Global Change Grand Challenge Implementation Framework

Science Plan workshop

22 April 2008

Design drivers

The form, shape, and structure of the Global Change Grand Challenge is a South African project that must support science and technology as well as key social, economic development, and environmental management objectives

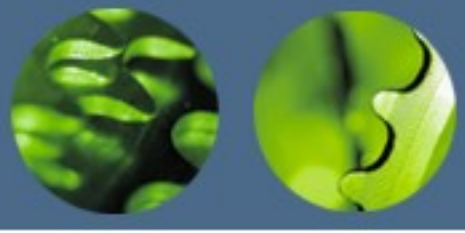
Science and Technology Drivers

- New knowledge – publications
- PhD's
- Patents
- Leverage geographic advantage
- Developing country-relevant science
- Environmental sustainability
- Knowledge economy

..... Global change must support Science AND innovation objectives

Definition

Global Change research seeks to understand the integrated earth system in order to identify, explain and predict natural and anthropogenic changes in the global environment and assess the potential regional and local impacts of those changes on social-ecological systems. The outcome being the provision of a sound scientific basis for the development of appropriate technical, economic, and societal mitigation/ adaptation strategies which have influences on policy and planning



Why Global Change

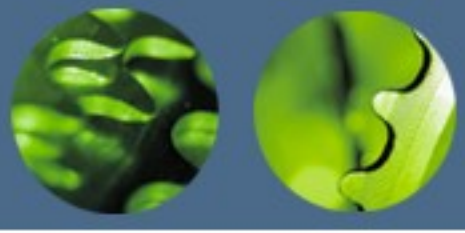
- More effective way to consider human dimensions of vulnerability and impacts (for example, hurricanes example)
- Allow a focus on the continuum of both extreme and abrupt events as well as long-term but slow changes (Tsunami's and drought frequency)

Key Performance Indicators

- **SCIENCE** - Extent to which scientific understanding of global change has improved as a result of South African research efforts
- **TECHNOLOGY** - Extent to which South Africa contributes to the development and deployment of innovative technologies that support appropriate responses to the negative impacts of environmental changes, particularly climate change
- **RELEVANCE** - Extent to which decision-makers have used improved scientific understanding and technological development to achieve sustainable development goals in South Africa and Africa

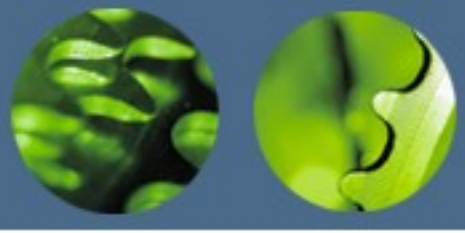
What we have

- Information gaps with regard to inputs, capacity, outputs, influence in terms of science and technology development
- Significant investment by DST
- Greater investment by other elements within the National System of Innovation
- Considerable interest and existing partnerships with international partners
- Capacity and capabilities in the area of adaptation technologies



What we have (2)

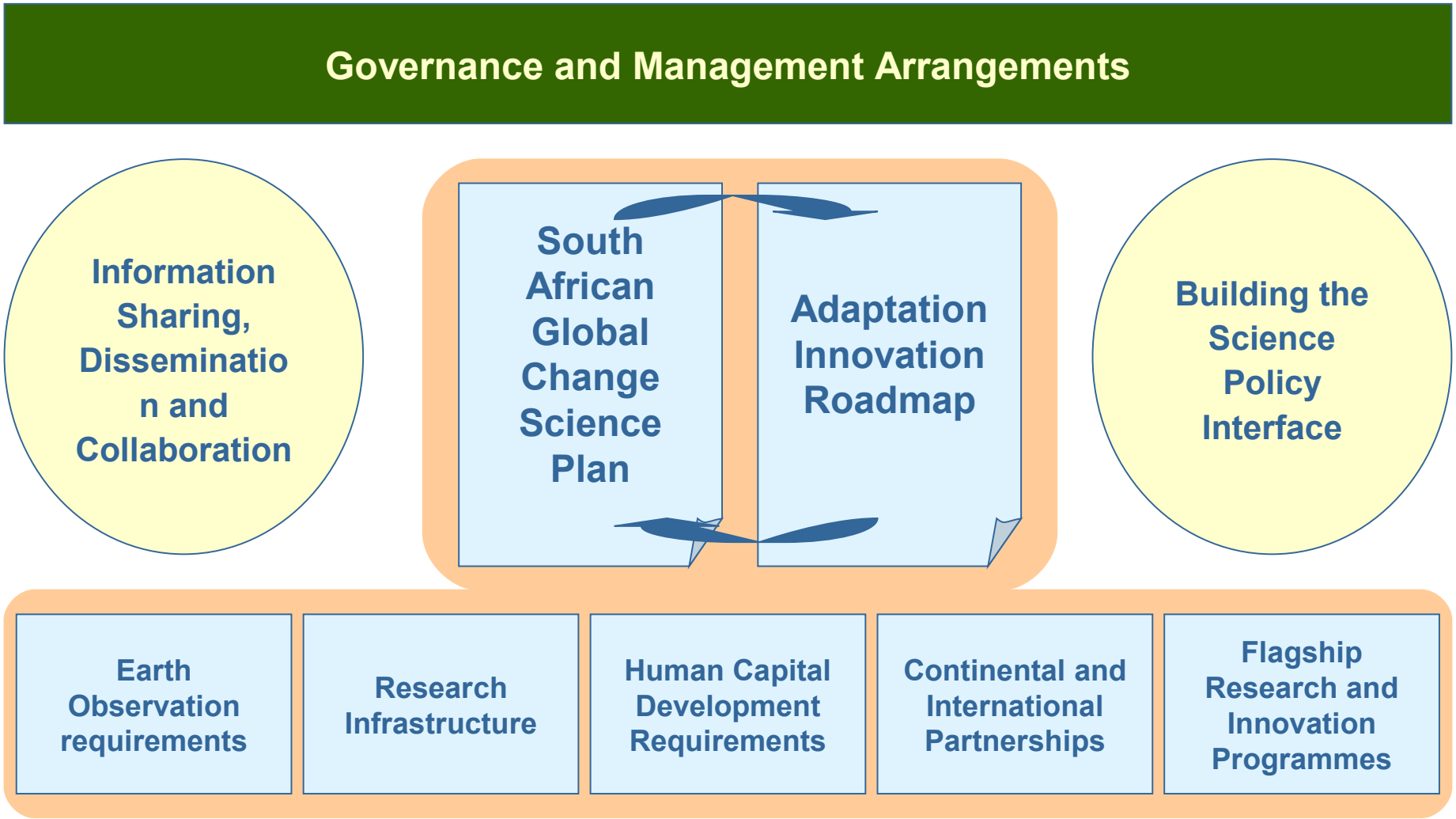
- Lack of a unified, common, and ambitious vision for South African science
- Lack of large-scale collaborative projects
- Existence of a ‘knowledge chasm’
- Human Capital weaknesses and ad-hoc development programmes
- Well-connected to continental and global efforts

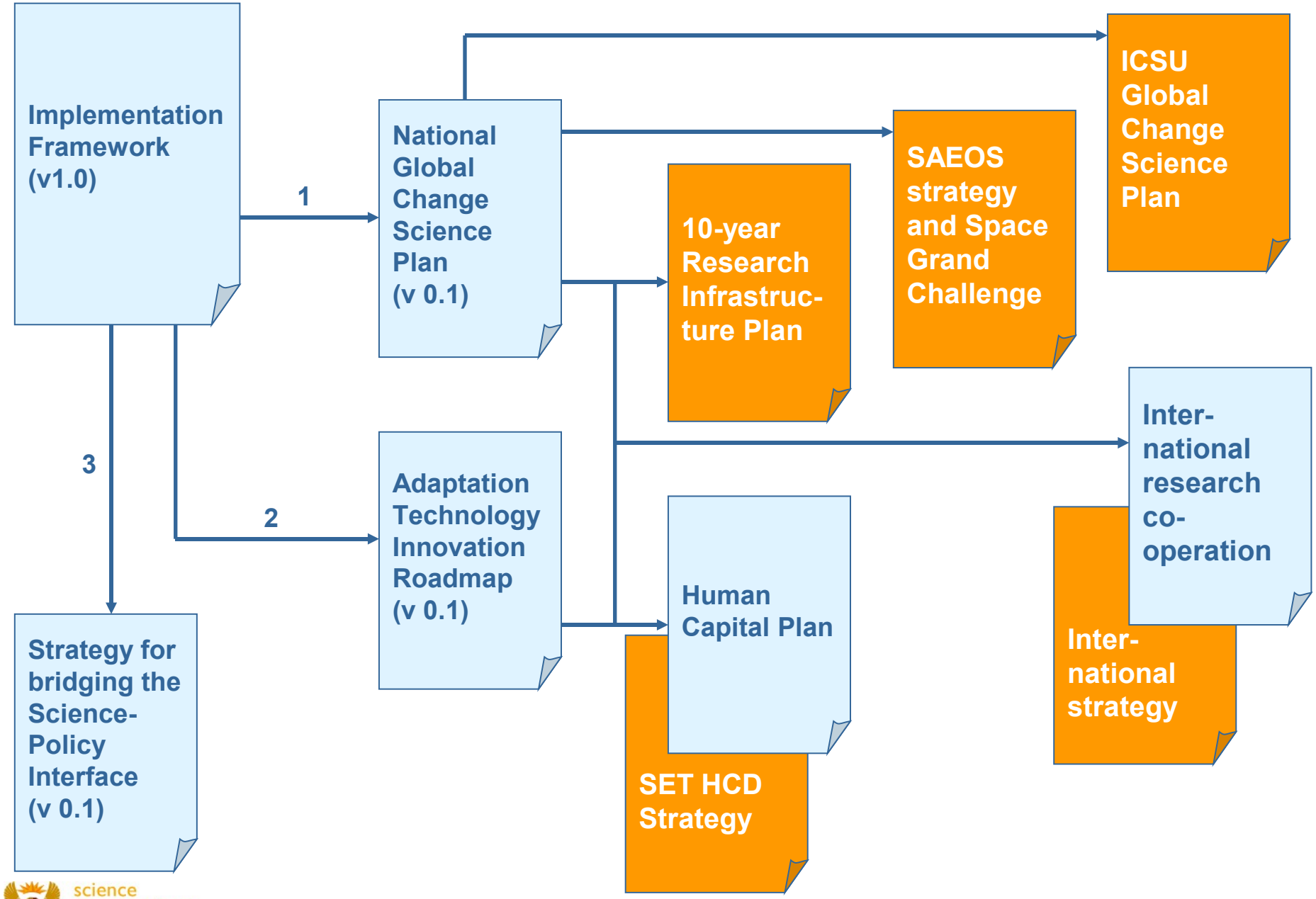


What we have (3)

- Weak institutional arrangements to build a truly grand challenge
- Ad-hoc approach to building the required human, institutional and infrastructural platforms
- Considerable resource opportunities but require consolidation to effectively tap into these

Proposed Implementation Framework




Implementation Framework (v1.0)
1
National Global Change Science Plan (v 0.1)
ICSU Global Change Science Plan
SAEOS strategy and Space Grand Challenge
10-year Research Infrastruc-ture Plan
3
2
Adaptation Technology Innovation Roadmap (v 0.1)
Inter-national research co-operation
Human Capital Plan
Inter-national strategy
SET HCD Strategy
Strategy for bridging the Science-Policy Interface (v 0.1)

Proposed Science Plan areas

- Earth Systems Science
  - Long-term and/or large scale fundamental earth systems and processes resulting from natural and anthropogenic Global Change
- Resilience
  - Resilience of social-ecological systems to external disturbances from Global Change
  - Reaction of social-ecological systems to the introduction for new/ foreign elements, or changes in related social-ecological systems

- Adaptive Capacity
  - Methods for building institutional and social resilience
  - Development and implementation of systems, technologies and tools to support coping with change
- Science-Policy Interface
  - Approaches and methodologies for facilitating the credible and effective integration of science into policy

Thank You

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