

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

The logo for Water Alternatives (WAA) features the letters 'WAA' in a stylized, blue, handwritten font. The letters are slightly overlapping and have a soft, glowing effect around them. Below the letters, there is a faint, light blue circular graphic element that resembles a water droplet or a ripple.

The 'Trickle Down' of IWRM: A Case Study of Local-Level Realities in the Inkomati Water Management Area, South Africa

Kristi Denby

Department of Environment and Development Studies (Noragric), Norwegian University of Life Sciences, Aas, Norway; kristidenby@gmail.com

Synne Movik

Norsk Institutt for Vannforskning (NIVA), Oslo; synne.movik@niva.no

Lyla Mehta

Institute of Development Studies at the University of Sussex, Brighton, UK; and Department of Environment and Development Studies (Noragric), Norwegian University of Life Sciences, Aas, Norway; l.mehta@ids.ac.uk

Barbara van Koppen

International Water Management Institute (IWMI), Southern Africa Regional Programme, South Africa; b.vankoppen@cgiar.org

ABSTRACT: The historical legacy in South Africa of apartheid and the resulting discriminatory policies and power imbalances are critical to understanding how water is managed and allocated, and how people participate in designated water governance structures. The progressive post-apartheid National Water Act (NWA) is the principal legal instrument related to water governance which has broadly embraced the principles of Integrated Water Resources Management (IWRM). This translation of IWRM into the South African context and, in particular, the integration of institutions related to land and water have faced many challenges due to the political nature of water and land reforms, and the tendency of governmental departments to work in silos. The paper explores the dynamics surrounding the implementation of IWRM in the Inkomati Water Management Area, and the degree of integration between the parallel land and water reform processes. It also looks at what these reforms mean to black farmers' access to water for their sugar cane crops at the regional (basin) and local levels. The empirical material highlights the discrepancies between a progressive IWRM-influenced policy on paper and the actual realities on the ground. The paper argues that the decentralisation and integration aspects of IWRM in South Africa have somewhat failed to take off in the country and what 'integrated' actually entails is unclear. Furthermore, efforts to implement the NWA and IWRM in South Africa have been fraught with challenges in practice, because the progressive policy did not fully recognise the complex historical context, and the underlying inequalities in knowledge, power and resource access.

KEYWORDS: Land and water reform, IWRM, equity, water access, Inkomati, South Africa

INTRODUCTION

The widespread global water scarcity concerns and the increasing attention to sustainable development have prompted reforms of water legislation in favour of the highly influential Integrated Water Resources Management (IWRM) (see Introduction, this Issue; Brown, 2011; Movik, 2012). The concept of IWRM emphasises that water should not be managed sectorally or in isolation from the wider

environment, and endeavours to integrate the management of land, water and related resources, taking into consideration the wider economic, environmental and equity-related aspects (GWP 2000).

The idea of IWRM emerged in Europe and North America, and was later spread and translated in the African context as best practice through external and internal channels (Funke and Jacobs, 2010; Mehta and Movik, 2014; Mutondo et al., 2016; Movik et al., this Issue). These efforts of implementing IWRM in sub-Saharan African countries have been met with challenges linked to representation and participation in newly formed decentralised institutions; the complexity of river basins (interbasin transfers, scarce water supply, international river basins etc.); power imbalances and plural legal systems; and lack of human capacity and poor financial resources (see van Koppen, 2000; Wester et al., 2003; Swatuk, 2005; Anderson et al., 2008; Funke and Jacobs, 2010; Brown, 2011; van Koppen and Schreiner, 2014b; Mutondo et al., 2016). This paper focuses specifically on the South African experience, in particular the Inkomati Water Management Area (IWMA). The South African case is particularly interesting because its 1998 National Water Act is considered one of the most progressive pieces of IWRM legislation in the world (see Schreiner, 2013), and the 1997 White Paper embraces an IWRM approach (see Movik et al., this Issue). There have, however, been significant challenges on the ground, and this article explores some of these through case studies in the Inkomati.

The ambitious post-apartheid South African water policy and legislation were developed on the basis of extensive public participation, and were informed by experiences and expertise of other countries (i.e. Australia and Mexico) and the principles of IWRM (Schreiner and Hassan, 2011; Movik, 2012; ICMA, 2014; Movik et al., this Issue). The National Water Act (NWA) (RSA, 1998) is the principal legal instrument related to water management. It placed a strong emphasis on the efficiency of water use and management, on redressing past imbalances and the sustainable use of water to ensure water access for all South Africans, while preserving its ecosystems (DWA, 2012b). The deep historic roots of apartheid, especially with regards to access to land and water, continue to be negotiated in democratic South Africa. The Native Land Act (1913, 1936) and the Bantu Authorities Act¹ of 1951 of the apartheid regime provided the legislation to restrict property rights from the black majority, and led to the forced removals of over 3.5 million people to 'tribal' reserves, formerly called homelands or bantustans (Bate and Tren, 2002; Movik, 2012, Woodhouse, 2012). As a result of these discriminatory apartheid policies the majority of black farmers in South Africa were struggling and lacked support when the country emerged independent in 1994. These people are referred to as potential or emerging farmers or 'historically disadvantaged individuals' (HDIs) because they lack sufficient water authorisations (white commercial farmers held the majority), strong networks, and planning and management skills to run a high-input irrigated farm (Woodhouse, 2012).

In order to redress the problems from the past, post-apartheid South Africa has prioritised getting the institutional set-up right (Movik, 2012; Movik et al., this Issue). The goal was to form Catchment Management Agencies (CMA) according to hydrological boundaries that would eventually be responsible for managing water resources at the basin level. At the local level, it was envisaged that the Irrigation Boards (IBs) from the apartheid era would be converted to more inclusive Water User Associations (WUA; RSA, 1998; DWA, 2012a). Despite the progressive NWA, challenges persist especially with regard to water reallocation and the setting-up of decentralised water management organisations (CMAs and WUA); and the lack of integration of key institutions has continued to hamper and delay implementation (Ashton et al., 2006; Funke and Jacobs, 2010; Denby, 2013; Mehta et al., 2014). Within the IWRM-influenced water policy, a paradox exists where the holistic and integrated

¹ When the National Party came to power in 1948, they set out to create a country divided into segregated homelands or bantustans for the majority of the Black population (Terreblanche, 2002). To move towards a segregated development of South Africa, the Bantu Authorities Act of 1951 officially recognised the tribal authority as the rulers of the ten bantustans of South Africa (Movik, 2012).

approach to water management is at odds with the emphasis on the decentralisation and participatory aspects of IWRM. Another complication relating to integration in the context of IWRM is that the water and land reforms in South Africa were largely drafted, and are being implemented independently of each other (Funke and Jacobs, 2010; Movik, 2012; Woodhouse, 2012). Moreover, the slow progress of both water and land reforms reflects the persisting inequalities in income distribution and access to resources, which remain strongly correlated with race, gender and location (i.e. former homelands) (May, 2000; Lahiff, 2007).

It has been more than 20 years since the end of apartheid, and the inequalities in access to water for productive purposes and the participation in designated water governance structures (DWA, CMA, IBs, WUA) have not significantly changed (King, 2005; Schreiner et al., 2010; Schreiner, 2012; DWA, 2012b; Brown, 2014). It is, therefore, critical to examine how various interpretations, challenges and outcomes surrounding the implementation of the water reform are understood and affect people, in particular black farmers at the local level, namely in rural areas and the former homelands.

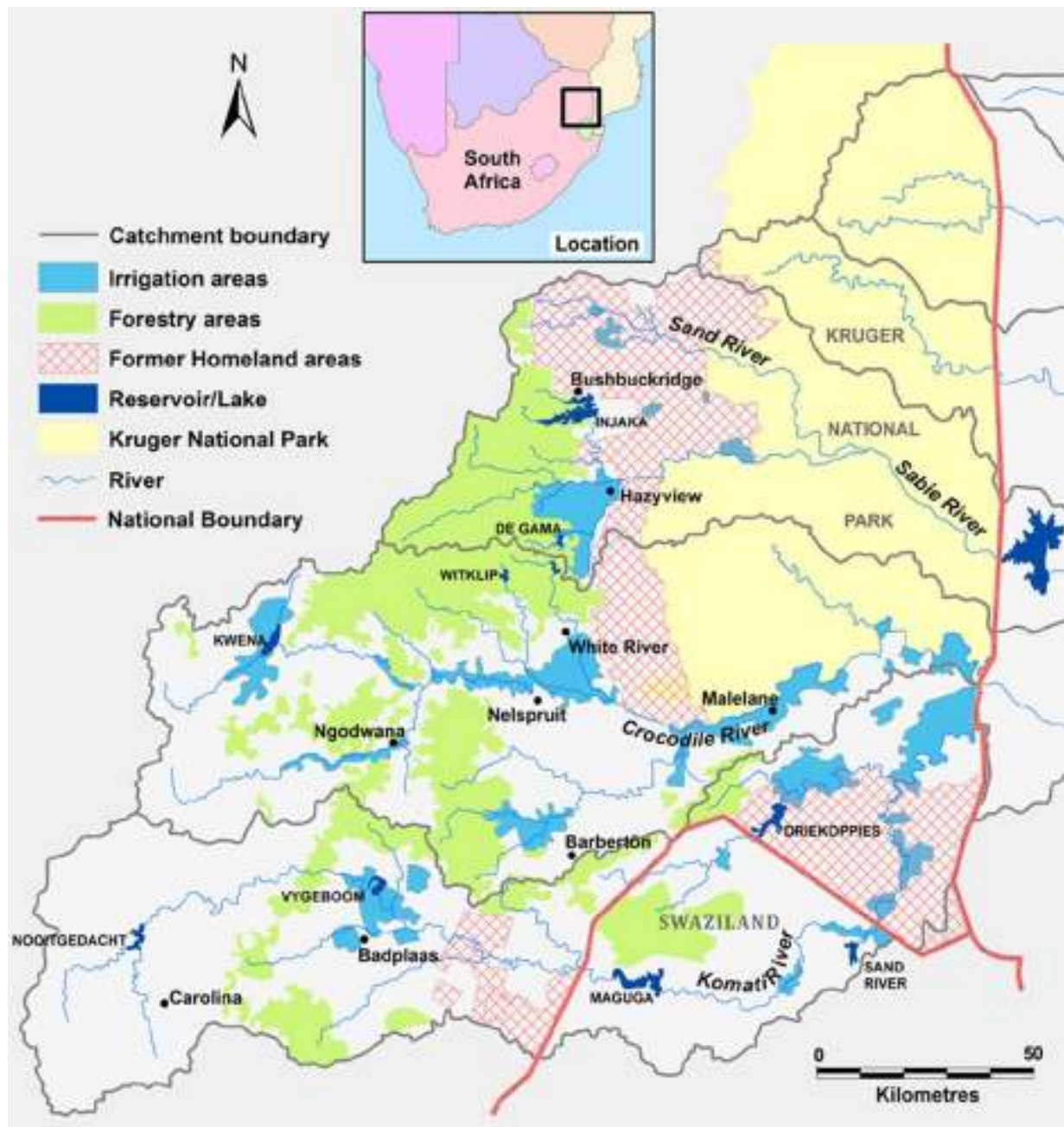
In this article, we will examine how the efforts at implementing IWRM translate into practice, and the dynamics surrounding management and access to water at the regional (basin) and local levels. The focus is on the Inkomati Catchment Management Agency (ICMA), the first established CMA in South Africa, and home of some of the largest land claims in South Africa. In 2006, the Inkomati CMA (ICMA) was formally established after seven years of negotiations and a controversial and complex participatory process over the scarce water resources in the basin (Anderson, 2005). At the time of conducting research, it was the only one of two operational CMAs in the country which makes it an interesting case. This article highlights the diverse understandings of IWRM at the regional and local levels; how IWRM implementation in the Inkomati is unfolding; and how the progressive policies have influenced black farmers' access to water. Furthermore, how the parallel land and water reforms are playing out in the Inkomati are used to study the degree of integration and coordination between institutions linked to water, agriculture and land reform. We draw on case studies of sugar-cane farmers in Nkomazi (formerly the KaNgwane homeland) that explore the challenges black farmers face in relation to access to water and the discrepancies between the IWRM-influenced policy on paper and the actual realities on the ground (i.e. the trickle down of IWRM).

STUDY AREA

The Inkomati Water Management Area (IWMA) is located in Mpumalanga and a small portion of Limpopo Province, and is comprised of three major catchments with rivers that all flow into the Inkomati River system: the Sabie-Sand, Crocodile and Komati. The Inkomati River originates in South Africa, passes through Swaziland, back through South Africa, then Mozambique where it finally drains into the Indian Ocean. The basin covers roughly 31,230 square kilometres (km²) with irrigated agriculture in the IWMA utilising approximately 57% of the total available water, also referred to as the water requirement (DWA, 2012b). The IWMA is water-stressed with a growing water deficit in the basin resulting from frequent water restrictions, growing demands from emerging black farmers, international treaty obligations, and widespread concern regarding water quality and the ecological reserve (DWA, 2007; Woodhouse, 2012; DWA, 2012a). There is a deficit² in water yield with three of the four sub-catchments, the Komati, Sand and Crocodile all being over-allocated, and the reserve and international requirements not being met (Schreiner, 2012).

² Approximately 165 million m³/annum (DWA, 2012a).

Figure 1. Map of the Inkomati Water Management Area (Brown, 2014).



The IWMA spans through three former homelands: KaNgwane, Lebowa and Gazankulu, and has the largest number of historically disadvantaged and emerging black farmers in South Africa (ICMA, 2010). The farmer groups in the study areas can be considered as follows: (1) communal farmers (often referred to as small-scale growers living in the former homelands that are today often referred to as the communal areas); (2) land reform farmers who are beneficiaries of the redistribution and restitution from the land reform programme (often referred to as emerging farmers) and (3) commercial farmers (mainly white farmers). Both communal farmers and land reform farmers will also be referred to as Historically Disadvantaged (HD) farmers in this article. It must be noted that discrepancies exist between HD farmers (especially the rural poor, and women) with regard to participation and access to

water (see Movik, 2012). All farmers interviewed lived in Nkomazi (local municipality in Mpumalanga Province), which lies in the former KaNgwane homeland in the Komati-Lomati River system (sub-catchment of the IWMA). At the time of the research in 2012, the formal demand for water authorisations among emerging farmers was far greater than the water available in the IWMA. We chose to focus on sugar-cane farms because it is an important export crop in the IWMA requiring irrigation, and a domain where water and land reforms overlap.

The catchment area of the Komati River and its tributaries, mainly the Lomati River is approximately 11,210 km². The Lower Komati is located in Nkomazi, northeast of the Swaziland border and west of Mozambique where it meets the Crocodile River. This area is "considered to be one of the most fertile agricultural regions in South Africa" (Waalewijn, 2005: 186). Sugar cane, in particular, gained significant importance in the lower Komati catchment when the first sugar cane mill was built near Malelane (Nkomazi) in 1965 by TSB sugar holding³ (Movik, 2012). Commercial agriculture and TSB and Malelane mills remain key pillars in the province of Mpumalanga and Nkomazi economy, currently producing over 30% of South Africa's total sugar output. Historically, the Lomati River, a tributary of the Komati served as a natural boundary between the black farmers on the right side of the river bank, and the white commercial farmers on the other side (Waalewijn, 2005; Movik, 2012). There are many black sugar-cane farmers residing in the former KaNgwane homeland in Nkomazi that have no formal land titles, but where the chief issues a Permission to Occupy (PtO).⁴

METHODOLOGY

The research employed a qualitative approach to understand the complex realities of water management and water access. Data collection included reviews of relevant official and 'grey' literature (documents, reports, minutes from meetings, etc.) and semi-structured interviews with 40 key staff at the national and regional departments linked to land and water, including Department of Agriculture, Rural Development and Land Affairs (DARDLA), Department of Rural Development and Land Reform (DRLR), Department of Water Affairs⁵ (DWA), Water Allocation Reform consultant, Inkomati Catchment Management Agency (ICMA), the NGO LIMA⁶, Lomati and Komati Irrigation Boards, TSB sugar holdings, South African Sugar Association, Mpumalanga Cane Growers and Nkomazi Farmers Association. Interviews at the institutional level provided key information regarding the institutional landscape and highlighted the complexities and challenges in managing and allocating water at the basin level. Attending water- and land-related stakeholder meetings, conferences and workshops,⁷ provided many valuable insights. Data was also collected through participant observation and informal conversations with the attendees.

At the local level, a case study approach was adopted, in order to bring out the complexities and issues relating to farmers' access to water and IWRM in practice. The main means of information-gathering at the local level was participatory observation and in-depth semi-structured interviews. In

³ TSB stands for Transvaal Suiker Beperk. The translation in English is Transvaal Sugar Limited, but the company website refers to the company as TSB sugar holdings.

⁴ A PtO is not registrable in a deeds registry, but is rather a personal right over certain rural and unsurveyed land that allows a family/person to occupy or use the land.

⁵ In 2014, Department of Water Affairs became the Department of Water and Sanitation (DWS).

⁶ LIMA is working with TSB and DRDLR. They work with rural development, social facilitation and governance challenges. www.lima.org.za

⁷ Freshwater governance conference in Drakensberg; Inkomati Day of the Freshwater governance conference in Drakensberg; MCCAW meeting in Nelspruit, ICMA stakeholder meeting in White River; Mpumalanga Land Reform Development Committee in Nelspruit; Mpumalanga Provincial workshop on Framework and indicator for monitoring and auditing water allocation reform in Nelspruit; Mill cane committee meeting at TSB Malelane; NWRS2 consultation meeting in White River.

Nkomazi, 56 sugar-cane farmers (20 females, 36 males) from nine sugar-cane projects or cooperatives were interviewed in the communal areas. We interviewed sugar-cane farmers (mostly managers or ex-owners) from seven land reform farms, one redistribution farm and six restitution farms. Multiple interviews of the same stakeholders or institutional staff were used as a means of triangulating the findings, and served as a way to cross-check and revisit key issues among the respondents.

BACKGROUND

Post-apartheid historical legacy

The historical legacy of South Africa including the discriminatory policies and the imprint of apartheid in spatial planning are critical in understanding the material realities of rural residents today (King, 2005). The riparian water right doctrine⁸ (see Movik et al., this Issue), in combination with the discriminatory Land Act of 1913 formed the foundation of a long-standing effort to deprive the black majority of South Africans access to land and water resources (van Koppen and Schreiner, 2014a). Since the end of apartheid, the boundaries of the homelands have been erased in theory; however, the legacy of apartheid and discriminatory spatial planning is still reflected in the landscape, and continues to shape many rural residents' socioeconomic realities (King, 2005; 2007). Despite the progress, black farmers, many of whom live in the former homelands, still suffer and struggle from the apartheid era evictions from their land, poverty, and underdevelopment; and the inequality of support and resource allocations under the Apartheid Government (Perret, 2002; van Koppen et al., 2009; Schreiner et al., 2010).

The adoption of IWRM: The National Water Act of 1998

South Africa is considered a predominantly semiarid country, and the water sector is characterised by "scarce water supplies, increasing water demand, exhausted infrastructure development and intensive competition among water uses and users" (Backeberg, 2005: 108). The country was in a constant state of change at the end of apartheid, with substantial new policy and legislation that have broadly taken on the principles of IWRM (Perret, 2002; Backeberg, 2005; ICMA, 2014; Movik et al., this Issue). When drafting the policy, the government recognised that access to water resources was a key element in enabling many of the rural poor or historically marginalised to break out of poverty. The 1998 National Water Act (NWA) aimed to decentralise and integrate water management; redress past inequalities in access to water; create new local and regional institutions; promote participation and equal representation; and register and license water use and facilitate a market to trade water rights (Perret, 2002; van Koppen et al., 2003; Backeberg, 2005). Another key priority of the NWA was to implement the ecological 'Reserve' which is defined as the amount of water in-stream that must be set aside in order to be able to meet the basic human and ecological water needs.

The NWA designated the state as the custodian of water, and adopted the principle of subsidiarity (taking decisions at the lowest appropriate level) with the goal to achieve the equity and sustainability of water management resources through the involvement of various stakeholder groups (environment, agriculture, land reform, health, etc.) in the decision-making process (ICMA, 2014). One of the guiding principles of the transformation and reform of water resources management was the legal requirement for public participation and the creation of new decentralised institutions to manage all aspects related to water (DWA, 2012a).

⁸ Water rights were granted reasonable use of water adjacent to water or a river bank according to landownership (Movik, 2012).

The creation of decentralised institutions (CMAs, WUAs) at the basin level was considered a key factor in the implementation of the NWA, and a basis to achieve the goals of the implementation strategy and framework for water governance, the National Water Resource Strategy (NWRS) (RSA, 2004). The CMAs should optimally be responsible for all basin-level water management planning, coordination, and water-related stakeholder engagement (Schreiner and van Koppen, 2002; Anderson, 2005). WUAs are essentially supposed to function as cooperative associations for water users, with equal representation, that take on water-related activities for the mutual benefit of the members (Perret, 2002).

Delegating water governance functions to the CMAs was considered groundbreaking, even though it created major delays in getting the institutional set-up 'right' and created widespread confusion among water users regarding which institution was in charge (Jonker et al., 2010). Despite the progressive water policy, the Department of Water Affairs (DWA) has acknowledged that "little substantive progress on the NWA pillar of equity (redress of race and gender water allocations for productive economic use) has been achieved since its promulgation" (DWA, 2012b: 67). This lack of redress can be attributed to the fact that the politics of resistance surrounding water was not sufficiently acknowledged, among other factors. Thus, the NWRS 2 has recognised these challenges and the slow progress in implementing the water policy in South Africa, and has moved away from a blanket IWRM approach and has prioritised IWRM activities with a strong focus on the contextual and development needs of South Africa (van Koppen and Schreiner, 2014a).

Detached and parallel water and land reforms

The redistribution of water through the Water Allocation Reform (WAR) from the 'haves' to 'have nots' greatly increased the political risks and expectations attached to implementing IWRM in South Africa (Woodhouse, 2008; Movik, 2012). In 2006, with the scarce water supply, economic prosperity and equitable distribution priorities in mind, South Africa published the Water Allocation Reform (WAR) policy. WAR aimed to "overcome the ongoing race and gender imbalances in access to water resources" (Greenberg, 2010: 10, see also Movik, 2012). The priorities of WAR were to reallocate water to implement the ecological 'reserve' and redistribute from the haves to the have-nots, primarily through a process of Compulsory Licensing (CL)⁹ in water-stressed basins. Since 1994, the provision of safe drinking water has greatly improved among the rural poor; however, little has changed in the provision of access to water for productive purposes (Schreiner et al., 2010). More importantly, to date the land reform programme has been a more significant contributor to the reallocation of water, and has the ability to empower black farmers over and above the Water Allocation Reform agenda (Schreiner, 2012). Estimates indicate that between 24 and 34% of water allocations will be transferred into black hands through the completion of the land reform process in the Inkomati (ICMA, 2010).

South Africa's land reform has three different pillars: Redistribution, restitution and tenure reform. Redistribution involved government grants and programmes based on the 'willing buyer, willing seller' principle with an aim to transfer white-owned farmland to black farmers. Restitution aims to address the evictions from the 1913 discriminatory land laws and to transfer land back to the communities, families or individuals evicted. Tenure reform is aimed at improving tenure security among the 17 million people living in the former homelands (Woodhouse, 2012). All the redistribution and restitution farms are titled, must come with a water authorisation, and are bought through the Department of Rural Development and Land Reform (DRDLR) at the provincial level, and then beneficiaries are selected or have placed a respective claim on the land. Governance issues are a major challenge – e.g. in 1918

⁹ CL is the main process outlined in the NWA (section 43) that must be implemented to authorise all water users, then reallocate water. This requires the verification of water use, a Catchment Management Strategy (CMS), Water Allocation Plan (WAP) and other allocation criteria to be completed first (IUCMA, 2015).

one white farmer owned the farm where, now, 500-5000 people are beneficiaries of the same farm. Many white commercial farmers still manage their old farms that were bought by the land reform programme due to the sheer number of beneficiaries taking over a farm, and their lack of management skills and experience in running a highly commercialised farm. For these reasons many beneficiaries of the land reform are not involved in the farming operations, and thus do not participate in the water governance structures.

Greenberg's (2010) report on the progress of land reform in South Africa states that water allocation and land transfers must be connected at an institutional level because the links between land reform, agricultural support and provision of water resources are weak. The post-apartheid water policies, especially WAR, have not sufficiently acknowledged the necessary coordination of policies and programmes with the land reform and agricultural departments. Regardless of the interconnected nature and historical embeddedness of land and water, these reform processes have largely occurred as detached and parallel processes (Funke and Jacobs, 2010; Woodhouse, 2012; Movik, 2012). Land and water in South Africa are governed with overlapping mandates and goals, but are managed by different governmental policies, institutions and funding schemes.

THE CATCHMENT AND LOCAL-LEVEL: THE INKOMATI WATER MANAGEMENT AREA

The complexity of setting up 19 functioning CMAs, as outlined in the NWA, was underestimated and, in 2012, these boundaries were downsized to nine WMAs, and required the merging and set-up of a total of nine CMAs (ICMA, 2014; see Movik et al., this Issue). In May 2014, the Inkomati WMA formally merged with the adjacent Mhlatuze-Usuthu WMA to form the Inkomati-Usuthu WMA and CMA.¹⁰ However, the consequences of the extension of the catchment boundaries are unclear, but "may compromise the future manageability of the CMA in the interests of supposed efficiency" (Brown, 2014: 6).

The intention of DWA is to ultimately delegate full powers to the ICMA in order to institutionalise the principle of subsidiarity and to ease the national department's administrative burden. Section 57(2) of the NWA states that water use charges must be made payable to the relevant water management institution (ICMA). The idea of administrative water use rights, or licences, is an important pillar of the NWA and is how the ICMA should be ultimately funded. A licence is one of four broad categories of water use rights – the others being schedule one (small-scale use of negligible impact), general authorisations (larger, but still low-impact use rights that can be offered to a specified group or in a specified geographical locality), Existing Lawful Use (ELU) and licences. ELU is a temporary water entitlement that allows people or organisations who were lawfully using water prior to the 1998 NWA to continue to do so, until the process of CL is completed. A key focus of the Inkomati Catchment Management Strategy (CMS) is a process of validation (checking the use) and verification (checking the lawfulness) of ELUs (ICMA, 2010). In the Inkomati, the delegation of many key legislative mandates was drawn out and politically contested. Finally, in January 2015 the Minister delegated the ICMA the legislative functions to license water use, complete the verification of existing water users and to control water use charges (ICMA, 2014; IUCMA, 2015).

Institutional set-up: Land, agriculture and water

At the regional level, the DWA Regional Office and the ICMA are responsible for the management of water resources. At the time of the research, the ICMA focused on mobilising, empowering and consulting water users and stakeholders, in particular women and the rural poor. At the lower

¹⁰ In this paper, we will refer to the Inkomati WMA and CMA because the research for this paper was conducted prior to the institutional realignment.

institutional level, the 27 Irrigation Boards (IBs) formed under the apartheid government still largely managed water and collected water use charges on behalf of DWA. These were meant to be disbanded and converted to a more inclusive and representative Water User Association (WUA) (Brown, 2014). To date, few WUAs have been established due to the strict gender and race representation criteria and other complications such as transferring of assets and their inability to have paid staff in the Inkomati (see *ibid.*). Many people felt that DWA had unrealistic expectations in regard to the composition of WUAs, leading to the IBs distancing themselves from the transformation process and causing some conflict with DWA (*ibid.*). As per the NWA, DWA envisioned that the CMA and WUA would take over all legislative mandates in regard to the management of water resources. Progress has been extremely slow, and it took DWA approximately ten years to hand over key legislative mandates since the establishment of the ICMA.

Many other regional departments have a say in water resources management to varying degrees, such as the provincial departments of the Department of Rural Development and Land Reform (DRDLR) and the Department of Agriculture, Rural Development and Land Administration (DARDLA). There was a major reshuffle of ministries and departments as a result of a change in administration led by Jacob Zuma in 2009 and 2014. Where earlier there had been the Department of Agriculture (DoA) there was an intention to more clearly demarcate the departments that were involved in production, and keep them separate from land reform and rural development issues. This strict separation between production and land reform issues has been criticised, see e.g. Hall (2004), and goes against the grain of integration.

In 2009, DRDLR was created to have one department dedicated to the social and economic development of rural South Africa, and it set out to define what 'rural development' should be and how it should be achieved, leading to the creation of the Comprehensive Rural Development Programme (CRDP). DARDLA, (formerly DoA) focuses on developing comprehensive strategies linked to land and agrarian reform and food security, such as the Comprehensive Rural Development Strategy. DARDLA holds the water authorisations for the bundles of small-scale farmers in the former KaNgwane. When drafting the NWA, the government chose to keep the water allocations with DARDLA, retaining a vestige of the old system of management in the communal areas. This may have seemed logical at the time; however, the duality of the apartheid persists with two sets of rules and institutions, one for the communal farmers and the other for the rest of the farmers.

Institutional integration and water access

The Inkomati CMS and the NWRS 2 are full of references to IWRM and the need for an integrated approach. Despite this recognition, challenges persist with institutional coordination, institutional memory and the shuffling of staff within the government. It was mentioned that "every time there is a new minister of land or water affairs they forget the lessons learnt".¹¹ A senior manager at the ICMA noted that the provincial institutions and their mandates "are not known by us".¹² An ICMA employee commented that there is a lot of overlap amongst the institutions, but senior officials pass the blame or hide or do not take responsibility.¹³ The lack of alignment of the various governmental programmes for the benefit of communal and land reform farmers is a key issue, and the working relations are fraying at the edges.

A senior DRDLA employee commented:

¹¹ Interview, LIMA, 15 November 2012

¹² Interview, ICMA, 6 December 2012

¹³ Interview, ICMA, 9 November 2012

Water allocation cannot be done in isolation from other departments because it has an impact on the other departments, (...) programmes must be put in place to make it easier for black farmers to get access to water and to understand the water policy. There is a legislative and constitutional basis in terms of developing the lives of black people; however, the pace is slow on the part of the government and we lack partnerships to collaborate.¹⁴

The question of how to work together is a key challenge when so many layers and mandates exist. At the regional level, all departments interviewed mentioned something about the lack of cooperative governance between departments linked to land and water, and the importance of aligning programmes. An ICMA employee commented that "there seems to be a gap and we are lacking cooperation".¹⁵ At the time of the research there was a complete lack of communication between DRDLR and DWA, and very little incentive or political will to collaborate. A senior staff member of DRDLR recognised that to improve the conditions for black farmers it is essential that these two institutions collaborate and align their programmes and mandates, but no plan of action to facilitate this integration was ever outlined.¹⁵

Accessing wet vs. paper water

Water is dynamic and fluid in nature, which can be challenging to access as compared to a static natural resource, such as land. The formal routes to access water in South Africa other than a Schedule One, General Authorisation or ELU consists of obtaining a paper licence from DWA or a water lease or transfer from the Irrigation Board (IB). This is often referred to as 'paper water', and the channels and infrastructure needed to access the water to actually irrigate the farmers' crops are known as 'wet water' (van Koppen, 2012). The channels of water access in which farmers have legally applied for or hold a government registered water authorisation under the NWA is referred to as the formal water governance system.

The lack of clarity surrounding the NWA, and slow pace of WAR have led to a lack of confidence and trust in DWA, the ICMA and the overarching formal water governance system. This high degree of distrust in the formal system prevails in Nkomazi and stems from a continuation of the norms practised during apartheid. Moreover, overlaps and confusion exist regarding water policy and governance arrangements among the various institutions and stakeholders in Inkomati. At the ICMA stakeholder meeting (15 November 2012) the HD farmers that attended expressed major concerns with accessing both wet water and paper water (licences). Many of the farmers (both women and men) spoke up and were upset about the slow pace of WAR and the lack of redress. A farmer in the meeting said in an angry tone, "(...) even if you are given a licence, how can you help me abstract the water to my farm?" The ICMA responded that the issue with access to irrigation infrastructure is not an ICMA authorised expenditure, but rather a shared problem between DARDLA and DWA. The ICMA recognised the problem with accessing paper water and the fact that getting a licence does guarantee HD farmers access to water.

Farmers were often misinformed and lacked the capacity, time, money, trust and effort it took to apply for water authorisation or get a transfer/lease from the IBs to obtain paper water. The proportion of the value of the water used and the costs associated with applying for a water licence favours large-scale users; and often leaves small-scale users at a disadvantage when forced to spend money and take time to travel long distances with no promise of obtaining the small water entitlement (see van Koppen and Schreiner, 2014a). Moreover, paper water authorisations cannot be fully utilised unless the HD farmers have well-developed water storage and conveyance infrastructure, which is often not the case

¹⁴ Interview, DRDLA, 24 November 2012

¹⁵ Interview, DRDLR, 6 November 2012

among sugar-cane projects in Kangwane. Another common challenge among HD farmers is when a farmer has enough paper water, but is unable to properly pump the water due to poor or broken irrigation infrastructure, theft, financial issues or high Eskom (electricity) tariffs. In this case, the farmer must pay for the water regardless of whether they are able to use it, and often the farmers suffer with poor yields. The beneficial water use narrative is strong among the departments interviewed where many supported the creation of a 'if you don't use it, you lose it' policy. This narrative of beneficial water use was used to serve and protect economically and politically important export crops like sugar cane. The concept of beneficial water use was being discussed in stakeholder meetings at the institutional level as a way to encourage or push farmers to efficiently use their water allocations, but there was no formal policy at the time of the research.

The Inkomati is over-allocated (more water use authorisations allocated than the available supply), and until the complex process of CL is completed, which has no clear end date, there is likely to be widespread uncertainty of water delivery amongst farmers and the institutions. As a result, there are very few new water authorisations available and applying via the formal system offered little opportunity for black farmers to expand their existing irrigation systems or start a new irrigated farming operation. Due to the long and expensive process of obtaining a 'paper' water authorisation, farmers often resorted to finding alternative or informal channels of accessing water. For example, the Ngogolo cooperative, located in Nkomazi, had poorly designed canals built by the KaNgwane government. The canals and balancing dams were leaking and the infrastructure needed to be upgraded. The water licence for the Ngogolo Cooperative was 400 ha; however, over the years the farm has expanded a few hectares at a time and at the time of research they were irrigating an unlicensed area of 150 ha. As a strategy to obtain more wet water the cooperative had a 'gentleman's agreement' with a neighbouring leather farm. DARDLA was working with the farm to upgrade the canals, and the chairman Ngogolo Cooperative was bothered by the many false promises from DARDLA/DWA, and urgently wanted to know how to access more water. Several farmers interviewed used a mix of formal and informal channels to access water. In some cases, this was achieved through a mix of the paper water through formal channels and negotiated agreements through informal networks to gain access to the wet water.

An emerging challenge: Water debt

In 2012 and 2013, water use debt was an emerging issue in Nkomazi among both communal and land reform farmers. The water debt stemmed from unpaid water use charges to the IBs and DWA (however, as of 2015, the burden of this challenge has been sitting with the ICMA which is responsible for collecting water use charges). Most farmers or sugar-cane projects have water meters and/or are charged for the volume of water resources pumped for irrigation purposes, which corresponds to their water use authorisation. Regardless of the fact that a farmer is using the water or not, she or he must pay the water bills until a water transfer is coordinated through the IB. With regard to transfers or leasing water, only a small percentage of farmers are participating or benefitting from such processes, as the well-informed commercial farmers or land reform farms and communal sugar-cane projects (funding provided by DRDLR) do, with mentors or joint ventures. In addition, if a farmer has water debt, the debt must be paid before the IB can facilitate a transfer. The majority of the HD farmers interviewed stated that they are sceptical of leasing their water rights because they mistrust the system and think their water will be taken away, further contributing to the problem of water debts. Most of the water debts began to emerge as a problem when the sugar-cane projects had fallow fields or decreasing yields, resulting from a combination of one or more challenges such as financial problems, lack of capacity and institutional support, governance challenges, infrastructural malfunctions and theft.

At the end of apartheid much of the agricultural support given to the black farmers involved in the irrigation schemes in Nkomazi was withdrawn. This led to the degradation and collapse of many of the

irrigation schemes in the former homelands (Shah et al., 2002; Perret, 2002). The Tikhontele sugar-cane project (242 ha) is one of these irrigation schemes started in the late 1980s by the KaNgwane Homeland government. From 2007 until the time of the research in late 2012, the fields of the Tikhontele sugar-cane project were fallow due to enduring governance, financial and water access challenges. During this time the project accumulated 300,000 South African Rand (approximately US\$35,500) of water debt. A key informant from TSB commented:

How can [Tikhontele] resuscitate the farm with that debt. They are aware that they have to pay the bills and they just left them and the bills kept coming with interest. If they were aware they could have leased the water and could have made money. Now DWA is finally in discussion with them about the repayment of the bills. These bills are killing projects.¹⁶

In response to the water debt challenge, a DWA director said that the monthly water use bills and letters outlining outstanding water use charges were sent to the IBs, but DWA was not sure if the farmers were simply not paying the bills or the bills and notification letters were not being sent. Nonetheless, nobody was taking leadership to investigate why the bills were not being paid or to enforce that the debt was settled. He described this situation as risky and that DWA/IBs lack human capacity and sufficient time to enforce the payment of water charges. Many of the HD farmers were unaware of the trading or leasing policies because they were not participating in water governance structures or the representatives attending the IB meetings were not passing the key messages down. In the case of the Tikhontele project, there should have been some sort of intervention or assistance in facilitating a temporary lease of the water authorisation before the water debt became such a large burden. On a positive note, Tikhontele is located on communal land so the farm cannot be auctioned off by the bank. By contrast, Land Reform (redistribution) farms that have a title can be repossessed by the bank. In some cases, farms claimed only ten years ago are being auctioned, and oddly enough are bought back by Land Reform (DRDLR) to meet the department's redistribution targets.

According to DRDLR, land reform farmers should have water authorisations that come with the farm. But in reality, the beneficiaries often lack funds, support and the skills to manage the farm. In many cases the beneficiaries cannot work the land right away or the farm is not in operation when they receive the land, resulting in the water use charges building up with no intervention or support. Furthermore, TSB, LIMA and extension officers were not aware of the debt linked to the farms before this emerged as a huge problem. The Inyathi restitution farm in Nkomazi, owned by the Mhlaba trust faces severe water debt challenges. The managers were unaware of the procedure to lease water rights and had very little knowledge regarding the formal water governance system. The managers of the project feared that leasing their water authorisations would result in their water rights being taken away, largely due to their mistrust in the government. Cases also existed where white commercial farmers incurred a substantial amount of water debt right before the transfer of land to Land Reform, creating financial and bureaucratic obstacles in the transfer of the farm to its beneficiaries.

At the regional level in Nelspruit, DRDLR (Land Reform) views the water debt problem "as reversing the gains of freedom (...) We have obtained political freedom, but there is a cry for economic freedom".¹⁷ A strong feeling emanates among DRDLR that DWA and the IBs are not aligning programmes or informing farmers of their rights. According to DWA, certain IBs are withholding information from them, and DRDLR are not reporting new owners/beneficiaries of farms, so the information they have in their system is not representative of the situation on the ground. In contrast, DWA and the ICMA said that DRDLR is not communicating or sharing important data linked to land claims, and in turn they lack pertinent information to assist or engage with these particular farmers.

¹⁶ Interview, TSB social facilitator, 21 December 2012

¹⁷ Interview, DRDLR, 6 November 2012

The Komati IB attributes the water debt problem to sloppy land reform transfers, in which DRDLR is not checking the water debt linked to the land before they buy the farm, and to DWA for not following through or enforcing payment of bills. From the viewpoint of TSB nobody is really taking responsibility for informing farmers about leasing or trading water rights. The IB also expressed in interviews that they try to ensure the black farmer representatives in the meetings are reporting back pertinent information to other farmers in the communities, but information is not filtering down, especially in regard to important tenants of IWRM policy such as leasing or trading water authorisations.

The case of the water debt is complex and it showcases the deep scepticism and skewed power dynamics rooted in the post-apartheid water governance system. Each institution made excuses or blamed another department, and there was little incentive to collaborate and break free of the funding silos to solve the emerging water debt issue. This disconnect between key land and water institutions has further jeopardised the rural small-scale farmers ability to access water, participate in meetings and, most importantly, break free from poverty.

DISCUSSION

Integration or (dis)integration of land and water reforms and institutions

The NWA aims to manage water in an 'integrated' manner which suggests the obvious interconnection between land and water institutions. However, it has proven difficult to integrate these and overcome the divide because often two or more government agencies are assigned authority over land and water (Meinzen-Dick and Nkonya, 2007). The formation of new water rights institutions can aid in social and economic development and protect crucial ecosystems, but these initiatives to improve water allocations may be deemed inadequate, "unless grounded in a good understanding of social institutions that shape rights to water, a careful assessment of the options available for improving water management and a willingness by those involved to experiment, adapt and learn from experience" (ibid: 8).

The lack of an 'integrated' approach among the departments with overlapping mandates has led to issue-based communication, lack of active participation in key stakeholder meetings by certain departments, nonalignment of projects, competition (animosity), silos, a general lack of accountability, and poor information flow between institutions. The question then arises as to why there is very little integration between institutions with overlapping mandates, despite the recognition by all the interviewees of the importance to coordinate. The answer is not easy. First, there are no incentives or enforced legislation to facilitate the necessary collaboration and ways to break free of funding silos. Second, for integration to become a reality in the Inkomati it requires the acknowledgement of the "diverse multi-actor landscape and consequent diverging interests and perceptions that make up the water allocation and land reform" (Funke and Jacobs, 2011: 82). At the policy and institutional level there has been a failure to recognise the full impact of the historical context and power imbalances in implementing IWRM in South Africa. Third, the integration debates in the water sector did not sufficiently align with the political negotiations surrounding land reform. This lack of coordination at a policy level between land and water reforms was made worse by the marked lack of sufficient incentives or political will within regional and local institutions to collaborate. Moreover, a few employees at DRLR noted that cooperative governance legislation exists, but believed it was a combination of a lack of political will and human capacity to implement and enforce these Acts at the regional level. The legislation is therefore in place, such as the Development Facilitation Act, or the Inter-Government Relations Act, but lacks the financing, capacity, and perhaps the political will to enforce and put incentives (i.e. bonuses, funding, recognition etc.) in place to facilitate institutional integration in such a complex historical landscape.

The 2013 National Water Resource Strategy 2 has recognised the livelihoods impacts of water allocation and the importance of collaboration (RSA, 2013). However, elevating the public and political profile of the WAR programme "requires linkages to broader government and private sector programmes of redress in land, agriculture and business" (DWA, 2012b: 67). The word 'integrated' is inherently subjective and was mentioned 35 times in the NWRS 2 ranging from 'integrated' planning, governance, solutions, implementation, and development. However, the strategy fails to specifically outline the criteria to achieve integration or coordination and to define what 'integrated' actually means in the South African context. This parallels the various debates surrounding the meaning and interpretations of the integration in IWRM. This may be because integration can be interpreted and understood in many ways (Movik et al., this Issue).

The ability of the South African governmental institutions to commit to integration is fuzzy, vague and open to interpretations, which reflect the criticisms of IWRM as a concept (see Allan, 2003; Biswas, 2004; Molle, 2008). Additionally, it has been observed by water analysts that there is an unwillingness or inability of policy-makers to commit to the integration aspect in southern Africa (see Swatuk, 2005; Jonker, 2007). Furthermore, deeper issues exist surrounding the disconnect between land and water reforms. For example, the Ministry of Water responsible for the implementation IWRM has little control over other important processes and departments linked to water, such as agriculture and land reform (Hübschen, 2011).

This disintegration of institutions and poor diffusion of key water policy information has contributed to the challenges farmers face as outlined in the cases studies. Despite the progressive reforms, water allocation still remains a profoundly political issue due to the historical context of South Africa, the economic importance of water, and the many complex needs of multiple stakeholders from differing departments, socioeconomic classes and political regimes. Moreover, in practice the water policy and corresponding institutions have neglected the real issues plaguing the most marginalised, i.e. water reallocation, agricultural support, power imbalances, and challenges to realising participation alongside persisting poverty.

Participation and power

The widespread emphasis on devolving power and increasing participation in resource management approaches has led many decision makers to assume that the benefits of participation and decentralisation outweigh the costs (Brown 2006, 2011; Jonker et al., 2010; Holmes and Scoones, 2000). However, evidence suggests "that the poor and oppressed are less able to utilise a variety of institutional channels and therefore suffer double marginalisation; remaining vulnerable and resource poor" (see Odgaard, 2002; Benjaminsen and Lund, 2003; Cleaver et al., 2005: 14). Therefore, positive interactions and effective engagement with marginalised individuals in society are crucial to improving water access and livelihoods.

The racial divide and power differences among various actors greatly affect the ability of the more marginalised groups to participate and access water through the formal system. In Nkomazi, large imbalances in knowledge and power have resulted in the majority of the black farmers lacking a 'voice' or the 'ability' to participate in formal governance structures (Denby, 2013). Both land reform and communal farmers are present at water governance meetings, but largely lack a voice to influence decisions. HD farmers felt that the meetings/forums were just about discussing, and their pertinent questions were not being answered or addressed. So, participating in these water governance stakeholder meetings etc. offered the farmers little benefit beside a free lunch. Further aggravating the problem is the ICMA, and the presence of DWA is limited on the ground and information regarding NWA and IWRM is not properly filtering down to the lowest levels.

Creating new water management institutions is a highly political exercise, something Waalewijn et al. (2005) draws attention to in his study of the processes of creating new institutions and infrastructure

in the Inkomati; highlighting how there has been little mutual collaboration in terms of problem-setting and agreeing on directions and structures. Hence, the idea of 'participation' which is so important to much of the IWRM thinking seems to be a rather thinly applied concept in practice. When drafting the Water Act, not enough consideration was placed on addressing the possible challenges with farmers paying for water, and the fact that breaking into the formal water governance system requires a fundamental shift in cultural values. As evidenced by the experience of establishing the ICMA, building legitimate, decentralised institutions, capacity and effective participation takes time, and HD farmers must see their participation resulting in more than just 'talking'.

Institutional accountability

The challenges with participation, integration, water access, and water debt are all linked to flawed departmental accountability in some way or another. It can be argued that new channels of governance were required in the South African context in moving away from hierarchies and centralised control of water to a new mode of hybrid governance (see Rhodes, 1996; Teisman and Hermans, 2011). However, the slow progress in establishing the non-hierarchical governance structures promoted by IWRM has led to a lack of accountability and transparency which are key to building trust and confidence in water institutions (Frewer, 2003). The creation of new decentralised institutions (ICMA, WUA) parallel to existing governmental water institutions (DWA) brought up questions of who ultimately is in charge, who is accountable or holds the mandate to solve my water access challenges? Further complicating the integration aspect of IWRM is the tension between decentralising according to the principles of IWRM and to urge to centralise the power in DWA. This not only led to a lengthy ten year process to hand over key legislative mandates (licensing and billing) to the ICMA, but flawed the institutional legitimacy of the ICMA, and greatly slowed the ICMA's ability to take action on pressing local-level issues.

IWRM and local-level realities

Large discrepancies in power and knowledge persist between commercial growers and the many small-scale black farmers, especially women. IWRM has not really worked in practice due to the failure of the water policies to fully recognise the historic complexities and the underlying inequalities in South Africa. As in the case of the Inkomati, the growing competition for scarce resources is often felt by the most impoverished in comparison to the "high-volume, non-poor water users [that have] acquired the socio-political power to assure their permanent access to water and where poor people are generally excluded from water management institutions" (Schreiner and van Koppen, 2002: 970). Water policies must recognise the social fabric of society and not neglect the real issues on the ground. In short, an effective water rights system can substantially improve marginalised members of society access to water (Bruns and Meinzen-Dick, 2005). Major challenges on the ground persist due to the lack of institutional presence, including the flawed knowledge and mistrust in the formal water management system. Much of the 'buy in' across socioeconomic classes and racial groups has largely been lost to the delays in deciding the correct institutional arrangements to govern water instead of implementing and following through with promises (see Jonker et al., 2010).

Formal policies can be published overnight, but the informal rules and norms gradually change over time, and communities' access to water is embedded in the particular historic, social and environmental context (North, 1995). At the local level large disparities exist in relation to power and water access, and the economic and domestic water needs of the majority of black farmers are not being met (ICMA, 2010). Due to the high demand for water and the bureaucratic process of obtaining a paper licence, alternative channels are being forged in the Inkomati. Hence, when state-based water rights systems are imposed at a fast pace and differ from local water rights systems, the local arrangements are destroyed and the policy cannot become effective and be legitimate on its own (van Koppen, 2003).

Other challenges also persist related to an imposed water rights system where a paper water licence is useless if farmers are unable to access the actual wet water. "Many governments recognise this and are the first to stipulate in their water laws that they reject any legal responsibility for actually delivering the water 'promised' in the allocated formal right" (van Koppen, 2003: 1052). Ensuring water authorisations are actually met is largely underfunded – e.g. DWA's Resource Poor Farmer Programme is not sufficiently meeting the demands of the farmers. Furthermore, the high cost and demand to allocate water licences to the huge numbers of small farmers in the rural areas have created long waits and burdens on the budgets, and leave less time to regulate large-scale water users (van Koppen and Schreiner, 2014a).

Breaking into the formal water governance system and accessing both wet and paper water is clearly a cornerstone in successful sugar-cane projects and improved livelihoods in Nkomazi. The successful sugar-cane projects in Nkomazi had a combination of efficient and well-designed irrigation systems, extension or management support/skills and a sufficient water authorisation. However, the lack of access to water, rising input costs (electricity) and theft have made it more difficult for small-scale sugar-cane farmers to make a healthy profit. DRDLR saw sugar cane as 'green gold' but without access to sufficient water many black farmers were excluded from breaking into sugar-cane farming. Despite the evidence of the many positive livelihood impacts and relative efficiencies of small-scale growers, the economies of scale, export capabilities and neoliberal model of commercial agriculture dominate the water and land reforms, and political discourses in Southern Africa (Lahiff, 2003; also see Kleinbooi, 2009). Regardless of the water scarcity and progressive water policy in the Inkomati, a water consumptive crop such as sugar cane remains a political and economic powerhouse, and holds a large percentage of water authorisations, many of which are pre-1998 with existing lawful use entitlements. Thus, many black farmers are faced with challenges in accessing water, struggle to make a profit due to the economies of scale in sugar cane production, and have few options in switching crops due the difficulties in assessing new markets, the huge costs and the economic power of the sugar-cane industry in Nkomazi.

CONCLUSION

Efforts to implement the NWA and IWRM in South Africa have been fraught with challenges in practice. This is largely because the progressive policy did not fully recognise the complex historical context, and the underlying inequalities in knowledge, power and access to resources. The power imbalances and large disparities in access to natural resources have influenced the outcomes of the water policy, water access and the way people participate in water governance structures today. In rural areas, large discrepancies continue to persist (Funke et al., 2007; DWA, 2012b; Schreiner, 2012; Brown, 2014), and these inequalities are further reinforced when well-informed and powerful commercial farmers use them to their advantage. The empirical cases highlight the many discrepancies between the progressive IWRM-influenced policy on paper and the actual realities on the ground. In addition, the cases discussed the many challenges related to the integration of institutions linked to water, agriculture, and land reform.

Although IWRM and the NWA promote integration as a solution to inter-sectoral conflict and improved governance, evidence from the research notes that coordination is not always an easy task and silos continue to persist between sectors, reform processes and funding mandates. This paper argues that the decentralisation and integration aspects of IWRM are lacking in the Inkomati, and there are few incentives encouraging the institutions to integrate to improve access to water for HD farmers. Currently, many HD farmers are losing faith in the formal system because of the institutional disintegration, flawed accountability, and the slow pace of Water Allocation Reform. It is widely understood in South Africa that the success of WAR is largely dependent on collaboration between all

sectors, especially land reform. For these reasons there is an urgent need for a coherent water and land reform vision to counter the failed past integration attempts.

In the Inkomati, IWRM is more of an academic concept with very little empirical life in Nkomazi (i.e. the policy is not trickling down to, or understood at, the lowest levels) (van Koppen, 2012; Denby, 2013). In South Africa, IWRM is seen as a process to achieve goals; however, the fuzzy conceptualisation often favours one dimension of IWRM over another (see Biswas, 2004; Mollinga et al., 2007). There is also little consensus in South Africa on the definition of integration, and how to balance equity, efficiency and sustainability aspects of IWRM.

The NWA and WAR have also not sufficiently addressed the inequalities stemming from apartheid, and have neglected many of the issues plaguing black farmers and the rural poor at the local levels. For these reasons it can be stated that IWRM has not really worked in practice. Regardless of the NWA's focus on equity and decentralisation, DWA and the ICMA cannot ignore the pressing issues at the local-level, and must also recognise that access to water for productive purposes is crucial to improving livelihoods in the rural areas and former homelands (Schreiner et al., 2010: 13). In addition, there is a huge demand for more inclusive and pro-poor solutions through the allocation of water and the development of water infrastructure in South Africa (see Schreiner et al., 2010). We suggest that the ICMA should drive these pro-poor solutions and integration efforts in order to build capacity across institutions, improve institutional performance and, most of all, improve the conditions for black farmers in the Inkomati. And finally, water policies in South Africa must have a stronger emphasis on equity and the developmental aspects of water in improving livelihoods through coordinated and targeted reallocation approaches.

ACKNOWLEDGEMENTS

We appreciate the support from the Research Council of Norway for funding the Flows and Practices: The Politics of Integrated Water Resource Management in Africa. We are very grateful for the comments and insights from the anonymous reviewers and the entire project team when crafting this paper, especially Bill Derman and Emmanuel Manzungu. Finally, we are ever so thankful for the people in South Africa that contributed their time, thoughts and experiences to this research project.

REFERENCES

- Allan, T. 2003. *IWRM/IWRAM: A new sanctioned discourse?* Occasional Paper No. 50. SOAS Water Issues Study Group. London: School of Oriental and African Studies, Kings College.
- Anderson, A.J. 2005. Engaging disadvantaged communities: Lessons from the Inkomati CMA establishment process. In *Proceeding of International Workshop on African water laws: Plural legislative frameworks for rural water management in Africa*, pp. 2628. Johannesburg, South Africa, 26-28 January 2005.
- Anderson, A.; Karar, E. and Farolfi, S. 2008. Synthesis: IWRM lessons for implementation. *Water SA* 34(6): 665-669.
- Ashton, P.J.; Turton, A.R. and Roux D.J. 2006. Exploring the government, society, and science interfaces in integrated water resource management in South Africa. *Journal of Contemporary Water Research & Education* 135(1): 28-35.
- Backeberg, G.R. 2005. Water institutional reforms in South Africa. *Water Policy* 7(2005): 107-123.
- Bate, R. and Tren, R. 2002. *The cost of free water: The global problem of water misallocation and the case of South Africa*. Johannesburg, South Africa: The Free Market Foundation.
- Benjaminsen, T.A. and Lund, C. (Eds). 2003. *Securing land rights in Africa*. London: Frank Cass.
- Biswas, A.K. 2004. Integrated water resources management: A re-assessment. *Water International* 29(2): 248-256.

- Brown, J. 2006. *A cautionary tale: A review of the institutional principle in practice, with reference to the Inkomati WMA, South Africa*. Manchester: Institute for Development Policy and Management, University of Manchester.
- Brown, J. 2011. Assuming too much? Participatory water resource governance in South Africa. *The Geographical Journal* 177(2): 171-185.
- Brown, J. 2014. Evaluating participatory initiatives in South Africa not just processes but outcomes too. *SAGE Open* 4(2): 1-16.
- Bruns, B.R. and Meinzen-Dick, R. 2005. Frameworks for water rights: An overview of institutional options. In Bruns, B.R., Ringler, C. and Meinzen-Dick, R. (Eds), *Water rights reform: Lessons for institutional design*, pp. 3-25. Washington: International Food Policy Research Institute.
- Cleaver, F.; Franks, T.; Boesten, J. and Kiire, A. 2005. *Water governance and poverty: What works for the poor*. Bradford, UK: University of Bradford, Bradford Centre for International Development.
- Denby, K. 2013. Institutional integration and local level water access in the Inkomati catchment management area, South Africa. MSc thesis. Norwegian University of Life Sciences, Aas, Norway.
- DWA (Department of Water Affairs). 2012a. *Business case for the Inkomati-Usuthu Catchment Management Agency*. Pretoria, South Africa.
- DWA. 2012b. Proposed National Water Resource Strategy 2: Summary. Prepared by Nkondo, M.N.; van Zyl, F.C.; Keuris, H. and Schreiner, B. Pretoria, South Africa.
- DWA. 2007. *Principles to guide the development of a framework for water allocation: Develop a framework for water allocation to guide compulsory licensing in the Inkomati water management area*. Pretoria, South Africa.
- Frewer, L.J. 2003. Trust, transparency and social context: Implications for social amplification of risk. In Pidgeon, N.; Kaspersen, R.E. and Slovic, P. (Eds), *The social amplification of risk*, pp. 123-137. Cambridge: Cambridge University Press.
- Funke, N.; Nortje, K.; Findlater, K.; Burns, M.; Turton, A.; Weaver, A. and Hattingh, H. 2007. Redressing inequality: South Africa's new water policy. *Environment: Science and Policy for Sustainable Development* 49(3): 10-23.
- Funke, N. and Jacobs, I. 2010. Integration challenges of water and land reform – A critical review of South Africa. In Uhlig, U. (Ed), *Current issues of water management*, pp. 81-106. InTech.
- GWP (Global Water Partnership). 2000. *Integrated Water Resource Management*. Technical Advisory Committee Background Paper No. 4. Stockholm, Sweden: Global Water Partnership.
- Greenberg, S. 2010. *Status report on land and agricultural policy in South Africa 2010*. Research Report No. 40. Cape Town: University of the Western Cape, Programme for Land and Agrarian Studies.
- Hall, R. 2004. A political economy of land reform in South Africa. *Review of African Political Economy* 31(100): 213-227.
- Holmes, T. and Scoones, I. 2000. *Participatory environmental policy processes: Experiences from North and South*. IDS Working Paper 113. Brighton, UK: Institute for Development Studies.
- Hübschen, K. 2011. *Integrated water resources management as a governance challenge for countries of the Middle East with special focus on Yemen, Jordan and Syria*. Logos Verlag Berlin: GmbH.
- ICMA (Inkomati Catchment Management Agency). 2010. *The Inkomati Catchment Management: A first generation catchment management strategy*. Nelspruit, Mpumalanga, South Africa.
- ICMA. 2014. 2013/2014 *Inkomati catchment management agency annual report*. Nelspruit, Mpumalanga, South Africa.
- IUCMA (Inkomati-Usuthu Catchment Management Agency). 2015. IUCMA and our functions. *Presentation to the water use verification information meetings*. Nelspruit, Mpumalanga, South Africa.
- Jonker, L. 2007. Integrated water resources management: The theory-praxis-nexus, a South African perspective. *Physics and Chemistry of the Earth, Parts A/B/C* 32(15-18):1257-1263.
- Jonker, L.; Swatuk, L.A.; Matiwane, M.; Mila, U.; Ntloko, M. and Simataa, F. 2010. Exploring the lowest appropriate level of water governance in South Africa. WRC Report No. 1837/1/10. Pretoria, South Africa: Water Research Commission.

- King, B.H. 2005. Spaces of change: Tribal authorities in the former KaNgwane homeland, South Africa. *Area* 37(1): 64-72.
- King, B.H. 2007. Developing KaNgwane: Geographies of segregation and integration in the new South Africa. *The Geographical Journal* 173(1): 13-25.
- Kleinbooi, K. 2009. *The private sector and land reform*. Bellville, South Africa: University of Western Cape, Institute for Poverty, Land and Agrarian Studies (PLASS).
- Lahiff, E. 2003. The regional implications of the crisis in Zimbabwe: Rationale and principles of regional support for land. In Cornwell, R. (Ed), *Zimbabwe's turmoil: Problems and prospects*, pp. 77-85. Monograph No. 87. Pretoria: Institute for Security Studies.
- Lahiff, E. 2007. Willing buyer, willing seller: South Africa's failed experiment in market-led agrarian reform. *Third World Quarterly* 28(8): 1577-1597.
- May, J. (Ed). 2000. *Poverty and inequality in South Africa: Meeting the challenge*. Cape Town, South Africa: David Philip Publishers.
- Mehta, L.; Alba, R.; Bolding, A.; Denby, K.; Derman, B.; Hove, T.; Manzungu, E; Movik, S.; Prabhakaran, P. and van Koppen, B. 2014. The politics of IWRM in Southern Africa. *International Journal of Water Resources Development* 30(3): 528-542.
- Mehta, L. and Movik, S. 2014. Flows and practices: Integrated water resource management in Africa contexts. IDS Working Paper No. 438. Brighton, U.K: Institute of Development Studies.
- Meinzen-Dick, R. and Nkonya, L. 2007. Understanding legal pluralism in water and land rights: Lessons from Africa and Asia. In van Koppen, B.; Giordano, M. and Butterworth, J. (Eds), *Community-based water law and water resource management reform in developing countries*, pp. 12-27. Wallingford, UK: CAB International.
- Molle, F. 2008. Nirvana concepts, narratives and policy models: Insights from the water sector. *Water Alternatives* 1(1): 25-38.
- Mollinga, P.P.; Meinzen-Dick, R. and Merrey, D.J. 2007. Politics, plurality and problemsheds: A strategic approach for reform of agricultural water resources management. *Development Policy Review* 25(6): 699-719.
- Movik, S. 2012. *Fluid rights: Water Allocation reform in South Africa*. Cape Town, South Africa: HSRC Press.
- Mutondo, J.; Farolfi, S. and Dinar, A. 2016. *Water governance decentralization in Sub-Saharan Africa: Between myth and reality*. London: Springer.
- North, D.C. 1995. The new institutional economics and third world development. In Harriss, J.; Hunter, J. and Lewis, C. (Eds), *The new institutional economics and third world development*, pp. 17-26. London: Routledge.
- Odgaard, R. 2002. Scrambling for land in Tanzania: Processes of formalisation and legitimisation of land rights. *European Journal of Development Research* 14(2): 71-88.
- Perret, S. 2002. Water policies and smallholding irrigation schemes in South Africa: A history and new institutional challenges. *Water Policy* 4(3): 283-300.
- RSA (Republic of South Africa). 1998. *National Water Act. Act No. 36 of 1998*. Pretoria: Government Printers.
- RSA (Republic of South Africa). 2004. *National water resource strategy*. Pretoria: Government Printers.
- RSA. 2013. *National water resource strategy: Water for an equitable and sustainable future*. Pretoria: Government Printers.
- Rhodes, R.A.W. 1996. The new government: Governing without governance. *Political Studies* XLIV: 652-667.
- Schreiner, B. 2013. Viewpoint - Why has the South African national water act been so difficult to implement? *Water Alternatives* 6(2): 239-245
- Schreiner, B. 2012. Issues of balancing international, environmental and equity needs in a situation of water scarcity. In Dinar, A. and Albiac, J. (Eds), *Policy and strategic behaviour in water resource management*, pp. 207-230. London: Earthscan.
- Schreiner, B. and Hassan, R. 2011. *Transforming water management in South Africa: Designing and implementing a new policy framework*. London: Springer.
- Schreiner, B.; Tapela, B. and van Koppen, B. 2010. Water for agrarian reform and rural poverty eradication: Where is the leak? In *Proceedings of the conference on Overcoming Inequality and structural poverty in South Africa: Towards inclusive growth and development*, pp. 1-23. Johannesburg, South Africa, 20-22 September 2010.

- Schreiner, B. and van Koppen, B. 2002. Catchment management agencies for poverty eradication in South Africa. *Physics and Chemistry of the Earth Parts A/B/C* 27(11): 969-976.
- Shah, T.; van Koppen, B.; Merrey, D.; de Lange, M. and Samad, M. 2002. *Institutional alternatives in African smallholder irrigation: Lessons from international experience with irrigation management transfer*. IWMI Research Report No. 60. Colombo, Sri Lanka: International Water Management Institute.
- Swatuk, L.A. 2005. Political challenges to implementing IWRM in Southern Africa. *Physics and Chemistry of the Earth* 30(11-16): 872-880.
- Teisman, G. and Hermans, L. 2011. Perspectives on water governance: Synthesis and conclusions. In van der Valk, M.R. and Keenan, P. (Eds), *Principles of good governance at different water governance levels*, pp. 1-87. Delft, the Netherlands: UNESCO.
- Terreblanche, S. 2002. *A history of inequality in South Africa 1652-2002*. KwaZulu-Natal: University of KwaZulu-Natal Press/KMM Review Publishing.
- van Koppen, B. 2000. *From bucket to basin: Managing river basins to alleviate water deprivation*. Colombo, Sri Lanka: International Water Management Institute.
- van Koppen, B. 2003. Water reform in Sub-Saharan Africa: what is the difference? *Physics and Chemistry of the Earth Parts A/B/C* 28(20-27): 1047-1053.
- van Koppen, B. 2012. Personal Communication. On the phone. November 2012.
- van Koppen, B.; Jha, N. and Merrey, D.J. 2003. *Redressing racial inequities through water law in South Africa: Revisiting old contradictions?* Comprehensive Assessment Research Paper No. 3. Colombo, Sri Lanka: International Water Management Institute.
- van Koppen, B.; Sally, H.; Aliber, M.; Cousins, B. and Tapela, B. 2009. *Water resources management, rural redress and agrarian reform*. Development Planning Division Working Paper Series (7). Halfway House, South Africa: Development Planning Division, Development Bank of South Africa.
- van Koppen, B. and Schreiner, B. 2014a. Priority general authorisations in rights-based water use authorisations in South Africa. *Water Policy* 16(2014): 1-19.
- van Koppen, B. and Schreiner, B. 2014b. Moving beyond integrated water resource management: Developmental water management in South Africa. *International Journal of Water Resources Development* 30(3): 543-558.
- Waalewijn, P.; Wester, P. and Straaten, K. 2005. Transforming river basin management in South Africa: Lessons from the Lower Komati River. *Water International* 30(2): 184-196.
- Wester, P.; Merrey, J.D. and De Lange, M. 2003. Boundaries of consent: Stakeholder representation in river basin management in Mexico and South Africa. *World Development* 31(5): 797-812.
- Woodhouse, P. 2008. *Water rights in South Africa: Insights from legislative reform*. BWPI Working Paper. Manchester: Brooks World Poverty Institute.
- Woodhouse, P. 2012. Reforming land and water rights in South Africa. *Development and Change* 43(4): 847-868.

THIS ARTICLE IS DISTRIBUTED UNDER THE TERMS OF THE CREATIVE COMMONS *Attribution-NonCommercial-ShareAlike* LICENSE WHICH PERMITS ANY NON COMMERCIAL USE, DISTRIBUTION, AND REPRODUCTION IN ANY MEDIUM, PROVIDED THE ORIGINAL AUTHOR(S) AND SOURCE ARE CREDITED. SEE [HTTP://CREATIVECOMMONS.ORG/LICENSES/BY-NC-SA/3.0/LEGALCODE](http://creativecommons.org/licenses/by-nc-sa/3.0/legalcode)

