

# Focus on CSIR research in Corporate Sustainability

CSIR Natural Resources  
and the Environment  
2011

## Risk and Resilience



### Introduction

In the wake of the recent global financial downturn, businesses have begun to reassess their conception of risk. Leading accounts of the global risk landscape are now populated with unexpected events, looming failures and points of concern which are embedded into the broader system in which businesses operate.

For instance, floods, droughts, natural resource shortages, energy security concerns, water quality and quantity issues, and uncertainty in labour markets are all issues with the potential to impact significantly on business operations. Add to this, the influence of climate and societal change (e.g. demographic shifts), and one starts to see a very different picture of risk factors from that traditionally within the business realm.

These changes are being felt at national, regional and even local levels. As population and production pressures continue to mount, the role of external agents in contributing to business risk is becoming more pronounced. The increased unpredictability of events and resultant uncertainty significantly compromises businesses' ability to manage risk.

To take a well-known example, the \$200 billion price tag of Hurricane Katrina in 2005 has been attributed to the combined impacts of ecosystem degradation, political and economic underinvestment and increasingly extreme weather events. Businesses in the area were severely affected with the most severe damages experienced in the energy, infrastructure, transportation and insurance sectors.

In South Africa, we have also seen our share of impacts from extreme weather events in vulnerable coastal areas. Projected changes in our climate and resource security are leading to changes in legislation (e.g. carbon tax on light commercial vehicles which took effect on 1 September 2010) and concern regarding the future use of natural resources in the country (and the associated socio-economic impacts).

### The challenge

In order to prepare for and respond to these new and emerging types of risk, companies need to recognise and evaluate their current and future position in the system that they operate. Also critical is the need to identify system-level trends, and assess the relevance and role of unseen drivers (e.g., governance issues) on business viability and success.

The challenge then is for businesses to gain a better understanding of the complex and interconnected landscape in which they operate in order to build long-term resilience. This will require new ways of approaching questions of both business strategy and sustainability going forward.

The concept of resilience is based on a capacity to ensure societal and operational stability in the face of stresses and shocks. In the case of business, this requires an understanding of the interdependencies within the system that they operate and an ability to adapt and better manage for unforeseen circumstances and risks.

### Corporate Sustainability

In South Africa, we are seeing advances in risk assessment through the likes of water footprinting analysis, carbon disclosure reporting, and similar initiatives. The recent King III report also points to an expanded view of risk, highlighting the need for businesses to appreciate 'that strategy, risk, performance and sustainability are inseparable'. The report also paves the way for the integration of conventional risk and sustainability reporting and audits for South African companies.

However, many companies are still working towards developing their own response to sustainability, often viewing these actions as something separate





or outside of the direct interests of the organisation. Business needs to understand that sustainability is no longer simply about reducing negative impacts on the receiving environment, but also about understanding and enhancing the ability of a system in which the business operates to survive and remain resilient over time. Through a more integrated understanding of such risks, companies will be able to make more strategic decisions relating to the sustainability of their companies, the value chain they are a part of, and the business milieu in which they operate.

#### Our research

The CSIR is working with companies to develop a more accurate picture of the risks that are affecting – or will ultimately affect – their businesses over the long term. What makes our approach unique is that it marries scientific and management knowledge to identify key human-environment synergies of relevance to a business and prioritise areas of concern. Critical concerns and risks can then be integrated into scenarios developed with companies and other relevant stakeholders towards a better understanding of the system in which they operate and connections within this system, improved risk management, as well as mitigation and resilience strategies.

Among others, we are applying this understanding to the insurance and food and beverage industries in South Africa, where increased extreme events and water scarcity are being assessed using linked socio-economic and bio-physical models. We are also working with business people to assess risk priorities and ground-truth the concept of resilience in the South African business environment.

Other related initiatives include:

- **Risk and vulnerability assessment**  
The South African Risk and Vulnerability Atlas provides spatial and other global change sensitivity and vulnerability information on regional, national, provincial and municipal levels. This information is being used by companies to assess the potential business implications of global change projections.
- **Industrial water use and water footprinting analysis**  
This research is aimed at developing a better understanding of water user behaviour of industries and how water is used along an industry's value chain. These analytical tools help to identify concealed losses in the system

as well as assist in determining the responsiveness of industrial water demand to different water pricing strategies.

- **Sustainability assessment and reporting**

The CSIR is also providing advice to companies seeking improvements in sustainability through the development of sustainability strategies, meeting sustainability standards and engaging stakeholders in the delivery and communication of these strategies.



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