

***Carrying out scale-relevant
collaborative research
on drivers of change***

lessons and insight from SAfMA & other initiatives

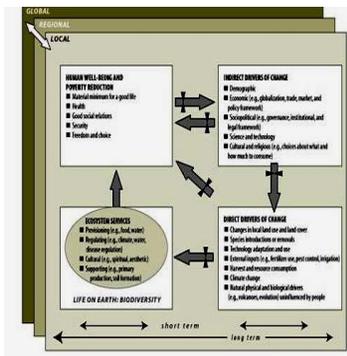
Bob Scholes, CSIR

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Nairobi, 12 June 2008



The importance of a having a conceptual model



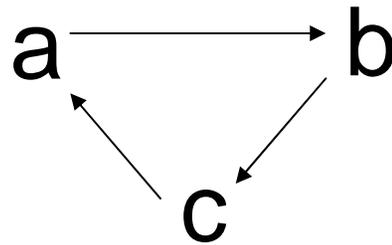
The MA conceptual model was simple, but sufficient for the purpose

In some respects, it was even arguably wrong

But it did provide a way of teasing out proximal drivers, ultimate drivers, feedback effects and interventions, and created a framework in which both human sciences and natural sciences could locate themselves

Source: MEA (2003) Ecosystem services and human well-being. Island Press

Causality in systems with feedback



Which is cause, and which effect?

Tools you can use

- Cause still precedes effect
- Analysing the strength of the feedback can help
- At what point was the external perturbation applied?

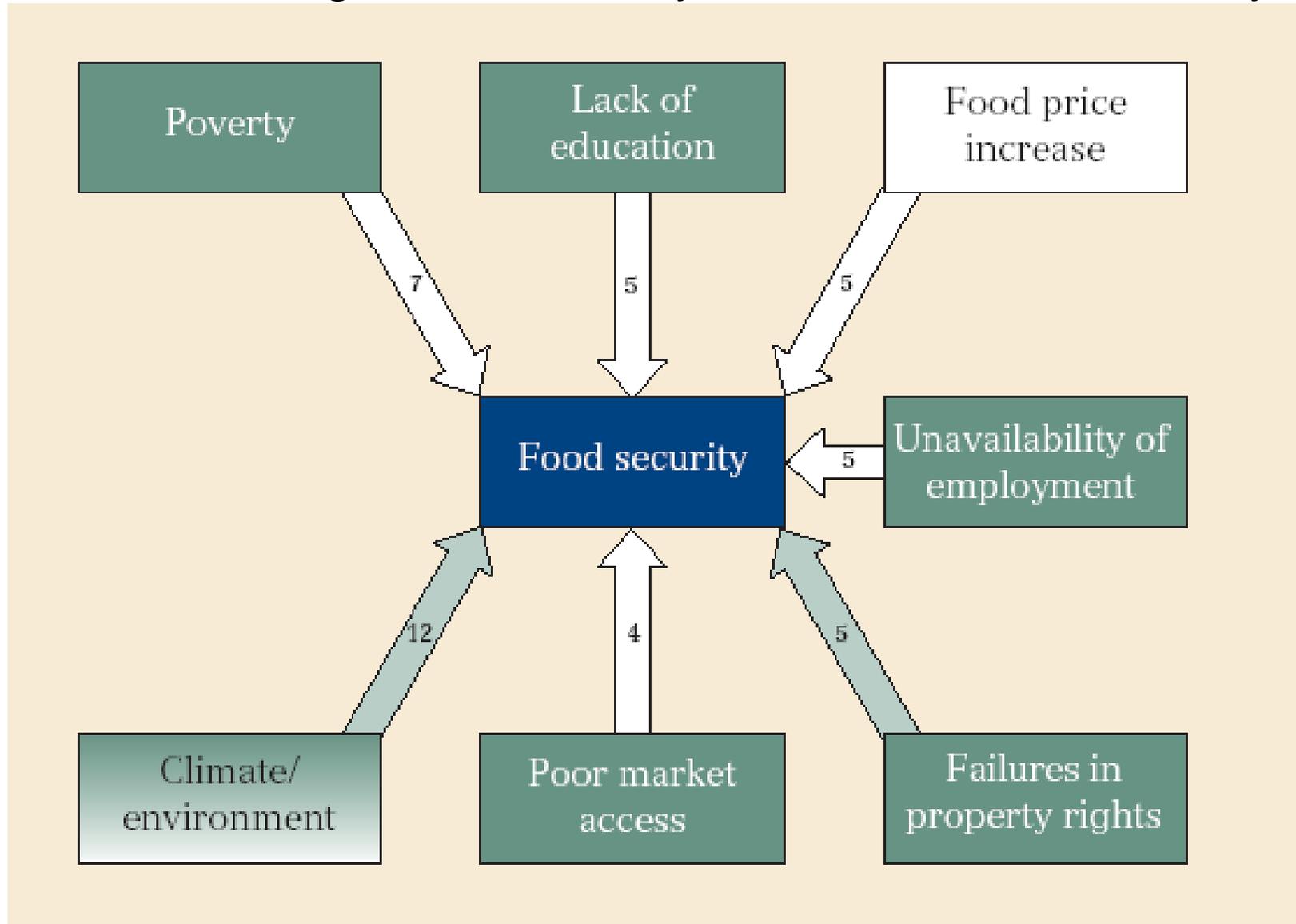
Example of complex causality

- In Zimbabwe, Namibia and South Africa, large areas of land formerly managed for cattle and sheep switched to wildlife, 1975 onward
- Many factors were involved, including
 - Declining profitability of cattle and sheep ranching
 - Rising demand for hunting and ecotourism
 - Deteriorating on-farm security
 - Intergenerational lifestyle changes
- The changes in legislation relating to ownership of wildlife actually *followed* rather than preceded these factors

Source: Scholes et al (in prep)

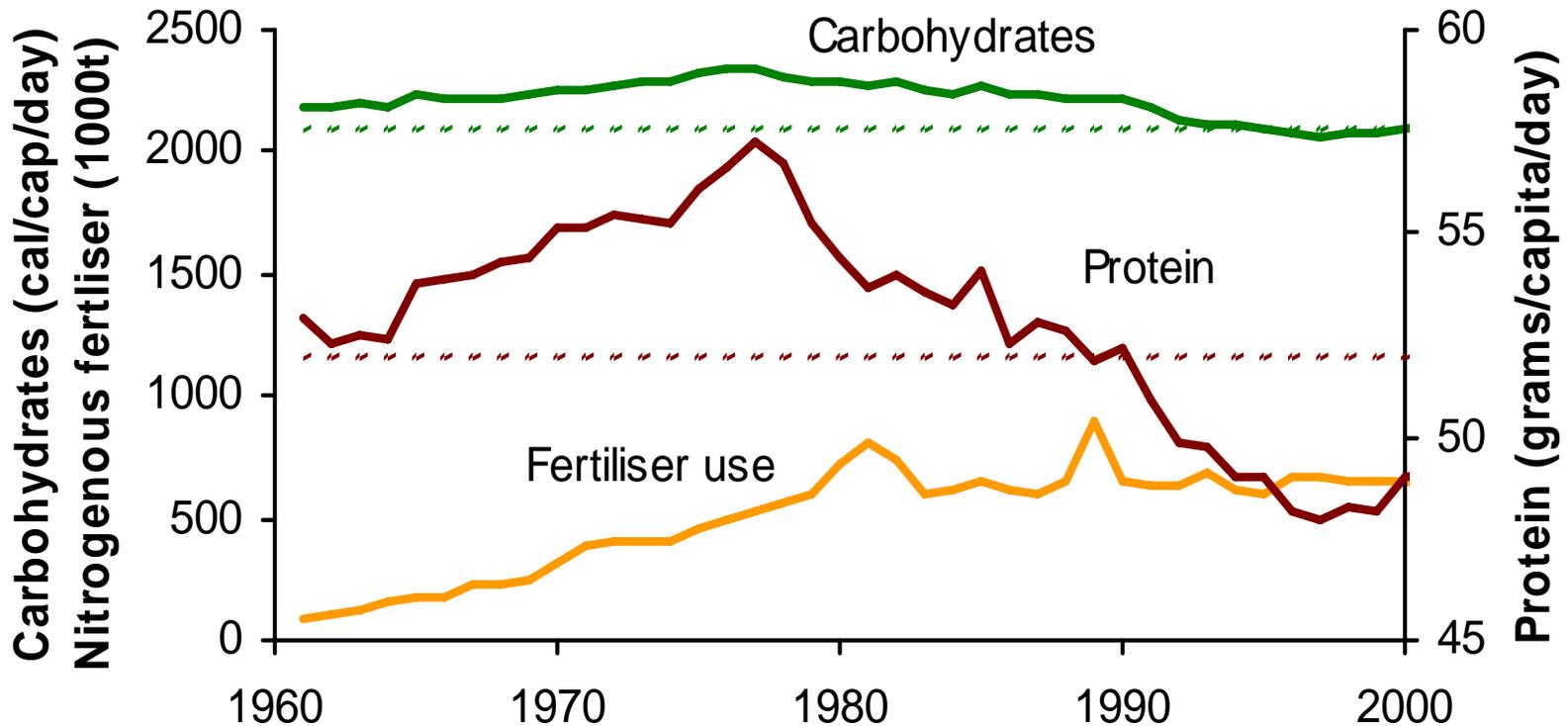
Meta-analysis

The relative weights of the many causes of food insecurity



Causality: Nutrition insecurity

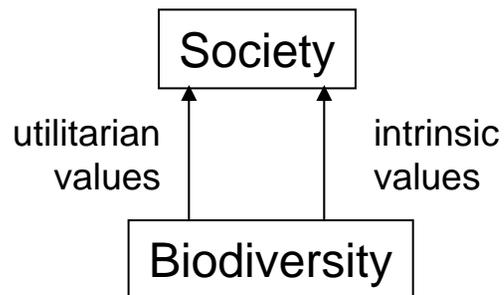
arguments from a knowledge of underlying processes



Source: Scholes RJ and R Biggs 2004 Ecosystem services in southern Africa: a Regional assessment. CSIR

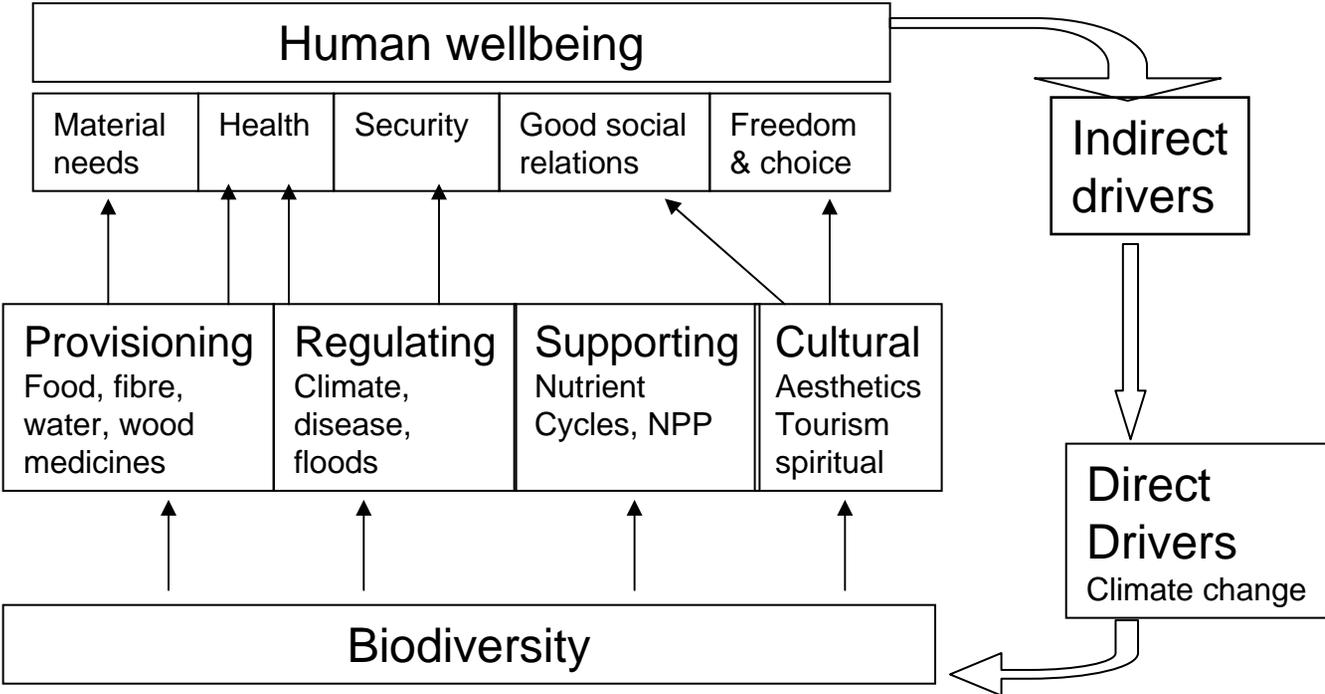
Getting the relationships right

Example: How does biodiversity link to ecosystem services, and services to human wellbeing?



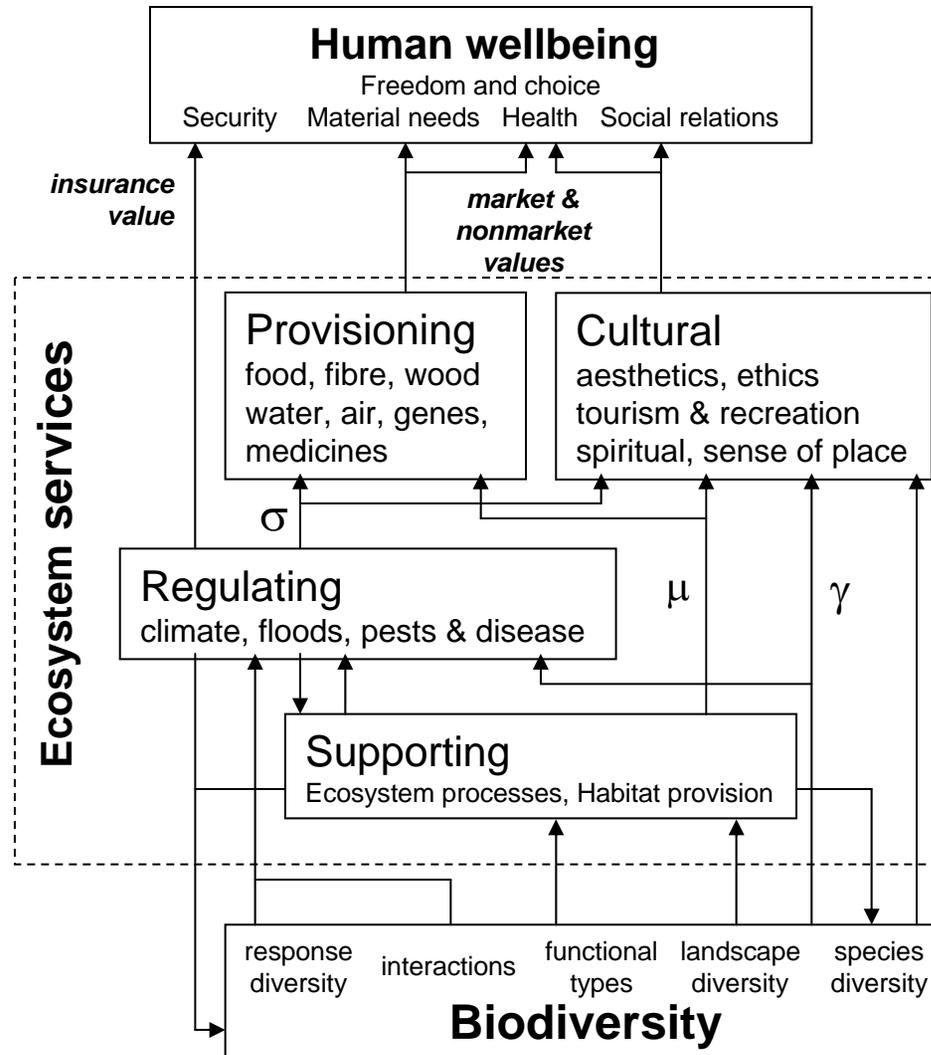
The naïve view

The Millennium Ecosystem Assessment (2003) scheme

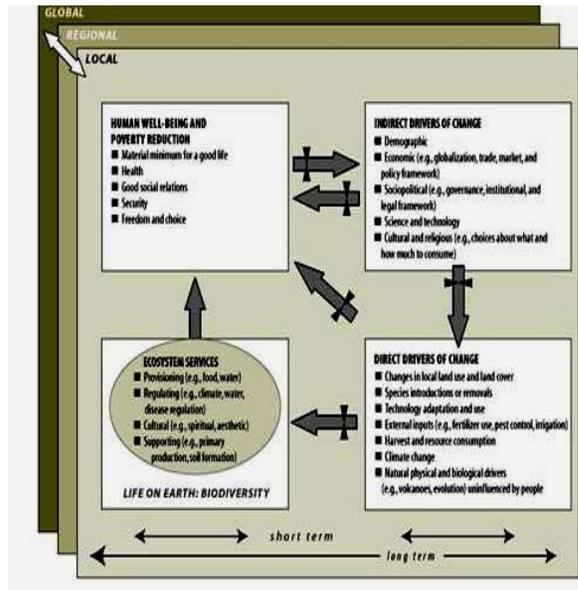


The MA followup scheme

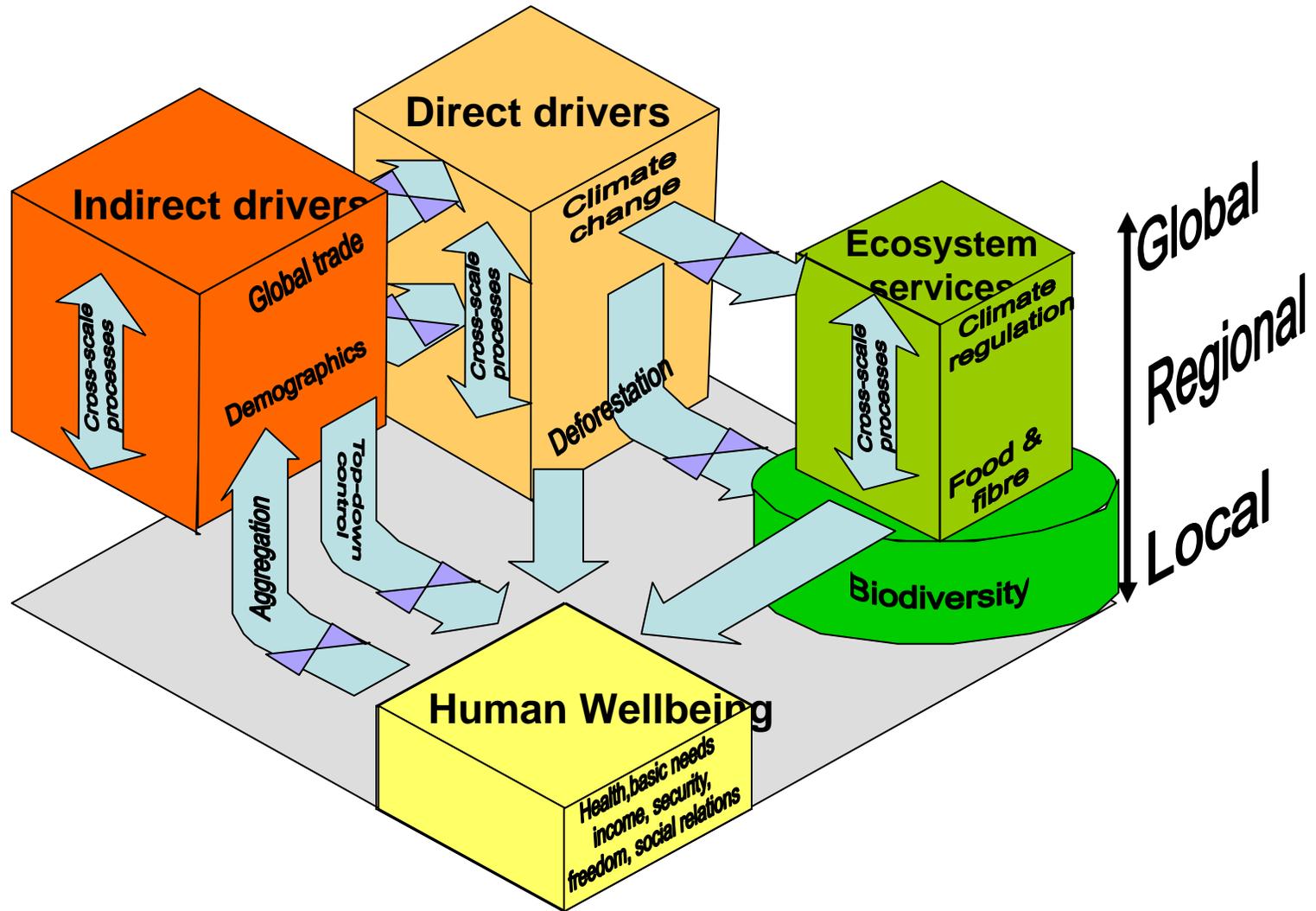
Source: Kinzig, Perrings and Scholes (submitted)



Multiscale



Cross-scale

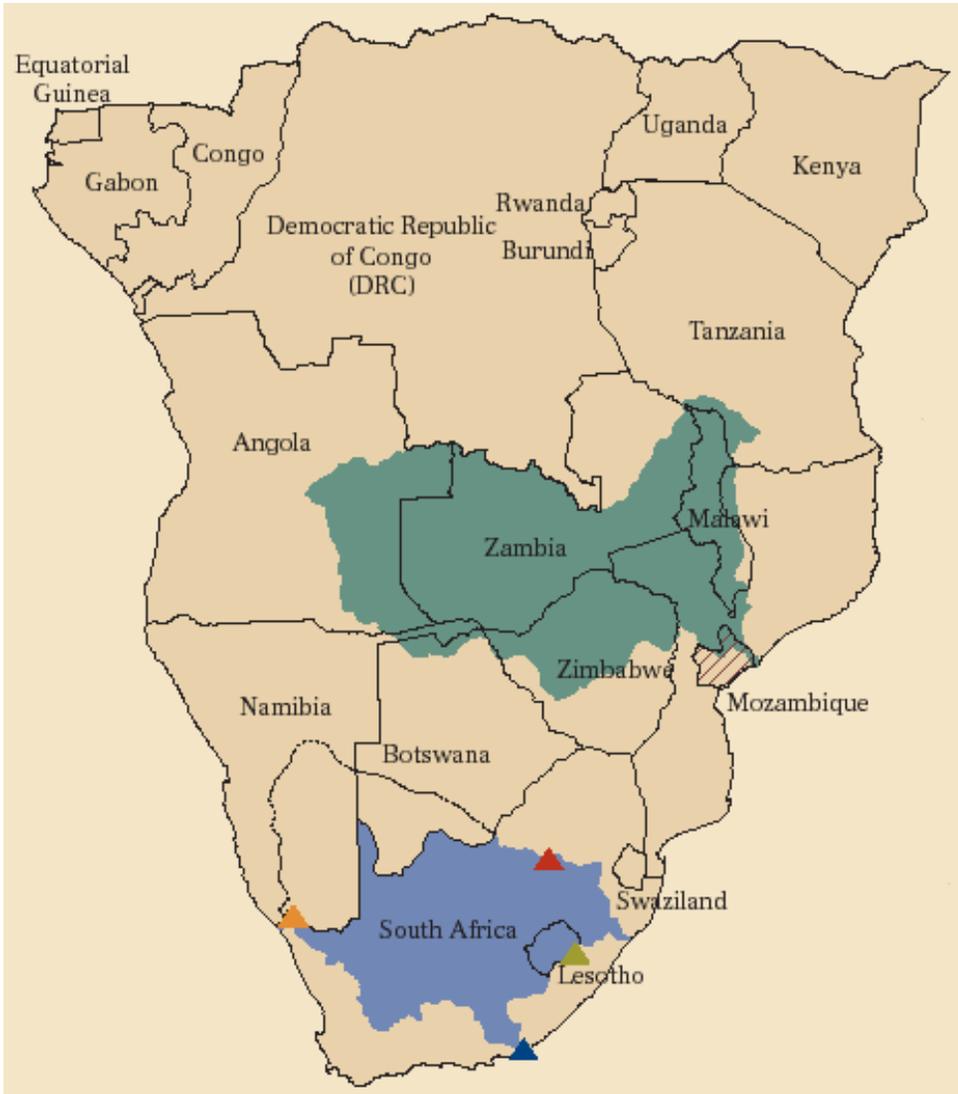


Source: Carpenter et al 2006 Science 313 257-258

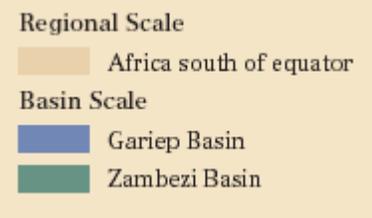
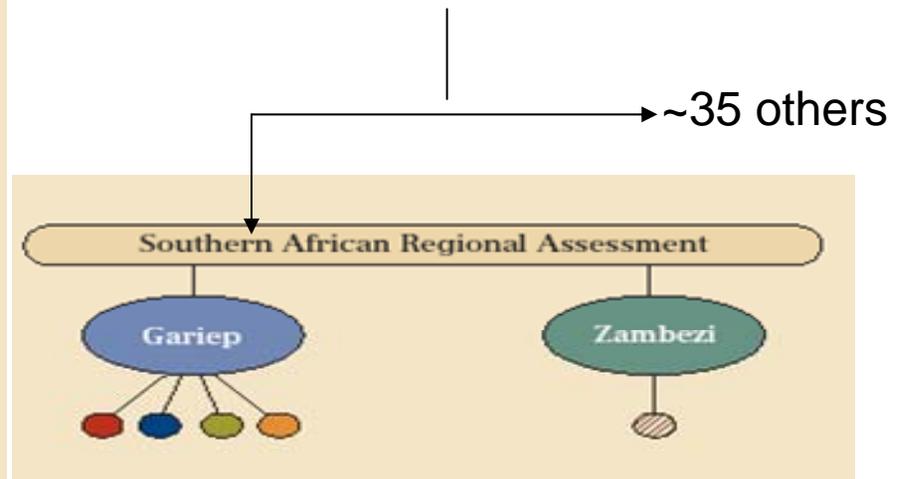
‘Right-scale’ or ‘multiscale’?

- Matching scale of **analysis** to scale of **process** and scale of **intervention** is important
- But, because of cross-scale interactions, there often is not a single ‘optimum’ scale
 - Rather than go for a ‘best compromise’, an *integrated* multiscale approach is recommended
 - Seldom needs to include more than 3 scales

Sparse nesting as an efficient approach



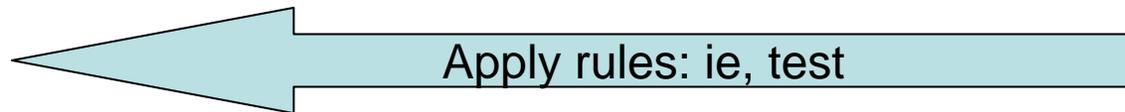
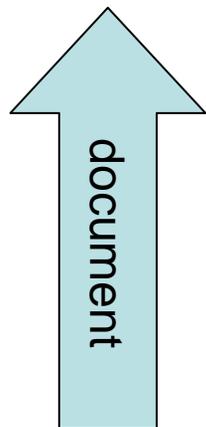
Global Millennium Assessment



Engaging other knowledge systems

if they want to have an impact in the ‘evidence-based’ space they need to migrate to that quadrant, by being placed in the public domain, and subject to rules of evidence. This is their choice.

	Formal	Informal
Explicit	Most, but not all ‘scientific’ knowledge is in this quadrant. The typical outputs of a conventional assessment are also here	Codified, but neither collected nor tested in accordance with conventional scientific rules
Tacit	Scientifically-trained people have formal knowledge that is uncodified	Embedded in local customs, traditions and memory, transferred through oral history



Christo Fabricius, Bob Scholes and Georgina Cundill
Mobilising knowledge for ecosystem assessments
 Proceedings of the ‘Bridging Scales and Epistemologies’
 Conference, Alexandria, Egypt, March 2004

Some observations on collaborative research

- You *must* have an agreed conceptual framework, even if it is imperfect
- The rules of engagement are
 - Work within the framework
 - Agree to share information ie explicit, formal quadrant
- Have an institutional framework for resolving conflicts
 - A ‘stakeholder board’ and a ‘technical panel’
- Pay attention to the ‘soft’ issues
 - Provide opportunities to bond as a team
 - Get the balance right between disciplines and personalities
- Partnerships need to be quasi-equal if they are to work

All the simple problems are done