Method Brief
South Africa: Risk and Vulnerability Atlas

The tool
The South African Risk and Vulnerability Atlas (SARVA) is a platform for global change information transfer from research to policy and decision makers. The SARVA program provides a centralised repository for global change research (www.rvatlas.org.za) as well as a collection of integration and awareness tools aimed at improving evidence-based decision-making concerning global change. The current focus of the Atlas is on the country, regions and localities of South Africa. However investigations are being carried out to assess expansion opportunities into other parts of the region.

Scope and entry point
Based on a broad stakeholder engagement exercise, SARVA was identified as a necessary resource to address the grand knowledge challenges facing South Africa over the next decade (see DST, 2009). In particular, the Atlas was identified as a tool to facilitate access to the best available knowledge on global change risks and vulnerabilities in South Africa to those that need it most, including local authorities, practitioners, students, businesses and others. As such, SARVA has been identified as a key resource under the National Climate Change Response Strategy as both an input and dissemination tool for relevant assessment and response exercises. Research housed by the portal reflects multiple scales of analysis, from local to national and regional, depending on data origin and availability.

SARVA’s open access electronic spatial portal provides internet users with access to spatial and non-spatial data sets and resources, as well as various search, upload/download and data manipulation and presentation capabilities. The portal is organised according to a variety of relevant themes including socio-economics, human settlements, climate and weather, biodiversity, forestry, ground and surface water, disaster management, agriculture, emissions and air quality, coastal and marine and environmental health.

In addition to the electronic spatial portal, the platform also has a number of synthesised, targeted and offline products to suit various user needs including a summarised hardcopy compendium of global change research and case studies as well as analysis and awareness tools. Stakeholder outreach and training is a key part of the program, including to officials seeking to integrate global change information into local planning and development processes and others.

How it works
Electronic Spatial Portal users are able to search for datasets and research according to theme, keywords or geographic area. In addition to downloadable data and research, geographic information available for mapping can be manipulated according the user needs using the portal mapping and analysis functions (see Figures 1 & 2). The soon to be launched South African Risk and Vulnerability Atlas Geospatial Analysis Platform (SARV-GAP) provides users with pre-defined maps and interpretations of key risk and vulnerability issues for global change in South Africa (see Figure 3).

Specifics of Application
Stakeholders and institutional set-up
Multiple stakeholders were involved in identifying the need for SARVA and the key themes it should include. The program also works extensively with key partners at multiple levels such as the National Departments of Environmental Affairs and Cooperative Governance, the South African Local Government Association, municipalities, businesses, academic and research institutions to identify on going needs, build capacity and address integrated research challenges. These include universities, government departments, businesses, municipalities and others. The electronic spatial portal is curated by a number of experts in their respective fields that work to curate the information available on the Atlas and keep up with emerging knowledge and developments in the field. The project management and working group teams for the Atlas are housed at the Natural Resources and Environment Unit at the Council for Scientific and Industrial Research (CSIR) and the infrastructure for the portal is provided by the South African Earth Observation Network.

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of the Federal Republic of Germany
Capacity required and Ease of Use

Although general search functions and research outputs such as case studies are available for non-technical audiences, a basic level of GIS training is required for advanced manipulation and interpretation of geospatial data available on the portal. To bridge the gap between technical GIS users and non-technical users interested in gaining a better understanding of global change, the new SARV-GAP tool has been developed to introduce key concepts with no prior technical knowledge or internet connection required.

Resources (personnel, expertise, data demand, funds, time)

Implementation of the Atlas is currently coordinated by two managers and one project officer based at CSIR’s Natural Resources and Environment Unit. These include a manager leading the electronic spatial portal and theme convenors (~80%), a manager focused on the coordination of partnerships and outreach (<50%) and shared program management functions and; a candidate researcher involved in stakeholder engagement, capacity building and monitor-
ing and evaluation (<50%). The work of the coordination team is supported by a working group devoted to Atlas data integration, product development and outreach activities. Here the coordination team is joined by others with expertise in Geospatial analysis and Geoinformatics, Urban and Regional Planning and other sectors (e.g. Disaster Management, Risk Analysis; Information Architecture) as needed. Another key aspect of the Atlas involves the data and coordination efforts of the theme convenors on the electronic spatial portal. **Theme convenors** are a group of recognised experts in their respective fields (see above list of themes) who are tasked with leading the acquisition and availability of relevant Atlas data and supplementary support to research and outreach activities. Finally, the South African Earth Observation Network (SAEON) is responsible for the technical development, maintenance and functioning of the electronic spatial portal infrastructure as well as data cataloguing and related functions, while communications support is provided for the overarching Atlas website (which links to the electronic spatial portal) newsletters and other communications. The **annual budget** for the Atlas is between approximately 4–6 million South African Rand (ZAR) per annum (approximately half a million USD).

**Conclusions for future Application**

SARVA products including the hardcopy Atlas, the electronic spatial portal and others have been well received by local and international audiences, in particular for bringing the multiple stressors and vulnerabilities of global change to local and international audiences of all kinds. The Atlas has been used by South African parliamentary members and policy makers around global change, by scientists and analysts assessing risk and vulnerability and by officials and others planning responses to the multiple stressors and vulnerabilities facing the country today and into the future. The Atlas has also been targeted for possible expansion at a regional level.

**References**


Department of Science and Technology (DST), 2009. 10-Year Global Change Research Plan for South Africa.

**Reference persons for further information**

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