

THEORY AND MODELS FOR AN INTEGRATED EVALUATION OF LAND USE

- Theorie und Modelle für eine integrierte Bewertung der Landnutzung -

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Course description

The evaluation of land use decision making and land use framework conditions is increasingly based on the application of quantitative methods and decision support tools. This course is aimed to present (a) the relevant theory, methods, and tools and (b) to teach their computer-aided application. The main focus is on the (A) MODAM-family of Multi-Objective Decisions support tools for Agro-ecosystem Management and B) on Sustainability Impact Assessment tools for an *integrated evaluation of land use*. The practical application of these Decision Support Systems is based on existing case studies and cases designed by the participants of the course.

Course outline

1. Introduction
2. Simulating farm management decisions with MODAM
3. Simulating trade offs between economic and environmental goals with MODAM
4. Micro-economic instruments for impact assessment - the MEA-SCOPE Approach
5. Sustainability Impact Assessment at a regional scale
6. Sustainability Impact Assessment tools - the SENSOR-SIAT-tool
7. Case studies with the SENSOR-SIAT-tool

Teaching methods

Lectures 35 %, exercises 10 %, group work 25 %, homework 30 %

Grading

Final exam 70 %, participation 30 %

Credit points

3

Requirements

- linear programming, microeconomics; environmental economics (graduate level)

References

- AHLHEIM, M., FRÖR, O. (2003): Valuing the non-market production of agriculture, in: Agrarwirtschaft (52), Heft 8, S. 356 - 369.
- BEINAT, E., NIJKAMP, P. (eds.) (1998): Multicriteria Analysis for Land-Use Management. Dordrecht, Kluwer. Department for Transport, Local Government and the Regions (DTLR) (2001): Multi-criteria analysis: A manual.
<http://www.dtlr.gov.uk/about/multicriteria/index.htm>.
- European Commission (Ed.) (2009): Sustainable Development Indicators – Overview of relevant FP-funded research and identification of further needs.
- GARROD, G., WILLIS, K.G. (2000): Economic Valuation of the Environment (2000): Methods and Case Studies, Cheltenham Glos, UK.
- HECKELEI, T., WITZKE, H.P., HENRICHSMEYER, W. (Eds.): Agricultural Sector Modelling and Policy Information Systems. Proceedings of the 65th EAAE Seminar, March 29-31, 2000 at Bonn University, Vauk Verlag Kiel, pp. 282-291.
- Helming, K., Pérez-Soba, M., Tabbush, P. (Eds.) (2008): Sustainability Impact Assessment of Land Use Changes, Springer-Verlag, Berlin, Heidelberg.
- Impact Assessment in the Commission - Key documents:
http://www.europa.eu.int/comm/secretariat_general/impact/docs/imp_ass_how_to_en.pdf
http://ec.europa.eu/governance/impact/index_en.htm
- LOUVIERE, J.J., HENSHER, D.A., SWAIT, J.D. (2000): Stated Choice Methods - Analysis and Applications. University Press, Cambridge.
<http://www.mea-scope.org/>
- OECD (2001): Multifunctionality: towards an analytical framework. Paris, OECDpublications.
- Piorr, A., Mueller, K. (Eds.) (2009): Rural Landscapes and Agricultural Policies in Europe, Springer-Verlag, Berlin, Heidelberg.
<http://www.sensor-ip.org/>
- ZANDER, P. (2003): Agricultural land use and conservation options: a modelling approach: Wageningen University.

Software

Microsoft Access, Microsoft Excel

Language of instruction

English or German