

IkusaSA* Integrated Assessment for Sustainability

RJ SCHOLES AND M PIENAAR

CSIR Natural Resources and the Environment, PO Box 395, Pretoria, South Africa, 0001
Email: bscholes@csir.co.za, mpienaar@csir.co.za – www.csir.co.za

THE PROBLEM

The basic pattern of human settlements and infrastructure, in salubrious housing conditions, capacity for service delivery, skewed distribution of wellbeing among the population, and lack of economic opportunities for many are some of the major challenges facing South Africa. These challenges are aggravated in the context of climate change and increased pressures on our natural resources. With most of the land and water allocated to existing uses, the balancing act of ensuring economic competitiveness, energy, water, and food security while uplifting the population requires a new way of collaborative planning. It is clear that planning in the economic, population, energy, land and water domains can no longer occur in isolation. The challenge is to provide innovative ways to address the complexities of inter- and cross-sectoral planning.

THE IKUSASA SOLUTION

The IkusaSA project sets out to develop, for the first time, a suite of Integrated Assessment Models for South Africa, and to promote their use in a participatory and interactive way through a Decision Theater. In this way, informed by easy access to a series of underlying databases and constrained by the known relationships between the economy, energy system, land use, water quantity and quality and human wellbeing, decision-makers in all spheres can collectively explore future pathways. Specifically, a series of interconnected models will predict how different development choices, within the context of global and regional scenarios, have intended and unintended consequences across a range of important issues. The IkusaSA model system comprises:

- A South African national IAM nested within one or more 'state-of-the-art' global IAMs that predict trade, climate change and human migration patterns;
- A series of national interconnected sector-specific models with local-scale spatial detail (covering the energy system, land use, hydrology, demographics and human settlements and their economic effects) will underlie the national IAM.

WHAT IS THE IKUSASA PROJECT?

The IkusaSA project is part of the Department of Science and Technology's Global Change Grand Challenge programme. It represents a major collaboration between several organisations and centres of expertise within the country and internationally. The IkusaSA mission is to establish Integrated Assessment Modeling (IAM) in South Africa. The goal is to put in place the tools for an integrated planning approach and provide effective information sharing mechanisms. The desired outcome is a well-functioning interface between sectors and between technical assessments and policy action.

WHAT IS AN INTEGRATED ASSESSMENT MODEL (IAM)?

An IAM is a numerical simulation of the dynamic interaction between socio-economic, biophysical and infrastructural factors within a given geographical area and over a specified period.

THE DECISION THEATER

The decision theater is a tool for collective decision making. The concept was developed by Arizona State University in 2005. It immerses decision makers in the modelling system, rather than having them pose questions to 'experts' and then wait for an answer. The decision makers interact with the models and data in real time as they explore the 'topology' of the landscape of potential outcomes. The experience makes the tradeoffs, necessary trajectories and no-go areas obvious to all. IkusaSA will develop a transportable version that can be used nationally and locally, by the public and private sectors.

* Ikusasa is the Zulu word for future(s)

Planning in the economic, population, energy, land and water domains can no longer occur in isolation. The challenge is to provide innovative ways to address the complexities of inter- and cross-sectoral planning. The IkusaSA project is a major effort to establish Integrated Assessment Modeling (IAM) in the country and aims to put in place, in the context of effective information sharing, the tools to support integrated planning in South Africa. This will be a first for the country.

