

## EXECUTIVE SUMMARY

This report presents the findings of an action research project aimed at applying Strategic Adaptive Management (SAM) as a framework for implementing Integrated Water Resource Management (IWRM) at the catchment scale. IWRM is a legislative imperative in South Africa, and the Catchment Management Agencies (CMAs) that are responsible for IWRM at the catchment level must strive to implement coordinated and cooperative participatory management that ensures water resource use is sustainable, equitable, and efficient. Catchments are complex V-STEOP (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.

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 recognition of the limitations of “classic” forms of adaptive management. The approach was originally designed to support river and catchment management, and the implementation of new South African water legislation, but the delay in the formation of CMAs meant that SAM had not been applied in that context until this project was initiated.

The opportunity for this action research project arose in 2008 when the Inkomati Catchment Management Agency (ICMA) – the first CMA to be established in the country – engaged Rogers, the project leader, as scientific advisor for adaptive management and capacity building. Since then, the research team has engaged with the ICMA in two phases of action research, which:

- i) Built institutional understanding of, and capacity in, SAM within the ICMA; and
- ii) Developed the first Catchment Management Strategy (CMS) in the country, using SAM's Adaptive Planning component to produce a genuinely stakeholder-centred CMS.

The first phase of the project 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-STEOP complexity, and the need for adaptive, learning-oriented, stakeholder-centred and valuedriven management. The team decided to use SAM's Adaptive Planning Process (APP) as a means to structure the ICMA's way forward, and application of the APP was therefore used as the central intervention in the 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; context for the management of the Inkomati catchment; values/principles to guide operations and decision making; vital attributes of the Inkomati catchment; determinants of, and threats to, vital attributes; and top level management objectives.

After developing these outcomes, the next step in the APP is usually to decompose the top level objectives into a hierarchy of objectives with increasing focus, rigour and achievability. However, the ICMA team at this time was feeling de-motivated and immobilised by resource constraints and bureaucratic challenges, and powerless to make progress towards such demanding objectives. The team therefore decided that they should rather design a few` simple integrated team projects that would be practically implementable, despite the challenges they faced, and that would have crosscutting institutional and IWRM outcomes. The final report from the APP provided an anchor for the team through the project design process, as suggested projects were 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.

Initial scepticism from the de-motivated ICMA team was rapidly replaced with creativity, energy and confidence as the team designed three realistic and pragmatic projects that met these criteria:

- 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.

The first phase of the action research initiative had a number of positive institutional outcomes for the ICMA, including: 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 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 also 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 was that we 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.

The second phase of the action research initiative was stimulated by a demand from the Minister of Water Affairs, in December 2009, that the ICMA produce a first generation CMS by the end of March 2010. Helping the ICMA to develop a CMS that was solidly stakeholder-centred, and which was embedded in a SAM approach to IWRM became the second key intervention in the action research project. The ICMA/project 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 these was a stakeholder orientation workshop, followed by three sub-catchment visioning workshops – which utilised a slightly modified version of the APP – 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, and 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 with stakeholders. Central to the Inkomati development was 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. The “raw” workshop notes from each of the visioning workshops were written up into a visioning outcomes document for the sub-catchment in question, and then 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, and 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 objectives, including specific co-operative governance, sustainability, funding, and information-needs objectives.

A ‘technical team’ from the ICMA, Department of Water Affairs (DWA), and external advisors 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 provided the final guidance to the technical team for drafting the required six CMS sub-strategies and, critically, provided the integrative framework through which the CMS derives a holistic structure and meaning.

The central outcome and achievement of this phase of the action research project 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. This is a significant breakthrough for the South African water sector, and provides valuable IWRM implementation lessons for the ICMA, other CMAs in the country, and the DWA.

The CMS development process undeniably demonstrated the applicability of the APP component of SAM to participatory IWRM implementation in South Africa. 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 second phase of the action research project also served to further embed the concept of SAM, and the process and value of the APP, within the ICMA; and introduced Inkomati stakeholders to the APP, the concept of adaptive IWRM, and the practice of coordinated multi-stakeholder decision making. 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.