

IWRM

A stakeholder-centred approach was investigated for the improved management of South Africa's water resources.

Implementing IWRM – A legal imperative and challenge

Implementing Integrated Water Resource Management (IWRM) at the catchment scale is a legislative imperative in South Africa. The Catchment Management Agencies (CMAs) that are responsible for IWRM at this level must strive to implement coordinated and cooperative participatory management that ensures water resource use is sustainable, equitable, and efficient. Catchments are complex V-STEEP (Values – Social, Technological, Economic, Environmental, Political) systems, and their management requires diverse stakeholders to generate shared understandings of the system, and engage in consensus-driven decision-making and cooperative action towards shared objectives.

Strategic adaptive management (SAM) is a fundamentally stakeholder-centred management approach that facilitates the iterative development of shared rationalities and future-focused objectives, as the basis for adaptive cycles of consensual decision making. SAM was developed by a group of South African scientists and natural resource managers in the late 1990s with a view to supporting river and catchment management as well as implementation of new South African water legislation.

However, the first opportunity to apply SAM in this context only arose in 2008 when the Inkomati Catchment Management Agency (ICMA) – the first CMA to be established in the country – engaged a scientific advisor, supported by a research team, for adaptive management and capacity building. Since then, the research team has engaged with the ICMA in two phases of action research, which has:

- built institutional understanding of, and capacity in, SAM within the ICMA; and

- developed the first Catchment Management Strategy (CMS) in the country, using SAM's Adaptive Planning component to produce a genuinely stakeholder-centred CMS.

Building institutional understanding and capacity

The first phase of action research began by introducing the concept and process of SAM to the ICMA through a short series of seminars. The ICMA staff immediately recognised and accepted the concept of V-STEEP complexity and the need for adaptive, learning-oriented, stakeholder-centred and value-driven management. SAM's Adaptive Planning Process (APP) was adopted as a means of structuring the ICMA's way forward and thus used as the central intervention in this first phase of the action research initiative.

Adaptive Planning with the ICMA took place over three 4-5 hour workshops, during which a structured "Outcomes Document" was produced through consensus-driven dialogue. The document detailed the ICMA's vision for IWRM, the context for the management of the Inkomati catchment, values/principles for guiding operations and decision making, vital attributes of the Inkomati catchment, determinants of and threats to vital attributes and, finally, the top level management objectives.

The next step in the APP would normally have been to decompose the top level objectives into a hierarchy of objectives with increasing focus, rigour and achievability. However, the ICMA research team at this time was demotivated and immobilised by resource constraints and bureaucratic challenges, and powerless to make progress towards such demanding objectives. Therefore, the decision was made to rather design a few simple integrated projects, designed to have crosscutting institutional and IWRM

outcomes, that the team could implement despite the challenges faced.

The final report from the APP suggested projects which had been explicitly discussed and justified on the basis of: i) Rationale and expected impact, cross-checked against the ICMA's mandate and values; ii) Contribution to meeting objectives and maintaining vital attributes; iii) Implementation and resources.

As a consequence, renewed energy, creativity, and confidence were displayed as the ICMA team designed three realistic and pragmatic projects, as follows:

- Project 1: Creating an adaptive information and decision network to ensure delivery of the Reserve to the Kruger National Park.
- Project 2: Developing a cooperative programme for Municipal Waste Water Treatment Works compliance and enforcement.
- Project 3: Implementing an integrated river operations system for managing the Crocodile River.

This first phase of the action research initiative had a number of positive institutional outcomes for the ICMA. These included team feelings of empowerment, increased confidence, improved communication and alignment among team members, and an emerging institutional culture of learning and adaptation. The APP and project development had consolidated a realistic direction for the ICMA team, and stimulated a fundamental move from "building an institution" to "managing the water resource".

The action research process clearly demonstrated the utility of SAM – particularly the APP component of SAM – for planning, decision-making, and organisational empowerment, within an IWRM context. Most important, the process also demonstrated how a small team can be empowered to break through the bureaucratic fog of policy implementation and begin effective management at ground level, despite very severe resource constraints.

Developing the CMS

The second phase of the action research initiative was stimulated by the Minister of Water Affairs, demanding, in December 2009, that the ICMA produce a first generation CMS by the end of March 2010. Helping the ICMA to develop a CMS, which would be solidly stakeholder-centred and embedded in a SAM approach to IWRM, became the second key intervention in the action research project.

The ICMA team successfully designed and implemented a

CMS development process, within the given timeframe, that is:

- Compliant with all relevant legislation;
- Deeply grounded in the reality of social, technical, economic, environmental and political conditions in the catchment; and
- Strongly endorsed by Inkomati stakeholders.

The CMS development process was centred on a stakeholder engagement programme consisting of three preparatory empowerment workshops for historically disadvantaged stakeholders and five planning development workshops. The first of the latter was a stakeholder orientation workshop, followed by three sub-catchment visioning workshops and a final catchment-wide integration workshop. Throughout the CMS development process, the ICMA conducted an extensive campaign to ensure that all Inkomati stakeholders had the opportunity to engage in all workshops that were relevant to them. As a result, a wide diversity of stakeholders successfully participated in all CMS workshops. The ICMA's own experience of the APP had generated real trust in the effectiveness of this SAM component, and the ICMA eagerly embraced the opportunity to utilise the APP collaboratively with stakeholders.

The use of the APP during the sub-catchment visioning workshops, to guide stakeholders in collectively developing and articulating a shared, desired future for the Inkomati and its sub-catchments, was central to the Inkomati CMS development. The "raw" workshop notes from each of the visioning workshops were written up into a visioning outcomes document for the sub-catchment in question, following which the three were integrated into a "Desired Future" document for the whole Inkomati catchment.

This integrated document formed the basis for feedback to stakeholders at the integration workshop, where consensus-driven alterations were made and accepted. Similarly to the APP "Outcomes Document" produced by the ICMA, the CMS "Desired Future" document detailed stakeholders' vision for the catchment, values/principles to guide decision-making, vital attributes of the Inkomati catchment, threats and, finally, the objectives, including specific co-operative governance, sustainability, funding, and information-needs objectives.

A 'technical team', drawn from the ICMA and the Department of Water Affairs (DWA) and including external advisor, then translated the visioning/APP outcomes in the "Desired Future" document into a CMS designed to achieve the articulated desired future. An integral part of this translation process was the development of an "integration matrix" of stakeholder-derived objectives and strategic action

programmes, which enabled the technical team to draft six required CMS sub-strategies and, critically, provided the integrative framework through which the CMS derived a holistic structure and meaning.

The central outcome and achievement of this second phase of action research was the timely completion of the first CMS in the country, in only three months, in a manner that was solidly stakeholder-driven. The CMS now provides an agenda for IWRM in the Inkomati catchment that was designed by, and is strongly endorsed by, diverse stakeholders.

Conclusion

The CMS development process undeniably demonstrated the applicability of the APP component of SAM to participatory IWRM implementation. The process empowered diverse stakeholders to engage in dialogue, and reach consensus on a shared, desired IWRM future. The 'generic' APP was effectively modified for the IWRM context so that the outcomes could be easily translated into the official CMS structure (six sub-strategies) to provide the technically detailed document required by DWA.

Once again we demonstrated how SAM processes can empower a small team to step beyond bureaucracy and effectively engage a broad, diverse stakeholder base to design a shared future in Integrated Water Resources Management; a future that maps out a path to improved equity, efficiency and sustainability of water resource use.

The successful use of the APP component of SAM in the process of implementing IWRM in the ICMA is a significant breakthrough for the South African water sector, and has provided valuable lessons for other CMAs in the country, as well as for DWA. The challenge now is to evaluate the other SAM components, through active learning-by-doing, and to test how well they too can be applied to an IWRM context.

Further reading:

To obtain the report, *Strategic Adaptive Management: A Framework for Implementing Integrated Water Resource Management* (Report No: **KV 245/10**) contact Publications at Tel: (012) 330-0340; Fax: (012) 331-2565; E-mail: orders@wrc.org.za; or Visit: www.wrc.org.za

