

What is LUCC?

- A core project of the IGBP and IHDP
- Integrates the physical sciences and the social sciences
- Focus on land-use, land cover and integrative modeling
- A network of scientists
- Facilitate syntheses through workshops

LUCC Objectives:



- Understand global land-use and land cover
- Investigate temporal and geographical dynamics
- Link sustainability and land uses
- Understand interactions between land-use/cover, biogeochemistry, and climate

LUCC's Three Focus Areas



- FOCUS 1: Land Use Dynamics:
Comparative Case Studies
- FOCUS 2: Land Cover Dynamics:
Observations and Diagnostic Models
- FOCUS 3: Regional and Global Integrated Models



Focus 1

Land-Use Dynamics

*Case Studies to Analyse and Model the
Processes of Land-Use Change and Land
Management in a Range of Generalised
Situations Globally*

Activity 1: Understand How People Make Land-Use Decisions



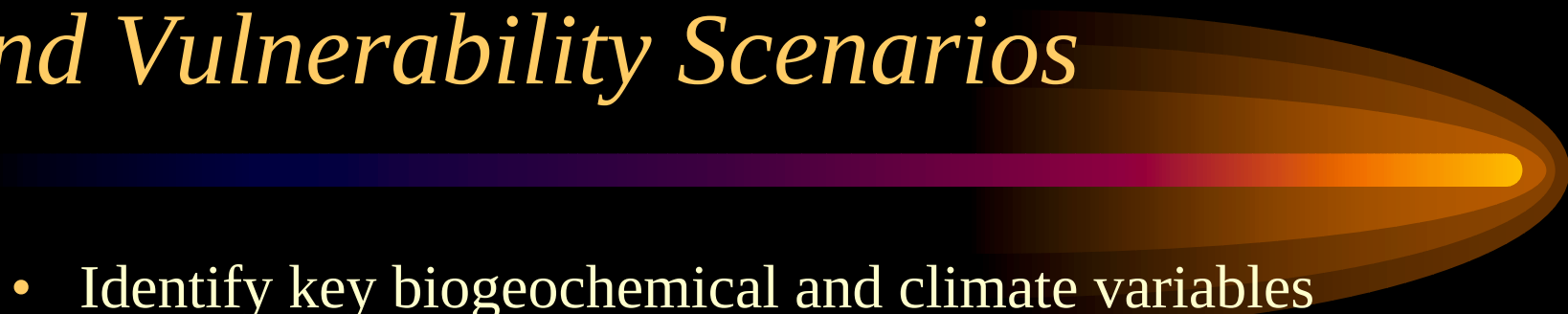
- Develop standardisation of methodologies and experimental protocols for effective evaluation of how people make decisions.
- Develop a strategic framework for achieving a globally distributed network of case studies.
- Identify gaps in knowledge and encourage new studies
- Comparative examination of cases.

Activity 2: From Process to Pattern: Linking Local Land-Use Decisions to Regional and Global Processes



- Develop linked activities to Focus 2 to achieve a meso-level integration of upscaling processes by Focus 1 and downscaling by Focus 2.
- Characterise agents and land users appropriate for regional modelling.
- Examine international agreements and national environmental policies, and how they have affected land use (or not) how, why , where, when, how long?)

Activity 3: The Future: Sustainability and Vulnerability Scenarios



- Identify key biogeochemical and climate variables associated with changes in land cover over long time periods (hundreds and thousands of years).
- The transition to sustainability: Simulation modelling of LUCC to identify sustainable future scenarios.
- Growing vulnerabilities, simulation models that identify key interactions associated with degradation and vulnerability.
- Validate and inter-calibrate global data sets.



Focus 2

Land-Cover Changes

*Direct Observations and Diagnostic
Models of Land-Use/Land-Cover Changes*

Activity 1: Land-Cover Change “Hot Spots” and Critical Regions



- Monitoring biophysical and socio-economic variables
- Definition of land-cover change indicators
- “Hot-spot” detection and alarm system

Activity 2: “Socialising the Pixel”



- Transition probability models
- Spatially-explicit models
- Linking patterns of land-cover to household-level data (link to Focus 1).

Activity 3: From Patterns to Processes



- Dynamic, causal models and short-range projections.
- Definition of risk zones and potential impacts.



Focus 3

Regional and Global Models

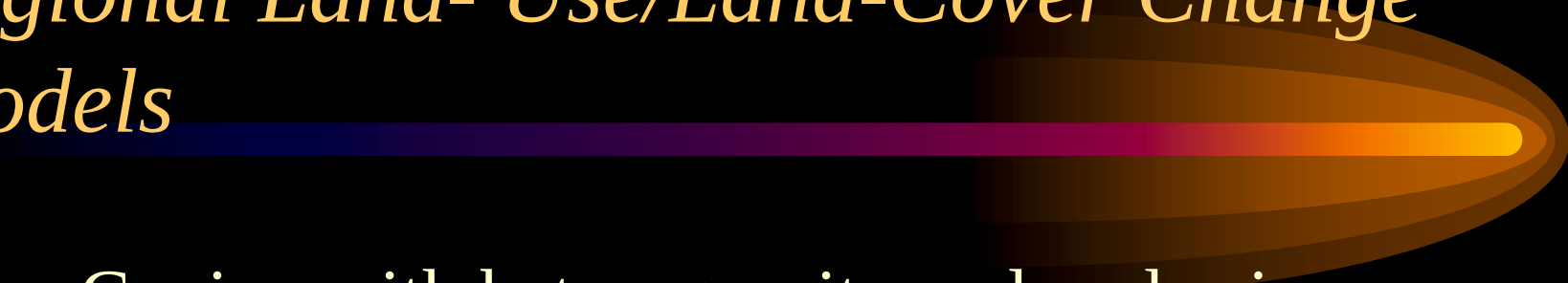
*Development of a Framework and Tools
for Integrative Assessments*

Activity 1: Review and Comparison of Past and Current Regional Modelling Studies



- Inventory and review of regional and global models used for projections of land use/cover.
- Review and report on state-of-the-art of regional modelling of land-use/land-cover changes.
- Model comparison workshops

Activity 2: “Big Issues” in Methodologies of Regional Land- Use/Land-Cover Change Models



- Coping with heterogeneity and scales in regional models.
- Improving the environment-economy linkage.
- Dealing with technological change.
- Policies and institutions - representing the regulatory context in regional models of land-use/land-cover change.

Activity 3: Land-Use/Land-Cover Change and the Dynamics of Interrelated Systems



- Rural-urban dynamics (“land-use synergies and tensions”).
- Water issues in regional land-use/land-cover change (“integrating land and water”).

Activity 4: Scenario Development and Assessments of Critical Environmental Themes



- Scenario development in the context of a growing world population.
- Land-use/land-cover change in global environmental assessments.

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