## Global, European and local aspects of assessments

Prof. Dr. Rik Leemans Environmental Systems Analysis



## What is an Assessment?

- ✓ An assessment is a critical evaluation of information, for purposes of guiding decisions on a complex, public issue
- ✓ The topic is defined by the stakeholders, who are typically decision-makers. Assessments are policy relevant, but not prescriptive.
- Assessments are conducted by a credible group of experts with a broad range of disciplinary and geographical experience, in a balanced and transparent way.
- ✓ Assessments reduce complexity but add value by summarisation, synthesis and sorting what is known and widely accepted from what is not known (or not agreed)
- ✓ Assessments relate to the situation at a particular time and in a given geographical domain. Often repeated after some period.



## Assessment Characteristics

- Involve all stakeholders in the the preparation and peer-review – ownership of the process and results is essential
- ✓ Conducted according to an open, transparent, representative and legitimate process
- ✓ Findings to be policy relevant, not policy prescriptive; use "if ...then" approach
- ✓ Technically accurate
- ✓ Incorporate different views
- ✓ Take a local, regional and global perspective
- ✓ Risk assessment, management and communication



## Assessment vs Review

	Review	Assessment
Audience	Scientists	Decision-makers
Done by	One or a few	Large and varied group
Topic	Simple and narrow	Broad and complex
I dentifies gaps in	Research: curiosity- driven	Knowledge for implementation: problem-driven
(Un)certainty statements	Not required	Essential
Judgement	Hidden	Required but clearly flagged
Coverage	Exhaustive, historical	Sufficient to deal with main range of uncertainty
Synthesis	Not required	Essential to reduce complexity

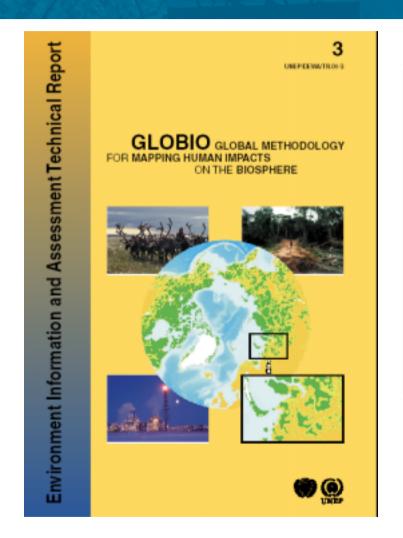


## An assessment is not...

- ✓ A research project
  - Most data should already be collected, peer-reviewed and in the public domain
  - Gap filling, research on assessment, new runs of old models and synthesis are permissible
- ✓ A review paper
  - o Focussed on policy
  - Judgement, clearly labelled as such, is required
- ✓ An advocacy piece
  - o Must be balanced and evidence-based
- ✓ Its not an opportunity to promote your pet topics or own work
- ✓ Its not a vehicle to develop a research agenda



## GLOBIO: mapping human impacts

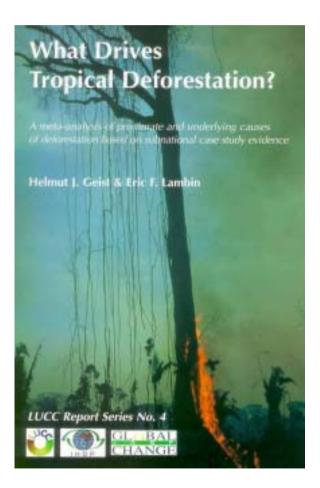






## Land Use Trajectories:

## Understanding Land Use Dynamics



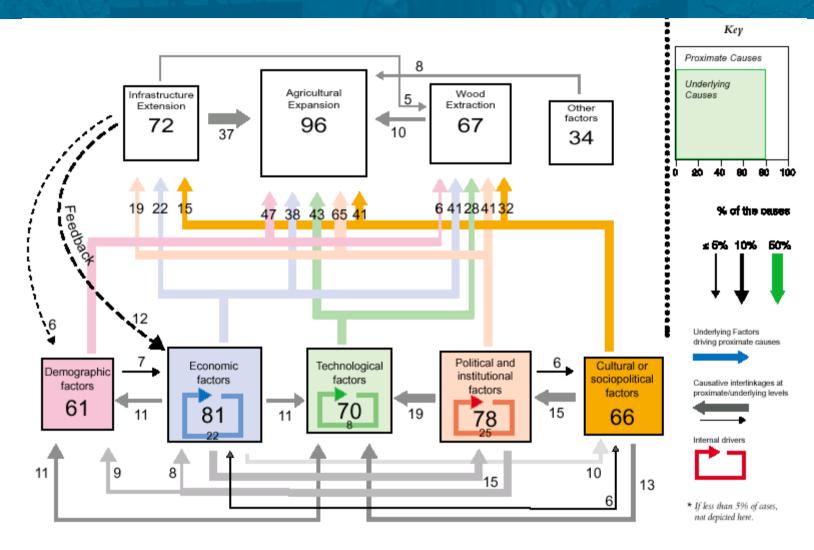
- Tropical Deforestation
- Desertification
- Agricultural Change
- Vulnerability





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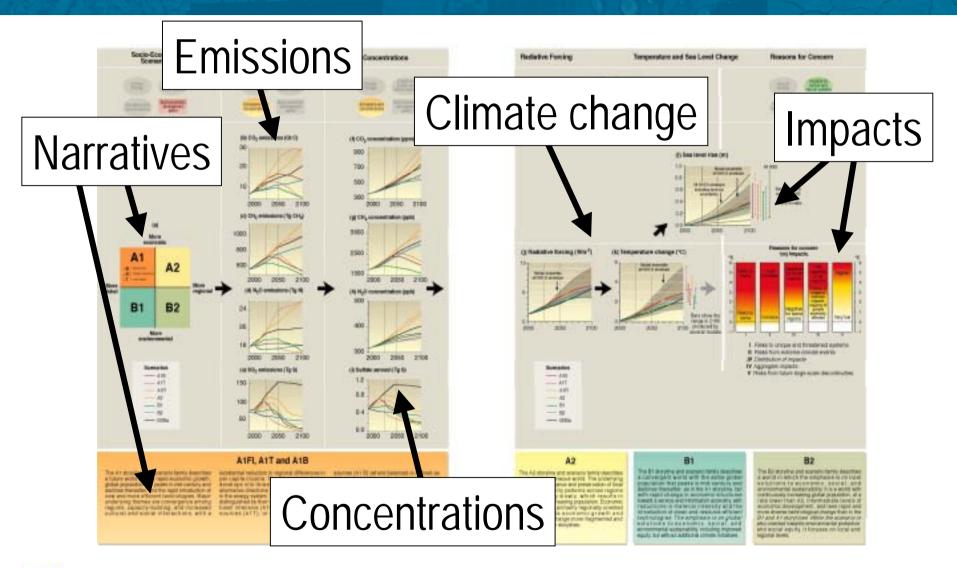
## What drives deforestation?



The causes of deforestation (Geist & Lambin, 2001)



### The final figure from IPCC's synthesis report





## How do we determine

## "What constitutes dangerous?"

- ✓ Dangerous is a value judgment and not appropriate for analysts to determine
- ✓ I PCC can give information on impacts that may be considered to be dangerous
- ✓ I PCC's synthesis organized along several "Reasons for concern" about what may be dangerous



# Understanding global environmental change

- **WHAT?**
- **WHERE?**
- **HOW** ?
- WHY?



#### Climate Change

- monitoring and prediction of regional climate and climate variability
- hydrological research
- sources and sinks of greenhouse gases
- land use and biodiversity
- socio-economic analysis of adaptation and mitigation strategies

#### **Global Change**

- interdependency of global processes in terms of biogeochemical and atmospheric processes
- analysis of potential synergies in policies addressing global change
- methods development and testing in integrated assessment

#### Sustainability Research

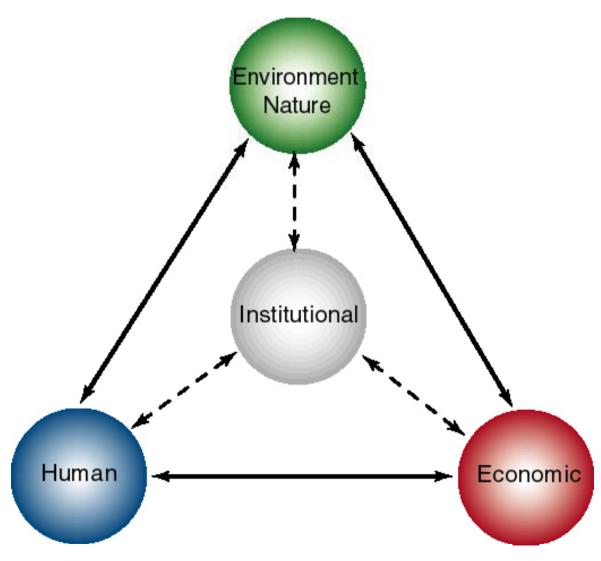
- analysis of socio-economic driving forces
- exploration of development trajectories with a significantly smaller impact on the environment (Industrial Transformation)
- development and testing of research methodologies/concepts in view of systems change and transition in the processes of production and consumption of energy, food and fibre

#### **Integration and Integrated Assessment Methods**

Understanding of complex mechanisms underlying climate change, global change and sustainability, the driving force, impact and response patterns regarding the relation between society and environment, integrated assessment modeling, indicators, scenarios, system transition and science policy.

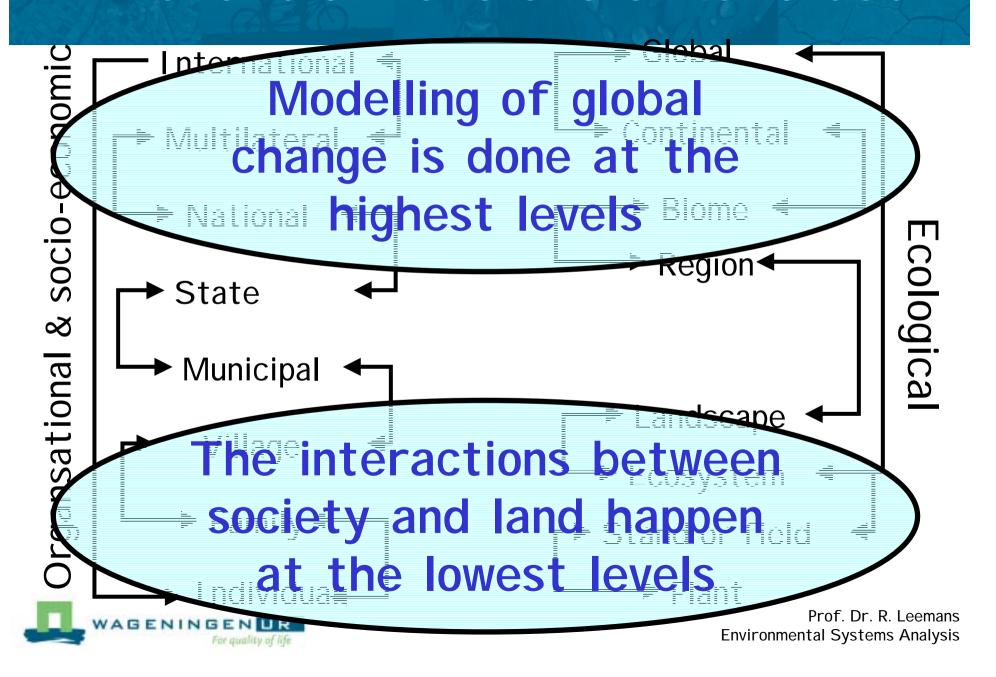


## The domains of development

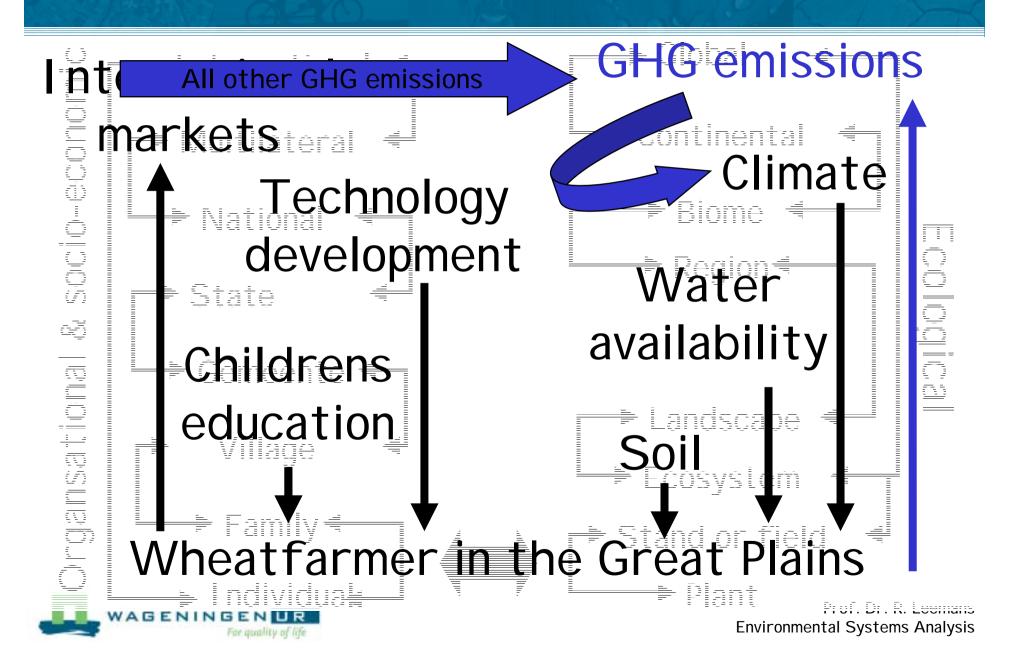




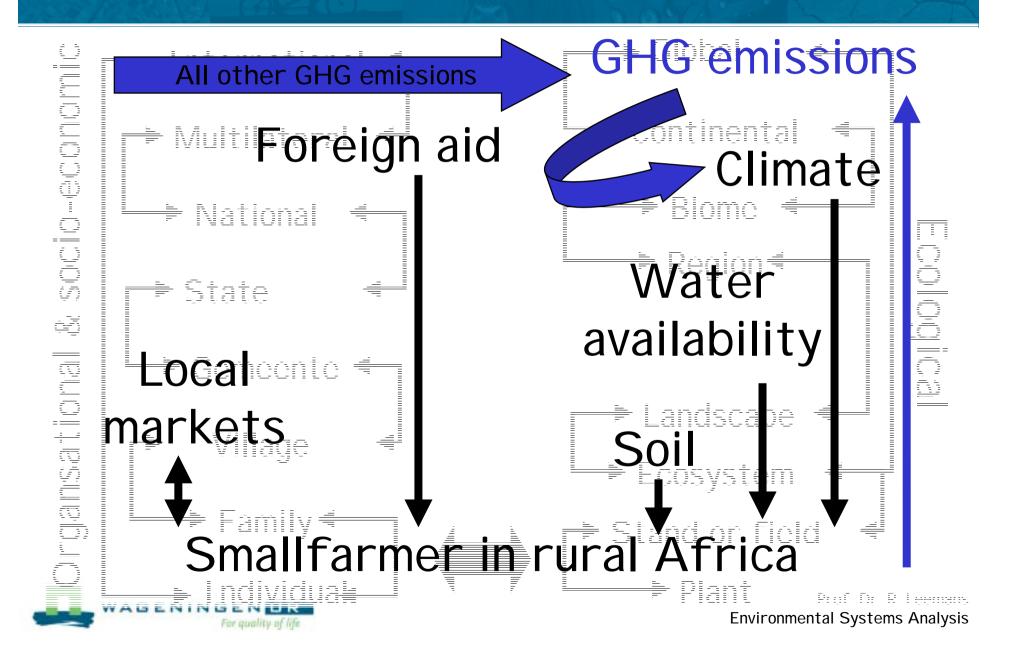
## Different dimensions of land use



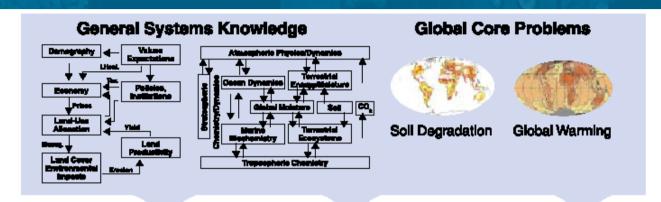
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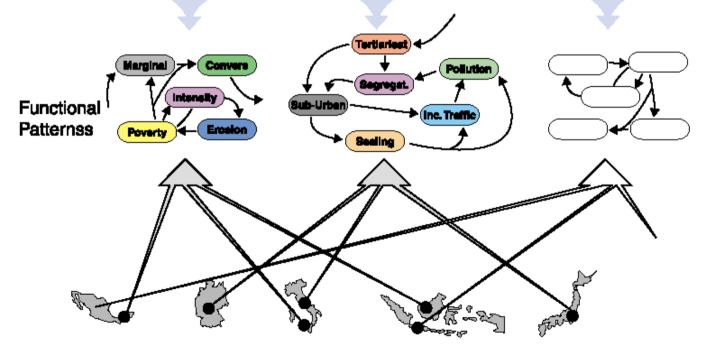


## Different dimensions of land use



## The syndrome approach







## Concluding remarks

#### ✓ Impacts & vulnerability assessments:

- Use both observed changes and simulated changes to realistically assess the whole possible range of change
- o Put the impact into context (link to other problems)
- Assess how people, sectors and society respond and adapt.
- ✓ Requirements for integrated policy assessments
  - Integrated assessment is more than a causal chain
  - Solutions should be linked to local, regional and international policy tools and targets (e.g. CBD ecosystem approach; a significant decline in the biodiversity reduction in 2010; Millennium Goals)



## Thanks for your attention

