Complex Adaptive Systems Management in southern Africa

Challenges and Opportunities

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Managing CAS

Adaptive co-management

1. Create awareness of the problem
2. Establish a vision, or plan
3. Identify champions
4. Establish knowledge networks through trust-building
5. Identify 'windows of opportunity', and establish the political will
6. Negotiate actions
7. Build knowledge, through adaptive learning

- **'Adaptive governance'**
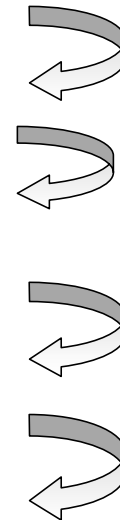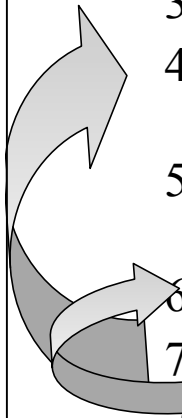
Decision making

In an ideal world

- ☺ Knowledge is shared, and used for management
- ☺ Partners take responsibility
- ☺ Awareness is increased
- ☺ Learning is iterative
- ☺ Capital grows

So southern Africa has three specific challenges

a) A dire need for transformation and re-organization (yes, it's only just started..)

b) Dealing with unpredictability

c) Adjusting for serious shortages in certain types of 'capital'

The need for transformation

- Improved governance systems and institutions
- Improving the integrity of ecosystems (restoration, resilience management)
- Better decision making
  - Local communities
  - Government (local->national)
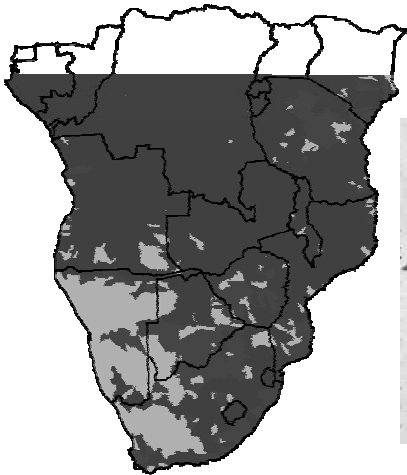 - Scientists and other technical supporters

Local communities

Government   **Supporters**
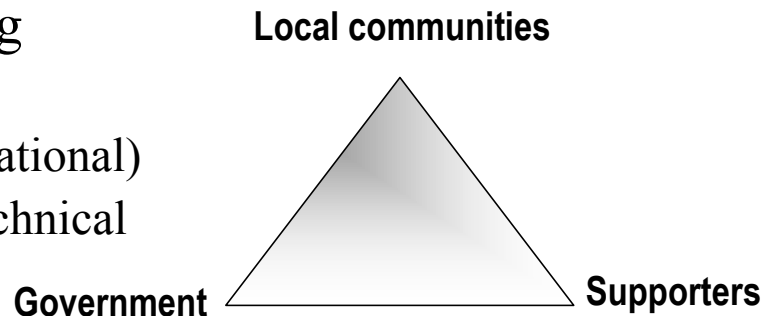
(*CSIR's 'Trialogue' model*)

Unpredictability and high variances
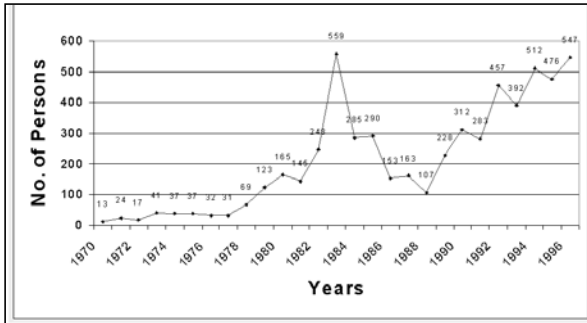
Patchy distribution of Capital - e.g. water in southern Africa

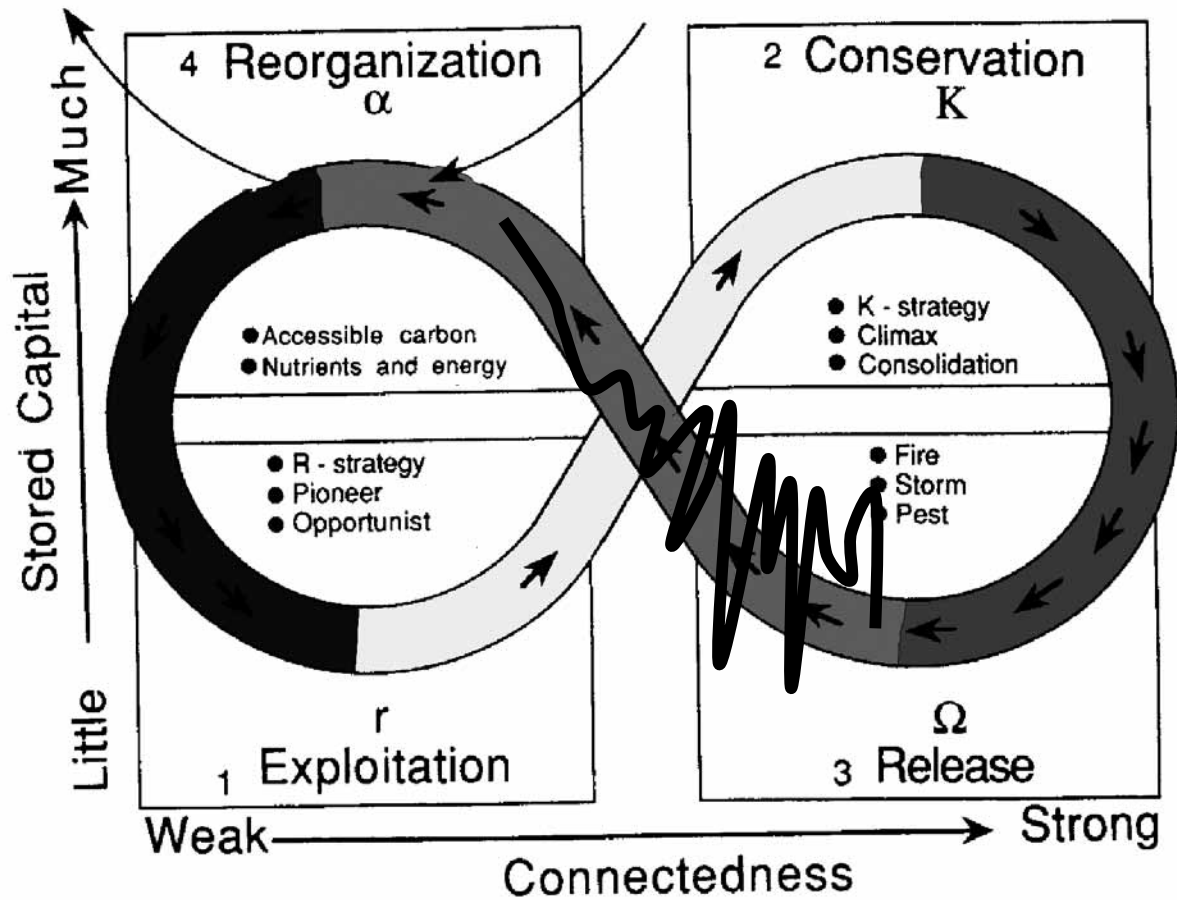**Southern Africa region**   **Gariep Basin**   **Pikoli village**
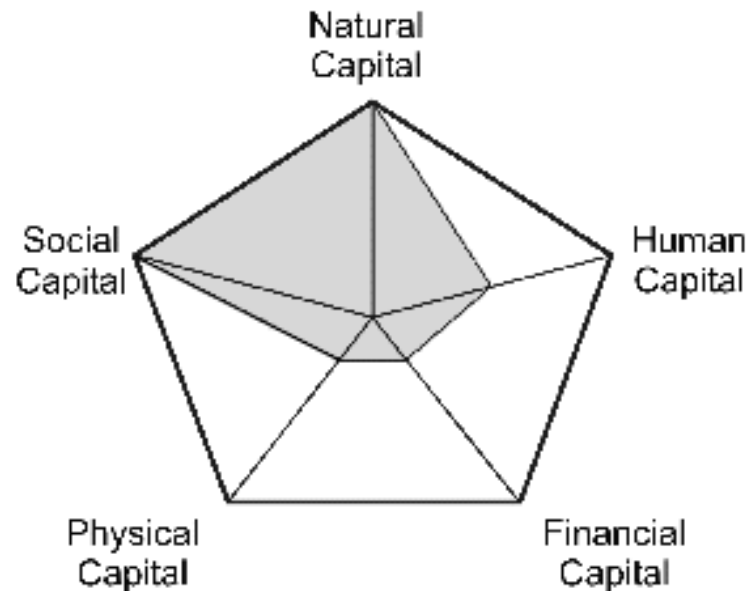

A 'patchy' distribution at <u>all</u> scales
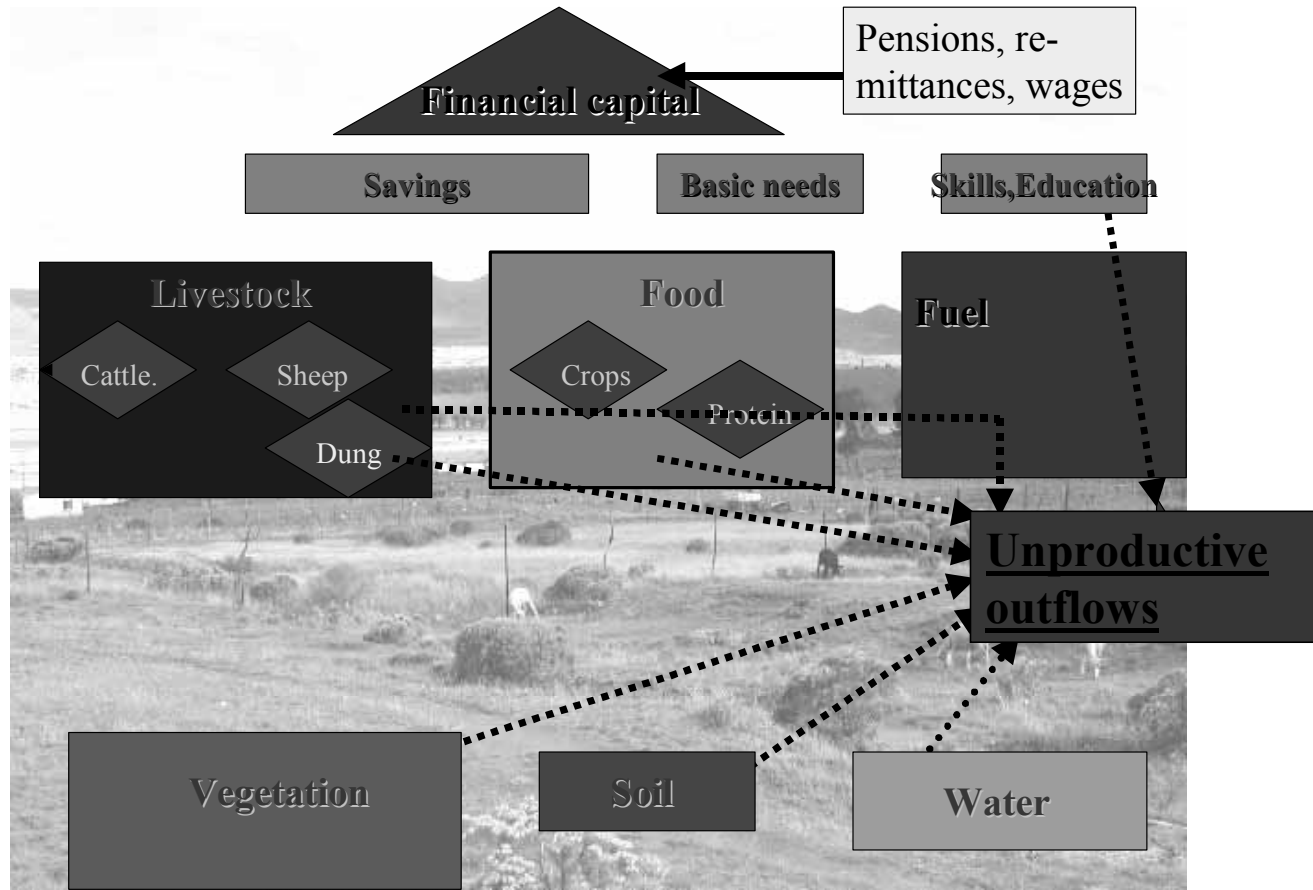
Chaotic fluctuations

Shortages in certain types of capital

and 'leakage' of capital

Financial capital

Pensions, re-mittances, wages

Savings

Basic needs

Skills, Education

Livestock

Cattle.

Sheep

Dung

Food

Crops

Protein

Fuel

Unproductive outflows

Vegetation

Soil

Water

Opportunities

- Southern African complex adaptive systems are 'transformable'
  - Many windows of opportunity
  - Constant re-assessment
  - Role players are willing to learn and experiment
- Used to finding negotiated solutions
- 'Cooperative governance' is enshrined in the constitution
- Policies promote devolution

Three practical examples from Eastern Cape

Nqabara, Mbhashe municipality

Planning, capacity development for:
- Community conservancy
- Participatory Forest Management
- Tourism

Bathurst, Ndlambe municipality

Planning and institutional development for:
- Conservancy
- Cultural tourism
- Craft centre, medicinal plant garden
- Nguni breeding

**Macubeni, Emalahleni municipality**

Planning, institutional development and capacity development for:
- Ecosystem restoration
- Soil erosion control business (nurseries, restoration work)
- Payments for ecosystem services (water)

- Community-based planning
- Capacity development
- Institutional development
- Income generation
- Monitoring and adaptive learning

How to do it? Examples from Eastern Cape

- **Build capital** through
  - Ecosystem repair
  - Training
  - Institutional development
  - Conflict resolution
  - Finding markets for ecosystem products

- *But be ready for a slow process and constant setbacks*

- *The challenge, when capital is very low, is to overcome intermediate setbacks*
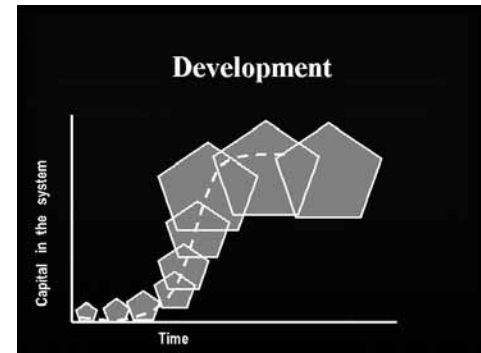
Start with 'key resource areas'

- Productivity and biodiversity 'hotspots'
- Individuals and institutions with capacity for transformation
- Nodes with good infrastructure
- *They are the 'seeds of renewal' and need to be nurtured*

- **Form partnerships**
  - Knowledge networks
  - Learning networks
  - Identify 'bridging institutions', recognized by all key stakeholders

- *They augment human capital and are therefore critical*
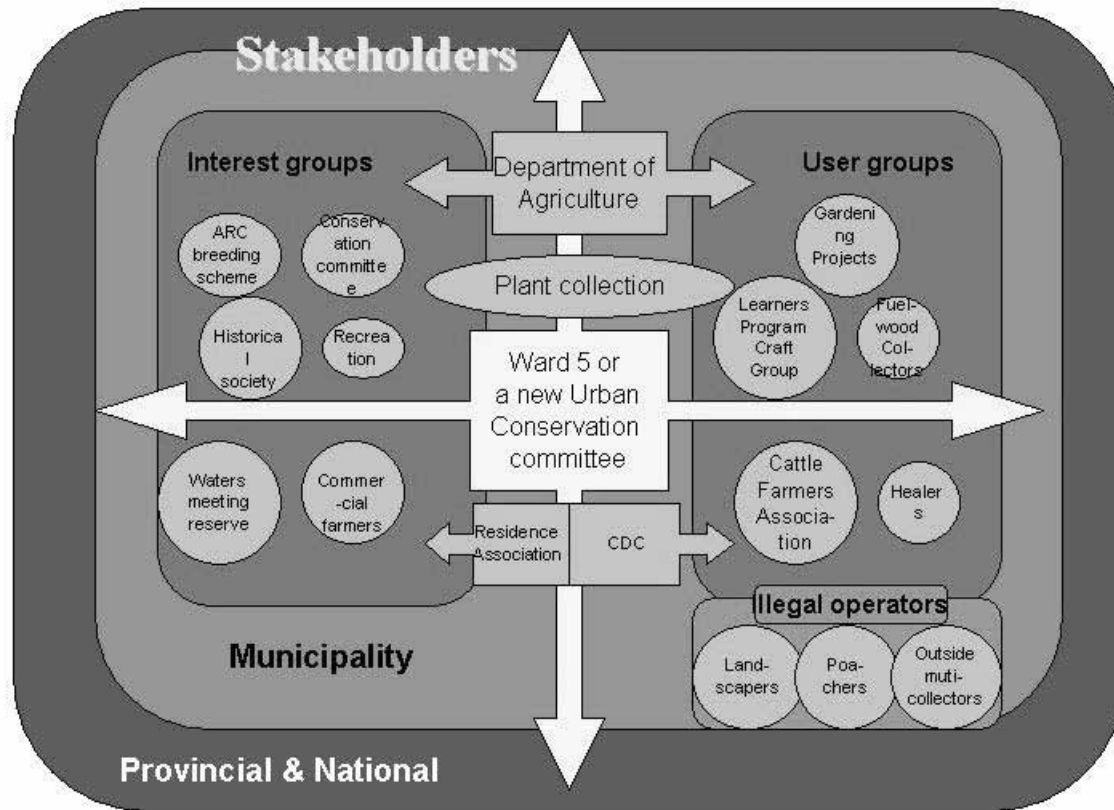
- **Negotiate for political space**
  - *Tread lightly around power relations*

Governance networks
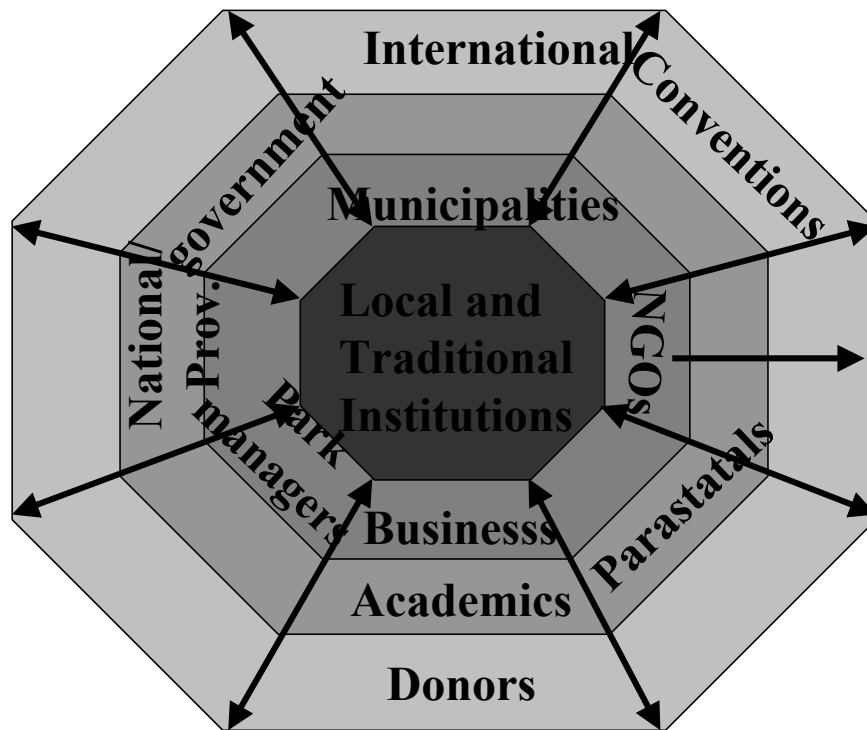
Bridging Institutions: the example of Bathurst, Eastern Cape

Combine different types of knowledge
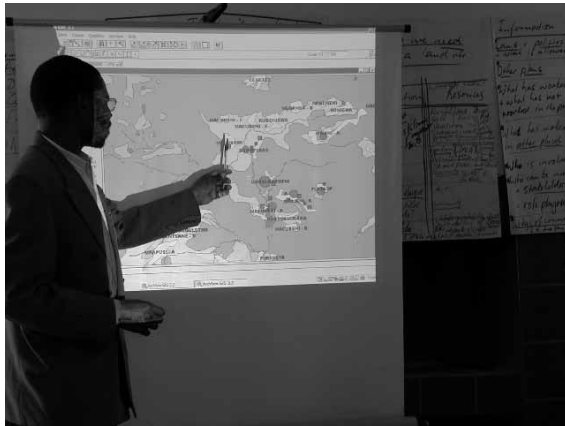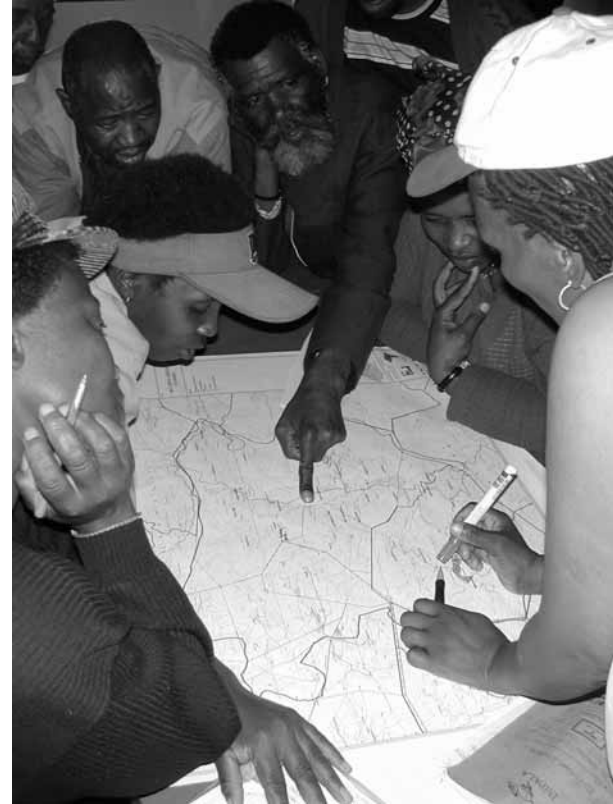
- Anticipate 'windows of opportunity'
  - Policy windows
  - Fund-raising windows
  - Chaotic periods of transition