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WITWATERSRAND,  
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# Assessment in the global context

From ozone to ecosystems

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*CSIR Conference, Pretoria, 5 October 2017 14:30-14:55*

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# What do we mean by an 'assessment?'

Process to evaluate the status of knowledge on complex problems relevant to societies

A key element of the contemporary science-policy interface

Katharine J. Mach, KJ and CB Field 2017. Toward the Next Generation of Assessment Annu. Rev. Environ. Resour.. 42:18.1–18.29

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# A brief history of assessments

- The word 'assessment' has been loosely used in science for over a century
- The 1986 **Ozone Assessment** was its first application in a modern sense
  - Enabled the successful signing and implementation of the Montreal Protocol
- A permanent assessment body, the Intergovernmental Panel on Climate Change (**IPCC**) was set up in 1990 and is credited with progress on the global climate change issue
- The **Millennium Ecosystem Assessment** (2000-2004) adapted IPCC ideas to non-climate realms, specifically biodiversity loss
- Since then, there have been **many global and local assessments**



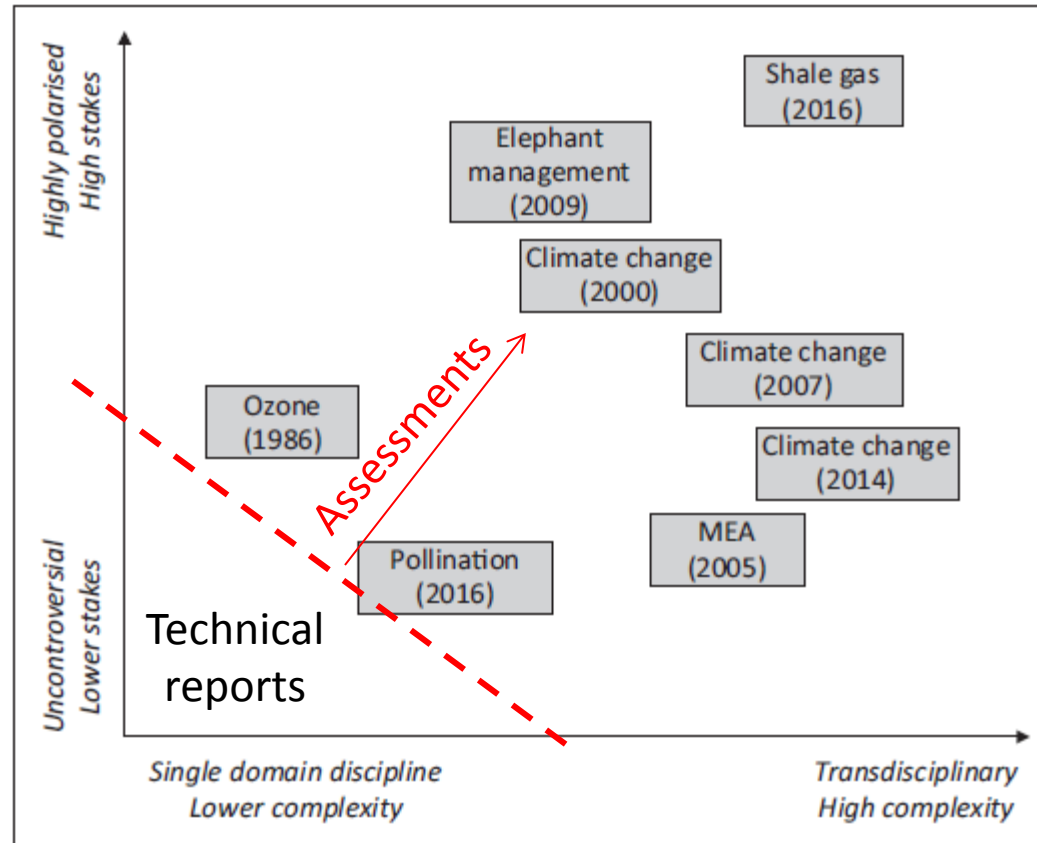
## The characteristics of an assessment

- It is a '**co-generation**' methodology, involving scientists and stakeholders
- **Iterative** structure, 3 or 4 drafts with successive, **wide, documented reviews**
- **Large, multi-author expert teams** rather than single expert authors
- *NOT* a 'review' or a 'research project'



# Where would you use an assessment?

They are slow, expensive and complicated to manage



Scholes, R.J., Schreiner, G.O. & Snyman-Van der Walt, L., 2017, 'Scientific assessments: Matching the process to the problem', *Bothalia* 47(2), a2144. <https://doi.org/10.4102/abc.v47i2.2144>

## Southern African Millennium Assessment (SAfMA) Applying global assessment methods to local issues

The first assessment to explicitly address the scaling question: how do global issues manifest locally, and how do local issues aggregate to global outcomes?

### **Nature Supporting People**

#### **The Southern African Millennium Assessment**

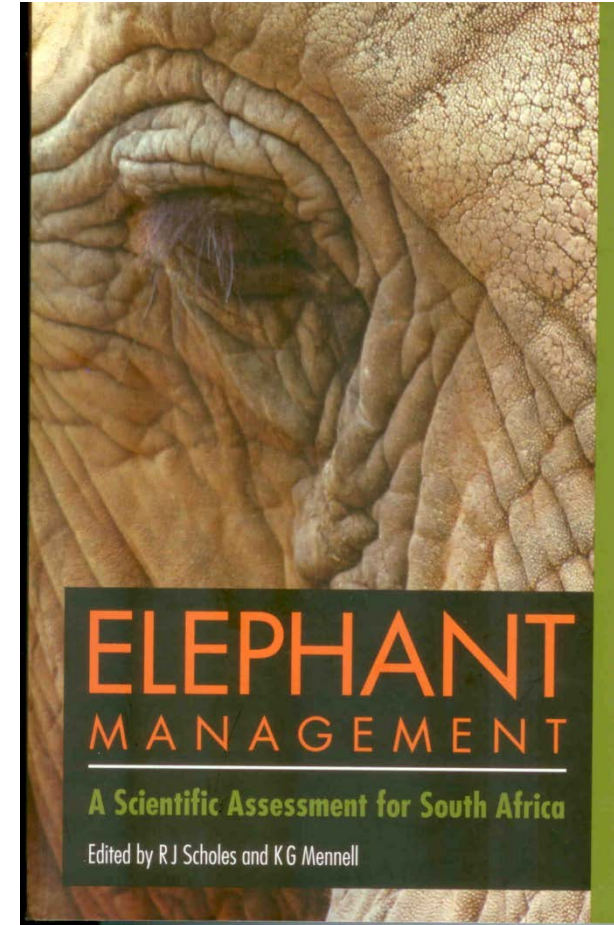


Scholes, R.J. & R. Biggs (eds). 2004. Ecosystem services in southern Africa: a regional assessment. CSIR, Pretoria. 76 pp. ISBN 0-7988-5527

# Scientific Assessment of Elephant Management

Bringing in the humanities

- The context was a highly polarised debate on elephant culling
- The assessment included chapters on elephant **economics**, another on elephant **law**, and a third on elephant **ethics**
- Elephant ecology and reproductive biology provided implementable **solutions**
- The 'Elephant Norms and Standards' was a **policy outcome**



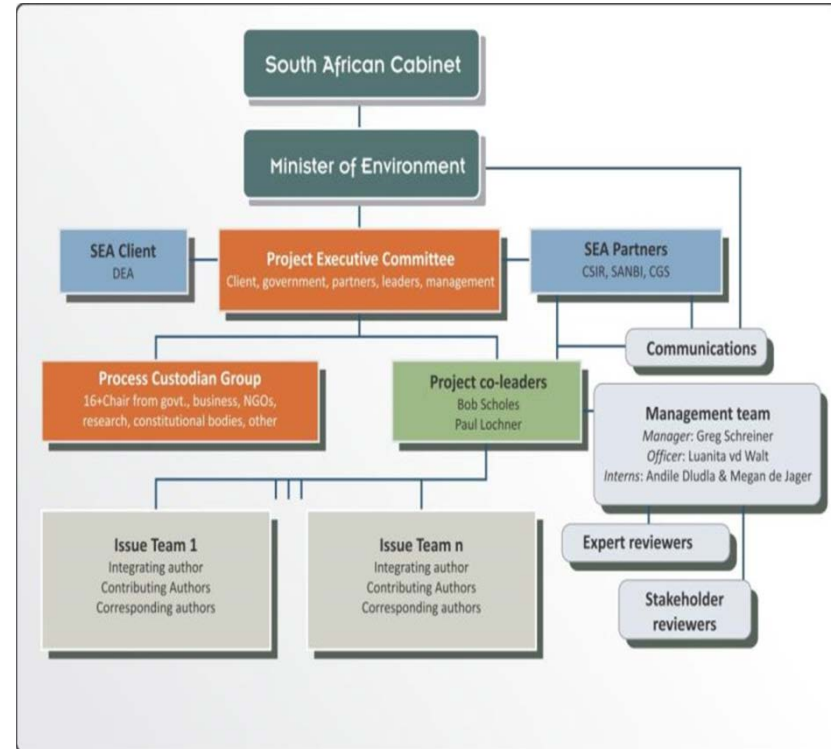
2008. ISBN 978 1 86814 479 2



# Strategic Assessment of Shale Gas Development

Transforming the way environmental decisions are made

- SA has a long-established process for Environmental Impact Assessment (EIA)
- It has become **formulaic and superficial**
- Can we use new-style assessment techniques to **ask big questions ahead of the time?**
- The SEA-SGD was the biggest environmental assessment conducted in South Africa to date
  - Learning to trust a broad stakeholder **process custodian group**



Scholes, R., Lochner, P., Schreiner, G., Snyman-Van der Walt, L. and de Jager, M. (eds) 2016. Shale Gas Development in the Central Karoo: A Scientific Assessment of the Opportunities and Risks. CSIR/IU/021MH/EXP/2016/003/A, ISBN 978-0-7988-5631-7. CSIR: Pretoria.  
<http://seasgd.csir.co.za/scientific-assessment-chapters/>





# Where to with assessments?

Some trends worth watching

- Assessment fatigue
  - Can we make the process less onerous, and a recognised part of a scientific career
- Assessment manipulation
  - Keeping the science-politics balance
- 'Multiple epistemologies'
  - The incorporation of non-science worldviews
  - Indigenous knowledge
  - Lay expertise
  - Faith-based and artistic 'ways of knowing'

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# 9 The role of the CSIR in all this

- Much of the above work was done at or with the CSIR
- There are various paths by which the CSIR adds value to South African society
  - Avoidance of environmental damages is one
- CSIR is well placed to lead integrative, impartial, science-policy interface studies

  
**Any questions?**

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