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What does research have to say about SOUTH AFRICA'S WATER INSTITUTIONS?

It has been 16 years since the promulgation of the National Water Act, which has the decentralisation of water resource management as a core focus. What do we know of these water institutions that are supposed to govern our water resources, and what do we still need to know? This was the focus of a completed research project by the Water Governance Group, a sub-unit of the CSIR Natural Resources and Environment. Article by Nikki Funke, Richard Meissner, Shanna Nienaber and Cebile Ntombela.

South Africa's water institutional landscape has seen some considerable changes since 1994 as a set of new policies replaced the 1956 Water Act. In addition, various non-state stakeholders gradually became involved in water governance, including academics, consultants, communities and scientists. The result was the beginning of a dynamic water governance environment characterised by a move away from centralised to increasingly decentralised water institutions.

This article is based on the results of a CSIR Parliamentary Grant funded project on 'The Architecture and Effectiveness of South Africa's Water Institutions', which aimed to assess the literature published on the subject of legislative water resource management institutions and the planned decentralisation process since the development of South Africa's water policy in 1997. A total of 189 technical reports, government publications (including the National Water Act, White Paper, policy documents and guidelines), working papers, conference papers, conference proceedings, peer-reviewed and popular articles and masters and doctoral theses were identified and assessed. This assessment took account of different trends and themes evident in this body of literature, and also considered what research gaps are present. This gap analysis sets the scene for future research needs on water institutions and also how such research could possibly inform policy development and implementation.

BACKGROUND

The National Water Act refers to water resource management institutions as being either catchment management agencies (CMAs), water user associations (WUAs) or international water management bodies (IWMBs). In October 1999, the government

established 19 water management areas (WMAs) that constitute the entire land area of the Republic. It was planned for every WMA to eventually have a CMA for water resource management and for coordinating the activities of water users and institutions. To date only two CMAs have been established in the Breede and Inkomati WMAs. In the remaining ones water management activities are carried out by the Department of Water Affairs, WUAs, irrigation boards (IBs), catchment forums or a network/platform of various stakeholders or a combination of these.

A key component of South Africa's water institutional landscape is the decentralisation process of water management whereby an increasing number of management responsibilities is supposed to be delegated to more localised levels of governance, for example through the formation of CMAs. The notion of the decentralisation of water management, its institutionalisation and practical implementation, is one of the topics that has featured considerably in the literature.

Research on legislative water resource management entities seems to particularly focus on how these institutions can and should cope with the many challenges that characterise the ever changing water institutional landscape. Research on how to optimise the functioning of these institutions ranges from lessons learned to leadership.

Some interesting research patterns emerged from the assessment of the literature. These were divided into the coverage of water institutions, coverage of different themes that emerged from the literature and authors' scientific or academic background.

LITERATURE COVERAGE OF WATER INSTITUTIONS

As part of the literature review the project team looked at 139 documents covering four types of water institutions: CMAs, IBs, WUAs and IWMBs. Figure 1 indicates the literature coverage of these different types of institutions by percentage. Of the 134 documents reviewed, 86% cover CMAs, followed by 7% for WUAs, 5% for IBs and 3% for IWMBs. Since the promulgation of the National Water Resources Strategy and the National Water Act in 1997 and 1998 respectively, there has been a proliferation of publications on the topic of legislative water resource management institutions, with a prominent focus on CMAs.

One of the gaps that is evident in the research is that only 7% of the research focuses on WUAs and 5% on IBs. This may be a shortcoming in the literature base as in the absence of CMAs, WUAs and IBs perform many of the functions that are supposed to be carried out by CMAs. There are potentially many lessons to be learnt from how WUAs and IBs carry out their operations and how these lessons can benefit CMAs or the water institutional landscape in the absence of CMAs.

In addition, it is interesting to note that only 3% of the literature that was reviewed covers IWMBs. On the one hand this could be seen as a shortcoming because South Africa shares six of its rivers with neighbouring countries, and should therefore focus on joint management of these rivers through IWMBs. On the other hand, it could be assumed that because these IWMBs were developed prior to 1997, it is likely that there has been less of a focus on them since 1997. It is also possible that much of the information around IWMBs is not contained in peer reviewed sources and journals because of the relatively technical and practical issues these institutions deal with. While a large body of transboundary literature in Southern Africa exists that can generally be linked to IWMBs, this literature generally falls outside of the scope of the literature search conducted for this project.

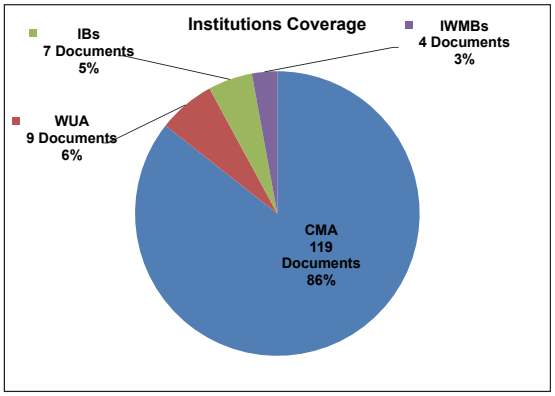

Figure 1: Institution coverage

THEME COVERAGE

Prominent themes that are covered in the literature include adaptive management, challenges/constraints, co-learning/learning organisations, cooperative governance, finances/financial resources, IWRM and stakeholder participation (Figure 2).

Each of these themes is covered and discussed in varying amounts of detail in the literature. From the graph it becomes apparent which themes have been of particular interest to authors. Some of these themes or concepts have also to a large extent become 'buzzwords' which are often referred to as potential solutions for solving the water management challenges faced by South Africa. It is important for water resource managers and government officials not to fall into the trap of making excessive use of concepts such as 'co-learning' and

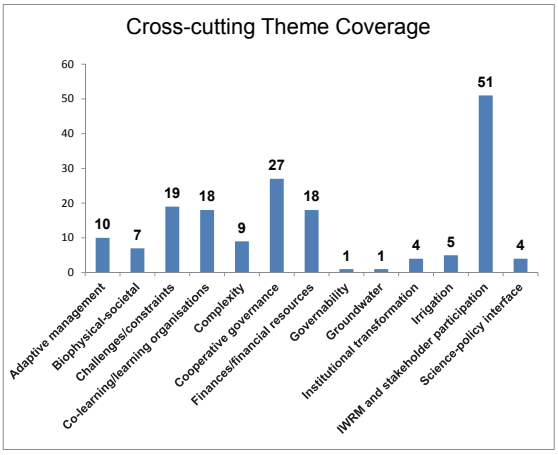

Figure 2: Theme coverage

'strategic adaptive management' without successfully integrating these concepts into the practice of water resource management. Combining different perceptions, models, frameworks and theories could also bring forward different empirical results, conclusions, recommendations as well as a more nuanced understanding of water resource management.

AUTHORS' SCIENTIFIC/ ACADEMIC BACKGROUND

Apart from themes covered by the literature, the study also considered the scientific/academic background of the authors that produce this literature, since their backgrounds are likely to have influenced the methodology and themes that were investigated. The project team identified 37 peer reviewed (influential) publications from the literature set. These included articles published in *Water SA*, research funded by the Water Research Commission (WRC) and the CSIR as well as technical reports by the International Water Management Institute (IWMI). The team therefore excluded government documents (e.g. guidelines and policy documents), working papers, conference papers, masters and doctoral theses and Mark Dent's *CMA Leadership Newsletters*, because these are not peer reviewed. A total of 62 authors were involved in the drafting of these documents (Figure 3). Of these 62 authors, 52 or 84% have a natural science background (e.g. aquatic biology, hydrology or engineering). Only five social scientists (8%) and five economic and business management scientists (8%) were involved with only four as lead authors. The authors' backgrounds were verified by investigating their profiles on their respective institutions' websites.

The predominance of natural scientist authors in the literature suggests an absence of transdisciplinarity in water management. It appears that the complex issue of water resources management is predominantly being approached from one perspective rather than a necessary combination of perspectives. It is important to note here that transdisciplinary research does not mean merging the scientific background of a researcher with another discipline's topic, for example a social scientist applying his/her methodology to analysing a natural scientific problem, e.g. a specific cause of water pollution. Transdisciplinarity also does not equate to scientists from various disciplines forming a research team to study a specific theme.

A case can be made for the use of transdisciplinarity by pointing out that the complexity of societal-environmental problems needs to be understood in a holistic manner, which necessitates knowledge from various traditional disciplines being integrated. Not only is it necessary for a wide variety of disciplines to solve problems together; a broad group of actors from government, academia and civil society also need to be involved. Transdisciplinarity is therefore more than a methodology, concept, philosophy or policy instrument, but can in fact be understood as a state of mind or approach to water governance.

CONCLUSION

In sum, the literature on water resource management institutions may be characterised by a prominent focus on CMAs and by empirical inconclusiveness (from scholarly contributions and anecdotal evidence) regarding their architecture and effectiveness in terms of preserving the ecological reserve.

In light of the fact that so few CMAs have gotten off the ground, the question arises as to how catchment management is functioning in the absence of CMAs. What functions are WUA, catchment forums and other actors performing in the absence of CMAs and what lessons

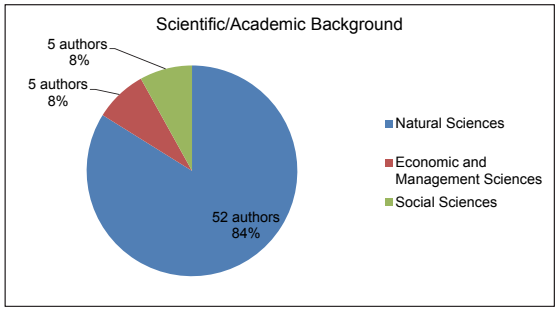

Figure 3: Authors' scientific/academic background

can be learned from how these functions are being carried out? Is it not feasible to have a viable mix of state institutions and non-state actor networks that could perform the functions of a CMA in its place?

A further challenge is that scientists in South Africa who write about water institutions have not engaged substantially with issues of co-production of knowledge, knowledge transfer and knowledge uptake. Often articles implicitly suggest that research findings could be useful to policy-makers, but not enough attention is paid to understanding the complexities of policy-making and the science and policy context.

Finally, social scientists might contribute to advance the understanding of water resources management as part of a research framework that steers away from the practice of propagating buzzword concepts or panaceas without successfully applying these. Examples of concepts and theories from the social sciences include governability, agential power, politics, and governance without government, interest groups, hydro-normative commensalism, hydro-social contract, meta-governance, social constructivism and securitisation.

- For more information, also read the article by Meissner, Funke, Nienaber and Ntombela entitled '*The Status Quo of Research on South Africa's Water Management Institutions: What do we know and where to from here?*' published in the October/ November 2013 edition of *Water SA* (Visit: www.wrc.org.za). ❑