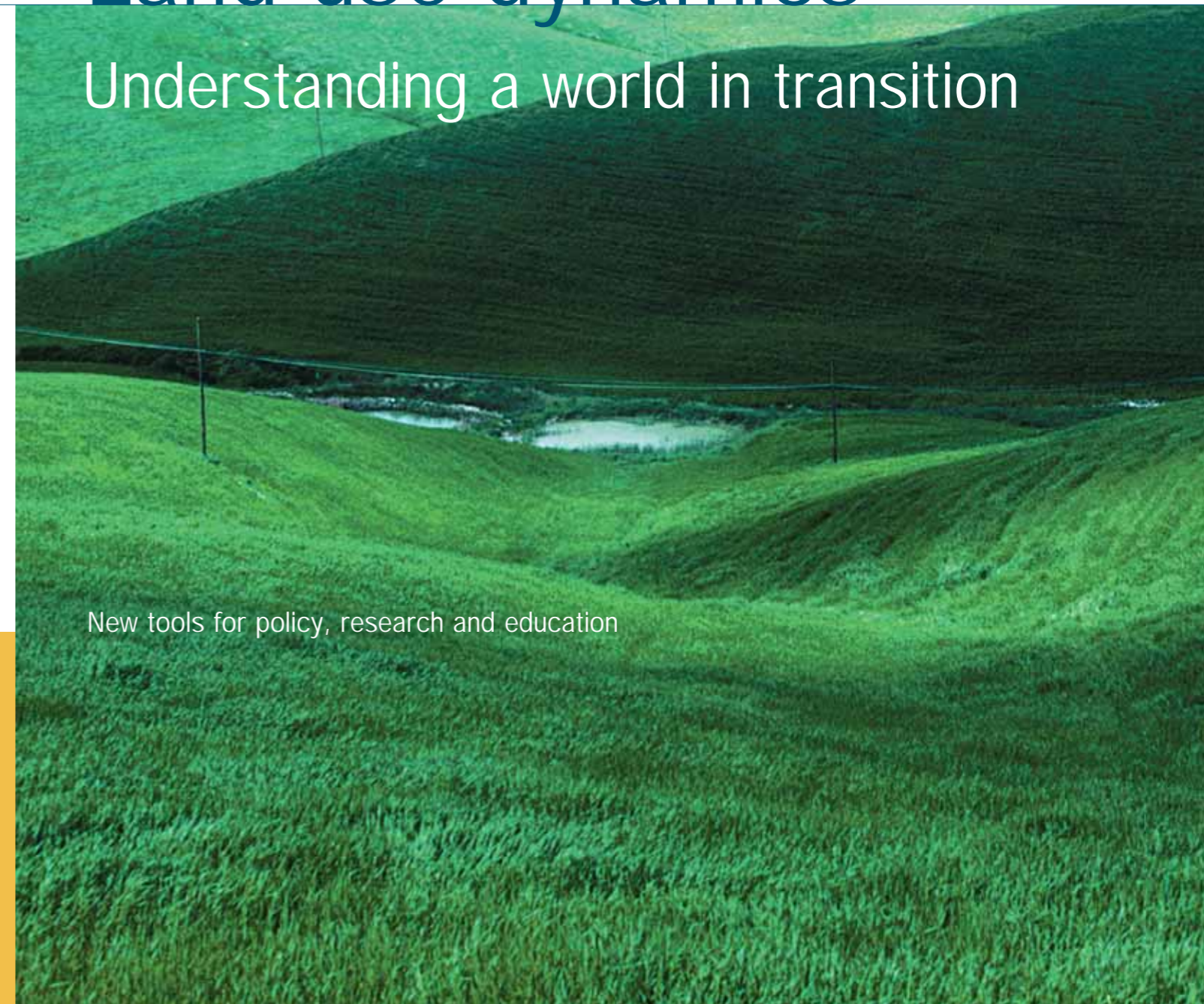


Land use dynamics

Understanding a world in transition



Contact details

Environmental Sciences Group
P.O. Box 47
6700 AA Wageningen, the Netherlands

Prof dr Tom Veldkamp, Soil Centre, t: +31 317 48 24 17, e: tom.veldkamp@wur.nl
Prof dr Arnold van der Valk, Landscape Centre, t: +31 317 48 36 96, e: arnold.vandervalk@wur.nl
Dirk M. Wascher MLA, Landscape Centre, t: +31 317 47 79 32, e: dirk.wascher@wur.nl
Dr Bas Pedroli, Landscape Centre, t: +31 317 47 78 33, e: bas.pedroli@wur.nl
www.dow.wur.nl/www.alterra.wur.nl

www.lucc.nl
www.landscape-europe.net
www.cluemodel.nl
www.tradeoffs.nl

New tools for policy, research and education

Land use changes the world

Land use reflects the dynamic processes between the Earth's bio-physical characteristics and human activities. While major parts of the global economy are getting increasingly independent from land-based resources, our global society becomes more knowledge, technology and information driven. Growing personal mobility and expanding transport networks provide new spatial opportunities for living, work, production and recreation. As a result, land use changes are occurring at much higher rates and in unprecedented dimensions. Land use types such as agriculture, forestry, mining, settlements, infrastructure, tourism and nature conservation are affected by international policy decisions, demographic phenomena and global environmental impacts such as climate change. Understanding the driving forces, dynamics and directions of land use changes and assessing its impact on regional sustainable development has therefore become a key challenge for scientists.

The Environmental Sciences Group (ESG) of Wageningen University and Research Centre offers the state-of-the-art know-how for analysing and modelling environmental, economic and social processes at different scales - from the global to the individual actors - that influence the dynamics of land use change. This way, the ESG is prepared to detect the role of driving forces as well as impact pathways that determine whether land use policies are sustainable or not. Therefore, the UN Kyoto Protocol on Climate Change (1998) and the EU policies on Environmental Impact Assessment Requirements (1986), Biodiversity (1992), Rural Development and the Common Agricultural Policy (2003) are key factors in the research and consultancy arena of the ESG.

Research and Consultancy within the ESG

The strength of our approach lies in interdisciplinarity, sustainability focus and the link with management options. Our research products include:

- State-of-the-art know-how and analysis techniques of driving forces for land use change
- Decision Support Systems (DSS)
- Trade off modelling techniques/tools
- Scenario based simulations
- Visualisations of future land use change trajectories
- Impacts of land use
- Readily applicable land use planning tools

Our research capacity for consultancy covers applied research areas such as land use typology and assessment, land use management strategies, landscape monitoring and sustainability impact assessment. We have specific expertise in landscape ecology, agrosystems modelling, GIS, remote sensing and climate change. Moreover, we concentrate on regional identity issues and provide solutions such as the restoration and development of characteristic regional land use systems and landscapes.

Education

The ESG offers Bachelor, Master and PhD courses on many different aspects of land use. Within the MSc 'Soil Science' and 'Earth System Science' Land use modelling courses include multi-functional land use and modelling land use change within a global change context. Other MSc courses include Land evaluation techniques for sustainable land use and Applied GIS courses. Occasionally, post-graduate courses on GIS applications and land use analysis are organised. Specific courses are organised together with the Graduate School Production Ecology and Resource Conservation.

Knowledge, technologies and facilities

We invest in the development of new knowledge, technologies and facilities to anticipate scientific and market demands. To conduct our work optimally we have excellent research facilities at our disposal, such as Geographical Information Systems, remote sensing analysis tools and most recent software domains for designing and running spatially explicit land use change models such as CLUE and the trade-off model. The management and maintenance of large ready-to-use databases and information systems on European and global land use at various levels of detail, form the basis for high professional standards and a client-oriented service philosophy.

Co-operation means a broader vision

Land use issues require an international approach. Therefore, the ESG closely co-operates with research and educational institutes within and outside Europe. We lead and play a key role in a large number of EU-projects such as sustainability impact assessment (SENSOR), biodiversity assessment (ALTERNET), agricultural research (SEAMLESS) and landscape monitoring (ELCAI). The European network commitment includes LANDSCAPE EUROPE (network of expertise on landscape), Connect (European institutes on nature conservation) and PEER (network of Europe's largest institutes on environmental research). On a global level the ESG is the driving force behind LUCC (Land Use/Cover Change programme of the IGBP and IHDP) and contributor to Scope (programme on soil and sediment biodiversity and ecosystem functioning). As part of the EU-Ruralis consortium, the ESG developed a new generation of future scenarios for European land use changes at a resolution of 1 km².

The Environmental Sciences Group (ESG) consists of the Environmental Sciences Department of Wageningen University and the research institute Alterra. Within the ESG forces are combined for fundamental and applied research, as well as university education concerning the quality of our living environment. We play a key role in the debate on many issues related to land use and we engage in policy making and management on a local, national and international level. As part of Wageningen University and Research Centre (Wageningen UR) the ESG has access to a wide range of expertise in the fields of healthy food, sustainable agrosystems, a viable environment and processes of social changes.

