing Framework for Small-scale Productive Users

The principles and assumptions that should be embodied within an authorisation framework that improves access to water resources for RPFs and HDIs are stated below, before considering the mechanisms for improving water use authorisation for pro-poor socio-economic development.

Making water available in the context of scarcity

For the water use authorisation system in South Africa to work for pro-poor socio-economic development, the authorisation framework should take transformation as its starting point and build this imperative into the way in which the system is designed and operationalised. Thus, the system should be operationalised as an enabling tool for development focusing on the poor and emerging farmers, and should not be seen merely as an administrative system to regulate, manage and control water use. In the spirit of the NWA and NWRS[19], the authorisation system should make water available or set aside water for small-scale productive uses/HDIs/RPFs while aiming for sustainable economic growth.

Follow a targeted approach

It should be recognised that all users are not equal in impact, that is, that most users have a small impact on water resources in terms of quantity and quality, while a small number of larger users have the most impact on South Africa's water resources. Thus, in operationalising the system, attention as far as regulation activities are concerned should be focused on big impact users, while access to water for small impact users should be prioritised. Given both that the administrative burden of the current system falls disproportionately on smaller users, and the fact that there is limited capacity (skills, resources, etc.) on the part of authorities, the authorisation framework should follow a targeted approach, which controls big volume and impact users and supports/enables small-scale users, as shown in Figure 7.

As far as targeting large users are concerned, illegal water use should be controlled to "free up" water. This can be done by completing the V&V process, licencing, CME, and focusing on theft of water use (such as reported in the Vaal system).

As far as small-scale users are concerned, the authorisation framework should be simple and cost-effective, and should be combined with support for users. Support for small-scale users should focus, for example, on creating appropriate infrastructure (perhaps through a state-supported public works programme); training on more effective use of limited water supplies (in-field water harvesting and the provision of rainwater tanks); and promoting access to finance and markets. Such support to small water users requires a collaborative effort from CMAs, DWS, local government, DAFF, and the Department of Rural Development and Land Reform (DRDLR) among others, and should form a critical part of CMA's delivery on its equity mandate.

One of the challenges that the IUCMA has encountered in transforming access to water has been aligning land reform processes and water reform processes. At times, RPFs have found themselves in a situation where their properties are at risk of being repossessed by banks due to them owing water and other administrative charges. A solution to this challenge could be to bill HDIs per use rather than per allocation (as it is currently). The proposed revisions to the Raw Water Pricing Strategy support this, while the IUCMA is also already assisting farmers by billing use through metering of use.[20]

---

[19] The goal of the NWRS2, for instance, is that water is managed efficiently and effectively for equitable and sustainable growth and development.

[20] WRC Think Tank Workshop: Enhancing Water Security for Small Scale Productive Uses, 30 November 2016.

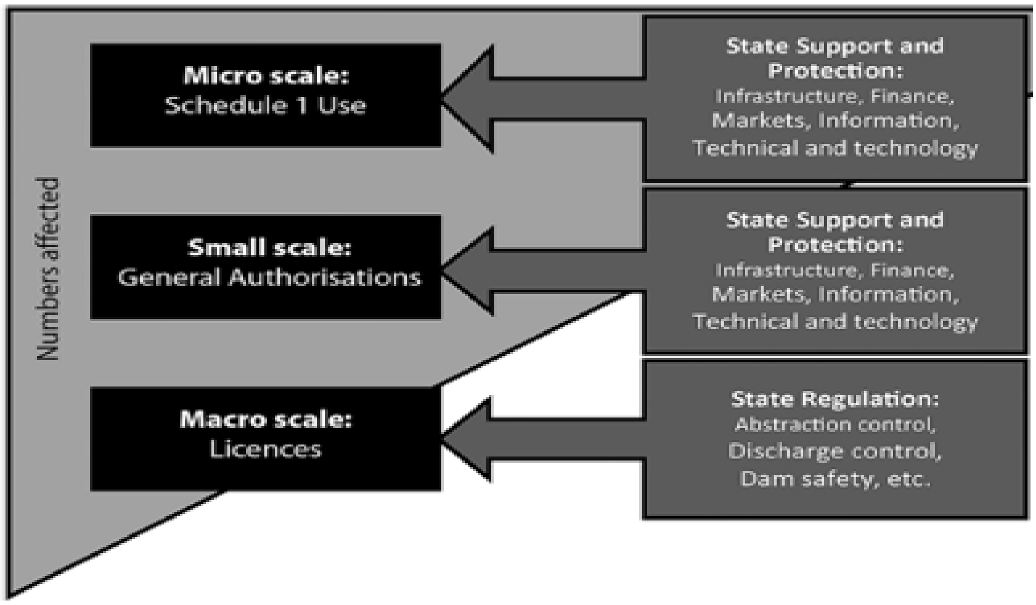


Figure 7: Targeted approach

Another challenge highlighted by one of the proto CMAs has been regarding bringing a strategic partner on board (in joint ventures) to make land reform farms commercially viable, and specifically that communities that enter such joint ventures are being used while the strategic partner benefits. These challenges have resulted in three such joint ventures being cancelled in the Mzimvubu–Tsitsikamma proto CMA. While these types of issue are not squarely within the mandate of the CMA, the CMA can be a partner to assist in addressing these types of issue.[21]

Simplified licencing system

Where licencing systems apply to smaller users (that is, they are not addressed by Schedule 1 and general authorisations), the licencing system and process should be simplified. More specifically, there should be a differentiated process that depends on the type of users. This would require differentiating the types of users applying for licences, as well as simplifying processes.

4.3.1 Mechanisms for achieving transformation in access to water resources

We consider the mechanisms and tools through which the authorisation framework can be improved for pro-poor development in the short and long term. In the short term, the mechanisms within the Act and NWRS2 should be implemented in a manner that encourages pro-poor development, while in the long term, new mechanisms may perhaps need to be introduced. We discuss these below.

Short term

In the short term, the following steps are proposed, and we can expand on the steps further below:

- The CMA should set up a differentiated system within the catchment, which enables the targeted approach. Thus, the CMA should, for instance, conduct the studies usually required from applicants at a general catchment level to know where small-scale productive users could be and how much water is available to them.
- The CMA should use the legal mechanisms for authorisation appropriately, and implement other tools within the catchment to promote socio-economic development for HDIs and RPFs.

[21] WRC Think Tank Workshop: Enhancing Water Security for Small Scale Productive Uses, 30 November 2016.

1. The CMA should set up a differentiated system within the catchment, which enables the targeted approach:

   - *Strategic water assessment for the catchment to reduce burden to smaller users*: To enable purposeful socio-economic development programmes linked to water for HDIs, each CMA should carry out a strategic water assessment to determine water availability and quality in the catchment. This will allow the CMA to determine where water in the catchment can be leveraged for socio-economic development. Once these assessments have been carried out, the CMA should pursue socio-economic development in viable areas together with the relevant departments (for example, DAFF, DRDLR). Thus, the strategic water assessment will enable CMAs to be proactive in encouraging and facilitating small users as a productive use in partnership with other government departments. This is discussed in further detail in Section 4.3.2.
   - *Differentiate types of user:* For CMAs to set up differentiated systems for bigger and smaller users (follow a targeted approach), it is necessary to differentiate users. Users should be disaggregated into small, medium and large users per sector based on volume and impact of water used. Each CMA should determine a disaggregation of water users per sector. The legal mechanisms and processes followed for water use authorisation will differ on the types of user, as discussed further below. An example of a disaggregation for farmers, for instance, is given in Table 12. The CMA should develop an appropriate classification for its WMA.

Table 12: Typology of types of female HDI farmer in selected areas of the Eastern Cape (Denison et al., 2015)

Typology	Key characteristics: Purpose / labour / risk appetite / external dependence	Approximate scale and location	Crop mix
A: Food grower – low productivity	People who grow primarily for home consumption (and social exchange) but with low productivity and minimal surplus for cash sale. Low-investment low-risk farming approaches.	< 200 m^2 isitiya and igadhi	vegetables greens maize pumpkins beans tree crops
B: Food grower – high productivity	People who grow primarily for home consumption, with high productivity and sale of surplus. Low external dependency. Primarily hand-watered.	0.1-1 ha isitiya and igadhi	
C: Food and cash farmer	Farming with intention of significant cash sale requiring external markets. Land preparation is mechanised but family labour predominates. Significant external dependency, moderate risk. Loose value chains predominate.	0.5 ha to 2 ha igadhi and intsimi	food and high-value cash crops
D: Business farmer	Farming for cash sale to external markets and where the farming enterprise makes a dominant contribution to livelihoods. Employed labour. Mechanised. High external dependency & high risk. Marketing though loose and tight value chains.	2 ha to 20 ha intsimi	intensive veg green maize field crops
E: Equity labourer with contracts	Residents who have rights to land and water and no intention of farming actively, but instead lease or sharecrop. Low financial risk, high contract risk.	field scale, consolidation of plots	commodity crops

   - *CMAs should use the CMS process to reduce usage volumes where applicable:* Given that South Africa is a water-scarce country with significant water quality concerns, and climate change is expected to exacerbate scarcity in some parts of the country. The CMAs should use the process of developing the Catchment Management Strategy to set targets for reducing usage volumes by sector and types of users, and this will then guide authorisation within the catchment (refer to Section 4.3.2).

2. Use the legal mechanisms for authorisation appropriately, and implement measures within the catchment to promote socio-economic development for HDIs and RPFs

In following the targeted approach outlined above, the CMA should follow differentiated processes for small and large users of water. The basic tenets of this type of differentiated system are outlined below.

i. Small impact water users

Consider priority general authorisations for small users: One of the aims of reform is to implement a system that does not discriminate against small-scale users. It would be beneficial for such users to have an entitlement certificate for their water, which has equal legal status to an ELU and licence. An argument has been made that since the licencing system is administratively intense on both users and the DWS, a better system is a system that is well-targeted, and enables enforcement of the relatively few high-impact users that need to be regulated most intensely. For small-scale users, general authorisations[22] can be used more effectively to shield them from the administrative and cost burden of applying for individual licences (Anderson et al., 2007). Thus, general authorisations – if properly used, and if given greater legal weight, like that of a licence and ELU certificate – could serve as a countrywide redress of historical injustices in water allocation.

The concept of priority general authorisations may be useful: The NWA and NWRS2 together provide an effective legal tool to ensure access to minimum quantities for all within the current authorisation system by using general authorisations for prioritisation of water for equity and poverty eradication. When one reads the NWA (which sets out the legal tools to be used) and NWRS2 (which sets out the priorities for water allocation) together, they imply that meeting the obligations of the reserve and international obligations by reducting water allocations should be borne by strategic and licenced water users, and not by exempt users (Schedule 1 and those using water through general authorisations) (Schreiner & Van Koppen, 2014a).

More specifically, as far as priorities in the NWRS2 are concerned, the strategy sets the following order of priorities in water allocation: first, the ecological and basic human reserves; second, international obligations; third, water for poverty eradication and redressing inequities from the past; fourth, water uses that are strategically important; and fifth, licenced water for general economic purposes (DWA, 2013a). Thus, the third priority (water for poverty eradication and redressing equities from the past) can be operationalised by using general authorisations for small-scale water uses nationally and empowering small-scale users to take up these entitlements (Schreiner & Van Koppen, 2014a). In this system, licencing will be reserved for the smaller number of larger-scale (volume and/or impact) users, while small-scale users will be supported for redress (Schreiner & Van Koppen, 2014a).

Priority general authorisations can work as an effective tool for access to water if they are implemented nationwide, including in water-stressed basins. This would ensure equal access to minimum quantities of water for basic livelihoods according to the right to water, food, and adequate standard of living, before the remaining water resources are distributed to larger water users. Furthermore, the use of priority general authorisations maintains the regulatory role of licence systems for justice, and overcomes the administrative discrimination against small-scale users (Schreiner & Van Koppen, 2014b).

The use of priority general authorisations for rural development and poverty eradication will need an approach from DWS/CMAs that recognises the validity of these water users and a strong focus on ensuring that the general authorisations are not affected/changed over time. In 2016, the DWS published revised general authorisations that have reduced the amount of water that may be stored, and in many cases the volume of groundwater that may be used, thus impacting negatively on small users, rather than curtailing water use by large users. For priority general authorisations to work as a tool for socio-economic development, general authorisations need to be both prioritised in all basins, as well as not decreased over time. This requires that the water rights of those who are entitled to use water under a general authorisation should be formalised, for example, through some of entitlement or

[22] A general authorisation is a resource-specific exemption from the obligation to apply for a licence, and may specify the volume of water use that is allowed, the type of water use activity allowed, the geographic area in which it applies, and the groups that may make use of the general authorisation. The Minister may, or may not, oblige water users whose uses fall under a general authorisation to observe certain rules, for example to register, conduct certain measurements, or pay. general authorisations, which are gazetted for public comment, are only valid for a specified time period, and therefore require revision and republication in due course (Schreiner & Van Koppen, 2014b).

registration certificate. This is further elaborated in the long-term measures below. Furthermore, general authorisations should be generous enough for meaningful production to take place.

It is also worth noting that the general authorisations, as published currently, cannot be interpreted by most people, and that people on the ground either do not know that a general authorisation exists or are unable to decipher what the general authorisation means for them because of its technical specificity. Thus, how general authorisations are drawn up, the areas they refer to, and how they are communicated have to be reconsidered.

Rethinking priorities – Municipal water use: Is municipal use a priority? A very small proportion of water used by municipalities is basic human need, while a large proportion is industrial and commercial use. Furthermore, many municipalities have unacceptably high non-revenue water [including commercial, financial and real losses (leaks)]. The NWRS2 sets the priorities for water use as follows:

- Ecological/basic human reserve;
- International obligations;
- Water for poverty eradication and redressing inequities;
- Strategic water use; and
- Licences.

Since most water used by municipalities falls under licences, it is necessary to incentivise municipalities to reduce their water use, particularly since non-revenue water and water used by industry through municipalities is significant. Thus, CMAs should proactively set targets for reducing water use by municipalities, thus "freeing up" water for allocation through priority general authorisations.

Less complicated and onerous licencing process for smaller scale users: As mentioned above, water users within a catchment should be disaggregated so that differentiated processes apply for smaller and larger users. For small and medium water users that are not covered by Schedule 1 and general authorisations, there are several steps that can be taken to simplify the licencing process:

- The time frame for processing applications should be shorter and licence processing fees for licence applications should be lower than for larger users.
- The application process itself should be simplified, as captured in Section 4.3.3.
- The licence conditions for relatively uncomplicated water use licences should reflect their complexity.

A revised process is outlined in Section 4.3.3 below.

Reporting: To reduce the administrative and cost burden to small users, the reporting requirements for small users should be minimised and eliminated if possible.

Providing Support: In addition to using general authorisations more effectively and making the administrative burden easier for smaller users of water, it is also necessary for CMAs to provide support to water use licence applicants since water use authorisation is one part of what small-scale businesses require to thrive. As mentioned above, the strategic water assessment should be done for the catchment by the CMA to guide the CMA on where to promote socio-economic development through water use in the catchment, and therefore where to provide support.

Once communities have been identified, CMAs need to co-create coherent support programmes together with the DAFF, DRDLR, training providers, etc., to help small-scale users with technical skills, access to finance, access to markets, infrastructure support etc. This includes support as far as joint ventures with strategic partners are concerned.

Furthermore, HDIs and RPFs may not be aware of their water rights, and whether a general authorisation is applicable to them or not. They also may not be aware of the procedures to be followed to access water. To assist HDIs and RPFs, CMAs should visit communities and make them aware of their rights.

CMAs should provide support for licencing/authorisation processes by going out to people and assisting them to complete licence applications, where necessary. Existing CMAs already have such support in place, but these processes need to be streamlined and all CMAs/proto CMAs should put such processes in place.[23]

As far as the RPF support programmes are concerned, these programmes should be modified to help transform RPFs into commercial farmers, and should be extended from just poor farmers to HDIs. Support should include supporting development of business plans and identifying suitable partners to assist with business ventures. The CMA support can be focused on identifying needs and facilitating partnerships. Generally, there is a need to convene a forum and mobilise different stakeholders to build a coherent programme to support RPFs. [24]

Support for HDIs and RPFs should also be focused on communicating/educating about general water issues, including declining water quality, water scarcity, water stress, water reuse etc. [24]

ii. Large impact water users

One-stop-shop process: Large water users (mining, agriculture, etc.) typically have complicated and integrated licence applications and often also require other authorisations (for example, mining licences) or assessments (for example, EIAs). It has been found that there is a disconnect between various processes that large water users need to complete, and that a one-stop-shop process is therefore required. In the case of mining, the One Environmental Authorisation process is being pursued through an interdepartmental task team, while in the agricultural sector there is an integrated authorisation committee who considers how to streamline the process for agricultural users. For these more complicated licence applications, longer time frames (300 days, for instance) are probably in order.

Technical capacity: One of the challenges as far as authorisation of WULAs are concerned is the technical capability of CMA/proto CMA officials to evaluate licence applications. Due to a lack of technical capacity, the conditions that are attached to licences is sometimes of poor quality, resulting in challenges for the users and for CME. It is necessary for the technical capacity of the relevant staff within CMA/proto CMAs to be improved for better evaluation of licences and improved drafting of licence conditions.

Long term

Legislative revision

In the long term, it may be necessary to seek some legislative reforms to make the water use authorisation framework more pro-poor. With the DWS currently reviewing legislation, the timing is opportune. More specifically, the following types of issues should be considered:

- Application of the parity principle (or targeted approach) could be written into law, that is, licencing only considered necessary for biggest impact users (in terms of volume and quality) in a catchment.
- Those using water under general authorisations should receive a formal entitlement, for example, a registration entitlement certificate, which gives their water use authorisation the same legal status as licences and ELUs.
- In general, the general authorisations – as one part of the authorisation system – present an opportunity to be more flexible. Thought should be given to whether the entire authorisation process, including general authorisations, should be delegated to CMAs/proto CMAs.
- The policy position regarding trading of water should be reconsidered to free up more water for reallocation to HDIs/RPFs.

[23] WRC Think Tank Workshop: Enhancing Water Security for Small Scale Productive Uses, 30 November 2016.

4.3.2 Framework for determining water availability

A WULA requires various supporting documents:

- Filled in application form.
- Property detail.
- Map.
- Proof of payment of licence fee.
- Location.
- Volume, abstraction rate.
- Crops, quantities produced, irrigated area, licence period, water balance, socio-economic impacts and benefits, other uses, optimised water use, public participation.
- Impact on environment.
- Hydrology/geohydrology study.
- Water quality study.
- EIA.
- Section 27 motivation.

For small-scale productive uses and users, this is an unnecessary burden that does not add any value to socio-economic development or management of the catchment. It is therefore proposed that the CMA does a WMA-wide study – defined appropriately per sub-catchment (since water availability may vary greatly within a WMA's sub-catchments) – to address general information required to support water use for socio-economic development through small-scale productive uses. Such includes WMA level:

- Hydrological and geohydrological studies to determine where surplus water is available and/or can be made available for such uses.
- Assessment of where possible small-scale productive uses and users may be located and interested.
- Assessment of where existing capacity can be used to execute such functions (e.g. environmental health officers, agricultural extension officers) and where these can provide further information to the CMA.
- Study to determine where additional water can be made available by gradual reduction of existing water users' entitlements/authorisations.
- Reserve determination.
- Continuous updating of water use information.

4.3.3 Proposed simplified process for smaller water use licences

So far, the report has demonstrated how the current framework falls short in meeting the needs of small-scale water users at various scales including small river basins. While the complexity of historical issues affecting the access to water in South Africa is acknowledged, it is observed that addressing these disparities through the current framework is inadequate. The water use licence process proposed here recognises the progress that has been made by the DWS in reforming the water use authorisation process. As such, it must be indicated here that we do not intend to recommend a new framework but rather modifications to the existing one with the view that it will benefit the small-scale users who usually find it difficult to apply for water use licence in its current form. The full framework has been included in the appendix of this report.

User categorisation

The process of adapting and modifying the framework for small-scale users begins with adding water user categorisation to the existing water use licence framework (see Figure 8 and Figure 9).

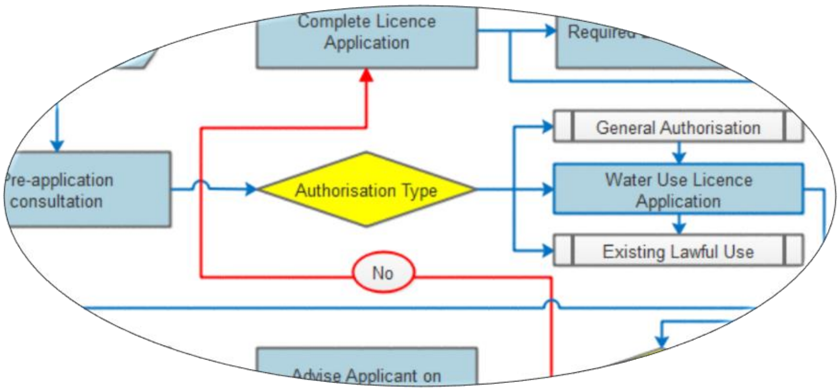


Figure 8: Authorisation category

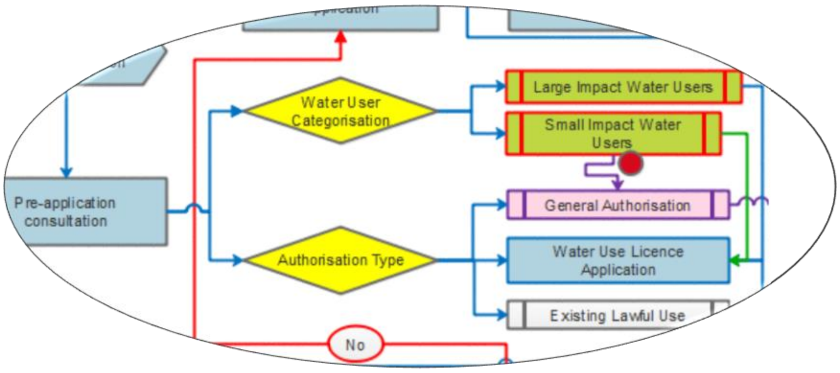


Figure 9: Water user categorisation

The previous sections alluded to the need of using a differentiated approach to allocate and authorise water use. As such, it is proposed in here that alongside identifying the water authorisation type, the water resource manager (the CMA) should also identify the category of the water user before commencing with the water use authorisation application process (see Figure 10). This shall ensure that appropriate channel is followed, and that relevant support is rendered during the application process, thereby removing the unnecessary transactional costs along the way. Water users that fall within the small impact water user category, for instance, shall not require the same amount of detailed information as large impact water users to apply for the licence as some of the required information would be provided by the CMA or DWS.

CMA pre-application and application support

The process of water user categorisation shall enable the CMA or the responsible authority to tailor the sort of support that should be offered to the applicant. Small impact users requiring a water use licence might not be in a position to sponsor all the studies required for a full licence application. The CMA in this case would customise the licence application process in line with the conditions in the WMA where some local catchment specific data and information is made available to these users while making an application.

The support provided to the small-scale applicants ranges from supporting the applicants with the filling of forms, site inspections and provision of relevant data and information relevant for the licence application. It is anticipated that by doing this the number of days required to process applications might be significantly reduced from 157 to at least 30 days for specifically small-scale users.

Figure 10 is an extract from the revised framework indicating the pre-application and application stage of the water use licence for small-scale water users.

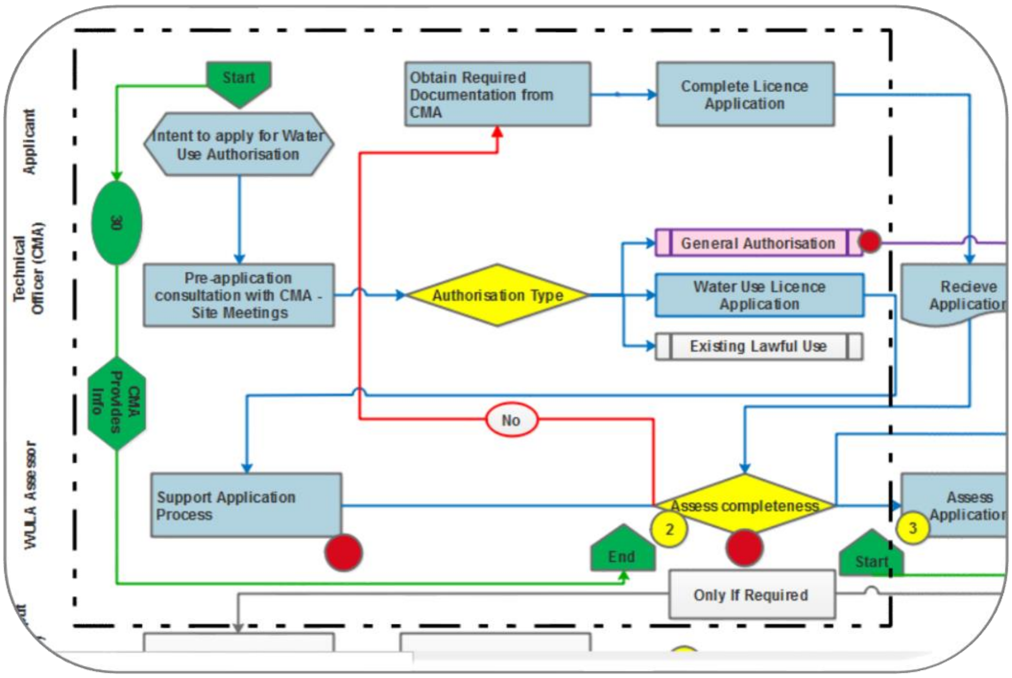


Figure 10: Small-scale application support

Licence review and approval

It is important that every licence granted to a water user is not done so at the expense of other users within the system and the overall resource capability. As such, while it is envisaged that small-scale users might have relatively small impact on the resource and ecosystem at large, due diligence in the approval of the licence still needs to be done. It is, however, assumed here that the involvement of the CMA in the pre-application and application process shall ensure that the application is submitted with minimum errors and thus might require fewer days to review and approve than generic licence applications. It is suggested that this process should take at least 60 days, whereby the entire process takes only 90 days. These changes will result in the overall licence application process for small-scale users to appear as given in Figure 11.

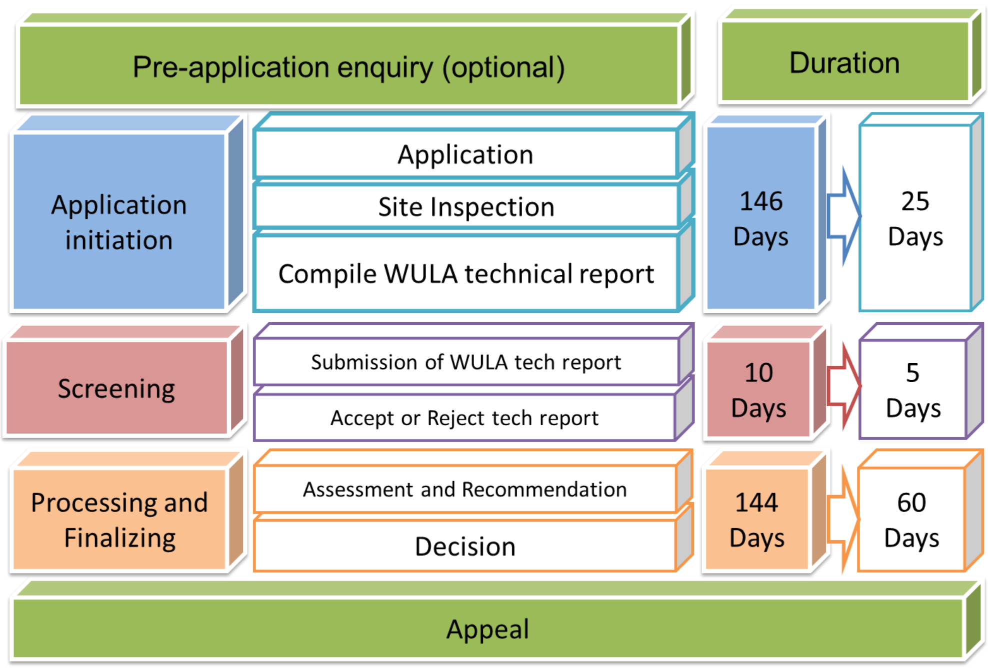


Figure 11: Overall licence application process

4.3.4 CME

CME should be clearly targeted and differentiated by types of users/uses i.e. small, medium and large (quantity, quality and/or impact). Therefore, the aim of this component is to provide a compliance and enforcement framework based on the good practice and status quo analysis done in Deliverables 2 and 3. In accordance with the NWA, compliance is required against the conditions of authorisation such as ELU, general authorisations, and water use licence. To this end, the Compliance Monitoring interface within the CMA and proto CMAs should focus on a targeted and differentiated approach for different types of users. The same applies for the Enforcement element where the focus should be on administrative penalties targeted at the biggest users as a priority (we expand on this further below). The approach is premised on the observation and understanding that attaining CME requires addressing theft of water first, followed by the control of large-scale users, and supporting developmental use by small-scale users, namely, HDIs and RPFs.

Experience has shown that unlawful water uses are often caused by a lack of knowledge on the legislation governing these water uses, and ignorance in some instances as water users would violate conditions that have been indicated on the authorisation documents. These are issues that require, at the first instance, and primarily for small-scale developmental water users, an enforcement awareness campaign. Such a campaign should be an operation that targets all water users with an objective of educating them on lawful water uses and applicable legislation. It is envisaged that such an upfront investment in awareness raising will deliver much benefit in the long term given that the CMAs will be dealing with largely receptive small-scale users. This approach will therefore free up time for the officials to target and concentrate on the fewer large users. Given this framing, CME processes should indeed focus on applying a targeted and differentiated approach.

Proactive CME should prioritise and differentiate by sector and use

Proactive CME work should continue in relation to the priority and targeted large-scale water use sectors. This also relates to other strategic projects regulated through the issuing of authorisations (in terms of the NWA). The prioritised and targeted groups should include all large-scale commercial users such as mining, industry, municipalities and agriculture among others.

Proactive compliance framed in this manner can be categorised as proactive routine inspections where it is the most visible interaction between the regulator and the regulated community. It should largely focus on reviewing self-monitoring processes and data, where the regulator/responsible authority (DWS and CMAs) primarily review adequacy of self-monitoring methods employed by these organisations.

The same can also be done for processes such as follow-up inspection by ensuring implementation of action plans agreed with the CMAs and DWS. This is aimed at ensuring the rectification of previously detected non-compliance. This also entails reactive inspections that are triggered by reported incidents, accidents and complaints where such inspection can turn into investigations and become part of enforcement functions.

For small-scale water users/uses, it is valuable and prudent for the CMAs to undertake ad hoc inspections on an agreed given random sample from this category for inspections per CMA per year. However, if adverse reports or complaints are made against any user in this category, reactive inspections can also kick in to address the issues through investigations until applicable remedial action is attained.

Amendment to legislation and regulations

To address the major structural issues facing CME officers in the different sector departments (e.g. DWS, DEA, DMR, DAFF), it may be necessary to rethink the relevant legislative framework and possibly place all environmental compliance and enforcement functions within a single institution. Examples include the Environment Agency, a British non-departmental public body of the Department for Environment, Food and Rural Affairs; and the United States Environmental Protection Agency. These two organisations are responsible for all environmental crimes and not only those limited to water, biodiversity and conservation issues. This is a rather ambitious proposal that has been the subject of discussions since the formation of the inspectorate. Such a legislative amendment may eventually lead to a substantial improvement in the level of effectiveness of both compliance and enforcement in this area. However, further assessment is required to confirm this.

DWS is in the process of reviewing the NWA, the Water Services Act, the Water Research Act and the National Sanitation Policy (DWS, 2015). It is envisaged that this review will result in the following consolidation of water and sanitation legislation and policy, to be submitted to cabinet soon: a) National Water and Sanitation Bill; and b) National Water and Sanitation Framework. It is argued that these legislative developments will address current weaknesses regarding penalties and offences in relation to water services and other water users, powers and functions of inspectors and investigators (DWS, 2015).

It is understood that the Compliance Monitoring sub-programme (through Programme 5) is in the process of developing new and reviewing existing regulations, including:

- Regulations for irrigation metering, where the draft regulations were published in December 2014 for public comment. This will enable the metering and measuring of the users' irrigation water.
- Regulations for genus exchange aimed at enabling genus exchange without the need for a new water use licence – previously not possible under the conditions of old permits.
- The declaration of unconventional gas exploration and production as a controlled activity (notice of intent was published in 2013). This will require activities involving hydraulic fracturing, underground coal gasification to comply with Chapter 4 of the NWA requiring water use authorisations.

Given these ongoing amendments, it is considered that amending the penalty regime for offences against water use authorisation should follow the same processes periodically as earlier highlighted.

Administrative penalties

Periodic updating of penalty regulations should be considered as a deterrent to encourage compliance by users. The low penalties provided in the legislative provisions remains a constraint in deterring non-compliance to water use authorisation conditions. It is anticipated that DWS and the CMAs will take a leaf from countries such as Australia where penalty regulations are periodically reviewed in line with changing socio-economic and environmental circumstances. It is our consideration that amendments should be considered to increase the penalties for water use authorisation related offences, where the penalty is punitive to act as a deterrent. It is important to note that although penalties are often insufficient to act as a deterrent, the main issue however remains the practical application of the legislation, i.e. the lack of resources, capacity and personnel.

4.3.5 Institutional arrangements

The strengthening and improvement of existing institutional arrangements is critical for successful implementation of the proposed revised framework. From engagement with existing CMAs, it become clear that most challenges faced in streamlining licencing procedures are due to capacity constraints and it is therefore critical that existing arrangements be utilised better. The following approach is proposed:

- Consider how existing **capacity** within various public organisations can be utilised better, e.g. the Mzimvubu–Tsitsikamma (Eastern Cape) proto CMA uses the Coordinating Committee on Agricultural Water and LAAC to do technical assessments for WULAs.
- Consider how the various existing **structures** can be used to streamline the WULA process, e.g. agricultural, forestry, mineral and environmental forums as well as water user associations.

The following are specific considerations for CMAs:

Improving cooperation between different role players

It was observed that while the DEA EMIs have reportedly managed to follow cases to successful prosecution, the same cannot be said for the DWS. Given the differential experiences and capacities among sector departments and agencies, the need for cooperation need not be emphasised. Given the foregoing, the creation and expansion of new intergovernmental working groups and crime forums will undoubtedly contribute to better cooperation between relevant authorities. However, if significant inroads are to be made in relation to water use authorisation compliance and enforcement, it is recommended, and critical, that DWS, CMAs and the different sector departments such as DEA, DMR, SAPS and NPA (through these structures) ensure consistency and standardisation in relation to approaches and reporting systems. This entails having real and meaningful collaboration between and among sector enforcement agents such as the Environmental Management Inspectorate, the Blue Scorpions, the Green Scorpions, the SAPS and the NPA. This collaboration must be driven and supported by the top echelons in the DEA, DWS and DMR (CER, 2011; CER, 2016).

Historically, there has been poor collaboration between environment authorities and the DMR. Much work needs to be done to repair these important relationships to improve the formal and informal working relationships that have developed between the Environmental Management Inspectorate, the SAPS and the NPA. This is especially important given that the practice of reporting complaints of violations to SAPS, or even handing over files to the NPA for prosecution and "hoping for the best", is one that was proven to be totally ineffective by environment authorities (CER, 2016). This also requires proper public reporting of CME activities across the board.

It is also recommended that national priorities be clearly delineated to ensure that sufficient resources are applied to the more pressing issues such as the big impact users. These priorities and targeted approaches indicated earlier can then be supported across the country (by both provincial and national departments, and agencies such as CMAs) through the implementation of a uniform compliance and enforcement strategy, including the use of formal operations to target specific types of non-compliance and/or criminal activities.

Improving capacity within regulatory agencies

There are capacity and staffing issues needed to improve CME. It is abundantly clear that there is an acute need for more trained and appropriately qualified CME officials who are designated with the necessary powers to fulfil this function within the respective departments. Again, the CER observed that it is important to understand that an "appropriate" qualification is different for different functions (CER, 2011; CER, 2016). For example, "*an official responsible for compliance inspections requires good technical knowledge that may include chemical engineering, geology, hydrology, or environmental science; an official responsible for criminal investigations requires a background in criminal law and proceedings, and investigation skills (such as those required by SAPS detectives); an official responsible for civil enforcement requires a qualification in constitutional, administrative and environmental law and litigation*" (ibid: 73).

Despite this clear need for specialised skills and training, both the DWS and the DMR have ostensibly decided to design and implement their own training courses for compliance and enforcement. This is despite the training requirement for their officials being very similar to the training that was painstakingly developed by the DEA. Again, this shows the lack of integration and cooperative efforts by the sector departments. It was highlighted that DWS CME officials receive no formal training from DWS, and that training is done on the job instead (see CER, 2016). Moreover, it has been documented that the DMR course is only a three-week basic training course, and an observation was made that it is objectively not possible to provide adequate training to officials in three weeks, and then expect them to exercise this function effectively and efficiently (CER, 2016:73).

Enforcing law through adequate investments in CME and administrative penalties

There is a call for CME to shift towards increasing criminal penalties for environmental violations, particularly in the NWA, and prioritising the development and implementation of a proper administrative penalty system for environmental and water violations. Such a system will deter others from committing similar offences by instituting meaningful monetary penalties that adequately punish corporate entities which violate the law (CER, 2016). The administrative penalty system is an essential enforcement tool in any regulatory system. The growing trend internationally is shifting away from criminal penalties towards administrative or civil penalty systems, because criminal prosecution is frequently time-consuming, difficult and ineffective (ibid: 74). This is particularly relevant in South Africa, where the criminal justice system is already overburdened. To this end, environment authorities have already started to explore how administrative penalties could improve compliance with environmental laws, and the DMR and the DWS should grab the opportunity to benefit from this work. Arguably, administrative penalties are quicker and simpler than court proceedings, could reduce the burden of time and worry placed on businesses under threat of prosecution, while allowing regulators to restrict prosecution to the most serious cases, where the stigma of a criminal prosecution is required.

Improved recording of enforcement data on a centralised database accessible by multi-agencies

This requires and entails the development and sustainability of two key processes:

Improved recording

There is a major gap in the accurate accumulation and recording of data on the enforcement of water use authorisation. The failure to record case data correctly hinders the identification of problem areas in enforcement, which in turn means that these problem areas are not managed and addressed. This problem is being experienced across the board in all enforcement agencies, and is attributable to a range of factors including capacity issues, resource constraints and lack of prioritisation. It is our considered view that there is need for improved and transparent recording of data on compliance monitoring, where investigations can lead to prosecution, directive, notice, or court application. This is necessary given that such data reporting and accumulation should be robust so that each investigation into suspected non-compliance should take place as if the purpose is to institute legal action. When there is a coordinated and watertight recording of data and evidence, this will not only assist in successfully following through on reported cases but also act as a deterrent to water users.

Centralised database

A single web-based information system that captures and hosts live statistics should be developed and made accessible to both the DWS, CMAs and allied sector departments. It is our understanding that the DWS has developed improved e-WULAAS and WARMS interfaces. While this is commendable, it is not clear whether this initiative will close the huge variation in organisational, procedural and information technology systems and resources between the various authorities. If this hurdle could be overcome, a centralised database would be recommended to gather relevant information. Such a database needs to be user-friendly for enforcement officials from across the board to be able to use it effectively. Furthermore, the loading of information into such a database will need to be included as a mandatory task for all enforcement officials on a regular basis, with regular training provided. A centralised database will also be useful in acting as a deterrent for would-be CME offenders in that they will consider the reputational damages of being published in a public platform shared by responsible authorities. This includes administration of the WARMS database – including billing – which should be devolved to CMA level.

4.4 Synthesis and Conclusion

For the water use authorisation system in South Africa to be actively pro-poor for socio-economic development, the authorisation framework should take transformation as its starting point and build this imperative into the way in which the system is designed and operationalised.

In operationalising such a pro-poor authorisation system as proposed in this report, regulatory activities should be focused on large volume and impact users, while access to water and support for small impact users should be prioritised.

For licencing smaller users – i.e. those outside Schedule 1 and general authorisations – the licencing system and process should be simplified as proposed in this report, based on WMA context and needs.

4.5 Opportunities for Further Research

The following opportunities for further research have been identified:

- Definition of small impact water use and users is a task that requires careful consideration and for which this project did not have sufficient resources. Small impact uses and users will vary across sub-catchments dependent on the allocation status of each, which will significantly change over time. it is therefore proposed that further research be undertaken to develop a set of criteria on which CMAs can define small impact uses and users.
- Legislative revision to make the authorisation system more pro-poor (for example licencing only necessary for big impact users?)
- Creating a formal entitlement (for example a registration entitlement certificate) that gives general authorisations the same legal status as ELUs and licences.
- Impact of the policy prohibiting water trading for smaller users.

REFERENCES

Aboites, L., Cifuentes, E., Jimenez, B., and Torregrosa, L. (2008). Agenda Del Agua. Mexico City: Academia Mexicana de Ciencias.

Anderson, A., Quibell, G., Cullis, J. and Ncapayi, N. (2007). General authorisations as a tool to promote water allocation reform in South Africa. Law, Environment and Development Journal, 3/2 p. 164, available at http://www.lead-journal.org/content/07164.pdf.

Arcadis. (2012). The role of water pricing and water allocation in agriculture in delivering sustainable water use in Europe. Final Report for the European Commission.

Barkin, D. (2011). The governance crisis in urban water management in Mexico. In Spring, U. (ed.) Water Resources in Mexico. Berlin, Heidelberg: Springer Berlin Heidelberg. http://doi.org/10.1007/978-3-642-05432-7

Booker, J.F., Howitt, R.E., et al. (2012). Economics and the modelling of water resources and policies. Journal of Natural Resources Modelling, 25(1).

Bruns, B.R., Ringler, C., and Meinzein-Dick, R.S. (2005). Frameworks for Water Rights: An Overview of Institutional Options, Water Rights Reform: Lessons for Institutional Design. Washington, DC: IFPRI.

Cartocrítica. (2014). Extracción ilegal de agua por acuífero. Retrieved from http://www.cartocritica.org.mx/2014/extraccion_ilegal_acuifero/.

Centre for Environmental Rights (CER). (2011). Stop treading water: What civil society can do to get water governance in South Africa back on track. Parliamentary reply from Minister of WEA, No. 2064, 12 August 2011 on CME in Centre for Environmental Rights.

Centre for Environmental Rights (CER). (2016). Zero hour: Poor governance of mining and the violation of environmental rights in Mpumalanga. CER, Cape Town.

CONAGUA. (2002). Determinacion de la disponibilidad de agua en el acuifero Valle de Leon, Estado de Guanajuato, 1–14.

CONAGUA. (2012). Bancos del Agua en México.

CONAGUA. (2014a). Estadísticas del Agua en México 2014. Conagua, 2014, 242. Retrieved from http://www.conagua.gob.mx/CONAGUA07/Publicaciones/Publicaciones/EAM2014.pdf.

CONAGUA (2014b). Suspensión provisional del libre alumbramiento. Retrieved from www.conagua.gob.mx/Contenido.aspx?n1=3&n2=62&n3=379

De Castro, L.M.A., Cordeiro, J.R.C., De Souza, A.K.P. and Oliveira, G.P.C. (2011). Legal aspects relating to water resources management relating to mine water in Brazil. Mine Water – Managing the Challenges. IMWA 2011. Rüde, Freund /Wolkersdorfer (eds.).

Denison, J. et al. (2015). Empowerment of women through water use security, land use security and knowledge generation for improved household food security and sustainable rural livelihoods in selected areas of the Eastern Cape. Water Research Commission Research Project K5/2083/4.

Department of Environmental Affairs (DEA). (2012). National Environmental Compliance and 2011–12 Enforcement Report. DEA, Pretoria.

Department of Water Affairs and Forestry (DWAF). (2007). Generic water use authorisation application process: External guidelines, November 2007.

Department of Water and Sanitation (DWS). (2014). 2014/2015 Annual Report. CME. DWS, Pretoria.

Department of Water and Sanitation (DWS). (2015). Water use licencing business process. Powerpoint Presentation by Vernon Blai, WUL Directorate.

Diario Oficial de la Federación (DOF). (2012). Ley general del equilibrio ecológico y la protección al ambiente. Retrieved from http://www.conacyt.mx/cibiogem/images/cibiogem/protocolo/LGEEPA.pdf

Diario Oficial de la Federación (DOF). (2013). Acuerdo por el que se actualiza la disponibilidad media anual de agua subterránea de los 653 acuíferos de los Estados Unidos Mexicanos, mismos que forman parte de las regiones hidrológico-administrativas que se indican. Diario Oficial de La Federación, 100. Retrieved from http://www.conagua.gob.mx/CONAGUA07/Noticias/SEGUNDA SECCION.pdf

Diario Oficial de la Federación (DOF). (2014). Ley de aguas nacionales.

Garduno, H. (2005). Making water rights administration work. International workshop on African Water Laws: Plural Legislative Frameworks for Rural Water Management in Africa, 26-28 January 2005, Johannesburg, South Africa.

Garrido, A., Donoso, G., Melo, O., and Solanes, M. (2014). Economic instruments for allocating water and financing services, In: Willaarts, B.A., Garrido, A., Llamas, M.R. (eds.). Water for Food and Wellbeing in Latin America and the Caribbean: Social and Environmental Implications for a Globalized Economy. Routledge, Oxon and New York, pp. 343-364.

Guzmán-Arias, I, and Calvo-Alvarado, J. (2013). Planning and development of Costa Rica water resources: Current status and perspectives. Tecnología en Marcha, 26(4), pp. 52-63.

Johnsson, R.M.F. (2014). Water resources management in Brazil: Challenges and new perspectives. World Bank Water.

La Costa Rica. (2012). Report of Costa Rica. Contribution to the water and food security in Latin America Project. Water Observatory Project. Madrid, Fundacion Botin.

Malzbender, D., Goldin, J., Turton, A., and Earle, A. (2005). Traditional water governance and South Africa's "National Water Act": Tension or cooperation? International workshop on African Water Laws: Plural Legislative Frameworks for Rural Water Management in Africa, 26-28 January 2005, Johannesburg, South Africa.

Manzungu, E. and Machiridza, R. (2005). Economic-legal ideology and water management in Zimbabwe: Implications for smallholder agriculture. International workshop on African Water Laws: Plural Legislative Frameworks for Rural Water Management in Africa, 26-28 January 2005, Johannesburg, South Africa.

McCuligh, C. (Forthcoming). La Alcantarilla del Progreso.

Mtisi, S. (2008). Promoting water quality laws enforcement and implementation in Zimbabwe's urban areas. Paper presented at the Eighth International Conference on Environmental Compliance and Enforcement, 2008.

Mtisi, S. (2011). Water reforms during the crisis and beyond. Understanding policy and political challenges of reforming the water sector in Zimbabwe. Overseas Development Institute (ODI) Working Paper No. 333.

Ncube, W., Katerere, J., and Chenje, M. (2002). Environmental rights and justice in Katerere, J. and Chenje, M. (eds). Environmental Law and Policy in Zimbabwe, Harare: SARDC.

Nepfumbada, M. (2010). Presentation to the Portfolio Committee: Water and Environmental Affairs. Briefing on Regulation, CME in the water sector. 11 August 2010, presented by Mbangiseni Nepfumbada, Acting DDG – P&R. PowerPoint Presentation.

Paniagua, F., and Reilly-Brown, J. (2013). Legal and institutional framework for water management in Costa Rica.

Reis, N. (2014). Coyotes, concessions and construction companies: Illegal water markets and legally constructed water scarcity in central Mexico. Water Alternatives, 7(3), 542-560.

Salman, S.M.A, and Bradlow, D.D. (2006). Regulatory Framework for Water Resources Management. World Bank.

Schreiner, B., Pegram, G., and Von der Heyden, C. (2009). Reality check on water resources management: Are we doing the right things in the best possible way? DBSA Development Planning Division Working Paper Series No. 11.

Schreiner, B., and Van Koppen, B. (2014a). Moving beyond integrated water resource management: Developmental water management in South Africa. International Journal of Water Resources Development, 30(3), 543-558.

Schreiner, B., and Van Koppen, B. (2014b). Priority general authorisations in rights-based water use authorization in South Africa. Water Policy 00, 1-19.

Shaman, D. (1996). Brazil's pollution regulatory structure and background. World Bank.

Tewari, D.D. (2009). A detailed analysis of evolution of water rights in South Africa: An account of three and half centuries from 1652 AD to present. Water SA, 35(5), p. 10.

The Law Library of Congress. (2013). Legislation on use of water in agriculture. The Law Library of Congress, Global Legal Research Centre.

United Nations Environment Programme (UNEP). (2012). Measuring water use in a green economy: A Report of the Working Group on Water Efficiency to the International Resource Panel. McGlade, J., Werner, B., Young, M., Matlock, M., Jefferies, D., Sonnemann, G., Aldaya, M., Pfister, S., Berger, M., Farell, C., Hyde, K., Wackernagel, M., Hoekstra, A., Mathews, R., Liu, J., Ercin, E., Weber, J.L., Alfieri, A., Martinez-Lagunes, R., Edens, B., Schulte, P., Von Wirén-Lehr, S., Gee, D.

United Nations Environment Programme (UNEP). (2014). Towards integrated water resources management. International experience in development of river basin organisations.

Van Koppen, B., Butterworth, J., and Juma, I. (eds.). (2005). International workshop on African Water Laws: Plural Legislative Frameworks for Rural Water Management in Africa, 26-28 January 2005, Johannesburg, South Africa.

Zimbabwe National Water Authority. (1997). Water quality test report of Gwayi Catchment.

Zimbabwe National Water Authority. (2000). Operational guidelines for the control of water pollution in Zimbabwe.

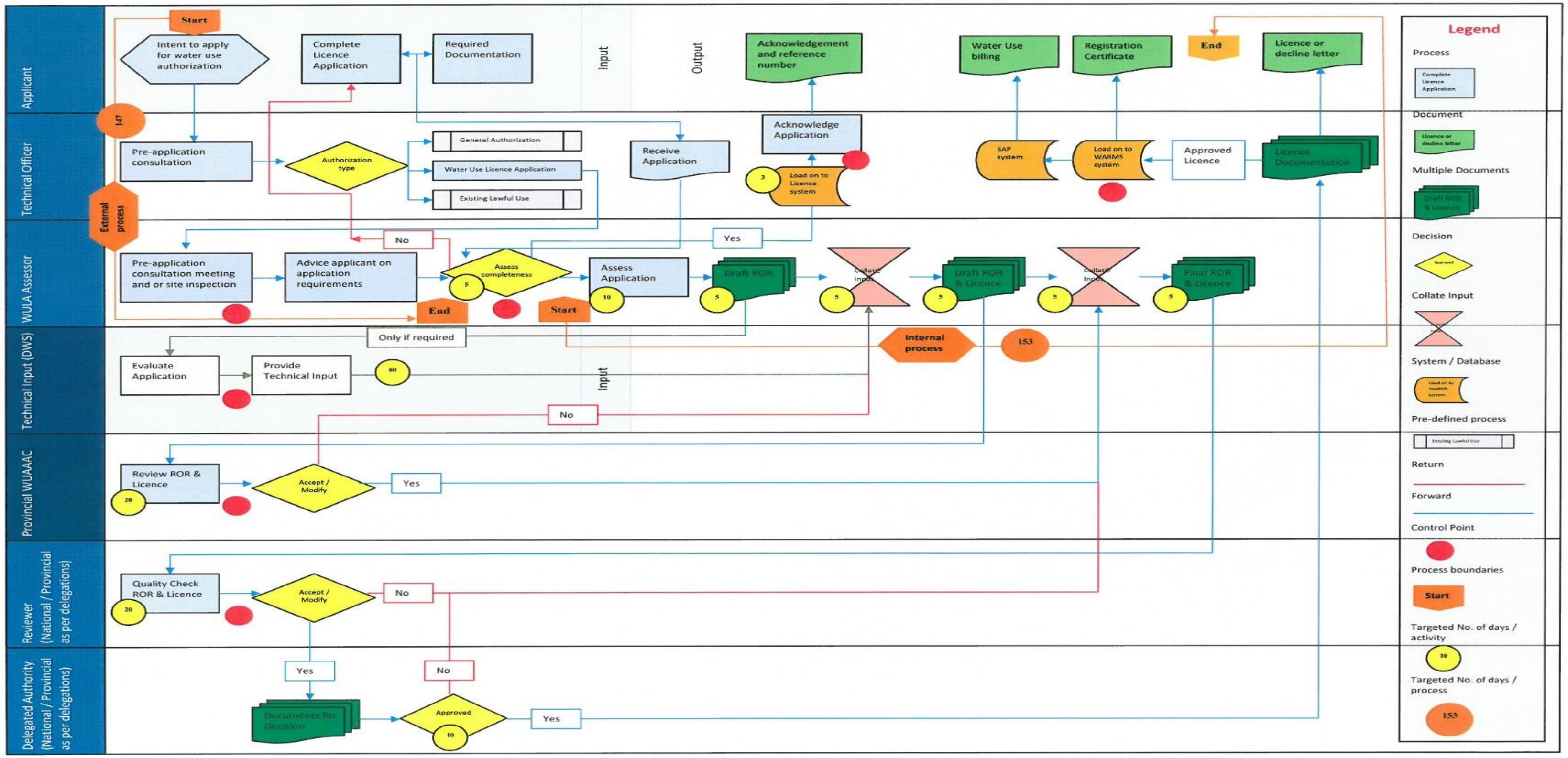
Page left blank intentionally

ANNEXURES

Annexure 1: Current Water Use Licencing Business Process

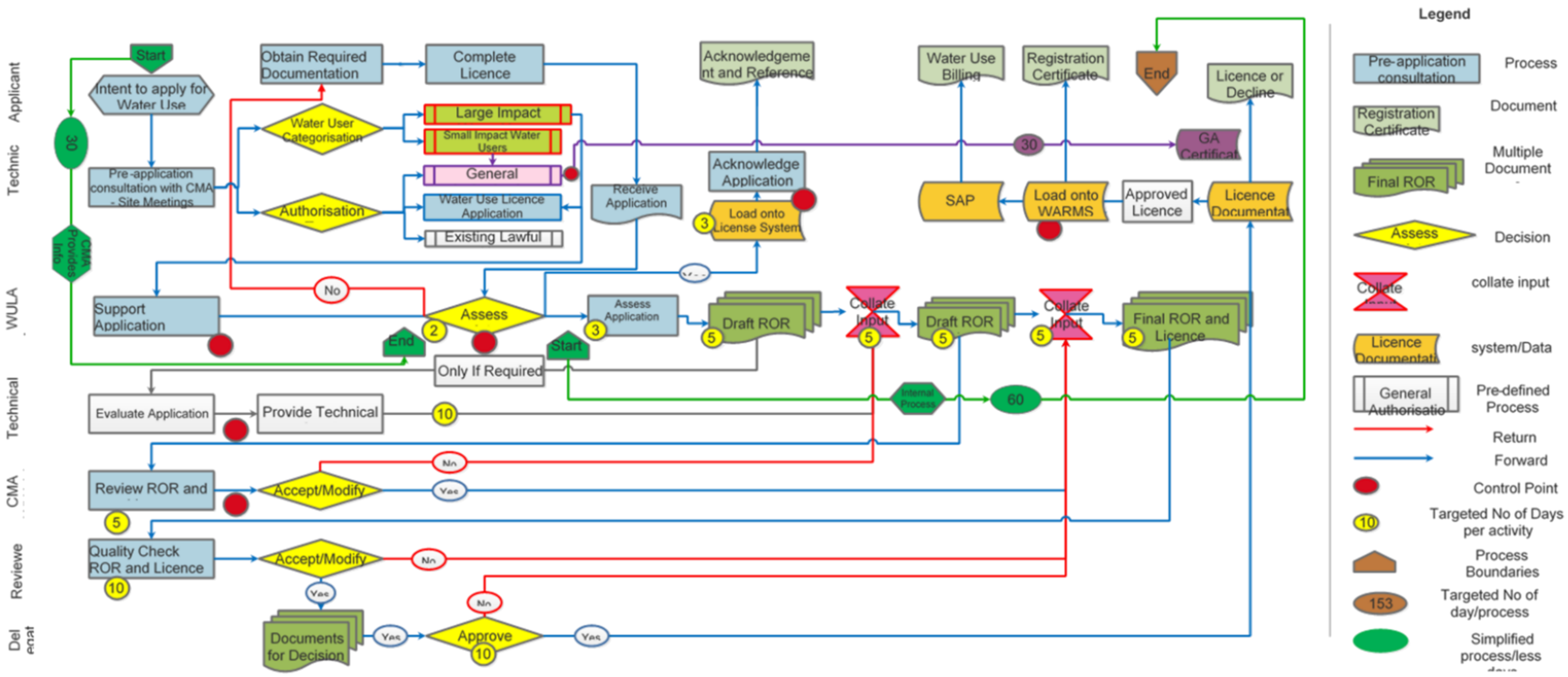
Water Use Licensing   Business Process Document   Version 1

3. WATER USE LICENSING BUSINESS PROCESS FLOW DIAGRAM



6

Annexure 2: Recommended Water Use Licencing Business Process



Annexure 3: Business Process for Licencing Water Use in Pongola–Mzimkulu Proto CMA (KZN)