

Global Environmental Change

- over-exploitation of the natural resource base
- loss of biodiversity
- disruption to biogeochemical cycles and other aspects of Earth system functioning
- climate change
- potential increase in hydro-meteorological extreme events

- ✓ All affect agriculture, rural livelihoods and food security
- ✓ All driven by food system activities
- ✓ All world-wide, interacting phenomena
- ✓ Complex and varied international science agenda

Food Security

.... exists when all people, at all times, have physical and economic access to sufficient, safe, and nutritious food to meet their dietary needs and food preferences for an active and healthy life. (FAO, 1996)

.... is based on three components: (i) food availability; (ii) food access; and (iii) food utilisation.

.... depends on more than agricultural production

.... is diminished when food systems are stressed

Developing Interdisciplinary Research Approaches to advance science and address policy

I. Conceptual & methodological research on generic topics

- Food Systems Concepts
- Vulnerability Concepts
- Scenario Methods
- Decision Support Concepts

II. Policy-relevant research at regional-level

- Impacts
- Adaptation
- Feedbacks

based on science and policy issues identified in regional projects

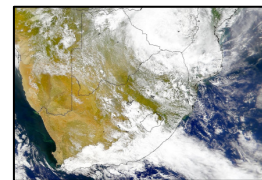


based on improved conceptual understanding and methods



Global Environmental Change and Food Security in Southern Africa

- How will global environmental change (GEC) affect the vulnerability of food systems across Southern Africa?
- How might food systems be adapted to cope with GEC so as to enhance food security?
- What will be the environmental and socioeconomic consequences of different adaptation pathways?



climate change and weather extremes



food storage policies and facilities



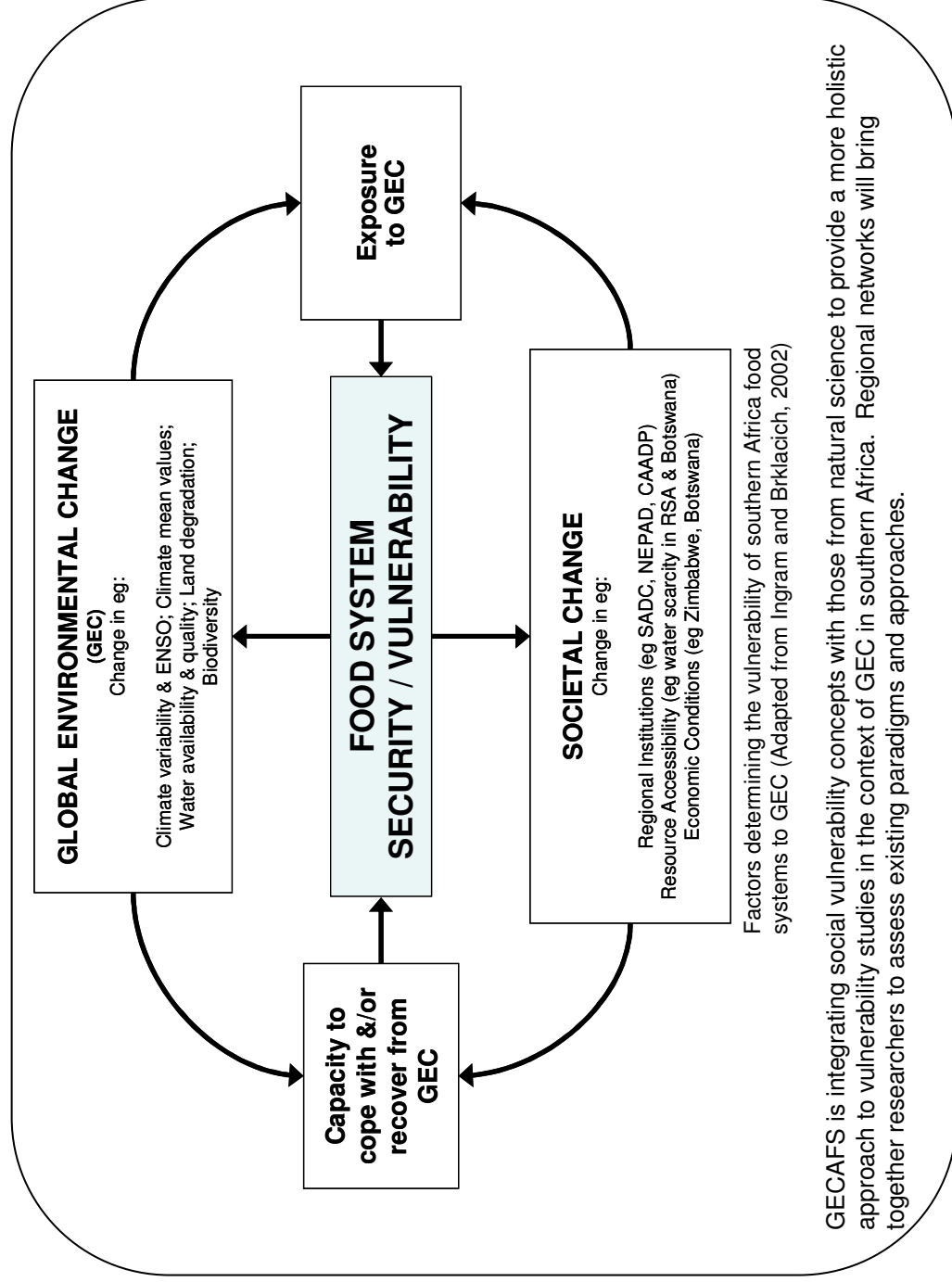
infrastructure for food distribution

GECAFS-Southern Africa research will identify the social and geographical distributions of vulnerability of the region's food systems to GEC in the context of other stresses.



Research Goal

To determine strategies to cope with the impacts of global environmental change on food systems across southern Africa and to assess the environmental and socioeconomic consequences of adaptation.



Detailed **research questions** on impacts, adaptation and feedbacks were developed from the overarching questions (*cf.* front cover).

Due to the varied policy interests of regional stakeholders and the complex spatial and temporal dynamics in the region, each set of questions were elaborated at three different levels:

- **local-level questions**, researched in case-studies at the sub-regional level;
- **cross-level questions**, which integrate output from case studies up to the regional level (bottom-up view of the region);
- **regional-level questions**, to address issues relating to the region as a whole (top-down view of the region).

GECAFS-SAF will be implemented over five years and based on:

- (i) selected Case Studies across the region, each addressing the food systems questions relating to GEC vulnerability and impacts, adaptation options and feedbacks;
- (ii) Regional Scientific Networking, to link case study research with other relevant research in the region and internationally;
- (iii) a Science-Policy Interface, linking national researchers with policymakers, the private sector, civil society and representatives of regional food security programmes.