OPERATIONALISING HYBRID WATER LAW FOR HISTORICAL JUSTICE

Report to the
Water Research Commission

by

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EXECUTIVE SUMMARY

BACKGROUND

Equitable allocation of water has been at the forefront of South Africa's post-1994 water policies and laws. With the aim of reforming inequalities of previous oppressive regimes, the new South African democracy set out to revise segregationary laws, including water laws. The 1998 National Water Act (NWA) was a product of this reform process. Within the NWA – The National Water Resource Strategy – 2nd edition (DWA, 2013a) makes this goal more concrete by the ranking of priorities in water resource allocation, providing a higher priority for poverty eradiation, livelihoods and racial and gender equity than for economic purposes. While the legislation has received acclaim for its progressive provisions, operationally it has not translated into tangible impact as yet – particularly with respect to delivering redress for past injustices in the allocation of water resources. On the contrary, vulnerable smallholders or pastoralists who already have invested in infrastructure for self supply but who cannot be reached by government's administration-intensive licensing, are formally criminalised. The legal status of small water uses for self supply exempted from an obligation to apply for a licence, is weak indeed. Yet, these existing small-scale uses contribute to the realization of constitutional and human rights to water and food.

One of the reasons for this continuation of historical injustice on the ground is that existing legislation and legally binding strategies have not been sufficiently concretised into legal tools or amendments that fit a certain local context. Yet, as elsewhere in Africa, water legislation contains a suite of existing or potential tools. 'Hybrid water law' points at this suite of untapped existing but hitherto underused or new legal tools in formal water law in Africa to achieve stated goals (Schreiner and Van Koppen, 2018). Moreover, such operationalisation also enables a better alignment between water law and other legislation, in particular constitutional rights and land legislation (RRI/ELI 2021). This includes a long overdue recognition of living customary water tenure that has governed self supply by Africa's rural majority since time immemorial.

The present WRC project 'Operationalising hybrid water law for historical justice' seeks to fill this legislative gap in achieving historical justice in South Africa by operationalising the high priority for poverty eradication and redress into existing legal tools (Reserve, Existing Lawful Use, Schedule One, General Authorisations and licences), or, if needed, provisions or amendments to the NWA to achieve historical justice. The project engaged with the Department of Water and Sanitation (DWS) to this end. Moreover, in order to assess its potential in a concrete context of a stressed catchment, the project also liaised with the Inkomati-Usuthu Catchment Management Agency (IUCMA) to develop a 'Conceptual Implementation Plan' for the Inkomati Catchment. Field research focused on the Sabie Sub Catchment, which includes the former Lebowa and Gazankulu homelands. The plan indicates practical and actionable ways to interpret existing legal tools in the catchment context, seeking to move the needle towards better meeting the objectives of the Constitution and NWA.

SPECIFIC AIMS

The specific aims of this project are:

1. To conceptualise interpretation and formulation of regulations available under South Africa's statutory law in the NWA as related to accommodating hybrid water law.
2. In collaboration with the IUCMA and DWS, to develop a conceptual implementation plan of how hybrid water law would be translated in a real-life context, and its implications for the regulatory effectiveness of the state and the protection of small-scale uses.
3. To situate the South African developments in hybrid water law into broader Africa and global narratives, and to disseminate the findings in peer-reviewed outputs and policy dialogues.

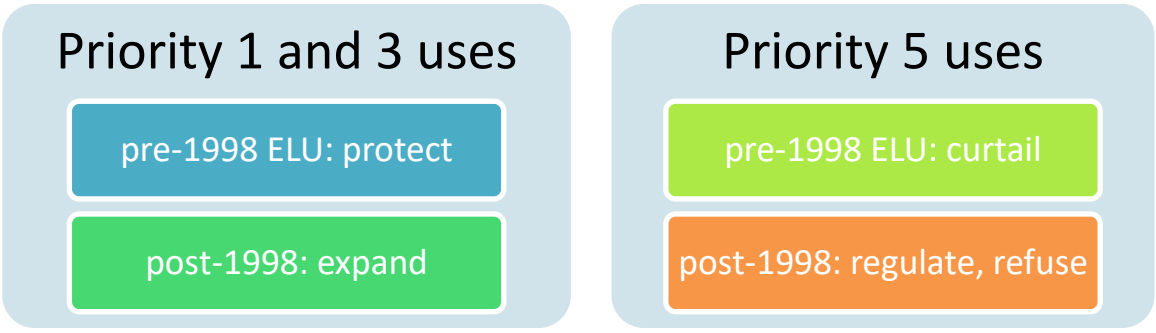
Three issues are beyond the project's scope. One issue regards the development, operation and maintenance of water infrastructure by Historically Disadvantaged Individuals (HDIs), whether in government schemes or as self supply. Without infrastructure one cannot concretise entitlements to water resources. However, this project focuses on existing infrastructure, and assumes that infrastructure and water uptake by HDIs should expand in the future, for which they need more secure entitlements to more water resources. In stressed basins, this requires curtailment of existing and future water resource entitlements by Historically Advantaged Individuals (HAIs). Land restitution and redistribution in which land and water should be optimally linked is only discussed for the specific case of sugar cane farming in the Nkomazi. Second, the project only focused on living customary water tenure in former homelands and paid no attention to HDIs' customary or rather: informal water governance in former white areas. Water quality is the third important issue not addressed.

METHODOLOGY

The project applied mixed methods. This included a review of all relevant policy and legal documents and academic literature. The study '*Recognition of customary water rights in South African legislation*' (2021) by Prof. Dr. Murombo was particularly insightful and informed this report. Quantitative analysis of records of water uses pertaining to the Inkomati Catchment included verification and validation data and the Water Use Authorisation and Registration Management System (WARMS) data base. From this data, profiles of registered water users were assessed along with entitlements held by different water users to reveal inequalities. Further, as far as the Covid-19 pandemic allowed, face to face interviews, or otherwise virtual interviews, were held with government officials, researchers and consultant experts across the agriculture, water resources and legal and academic sectors at national level. In-depth interviews and consultative discussions were also held in the Inkomati Catchment with leading stakeholders of the IUCMA and across the affected water and agricultural sectors. For field research, the project selected the Sabie Sub Catchment, and, following due Covid-19 protocols, interviews were held with small-scale water users in the former Lebowa and Gazankulu homelands. More importantly, knowledge was co-created by convening or participating in 12 catchment-level, national and international workshops and conferences to present and discuss emerging project findings.

RESULTS AND DISCUSSION

In chapter 2, this report conceptualises redress for historical justice in the context of water stress as an inevitable zero-sum situation with different implications for each of the four distinct legal domains of water use entitlements: pre- and post-1998 and priority categories 1 and 3 (broadly overlapping with HDIs) and priority category 5 (broadly overlapping with Historically Advantaged Individuals (HAIs)). Priority 1 and 3 uses are to be protected and expanded whereas priority 5 uses are to be curtailed or strictly regulated (see figure below).



In this conceptualisation, customary water tenure, linked to customary land is a priority 1 and 3 use. Customary water tenure has not yet received much explicit attention in South Africa. Therefore, a brief review is given of global concepts of water tenure and legal pluralism and of literature on vibrant, informal self supply embedded

in living customary water tenure in South Africa's former homelands in general other than in the Sabie Sub Catchment. A distinction is made between arrangements for 'sharing in' of collectively held water resources within a community and 'sharing out' of water resources with outsiders. Outsiders can be neighbouring communities, where customary land and water tenure and governance also prevail. Such broader-scale water tenure is also customary, covering the former homeland territories and its collectively held water resource flowing on the land and sitting under the land. Outsiders can also be external powerful third parties. The colonial and white apartheid powers were such outsiders. Many formalised high-impact HAI water users continue to be such powerful third parties. This distinction underpins the conceptualisation of redress and historical justice as prioritising water uses in former homelands over upstream and downstream outsiders and also over those encroaching former homelands, who are the lowest priority 5 users.

Chapter 3 presents the policy and legal context of the Constitution and water policies, legislative frameworks and strategies, both nationally and in the Inkomati Catchment. It highlights how the growing recognition of the failure to achieve redress and justice has led to tighter strategies. First, the National Water Resource Strategy-2nd edition (NWRS-2) (DWA, 2013a) prescribes a legally binding prioritisation that also serves as general principles to guide Water Allocation Plans of the Inkomati-Usuthu Catchment Management Agency. Further, the Department of Water and Sanitation (DWS) addresses the stiff defence and hoarding by HAIs who invoke Existing Lawful Use entitlements as a private property that they are allowed to transfer to others or surrender to the state for excessive monetary compensation. The chapter concludes by identifying the untapped potentials of available legal tools to realize current policies at short or longer term and to resolve the weaknesses in their current national-level interpretation, if not contradictions to the Constitution, at the same time: Existing Lawful Use, the Basic Human Needs Reserve, Schedule One, General Authorisation, Licensing, and the explicit recognition of customary water tenure in former homelands. With these questions in mind, the realities of the Inkomati Catchment are examined.

Chapter 4 provides an in-depth empirical analysis of water uses, their deep inequalities, and hotspots of competition in the three sub catchments of the Inkomati Catchment, and the current operationalisation of the various legal tools of the NWA. Focusing on the Sabie Sub Catchment, quantitative and qualitative research corroborate insights in living customary water tenure in the former homelands (This is part of the Ph.D. study of the main author).

Based on these realities, chapter 5 presents the conceptual implementation plan with actionable interpretations of the suite of existing legal tools to operationalise the NWRS-2 prioritisation for poverty alleviation and redress of the IUCMA's Water Allocation Plans. In order to protect priority 1 and 3 users, and empower HDIs, the plan proposes:

- Redefining and enforcing a countrywide Basic Human Needs Reserve that includes water used to realise a constitutional right to food. The latter overlaps with the micro-scale uses defined as Schedule One. By elevating Schedule One uses to the strong entitlement of the Basic Human Needs Reserve, the problem that Schedule One uses are invisible and a weak right is solved as well.
- Recognising and prioritising customary water tenure in former homelands as a priority 3 use in the 'sharing out' of water resources with external priority 5 HAIs who use water upstream and downstream, or who share the same aquifer, or enter former homelands to abstract water sources within these territories.
- Elevating thresholds of General Authorisations for small-scale and medium-scale HDI farmers country-wide to prevent administrative discrimination. In former homelands, thresholds are to be set in dialogue with its inhabitants, while gradually aligning all customary norms with constitutional rights. In former white areas, the Department of Water and Sanitation initiates a locally relevant definition of thresholds.

In order to curtail water resources from priority 5 HAIs, the already ongoing or intended actions include
For pre-1998 Existing Lawful Use:

- Ending unlawful pre-1998 water uses

- Curb ELUs (declaring a moratorium on HAIs' registrations claimed as ELUs; Constitutional Court case on transferability and compensation of ELUs; expediting verification and validation for compulsory licensing

Post-1998

- Ending all illegal post-1998 water uptake
- Refusing, or strictly regulating high impact HAIs' new water uptake through due process licence applications.

The concluding Chapter 6 proposes further dialogue and research, in particular on short-term options for curtailment of priority 5 uses and the elevation of thresholds of General Authorisations to end administrative injustice about widespread existing uses and envisaged future uptake for redress. Further research is recommended on the quantitative scale and qualitative agency of HDI farmers and on customary water tenure in former homelands at the interface with statutory law, in particular the Basic Human Needs Reserve and potential General Authorisations (GAs). This all will further debunk the startling opinion in the majority judgment of the Supreme Court of Appeal that any water resources can 'go to waste, as it were in the Inkomati Catchment or elsewhere in South Africa.

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ACRONYMS & ABBREVIATIONS

CMA	Catchment Management Strategy
DALRRD	Department of Agriculture, Land Reform and Rural Development
DARDLEA	Department of Agriculture, Rural Development, Land and Environmental Affairs, Mpumalanga
DWS	Department of Water and Sanitation
ELU	Existing Lawful Use
GA	General Authorisation
HAI	Historically Advantaged Individuals
HDI	Historically Disadvantaged Individuals
IUCMA	Inkomati-Usuthu Catchment Management Agency
IUWMA	Inkomati-Usuthu Water Management Area
NWA	National Water Act
NWRS	National Water Resources Strategy
NWSMP	National Water and Sanitation Master Plan
PTO	Permission to Occupy
REC	Recommended Ecological Category
WAP	Water Allocation Plan
WARMS	Water use Authorisation & Registration Management System

CHAPTER 1. INTRODUCTION AND SCOPE

1.1 BACKGROUND AND RATIONALE

1.1.1 Continuing historical injustices

The Constitution of South Africa aims at racial and gender equality and redress of historical injustices (RSA, 1996). Accordingly, the purpose of the National Water Act (NWA) (Act 36 of 1998) (hereafter NWA) is to "ensure that the nation's water resources are protected, used, developed, conserved, managed and controlled in ways which take into account amongst other factors – […] (b) promoting equitable access to water; and (c) redressing the results of past racial and gender discrimination" RSA, 1998, section 2). This discrimination was immense: when the 1913 Land Act had declared 87% of South Africa's territory as white-owned and this also included the appurtenant water resources. Massive state support for sophisticated infrastructure development for the white minority water economy led to wide race-based inequalities in access to water. Hardly any Black person had an individual water right at the dawn of democracy. Moreover, the NWA prescribes Catchment Management Agencies (CMAs) to gradually devolve participatory water management to local stakeholders. The NWA was seen as the first step towards equitable redistribution of this vital, contested resource in South Africa. At global level, the NWA was lauded as transformative water legislation to realise equity and historical justice under growing competition for water resources.

In national policies and strategies, the Department of Water and Sanitation (DWS[1]) further operationalised the goals of equity and redress. The goal of redress was quantified in the National Water Allocation Reform Strategy – 1st edition (DWA, 2008) as targeting 60% of allocable water being in the hands of HDIs by 2024, and out of this 60%, half should be allocated to women (DWA, 2008). This goal was to be achieved through the existing legal tools, which were 'major significance to Water Allocation Reform, as it lays the basis for regulating water use' (DWAF, 2008, p 2). The legally binding National Water Resource Strategy-2nd edition (hereafter NWRS-2) (DWA, 2013a) took another step forward by further concretising the prioritisation in water resource allocation. The Basic Human Needs and Ecological Reserve maintain the highest priority, with the progressive increase of the volume, followed by international obligations. The third priority is for water used "*for poverty eradication, the improvement of livelihoods of the poor and the marginalised and uses that will contribute to greater racial and gender equity".* This is a higher priority than strategic uses (4th priority) with the last priority for water "*used for general economic purposes, which includes commercial irrigation and forestry."* Broadly, water uptake by Blacks as Historically Disadvantaged Individuals (hereafter HDIs[2]) corresponds to priority 1 and 3 water uses. The last priority 5 is accorded to the White minority's pre-1998 high impact water uses that continued and to high impact water uses taken up post-1998, which were again dominated by Whites (Historically Advantaged Individuals or, hereafter HAIs).

Unfortunately, more than two decades later, it is recognised that the Constitution and the goals of the NWA, policies and strategies have not been reached. Previous repressive structures and minority control continued and even expanded (DWA, 2013a; DWS, 2018; Hydrosoft, 2020). Even for new water

[1] The name of the department responsible for water has varied over the years, as reflected in the references. However, in the text we refer to its latest name: Department of Water and Sanitation (DWS).

[2] In this report Historically Disadvantaged Individuals include Black, coloured and Indian people, on the other side of the coin are Historically Advantaged Individuals (HAIs), primarily white men. This report does not elaborate the situation of white women as HDIs.

abstractions under the NWA, inequalities continue widening. For example, out of the 1424 licences issued between 2013/2014 and 2016/17, the 439 HDIs constituting 31% of the total, only received 11% of the total volume allocated (Mashitisho, 2017). As recognised in many domains in South Africa, a thorough rethink on delivering redress in accessing water is needed (Naidoo et al., 2019).

The present study seeks to contribute to this rethink by evaluating what the Water Allocation Reform Strategy (DWAF, 2008) highlighted as the basis of water regulation: the existing legal tools. The NWA adopted potentially far-reaching legal tools to enable the implementation of these goals. In the conversion from the old to the new legal regime, the declaration of the new democratic national government as custodian of all surface and groundwater resources broke away from the apartheid water legislation with its strong ties between water rights and land rights. Government custodianship dispossessed Historically Advantaged Individuals (HAIs) from these strong land-bound water rights. This was replaced by the sunset clause of Existing Lawful Use (ELU), which recognises water uses that were lawful under colonial legislation and took place in the two years before the promulgation of the NWA in 1998. The tool of ELU was designed for swift and, if needed compulsory conversion into regulatory licences that would enable dislodging old-order water rights for reallocation to HDIs. This tool was expected to enable the envisaged reallocation of water resources from the minority of 'haves' to the large majority of 'have-nots'.

The other four legal tools in the NWA regulate new water uptake post-1998. Before government authorises new water uptake, a due process of licensing is prescribed in which duration and other conditions are set, such as water quality control, caps to volumes, or restrictions in assurances of supply. Very small-scale uses (so-called Schedule One uses) are exempted from the obligation to apply for a licence. The two other tools explicitly aim at redressing inequities. The Reserve protects both ecological and basic human needs as the highest priority, enforced by the state as duty bearer. General Authorisations avoid bureaucratic burdens by allowing the government to authorise by declaration all or any category of persons, generally, or in relation to a specific water resource or area to use water, possibly subject to some obligation, for example registration.

However, various aspects of the interpretation and implementation of these legal tools till to date even led to the opposite of the intended goals, underlining the importance of a systematic evaluation of legal tools. The conversion of ELUs held by HAIs into regulatory licences appeared daunting, offering large-scale HAI users and their lawyers the space to consolidate and expand their entitlements and even claim huge monetary values for a resource held by the government as custodian but appropriated under colonial and racist land and water law. In distributive land reform in South Africa, which has received much more attention and resources than water reform, water is often forgotten (DWS, 2018). Cases are reported in which owners of land under claim sold off the water rights appurtenant to that land before redistribution (Murombo, 2021). Organised white large-scale farmers invoked the Constitution on 'property' in several court cases, claiming a monetary value in transfers to other users or compensation for surrendering to the state. One judge dissented with the other judges who confirmed the white farmers' claims to transferability for a monetary value. He highlighted the profound contradictory meanings of paper entitlements as either "transferable commodities" or "a use right to a public good", as a form of mere registration, which one loses if one does not use: "It must be borne in mind that to acquire a water use entitlement, an applicant is required to pay an administration fee of about R114 (€8,30). How that right suddenly becomes capable of being sold for R15.000,000 (€845,000), is neither clear, nor explained" (Supreme Court of Appeal, 2021).

For post-1998 water uptake, the administrative and logistic burden of licensing for both water authorities and applicants appeared inhibitive for small-scale uses. The NWRS-2 itself recognises that "Current processes are often costly, very lengthy, bureaucratic and inaccessible to many South Africans" (DWA, 2013a p.48). The 'many South Africans' are primarily small-scale HDI water users. Hence, users above

Schedule One who are formally obliged to apply for a licence, formally find themselves 'illegally' using water, while government recognises it cannot reach them logistically (DWA, 2013). Moreover, costs for licensing are disproportionate to volumes, and often unaffordable for HDIs. Moreover, many financing facilities and state subsidy programs require licences. Without licences, not for their fault, small-scale users are excluded from those subsidies as well.

Schedule One uses are exempted from the obligation to apply for a licence. These are *"reasonable domestic use (….) small gardening not for commercial purposes and the watering of animals excluding feedlots (…)* (NWA 1998). However, being exempted means remaining invisible and has the weakest legal status. In other words, many HDIs have invested or aspire to invest with own means in small-scale infrastructure for livestock, irrigation or other basic productive water needs to contribute to meeting their constitutional rights to water and food, at no cost to the tax payer. Yet, there is no legal protection whatsoever of the water resources that flow into that infrastructure or are directly used to those ends. Lastly, the tool of pre-1998 Existing Lawful Use has not explicitly been considered as yet for today's 18 million South Africans who live in South Africa's former homelands on the remaining 13% of the land. Here, customary tenure of land and related water resources prevails (Movik, 2010; Tapela, 2015; Schreiner and Van Koppen, 2018). These interpretations are reinforced by prejudices of 'deficit thinking' that HDIs are unable to invest in infrastructure or, if they do, only use 'negligible quantities' (Dube, 2021).

This neglect is compounded by failing government support to infrastructure development, the necessary condition to access water for most uses. As documented elsewhere and not further elaborated here, government support to irrigation schemes built and operated under apartheid dilapidated or collapsed (Fanadzo and Ncube, 2018; Van Koppen et al., 2017). Support for new infrastructure has been limited.

Similar concerns about water legislation and the need to evaluate and adjust legal tools have been observed in other African countries. Elsewhere as well, administrative entitlements (licences or permits) remain the most accessible for high-impact users, whereas the rural majority of small-scale water users in informal water economies are marginalised, if not criminalised, at least on legal paper, by under-resourced governments who are the custodians of water resources. In many other African countries, this colonial legacy has hardly been contested either. In history's most drastic water grab, colonial powers in Africa, Latin America and high-income formerly colonised countries declared themselves as owners of water resources in the colonies, over-riding prior and future customary water tenure. Permits 'granted' state-backed water security to settlers to encourage them to invest in new infrastructure. After independence, water resource ownership shifted to governments as custodians. However, the legal tools stayed. Even though licences were designed for new investments in water abstractions by an outside minority, they became the single legal tool applied to everyone, not only for new investments in water infrastructure, but even to 'regularise' centuries of prior uses, except for exempted micro-uses (Van Koppen and Schreiner, 2018). Licensing has advantages for state regulation: it is a vehicle to regulate new water uptake and impose conditions on water use, provides crucial information, and enables revenue generation for state water resource management. However, as long as licences are the only source of formal security of legitimate water use, it affirms colonial water users' past entitlements (unlike South Africa's intentions to convert and curtail ELUs) and favours the administration-proficient national and foreign 'haves' and their lawyers in future water uptake, while marginalising, if not criminalising the 'have-nots' and over-riding age-old customary water tenure by the rural majority.

In order to address these legacies in African countries with large proportions of rural small-scale users and relatively few high-impact users, 'hybrid water law' was conceptualised (Schreiner and Van Koppen, 2018). Hybrid water law promotes a suite of legal tools and instruments, as appropriate in different

contexts, undoing current water legislation of its colonial relics. 'Hybrid' refers to this mixed character of tailored legal tools in statutory law. Instead of entitlements, licences are seen as indispensable *regulatory* tools that are well targeted where it matters most, to ensure due process for new water uptake, compliance to conditions set and regular revisions. Targeting licences at the relatively few high-impact users directs scarce state regulatory resources where most needed. This includes international investors, whose currently can claim investment contracts that ignore any due national licensing process by sovereign governments (Bosch and Gupta, 2022). For all other uses, there are a range of legal tools, including the recognition of legal pluralism and living customary water tenure that has existed in the global South long before colonialism but has faded under the shadow of statutory and international water law. Outside South Africa, policy and academic attention for customary water tenure is more advanced, especially in Latin America (Boelens, 2008), but also globally (RRI/ELI 2020; FAO 2021). These global debates have informed the present study and they render its findings relevant elsewhere as well.

In sum, in the South African context, with a suite of legal tools in its progressive Constitution and water law and policies, its quantifiable goals of redress and legally binding prioritisation, the question of the present project 'Operationalising hybrid water law for historical justice', commissioned by the Water Research Commission, is: how can high priority 1 and 3 uses (largely by HDIs) over low priority 5 uses (historically exclusively by HAIs, and still dominant today) inform the interpretation and implementation of ELUs by both HAIs and HDIs, the Reserve, Schedule One, General Authorisation and Licences? The Constitution provides the reference framework. The project sought to conceptualise a potential implementation plan in dialogue with the authorities and anchor answers in a concrete context.

1.1.2 Partnering with DWS and the Inkomati-Usuthu Catchment Management Agency

At national level, the project team engaged with the Department of Water and Sanitation (DWS), which sets the policies, legal frameworks and strategies as well as interpreting and implementing the legal tools, including approval of licences. As decentralisation is vital in water governance (Meinzen-Dick and Nkonya, 2005), the team also liaised with both regional DWS staff in the Inkomati-Usuthu Water Management Area, and the Inkomati-Usuthu Catchment Management Agency (IUCMA). As indicated in the NWA (RSA, 1998; DWS, 2013), the IUCMA is responsible to operationalise the same goals of redress into decentralised Catchment Management Strategies (CMS) and Water Allocation Plans that set out the principles for water allocation for any specified sub catchments. The IUCMA assesses licence applications and General Authorisations and recommends to DWS at national level. The delegation of further authority for the issuing of licences from national DWS to CMAs is still envisaged.

The Inkomati Catchment in the north-east of South Africa consists of the three Sub Catchments (Komati, Crocodile and Sabie). These rivers are tributaries to the downstream Incomati River in neighbouring Mozambique. The Inkomati Catchment is one of the most stressed catchments in South Africa with high inequalities in water uses. Prioritisation in water allocation has become inevitable. Competition for water resources is rife between commercial farmers (including sugar estates) often organized in Irrigation Boards, commercial forestry, HDI farmers who benefitted from land restitution of 60,000 ha in the Lowveld of former white owned land (Woodhouse and James, 2015), small-scale water users in former homelands, urban centres, mines, upcoming industries and the Kruger National Park with adjacent tourist parks as well as international obligations to Mozambique and e-Swatini (Denby et al., 2016). At the most local level, the project focuses on the Sabie Sub Catchment, where the geographies of former homelands and former white areas are quite similar to other former homelands in South Africa. The principles of the Water Allocation Plan for the Sabie Sub Catchment follow the above-mentioned prioritisation of the NWRS-2. Jointly with these partners, the following project has been implemented, as commissioned by the Water Research Commission.

1.2 PROJECT AIMS, METHODS AND REPORT STRUCTURE

1.2.1 Project aims and method

The aims of this collaborative project are:

- To conceptualise interpretation and formulation of regulations available under South Africa's statutory law in the NWA as related to accommodating hybrid water law in the Inkomati Catchment.
- To develop a conceptual implementation plan of how hybrid water law would be translated in a real-life context, and its implications for the regulatory effectiveness of the state and the protection of small-scale uses.
- To situate the South African developments on hybrid water law into broader Africa and international narratives, and to disseminate the findings in peer-reviewed outputs and policy dialogues.

During the project duration, from April 2020 to December 2022, the project team explored the current and potential operationalisation of existing and potentially new legal tools or amendments to the NWA, as applied or applicable in the Inkomati Catchment, in the light of national and catchment-level policies and strategies that seek to realize historical justice and constitutional rights.

As in Figure 1, in three consecutive steps, different entry points were examined, each leading to a report. Extensive reviews of literature and policy and legal documents were conducted. Interviews were held both face to face and virtually, complying with the Covid-19 pandemic regulations. Where data were available, quantitative assessments were done, as for registered water uses or irrigation identified through remote sensing in the Inkomati Catchment. Last but not least, field research was conducted with HDI water users whose experiences, views and claims will increasingly lead redress and historical justice. The former Lebowa and Gazankulu homelands in the Sabie Sub Catchment, representing South Africa's general continuities of apartheid and its territorial segregation were selected for this field work. The quite specific features of the sugarcane irrigation in former KaNgwane and land restitution in the Nkomazi district are briefly discussed for comparison, based on literature (see annex).

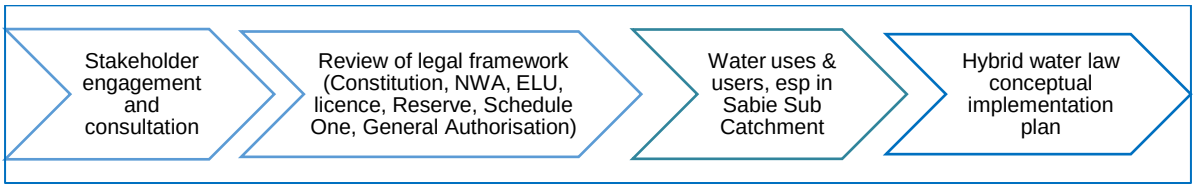

Figure 1: Steps towards developing a hybrid water law conceptual implementation plan

The knowledge presented in this report was co-created. From its proposal stage onwards, the project was guided by (later) participants of the WRC Reference Group and others from the IUCMA, authorities of the DWS national and regional offices and of the Department of Agriculture, Land Reform and Rural Development (DALRRD), national and international stakeholders engaged in agrarian transformation, including farmer organizations and grassroots organizations, legal experts, and others. Exchanges with Dr. Tumai Murombo were particularly insightful, also through his report '*Recognition of customary water rights in South African legislation*' (2021) supported by the Policies, Marketing and Institutions Research Program through IWMI. The project also contributed to the growing global debates on a recognition of customary water tenure. Twelve international and regional webinars were convened or co-organized, as listed in Table 1. All these exchanges contributed to this report.

Table 1: Policy dialogues conducted throughout the project

Date	Event	Title	Format	Other IWMI Partners
26 August 2020	SIWI Stockholm World Water Week	Unpacking South Africa's changing water law for transformative justice	Virtual interactive Session	DWS with Deputy Minister, DALRRD, WRC, IUCMA, Water Integrity Network (WIN), Wits University
10 December 2020	Water Institution of South Africa (WISA) Biennial Conference	Recognising customary water tenure: Global, African and South African experiences	Webinar	DWS, IUCMA, Policy, institutions and Markets (PIM) research program, Water Resource Authority Kenya, Rights and Resources Initiative, Environment Law Institute (RRI/ELI) Wits University
20 May 2021	International Association of the Study of the Commons (IASC) Virtual Conference	Living customary water tenure in sub-Saharan Africa: Concepts and evidence	Virtual Conference Session	ELI
12July	FAO Water tenure Mondays	Hybrid Water Law	Webinar	Water infrastructure and Sustainable Energy Futures (WISE) Arusha, WIN
26 August 2021	FAO@World Water Week Online	Water tenure and governance: Keys to water and food security	Virtual Conference session	FAO, ELI, WRC
13 October 2021	Committee on World Food Security 49th session	Water Tenure Approaches for Securing Rights, Climate Resilience and Food Security. Presentation 'Why water tenure matters for rural development: Ensuring water availability for farmer-led irrigation'	Virtual Conference presentation	FAO
8 November 2021	FAO Water Tenure Mondays	Aligning customary and legislative water rights through Voluntary Guidelines on the responsible Governance of Tenure of Water	Webinar	FAO
11 November 2021	Institute for Poverty, Land and Agrarian Studies (PLAAS) Webinar	Aligning customary land and water tenure reform in South Africa: lessons from Africa'	Webinar	PLAAS, ELI

Date	Event	Title	Format	Other IWMI Partners
Date	**Event**	**Title**	**Format**	**Other IWMI Partners**
16 November 2021	IUCMA Women in Water	Virtual presentation	Hybrid Conference; virtual presentation	IUCMA
26 November 2021	Africa Water Week	Overcoming structural inequalities in water resource allocations to achieve universal access to water and food	Webinar	RWSN, ELI,
30 August 2022	SIWI Stockholm World Water Week	Rights to water and food in freshwater resource allocation	Hybrid onsite and online session	WRC, WIN, ELI, FAO, Rural Water Supply Network (WIN), WISE Futures,
28 Sept 2022	Water Institution of South Africa (WISA) Biennial Conference	Accelerating water allocation reform	Paper presentation	-

1.2.2 Report structure

Chapter 2 starts by conceptualising the implications of the prioritisation stipulated in the NWRS-2 for HDIs (priority 1 and 3 users) and HAIs (priority 5 users). As HDIs' water uses for self supply in former white areas and former homelands are often ignored, global and South African research is summarized to clarify definitions of water tenure and legal pluralism and to briefly indicate general features of customary water tenure as found outside the Sabie Sub Catchment.

Chapter 3 focuses on the national policy and legislative framework – the Constitution, NWA and evolving water policies, strategies and master plans, as well as their operationalisation into the Catchment Management Strategy and Water Allocation Plans by the IUCMA. This includes current definitions of legal tools and an assessment of their strengths and weaknesses to realize the prioritisation of the NWRS-2 and Water Allocation Plans.

In the light of this overall framework, chapter 4 moves to the Inkomati Catchment. General features, including the inequalities and prevailing competition are presented, as well as the operationalisation and implementation of the legal tools in this local context. Field research findings in the Sabie Sub Catchment provide further insights in customary water tenure in former homeland areas and its importance for basic wellbeing. Qualitative insights are complemented by quantitative analyses based on remote sensing research and registered water users in the Water Authorisation and Registration Management System (WARMS) and the verification and validation, as kept by DWS and the IUCMA. This provides a grounded identification of existing and new, untapped potentials for the interpretation and implementation of legal tools to contribute more effectively to the prioritisation in the NWRS-2 and Water Allocation Plans in the Inkomati Catchment. Sugar cane farming and land restitution projects in the Lower Komati, which are quite unique, are briefly described in the annex.

Based on chapters 3 and 4, chapter 5 synthesizes the conceptual implementation plan as actionable ways to translate the prioritisation of water uptake by HDIs into the tools of Basic Human Needs Reserve, Schedule One, ELU, recognition of customary water tenure in the 'sharing out' of water resources, and prevention of administrative discrimination in remaining licensing of small-scale HDI water users. For HAIs, legal action is partially already underway: the curbing of ELUs, ending of illegal

uses, and strict regulation or refusal of any new water uptake through due process of regulatory licensing, Chapter 6 draws conclusions and recommends further research.

1.3 LIMITATIONS

This project focuses on the allocation of water resources to redress the historical dispossession of land and appurtenant water resources as the mandate of DWS. Attention to water infrastructure development is limited. Obviously, skewed infrastructure development continues to be the other major cause of inequitable access to water. HAIs received highly sophisticated financial, technical and institutional support, either as government schemes or as support to their self supply. In contrast, HDIs hardly ever received state support for domestic uses and irrigation. The performance of municipalities in providing just for basic domestic water needs, let alone higher service levels, is weakening. Government irrigation schemes in former homelands under auspices of the Department of Agriculture dilapidated and are, at best, only partially, used. Whereas the Department of Agriculture consistently protects the past formal water rights for uptake after the envisaged technical, institutional, financial, or agronomic support for rehabilitation, only few projects materialize this rehabilitation (Riddell et al., 2018; IUCMA, 2021).

However, as the report highlights, HDIs respond by investing in affordable infrastructure for self supply without government support. In former homelands, living customary tenure shapes these investments and water resource sharing arrangements. Under growing competition, their claims to the water resources that still flow over their land or are located underground or that are to be dislodged from HAIs become increasingly important, especially during dry seasons or droughts. Without secure water resource entitlements, existing infrastructure would run dry and future investments, with or without government support, are discouraged. This report pays does not further discuss the important rehabilitation of former smallholder irrigation systems with recognised rights and pays attention to self supply. However, the main focus is on the water resources that flow into infrastructure or are directly used.

A second limitation of this project is that customary water tenure is only elaborated for former homelands. Some attention is paid to the connection or disconnection between water entitlements in land restitution and redistribution in former white areas, as formally coordinated by the Department of Agriculture, Land Reform and Rural Development (DWS, 2018). Black people in former white rural areas, including those dwelling on farms or living in irrigation districts, may have created informal arrangements to abstract water resources for self supply, in spite of strong White control, past forced removals and ongoing farm evictions and forced-voluntary relocation of farm workers in expanding informal settlements, with unclear responsibilities of either municipalities or intermediary private landowners or both to provide basic water services to workers living on the land. More research and action on HDIs' water resource rights beyond former homelands and land reform is recommended.

The third limitation is that no attention is paid to water quality protection, as a major way to ensure water resources remain available for human use.

The last limitation is methodological. Due to the Covid-19 pandemic and its restrictions, interviews, meetings, and seminars with national and international officials were often virtual. As soon as Covid-19 regulations allowed, field research was taken up again, complying with regulations.

CHAPTER 2. CONCEPTUALISING REDRESS IN WATER RESOURCE ALLOCATION; RECOGNISING CUSTOMARY WATER TENURE

2.1 REDRESSING INEQUITIES OF THE PAST BY PRIORITISATION OF ALLOCATIONS

2.1.1 Prioritisation in the NRWS-2 and Inkomati Catchment

The project conceptualised redress in water resource allocation based on the prioritisation introduced in the NWRS-2, which are also principles of Water Allocation Plan of the Sabie Sub Catchment (IUCMA, 2022). The following categories of uses and their respective priorities are distinguished.

Priority 1

In line with the Constitution and National Water Act, the highest allocation priority is afforded to water for the purposes of the Reserve. The first objective is to ensure that sufficient quantities of raw water available to provide for the basic water needs of people. In terms of current policy, a quantity of 25 litres per person per day has been incorporated in the Reserve determination. Even though this is the minimum volume, this will be progressively increased where appropriate.

Priority 2

South Africa is committed to managing shared river basins in line with the Revised Protocol on Shared Watercourses in the Southern African Development Community and in terms of specific agreements with riparian states. The second-highest priority therefore is meeting international requirements in terms of the agreements with riparian countries.

Priority 3

The third highest priorities is accorded to the allocation of water for poverty eradication, the improvement of livelihoods of the poor and the marginalised and uses that will contribute to greater racial and gender equity.

Priority 4

The fourth highest priority is accorded to the allocation of water for uses that are strategically important to the national economy, as described in Section 6(1)(b)(iv) of the National Water Act. These are uses that are of critical importance to the nation and must be authorised by the Minister. The uses include:

- *The transfer of water from one water management area to another.*
- *The continued availability of water to be used for electricity generation throughout the country.*

Priority 5

The fifth priority will be water used for general economic purposes, which includes commercial irrigation and forestry. In this category, allocation is best dictated by prevailing local and regional dynamics and requirements. Demand will reflect the value of water in particular economic sectors and will encourage uses that create employment, contribute to the economy (GGP) and are efficient. All five priorities must give effect to allocations that promote equity.

The project focuses on categories 1, 3 and 5, for the moment ignoring the particularities of 2 and 4. When competition for water resources is a zero-sum situation, often starting during droughts, the win-win solution is supply augmentation by more storage and more efficient water uses. However, in the temporary or permanent absence of such supply augmentation, the goal of redress for historical justice translates into more water resource abstraction by HDIs as priority 1 and 3 users, which inevitably implies that *existing* water resource entitlements of lowest priority, high impact HAIs are to be dislodged, for example through a lower assurance of supply or restriction rules. Any *new* uptake of water, typically by developing new infrastructure, also prioritises categories 1 and 3. So low priority HAIs cannot take

up any new water use because that would even more negatively affect existing and future water resource availability for priority 1 and 3. Combined with the conversion of the pre-1998 water law into ELUs and the post-1998 tools, figure 2 depicts how this zero-sum situation affects water resource entitlements as two sides of the coin.

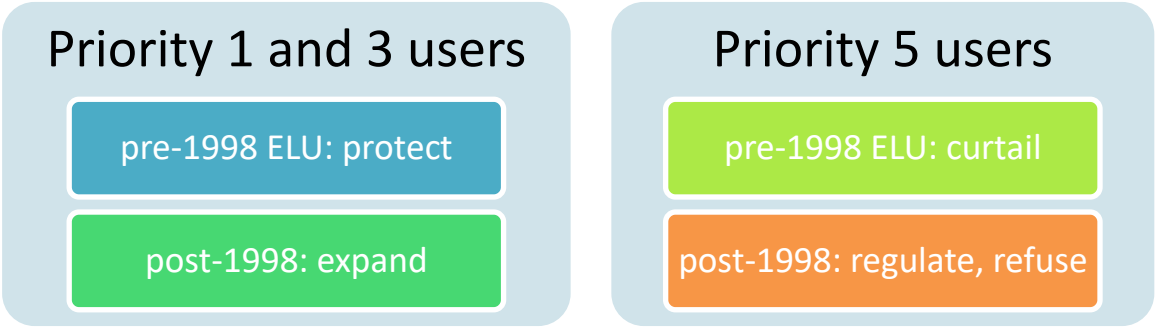

Figure 2: Conceptualisation of distributive water reform in closed basins

This legally binding conceptualisation of distributive water reform is quite new, both in South Africa and elsewhere. This is partly due to the highly variable nature of the resource and the crucial importance of storage infrastructure, besides conveyance infrastructure, as briefly explored in the following.

2.1.2 Specificities of distributive water reform

The prioritisation of the NWRS-2 is globally unique and fills a gap in defining and implementing distributive water reform or even equitable water allocation. Global principles remain abstract, for example the Sustainable Development Goals, or, even within the domain of resource tenure, the principles of the Voluntary Guidelines on the Responsible Governance of Tenure or Land, Fisheries and Forestry (FAO 2012). As for land distribution, the distribution of aggregate volumes of water resources abstracted per year or month are quantifiable, for example as a Gini coefficient. In this way, Cullis and Van Koppen (2008), found that 1.2% of the water users use 95% of the water. However, water resources are fugitive, variable and unpredictable depending on seasons and extreme events induced by changes in weather and increasingly by the changing climate. Quantification is only possible in retrospect.

Moreover, water flows above the land and to a certain extent underground, so water is, by its physical nature, a shared resource. This sharing depends on the geo-hydrology of the surface flows or aquifers (as far as invisible groundwater, depending on diverse geological formations, is known), and environmental and human alterations of these flows. The scale of water sharing varies from a small, localized aquifer to inter-basin transfers, as for national power generation, and transboundary sharing with e-Swatini, and Mozambique.

Competition is seasonal and changes over the years. When water resources are abundant, it is generally used as an open access resource. Competition and the need for sharing arrangements become stronger during dry seasons and droughts. When uses increase, users compete during longer periods of the year, or ultimately even year-round. Inevitably, under competition for too limited, finite water resources, sharing is this zero-sum game according to priorities. Priorities can be expressed in absolute volumes or proportional shares or combinations. The uses with lowest priorities are to end first under competition, whereas the highest priorities can continue taking water. ‘Assurances of supply’ reflects such prioritisation, especially when dams with operating rules buffer nature’s vagaries. A 98% assurance means that water resources will be available year-round in 49 of 50 years; 75% means

availability in three of the four years. The Reserve has a 100% assurance of supply: any other uses can only take place after these core minimum volumes have been met.

Infrastructure profoundly alters water resource sharing. Infrastructure to store water, ranging from soil moisture retention to dams, increases the availability of water resources for human use for those served by the storage. But it may deprive others, in particular those living downstream. Conveyance infrastructure ensures water availability of the right quantity and quality, at the right time to the right site either to fill the storage or to use where needed, including near or at residences for domestic uses, and, in rural areas, often also for livestock, homestead irrigation of crops, vegetables and (fruit-) trees and other enterprise; and intermittently or year-round to distant fields or other sites of use, including industries or recreation. Conveyance infrastructure greatly influences the scale of practical sharing. However, diversion of surface gravity streams, or pumping of aquifers negatively affects others who share the same resource (Planetary connections through the global hydrological cycle and climate are not further considered here).

A certain security of water resource availability is an obvious necessary condition for infrastructure development – among many other conditions such as sufficient benefits to justify the costs, energy availability, technical skills, etc. Once investments in infrastructure have been made, users tend to defend these investments vis-à-vis new investors with first-come-first-in-right claims, unless the investor does not need the water resources anymore. This renders the planning and design phases of new infrastructure the most important phases to timely assess likely impacts on the water resource for existing or future other uses. These ex-ante impact assessments are at the heart of due process, in which plans are timely shared with those affected for objections and changes. Designs can still be adjusted for better sharing of benefits, compensation of infringements, or plans can be cancelled altogether. Once infrastructure has been constructed or rehabilitated, the sharing of benefits can be refined to some extent only. The reward of this due process for the investor is a certain degree of water resource security, and, hence, protection against next investors in infrastructure that may affect the water resources flowing into the right holder's infrastructure. Licence applications for post-1998 uptake of water in South Africa are supposed to follow this due process, also at the cost of the investor if the state decides so (NWA, section 41 (4)).

Even when water resources have only partly been taken up in a certain area, DWS as the water authority can set the still available water resources aside for HDIs' prioritised future uptake, so refuse any new water uptake by HAIs, or set a strict limit on the duration, in order to avoid contentious dislodging in the future. We note that any narrative of 'water resources laying idle', even in catchments where water resources are still available for uptake, is incorrect. It is concerning that even courts use this notion of water uses laying idle to justify water allocation to HAIs.

In sum, redress of inequities from the past is about reducing the highly unequal access to water by increasing the volumes allocated to HDIs (and, hence, prioritising infrastructure development for them) and by ensuring that any existing and future water uses by HDIs are protected as priorities 1 and 3, over existing and future new uses, if any, by HAIs. Such security that water resources keep flowing into infrastructure will stimulate HDIs to continue investing in self supply and stimulate HAIs to better share benefits from their existing infrastructure.

Existing water uses by HDIs for self supply are still largely invisible, Customary water governance has received even less attention in South Africa. Therefore, the remainder of this introductory chapter synthesizes concepts and empirical findings to fill this gap.

2.2 WATER TENURE AND LEGAL PLURALISM

2.2.1 Water tenure, bundle of rights and land-water nexus

Water tenure is defined "as the relationship, whether legally or customarily defined, between people, as individuals or groups, with respect to water resources" (FAO 2020). Water tenure includes both water resources and infrastructure (and water quality, but this is beyond the scope of this study). Claims with respect to water resources are a diverse 'bundle of water rights'. In line with RRI/ELI (2020), we distinguish: a right to use water for a certain duration, to govern (setting and implementing rules and conflict resolution), to transfer (to kin through marriage or inheritance; donations; or possibly for monetary compensation), to exclude others, and a right to due process (RRI/ELI 2020). Different legal frameworks define these rights in different ways. For example, in statutory water law in South Africa, the government is custodian and licences are only entitlements to *use* water resources, although they can transfer to heirs. As mentioned, white large-scale farmers demand the right to transfer Existing Lawful Use entitlements for monetary compensation, claiming private property to a national resource. In contrast, in South African, African, Andean or other living customary law, water resources are seen as a commons and a shared resource without any exclusive private entitlements, but still with detailed use, governance, transfer, exclusion and due process rights (Boelens, 2006; Vos and Boelens, 2014; RRI/ELI 2020).

Once water resources flow into infrastructure, the investors and owners of that infrastructure strengthen their claims to the water stored and conveyed, whether government and public entities or individuals or self-organised sub-groups who formally or informally invest in infrastructure for self supply. They 'create hydraulic property' (Coward, 1986) with stronger use, governance, transfer, exclusion and due process rights to these waters, reflecting these efforts being made. For example, informal water vendors can sell water they abstract, store and convey.

Governments are both national legislators and public investors in infrastructure, for example in government irrigation schemes in former homelands. Formal water law tends to prioritise water resource allocation to keep flowing into such state infrastructure, although due process and compensation, for example in the case of dam displacements, is formally required. When government or NGOs, and other non-state entities finance, design, construct and rehabilitate infrastructure, they may partially or fully hand-over operation and maintenance of the scheme to a top-down appointed committee that is supposed to represent 'the community'. However, as often witnessed, expectations are not met, and infrastructure dilapidates. With no one claiming ownership of the infrastructure and water stored and conveyed, the hydraulic property rights created are 'extinguished'.

The physical link between naturally available water resources and land has legal implications in which rights to naturally available water resources falling on, flowing over or impounded on land as surface water sources or as soil moisture, or as aquifers under land are linked to the right holders of those lands and their territorially defined institutions. This renders water resource rights in one way or another 'socio-territorial rights'. In South Africa, this land-water nexus implied that the 1913 Land Act not only dispossessed HDIs from most of their lands, but also the water resources appurtenant to the land. Water infrastructure alters these land-water links. Pipes or channels can tap into distant and even transboundary water sources, as South Africa does by channelling water from the Lesotho highlands. In infrastructure development, land rights play a role as rights of way for the investors to access and tap into the surface or groundwater resource, and as servitude rights where the conveyance infrastructure (pipes, canals) passes. Government Water Control Areas according to the 1956 Water Act claimed such rights of way into former homelands. In contrast, when governments are custodians,

as in licence systems, they can hive off the nation's water resources from land, and grant licences, with or without strong binding reference to a specific site of use.

2.2.2 Legal pluralism

Legal pluralism is well recognised for land tenure. It also holds for water resources. These plural normative frameworks serve as source of legitimacy for their respective bundles of rights vis-à-vis water resources. The pluralistic nature of legal systems that govern water use and management is illustrated in Figure 3. However, as plural frameworks often regard the same shared water resources, they inevitably interact (Burchi, 2012). At this interface, normative frameworks can partly or fully align, but also contradict each other and lead to contest. The influence and power of different legal systems vary from place to place. For example, many rural communities in South Africa's former homelands perceive customary normative frameworks as source of legitimacy and may not even be aware of the prescriptions in the NWA. Yet, the NWA does not explicitly mention customary water law. Instead current interpretations of the legal tools override customary water tenure.

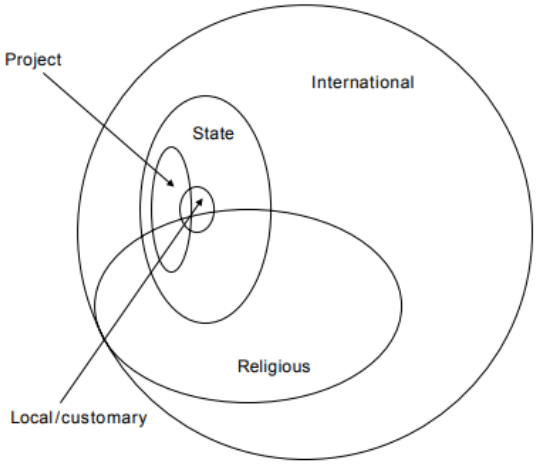

Figure 3: Legal systems governing water and their intersections (Source: Meinzen-Dick and Nkonya, 2005)

In a customary land-water nexus, a community holding the land rights often claims strong (but not exclusive) rights to the multiple water resources arising from, flowing by or under its socially defined territory. Access for outsiders is arranged through rights of way who may have to ask for permission. In formal riparian law, water is linked to land via the riparian users who have to equitably share the same river. When governments are the custodian, the link with land can be minimal internally. However, in transboundary negotiations about shared water resources, states represent the nation.

Combinations of land tenure and individual or collective investments in water infrastructure provide a typology of irrigated farming. Accordingly, Figure 4 distinguishes five main farmer typologies in the Inkomati Catchment, based on land tenure continuum from customary/communal tenure (in former homelands) to private land ownership (in former white areas).

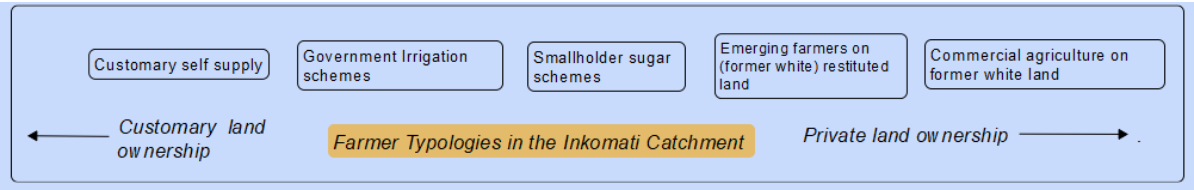

Figure 4: Farmer typologies in the Inkomati Catchment

Small-scale irrigators can belong to three distinct typologies each exhibiting unique attributes. These are (i) customary small-scale farmers practicing self supply; (ii) small-scale farmers on government irrigation schemes implemented in the apartheid era; and (iii) recent small-scale sugarcane farmers, both in former homelands and on their restituted customary land (see annex). In former white areas emerging farmers and commercial farmers prevail. There are blends and combinations. For example, surrounding farmers may take informal initiatives to revive collapsed government schemes. Or dams constructed by government in former homelands that remain unused get increasingly used by surrounding communities, even if formally 'illegal'.

Policy and academic attention for informal water economies, including customary water tenure in former homelands has been limited, in sharp contrast with customary land tenure, which is fully recognised and customary frameworks continue to co-shape governance, The following sections briefly synthesise definitions and findings of customary tenure from earlier WRC research and other literature outside the Inkomati Catchment.

2.3 SELF SUPPLY AND CUSTOMARY WATER TENURE IN FORMER HOMELANDS

2.3.1 Vesting customary water tenure

Following the above-mentioned general definition, customary water tenure can be defined as 'the relations, customarily defined, between people with regard to water resources' (FAO 2021). This refers to living norms and practices, whether recognised in statutory law in one way or another, or not. In customary or community-based resource tenure in general, a community is defined as: a group of rural people (indigenous or otherwise) who share a common interest or purpose in a particular territory or natural resource, and who primarily hold rights to those lands and/or resources at the community level (RRI/ELI 2020). Accordingly, community-based tenure refers to group-held rights that "encompass ubiquitous and very real local-level dynamics in which many rural people establish, maintain, and enforce community-based management rights and obligations regarding natural resource use and development." (RRI/ELI 2020). A customary community consists of – often descent-based-members, in-marrying spouses, and new entrants. Entitlements to access and use the community territory's land, water resources, grazing land, forests and other resources are based on being born in, or otherwise belonging to that community. As also found in South Africa, these resources belong to "the living, the deceased and the yet-to-be-born who make up a community" (Tapela, 2015).

Communities manage the water resources flowing over and located underneath their socially defined territories in an integrated manner, linking land, water and other resource tenure (Tapela, 2015; RRI/ELI 2020). Customary law is unwritten and orally transmitted from generation to generation. It has important spiritual and cultural dimensions. Ceremonies play an important role in this continuation and transmission (Caponera, 2007; Von Benda-Beckmann et al., 1998; Boelens and Vos, 2014).

Water, like land, is seen as part of the living natural environment and cosmology. No one owns water, or "water is owned by god; therefore, everyone has a right to it', as documented in Eastern Cape Province (Kapfudzaruwa and Sowman, 2009). Holding water resources in common as a resource given by a higher force for all, is comparable to the '*res communis omnium*' of Roman and civil law[3]. This does not mean open access in a tragedy of the commons, on the contrary. Customary sharing arrangements prevail.

Customary socio-territorial rights to water evolved over centuries with the gradual settlement on the lands of the San and Khoi-koi by in-migrating and expanding Bantu communities who sought to graze their livestock and settle for farming, or, incidentally, for fisheries. Earliest settlement occurred in well-watered areas, or the 'fertile valleys' as, for example, the Tubatse river sub-system was known. The Netshiavha group of vhaVenda and their chiefs reportedly exercised custodianship over Lake Fundudzi since pre-colonial times (Tapela, 2015). The Mphamphuli chieftainship among the Venda was responsible for safeguarding the natural spring along Mutshindudi River (Tapela, 2015). The knowledge about climate and local hydrology of the earliest occupants was respected, as still reflected, although fading, for the Rain Queen Modjadji (see box 1).

Box 1: Rain Queen Modjadji (source: Malzbender et al., 2005)

Queen Modjadji was queen over the area between the Great and Little Letaba and the Molototsi Rivers. Among the Balobedu, chiefdom inherits from mother to daughter, which may come from the Shangaan in Mozambique north of the Zambezi where matrilineal land tenure is common. After the demarcation of territorial boundaries by Paul Kruger's government in 1892 her kingdom shrunk to 179 square kilometres in the Duiwelskloof area, north of Tzaneen. Although she now only reigns over some 40,000 Balobedu, her reputation of spiritual and ceremonial powers, knowledge about prevailing weather and rain, which gave her the acclaimed 'power of rainmaking' as the most powerful rainmaker in Southern Africa, still transcends their current territories. Even today, the supremacy of Queen Modjadji is acknowledged by chiefs far beyond the small area where she currently rules.

As Malzbender et al. (2005, p 18-10) write: "Her rainmaking powers, whose exact details even today remain a mystery to the wider public, are exercised through a complicated and intriguing system of interaction between Modjadji and her ancestors. Her subordinates pay their respect to the queen in an annual pole dance ceremony, in which each village under her rule symbolically contributes to the maintenance of the royal kraal by delivering a new pole for repairs on the kraal. This ritual was traditionally accompanied by a monetary contribution that ensured the ongoing survival of the monarchy. Today, the tradition is disappearing as most villages have stopped making monetary contributions, and argue that the queen, like all traditional leaders, receives a State salary. The queen herself, as tradition has it, is not supposed to be seen during the entire time of her rule but the current, new and very young queen, is breaking away from tradition, as one interviewee put it with some expression of disapproval, "by attending the sale at Woolworths where she bumps into her commons".

[3] The definition of res communes in Roman & civil law: things owned by no one and subject to use by all: things (as light, air, the sea, running water) incapable of entire exclusive appropriation. https://www.merriam-webster.com/dictionary/res%20communes

2.3.2 Sharing water resources 'in' and 'out' in customary tenure

2.3.2.1 Sharing in of water resources

As water resources are collectively held by communities in socially defined territories, one can distinguish the 'sharing in' of the collectively held water resources among community members, and the 'sharing out', either with neighbouring communities also governed by customary law or with external powerful third parties, in particular powerful colonial settlers and today's HAIs and high-impact formal water users. As elaborated below, this will be a useful distinction for the legal recognition of customary water tenure.

When water resources are available within a community, this is often open access for community members. However, even then, aspiring investors in infrastructure can chose to establish recognised claims to the shared water resource. This was the case in Tshakhuma, Vhembe District (Hofstetter et al., 2021). Initiators of 10 of the 11 collective piped gravity systems for self supply in this village liaised with the headman or chief to orally inform him of the envisaged system abstracting from the shared mountainous stream. Headmen could record this in writing. (The section of the 11th system had no respected chief to go to and organised among each other). In already one case, such recording of the due planning processes served as proof to summon a later investor to respect the intake and move his intake further downstream. In this first-come-first-in-right rule in a 'race to the top', the most upstream intakes are most water secure (Hofstetter et al., 2021).

In nearby Khalavha, Vhembe District, the settlement of this conflict had to be retrofitted. A community member had constructed the intake for his household's water uses upstream of an already existing collective gravity self supply system that benefitted many households. The high number of beneficiaries was the argument to summon the later abstractor to shift his intake downstream of the collective intake (Van Koppen et al., 2021).

In Ga-Mokgotho, Sekhukhune District, this 'race to the top' could not be managed as yet; a collective authority that could have been instrumental in catalysing the setting of rules and enforcement but also win-win rules, such as rotations, was lacking. Instead, growing competition led to the tampering or displacement of infrastructure, damage or theft (Van Koppen et al., 2021).

The notion in many villages that one should keep a few metres distance from springs or streams, also in case of construction, or prayers before starting to build is explained in terms of the sacredness of a water spirit or snake. At the same time, this may well reflect respect for common rules to avoid internal conflict.

Pollution prevention is perhaps the oldest and most serious customary offence, to be punished severely. As reported for the Pedi, any witness of somebody poisoning water resources was obliged to report to the chief (Monnich, 1967). Kapfudzaruwa and Sowman (2009) report how communities in Eastern Cape divide streams within their territories. The upstream section is used for drinking, the middle section for laundry and bathing and the downstream section for cattle. Also, when one approaches a well or water source, wearing of footwear can be strictly forbidden. Also, the vessels lowered into a well should be clean. As reminder, the saying goes that with a dirty vessel, one risks to 'scoop a snake'.

Livestock risks polluting water resources. Puddles should be avoided to prevent livestock to come and drink and trample in the mud. Livestock in search of water also risks destroying crops of adjacent irrigated fields. Rules to separate livestock are common, with or without physical fencing, to specify grazing lands and periods and rights of way for livestock to the source. However, compliance to existing

arrangements facilitated by traditional collective authority structures can erode. In Ga Mokgotho, for example, traditionally, rules ensured that irrigated fields were carefully shielded against livestock entering, but currently, livestock tends to roam around, ending most irrigated cultivation (Van Koppen et al., 2021).

2.3.2.2 Sharing out of water resources with neighbouring customary communities

Whereas being member of a community entitles to the water resources appurtenant to the community's lands, outsiders are not categorically excluded; there is no customary notion of exclusive rights to the commons of water resources. Among neighbouring communities, customary rules and norms hold. Outsiders can enter a community's territory and tap into water resources. However, this typically requires asking permission to traditional authorities. When pipes or canals pass another section's or community's territory, permission is also needed. In Tshakhuma, permission to free up land for such servitude rights across village sections was swiftly accorded by the traditional authorities concerned, realizing that 'our daughters are married into those sections' (Van Koppen et al., 2021)

When neighbouring communities abstract water from shared streams or aquifers, new inter-community water sharing arrangements may need to be forged to avoid conflicts. In such negotiations, local water technicians and traditional authorities are legitimate representatives of the community as a whole. They represent their community in higher-level institutions that seek to solve conflicts about water sharing at increasingly larger scales. In a case in Tshakhuma, two sections used the same dwindling resource. The communities, the local water specialists, and their headmen agreed that the resource should be equally shared (Van Koppen et al., 2021). Malzbender et al. (2005) describe similar conflict resolution. In the mountains in Limpopo Province, a chief initiated and managed a communal gravity piped system from a stream that was shared with another community. The latter community invoked the principle that the resource that passed their lands should be equally shared by all. The two chiefs and their councils, then, found the solution that the adjacent village could qualify as equal beneficiaries of the resource on condition that they contributed equally to the finances required to maintain the water scheme. Chiefs were able to solve a dispute that the formal Magistrate's court and other officials had been unable to solve (Malzbender et al., 2005).

These customary intra- and inter-community arrangements imply that all shared water resources within South Africa's former homeland boundaries can be seen as collectively held customary water rights. This is significant for the 'sharing out' of water resources with external third parties: colonial settlers and today's HAIs and other powerful high-impact water users, as discussed next.

2.3.2.3 Sharing out of water resources with powerful third parties

After being dispossessed of most land, the boundaries of customary land, imposed as the meticulously defined homeland boundaries which are still living realities today, the plural legal systems of customary and state law have clashed, and continue to clash. As elaborated in the conceptual implementation plan in chapter 5, the Water Act of 1956 recognised this interface, but only to entrench a weaker legal status to the collectively held water resources in former homelands. By failing to explicitly recognise customary water tenure as equal, if not a higher status according to priority 3, DWS risks perpetuating this secondary status. Yet, communities' expanding water uses for self supply and 'sharing in' arrangements for conflict resolution in former homelands clearly contribute to realising constitutional rights to sufficient water and food, informally and outside the ambit of the state. Protecting and prioritising all water resources customarily used within former homelands as priority 1 and 3 vis-à-vis outside upstream or downstream priority 5 users is one important way to achieve constitutional rights and the goals of the NWA.

2.3.3 Self supply to realize Constitutional rights

2.3.3.1 Infrastructure investments

This section delves deeper in self supply embedded in customary water tenure as contributors to Constitutional rights to racial equity and sufficient water and food, dignity, development, and adequate standard of living. Customary water tenure is everybody's business or 'grassroots democracy' in the sense that everyone needs and uses water for a range of purposes that, at least, meet such Constitutional core minimum rights. Every household needs water for domestic uses. Larger or smaller segments of the community need water for livestock, supplemental or year-round irrigation, crafts, small-scale enterprise, brick making, decoration, and ceremonial or cultural uses. Therefore, individual households, self-organised sub-groups or entire communities invest in the design, construction, operation and maintenance of infrastructure for self supply but also for sharing with neighbours or sometimes for sale as water vendors.

When and where public domestic supplies fail in low-income rural areas, self supply is an alternative, back-up or the only source to meet basic domestic needs. Moreover, as elsewhere in the world's low-income rural areas, farmer-led irrigation has reached many more households and covers larger areas than the irrigation schemes that are largely or fully financed, designed and constructed by governments. Remote sensing research (Cai et al., 2017; Van Koppen et al., 2018) with ground truthing (Van Dijk, 2017) estimated that the total area of informal farmer-led winter irrigation in the former homelands in Limpopo Province is least 70,000 ha, five times higher than the total area of government irrigation schemes (chapter 4 discusses findings in the Inkomati-Usuthu Water Management Area (IWMA) and the Sabie Sub Catchment).

A wide range of household or communal water infrastructure is used to enable these multiple uses: rooftop rainwater harvesting, 'saaidamme' in riverbeds of intermittent rivers, weirs for river abstraction and gravity furrows for irrigation, wetland cultivation, wells with lifting devices, calabash or clay containers, small dams and other surface reservoirs, or fishing equipment. More recently, plastics and steel brought more affordable infrastructure on the markets, such as gutters, containers, JoJo tanks for storage, or High Density Poly Ethylene pipes. New energy sources, such as petrol, electricity and increasingly solar for motorized pumps accelerate especially groundwater uses. Builders, plumbers and other local artisans enable these supply chains. Some of them might have seen such technologies and learnt the skills as worker in the wealthier, technically advanced former white areas of South Africa. The increasing availability of affordable infrastructure on the shelves is compounded by other drivers for investments in self supply, besides being forced by intermittent and unreliable or absent public water supplies: increasing welfare, also through remittances (Malzbender et al., 2005), population growth, higher aspirations by at least part of the people, markets for irrigated produce, and more freedom post-apartheid to innovate.

When rural people who depend on agrarian livelihoods design infrastructure, they typically consider all their water needs. Accordingly, multi-purpose infrastructure is common in rural areas, especially near and at homesteads. In two villages in Sekhukhune District, Limpopo Province, where average water uses at homesteads were below 25 litres per capita per day, the large majority prioritised productive uses and re-uses over domestic uses (Van Koppen et al., 2021). Therefore, in practice, infrastructure that external agencies design as single use, either domestic uses by the Water, Sanitation and Hygiene sector, or irrigation by the agricultural sector, is also used for non-designed uses (Smits et al., 2010).

Construction, operation and maintenance of water infrastructure can be carried out by the community as a whole, which is then often facilitated by chiefs; or by self-organized groups; or individual

households. Community scale fisheries is an example of the first endeavour. In communities with inland fisheries, such as natural lakes and floodplain pans (for example ox-bow lakes), Tapela (2015) found how traditional leaders coordinated seasonal collective basket fishing practices, such as imfonya among the Tembe-Thonga of north-eastern KwaZulu-Natal and xirongo among the Tsonga-speaking Makuleke of north-eastern Limpopo Province. Another example of a community-scale investment comes from Eastern Cape, where a chief was found to delegate tasks to remove mud in a pond (locally called 'u kapa') and to ensure that the pond is fenced off from cattle with branches. The task of guarding rotates among households (Kapfudzaruwa and Sowman, 2009).

When smaller self-organized groups of community members, usually neighbours, invest in communal self supply, the initiators decide about membership of their group before or after construction, embedded in social relations; about the design; the obligations for construction and later operation and management; and the distribution of water within the scheme. If conflicts cannot be solved within the group of investors or between the group and others, the resolution of conflicts can be escalated to traditional authorities. Both women and men take initiative, but men dominate in technical skills, sharing water within the household. In Tshakhuma, Vhembe District, one of the initiators of a communal gravity piped system explained how she had walked in the surrounding mountains to explore all water sources. Realizing the potential to abstract water and bring to her yard, she talked about this opportunity with local technicians and her neighbours. The latter warned her reminding of a moral economy, saying: "you have better to include us in your plan. Otherwise, you will come home in the late afternoon, to find that all upstream neighbours of your pipe already took water from it". Not all households joined the initiative from the start onwards. Some were sufficiently satisfied with their access to the old municipal system. Others were sceptical whether the plan would work. When they saw it worked, they joined on the conditions set by the initiators. Yet, some of the poorest households lacked the money for the investment at the start and later (Van Koppen et al., 2021).

In other cases, individual households invest in their own infrastructure and use as they want. Traditional authorities can also invest in infrastructure for their family's self supply. Household water storage is such common form of self supply. In six villages in Limpopo Province, South Africa, households were found to have, on average, approximately one cubic meter of storage. In one village the average storage was similar for relatively poorer and wealthier households. In another village average storage by wealthier households was double the volume of relatively poorer households. In other villages, the respective proportions were in-between (Van Koppen et al., 2020).

In line with communities' moral economies and social safety nets, households with access to infrastructure, whether public or self supply, tend to share water with nearby neighbours who lack access, certainly in case of emergencies. These values overlap with global human rights, as Derman et al. (2007) found in a similar context in Zimbabwe. Regular sharing can be for free, especially if water comes at low costs, for example from a public gravity scheme. In other cases, though, neighbours or clients of water vendors pay for water to compensate factual costs for construction, operation and maintenance made by the infrastructure owner. The moral economy is not necessarily smooth, as a dependent water taker in Ha Gumbu, Vhembe, illustrates: 'one gets tired of always asking for water'. And: 'sometimes the man in the house talks in a bad manner' (Van Koppen et al., 2021). In sum, customary self supply is not equitable, but provides minimum social safety net and contributes to realising Constitutional rights for significant proportions of South Africans, including the most vulnerable.

2.3.3.2 Community-scale integrated water management

This section moves from investments in one piece of infrastructure to the integrated water, land and other resource management at community scale. At this scale, communities typically abstract water

from multiple surface and groundwater sources in their territories, for multiple uses, and through multi-purpose infrastructure as the rule and single-purpose infrastructure as the exception. For example, in four of the randomly selected villages in Limpopo Province, self supply was found to be the most important source of water at homesteads; public water facilities were mediocre: they were too small for expanding villages; too distant; or under repair. In the fifth village (Ga Mokgotho), the community self-manages a collective gravity system financed and designed by an NGO. In only one village, Phiring, almost all households primarily use a municipal system. In all villages, the large majority of households combine public facilities, communal self supply and household self supply. At special occasions, such as weddings or funerals, operators or water vendors provide the high volumes of water required (Van Koppen et al., 2020). This local Integrated Water Resource Management might seem complex, but for communities, it can be like the 'blinking of an eye'. In a couple of hours, they draw the maps of their water resource, infrastructure and uses (Van Koppen et al., 2021).

2.4 NORMATIVE FRAMEWORKS, COMPLIANCE AND TRADITIONAL AUTHORITIES

To conclude these introductory sections about generic features of customary water tenure globally and in South Africa, this section explores customary compliance and roles of traditional authorities in the 'sharing in' and 'sharing out' of water resources with neighbouring customary communities and with external powerful third parties. Although a better understanding is clearly needed, literature suggests that the role of traditional authority structures should not be exaggerated.

Box 2 reminds of the general character of customary norms and compliance by communities as a whole, as found in international literature. These may at least partly hold in South Africa in general and for water tenure in particular.

Box 2: Normative frameworks in customary law

Scholars in legal pluralism (Ramazzotti, 1996; Von Benda-Beckmann et al., 1998; Cleaver, 1998; Boelens, 2006; Caponera, 2007; Meinzen-Dick and Nkonya, 2007; Burchi, 2012; Komakech, 2013; and Lund and Eilenberg, 2017) emphasize three features of customary law:

1. The 'custom' in the sense of repetitiveness or persistence
2. The perception as legitimate and binding
3. Flexibility and locally negotiated.

First, customary law 'constitutes the continuous repetition of certain actions by a collective [..]' (Caponera, 2007). Customs, social rules, norms and institutions derive from a usage of a certain duration but are continuously adjusted to changing conditions. This enables dynamic responses to new threats and opportunities, which frequently occur in water management. This includes new technologies and energy sources, markets for irrigated produce, population growth, improved socio-economic conditions, but also impacts of climate change.

Second, those who follow these social rules consider them as binding. Their legitimacy and source of authority derive not from formal state mechanisms (or 'the bureaucracy') but from culture or customs, religious beliefs, ideas and practices by the community concerned. They are 'socially embedded' (Cleaver, 1998). Legal constructs are shaped continuously. Although rules or principles are seen as legitimate and binding, actual behaviour and social relationships may differ. High transaction costs of enforcement may prohibit rule implementation. Multiple other dependencies may also complicate enforcement of compliance of, for example fees, fines or other punishment, among kin and neighbours or vis-à-vis most vulnerable members or more powerful patrons.

Third, customary law is flexible, negotiated, and contested, also reflecting asymmetric power relations (Lund and Eilenberg, 2017; Von Benda Beckmann et al., 1998). Norms are principles rather than strict unitary rules (Von Benda Beckmann et al., 1998). Many elements of customary law are formed by general and abstract principles which allow many different interpretations of what they mean with respect to a concrete situation (Boelens, 2006). Parties may even avoid writing up detailed agreements to prevent conflicts (Lund and Eilenberg, 2017). Living laws are also flexible because people have many identities and interact with each other in multiple spheres.

Last but not least, there is no one single 'pure' system of customary law. Different sets of rules co-exist and are intermingled with norms emanating from other sources of power and authority that are generated outside local communities, such as the state and government agencies or religious teachings (Von Benda Beckmann et al., 1998). Normative systems are also polycentric, layered and mixed from local to state and global levels (Ostrom, 2010). The management of ubiquitous water needed by all is certainly bottom-up and 'everybody's business'. At the interface with more centralized statutory legislation, different statutory laws are not necessarily harmoniously aligned, and may even contradict each other (RRI/ELI 2020). In local 'forum shopping' people invoke the rules that serve their interests best. These are locally negotiated hybrids (Von Benda Beckman et al., 1998).

For 'sharing in' of water resources, traditional authorities, sometimes with members specialised in water management, play a role in keeping the vital geo-hydrological knowledge built up over generations. Queen Modjadji is a clear example. As custodians, traditional authorities orally maintain the community's memory of births, deaths, marriages, leaving or entering people, land and its transfers, and other resources. As water resources are land-bound, land allocation, a primary source of power for chiefs, is especially relevant during early settlement and housing or plot and grazing land allocation near to water sources or infrastructure.

For water management, elders can also be recognised to maintain precious inter-generational knowledge, as found in the small village of Ga-Moela in Limpopo Province. Here, elder women and men 'who don't get children anymore', are the main custodians of water resources and infrastructure. In this small village, with a high groundwater table, both people and livestock take water from shallow hand-dug wells. In the past, wells were separated; some were used for human consumption; other for free roaming livestock. Or a physical separation was constructed of the multi-purpose well. The digging of the wells, and certainly the use of cement, was exclusively done by the elderly. Fear was instilled by saying that young people risked getting babies with the Down syndrome. In practice, though, younger men did dig the wells, explaining: 'what alternative do I have?' (Van Koppen et al., 2021).

Whereas investments in infrastructure are often initiated by sub-groups or individuals, authority structure's important function in the 'sharing in' of water resources is conflict resolution (Kapfudzaruwa and Sowman, 2009). Certainly, in the past, a 'chief was a chief through the people'. Accountable downward, chiefs avoid dissent and mediate in conflicts among their councils and communities based on cultural practices and customary rules (Kapfudzaruwa & Sowman, 2009; Tapela, 2012a, b, c). The tiered system of more decentralized 'junior' headmen reporting to higher-level authorities ensures information to flow, instructions to be implemented, and disputes to be settled at the lowest possible level. If escalated to courts, presided by the chiefs as 'supreme judge', appeal systems sought to reach consensus by all, compensating the victim, and convincing the culprit of the need to act in the common interest. Solutions that avoided or settled conflicts evolved into customs. The mere existence of rules and punishment can already prevent conflicts. A common answer to the question: 'Has this punishment ever been implemented?' is 'no'. In the past, community members recognised this legitimacy by paying

tribute to authorities, such as cattle, meat, part of the harvest, beer, precious goods, etc. often according to detailed norms and rules. Outsiders were also expected to pay tribute.

Without denying gender and other social inequalities, traditional leaders are certainly not always male patriarchs. This assumption has precluded other traditional forms of leadership such as the Venda Makhadzi that can be effectively leveraged for water governance (Tapela, 2015), or has overlooked matrilineal land and resource tenure altogether (Van Koppen, 2017). As mentioned above, in the 'sharing out' of water resources, traditional authorities have a different function: representation of communities' interests. As mentioned above, customary conflict resolution with neighbouring customary communities can be highly effective.

However, the colonial and apartheid regime profoundly distorted this system by appointing and paying chiefs in a perversive divide and rule strategy. Under the apartheid regime, chiefs became, essentially, upward accountable employees of the colonial state (Palmary, 2004:12 in Day, 2012). Traditional leaders became 'puppet governments' empowered to further the agenda of the ruling government (Kapfudzaruwa and Sowman, 2009). These distortions marred the place and legitimacy of traditional leaders within their communities as well (Kapfudzaruwa and Sowman, 2009; Tapela, 2015). Depending on context and personality, "(…) Senior traditional leadership can be a formidable local governance institution, which commands a significantly higher degree of authority, legitimacy and acceptance than elected councillors and sub-chiefs" (Sithole, 2008). However, elsewhere, the lack of past legitimacy adds to a weakening and wearing of indigenous authority and knowledge systems and erosion of cultural norms certainly for the youth, as alluded to by Tapela (2015). The question is: can their fading powers still help to catalyse equitable and communal efforts to develop and share water resources within homeland boundaries, and help protecting the interests of all community members in customary water tenure vis-à-vis external formal high impact low priority water users? With this further understanding of customary water tenure, we now return to the main argument of the report.

CHAPTER 3. POLICIES, LEGISLATION AND STRATEGIES

3.1 THE CONSTITUTION IN THE POST-1994 DISPENSATION

This chapter presents the policies, legal frameworks and strategies towards historical justice at national level and the Inkomati Catchment Management Strategy and Water Allocation Plans at regional level, after combing through the broad range of legal and policy documents that address land and water law, including customary water tenure, constitutional rights, environmental law and agriculture using keywords such as redress, irrigation, water rights, water allocations, authorisations, reform, land restitution, redistribution, historically disadvantaged, equality, equity among other relevant terminology, Trends since the 1990s with regard to priority 1 and 3 users and priority 5 are discussed. The chapter concludes by exploring how the legal tools (ELU, licences, Basic Human Needs Reserve, Schedule One, General Authorisation) are already operationalised, or not, to align with these legal frameworks. Chapter 4 seeks to assess empirical answers in the Inkomati Catchment, as basis for the conceptual implementation plan in chapter 5.

At the apex of all policies and legal frameworks is the Constitution (RSA 1996). At the dawn of democracy in 1994, the new government needed to remove obstacles created by repressive legislation, denying Black people equal access to land and water resources – the two natural resources at the basis of life and production. This process of legislative reform, founded on restorative justice and redress and enshrined in the new Constitution, formed the bedrock of the current policies, laws and strategies that govern water. Among the 13 Constitutional sections that are most relevant for water tenure listed in Table 2, the following sections are particularly relevant, both as opportunities and stumbling blocks, in achieving historical justice (in italics in Table 2): section 9 (equality and non-discrimination), 25 (redress and property), 27 (sufficient water and food), 33 (administrative justice), 36 (limitations of rights), and 211 (customary law).

Table 2: Sections of the Constitution (RSA 1996) most relevant to equity in water policy and law

Constitution of the Republic of South Africa 1996 (RSA 1996)	Section 9 Equality and non-discrimination: *(2) Equality includes the full and equal enjoyment of all rights and freedoms. To promote the achievement of equality**,** legislative and other measures designed to protect or advance persons, or categories of persons, disadvantaged by unfair discrimination may be taken.* *(3) The state may not unfairly discriminate directly or indirectly against anyone on one or more grounds, including race, gender, sex, pregnancy, marital status, ethnic or social origin, colour, sexual orientation, age, disability, religion, conscience, belief, culture, language and birth.* Section 10 Human Dignity Section 15 Freedom of religion, belief and opinion Section 24 Environment Section 25 Redress and property *25(5) The state must take reasonable legislative and other measures, within its available resources, to foster conditions which enable citizens to gain access to land on an equitable basis.* *25 (6) A person or community whose tenure of land is legally insecure as a result of past racially discriminatory laws or practices is entitled, to the extent provided by an Act of Parliament, either to tenure which is legally secure or to comparable redress.* *25(7) A person or community dispossessed of property after 19 June 1913 as a result of past racially discriminatory laws or practices is entitled, to the*

	extent provided by an Act of Parliament, either to restitution of that property or to equitable redress. *25 (8) No provision of this section may impede the state from taking legislative and other measures to achieve land, water and related reform, in order to redress the results of past racial discrimination, provided that any departure from the provisions of this section is in accordance with the provisions of section 36(1).* Section 27 Rights to sufficient water and food *27(1) Everyone has the right to have access to – (b) sufficient food and water* *27(3) the state must take reasonable legislative and other measures, within its available resources to achieve the progressive realisation of each of these rights.* Section 30 Language and culture Section 31 Cultural, religious and linguistic communities Section 33 Administrative Justice *33 (1) Everyone has the right to administrative action that is lawful, reasonable and procedurally fair.* *33 (2) Everyone whose rights have been adversely affected by administrative action has the right to be given written reasons... and* *33 (3) National legislation must be enacted to give effect to these rights.* Section 36 Limitation of rights *The rights in the Bill of Rights may be limited only in terms of law of general application to the extent that the limitation is reasonable and justifiable in an open and democratic society based on human dignity, equality and freedom, taking into account all relevant factors [..}.* Section 39(3) Interpretation of Bill of Rights Section 211 Customary law and traditional authorities *211 (3) The courts must apply customary law when that law is applicable, subject to the Constitution and any legislation that specifically deals with customary law* Section 212 Role of Traditional leaders

3.2 NATIONAL WATER POLICY, LEGISLATION AND STRATEGIES

The National Water Act applies Constitutional rights to water resource management with the purpose 'to ensure that the nation's water resources are protected, used, developed, conserved, managed and controlled in ways which take into account amongst other factors – […] (b) promoting equitable access to water; and (c) redressing the results of past racial and gender discrimination'. The NWA prescribes a legally binding National Water Resource Strategy (NWRS) as the framework for the protection, use, development, conservation, management and control of water resources for the country as a whole. The NWRS also provides the framework within which water will be managed at regional or catchment level, in defined water management areas. The NWRS is subject to review within a 5-year cycle (NWA Sections 5-7). However, since 1998 only two versions of the NWRS have been developed, the latest being the 2013 version (DWA, 2013a) which superseded the 2004 version. In August 2022 the draft third NWRS has been published for public comments.

In 2008, a Water Allocation Reform Strategy (DWAF, 2008) specified rationale and the quantitative targets for redress of having 60% of allocable water in Black hands, half of which for women. A consultative process led to a National Water Policy Review to prepare amendments to the National Water Act (DWS, 2014). The National Water and Sanitation Master Plan (NWSMP) adopted by the

DWS in 2018 set a roadmap for the management of water resources, delivery of water and sanitation services, interventions and investment required to meet the targets (DWS, 2018). Calling to action, the master plan emphasises areas that require immediate strategic focus.

Table 3 lists the relevant sections of these national water laws, policies and strategies.

Table 3: Key provisions for historical justice in the NWA and national water policies and strategies

National Water Act 36 of 1998 (RSA 1998)	Preamble .. *the discriminatory laws and practices of the past have prevented equal access to water and use of water resources"*. Section 1 (xviii) Definition Basic Human Needs Reserve: *The quantity and quality of water required – (a) to satisfy basic human needs by securing a basic water supply, as prescribed under the Water Services Act, 1997 (Act No. 108 of 1997), for people who are now or who will, in the reasonably near future, be – (i) relying upon; (ii) taking water from; or (iii) being supplied from, the relevant water resource*. Section 2 Purpose of the Act *To ensure that the nation's water resources are protected, used, developed, conserved, managed and controlled in ways which take into account amongst other factors – […] (b) promoting equitable access to water; and (c) redressing the results of past racial and gender discrimination.* Section 21 Defining 'Water use' *Taking and storing water, activities which reduce stream flow, waste discharges and disposals, controlled activities, altering a watercourse, removing water found underground for certain purposes, and recreation*. Streamflow reduction and controlled activities are also clarified. Note that other water-related practices are not a water use and can continue. Section 26 Regulations on the use of water Section 27 Considerations for issue of general authorisations and licences Sections 32 Existing Lawful water Uses (ELU) *32. (1) An existing lawful water use means a water use – (a) which has taken place at any time during a period of two years immediately before the date of commencement of this Act; or (b) which has been declared an existing lawful water use under section 33; and which was authorised by or under any law which was in force immediately before the date of commencement of this Act.* (see also section 4.4.4 below) Section 39 General Authorisations to use water *(1) A responsible authority may, subject to Schedule 1, by notice in the Gazette – (a) generally; (b) in relation to a specific water resource; or (c) within an area specified in the notice, authorise all or any category of persons to use water, subject to any regulation made under section 26 and any conditions imposed under section 29* Sections 40 to 52 Licensing – see chapter 4 Section 41 (4) Due process for new infrastructure development *A responsible authority may, at any stage of the application process, require the applicant – (a) to give suitable notice in newspapers and*

	other media – (i) describing the licence applied for; (ii) stating that written objections may be lodged against the application before a specified date, which must be not less than 60 days after the last publication of the notice; (iii) giving an address where written objections must be lodged; and (iv) containing such other particulars as the responsible authority may require; (b) to take such other steps as it may direct to bring the application to the attention of relevant organs of state, interested persons and the general public; and (c) to satisfy the responsible authority that the interests of any other person having an interest in the land will not be adversely affected. Section 53 to rectify unlawful or illegal uses
Water Allocation Reform Strategy, 2008 (DWA 2008)	Target: By 2024 60% of all allocable water should be in the hands of black people; of this 60%, half should be allocated to women.
National Water Resources Strategy 2nd ed (DWA 2013a)	**Prioritisation** ***Priority 1*** *In line with the Constitution and National Water Act, the highest allocation priority is afforded to water for the purposes of the Reserve. The first objective is to ensure that sufficient quantities of raw water available to provide for the basic water needs of people. In terms of current policy, a quantity of 25 litres per person per day has been incorporated in the Reserve determination. Even though this is the minimum volume, this will be progressively increased where appropriate.* ***Priority 2*** *South Africa is committed to managing shared river basins in line with the Revised Protocol on Shared Watercourses in the SADC and in terms of specific agreements with riparian states. The second-highest priority therefore is meeting international requirements in terms of the agreements with riparian countries.* ***Priority 3*** *The third highest priorities is accorded to the allocation of water for poverty eradication, the improvement of livelihoods of the poor and the marginalised and uses that will contribute to greater racial and gender equity.* ***Priority 4*** *The fourth highest priority is accorded to the allocation of water for uses that are strategically important to the national economy, as described in* *Section 6(1)(b)(iv) of the National Water Act. These are uses that are of critical importance to the nation and must be authorised by the Minister. The uses include:* *• The transfer of water from one water management area to another.* *• The continued availability of water to be used for electricity generation throughout the country.* ***Priority 5*** *The fifth priority will be water used for general economic purposes, which includes commercial irrigation and forestry. In this category, allocation is best dictated by prevailing local and regional dynamics and requirements. Demand will reflect the value of water in particular*

	economic sectors and will encourage uses that create employment, contribute to the economy (GGP) and are efficient. All five priorities must give effect to allocations that promote equity. Elevating the Water Allocation Reform (WAR) programme Strengthen linkages to broader government and private sector programmes of redress in land, agriculture and business. Compulsory licensing in stressed catchments to ensure that water is made available for historically disadvantaged individuals (HDI). Utilise General Authorisations as an important tool in achieving redress and making water available to small water users Reduction of administrative burden: Mechanisms that reduce the administrative burden of authorising water use must be implemented. "Current processes are often costly, very lengthy, bureaucratic and inaccessible to many South Africans"
National Water Policy Review Water Policy Positions (DWS 2014)	Use-it or lose-it principle: any authorised water use, including Existing Lawful Use (ELU), which is not utilised for a period specified by the Minister, should be reallocated to the public trust managed by the Minister as custodian of the nation's water resources. (Note: this has not been converted into law by 2022). Ensuring linkages between historical entitlement to water under customary law and legislation (note: this refers to water rights under land restitution, not former homelands)
National Water and Sanitation Master Plan (DWS 2018)	Identify and prosecute major non-compliant abstractors (water thieves) across the country, with a national communication campaign to accompany the action inclusive of reviving the Blue Scorpions by 2020. Replace all Existing Lawful Use (ELU) with licences with enforceable water use conditions by 2030. Use General Authorisation to enable and increase small-scale water use by black farmers (by 2019). (To be implemented by DWS and Department of Agriculture, Land Reform and Rural Development (DALRRD)). Align water, land and agrarian reform programmes and link to the Irrigation Strategy by DWS, CMAs, DALRRD, by 2030

3.3 CATCHMENT MANAGEMENT STRATEGY AND WATER ALLOCATION PLAN IN THE INKOMATI CATCHMENT

For each of South Africa's catchments, section 9 of the NWA prescribes a Catchment Management Strategy that implements national goals and directives as locally relevant. Water Allocation Plans (WAPs), which set out the principles for allocating water taking the NWA into account, are integral part.

After a participatory process about the development of a vision, mission and values, the IUCMA concluded its second CMS, the 2021-2016 Inkomati-Usuthu Catchment Management Strategy (IUCMS) (IUCMA, 2021).

As this project focuses on the Sabie Sub Catchment, we also focus on the Water Allocation Plan for this sub catchment (IUCMA, 2022). A range of studies continues to fine-tune the understanding of water resource availability and current and future requirements, also based on demography, for short-term planning, and to develop scenarios, including new supply infrastructure, to inform long-term planning by the CMS and WAPs, for example the 'Continuation of water requirements and availability reconciliation strategy the Mbombela Municipal Area' study (DWS, 2018; 2021).

Table 4 lists relevant goals and principles that will be drawn upon in the discussion of the legal and strategic frameworks in section 3.4.

Table 4: Operationalising redress of historical injustices in the Inkomati-Usuthu Catchment Management Strategy (IUCMA, 2021) and Water Allocation Plans (IUCMA, 2022) 1)

MANAGEMENT MEASURE	**ACTION**
Consultation process for the IUCMS (IUCMA, 2021:i)	During the engagement of the stakeholders [..] the past historical imbalances and the availability of water for the Historically Disadvantaged Individuals (HDIs) was raised as a critical issue that stakeholders indicated as a strategic need to ensure that there is Water Allocation Reform (WAR) in line with the Constitutional imperative of redress and the spirit of the Act that focuses on equitable access. Most of the population within the WMA historically belonged to the former homelands where there were no rights afforded to them.
Status of water use authorisation	[..] after taking care of the Reserve [..], the International Obligations [..] and poverty eradication (Schedule 1), the Minister may use a number of instruments to authorise water use [..]
Water Allocation Reform (WAR) Strategy Improve the reallocation/allocation of water resources to HDIs as a means of redress to achieve transformation.	Revise the Water Allocation Reform Strategy once the verification of existing lawful use is complete. There needs to be transformation of Irrigation Boards to establish uniform tariffs. This includes scrutinising Service Level Agreements. Stronger stakeholder engagements are needed to understand where water is, as well as improved collaboration between different government departments. The "Use-it or Lose-it" principle for water needs to be applied.
Strategic Measure C: Water Allocation Plan (WAP) Objective 1: The allocation of water should, therefore, promote equity, address poverty, generate economic growth and create jobs. Objective 2: The water allocation process must also recognise that redressing the	a) *Establish Water Allocation and Transfer policy* The Water Allocation Plan should establish: • Principles by which water is allocated. • Principles by which water can be transferred. •The method by which existing licensed water allocations (hectares) will be converted to volumetric allocations. • Policies for the management of volumetric allocations. • Policies for the protection of groundwater.

MANAGEMENT MEASURE	ACTION
effects of previous discriminatory legislation also provides social stability, which in turn promotes economic growth	• Phase in the change of water use entitlements from Existing Lawful Use to licences under the National Water Act *(b) e.* Identify opportunities for productive water use with particular emphasis on HDIs
Reconciliation Strategy (DWS, 2021)	Apply flexible, strict restriction rules to the lower priority users in order to allow growth of higher priority uses
Draft WAPs for the Crocodile and Sabie Sub Catchments (IUCMA, 2022)	In addition to proposed compulsory licensing: • for former homelands, recognising and protecting customary water rights, with the state as the licence holder. This is necessary to protect customary water uses in the 'sharing out' of the water resources (which are collectively held within former homelands) with outsiders sharing the same water source • redefining the Basic Human Needs Reserve (BHNR) into high-priority core minimum water resource rights for basic domestic and basic productive water needs, and enforcing this redefined all-inclusive BHNR • for small and medium HDI water users: ending current administrative discrimination in licensing through priority General Authorisations in former commercial white areas, with consultative processes in former homelands

3.4 OBSTACLES AND POTENTIALS FOR REDRESS IN THE NWA, POLICIES, STRATEGIES AND LEGAL TOOLS

3.4.1 HAIs: from continued advantage to curtailment

It became increasingly clear that the goals of redress were not being achieved. The main stumble block, nationally and in the Inkomati Catchment, appeared HAIs' protection of ELUs by all means only to be disturbed as a last resort. ELU was intended as a transitional arrangement. Certain provisions in the NWA have been identified as "sunset provisions" which were formulated to bridge the transition from the apartheid government's 1956 Water Act and other laws to the 1998 NWA. Water use rights that had previously (within two years prior to the enactment of the NWA) been granted to mostly white commercial farmers, forestry companies, and white urban, energy and industrial uses, (besides smallholder government schemes) continued to be lawful. The reason for their inclusion in the new NWA was that the abrupt removal of these rights would disrupt the economy and affect food security, as the widely held perception among officials of the then Department of Water and Forestry (Movik, 2009; Movik, 2014). Further, it would also lessen potential tensions between white commercial farmers and the new government (Peters and Woodhouse, 2019). The provision was expected to be the transitory measure towards licences, which would occur within the first few years of enacting the new NWA. However, these sunset provisions have become a thorn in the flesh for achieving redress. Whereas the 2004 NWRS still adopted a more lenient approach to the ELU of HAIs, the NWRS-2 in 2013 is more stringent and proposes: "Exploring and revisiting the issue of existing lawful use and how it should be modified to enable faster redress and equity achievements without unfairly penalising current water users" (DWS, 2013).

The registration of all existing uses, whether lawful or not, started in 1999 for billing purposes. The administration for revenue generation in the Water Authorisation and Registration Management System (WARMS) appeared already cumbersome. The conversion of an ELU as entitlement to a licence was preceded by a resource-intensive verification and validation process. Verification is defined as "determining the lawfulness of the water use as it would have been lawful in 1998, while validation is assessing the volume of registered water versus actual (1998) water use" (DWA, 2013). However, this identification of large volumes of water currently tied up in ELU opened even more opportunities to claim entitlements, especially through section 33. This clause enables a water user to ask for a use to be declared as lawful, or the water authority to declare a use as lawful, even though it did not take place in the qualifying period, but, in good faith, would have taken place. This section allowed unscrupulous declarations of water uses that commenced post-1998 and allowed for further amassing of water entitlements by the HAIs. At the same time, non-responsiveness by existing water users to DWS's call for information at the verification stage was a limiting factor to get all data on water uses as well.

Moreover, the service provider who implemented the bulk of the verification and validation, systematically referred to the WARMS as a system for billing (IUCMA, 2017). Water users benefiting from government bulk supplies, such as Irrigation Boards, should not only pay the relatively low water resource management charges, but also the more substantive water use charges. With the restructuring of government since the 1990s, which later also included the IUCMA, this vital administration had to be properly handed over. However, payment of charges is one condition attached to authorised water uses, not an entitlement. For new water uptake, there is no such confusion as a separate Electronic Water Use Authorisation Administrative System (e-WULAAS) has been set up.

For formal curtailment of ELUs to dislodge water resource for re-allocation for redress, it is broadly assumed that this can only be implemented through compulsory licensing, which, at its turn, as also broadly assumed, can only be applied once the verification and validation process has been completely finalized. In compulsory licensing, all users in a certain area are compelled to newly apply for a licence. This can be triggered by any of four situations, serving different goals in the designated area:

(i) to achieve a fair allocation for a resource which is under stress or to review current water use to achieve equity in allocation
(ii) to promote beneficial use of water
(iii) to facilitate efficient management of the resource or
(iv) to protect water resource quality (NWA 1998, sections 43-48).

As the verification and validation process in the Inkomati Catchment has only been completed for about 60%, the route via Compulsory Licensing to curtail ELUs continues being postponed.

In the meantime, HAIs defended that a registered ELU is a private property that the title holder can transfer to another user, for high amounts of money, or surrender to government for compensation. Private water entitlements linked to a property also considerably increase the value of that property if it changes hands (IUCMA, 2022). Circular 18 of 2001 mentions water trade, recognising that it exists, but primarily concerned that outstanding water charges by the seller will not be paid anymore. In a presentation to the Parliament Committee in 2006, the then Department of Water Affairs and Forestry (DWAF) approved bilateral trading of water rights among users as long as the department was involved in this. This is derived from NWA Section 25 on transfers of water use authorisations and subsequent polices by DWAF, albeit conceding that "the redressing of gender and equity imbalances by the reallocation of water entitlements through the free market system, is not readily achievable, because a willing buyer and willing seller must be found" (DWAF, 2006). At that time, DWAF was already experiencing challenges with bilateral transfers (trade) as it largely went unmonitored (ibid). The sale of water rights appurtenant to land under claim for restitution has especially been exposed. The

NWSMP (2018) explicitly concedes that some restituted farms have been redistributed without the corresponding water entitlements after previous owners had traded these away.

DWS responded to these challenges by invoking its power as custodian of the national water resources through a 'Use-it or Lose-it' principle. Entitled water resources that are not needed anymore by the user should revert to government as public trust for reallocation. The NWRS-2, realising the pitfalls of water rights trading particularly for redress and transformation in the water sector, also exposed the tendency by HAIs to now rush for registration of ELUs as formally declared entitlements. The National Policy Positions (DWS, 2014) and NWSMP (2018), as confirmed in the IUCMS (2021), keep emphasizing the Use-it or Lose-it Principle which would prohibit trading of rights or excessive compensation for water entitlements surrendered to the state.

In 2017, the Director-General issued Legal Services Circular No 1 of 2017, which categorically abolished water trading and repealed the Circular 18 of 2001 which had allowed water trading. In response, the South African Association of Water User Associations liaised with some of the farmers who saw the submitted permit application to enable this water trade arrangement – for astronomic amounts – suddenly cancelled because of this Circular. They sought clarification with the High Court. June 2020 saw a landmark High Court ruling which judged that NWA's section 25 should be interpreted in the light of the overall goals, purpose and spirit of the NWA. In this light, water trading is unlawful, as water trading prejudices HDIs who cannot afford to penetrate this circle. Moreover, there is no explanation why the buyer who applies for the licence pays approximately R114.00 for an application to acquire a water use entitlement for a price that could go as high as R15 000 000.00 (South African Association for Water User Associations and others v Minister of Water and Sanitation and others, case no: 71913/2018 [2020]).

Then, the organized white farmers challenged this position in the Supreme Court of Appeal (Lötter N O and Others v Minister of Water and Sanitation and Others (725/2020) [2021] ZASCA 159 (8 November 2021)). The majority judgement in 2021 supported them: water trading is not unlawful according to the NWA. Ignoring any competition for water resources, the judgement includes: "If they cannot or no longer wish to, or have excess water to their needs, *rather than that water going to waste, as it were,* a transfer to someone else who is going to use it beneficially contributes to the attainment of the purposes of the NWA" (authors' italics). The majority judgement also ignores the historical discrimination when 'commercial' water prices exclude a majority from accessing water by stating: "I do not understand how this economic reality can amount to discrimination"".

One judge opposed this majority judgement, again highlighting colonial laws at the heart of today's continued discrimination, He also asserted: "None of the appellants has asserted public interest in respect of their respective applications. These entitlements were sold solely for private farming purposes and for profit". Moreover, he argued, there is no issue of section 25 of the Constitution, which guarantees property rights and prohibits arbitrary deprivation of property reference. "The applicants are not being deprived of any property. A holder of a water use entitlement voluntarily surrenders his or her entitlement in terms of the legislative framework of section 25(2) of the NWA. That section does not make provision for him or her to receive compensation for such surrender".

Moreover, he invoked the NWA's goal to serve public interests: "The applicants have not shown any provision of the Act which entitles them to privately set prices to sell an entitlement to use a national resource, without the Minister's involvement or consent. Nor have the appellants explained to the responsible authority, who is the Minister's designee, how these purchase prices were arrived at. This certainly emasculates the Minister's role to regulate the use, flow and control of all water in the Republic. It reduces the role of national government, represented by the Minister, to that of a rubber-stamp" (Lötter N O and Others v Minister of Water and Sanitation and Others (725/2020) [2021] ZASCA 159 (8 November 2021)).

For final clarification, DWS appealed to this decision with the Constitutional Court, which was heard in August 2022.

The enormous amounts claimed are at stake – without clarity on how values are set, other than claims to the buyer's purse – are well known, as confirmed, for example, during the 2020 Stockholm International Water Institute World Water Week workshop organised as part of this project, and which brought together water sector experts as well as the Deputy Minister for Human Settlements, Water and Sanitation. Such 'trade' did not exist before 1990 in the Inkomati Catchment (Bate et al., 1999), also because of riparian rights that vest entitlements in land property. Further research should reveal how the same commercial farmers who created water scarcity and competition are now the ones who try to benefit most of its – claimed – scarcity value.

For new water uptake post-1998 by high impact users, licences are a clear use right without an entitlement to transfer, other than to a successor in title within the stipulated period. However, the largely administrative character of allocation of increasingly over-allocated water resources discriminates in another way. DWS responded to applicants' frustrations about long delays in processing licence applications by promising to speed up the process. However, this may jeopardize due process and an ex-ante assessment of potential infringements on existing uses, and, as needed, compensation. High impact users, who are almost exclusively Whites, benefit most when obtaining an entitlement to this increasingly scarce resource becomes an administrative act. At the same time, as mentioned, this blanket approach formally criminalises small-scale users for whom similar administrative requirements are disproportionate and even unaffordable.

3.4.2 HDIs: from marginalisation to empowerment

As mentioned, the NWRS-2 recognises the serious limitations of a blanket approach of licensing processes for post-1998 water uptake, by stating: "Current processes are often costly, very lengthy, bureaucratic and inaccessible to many South Africans" (DWA, 2013a p 48). The 'many South Africans' for whom licensing is inaccessible are primarily small-scale HDI users, both in former homelands and white areas, whose water uses fall under section 21 of the NWA (so most uses except direct uses such as bathing in a stream). Hence, by obliging these new entrants to apply for a process that DWS admits is impossible to administer, these users are formally legally criminalised for doing nothing other than using their own means to access water for poverty alleviation, transformation and redress. Moreover, the cumbersome and costly bureaucratic application efforts are disproportionate to the water volumes abstracted, if not simply unaffordable. This infringes on the Constitutional right in section 33 to administrative justice and widens historical injustices instead of narrowing.

Other HDI users who would be exempted fall under Schedule One. Registration is logistically even less possible, which renders these users invisible, vulnerable, and exposed to any infringements by others in fully allocated catchments, so also widening instead of narrowing inequalities. These uses are defined as the "reasonable domestic use (….) small gardening not for commercial purposes and the watering of animals excluding feedlots (…), if the use is not excessive in relation to the capacity of the water resource and the needs of other users" (RSA, 1998). These uses meet basic subsistence needs of poor, often unemployed people who "grow vegetables on a small plot of land to provide food for their families and for a little income when they produce extra" (Thompson, 2006:449).

This micro-scale self supply includes basic domestic needs. As recognised by the IUCMA in its CMS (IUCMA, 2021), many people still directly fetch water by foot or wheel burrow from rivers and streams. Others abstract water from their small-scale boreholes or piped systems. Even if municipal supplies are

available at a convenient distance and generally function, these alternatives, or purchase from informal or formal water vendors remain needed as back-up when municipal supplies are unreliable or temporarily fail.

In sum, with own finances and efforts, outside of formal government structures, and at no cost to the taxpayer, people access water resources to meet their Section 27 (b) Constitutional rights to water for domestic uses, but also for livestock, gardens and fields and small-scale enterprise for subsistence income that meet their Constitutional rights to sufficient food (s 27 (b)). All these uses by inhabitants of former homelands or tenants and farm workers in former white areas are the transformative water uses envisaged in the Constitution and NWA. Yet, these uses are currently marginalised and even criminalised. In former homelands, this boils down to a similar double dispossession.

The legally binding NWRS-2, reflected in especially the WAPs of the IUCMS, takes a major leap forward by the new ranking of priorities in water resource allocation. After the 1st priority for the Reserve and 2nd priority for International Obligations, the third highest priority is 'accorded to the allocation of water for poverty eradication, the improvement of livelihoods of the poor and the marginalised and uses that will contribute to greater racial and gender equity' (DWA, 2013a). This third priority would, in any case, cover the above-mentioned micro-scale subsistence water uses defined as Schedule One, which contribute to realising Constitutional rights to food. These uses have a higher priority than the 4th priority (strategic uses, but not necessarily for any electricity generation) and licensed uses, or HAIs' ELUs with a 5th priority.

This classification of priorities has the far-reaching implication that respecting and protecting the 1st priority (the Reserve) and 2nd priority (International Obligations) in the fully allocated Inkomati Catchment would first require dislodging water entitlements from the 5th priority, and, as still needed, for the 4th priority, before it can affect the 3rd priority of poverty alleviation and redress in any way. (Water quality conditions hold for everyone).

Within this national policy, legal and strategic framework, taken forward in the IUCMS, the question for this project's Conceptual Implementation Plan in the context of the Inkomati Catchment becomes more concrete:

> *How can existing legal tools be harmonised and align with the five categories of the legally binding prioritisation in NWRS-2, whether in former homelands or former white areas of the Inkomati Catchment? In other words: how can the above-mentioned or other current flaws in their interpretation or poor implementation or both be overcome?*

Besides the already mentioned licensing and Schedule One, legal tools include the Basic Human Needs Reserve, General Authorisations and Existing Lawful Use of pre-1998 water use and governance by HDIs.

The **BHNR** is a *right*, with the state as duty bearer for enforcement. This not only aligns with priority 1, but such strong entitlement with the state as duty bearer is also warranted for water resources for poverty eradication of the high third priority. In the current power constellations, a core minimum with this priority won't realise without pro-active state protection. A redefinition of the substance of the Basic Human Needs Reserve would encompass such core minimum water uses of priority 3. This would be for higher domestic uses than 25 lpcd, but also small-scale productive uses that people find more important than 'luxury' domestic uses – as found in chapter 2, and possibly relevant in the Inkomati Catchment as well. This would finally operationalise the option, mentioned since 1998 in the NWA and repeated in NWRS-2, IUCMS, and WAP, to progressively enlarge the quantities of water of the BHNR.

This redefinition would better distinguish the infrastructure and the resource. Currently, the definition of the Basic Human Needs Reserve is linked to the provision of the water *infrastructure* as defined in the 1997 Water Services Act and the Free Basic Water policy (DWA, 2007). Since 1998, this is set at 25 litres per capita per day (lpcd). (We note that even for the infrastructure services, this is amongst the lowest in the world; the WHO recommends service delivery of 50-100 lppd; and the average water consumption for domestic uses in South Africa is already 237 lpcd (DWS, 2018)).

However, the Reserve is about the *water resource*. As self supply is still widely needed for basic domestic uses, the protection of core minimum water resources that flow into this infrastructure is vital (and also recognised in the Reserve Determination for the Inkomati Catchment – as in chapter 4).

For the enforcement of the Basic Human Needs Reserve, it will be important to better distinguish between the Ecological Reserve of water resources that should stay in the environment and the Basic Human Needs Reserve of water resources that are to be taken out of the streams or aquifers wherever people still rely on self supply. This assumes that the priority of water resources for municipal supplies takes care of those users who have access to water facilities. Above all, whether a Basic Human Needs Reserve still excludes or includes core minimum uses with the third priority, enforcement should receive at least part of the attention that the Ecological Reserve has received. If both Reserves compete (for example, between upstream former homelands and downstream Kruger National Park), water resources should be dislodged from lower priority users.

The **General Authorisation** (GA) has been conceived in the NWA as a tool to reduce logistic burdens and target regulatory licensing by an under-sourced government where it is most needed (Van Koppen and Schreiner, 2014). All cited laws, policies and strategies mention the potential operationalisation of the GA to that end. This would also avoid the criminalisation of HDIs who are obliged to apply for a licence but, not for their fault, cannot be reached by government. GAs are generally registered, so more visible than Schedule One. However, this potential for redress remains untapped. The entitlement remains weak when the duration is limited. Moreover, financing facilities and government subsidies may require licences as single form of formalisation (even though water use authorisation is no guarantee for water availability, and other forms of formalisation would be easier and more effective). Moreover, currently, the national DWS gazetted the GA at such low levels that it formally has criminalised even more small-scale HDIs, with a stroke of the pen. A threshold of 2000 m^3 per year aligns with, about 0.2 ha irrigated land. Yet, although Schedule One uses are not quantified, they are generally seen as higher volumes.

Existing Lawful Uses of HDIs have hardly received attention as yet, with the exception of the water rights vested in the government irrigation schemes in former homelands. The recognition of pre-1998 customary water tenure in former homelands as ELU and post-1998 continuation is mentioned in the draft WAPs for the Crocodile and Sabie Sub Catchments.

3.5 INTEGRATED AGRARIAN REFORM

The disparities between black and white irrigators have been a major policy concern since the 1990s. Black farmers use only 5% of the water used for agriculture (DWS, 2018). Current national statistics show that there are 8 white commercial farmers for every black commercial farmer – with significantly smaller areas – indicating the big gap that still needs to be filled (DWS, 2018 p28). These issues require an integrated agrarian reform and collaboration between the two main departments: the Department of Agriculture, Land and Rural Development (DARRLD) DWS.

In the 1990s, DWS and DALRRD established a formal structure to support coordination between the two departments. Further, the DWS Resource Poor Farmers' Funding Policy since the 1990s was a financial vehicle that offered support to disadvantaged farmers in varied ways. The support went both towards phased formalisation and fee payment and to support for irrigation infrastructure development, rainwater harvesting tanks for self supply, and repair of dysfunctional irrigation equipment such as canals, pipelines and valves (Dhavu et al., 2016). Gradually, however, funding dwindled and access to these funds was fraught with challenges including (i) an undefined process to accept or reject applications; (ii) long processing times as long as two years; (iii) vulnerability to budget cuts in the DWS leaving approved applicants without approved funding; and (v) confusion with similar support interventions from the DARLLD (Dhavu et al., 2016).

Revitalisation of government irrigation schemes in former homelands has been the mandate of DARLLD since 1994 (DAFF, 2012) and focus of much research to understand their intrinsic functioning and the many challenges that plague their sustainability such as water use management, crop productivity, infrastructure maintenance and unsuitable land tenure arrangements (Mnkeni et al., 2010; Fanadzo et al., 2010; Van Koppen at al., 2017). The ownership and management of schemes in South Africa that were introduced during the apartheid era are currently transferred from the government to farmers (Fanadzo et al., 2010). Custodianship and ownership of the schemes are therefore uncertain, which has resulted in the dysfunction of many of the schemes. It is believed that over 60% of irrigation area in the Bushbuckridge government irrigation schemes is not being utilized (PHI, 2016).

To date, a number of solutions have been put forward to address the seemingly perennial struggles with little success (Fanadzo and Ncube, 2018). Some of the solutions currently being considered include securing land entitlement within irrigation schemes such that those who do not want to farm can sell their land to those who want to farm (Pers. communication with DALRRD official, 10.11.2020). Water rights for some of the schemes are held under the department of agriculture through pre-1998 allocations with traditional authorities (Pers. Communication with DALRRD official, 10.11.2020).

The DALRRD has drafted a National Policy on Comprehensive Producer Development Support (CPDS Policy) in order to provide a consolidated approach to supporting small-scale producers through the entire value chain. Having realised the challenges of multiple interventions within in DALRRD and across various departments, the CPDS Policy is set to provide a "comprehensive policy framework to harmonise, guide and regulate the provision of support services to the various categories of producers" (DALRRD, 2018). One of the interventions identified is to "facilitate access to water and timeous provision of water rights ideally linked to the transfer of land" (DALRRD, 2022). Concretely, DALRRD asked DWS to issue a General Authorisation with a high threshold that would enable the DALRRD to support smallholder irrigators without having to engage in arduous licensing processes. Such GA could align the definition of the smallholder farmers in the CPDS policy based on annual turnover (not more than 5 million ZAR) while the DWS mostly uses land area (ha) to calculate volume of water allocated.

However, in the streamlining of functions between the two departments, the DWS's 2004 Resource Poor Irrigation Farmers Policy was seen as a duplication of efforts highlighted in the CPDS Policy. The DWS therefore ended this support program. However, DWS did not take the requested water resource allocation issues under DWS mandate forward. The lack of a formal structure to support coordination between the two departments by then was also a challenge in the implementation of synergies between the two complementing departments. In spite of the continued call for systematic coordination in meeting the transformative agenda for HDI small-scale water users, the latter seem to fall through the cracks of the silos.

This chapter presented the national and catchment-level framework of policy, legislation and strategies that prioritise poverty eradication and redress in an actionable manner. We now turn to the concrete situation of the Inkomati Catchment. The understanding of the current interpretation and implementation of the available legal tools in chapter 4 will allow conceptualising an implementation plan that turns current weaknesses into strengths in chapter 5.

CHAPTER 4. CURRENT WATER USES AND ENTITLEMENTS IN THE INKOMATI CATCHMENT

4.1 COMPETITION FOR A SCARCE RESOURCE: AN OVERVIEW

The Inkomati Catchment is home to approximately 2,208,771 people, who directly or indirectly benefit from the basin's natural resources. The majority (67%) of the population is classified as rural. The population is largely SiSwati speaking: (31%) and IsiZulu: (26%) followed by IsiNdebele: (12%), SePedi: (11%), Afrikaans: (6%), XiTsonga: (4%), SeSotho: (4%), SeTswana: (3%), English: (2%), Xhosa: (1%), and very few other. The majority of citizens of the Inkomati Catchment live in former homelands, which cover approximately 9% of the Inkomati Catchment area (IUCMA, 2008) (see Figure 5 covering the entire IUWMA).

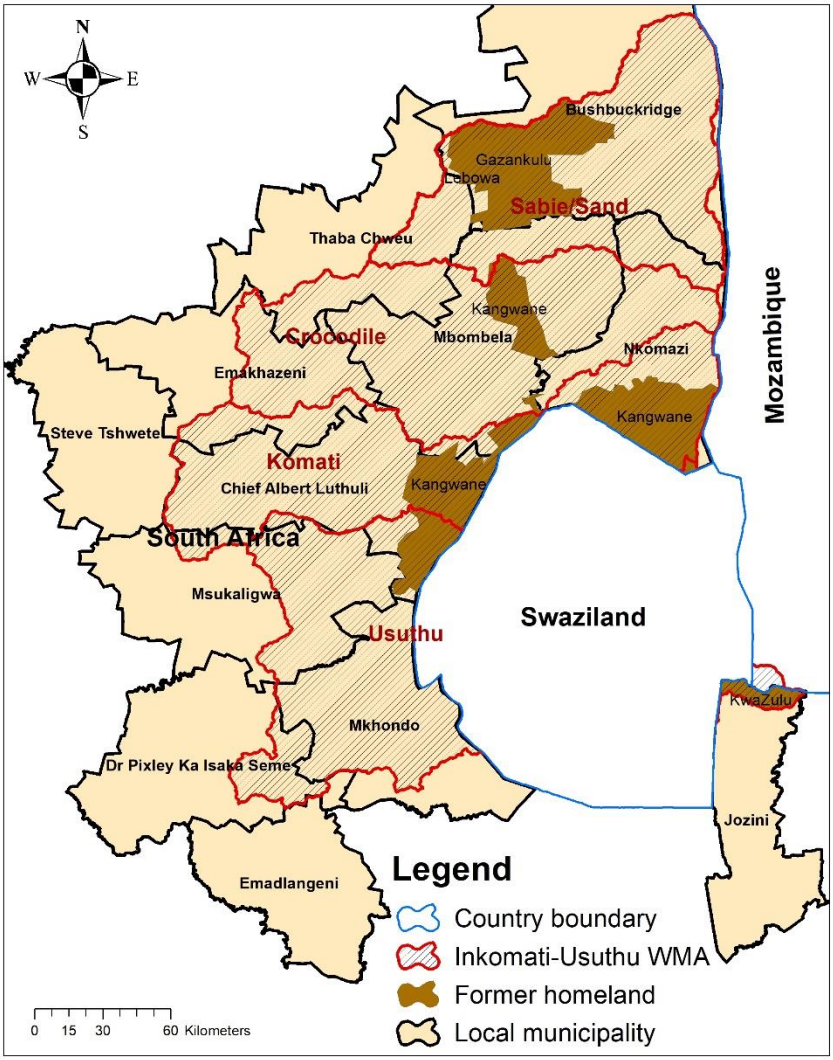

Figure 5: The Inkomati-Usuthu Water Management Area with sub catchments, former homeland areas and current administrative boundaries (source: Magidi et al., 2021)

Described as a water stressed area (Pollard, 2008), the Inkomati Catchment is rife with numerous and competing water use activities. In 2006, the DWS declared the Inkomati Catchment closed and unable to take on additional water allocations except for the Sabie Sub Catchment which would benefit from

Inyaka dam flows (DWAF, 2006). Despite its water stressed status, the catchment's water flows continue to change. This is said to be more associated with changes in uses than effects of climate change (Saraiva-Okello, 2019). This raises questions on the assurance of supply, and water security according to the prioritisation in existing access to water, and even more how priority 1 and 3 users are afforded the opportunity to take up additional water and increasingly derive utility from water resources now and in the future.

Table 5 gives an overview of main current water uses (IUCMA, 2020). This data does not account for numerous other smallholder users in the catchment, particularly in former homeland areas.

Table 5: Sector allocation in the Inkomati Catchment for consumptive uses

Sector	**Total volume in million m^3**	**Percentage %**
Agriculture: Irrigation	1010.5	50.5
Agriculture: Livestock watering	1.5	0.1
Forestry	419.5	20.9
Mining	19.6	1.0
Domestic and Industry	548.8	27.4
Schedule 1	1.6	0.1

Source: IUCMA, 2020

Table 5 shows that the heaviest water use sector is irrigation accounting for just over half of the total water use for activities related to taking water from a resource. Commercial irrigation occurs for cash crops such as macadamia, citrus and vegetables and largely operated by white farmers (Bate et al., 2009; Peters and Woodhouse, 2019). Many of these farms have been operating before democratic rule in 1994 and hold Existing Lawful Use (ELU) authorisations (Peters and Woodhouse, 2019). These ELUs were legislated under section 9 and 10 of the 1956 Water Act. (RSA 1956). The verification and validation process meant to verify the lawfulness of ELUs has been initiated in the catchment but is still ongoing and yet to be completed. As such, compulsory licensing which should free up and rationalize ELU entitlements is still far from being implemented. A phased approach, so by sub catchment, to compulsory licensing has been adopted by the IUCMA. The Kaap River Sub-System (a river Sub-System in the Crocodile Sub Catchment) has been identified as one that will soon undergo compulsory licensing as it is about 90% verified.

While water for irrigation receives a lower assurance of supply compared to domestic water supply, over-abstraction by registered users above their allocation has been reported even during times of droughts, where commercial farmers have flaunted calls from the local agency for restrictions on their metered water withdrawals, being more willing to pay the fine for over abstraction rather than lose out on their production capacity (Sifundza et al., 2019). Similarly, some of the flows are illegally taken up by farmers, such as macadamia nut growers (Interview with DALRRD official, 10.11.2020). The lack of perceived punitive action regarding over-abstraction, has led to the continuation of this practice in a catchment where over-abstraction and illegal new water uptake are apparently widespread despite the much-acknowledged scarcity of the resource (DWS, 2012).

The second largest user are domestic and industrial uses (Table 5). Municipal water supply services have the highest assurance of supply (98%) based on its provision of basic water supply (DWS, 2020). Nonetheless, many users in the former homelands are not connected to municipal supply and many more receive intermittent supply. A field visit into the village of Rooiboklaagte B (Sand River Sub System) showed that the situation is dire with residents mostly buying water or depending on family and friends with boreholes for water supply. At R2/25l the cost of water is now an everyday reality for many households: amounting to a cost of R1200 for the 6000l per household per month that should have

been provided for as Basic Water Supply. The National Water Services Act (Act 108 of 1997) defines Basic Water Supply as:

> **"**The prescribed minimum standard of water supply services necessary for the reliable supply of a sufficient quantity and quality of water to households, including informal households, to support life and personal hygiene".

The NWA refers to the water resources required to meet this basic water supply as the Basic Human Need Reserve, also set at 25l/p/d. Despite the importance of water for basic needs as stipulated in law, access to even minimum level of water has become prohibitive due to municipal water supply failures, thus spurring the need for direct dependence on the resource and self supply initiatives.

Demands for further domestic water supplies are growing fast, both to fill the backlog and to accommodate population growth. Transfers of water entitlements from commercial irrigation to expanding municipal water supplies are negotiated,

Commercial forestry is the third largest user and plantations form a major land use activity in the Inkomati Catchment contributing to massive streamflow reductions. This water use activity is prevalent in the Komati and Crocodile Sub Catchments, and also dominant in the upper reaches of the Sabie Sub Catchment. Commercial afforestation is thus a major water use which impacts on the availability of water in the rivers, also affecting vulnerable priority 3 users.

Commercial forests can reduce dry season flows by close to 10% and in the Mpumalanga Province this figure is higher (18%) (Scott et al., 1998), a significant proportion in semi-arid areas like the Inkomati Catchment. Current trends of converting from pine to eucalyptus plantations have seen increased streamflow reductions as the trees have vastly different water demands, with the latter taking up more water. It is reported that these conversions have been taking place without corresponding changes in licence conditions[4]

In addition to internal demands, the Inkomati Catchment also has to meet international obligations (with a second priority) to Mozambique and eSwatini and an inter-basin transfer to coal-fired power plants in the neighboring Olifants Catchment (with priority 4), further adding to the constraints on the resource. However, these two priority categories are not further discussed here. The focus is on priority 1 and 3 communal water users, who are currently less visible, with weak entitlements, and less represented at the negotiation table with more powerful users with a lower priority 5. Notably, the recorded Schedule One uses are the smallest use sector.

Data on the entire Inkomati-Usuthu WMA quantify the inequities (Figure 6) (Schreiner and Van Koppen, 2018). The two categories of largest registered water users, using more than 1 Million m^3/year, who constitute 7% of all 2213 registered users, use 84% of the water of 1383,67 Million m^3 per annum. The cumulative water use of the 30% smallest registered water users using less than 10 000 m^3 per annum is 0,01%, so negligible in terms of relative volumes. Many other water users in this category, most of whom are priority 3 users, are not registered at all, falling under Schedule One.

[4] https://www.timeslive.co.za/sunday-times/business/2020-03-29-activists-oppose-switch-from-pine-to-gum-trees-over-water-use/

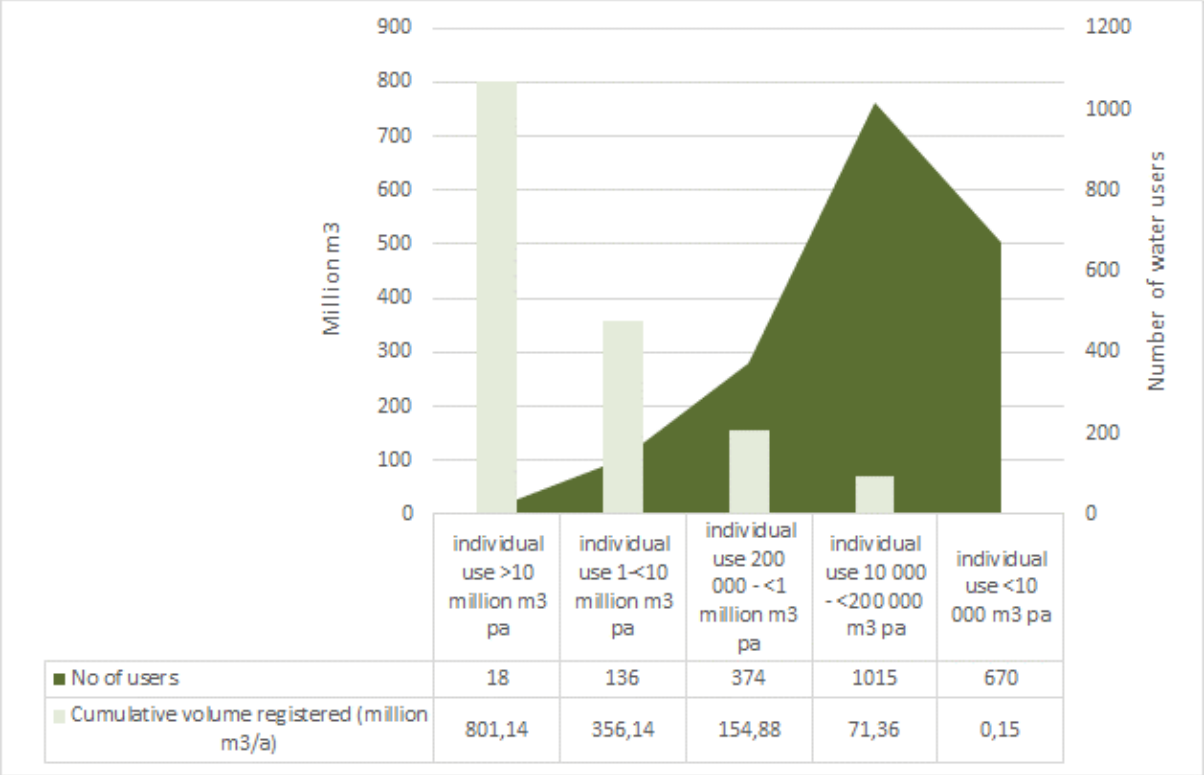

Figure 6: Number of users and volume of registered water use across 5 categories of water use in the Inkomati-Usuthu Water Management Area (based on WARMS data, DWS, 2017)

4.2 LAND RESTITUTION AND REDISTRIBUTION

This section briefly touches on distributive land reform in the Inkomati Catchment. Parts of the land where blacks were displaced by the apartheid government and given to whites have been restituted to black owners. The target of post-1994 land reform policies was the "transfer of 30% of total productive land by 2014 and settlement of all restitution claims by 2009" (RSA, 2019) The precise extent of restituted land in the Inkomati Catchment, other than sugar farms (see annexure) could not be determined within the scope of this study. However, in Mpumalanga over 70% of the 6300+ land claims have been settled (Interview with DALRRD official, 19.02.2021).

Not all land claims result in a single settlement outcome. There are different settlement models where the claimant can either choose to (i) claim original land if returnable (ii) claim alternative land in the event that the original land is no longer available, e.g. there is a town (iii) a financial settlement particularly if the land is not economically viable or (iv) a combination all three options.

The DALRRD acknowledged that addressing water rights during the land restitution process has been 'an elephant in the room' because the entire process from receipt of a claim to settlement is handled by four different specialized units constituting of tenure upgrading, redistribution, restitution and development (post settlement support) (Interview with DALRRD official, 19.02.2021). This has created instances whereby a claim can be settled without the corresponding water rights, as water rights are only dealt with at a later stage in post settlement support. There are cases where claimants have lost water rights that they were unable to pay for post settlement. In other cases, some claimants have even had their land auctioned by irrigation boards due to nonpayment of water use and water resource

management charges. Water entitlements have therefore been commoditized by those handling them (previous white owners) (RSA, 2019; Interview with DALRRD official, 19.02.2021).

Government can be involved as well. Murombo (2021) reports the case of *Oosgrens Landgoed (Pty) Ltd v DG-Department of Water and Sanitation, Letsema Project and Matsamo Communal Property Association.* In this case, the Department of Agriculture and Land Administration, Mpumalanga became involved as an intermediary in compensating an amount of R5,175,000 for 230 ha water use entitlements (cited in Murombo, 2021). The challenges from implementing parallel land and water reform process are clear, nonetheless action towards bringing the two departments together has been slow and fragmented. The case of land restitution for sugar cane famers in the Nkomazi is elaborated in the annexure.

4.3 PROFILES OF THE INKOMATI CATCHMENT

4.3.1 Crocodile Sub Catchment

The Crocodile Sub Catchment is one of the three catchments that constitute the Inkomati Catchment. Commercial irrigation is prevalent in the Crocodile Sub Catchment (DWS, 2020). The sub catchment's water resources are well developed with several dams including the largest Kwena dam and over 200 other smaller on-farm dams (Bate et al., 1999; DWS, 2020), built to support commercial agriculture. In 1995, the catchment had close to 80 000 ha of land under irrigation with further projected growth (Bate et al., 1999). The catchment was declared closed for further allocations as in some parts it was already in deficit (DWAF, 2006). Due to intensive commercial forestry only 0.7% of indigenous forests remain in the sub catchment (Bate et al., 1999). According to the 2020 Draft Reconciliation study, increased demand will even further affect water availability in the catchment over the years (DWS, 2020). Many of the commercial farms in the catchment hold Existing Lawful Use (ELU) titles with large cumulative volumes. The water challenges in the Crocodile Sub Catchment are so severe that in the dry season it is difficult to sustain international obligations to Mozambique according to the Interim IncoMaputo Water Use Agreement of 2002, in which the Crocodile contributes 1.2 m^3/s to the minimum cross border flow of 2.6 m^3 /s (IUCMA, 2022), with the remainder by the Komati tributary.

According to the Draft 2022 Water Allocation Plan (WAP) for the Sub Catchment, priority has to be given to Priority 1 uses – the Reserve (both components) and the water freed up from Priority 5 (licences) set aside for use in priority 3 (IUCMA, 2022). The need for compulsory licensing is also highlighted in the WAP in the case of availing water for HDIs. Other proposed measures include:

- for former homelands, recognising and protecting customary water rights, with the state as the licence holder. This is necessary to protect customary water uses in the 'sharing out' of the water resources (which are collectively held within former homelands) with outsiders sharing the same water source.
- redefining the Basic Human Needs Reserve (BHNR) into high-priority core minimum water resource rights for basic domestic AND basic productive water needs, and enforcing this redefined all-inclusive BHNR
- for small and medium water users: ending current administrative discrimination in licensing through priority General Authorisations (which can change over time) in former commercial white areas, and consultative processes in former homelands (IUCMA, 2022:24).

4.3.2 Komati Sub Catchment

This catchment comprises of the upper and lower Komati river sub systems. Based on its topography and land cover, the catchment can be segmented into the high, middle and lowveld (DWAF, 2006a). In the highveld the catchment supports forestry, irrigation, livestock grazing and dryland cropping. In the middleveld, including e-Swatini, industrial and small-scale irrigation and livestock grazing are prevalent, while in the lowveld land use practice largely comprises of sugarcane irrigation (DWAF, 2006a). Two of the three parts of the former homelands of KaNgwane are situated in the Komati catchment. Pre-1994 water allocations for smallholder government schemes to the KaNgwane Tribal Authority are currently held by the Department of Agriculture, Land Reform and Rural Development (DALRRD) and are reported to be underutilized (interview with DARDLEA Official 10.11.2020). Small-scale sugar cane growers in former KaNgwane and on restituted land in the Nkomazi are organized under the sugar mills of TSB and are absorbed into the market value chain. However, continuing inequities have also been reported as many HDI sugar growers find themselves heavily in debt, among other. This is further discussed in the annexure to this report. As tributary to the Crocodile, the Komati should contribute 1.4 m^3 to the cross-border flow to Mozambique.

4.3.3 Sabie Sub Catchment

This catchment consists of two main confluent river sub systems: the Sabie and Sand River Sub Systems and is referred to as the Sabie Sub Catchment (See Figure 5). In the most upstream areas, there is extensive commercial forestry. According to the 2022 Water Allocation Plan for the Sabie Sub Catchment, commercial forestry (approximately 853 km^2) significantly reduces available water resources. Hence in the upstream reaches of the catchment, regulation of forestry is a main intervention identified to reduce forestry cover particularly during drought periods (IUCMA, 2022).

In the middle parts of the Sabie Sub Catchment are the former Gazankulu and Lebowa homelands (Pollard, 2008; Agterkamp, 2009), covering the Bushbuckridge Local Municipality and part of the City of Mbombela Local Municipality. Former homelands constitute just over 20% of the total Sabie Sub Catchment area (Pollard et al., 2008; Riddell et al., 2018; Magidi et al., 2021). Small-scale HDI farmers operate on a number of schemes in the Sabie River Sub System, including on the oldest Sabie River Farmers Irrigation Scheme, Hoxani, Goromani-Timvubini and Saringwa. As elaborated in section 4.5, these and other schemes are currently not operating to their full potential due to various challenges (Riddell et al., 2018).

Further downstream are small areas of commercial irrigation. An interview with a member of the Sabie Irrigation Board which manages the water use of white farmers in the downstream Sabie River Sub System indicated contention around ‘uncontrolled and unregistered’ upstream water uses by HDIs. However according to this interview, the Irrigation Board receives water allocations from the Inyaka Dam during times of low flows while the same allocation is not available to HDIs in former homelands areas, neither for government irrigation schemes nor for self supply.

Downstream of the Sabie Sub Catchment are the Kruger National Park (KNP and Mozambique. The KNP is a key stakeholder that actively seeks to utilize its high ecological importance, and highly categorized Ecological Water Reserve in the 2019 Inkomati Reserve Determination (RSA, 2019). The Sabie River flows from the KNP to Mozambique, with agreed transboundary flows obligations of 0.6 m^3/s.

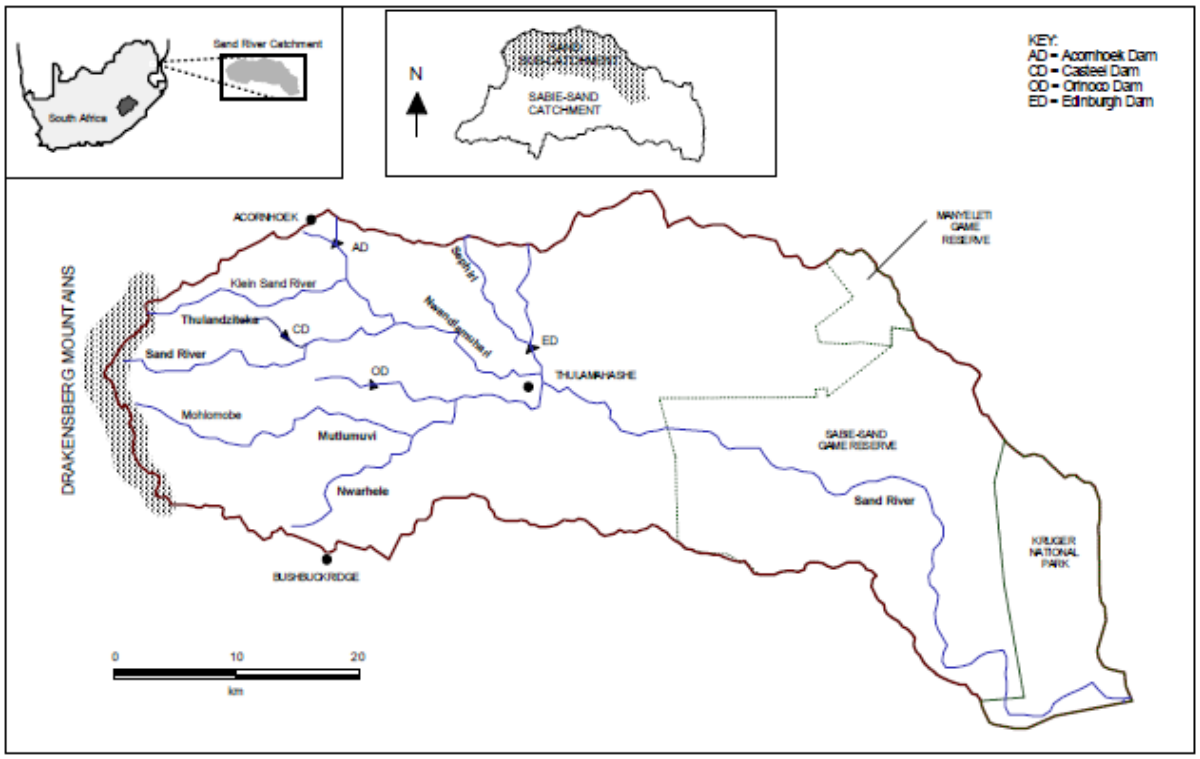

Figure 7: Map of the Sand River Sub System in relation to the broader Sabie Sub Catchment (*Source*: Pollard et al., 2008)

Focusing on the Sand River Sub System in particular (Figure 7), three distinct land use activities have been identified: commercial forestry in the upper reaches of the river system, communal land in the mid river system and conservation areas in the lower river system (Pollard, 2008). Large-scale commercial agriculture according to conventional standards is limited. Although total irrigation is reported to constitute only 1.4% of the total land use in the Sand River Sub System, it is still the largest water user (Agterkamp, 2009). A number of government irrigation schemes were initiated in the area by the apartheid government to serve the black population. These were the Dingleydale, New Forest and Champagne irrigation schemes, among other (Agterkamp, 2009). Studies into the malfunctioning of government irrigation schemes since the 1990s and their failure to thrive have been conducted across various irrigation schemes (Perret, 2002; Van Koppen et al., 2018; Riddell et al., 2018) with the main aim of improving productivity in the former homelands. Central to the challenges are the dilapidation of infrastructure since the dismantling of the top-down, white management; current lack of clear land rights, which were allocated as a Permission to Occupy (PTO) by traditional authorities; lack of clarity of membership and organisation to distribute water; and even lack of clearly defined ownership of the infrastructure (Perret, 2002; Van Koppen et al., 2018).

In order to address the dire lack of water provision for domestic uses in the densely populated former homelands, the Inyaka dam with a total capacity of 128 Mm^3 was commissioned in 2001 in the Sabie River Sub System. Consequently, after the dam's commissioning, boreholes that were supplying water to local communities were put out of operation. Moreover, some 14.1 million m^3 from the dam are allocated towards irrigation schemes in the Sabie River Sub System. However, not all of this is currently being utilized because of the partial dilapidation of the schemes and lack of clarity on titleholders. In the meantime, these rights are held by the Department of Agriculture. It is envisaged that revitalization of the irrigation schemes may result in full uptake by 2025 (DWS, 2021). However, if these rights were lost, it would make any future water allocations in these areas difficult to obtain if not impossible

(Interview with DALRRD, 10/11/2020). Setting aside unutilised allocations under the Reserve would better serve to protect available water, irrespective of the revitalisation of these schemes.

The draft Water Allocation Plan for the Sabie Sub Catchment recommends a similar translation of the national priorities, including a recognition and protection of customary water rights in the sharing out of water resources, as in the above-mentioned Water Allocation Plan of the Crocodile Sub Catchment. Against this background of competing demands, the Sand River Sub System was selected for in-depth field research on whether and how the prioritisation according to five categories is currently translated and can potentially be translated into three NWA's legal tools and their enforcement: former homelands' pre- and post-1998 customary tenure, a comprehensive Basic Human Needs Reserve, and General Authorisations to accommodate the logistic burdens of the water authorities and avoid administrative discrimination across the catchment. As the former Gazankulu and Lebowa areas are quite similar to former homelands elsewhere, findings are likely to also hold elsewhere in South Africa, and even other customary land and resource tenure in Africa.

4.4 CURRENT IMPLEMENTATION OF WATER ALLOCATION TOOLS

4.4.1 The Reserve

Box 3: The Reserve

The NWA defines the Reserve as:

> the quality and quantity of water required-
> (a) to satisfy basic human needs by securing a basic water supply, as prescribed under the Water Services Act, 1997 (Act No. 108 of 1997), for people who are now or who will, in the reasonably near future, be —
> (i) relying upon;
> (ii) taking water from
> (iii) being supplied from,
> the relevant water resource:
> (b) to protect aquatic ecosystems in order to secure ecologically sustainable development and use of relevant water resource

Comprising of two components, the ecological and basic human needs reserve, this tool serves to ring-fence water for basic domestic and ecological uses.

The Part 3 preamble of the NWA further states that "Once the Reserve is determined for a water resource it is binding in the same way as the class and the resource quality objectives" (RSA, 1998).

4.4.1.1 Basic Human Needs Reserve

The Reserve in the Inkomati Catchment for the Komati, Crocodile and Sabie Sub Catchments has been determined and gazetted (DWS, 2019). Both the Basic Human Needs Reserve, based on the minimal 25l/person/day, and Ecological Reserve were determined as a percentage of the natural mean annual runoff (NMAR). Table 6 shows the few quaternaries in which this proportion was higher than 2%. The tributaries with the highest Basic Human Needs Reserve proportions are the Musutlu, Khokhoveka and Nsikazi which are located near the Kruger National Park. However, even in these cases, the Basic Human Needs Reserve is considerably lower than the corresponding Ecological Reserve.

Table 6: Highest Basic Human Needs Reserve determinations, with corresponding Ecological Reserve determinations in the Inkomati Catchment (DWS, 2019)

Water Resource	Quaternary catchment	Sub Catchment	BHN Reserve % NMAR	Ecological Reserve % NMAR
Musutlu	X31M	Sabie	10.94	19.00
Khokhovela	X32G	Sabie	8.57	17.00
Nsikazi	X24A	Crocodile	4.25	34.00/40.60
Nsikazi	X24B	Crocodile	3.70	44.00/40.00
Saringwa	X31L	Sabie	3.45	24.80/30.80
Nsikazi	X24C	Crocodile	3.21	40.50
Nwarhele	X32E	Sabie	2.87	31.30
Phungwe	X32H	Sabie	2.33	26.10

Note: Only Basic Human Reserve determinations above 2% of NMAR and their corresponding Ecological Water Requirement are highlighted.

As stipulated in the Basic Human Needs Reserve determination for the Inkomati Catchment "The Basic Human Needs Reserve provides for the essential needs of individuals served directly by the water resource in question and includes water for drinking, food preparation and for personal hygiene. A lifeline amount of 25 litres per person per day was used" (DWS, 2019). This Reserve determination indicates that 'Communities likely to be reliant on run of river were identified per quaternary catchment and using these population sizes, the BHNR is calculated." However no precise methods of identifying population size were explained in the Gazette. However, the critique by Pollard et al. (2002) still holds: assuming only 25 lpcd as design criterion for bulk water supply services by Municipalities fails to consider losses in water supply. Also, it is assumed that this service would always reach its customers, even with system malfunctions and inefficiency.

The definition of a 25 lpcd benchmark is the bare minimum and excludes the equally important basic productive uses that would provide sustenance particularly for the marginalised (Hall et al., 2014). Even productive uses from municipal water supply systems designed for domestic uses appeared a priority and central to the survival of rural communities in Bushbuckridge (De Mendiguren Castresana, 2004). In these villages a higher service level of 40l/person/day (ibid) was found to support additional productive uses. Communities also mobilise self supply systems to gain access to water resources for basic water and food as well as productive uses for livelihoods, e.g. small-scale irrigation, as described in section 2.3.3 of this report and supported by evidence in section 4.5. Activities requiring these water resources range from livestock watering, vegetable gardening and should be protected under the Constitutional right to food.

The Reserve is potentially an important tool that protects the right to water resources for both humans and environment. Small-scale water users in former homeland areas depend on the protection of water resources both for domestic uses and food production However, implementation is difficult. Pollard and Du Toit (2011) report that officials found it cumbersome to operationalise the Reserve and often 'reduced it to a single flow figure' often for the KNP as main beneficiary and, as described, the 'watchdog' of the Ecological Water Requirements. Moreover, both components of the Reserve have been difficult to enforce, and in water stressed catchments such as the Inkomati even more so (Pollard et al., 2013).

This raises the question how to conceptualise a Basic Human Needs Reserve that, first, includes the protection of core minimum volumes of water resources needed to realize Constitutional rights to water and food, through municipal supplies but also self supply for multiple basic uses, and, second, that is also pro-actively enforced by the water authorities.

4.4.1.2 Ecological Reserve

The Ecological Reserve is the most popularly recognised and implemented Reserve component, particularly in the Inkomati Catchment where the Kruger National Park is considered the main beneficiary (Pollard, 2011). The IUCMA also reports on the monitoring the Ecological Reserve but does not mention monitoring of the Basic Human Needs Reserve (IUCMA, 2020), assuming that the Basic Human Needs Reserve is already accounted for through municipal water services. Yet, as mentioned, Water Service Providers have often failed in their mandate to supply water to local communities in the former homelands. Further, the Basic Human Needs Reserve component for communities directly dependent on the resource is neither monitored nor enforced, unlike the Ecological Reserve. This also shows the power dynamics that play out at the table in negotiating for water in the catchment.

The Kruger National Park is one of the largest national parks attracting large numbers of tourists every year and supporting livelihoods of the staff of the Kruger National Park. The Park therefore carries a large stake in how water resources are managed as a downstream user in the catchment. The Recommended Ecological Category (REC) for portions of the Sabie River is A/B[5]., the Sabie Sub Catchment was indicated as having reached its allocation limit so as to maintain a Reserve flow that allows for a Class A/B REC. Unless the classification is revised, the catchment would remain closed for future water allocations (DWA, 2013b), suggesting direct competition between ecological needs versus other needs, e.g. priority 3 uses. If all smallholder irrigation allocations were fully utilized in the catchment, this would have an impact on the overall water balance (DWS, 2021). The above-mentioned 2019 Reserve Determination determined that most of the Sabie Sub Catchment is within the B/C categories, except for a few biophysical nodes such as at Phabeni where the Present Ecological State (PES) is to be maintained at Class B.

Within the Kruger National Park, water impoundments such as dams and weirs were put in place to secure water for animals. However, studies[6] lean toward removing such barriers as they are preventing the natural ecosystem connectivity. Park scientists support creating free flowing rivers that would aid this purpose. The consequences of such a move may lead to increased environmental flow requirements from vulnerable upstream users, but this still remains to be tested empirically.

4.4.2 Permissible uses of Water (Schedule 1)

Box 4: Schedule One

Permissible uses of water without a licence are provided and articulated in Schedule one of the NWA and refer to “reasonable domestic use (….) small gardening not for commercial purposes and the watering of animals excluding feedlots (…) if the use is not excessive in relation to the capacity of the water resource and the needs of other users” (RSA, 1998).

A Schedule One entitlement permits the use of water directly from the resource without a licence but does not permit commercial beneficiation from the use of water. While it may be argued that volumes at this level represent a core minimum for basic sustenance and livelihoods, the exclusion of

[5]Ecological categories:
Class A: Unmodified, natural
Class B: Largely natural, with few modifications; a small change in natural habitats and biota may have taken place but the ecosystem functions are essentially unchanged.
Class C: Moderately modified; A loss and change of natural habitat and biota have occurred but the basic ecosystem functions are still predominantly unchanged
Class D: Largely modified; A large loss of natural habitat, biota and basic ecosystem functions have occurred.

[6] https://www.citizen.co.za/news/south-africa/2462956/why-the-kruger-park-is-demolishing-artificial-water-sources/

commercialisation activity at this level not only ignores the common marketing of even small quantities of produce, but also defeats the ends of transformation of eradicating poverty.

This entitlement is however weak compared to an ELU or Water Use Licence (WUL). In the Inkomati Catchment, some users voluntarily registered their Schedule One as they assumed this would strengthen their entitlement to some extent. However, there is no mention of whether and how Schedule One uses will be monitored, considering the large numbers of households included under this entitlement, even if aggregated 'excessive' uses may emanate. This further weakens the legal status vis-à-vis competing more powerful users,

The IUCMA's WAP for the Sabie Sub Catchment highlights the importance of a high-priority core minimum water resource right for both basic domestic and productive uses and upholding the Basic Human Needs Reserve as a Priority 1 use. Including Schedule 1 uses within the Basic Human Needs Reserve not only highlights their importance but also protects users from third party exploitation. The Reserve as the only right given under the NWA will ensure that users under this category are entitled to certain volumes of water and not treated as 'negligible' users, with the state as duty bearer for implementation.

4.4.3 General Authorisation

Box 5: General Authorisation

Section 39. (1) A responsible authority may, subject to Schedule 1, by notice in the *Gazette* -
(a) generally;
(b) in relation to a specific water resource; or
(c) within an area specified in the notice,
authorise all or any category of persons to use water, subject to any regulation made under section 26 and any conditions imposed under section 29.

In the WARMS database, a General Authorisation of varying quantities is a regularly mentioned entitlement. This experience can inform the operationalisation of GAs for redress in the Inkomati Catchment, linked to the third priority, that would end administrative discrimination. The national Gazette (DWS, 2016) that reduced GAs well below volumes observed for Schedule 1 uses, forms a disincentive. This operationalisation contradicts the envisaged purposes of GAs for redress as repeated in all cited policy and strategy documents.

The IUCMA uses this tool. In the period between the 2015 and 2019 financial years, there were hundred and eighty (180) applications for water use authorisation of which ninety-nine (99) were processed as General Authorisation and eighty-one (81) were WULAs (CMS, 2021).

4.4.4 HAIs Existing Lawful Uses and Compulsory Licensing

Box 6: Existing Lawful Use

32. (1) An existing lawful water use means a water use -
(a) which has taken place at any time during a period of two years immediately before the date of commencement of this Act; or
(b) which has been declared an existing lawful water use under section 33,
and which -
(i) was authorised by or under any law which was in force immediately before the date of commencement of this Act;
(ii) is identified as a stream flow reduction activity in section 36(1); or

(iii) is identified as a controlled activity in section 37(1).

From section 33. A person may apply, or a responsible authority may on its own initiative declare a water use which is not one contemplated in section 32(1)*(b)*(i), (ii) or (iii), to be an existing lawful water use, if it is satisfied that the water use -
(a) took place more than two years before the date of commencement of this Act and was discontinued for good reason; or
(b) had not yet taken place at any time before the date of commencement of this Act but -
(i) would have been lawful had it so taken place; and
(ii) steps towards effecting the use had been taken in good faith before the date of commencement of this Act.

In its presentation to the Parliamentary Portfolio Committee in 2016, DWS summarized all contested NWA sections as follows:
ELU

- "Section 32 of the national Water Act which defines and recognises particular historical water uses as existing lawful water use
- Section 33 of the National Water Act which makes declaration as existing lawful use of particular water uses that previously did or did not take place
- Section 34 of the National Water Act that grant historical water users to continue to use water as a recognised form of historical entitlement until its replacement with the water use licence
- Section 35 which provides for the verification of existing lawful water use which is nothing than the confirmation of the historical allocation as to whether it complies with the definition as provided for in s32 of the Act.

Transfers

- Section 25(2) of the National Water Act although using the word entitlement instead of a right, it however entrenches the ownership of water in the sense it allows the holder of un-used water to keep the water use in the event the authorisation that the surrender is in favour of, is not approved" (DWS, 2016)

The verification and validation process that is needed for compulsory licensing has been implemented in the Inkomati Catchment since 2004 but is fragmented and currently still only stands at just over 60% complete. Yet, as an interview with a national DWS official confirmed, the compulsory licensing process is resource intensive and requires adequate preparation at the verification and validation stage. Any anomalies at these stages may cause delays in the process (Interview with DWS Official, 24/10/1010).

Irrigation Boards (23) are the main water user in the Inkomati Catchment accounting for the bulk of water users (IUCMA, 2016). During the most recent verification exercise some users scheduled under Irrigation Boards were found to not have registered all their uses and this was subsequently captured during verification. Close to 50 properties were identified in the Komati and Crocodile Sub Catchments and their use declared as ELU under section 33 of the 1998 NWA (Table 7). Section 33 allows for the declaration of ELU not contemplated in Section 32, in which an ELU is declared a use which has occurred two years before the 1998 NWA. Section 33 therefore makes provision for other historical uses older than two years before the 1998 NWA enactment, or asserted to be planned, to be legally recognised. The difference between pre-1998 ELU water rights and post-1998 licences for new water uptake got blurred (DWS, 2018) Accordingly, in the Inkomati irrigation volumes up to 12 million m^3 were declared ELU under section 33 for those users not scheduled under any Irrigation Board (IUCMA, 2017) (Table 7).

Table 7: Section 33 ELU declarations for non-scheduled users: irrigation (Source: IUCMA, 2017)

Catchment	Properties	Registered Irrigation Volume (m^3)	ELU Irrigation Volume (m^3)
X21	28	0	6 015 272
X22	15	809 100	1 574 041
X31	4	3 043 304	3 057 900
X32	2	0	1 356 124
Total	**49**	**3 852 404**	**12 003 337**

Although the verification process is about 60% complete (DWS, 2020), out of about 25 000 ha of irrigation area verified in the qualifying period, only about 130 ha were found to be unlawful (Table 8).

Table 8: Verified areas under irrigation (IUCMA, 2021)

	Area in ha	No. of properties
Irrigation qualifying period crop hectares	25051.93	1663
Irrigation qualifying period field hectares	24810.11	1661
Irrigation registered hectares	34883.6	716
Irrigation existing lawful use hectares	21075.25	1650
Irrigation unlawful hectares	128.72	31

Another challenge encountered is that ELU allocations and licences are pegged per unit area and are not uniform across all river systems – depending on the availability of water. For example, allocations in the White River River Sub System are pegged at 2750 m^3/ha/a while the Lomati and Komati River Sub Systems are in excess of 8000 m^3/ha/a. Converting area water allocations to volumetric allocations of factually irrigated area would enable effective comparative monitoring with the NWA volumetric licensing. As elsewhere in South Africa, even now, large volumes of water, remain in the hands of HAIs.

These entitlements used to be traded directly between seller and buyer, and often temporarily, but, as instructed by the national DWS, any transfers need to go to government first. In the Inkomati Catchment, these are especially transfers from irrigation to municipalities.

4.4.5 HDIs Existing Lawful Use in former homelands and post-1998 customary water tenure

As mentioned, in former homelands, ELUs of government smallholder irrigation schemes are recognised, continuing to expect the full uptake of these rights with the revitalisation of these schemes. For the many other uses and governance arrangements of customary water tenure, the Draft WAPs of the Crocodile and Sabie Sub Catchments (IUCMA, 2022) propose to investigate its recognition.

In the Inkomati Catchment, water users in the former homelands, whether falling under ELU, Schedule One, a GA or licence, are largely unaware of the applicability of the NWA according to interviews with HDI small-scale water users. Customary norms and values apply. However, such customary systems are not isolated from other existing normative frameworks, e.g. statutory institutions or religious principles. The interface between the statutory legal tools, as currently interpreted, and customary normative frameworks may even be contentious. Even the mere declaration of a GA already came into direct conflict with these customary systems, thereby potentially eroding customary mechanisms, for

example for conflict resolution. This is observed in the upper reaches of the Sand River Sub System where a small-scale farmer came into conflict with community members for using river water for his small-scale commercial production. Community members feared that this use infringed on their domestic water uses. The farmer was then vindicated by a DWS official who assured him that his water use was within the limits of a General Authorisation. Such individual rights come into conflict with oral, collective customary rights and norms at a contested interface between statutory and customary norms. It widens the gaps in secure access to water between those who have access to statutory systems and those who do not.

4.5 EXISTING LAWFUL USE AND LIVING CUSTOMARY TENURE IN THE SABIE SUB CATCHMENT

4.5.1 Introduction and method

In order to further understand customary water tenure arrangements in the former homeland areas, interviews with smallscale water users were conducted across three villages in the Sand River Sub System as well as in the Dingleydale and New Forest irrigation schemes. In total, 21 in-depth interviews were conducted across the villages of Arthur's Seat (9) Craigisburn (2), Chochocho (1), Newforest (1), Rolle (1) and Rooiboklaagte B (7). Sampling followed purposive and snowball approaches to identify users that are not only involved in domestic uses, but also productive uses of water on small plots of land including backyard gardens as well as livestock watering. These villages are settled around the tributary network of the Sand River Sub System. Interviews indicated that the plot size ranged between 0.1 and 4 ha. Irrigation either occurred on the homestead or on a distant field and farmers either used pumps to pump water from nearby streams and hand dug shallow wells or boreholes. Descriptions from selected farmer experiences will be highlighted throughout the section to show the practice of customary tenure and prevalence of informal irrigation.

The following sections will present findings based on the conceptualisation of living customary water law presented in chapter 2, showing the flexibility of customary water law in how it can be conceptualised in different contexts, and also that such customary systems are not isolated from other existing normative frameworks, for example statutory institutions or religious principles. The important feature is that these are 'locally negotiated' systems and depend on local communities to confer legitimacy. Customary water uses can be provided for and recognised within existing lawful uses as they existed prior to 1998. According to Murombo (2021), a key issue is the burden of proof, which might lie on the communities themselves to prove their customary use. However, we argue that this burden of proof should instead rest with the government as custodian of the resource. As part of the ongoing PhD research study by the first author, much of the customary laws and community agency will be further delved into as they relate to achieving equity in water access.

What is important to note is that water use entitlements under customary water laws are not secured under current statutory regimes and there remains a possibility that such uses should be licensed or registered as GA, to be deemed unlawful. When communities invest in their own water supply infrastructure as self supply, it is important that such investments are recognised and protected both for current and future uses, particularly in former homeland areas where customary rules continue to apply. This self supply occurs largely informally, outside the ambit of the state. The divide between informal and formal irrigation in this context being reflected in whether the use is registered or unregistered irrigation. We use the term 'informal' to describe unregistered 'self-financed' irrigation (van Koppen et

al., 2017). We also focus on informal irrigation and other uses occurring in the communal areas, outside government irrigation schemes in former homelands.

4.5.2 Rooiboklaagte B village

4.5.2.1 Domestic water supply and smallscale irrigation

This community faces dire water challenges both for domestic and other water uses. The nearest tributary of the Sand, the Klein Sand, was reportedly polluted from waste disposal such as disposable nappies and was therefore not considered as an alternative source of water to the unreliable Inyaka bulk water supply system. Watering of vegetable gardens had therefore ceased with residents now depending on rainfed cropping. Further, one respondent mentioned how she cannot be seen to be watering her garden as other community members would reprimand her given the dire situation with water availability. The village is rapidly urbanizing and active residential construction could be observed throughout the village.

Illegal connections into the Inyaka bulk pipelines are prevalent since its inception in the early 2000s. Since then, supply has deteriorated rather than improved. Several studies have been conducted particularly in the Bushbuckridge Local Municipality with participatory approaches to integrate community-led multiple use systems into local authorities planning (Cousins et al., 2006; Dhlamini, 2007). Residents in this village have not decided to engage in self supply citing distance from mountain water sources, and still rely on buying water or fetching water at family members' homesteads with access to private boreholes. The groundwater potential in the Sand River Sub System has been highlighted as significant compared to the constrained surface water resources. As such there is potential for groundwater development and possibility for the village to take matters into their own hands in terms of water access. Nonetheless, the cost implications and technological considerations which communities have to consider when establishing such systems cannot be overlooked.

One group of farmers had recently secured a piece of land with the hopes of starting a cooperative irrigation scheme. Due to the water challenges, the group approached a white farmer in neighboring Hoedspruit to assist them with installing a borehole. Notably the group had not considered approaching the traditional leadership, municipality or the IUCMA for guidance. Respondents expressed unanimous sentiments around the weakening role of traditional authorities in water related issues. There was a consensus that traditional authorities (TAs) focus more on the allocation of residential stands for which there are financial incentives compared to water issues. TAs are however involved in conflict resolution related to stand size disputes or illegal land allocations. Respondents did not know about the role of the national water department or of the IUCMA. The agriculture extension officers were however quite well known and would provide seeds to the farmers but did not advise on irrigation related issues.

With the continued failure in providing consistent and reliable water services by the municipality in the Sand River Sub System, there is great potential for strengthening of community-led efforts for self supply according to community's priorities, and with it also the integration of multiple use water systems Van Koppen et al., 2020).

4.5.3 Arthur's Seat village

4.5.3.1 Domestic water supply and small-scale irrigation

Here, villagers identify more with the name Ga-Josepha than Arthurs' Seat. Villagers expressed similar sentiments to the residents in Rooiboklaagte B. The Inyaka Dam bulk water supply system had failed to provide for their daily water needs. Previously they relied on a borehole that would supply the villages. Although the respondents were not sure about the custodians of the borehole, it was said to belong to the government. Currently the borehole has been decommissioned and is not working under the premise that the municipality would supply water through the Inyaka pipeline.

An area of contention among the farmers is the presence of the Casteel Dam (known as Ga-Josepha dam) within their village but which does not supply them with water. The respondents were concerned that they themselves are facing water challenges, yet the dam in their own backyard is supplying water to the Chochocho irrigation schemes (Dingleydale). In an act of defiance, the residents have replaced Casteel with Ga Josepha on the dam signage (Figure 8).

Figure 8: The Casteel dam locally renamed to Ga Josepha supplying water to Chochocho village where the Dingleydale irrigation scheme is located (*Photo credit:* P. Mukuyu)

Respondents were considering coming together towards a livestock pen to keep their livestock and also to see how best to tap into the Casteel Dam water for irrigation. Previously there have been talks of securing the dam so that it provides water for domestic uses to the community, but this had not materialized. Benefiting from the dam is high on the list of interviewed small-scale farmers. One female farmer with about 4ha of land under irrigation had attended an IUCMA Sand Catchment Forum where issues of licensing were raised. She was however wary of the cost implications and had not pursued the matter further regarding if and how she should access water from the Casteel Dam. Currently she has dug shallow wells in the banks of the Tulandzintheka where she fetches water for her crops.

The perception of the role of traditional leadership is similar to the Rooiboklaagte B experience. One farmer had to go through legal battles with the headman (induna) who wanted to convert her plot into residential stands. Conversion of agricultural land to residential areas is a growing concern for communities with little faith in traditional authorities, who are even less involved in their water challenges. The role allocation between traditional leadership and municipal authorities highlights the institutional challenges that exist in the former homelands and the grey areas that are left unmanaged.

For example, respondents noted that in previous years, traditional authorities used to regulate harvesting of reeds along streams and wetlands, but this has since stopped.

One farmer interviewed in the nearby village of Rolle pumps water from the nearby Nwandhlamuhari stream to cultivate her plot of 1 ha. Daily she takes the pump back home for safekeeping and connects when she needs it. So far, the stream has been supplying water but during dry years it can get very low. Another farmer was also considering tapping water from the stream and they would have to devise ways of sharing the water as she would have to pass her pipes through the first farmer's field to get to her field.

4.5.4 Craigisburn village

4.5.4.1 Domestic water supply and small-scale irrigation

The village of Craigisburn has self-mobilized into providing water for the village. The ingenuity of local communities though not always supported by government and municipal officials, has provided the assurance of water supply that many residents long for in the communal areas. The failure of the state funded Inyaka bulk water supply system prompted residents in Craigisburn village to come together collectively to identify a mountain source in the nearby Drakensberg mountain range and develop a gravity system that would bring water to their village. At an initial cost of R10 from each individual household the village was able to connect pipes to the village. A respondent in the village who is one of the pioneers of the initiative that started over ten years ago, also indicated that the local Municipality assisted them with pipes. Currently the residents maintain the system themselves at no additional cost to the villagers. Very few young people are involved in farming activities with the age group of respondents mostly in the 50-65 years' range.

This is similar to studies by van Koppen et al. (2020) in the Limpopo Province villages, where self-organized groups operate gravity water systems for multiple uses. Water is not differentiated in its use, satisfying all needs such as domestic, agriculture and other needs, e.g. brick making. However, despite the system running on both the mountain water and the intermittent municipal supply, irrigating homestead plot was frowned upon and could even result in water being cut off from homestead seen with green gardens by system operators. This highlights the infringement on the basic human right to food not covered by the minimal 25 lpcd.

The involvement of traditional leaders in the development and maintenance of the system is limited. However, when a villager from a neighboring Arthur's Seat wanted to be included in the system, residents refused him entry. The aggrieved then approached the traditional leadership who presides over both villages and was granted permission to source his own water source from the mountain when the Craigisburn villagers had refused him access into their self supply community system Villagers also had to contend with vandalism and the induna was involved in the resolution.

4.6 ESTIMATING UNREGISTERED IRRIGATION IN FORMER HOMELANDS IN SABIE SUB CATCHMENT

4.6.1 Irrigated area assessment by remote sensing

To estimate informal irrigation in former homelands, we base our calculation on the Sand River Sub System for two reasons: (i) the river system comprises significant portions of the Gazankulu and Lebowa former homelands, and (ii) they are customary self supply communities outside of government irrigation schemes or sugar cane smallholder farmers. To calculate the area under informal irrigation we use WARMS water use data for irrigation in the Sabie Sub Catchment and data from Magidi et al. (2021).

The study by Magidi et al. (2021) estimated areas under irrigation in the entire Inkomati Catchment as well as in the former homelands based on remote sensing. Their results indicated that the area under irrigation has increased between 2019 and 2020. In the following sections, we take the authors' 2019 estimates (Table 9a and b) in combination with the DWS WARMS data and other literature to calculate the area under informal irrigation. In this calculation 'informal irrigation' refers to unregistered irrigation in former homelands outside of government formal structures (government irrigation schemes and the small-scale sugarcane irrigation in the former KaNgwane in the Komati Sub Catchment).

Table 9: 2019 Rainfed and irrigated areas (a) in the Inkomati Catchment and (b) in former homelands (Magidi et al., 2021)

(a)

Sub Catchment	Catchment area (ha)	Rain fed area (ha)	Irrigated area (ha)	Cultivated area (ha)
Usuthu	1809,577.1	13,454.3	108,792.8	122,247.1
Crocodile	1,044,273.3	10,910.8	119.671.6	130,582.4
Sabie	930,109.3	11,422.2	66,179.5	77,601.6
Komati	863,975.9	40,165.6	180,662.1	220,827.7
Total	2,793,383.6	75,952.8	475,306.0	551,258.8

(b)

Former Home-lands name	Former home-land area (ha)	Rainfed area (ha)	Irrigated area (ha)	Cultivated area (ha)	Rainfed area as % of the cultiva-ted areas	Irriga-ted areas as % of cultiva-ted area	Culti-vated area as % of former home land area
Kangwane	344,255.6	20,072.1	73,931.9	94,004.0	21.4	78.7	27.3
Gazankulu	134,944.8	7553.8	29,070.9	36,624.7	20.6	79.4	27.1
KwaZulu	22,264.6	72.4	2,022.4	2,094.8	3.5	96.5	9.4
Lebowa	75,202.0	1,859.3	19,606.1	21,465.4	8.7	91.3	28.5
Total	576,667.0	29,557.6	124,631.3	154,188.9	19.2	80.8	26.7

4.6.2 Synthesizing WARMS data Inkomati Catchment

Based on the drainage region identification[7] the data was filtered to calculate registered volume in the Inkomati Catchment. Data on actual irrigated area was largely unavailable and contained numerous data gaps. To convert these volumes into area, a conversion based on available catchment allocation data had to be used. (See Figure 9 for the map of Irrigation Boards in WARMS data base). The results showed that over 10 000ha of land are under registered irrigation in the Sabie Sub Catchment, based on an allocation of 6000 m^3/ha/a[8] (Table 10).

Table 10: Registered water volumes in the Inkomati – Irrigation (Source DWS-WARMS, 2020)

Sub Catchment	Count (number of entries)	Volumes in m^3	Approximate allocations (m^3/ha/a)	Equivalent area in ha
Komati	332	277 507 576	8500 (2)	32 648
Crocodile	490	133 017 462	8000 (3)	16 627
Sabie	254	61,253,714	6000(4)	10 209
Total	1076	471,778, 752		59 484
Irrigation Boards (1)	35	511,916, 887		
Total irrigation	1111	983,695,639		

[1] Irrigation Boards (which are registered as 'Water User Associations' in WARMS) plotted in Google maps show up as indicated in Figure 9. Registrations are spread mainly across the Komati and Crocodile Sub Catchments
[2]Estimates based on interview with the Mpumalanga Department of Agriculture
[3]Estimate based on verification data (IUCMA, 2017)
[4]Allocation data based on verification data (IUCMA, 2017)
[*]Columns filtered according to water use sector: Irrigation in WARMS database

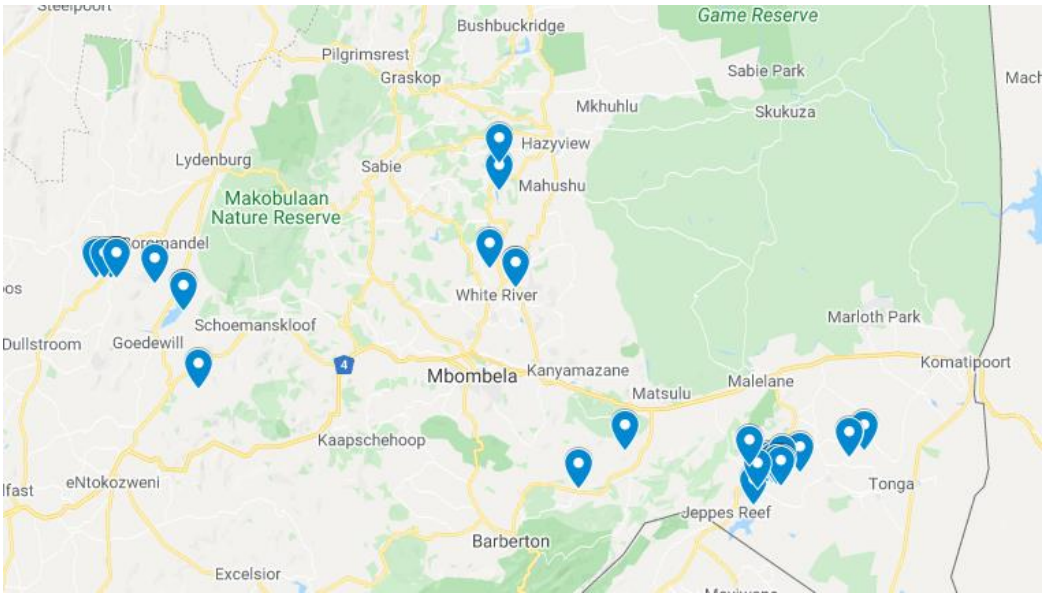

Figure 9: Distribution of Irrigation Boards registered in the WARMS database.

[7] The Inkomati Catchment covers drainage regions X1-X3
[8] Allocations in the Sabie and Sand Irrigation Boards were given as 5300 and 6000 m^3/ha respectively (IUCMA, 2017)

4.6.3 Calculating unregistered irrigation in the former homelands of the Sabie Sub Catchment

The former homelands of Gazankulu and Lebowa largely fall within the Bushbuckridge Local Municipality boundaries and the Sabie Sub Catchment. We consider these former homelands in the calculation of informal irrigation. While irrigation also occurs in the Komati and Crocodile Sub Catchment's former homelands of the three parts of Kangwane this is largely small-scale sugar cane irrigation, with its own peculiar characteristics, as described in the annex, and not further considered here.

Therefore, we assume that

1. Formal irrigation in the Sabie Sub Catchment is either commercial, emerging farmers on restituted land (in former white areas) or government irrigation schemes (in former homelands).
2. All registered irrigation constitutes formal irrigation and all informal irrigation occurs in the former homeland areas

4.6.3.1 Extent of government smallholder irrigation schemes in the Sabie Sub Catchment

There are varying estimates on the extent of government owned irrigation schemes in the Sabie Sub Catchment. Pollard et al. (2008) estimate the total combined area of Dingleydale, New Forest, Dumfries and Allandale to be roughly 2145 ha with only 1612 ha (approximately 75%) under cultivation. However, based on the DLPG (2007) these three schemes have a combined area of only 913 ha. Ncube (2015) estimates the New Forest area to be close to 1000ha. PHI (2016) reports main irrigation schemes: Dingleydale and New Forest to have a combined area of 2040 ha, and the Sabi River and Hoxani irrigation schemes, a combined area of 1520 ha. In addition, two other schemes exist in the Sabie Sub Catchment: the Saringwa and Goromani Timvubini, of which the latter is entirely rainfed (Riddell et al., 2018). Across these different sources including partial data obtained from the DALRRD we drew a list of functional irrigation schemes and area under irrigation (Table 11).

Table 11: Government smallholder irrigation schemes in the Sabie Sub Catchment (Sources: DLPG, 2007; Pollard, 2008; Riddell et al., 2018; PHI, 2016)

Name	**Command area under irrigation (ha)**	**Source**
Hoxane and Sabie River Farmers Irrigation Scheme	1520	PHI, 2016; Riddell, 2018
Dingleydale and New forest	2040	PHI, 2016
Champagne	400	PHI, 2016
Dumphries	25	DALRRD, 2020; PHI, 2016
Saringwa	300	PHI, 2016
Waterval	50	PHI, 2016
Total	**4335**	

If we assume operational capacity to be around 40% (based on PHI, 2016), then the area under actual irrigation is 1 734ha.

Based on the findings by Magidi et al. (2021), we calculate the area under informal or unregistered irrigation as the difference between the total area under irrigation in the Sabie Sub Catchment and the sum of registered area under irrigation for the Sabie Sub Catchment based on WARMS data and the area under irrigation in the Sabie and Sand Irrigation Boards captured in the verification data. This area comes to slightly over 50,000 ha of informal irrigation in the Sabie Sub Catchment. However, using an alternative calculation which uses irrigated area data from DWS (2021) estimates shows about 1,500 ha of informal irrigation (Table 12). Estimates presented in the Mbombela reconciliation study suggest a total of just over 15 000 ha under irrigation in the Sabie Sub Catchment.

Table 12: Estimation of Unregistered Irrigation in the Sabie Sub Catchment

Total area under irrigation	66 179[(1)]	15 220[(2)]
Registered area under irrigation (ha)[3]	13 643	13 643
Area of unregistered irrigation (ha)	**52 537**	**1 577**

[1]Remote sensing data based on Magidi et al. (2021)
[2]Data based on irrigated area estimates in reconciliation strategy DWS (2021)
[3]Data based on WARMS registration data

The Mbombela reconciliation strategy estimates diffuse irrigation (Irrigation taking place outside a formal irrigation board, normally on tributaries) as 2465 ha in the Sand and 7910 ha in the Sabie River Sub Systems (DWS, 2021). Verification in the Sabie Sub Catchment had only just started at the time of writing this report and interviews with an IUCMA official indicated that verification is based on registered uses on the WARMS database and therefore does not include unregistered users (mostly HDI). This action further strengthen the need for ensuring that unregistered users in the former homelands continue being afforded access to available water resources.

4.6.3.2 Limitations

It is important to note that the above-mentioned calculations are all estimates, based on available information. For example, the GIS methodology applied by Magidi et al. (2021) may have overestimated actual areas due to the detection of riparian vegetation as cultivated areas. Refinement and especially further ground-truthing and qualitative data collection are recommended. However, we argue that while the actual numerical value of informal irrigation is still being refined, informal irrigation with a priority 3 is considerably more widespread than assumed. This underlines the importance of protection of the water resource that flow into this infrastructure.

CHAPTER 5. CONCEPTUAL IMPLEMENTATION PLAN

5.1 INTRODUCTION

The foregoing chapter 3 analysed the transformative goals of the Constitution, policies, legislation and strategies at national levels and how the IUCMA is taking this forward. The legally binding prioritisation of water allocation according to five categories was compared with the current interpretation and implementation of the NWA's legal tools. This identified alignment but also contradictions. Chapter 4 traced the implication of the policies and strategies for the Inkomati Catchment on the ground, highlighting some gaps but also innovations in the draft WAPs, such as a recognition of customary water tenure. Field research findings in the Sand River Sub System indicated the crucial importance of living and vibrant customary water tenure in former homelands for poverty eradication and redress. On this basis, this chapter conceptualises the implementation plan to further harmonise the prioritisation and legal tools to fill the gaps for historical justice, as relevant for the Inkomati Catchment in general and the Sabie Sub Catchment in particular. Moreover, this conceptualisation informs similar situations in South Africa, and indeed Africa. The chapter starts with the strengthening of the rights and entitlements of the highest priority users through the Basic Human Needs Reserve and Schedule One across South Africa, and forms of empowerment of priority 3 users, both in former homelands (customary water tenure) and nation-wide (GAs). We then move to the inevitable implication of curtailment of the lowest priority users.

5.2 DEFINE AND ENFORCE A CONSTITUTIONAL BASIC HUMAN NEEDS RESERVE

The Basic Human Needs Reserve has the highest priority and renders the state the duty bearer for compliance. However, currently, the definition of what constitutes a basic right to water resources is tied to the Water Services Act, which is primarily about the infrastructure services, and only implicitly about the resource. This contradicts the definition of basic human needs in section 27 of the Constitution: the right to both sufficient water and sufficient food. The constitutional definition includes people's own efforts to realize these rights through self supply. Hence, across South Africa's rural areas, and possibly urban settings as well, everyone's core minimum priority right to water resources that help realizing basic constitutional rights of section 27 should be recognised as 'basic human needs' and also enforced as Basic Human Needs Reserve. This is proposed in the draft WAPs of the Sabie and Crocodile Sub Catchments. In rural areas, the definition of Schedule One may well cover such basic human needs. By elevating uses as defined in Schedule One as a Basic Human Needs Reserve, another problem is solved at the same time: the current invisibility and weak legal status of Schedule One. Customarily or informally, such notions may already exist anyhow. This all-inclusive Basic Human Needs Reserve should be monitored and enforced for every human in rural South Africa. Further thought has to be given to a water that contributes to achieving the right to food in the densely populated (peri-) urban settings where Schedule One uses may also be claimed by wealthier citizens.

5.3 FORMALLY RECOGNISE AND PRIORITISE HDI CUSTOMARY WATER TENURE IN FORMER HOMELANDS

5.3.1 Recognise pre-1998 ELU and post-1998 customary water tenure in former homelands

Customary water tenure is relevant for the inhabitants of the former Lebowa and Gazankulu homelands, and almost all 18 million South Africans living in similar former homelands elsewhere. One question that has not explicitly been answered as yet, is whether water uses that took place in former homelands during the

qualifying period of two years prior to 1998, are an Existing Lawful Use according to the NWA (section 32). The answer is yes (Thompson et al., 2001; Murombo, 2021). Pre-1998 customary law was a form of 'other law'. Specifically, the 1956 Water Act vested not only use rights to water in former homelands, but also governance and exclusion rights in homeland authorities. As Thompson et al. (2001) detail, the 1956 Water Act recognised the fully bundle of rights with regard to the water resources within, and appurtenant to the Bantustan meticulously defined territories. This bundle of rights concerned both the 'sharing in' and 'sharing out' of water resources.

For the 'sharing in' of water resources, the legislative bodies in the self-governing territories had use rights of unlimited duration; rights to govern (setting and implementing rules and conflict mediation); (implicitly) rights to transfer (to kin through marriage or inheritance; donations; or possibly for monetary compensation); and the power to make, amend or repeal these laws. They had the power to:

- The conservation and utilization of water sources and resources including the prevention of pollution, and other activities, which can change the natural occurrence of water sources.
- Mineral matters
- Agricultural, including soil and veld conservation, [...], irrigation, forestry, agricultural extension services [...]
- Public works and undertakings, roads, [...], and any works considered necessary for the purposes of sanitation or of securing satisfactory water supplies or of preventing or combating soil erosion.
- The planning, establishment, coordination, execution and carrying on of industrial, [...], mining, [...,] business undertakings and projects (National Water Act 1956; Thompson et al., 2001).

Exclusion rights in the 'sharing out' of water resources with HAIs outside former homelands were recognised: former homeland governments were official members of Permanent Water Commissions, for example, in the 1991 Treaty of KaNgwane. Hence, pre-1998 water uses and governance arrangements in former Gazankulu and Lebowa, and other homelands, are to be conferred ELU status according to section 32. They can lawfully continue.

This is not to romanticize customary ELU in former homelands. Homelands' water rights were still part and parcel of the apartheid government's territorial segregation, and secondary entitlements to water rights of HAIs. Also, the 1956 Water Act vested disproportionate powers in the traditional chiefs. These were often co-opted as paid employees of the apartheid regime and accountable to the apartheid regime at large. Many HDIs did not accept them as legitimate authorities. A third weakness regarded gender imbalances entrenched in customary arrangements – and among HAIs for that matter, and other social inequities.

Hence, the question is not whether water rights in former homelands were an ELU or not, but whether and how this ELU has to be elevated to a legal status that, first, aligns with the Constitution, and, second, operationalises the NWRS-2 third priority of racial equity in an actionable manner. This regards the full bundle of rights, so including use of unlimited duration, governance, transfer and exclusion rights.

Obviously, there are strong continuities in pre- and post-1998 living customary water tenure in former homelands. On the ground, water use and governance do not suddenly change because a new national government promulgates new legislation. Even today, few people are even aware of the NWA. As shown in chapters 2 and 4, living customary water tenure continues to govern how HDIs in the former homelands in the Sabie Sub Catchment and elsewhere invest in infrastructure for self supply for domestic uses and irrigation, in response to insufficient municipal services for domestic uses, hunger, a need for income, higher aspirations, and probably a greater freedom of resource management post-apartheid.

Anyhow, it is too late for conversion. Even if DWS swiftly engages in the development and implementation of specific tools to convert ELU in former homelands, by now, 25 years after the promulgation of the NWA, it has become practically impossible to still differentiate between water uses and governance pre-1998 and post-

1998 water uptake among millions of small- and micro-scale users. Therefore, the question is: how to recognise and prioritise customary water tenure as a continuity in order to deliver historical justice and redress?

Recognition of living customary water tenure is in line with Section 211 (3) of the Constitution, which defines customary law as an independent source of law: "…The courts must apply customary law when that law is applicable, subject to the Constitution and any legislation that specifically deals with customary law" (RSA, 1996).

The recognition and prioritisation of customary water tenure can be an amendment or special provision to the NWA. Such elevation of customary law was promulgated for the customary land through the Interim Protection of Informal Land Rights Act (IPILRA) (Murombo, 2021). A General Authorisation for such recognition would fit the collective character of the entitlement but is inappropriate because of the weak legal status of General Authorisations. Specification of the priority status of such General Authorisation in line with the NWRS-2 would be indispensable. A collective licence may be held by the state, but cannot be vested in persons because nobody, not even traditional chiefs, 'hold' the collective water rights. Responsibility for payment of water resource management charges would be even more difficult to establish.

In all cases, duty bearers for enforcement in DWS and CMAs should be appointed. The implementation and enforcement of priority entitlements further imply that customary communities and their interests are well represented in the decision-making bodies in the Inkomati Catchment at an equal basis. This representation is emerging in the IUCMA and forum meetings. However, in most of South Africa's other catchments, there are no CMAs as yet, so the representation of HDIs in decision-making risks being even weaker than during apartheid.

A typical thorny issue in legal pluralism is: should customary tenure be recognised as an autonomous parallel system, or should customary legal systems be amalgamated into statutory law? The physical and land-bound nature of water resources provides a unique solution. This question whether to respect full autonomy or seek amalgamation only holds for the 'sharing in' of the water resources collectively held by all inhabitants within former homelands. This living customary system can, in principle, continue as an autonomous parallel system, primarily governed under customary, largely oral arrangements. However, in the 'sharing out' of water resources, there is no choice: statutory and customary systems inevitably interact: the same streams are to be shared. The priority 3 status of water uses for racial redress means that in the 'sharing out' of these water resources, lower-priority upstream and downstream users and external agencies encroaching into former homelands to abstract the water resources, have the lower priority.

5.3.2 Align customary tenure with the Constitution in 'sharing in' of collectively held water resources

A contentious issue in a legal recognition of the 'sharing in' of water resources regards the role of traditional authorities. Unlike their perverted roles under apartheid, the limited research on customary water tenure suggests that chiefs' roles in water tenure is limited, generally supporting people's own initiatives to improve their livelihoods, and mediating in conflicts (Tapela, 2015; Van Koppen et al., 2021). However, their roles remain indirect via land (and mineral extraction) where chiefs can seek personal gain in sale of land and resource control or co-option by powerful outside third parties. Grassroots land tenure movements and others contest this, calling for democratic decision-making – but tend to ignore water rights appurtenant to the land as well.

Amalgamation of customary and statutory law may be needed where customary norms and practices still fail to align with the constitutional Basic Human Needs Reserve, gender equality or other constitutional rights. In the densely populated areas where many people compete for limited water resources conflicts are unavoidable. Medium-scale water users might well infringe on the water uses by the poor and poorest. Hence, statutory core minimum rights of the all-inclusive Basic Human Needs Reserve may have to be amalgamated

into customary notions. Further research and dialogue may well confirm how customary human values and social safety nets already align with constitutional rights, as noted in chapter 2.
In such cases of conflicts in the 'sharing in' of water resources, government's role is probably primarily mediation. Mediation would be demand-driven, timely, issue-based, and localized. This can and should build on existing customary conflict resolution arrangements. Due participatory processes for new water uptake that transparently anticipate on possible infringements on existing users and set and enforce conditions, may be needed for somewhat larger investments in infrastructure to prevent conflicts. GAs or licensing may be useful. This interface between statutory and customary laws in the 'sharing in' of water resources needs further dialogue and research. However, in contrast, the prioritisation of collectively held water resources appurtenant to former homelands in the 'sharing out' of water resources is immediate, as we discuss next.

5.3.3 Prioritise collectively held customary rights in 'sharing out'

During apartheid, 'sharing out' was institutionalized: chiefs were official members of the Permanent Water Commissions to deal with the 'sharing out' of the water resources linked to their territories. HAIs could also breach the boundaries of former homelands to take water (and minerals) from inside former homelands, by declaring such territories as a Government Water Control Area according to the 1956 Water Act. In other cases, HAIs abstracted water upstream and downstream outside former homelands from shared streams and aquifers without any concern or formalisation. These arrangements were hierarchical: pre-1998 customary water tenure was recognised as lawful, but with a secondary status only.

The elevation of customary water tenure according to Constitution section 211 with at least a third priority according to the NWRS-2, implies that more water resources are channelled to former homelands, whereas the Reserve and International Obligations need to be met by reducing or ending low-priority licensed uses or HAI's ELU.

In the fully allocated Inkomati Catchment, this implies, as the absolute minimum, that any outside third party that considers new water infrastructure development either within or outside former homelands that may infringe on customary water uses should be refused, unless free, participatory and informed consent from legitimate representatives in the former homeland is achieved in a due process of licence application. It is the duty of the Minister, and appointed staff in DWS and the CMA to implement, to either refuse any initiative for such infrastructure development from the onset, or to monitor and enforce due process with the burden of proof on the aspiring outside investor. For any new customary water uptake to meet growing populations with higher needs, HAI water resource entitlements need to be dislodged.

The more contentious issue lies in encroachment of medium- and larger-scale water uptake into former homelands by outsiders not abiding to collective customary water tenure arrangements, or, at best, trying to co-opt traditional authorities as assumed 'legitimate customary representatives'. These can be mines needing water resources in what is also called as double dispossession (Munnik, 2020). Or, as found in the Bushbuckridge Local Municipality, brick making factories encroach and dig sand without proper regulation, let alone any ex-ante impact assessment or free participatory and informed consent. This requires strict licensing of higher impact users that is effective in achieving goals of redress, administratively just and logistically feasible with government's limited regulatory capacities.

5.4 ENSURE REDRESS AND ADMINISTRATIVE JUSTICE IN GENERAL AUTHORISATIONS AND LICENSING IN RURAL SOUTH AFRICA

There is a grey area between the unambiguously small-scale high priority 1 and 3 users and medium- or large-scale HDIs who are priority 3 users, but currently obliged to apply for licences. Currently, licensing obligations are disproportionate, if not unaffordable, for relatively smaller-scale users compared to the high-impact users,

which results in administrative injustices. The declaration of Priority General Authorisations of equally long duration as licences end this discrimination. By removing a good part of logistic burdens, DWS can also pay more attention to regulation of priority 5 users and monitoring and enforcing the countrywide Basic Human Needs Reserve and prioritisation of customary water tenure in 'sharing out' of the collectively held water resources. Thresholds for such GAs depend on local situation and are likely to differ for densely populated former homelands and former white rural areas.

This adjustment of logistic requirements to expected impact is also applied in Kenya. Water authorities have operationalised their Water Resources Act, which is quite similar to the South African NWA, into four categories, A-D, depending on their impact. Regulatory requirements are proportionate to their impact. The smallest A users only need to register at local level. However, for D users, intensive permitting processes are applied at national level (Schreiner and Van Koppen, 2018).

This leaves licences as the tool to set and enforce conditions on water uses with highest impacts on other water users and aquatic ecosystems (Schreiner and Van Koppen, 2018). Licences would no longer be a way to vest strongest, longest-term if not tradable individual entitlements. When supply augmentation options are exhausted and all realistic demand management and efficiency gains have been achieved, increases in the water uptake by HDIs in the stressed Inkomati Catchment according to priorities 1 and 3 can only happen if existing entitlements of high-impact priority 5 users are curtailed. New water uptake by HAIs may be refused. The conceptual implementation plan that enables curtailment of these lowest priority users includes the following.

5.5 DECLARE A MORATORIUM ON HAIS' DECLARATION OF ELU UNDER SECTION 33

Section 33 of the NWA provides for the recognition of ELUs that were not necessarily exercised in the qualifying period but would have lawfully taken place and for which steps were taken to affect the use. However, declarations under section 33 currently exclusively pertain to HAIs. For example, in the recent verification process in the Inkomati Catchment 12 million m^3 of water were declared ELU under section 33 (IUCMA, 2017). Continued declaration of such uses opens up opportunity for unscrupulous HAI to have their water uses recognised as ELU using pre-1998 benchmarks which are not as stringent as the NWA licences. Declaring a moratorium on s33 ELU declaration and indeed of ELU in general will avail much needed allocations for HDIs.

5.6 END ILLEGAL USES BY HAIS

One of the causes of skewed water allocation are illegal abstractions. The NWSMP highlights these as an area of concern requiring urgent action. In the Inkomati Catchment, illegal abstractions have also been brought forward in the CMS through the strategic measure to "Ensure Improved Water Quality, Compliance to Authorised Abstraction" (IUCMA, 2021). Targeted measures to curb these unlawful uses would free up water for reallocation to HDIs. This requires coordinated efforts by IUCMA towards HAI abstractions. Sifundza et al. (2019) indicate that even in drought years commercial farmers tend not to adhere to limitations imposed on their water use and did not find the fines punitive enough. One of the interviewed commercial farmers boldly mentioned that 'we broke the water meters purposely to over-abstract without evidence' (Sifundza et al., 2019: 553). This incident was recorded when irrigation was supplied water at 60% assurance.

5.7 EXPEDITE COMPULSORY LICENSING

Compulsory licensing is a key tool in the NWA to legally convert ELU to water use licences and enable equitable redistribution of water from the HAIs to HDIs. The delays currently observed in compulsory licensing implementation are concerning. Being cognisant of the challenges associated with this process, such as its

resource intensive and consultative nature, it is even more prudent to ensure that when the process is initiated, it is carried out expeditiously to achieve the desired redistributive outcomes. We argue that this is a critical step toward redistribution and historical justice and will (further) foster HAIs to pursue higher efficiency. This process is envisaged in the Kaap River Sub System.

5.8 CONSIDER EXPROPRIATION OF ELUS, WITH OR WITHOUT COMPENSATION

Compulsory licensing is predicated on the principle of deprivation subject to section 25 and 36 of the Constitution on property rights and limitation of rights respectively. The application of property is not only limited to land (Section 25(4)(b) of the Constitution) and may be extended to water entitlements. However, expropriation of rights is a subdivision of deprivation (Thompson, 2006) as such the State has at its disposal to either deprive or expropriate rights – both of which should be implemented following due process according to the Constitution, specifically section 36 on the limitation of rights and section 25(2)(b) on compensation.

Deprivation is associated with the limitation of rights (for example, a reduced assurance of supply) in that holders of water use rights can retain their entitlements although they can be curtailed for example on duration and place of exercising an entitlement. Marais (2018) defines deprivation as "[..] state's police power to regulate the use, enjoyment and exploitation of property in the public interest, mostly without compensation'.

5.9 OPERATIONALISE THE USE-IT OR LOSE-IT PRINCIPLE

The 'use-it or lose-it' principle was recommended in the National Water Policy Review of 2013 but has not yet been legislated. The principle basically means that "Any authorised water use (including existing lawful use) unutilised for a specified period should be reallocated to the public trust. This water will be reallocated to address social and economic equity" (DWS, 2020a:3). Under this principle all ELU not currently used should be revoked and set aside for reallocation. All the water 'lost' can be held in trust by the state as water set aside for HDI uptake. This principle seeks to end the trading of water rights or compensation with the significant monetary profits from the scarcity value of naturally available water resources.

Currently, it would seem that the verification and validation of water uses followed by compulsory licensing provides the only way for the 'use-it or lose-it" principle to be operational within the NWA provisions. The standoff on the legality of water rights trading indeed poses a challenge for the surrender of water rights by HAIs. The majority in the Supreme Court of Appeal ruled in favour of water rights trading in November of 2021 (Lötter N O and Others v Minister of Water and Sanitation and Others 2021), a ruling which is under constitutional appeal by the DWS and heard in August 2022. Nonetheless, the Minister would be operating within his or her powers to device another mechanism for the operationalizing of the use-it or lose-it principle within the confines of Chapter 6 of the NWA (General powers and duties of minister and director general).

Section 36 of the Constitution (RSA 1996) also makes it clear that rights can only be limited provided the limitation is "reasonable and justifiable in an open and democratic society". The process of justifying limitations may open up continued exploitation by HAIs to retain their entitlements. However, in the case of expropriation, government can take over water use entitlements and then negotiate only on compensation – which can also be limited or denied based on the nature of the water use and the extent of misappropriation in view of HAI historical water grabs. Surrender of unused rights thereby curtails the practice of trading water rights previously observed between ELU holders and public parties such as Municipalities (DWS, 2021). Water rights trading occurred as a 'conversion' from irrigation to urban water use using section 25 of the NWA on trading of entitlements as a basis of conversion. However, the DWS has since challenged this practice and now requires all rights holders to surrender their water use rights so as to allow other users such as local government to apply for exercise of that water right (DWS, 2021).

5.10 REGULATE OR REFUSE NEW WATER UPTAKE BY HAI'S

Post-1998 licences are allegedly issued to facilitate economic productivity. Large volumes of water are still being licensed to individuals as rapid administrative acts ('an administrative water grab'), without adequately accounting for impacts on HDIs' existing or future water uses. Targeting licences of limited duration at the relatively few high-impact users with strict due diligence and conditions enables swift revisions when water becomes needed for re-allocation. While shortening licensing time frames may be deemed to adversely impact economic productivity, the question is who benefits from this productivity. In a highly unequal context, the Constitution and NWA justify reallocation and increase uptake by HDIs. The explicit consideration of HDI interests should be more robustly provided for within the context of technical and social specialist reports to realize the NWRS-2 prioritisation of water allocation. Protection of HDIs' current and future water access, or their free, participatory and informed consent about shares in the benefits should be the foremost criterion when considering new water uptake by HAIs as powerful third parties. This aligns to the One Environmental System initiated in 2014 by the DWS, The Department of Mineral Resources and the Department of Environment Affairs to further integrate and streamline rigorous licencing processes of high impact users (Pegasys, 2018).

CHAPTER 6. CONCLUSIONS

This project explored why Constitutional rights and transformative goals of the National Water Act (1998) towards equity and historical justice have not led to tangible impacts as yet. Within the evolving framework of national policies, legislation, strategies and the Inkomati Catchment Management Strategy, the project aimed to identify and detail gaps in the suite of current legislative tools to address inequities in water allocation reform, as relevant for the Inkomati Catchment.

The historical inequalities in water use in the Inkomati Catchment are immense. The Land Act of 1913 dispossessed HDIs from most land and water resources appurtenant to land followed by disproportionate support to hydraulic infrastructure development benefiting the white minority economy. Past investments in dams, such as the large Kwena dam and also numerous on-farm dams, especially in the Crocodile Sub Catchment, continue to supply HAIs' large-scale agriculture. Former homelands hardly benefited from infrastructure, except for the government irrigation schemes that largely collapsed in the 1990s after the top-down white management left the schemes. Government efforts to provide water supply to communities, even just for basic domestic uses and incidentally for productive uses as well, as seen in the Inyaka and Casteel dam narratives, have little success. In the Sand River Sub system groundwater reserves are also over-abstracted. Yet, most HDIs are not economically able to develop sufficient infrastructure for such groundwater abstraction and dams to ensure their water security.

Nevertheless, community self supply is an often practised alternative to complement, or fill the gap of municipal water supply and generate food and income from irrigation in the communal areas. A first attempt to quantify the extent of informal irrigation in the former homeland has been presented in this report, notwithstanding the data gaps and uncertainties that the estimate is based on. However, the data shows us that informal irrigation is taking place, which calls for prioritisation in water allocations in view of the many other, large-scale historically advantaged users in the catchment, both in legal provisions that make this use more visible and protected and in practical operation that ensures justice for the historically disadvantaged.

In dialogue with communities, civil society, and international, national and catchment-level officials and legal experts, the project attempted to answer questions about how this self supply and the water resources required can be recognised and protected under statutory regulation, particularly vis-à-vis high-impact third parties.
The project found that policies and strategies have well advanced, especially by ranking and prioritising water use categories. In addition to the first priority for the Reserve, water resource allocation for "*poverty eradication, the improvement of livelihoods of the poor and the marginalised and uses that will contribute to greater racial and gender equity",* is prioritised over strategic uses and licensed uses (or converted ELU uses by HAIs).

Conceptualising how this first and third priority for HDIs apply to the NWA's existing or potentially new legal tools, the last chapter concluded in detail how this justifies:

- Enforcing a redefined Basic Human Needs Reserve that also includes the water uses to realize a constitutional right to food, broadly overlapping with the definition of Schedule One uses.
- Recognising and prioritising pre-1998 ELU and continuing post-1998 living customary water tenure in former homelands in the 'sharing out' of water resources with external HAIs
- Elevating thresholds of General Authorisations and proportionate efforts for licensing for small-scale and medium-scale HDI farmers to prevent administrative discrimination, in former homelands in line with customary tenure, and in former white areas.

In the overallocated Inkomati Catchment, historical justice and higher uptake of water to align with this third priority inevitably means dislodging water resources from the 'haves' with the fifth and lowest priority. The NWA's section 33 on the recognition of ELU is an important yet contentious provision in the NWA. While it provides for declaration of ELU beyond the stipulated two-year window prior to the 1998 NWA, it has resulted

in the recognition of many HAI ELU. Customary ELU which can and should also benefit from this provision, and may highlight implications for post-1998 water uptake, have not exercised this right to a similar extent.

Hence, the Conceptual Implementation Plan also underscored the need for curtailment of HAIs who have the lowest priority 5 by:

- Declaring a moratorium on HAIs' ELU declarations,
- Ending unlawful pre-1998 entitlements and all illegal post-1998 water uptake
- Expediting compulsory licensing
- Considering expropriation of ELU with or without compensation
- Operationalising the use-it-or-lose-it principle; and
- Refusing, or strictly regulating HAIs' new water uptake through due process licence applications.

Further policy dialogue and research are clearly needed with partners at national level and in the Inkomati Catchment. This should build on the national, regional and global networks on the same issues as evident in the project's convening and participation in their webinars and seminars. Whereas there is some knowledge about the formal water economies and ongoing efforts to dislodge water entitlements, the understanding of informal small-scale users' agency in solving their water challenges is still limited. This would be an important area of further inquiry to strengthen the case for a hybrid water law that considers both statutory laws and living customary laws as experienced by local small-scale users and unravels their interface. Small-scale farming on apartheid-era irrigation schemes that are formally still owned by government, is also an important typology as more efforts are pointed toward their self-sustainability.

Current and potential hotspots for water contestation in the Sabie Sub Catchment would also warrant further investigation, particularly among HAIs Irrigation Boards, the ecological reserve for the Kruger National Park, and water users in the former homelands. This would also entail getting a deeper understanding of the scheduled users in the catchment's Irrigation Boards, the composition and allocated volumes pre- and post-1998. Above all, such understanding would further debunk any notion of unallocated water 'going to waste in the Inkomati Catchment or elsewhere in South Africa.

REFERENCES

AGTERKAMP JW (2009). Allocating contested water. A case study on the (non-) compliance with environmental water allocations in the sand sub-catchment, South Africa. *Wageningen, Netherlands, Wageningen University, M. Sc. Thesis*.

BATE R, TREN R, MOONEY L (1999). An Econometric and Institutional Economic Analysis of Water Use in The Crocodile River Catchment, Mpumalanga Province, South Africa. *A Report for the Water Research Commission*. WRC Report No: 855/1/99

BOELENS R and JEROEN V (2014). Legal Pluralism, Hydraulic Property Creation and Sustainability: The Materialized Nature of Water Rights in User-Managed Systems. *Current Opinion in Environmental Sustainability* 11:55-62

BOELENS R (2008). The rules of the game and the game of the rules: normalization and resistance in Andean water control*. Ph.D. thesis. Wageningen*, Netherlands: Wageningen University

BOSCH HJ and GUPTA J (2022). Water property rights in investor-state contracts on extractive activities, affects water governance: An empirical assessment of 80 contracts in Africa and Asia. *Review of European Community & International Environmental Law (RECIEL)*, 1-22. https://onlinelibrary.wiley.com/doi/full/10.1111/reel.12436

BURCHI S (2012). A comparative review of contemporary water resources legislation: trends, developments and an agenda for reform. *Water International* 37(6) p 613-627 (2012)

CAI X, MAGIDI J, NHAMO L, VAN KOPPEN B (2017). Mapping irrigated areas in the Limpopo Province, South Africa*.* Colombo, Sri Lanka: *International Water Management Institute (IWMI*). 37p. (IWMI Working Paper 172). [doi: 10.5337/2017.205]

CAPONERA DA (2007). Principles of Water Law and Administration. National and International*.* Second edition revised and updated by Marcella Nanni. London: Taylor and Francis

CLEAVER F (1998). Incentives and informal institutions: Gender and the management of water. In: *Agriculture and Human Values* **15:** 347-360, 1998. Netherlands: Kluwer Academic Publishers

COUSINS T, DHLAMINI S, SMITS S and MALULEKE S (2006). Planning for a multiple use system approach at local level: experiences from Bushbuckridge, South Africa. In the 7th WaterNetWARFSAGWPSA Symposium *"Mainstreaming IWRM in the Development Process"* 13 September 2006.

COWARD W E Jr. (1986). State and locality in Asian irrigation development: the property factor. In: Nobe, K.C. and R.K. Shanpath (eds). Irrigation management in developing countries: current issues and approaches. Proceedings of an Invited Seminar Series sponsored by the International School for Agricultural and Resource Development (ISARD). Studies i*n Water and Policy Management*. No. 8. Boulder and London: Westview Press

DE MENDIGUREN CASTRESANA JCP (2004). Productive uses of water at the household level: evidence from Bushbuckridge, South Africa. Beyond Domestic, p.49.

DENBY K, MOVIK S, MEHTA L. and VAN KOPPEN B (2016). The 'trickle down' of IWRM: A case study of local-level realities in the Inkomati Water Management Area, South Africa. *Water Alternatives*, 9(3):473-492.

DEPARTMENT OF AGRICULTURE, FORESTRY AND FISHERIES (DAFF) (2012). Draft Business Plan Revitalization of Irrigation Schemes: Part 1 Irrigation Infrastructure

DEPARTMENT OF AGRICULTURE, LAND REFORM, AND RURAL DEVELOPMENT (DALRRD). 2022. Draft National Policy on Comprehensive Producer Development Support (NPCPDS). Unpublished policy document. Department of Agriculture, Land Reform, and Rural Development. Pretoria

DEPARTMENT OF WATER AFFAIRS AND FORESTRY (DWAF), (2006). Water Available for Allocation Per Water Management Area. Compiled by: Directorate: National Water Resource Planning, 23 February 2006

DEPARTMENT OF WATER AFFAIRS AND FORESTRY (DWAF), (2007). FREE BASIC WATER Implementation Strategy 2007: Consolidating and maintaining Version 4 April 2007 Prepared by PDG for the Directorate: Water Services Policy and Strategy.

DEPARTMENT OF WATER AFFAIRS AND FORESTRY (DWAF), (2008) Water Allocation Reform Strategy. Pretoria: Department of Water Affairs and Forestry

DEPARTMENT OF WATER AFFAIRS (DWA) (2012). Business Case for the Inkomati-Usuthu Catchment Management Agency. DWA 2012

DEPARTMENT OF WATER AFFAIRS (DWA) (2013a). National Water Resources Strategy 2nd Edition. Government of South Africa. June 2013. Pretoria

DEPARTMENT OF WATER AFFAIRS (DWA) (2013b). Water Requirements and Availability Reconciliation Strategy for the Mbombela Municipal Area. Final Strategy February 2013.

DWS, 2014. *National Water Policy Review. Water Policy Positions.* Pretoria: Department of Water and Sanitation. Available at https://www.dws.gov.za/Documents/Other/WS/NationalWaterPolicyReview-NWPR.pdf

DEPARTMENT OF WATER AND SANITATION (DWS), 2015. Progress Report on the process of Allocation of Water Use licenses in different sectors to advance the developmental needs of South Africa. Briefing to the Portfolio Committee on water and sanitation. 8 August 2015

DEPARTMENT OF WATER AND SANITATION (DWS). 2016. Limpopo Water Management Area North Reconciliation Strategy. Draft Reconciliation Strategy. Pretoria*:* Department of Water and Sanitation

DEPARTMENT OF WATER AND SANITATION (DWS) (2018). Continuation of Water Requirements and Availability Reconciliation Strategy for the Mbombela Municipal Area: Draft Water Reconciliation Strategy South Africa, September 2018.

DEPARTMENT OF WATER AND SANITATION (DWS) (2019). Reserve Determination of Water Resources for the Inkomati Catchments Government Gazettes no. 998. 19 July 2019. Accessed on https://www.gov.za/sites/default/files/gcis_document/201907/42584gon998.pdf

DEPARTMENT OF WATER AND SANITATION (2020). Draft Continuation of water requirements and availability reconciliation strategy for the Mbombela municipal area. Updated reconciliation strategy. P WMA 03/X22/00/6718/7. Final March 2021. Pretoria: Department of Water and Sanitation.

DEPARTMENT OF WATER AND SANITATION (2020a). Strategic Plan for the Fiscal Years 2020 | 2021 to 2024 | 25. https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=&ved=2ahUKEwii-aK0hrL3AhWViVwKHUZiDsIQFnoECAwQAQ&url=https%3A%2F%2Fwww.dws.gov.za%2Fdocuments%2FOther%2FStrategic%2520Plan%2F2021%2FStrategic%2520Plan%25202020-21%2520to%25202024-25_23Mar2020.pdf&usg=AOvVaw1pQvbInqpyZ3etK-Im2JNI

DEPARTMENT OF WATER AND SANITATION (2021). Continuation of water requirements and availability reconciliation strategy for the Mbombela municipal area. Updated reconciliation strategy. P WMA 03/X22/00/6718/7. August 2020. Pretoria: Department of Water and Sanitation

DERMAN B, HELLUM A., MANZUNGU E, SITHOLE P and MACHIRIDZA R (2007). Intersections of law, human rights and water management in Zimbabwe: Implications for rural livelihoods. Chapter 15 in: Van Koppen, Barbara, Mark Giordano, and John Butterworth (eds). 2007. *Community-based water law and water resources management reform in developing countries*, 248-270.

DHAVU, K., MODISELLE, S., SEOPA, J., MANYAKO, E. AND MAKWELA, P. 2016. An assessment of the Department of Water and Sanitation's delivery model of the current resource poor farmers funding policy. Agriculture Research Council, Pretoria. https://arc.agric.za/Economic%20News%20articles/An%20assessment%20of%20the%20Resource%20Poor%20Farmers'%20Funding%20Policy%20delivery%20model%20(SABI%20Magazine,%20January%202017,%20p%2039).pdf

DLAMINI, V. (2007). Local government implementation of policies for integrated water services provision: the practice in Bushbuckridge Local Municipality. www. musgroup. net/page/1032

DUBE, B. (2021). Deficit thinking in South Africa's water allocation reform discourses: a cultural discourse perspective. *Journal of Multicultural Discourses*, *16*(4), 293-312.

FANADZO M, CHIDUZA C AND MNKENI PNS (2010) Overview of smallholder irrigation schemes in South Africa: Relationship between farmer crop management http://dx.doi.org/10.4314/wsa.v37i5.17 Available on website http://www.wrc.org.za

FAO (Food and Agriculture Organization of the United Nations. (2012) Voluntary Guidelines on the Responsible Governance of Tenure of Land, Fisheries and Forests in the Context of National Food Security (VGGT). Rome, Italy: Food and Agriculture Organization of the United Nations

FAO. (2020). Unpacking water tenure for improved food security and sustainable development. Land and Water Discussion Papers. Rome. https://doi.org/10.4060/cb1230en

FAYSSE N, GUMBO J (2004) The transformation of irrigation boards into water user associations in South Africa: Case studies of the Umlaas, Komati, Lomati and Hereford irrigation boards. Volume 2. Working Paper 73. Colombo, Sri Lanka: International Water Management Institute

Government of South Africa and Government of KaNgwane 1992. Agreement on the development and utilisation of the water resources of the Komati River Basin between the Government of the Republic of South Africa and the Government of KaNgwane

HALL RP, VAN KOPPEN B and VAN HOUWELING E (2014). The human right to water: The importance of domestic and productive water rights. Science and engineering ethics, 20(4), pp.849-868.

HORNBY D, KINGWILL R, ROYSTON L and COUSINS B (2017) (eds), *Untitled: Securing Land Tenure in Urban and Rural South Africa*. Pietermaritzburg: UKZN University Press

INKOMATI CATCHMENT MANAGEMENT AGENCY (2008) The Inkomati Catchment Management Strategy. Status Quo Report Compiled for Inkomati Catchment Management Agency

INKOMATI-USUTHU CATCHMENT MANAGEMENT AGENCY (IUCMA), 2017. Consulting services for the verification of existing lawful water use within the Inkomati Water Management Area. Close out report. Version 3 (Final). Project Number: 1/26. Prepared by MHP Geospace (Pty) Ltd. 3 March 2017

INKOMATI-USUTHU CATCHMENT MANAGEMENT AGENCY (IUCMA) (2020). Resource Planning and Operations Division submission to the IUCMA annual report 2019/2020.

INTERNATIONAL WATER MANAGEMENT INSTITUTE. (2017). Base line reports for six villages of the project 'Operationalizing community-driven multiple-use water services in South Africa'. Pretoria: International Water Management Institute and Water Research Commission.

IUCMA (Inkomati-Usuthu Catchment Management Agency), 2015. Annual Report 2015/2016 Financial year IUCMA (2019a), Inkomati-Usuthu Catchment Management Agency. Water Allocation Plan – Kaap River Catchment.

IUCMA (2019b), Inkomati-Usuthu Catchment Management Agency. Water Allocation Plan – White River Catchment.

IUCMA (2021). Inkomati-Usuthu Catchment Management Agency. Catchment Management Strategy 2021-2026. Final Version 2.0, March 2021.

IUCMA (Inkomati-Usuthu Catchment Management Agency), 2017. Five-year Strategic Plan and Budget for the fiscal years 2015/2016-2020/21. Updated 22 November 2017.

IUCMA (Inkomati-Usuthu Catchment Management Agency), 2019. Annual Performance Plan 1 April 2018-31 March 2019.

JAMES PD (2017). Sugarcane Farming, Rural Livelihoods and Land Reform in the Mpumalanga Lowveld, South Africa. A thesis submitted to the University of Manchester for the degree of Doctor of Philosophy at the Faculty of Humanities

JUMA I and MAGANGA FP (2005). Current reforms and their implications for rural water management in Tanzania. African Water Laws: Plural Legislative Frameworks for Rural Water Management in Africa, pp.26-28.

KAPANGAZIWIRI E, KAHINDA JM, DZIKITI S, RAMOELO A, CHO M, MATHIEU R, NAIDOO M, SEETAL A and PIENAAR, H (2018). Validation and verification of lawful water use in South Africa: An overview of the process in the KwaZulu-Natal Province. *Physics and Chemistry of the Earth*, Parts A/B/C, 105, pp.274-282.

KAPFUDZARUWA F and SOWMAN M (2009). Is there a role for traditional governance systems in South Africa's new water management regime? Water SA vol 35 (5)

KEMERINK JS, AHLERS R and VAN DER ZAAG P (2011). Contested water rights in post-apartheid South Africa: the struggle for water at catchment level. *Water SA*, 37(4), pp.585-594.

LÖTTER N O and Others v Minister of Water and Sanitation and Others (725/2020) [2021] ZASCA 159 (8 November 2021). Pretoria: Supreme Court of Appeal

LUND C (2016). Rule and rupture: State formation through the production of property and citizenship. Development and Change 47(6): 1316-1337

LUND C and EILENBERG M (2017). Rule and rupture: State formation through the production of property and citizenship. Department of Food and Resource Economics, Faculty of Science, University of Copenhagen. Policy Briefs (Copenhagen Centre for Development Research), No. 02/2017

MAGIDI J, VAN KOPPEN B, NHAMO L, MPANDELI S, SLOTOW R. MABHAUDHI T (2021). Informing equitable water and food policies through accurate spatial information on irrigated areas in smallholder farming systems. *Water*, 13(24):3627. [doi: https://doi.org/10.3390/w13243627]

MASHITISHO, M. (2017). Briefing the Portfolio Committee on Water and Sanitation on the transformation of Irrigation Boards. Powerpoint presentation by the Director-General. Pretoria: Department of Water and Sanitation

MALZBENDER D, GOLDIN J, TURTON A and EARLE A (2005). Traditional Water Governance and South Africa's "National Water Act" – Tension or Cooperation? Paper presented at the International workshop on 'African Water Laws: Plural Legislative Frameworks for Rural Water Management in Africa', 26-28 January 2005, Johannesburg, South Africa

MARAIS EJ (2018). Narrowing the meaning of 'deprivation' under the property clause? A critical analysis of the implications of the Constitutional Court's Diamond Producers judgment for constitutional property protection. *South African Journal on Human Rights*, *34*(2), 167-190.

MEINZEN-DICK R and NKONYA L (2005). Understanding legal pluralism in water rights: lessons from Africa and Asia. In African Water Laws Workshop: Plural Legislative Frameworks for Rural Water Management in Africa. January 2005.

MEINZEN-DICK R and NKONYA L (2007). Understanding Legal Pluralism in Water and Land Rights: Lessons from Africa and Asia. Chapter 2 In: Van Koppen, Barbara, Mark Giordano, and John Butterworth (eds). 2007. *Community-based water law and water resource management reform in developing countries*. Comprehensive Assessment of Water Management in Agriculture Series 5. CABI Publishers Wallingford, UK

MNKENI PNS, CHIDUZA C, MODI AT, STEVENS JB, MONDE N, VAN DER STOEP I AND DLADLA RW (2010). Best Management Practices for Smallholder Farming on Two Irrigation Schemes. WRC Report No. TT 478/10. *Water Research Commission*, Pretoria, South Africa. 359 pp

MOVIK S (2009) The Dynamics and Discourses of Water Allocation Reform in South Africa, STEPS Working Paper 21, Brighton: STEPS Centre

MOVIK S (2011). Allocation discourses: South African water rights reform. Water Policy, 13(2), 161-177.

MUNNIK V (2020). Water risks of coal driven mega projects in Limpopo: the MCWAP and the EMSEZ. Friedrich Ebert Stiftung and University of Witwatersrand.

MUROMBO T, assisted by SEME N. (2021). Recognition of customary water rights in South African legislation. DRAFT Working paper prepared for: International Water Management Institute (IWMI) as Part of PIM 5.1.1 project 'Recognizing customary water tenure in hybrid water law: legislative and local perspectives' and presented at the *Water Institute of Southern Africa's (WISA) Biennial Conference and Exhibition 2020*

NAIDOO D, STEIN R and DINI J (2019). South African water law reform as a reflection of a broader societal journey towards socio-economic transformation. Paper presented at 25 Years of Democracy Conference, 23-24 July 2019, Mapungubwe Institute for Strategic Reflection and University of Johannesburg

OSTROM E (2010). Beyond Markets and States: Polycentric Governance of Complex Economic Systems. *The American Economic Review, 100*(3), 641-672. http://www.jstor.org/stable/27871226

PEGASYS INSTITUTE (2018) Enhancing the Water Use Authorisation framework: simplified for small impact productive users. Water Research Commission Report No. 2536/1/17 ISBN 978-1-4312-0945-3

PERRET SR (2002). Water policies and smallholding irrigation schemes in South Africa: A history and new institutional challenges. *Water Policy,* 4(3), pp.283-300.

PETERS J and WOODHOUSE P (2019) Discourses of water reallocation in South Africa. *Water Alternatives* – Volume 12, Issue 3

POLLARD S and DU TOIT D (2011). Towards adaptive integrated water resources management in southern Africa: The role of self-organisation and multi-scale feedbacks for learning and responsiveness in the Letaba and Crocodile catchments. *Water Resources Management*, 25(15), pp.4019-4035.

POLLARD S, BIGGS H, DU TOIT D (2008). Towards a socio-ecological system view of the Sand River Catchment, South Africa: A resilience analysis of the socioecological system (WRC Consultancy No. K8/591). *Water Research Commission*

POLLARD S, BIGGS H, RYDANNYKH A and DU TOIT D (2013). The Shared River Initiative Phase II 2013. Part 3. Development of a participatory framework for understanding water related-ecosystem services within the context of classification and the Reserve. *A report to the Water Research Commission*.

Post-Harvest Innovation Programme (PHI), (2016). Bushbuckridge Agricultural Development Plan. Compiled by Emile de Kock Lima Rural Development Foundation – JUNE 2016 for the Department of Science and Technology and the Fresh Produce Exporters' Forum South Africa.

RAMAZZOTTI M (1996). Readings in African customary water law. FAO Legislative Study 58. Rome: Development Law Service. Food and Agriculture Organization of the United Nations

REPUBLIC OF SOUTH AFRICA (RSA) (2020). The Presidency: Building a new economy: Highlights of the reconstruction and recovery plan.

REPUBLIC OF SOUTH AFRICA (RSA) (2019). Final Report of the Presidential Advisory Panel on Land Reform and Agriculture 04 May 2019 for His Excellency the President of South Africa.

REPUBLIC OF SOUTH AFRICA (RSA). 1956. Water Act. Act NO. 54 of 1956. Government of South Africa

RIDDELL ES, MASHELE NM, NTULI M, CHAWANA P (2018). Inception report for the GT650 Maximising benefit from water stewardship for emerging farmers and conservation areas downstream of the Mpumalanga Drakensberg Strategic Water Source Area. Prepared by the SANParks: KNP in association with Kruger2Canyons Biosphere Region NPO https://www.greentrust.org.za/2019/05/06/strategic-water-source-areas-crucial-supply-to-smallholder-farmers-and-kruger-national-park/

RRI/ELI (Rights and Resources Initiative and Environmental Law Institute). 2020. Whose Water? A Comparative Analysis of National Laws and Regulations Recognizing Indigenous Peoples', Afro-descendants', and Local Communities' Water Tenure. Rights and Resources Initiative, Washington, DC. Available at: www.rightsandresources.org

RSA (1996), Republic of South Africa. Constitution of the Republic of South Africa.

RSA (1998), Republic of South Africa. National Water Act. Act 36 of 1998.

RSA (2016), Republic of South Africa. Department of Water and Sanitation. Notice 538 of 2016. Revision of General Authorisation for the Taking and Storing of Water

RSA (Republic of South Africa) 1998 National Water Act. Gov. Gaz. 398, No. 19182.

SARAIVA-OKELLO A (2019). Improved hydrological understanding of a semi-arid subtropical transboundary basin using multiple techniques – the Incomati River Basin. CRC Press / Balkema – Taylor & Francis Group.

SCHREINER B, SITHOLE P, VAN KOPPEN B (2017). Water Permit Systems, Policy Reforms and Implications for Equity in South Africa. Project country Report produced as an output from the REACH programme funded by UKAID from the UK Department for International Development Fund (DFID). http://africa.iwmi.cgiar.org/wp-content/uploads/sites/2/2017/04/Water-Permitting-South-Africa-Country-Report-PI_IWMI-March-2017.pdf

SCHREINER B and VAN KOPPEN B (2018). Establishing hybrid water use right systems in sub-Saharan Africa. A practical guide for managers. Pegasus and the International Water Management Institute. International Water Management Institute (IWMI). 48p. Pretoria South Africa https://publications.iwmi.org/pdf/H048975.pdf

SCOTT DF, LE MAITRE DC and FAIRBANKS DHK (1998). Forestry and streamflow reductions in South Africa: A reference system for assessing extent and distribution. *Water S.A 24(3*).

SIFUNDZA LS, VAN DER ZAAG P and MASIH I (2019). Evaluation of the responses of institutions and actors to the 2015/2016 el-niño drought in the Komati catchment in Southern Africa: Lessons to support future drought management. *Water SA*, 45(4), 547-559. https://doi.org/10.17159/wsa/2019.v45.i4.7535

South African Association for Water User Associations and others v Minister of Water and Sanitation and others (case 71913/2018) [2020]; CJ Lotter N. O. and others v The Minister of Water and Sanitation and others 42072/2018 [2020]; FGJ Wiid and others v The Minister of Water and Sanitation and others (90498/2018 [2020]. Pretoria: High Court

TAPELA B (2015). Water Governance in Traditional Rural Communities of South Africa Report on Policy Options for Effective Water Governance in Traditional Rural Communities *Report to the Water Research Commission*. Institute for Poverty, Land and Agrarian Studies WRC Report No. KV 343/15 ISBN 978-1-4312-0697-1

TEWARI DD (2009). A detailed analysis of evolution of water rights in South Africa: An account of three and a half centuries from 1652 AD to present. *Water SA*, 35(5).

THOMPSON H (2006). *Water law: a practical approach to resource management and the provision of services*. Juta and Company Ltd.

THOMPSON H, STIMIE CM, RICHTERS E, PERRET S (2001). Policies, legislation and organizations related to water in South Africa, with special reference to the Olifants river basin. Working Paper 18 (South Africa Working Paper No. 7). Colombo, Sri Lanka: International Water Management Institute.

VAN AVERBEKE W, DENISON J and MNKENI PNS (2011). Smallholder irrigation schemes in South Africa: A review of knowledge generated by the Water Research Commission. *Water SA*, 37(5), pp.797-808.

VAN KOPPEN B and SCHREINER B (2019). A hybrid approach to statutory water law to support smallholder farmer-led irrigation development (FLID) in Sub-Saharan Africa. *Water Alternatives* 12(1): 146-155

VAN KOPPEN B and SCHREINER B (2014). Priority General Authorisations in rights-based water use authorisation in South Africa. *Water Policy*, 16(S2), 59-77.

VAN KOPPEN B and SCHREINER B (2018). A hybrid approach to decolonize formal water law in Africa. International Water Management Institute (IWMI). Colombo, Sri Lanka: *International Water Management Institute (IWMI*). 45p. (IWMI Research Report 173). doi: 10.5337/2018.219

VAN KOPPEN B (2017). Water allocation, customary practice and the right to water: Rethinking the regulatory model. Chapter 2 in. The human right to water: Theory, practice and prospects, pp.55-56.

VAN KOPPEN B, TAPELA BN and MAPEDZA E (2018). Joint Ventures in the Flag Boshielo Irrigation Scheme, South Africa: A History of Smallholders, States and Business. *IWMI Research Report 171*. Colombo, Sri Lanka: International Water Management Institute and the Department of Agriculture Forestry and Fisheries, South Africa

VAN KOPPEN B, HOFSTETTER M, NESAMVUNI AE and CHILUWE Q. (2020). Integrated management of multiple water sources for multiple uses: rural communities in Limpopo Province, South Africa. *Water SA*, 46(1), 1-11.

VAN KOPPEN B, MOLOSE V, PHASHA K, BOPHELA T, MODIBA I, WHITE M, MAGOMBEYI M and JACOBS-MATA I (2020). Guidelines for community-led multiple use water services: evidence from rural South Africa. Colombo, Sri Lanka: *International Water Management Institute* (IWMI). 36p. (IWMI Working Paper 194). [doi: https://doi.org/10.5337/2020.213]

VAN KOPPEN B, NHAMO L, CAI X, GABRIEL, M. J, SEKGALA M, SHIKWAMBANA S, TSHIKOLOMO K, NEVHUTANDA S, MATLALA B, MANYAMA D (2017). Smallholder irrigation schemes in the Limpopo Province, South Africa. Colombo, Sri Lanka: *International Water Management Institute (IWMI).* 36p. (IWMI Working Paper 174). doi: 10.5337/2017.206

VAN KOPPEN B, PHASHA K, BOPHELA T, MODIBA I, WHITE M, MAGOMBEYI and JACOBS-MATA I. (2021). Operationalizing community-led water services for multiple uses in South Africa. Report to the Water Research Commission, by International Water Management Institute and Tsogang Water & Sanitation WRC Report No. TT 840/20 ISBN 978-0-6392-0238-9. Pretoria, *Water Research Commission*. At: http://wrcwebsite.azurewebsites.net/wp-content/uploads/mdocs/TT%20840%20final%20web.pdf

VAN KOPPEN, B (2008). Redressing inequities from the past from a historical perspective: The case of the Olifants basin, South Africa. In: *Water SA* Vol 34 No 4 HELP Special Edition. Pretoria: Water Research Commission

VAN DER ZAAG P and CARMO VAZ Á (2002). Sharing the Incomati waters: cooperation and competition in the balance. *Water Policy*, *5*(4), pp.349-368.

VON BENDA-BECKMANN F, VON BENDA-BECKMANN K and SPIERTZ J (1998). Equity and legal pluralism: taking customary law into account in natural resource policies. Chapter 6 p 57-69 in: Rutgerd Boelens and Gloria Dávila (eds) 1998. Searching for Equity. Conceptions of justice and equity in peasant irrigation. Assen, Netherlands: Van Gorcum

WAALEWIJN P, WESTER P and VAN STRAATEN K (2005). Transforming river basin management in South Africa: Lessons from the lower Komati river. *Water International*, 30(2), 184-196. DOI:10.1080/02508060508691859

WOODHOUSE, P and HASSAN R (1999). Rural Resources, Rural livelihoods. Implementation of South Africa's National Water Act. Originally prepared for the Department of Water Affairs and Forestry, South Africa, and DFID – Southern Africa (Department for International Development, UK

WOODHOUSE P (2012) Reforming Land and Water Rights in South Africa. *Development and Change* 43(4): 847-868. DOI: 10.1111/j.1467-7660.2012. 01784.x

WOODHOUSE P and JAMES P (2015). Land reform and sugarcane farming in the Mpumalanga Lowveld. Working Paper 3. Project "Farm scale and viability: An assessment of black economic empowerment in sugar production in Mpumalanga Province, South Africa". Manchester: University of Manchester. Accessed on http://hummedia.manchester.ac.uk/institutes/gdi/research/research-programmes/Working%20Paper%203%20-%20final.pdf

APPENDIX: GOVERNMENT-LED SMALLHOLDER IRRIGATION DEVELOPMENT AND LAND RESTITUTION: THE CASE OF SUGAR CANE IRRIGATION IN THE INKOMAZI

INTRODUCTION

The project 'Operationalisation of Hybrid Water Law for Historical Justice', distinguishes customary self supply and various forms of government-led HDI irrigation development. While the project's focus is on the first, this annex highlights the range of issues in government-led HDI irrigation development, as illustrated by smallholder sugar irrigation in the former KaNgwane homeland and on restituted farms, with appurtenant water rights, in the Nkomazi area. This case highlights complex dependencies on Irrigation Boards, the international sugar industry, government subsidies, and 'strategic partners' with access to capital, skills and markets. The following analysis takes a historical perspective, based on literature review.

FORCED REMOVALS AND THE SUGAR INDUSTRY

In the aftermath of the Mfecane of the 19th century, a range of clans and groupings, mainly SiSwati and IsiZulu speaking, settled in – by then – the eastern part of Transvaal, and today's Nkomazi district municipality. At the turn of the century gradual white settlement started, among other to construct the railway between Johannesburg, via Ressano Garcia to the later Maputo in 1895. Government-financed irrigation schemes along the Crocodile river consolidated white territorial occupancy. Settlement increased rapidly after World War I when crops cultivated included citrus, cotton and tobacco (Van der Zaag, 2002). White settlers proceeded to forcefully remove Africans when proclaiming the Sabi Game Reserve and somewhat later, by 1926, its expansion into the Kruger National Park. Communities were relocated into what would become the former Lebowa and Gazankulu homelands in the Sabie Sub Catchment and in three parts of the later KaNgwane homeland in the Crocodile; and Upper and Lower Komati area.

Up till the 1960s, there were no major dams in the Inkomati. After that, Transvaal Suiker Beperk (TSB) kickstarted sugar cultivation in the fertile Lowveld of the Crocodile Sub Catchment. The apartheid Central Sugar Board granted an allocation of 11,518 ha of land on which to farm sugar. The first sugar mill opened in 1965 in Malelane. Further expansion of the sugar industry in the Nkomazi area, including the Lower Komati river system, has shaped land and water management ever since. This was part of subsidized expansion of irrigated sugar cultivation in all three riparian countries of the Komati. In the 1970s, the two bigger South African companies, Tongaat-Hulett and Illovo, obtained equity in two Mozambican estates downstream, after the confluence of the Komati and Crocodile, in the Incomati, river. In Swaziland, the British Commonwealth Development Corporation (CDC), which had already been active in Mozambique since the early 1900s, started plantations. At independence of Swaziland in 1968, the King acquired a 50% shareholding (Van der Zaag, 2002).

Sugar mills depend on constant reliable supplies of sugar cane. Short distances between fields and mill save transport costs, which binds producers to sell to its nearest mill. This has rendered the sugar mills monopolists (Van der Zaag, 2002). In the Nkomazi district, sugar cane's high crop water requirements warrant expensive year-round irrigation. Yet, the monetary value of sugar per drop of irrigation, including its downstream industry, is low. Other crops, such as citrus, macadamia, or vegetables tend to be more profitable, provided there are markets (Woodhouse and Hassan, 1999). Nevertheless, cane cultivation has remained profitable for farmers and TSB thanks to substantive government support. Market prices are guaranteed and at national markets sold for higher prices than the world prize (Woodhouse and Hassan, 1999). Today, the South African Sugar Association is responsible for industry price setting and represents the sole channel of sugar exports from

South Africa. Government also supported irrigation construction, both the riparian schemes for pump irrigation from rivers and the dams to ensure year-round flows with sufficient assurance of supply.

1960s: STARTING SMALLHOLDER IRRIGATED SUGAR CULTIVATION

In the South African part of the Komati, TSB initially expanded primarily in the former white areas of the Crocodile, Komati and its tributary the Lomati. The KaNgwane administration was established in 1982. Tribal chiefs became employees of the South African apartheid regime, also in the part of KaNgwane at the north-east side of Swaziland, with the boundary of Swaziland at the south and the Lomati river to the north. The Lower Komati flows through KaNgwane. Betterment policies initiated some irrigation, led by Agriwane, a parastatal agricultural development body. Collective smallholder schemes with small plots were constructed to cultivate plots for food security and some form of organization into farmers' associations. However, sugarcane schemes were 400 ha only.

This low level of sugar development contradicted the water rights allocation that the apartheid government had gazetted when KaNgwane was established in 1982. This regulated the Komati flows between upstream KaNgwane (which got water rights for 17 farms, totalling 7327 ha) and the white territory downstream (with water rights for a total of 7196 ha). By 1995, the total developed irrigation on the lower Komati was reported to be 14335 ha, primarily by white farmers. It remains unclear whether the white farmers had taken up the water allocations of KaNgwane or had found water rights elsewhere (Woodhouse, 2012).

Moreover, these water rights were never vested in individuals or even farmers' associations. It has been unclear, till today, who the right holders of the water rights allocated by the national government are: traditional authorities or the KaNgwane Department of Agriculture or, after 1994, the Mpumalanga Provincial Department of Agriculture (DoA)? The latter is also responsible for paying water fees to the department of Water and Sanitation (DWS) in Mbombela. With the dismantling of KaNgwane in 1994, knowledge about the quantities at stake further disappeared, let alone any insights in whether and how black people's 1982 water rights had been taken away. In practice, the Komati and Lomati Irrigation Boards govern water distribution (see below).

THE NKOMAZI IRRIGATION EXPANSION PROJECT (NIEP) IN FORMER KANGWANE

Infrastructure development

By the end of the 1980s, TSB and white farmers successfully lobbied for further expansion. A second sugar mill in Komatipoort was commissioned in 1994. Two big dams to regulate flows were constructed: one in the Inkomati river (the Maguga dam in Swaziland, commissioned in 2002) and one in its tributary, the Lomati river (the Driekoppies, later called Matsoma dam, just over the border between Swaziland and South Africa, as commissioned in 1998).

This development was preceded by the 1992 Treaty on the Development and Utilisation of the Water Resources of the Komati River Basin between Swaziland and South Africa. This stipulated how the joint Komati Basin Water Authority (KOBWA) was to allocate the flows of the two new dams: High Assurance supply: 15.1 Mm^3/a and 157.8 Mm^3/a for Swaziland and South Africa, respectively. Low assurance supply: 260.2 Mm^3/a and 381 Mm^3/a for Swaziland and South Africa, respectively (Woodhouse and Hassan, 1999).

Anticipating the upcoming new dispensation (and available funding), this time, the expansion explicitly included the Nkomazi Irrigation Expansion Project (NIEP) that targeted black irrigators in the former KaNgwane, both along the upstream part of the Komati and the southern riparian strip of the Lomati. TSB well profiled its – in

South Africa – pioneering initiative to take substantive parts of sugar deliveries from black small-scale producers.

Under the NIEP, the government installed river pump schemes (of 100-800 ha each) with individual plots (ranging between 5 and 15 ha) and collectively owned and managed infrastructure. Over 75% of the funding of the project came from the Development Bank of Southern Africa, while Agriwane and others also contributed (James, 2017). In the first phase of NIEP till about 2000, about 7000 ha was developed. However, by 2001, only 5,200 ha was farmed (Waalewijn, 2005). In NIEP's second phase of some 15 projects on some 2000 ha, Landbank funded the last seven, known as 'the Landbank projects'. TSB consistently provided extension services. In total, 9,800ha of smallholder irrigation were newly constructed: 23 projects along the Komati River, 9 along the Lomati River, and 2 along the Mzinti River. Approximately 1200 small-scale farmers benefitted. In the province by 2010/11 the 1,164 small-scale growers outnumbered the 172 large scale growers (SACGA, 2011). As TSB stated, some 40% of its sugar delivery came from emerging, black producers.

However, the number of 1200 dwarfs in comparison to the total population of approximately four hundred thousand people in the region (James, 2017). Plots were allocated to a selected, tiny minority. Personal connections with tribal chiefs and earlier formal employment shaped the selection process. Slightly more men than women obtained plots (James, 2017).

Employment is limited in Nkomazi sugar cane cultivation. TSB organizes cutting. Labour for recurring smaller works such as weeding, is mainly provided by immigrant labourers from Swaziland, Mozambique and Zimbabwe. James (2017) found that the average wage paid to permanent labour was R857 per month, less than half the R105 per day, or R2100 per month statutory minimum. Temporary workers received approximately R30 per day, which is one third of that minimum.

Profits, debts and restructuring

It is unclear which portion of the above-mentioned costs of these investments were a grant from government via the banks, for example for the construction of the infrastructure by government and consultants, and which portion was a loan, e.g. operational costs of electricity and inputs that new cultivators should repay. In any case, smallholders had to take loans. These were repaid from crop proceeds in a retention scheme controlled by TSB. As lack of formal land titling was consistently identified as a barrier to obtain loans, the sugar industry-run financial body Akwandze Agricultural Finance, developed a type of bank loan for ABSA or Land Bank that allowed individuals to purchase customary land. This transformed the former customary Permission To Occupy, which used to be in the hands of traditional chiefs, who could tax land title holders with annual fees.

Initially, with brand-new infrastructure, smallholders achieved high productivity for substantive profits. This was reflected in a growing demand for plots. However, over-time net profits of many smallholders declined. The floods of 2000 destroyed infrastructure, interrupting cultivation and exacerbating the already high infrastructure maintenance and routine replacement costs. Whereas commercial farmers often had farm-level reservoirs to cope with dry spells and droughts, smallholders could not raise such funding and lacked this buffer. Farmers' organization for collective action to leverage contributions, repair pumps, maintain the joint infrastructure, acquire electricity or protect against electrical cables theft was cumbersome. Sugarcane ratoons are harvested on a roughly annual cycle, typically extending over 8-10 years before replanting. In spite of intensive extension by TSB, crop diseases such as smut sometimes broke out. A transporters' strike in 2012 was a further setback.

For many smallholders, productivity dwindled below 60 tons per hectare, which is regarded as a minimum to cover costs (James, 2017). Overall, as a result, the area of smallholder sugar cultivation harvested across Mpumalanga Province declined by 25.6% from a peak of 8,602 ha in 2006 to 6,403 ha by 2014 (James, 2017).

Loans required for recapitalization of schemes have become 'debt recovery' instruments that drive the further restructuring of the smallholder schemes in Nkomazi. The (in-)ability to recapitalize has divided small-scale

cane growers in a successful minority that seeks to purchase more land on an emerging land market to make more profits, and a majority that had to stop and either sell the land or accept that TSB takes over management by introducing cooperative farming and professional management in a similar way as TSB started doing on smallholder farms on restituted land. Before discussing the latter, we first come back to the practical ways in which sugar cane smallholders without formal water rights depend on the Irrigation Boards to receive water.

WATER ALLOCATION BY IRRIGATION BOARDS

In practice, Irrigation Boards manage the distribution of water to their members. This includes the issue of quota reductions in water abstractions in times of water shortage. For these services the boards levy internal water management charges, and, where water is supplied from government water works, collect water tariffs determined by the Department of Water and Sanitation. Irrigation Boards can also agree to collect the water resource management charges that form the operational budgets of CMAs. These strong internal and external powers are also manifest in the Nkomazi.

At the start of sugar cane expansion in 1972, the apartheid government, in line with the 1956 Water Act, established the Komati River Government Water Control Area (GWCA). This implemented the above-mentioned water allocation of 1982 sharing between the newly established KaNgwane and the white Lower Komati. In 1984, the Lomati River GWCA was proclaimed. However, here, irrigators were given temporary abstraction permits, which persist to the present (Waalewijn, 2005). In 1995, the boundaries of the Komati River Irrigation District were extended to also cover the former KaNgwane, where the river passed. One year later, the Lomati Irrigation Board followed, now including the right riparian bank of the Lomati (Waalewijn et al., 2005).

In order to effectuate water distribution and control of, initially, only its members of commercial farmers, the Komati Irrigation Board installed a Water Administration and Measurement System. This is a telemetric metering system that registers all abstractions and shuts down the pumps when the allocated quantity is reached. Later, the Irrigation Board also equipped the pumps of the upstream smallholder farmers with this means to control abstraction. However, the latter were hardly informed about this decision and only later realized how this gave the Irrigation Board full control over their abstractions (Waalewijn et al., 2005).

In terms of quota reductions, Faysse and Gumbo (2002) found how the Department of Water and Sanitation had published the general volumetric quotas per zone in the National Gazette on 18 July 2003 to manage the drought. In the Lomati Irrigation Board, this allocation was said to imply a 35% availability of the quota (so approximately 2 hours of irrigation per day) for the white farmers and 60% (so 4 hours) for the black smallholders. For the Komati River Irrigation Board, availability was 20% for white farmers, and 35% for smallholders. A government official explained the rationale for this: white farmers had over-developed their areas under irrigation compared to the 1982 allocation agreement, while the initial plans for smallholders had not materialized. It is unclear whether and how this formal schedule has been implemented (Faysse and Gumbo, 2002).

These and other Irrigation Boards in the Inkomati Catchment strictly retain information on water uses that they themselves derive from telemetry and other means to measure and control electricity and pump operation and may even record. The initial verification stage indicated that in 2004 the total area of irrigated land in the Inkomati Catchment had increased by about 17,000 ha relative to that observed in 1996-98. The verification of the lawfulness of this increase, preceding Compulsory Licensing, had to rely on other means such as satellite imagery to estimate irrigated crop areas and likely actual crop water uses. Endless contestations invoking irrigation efficiencies, changing farm boundaries, transfers of farm ownership, and uses well preceding the qualifying period delayed the process. In 2014, the water use that *farmers had themselves registered* as 'existing lawful use' was accepted as the amount for which they would be licensed, and billed. In practice, moreover, the sugar industry continued to lobby the Department of Rural Development and Land Affairs to

ensure that the land and its associated water allocation continued to be used for sugar cane (Woodhouse, 2012; Peters and Woodhouse, 2019).

LAND RESTITUTION IN THE FORMER WHITE LOWVELD

While new smallholder sugar cane was developed in the former homelands, in the former white areas of both the lower Crocodile and Komati, the original black owners claimed large tracks of lands, including functioning sugar cane farms, back under South Africa's land restitution. Gradually and at a small-scale, this process evolved into a willing buyer-willing seller land redistribution. TSB supported and shaped this effort to redress historical injustices as well. Claims also offered opportunities, as a respondent of the Komati Irrigation Board noted: upliftment of HDIs would probably be less expensive for government and TSB if it were done by purchasing parts of white farms that already cultivated sugarcane, compared to the setting up new schemes as in the NIEP. The main change the respondent expected would be a modification of the irrigation equipment to fit the organizational requirements of the arriving claimants' communities (Faysse and Gumbo, 2002).

Claims for land restitution in the course of the 1990s were massive. For example, the Tenbosh Consolidated Land Claims Committee represented 7 000 people, laying claim to approximately 115000 hectares of some of the most valuable farmland in South Africa, which is the Nkomazi district. In the main sugar-cane growing areas of the lower Crocodile River, at least 40,000 ha of commercial sugar cane and fruit orchards were subject to such claims.

A number of existing white farm owners agreed to accept government compensation payments. Payments were substantive. In total, the restitution process has transferred almost 43000 hectares of land to seven trusts comprising approximately 24 636 beneficiaries, at a cost to the government of over R2.8 billion (USD 280 million) for the purchase of land from the previous owners. Other landowners, for example those organized as 'Onderberg pro-active', resisted restitution claims and, aided by the failure of claimants to resolve competing claims to the same land by different communities, succeeded in having restitution claims withdrawn (James, 2017).

The result by 2014 was that the two sugar mills in Mpumalanga were supplied by sugarcane grown on 51,054 hectares of land. TSB claims that 31,829 hectares or 62% of this land is "land reform area", although this interprets "land reform area" as synonymous with "black-owned", as it includes sugarcane grown by small-scale growers in former homelands. If the approximately 10,250 hectares of land of the latter projects is not included, "land reform" accounts for 21,579 hectares or 42% of all sugarcane land. TSB and others claim the success of this achievement (James, 2017).

However, claimants did not obtain land as it was in the 1950s but as a *commoditised asset of a highly capitalised business* with irrigation equipment, farm machinery, vehicles, or packing sheds (in the case of fruit farms). These also had to be transferred. As the Matsamo case shows, precious water rights were not automatically transferred either (Murombo, 2021). Even if transferred as a licence to one particular community, it may further fuel competition in the general complexity of overlapping claims to land which are the legacy of repeated removals and resettlement of communities.

TSB itself owned approximately 6,000 hectares of land that was under restitution claim by various communities as well. TSB sold this to the government in 2006. Although this reduced ownership of land, the company, needing to operate at full capacity, vested a new configuration of control either by leasing land or as a 'strategic partner' in joint ventures on approximately 11,000 ha of restituted land – and also on smallholders sharing a scheme, as in former KaNgwane (James, 2017), as discussed next.

JOINT VENTURES

When community trusts or groups of farmers merely jointly own land and equipment in the highly capitalized mode of farming of sugar cane in the Lowveld, they totally depend on capital for adequate input provision, on superior management skills and on markets. If they cannot provide themselves, they can employ a farm manager accountable to them, or sell the land and equipment. Or, as increasingly practised, they can lease the land to such managers with required inputs and markets or they can establish a joint venture with such managers as 'strategic partners'. In joint ventures, owners lease the land to the strategic partner and share in profits. In principle, the strategic partner can provide skill and enterprise development to a few more active members. Others are 'armchair farmers' without any other role to play than bearing the risks if all fails (Tapela, 2005). This model also locks smallholders and communities in sugar cultivation, even though other crops, such as tropical fruit trees, are more profitable. TSB promotes the latter on restituted land, where tribal authorities legitimated the trust's land claims and often disproportionate share in any benefits. The NGO LIMA is assisting smallholder cane growers to form Primary Cooperatives to set up similar joint ventures with TSB.

Some claimants became service providers and benefitted from the R65 million paid to service providers from the claimant population in the restitution process (TSB, 2014). A manager may earn approximately R42000 rand per month. However, overall, TSB has improved its own business and has benefitted most from navigating South Africa's (budgets for) agrarian reforms and offering high-tech skills and guaranteed markets.