

MZ340P883 – Land Use, Landscape and Society
(3 credits – Zk/exam)

Annotation

The course deals with historical and current changes of land use, landscape and land cover, with their causes, socio-economic driving forces and consequences, and with their research. The topic is covered in ca 10 lectures.

The lectures are focused on: (a) historical and modern theories and approaches to land use research throughout the World; (b) data sources and methods of land use research (LUCC Czechia Database, CORINE database, old maps etc.); (c) description and explanation of main land use changes and their socio-economic driving forces on various spatial levels, with a focus on Czechia; and (d) the relationship between land use changes research and several other phenomena and concepts, including socio-economic metabolism, greenways planning, and modelling and simulation approaches.

At the beginning of the course the students are given ten articles as a compulsory literature to read and then to discuss during the corresponding lectures. Furthermore, each student is asked to write an essay on a selected topic, based primarily on several up-to-date scientific articles. The essays shall be presented and discussed during the two final lectures. Finally, each student has to pass an oral exam at the end of the course that will cover the compulsory literature. The final grade a student obtains reflects both the essay and the oral exam.

Literature

Compulsory literature:

BIČÍK, I., JELEČEK, L., ŠTĚPÁNEK, V. (2001): Land-Use Changes and their Social Driving Forces in Czechia in the 19th and 20th Centuries. *Land Use Policy* 18, 1, pp. 65-73.

BÜRG, M., HERSPERGER, A.M., SCHNEEBERGER, N. (2004): Driving forces of landscape change - current and new directions. *Landscape Ecology* 19, 8, pp. 857-868.

FERANEC, J., HAZEU, G., CHRISTENSEN, S., JAFFRAIN, G. (2007): Corine land cover change detection in Europe (case studies of the Netherlands and Slovakia). *Land Use Policy* 24, 1, pp. 234-247.

FUCHS, R. et al. (2015): The potential of old maps and encyclopaedias for reconstructing historic European land cover/use change. *Applied Geography* 59, pp. 43-55.

KRAUSMANN, F. et al. (2003): Land-use change and socio-economic metabolism in Austria - Part I.: driving forces of land-use change 1950-1995. *Land Use Policy* 20, 1, pp. 1-20.

LAMBIN, E.F., GEIST, H. (2007): Causes of land-use and land-cover change. In: *Encyclopaedia of Earth*, www.eoearth.org.

MAGLIOCCA, N. R. et al. (2015): From meta-studies to modeling: Using synthesis knowledge to build broadly applicable process-based land change models. *Environmental Modelling & Software* 72, pp. 10-20.

MATHER, A.S. (2002): The reversal of land-use trends: the beginning of the reforestation of Europe. In: Bičík, I. et al. (eds): *Land Use/Land Cover Changes in the Period of Globalization*. Faculty of Science, Charles University in Prague, pp. 23-30.

MUNTEANU, C. et al. (2014): Forest and agricultural land change in the Carpathian region-A meta-analysis of long-term patterns and drivers of change. *Land Use Policy* 38, pp. 685-697.

RIBEIRO, L., BARAO, T. (2006): Greenways for recreation and maintenance of landscape quality: five case studies in Portugal. *Landscape and Urban Planning* 76, 1, pp. 79-97.

Further reading:

ASPINALL, R.J., HILL, M.J. (eds., 2008): Land Use Change. Science, Policy and Management. Boca Raton, USA, 185 p.

BIČÍK, I. et al. (2015): Land Use Changes in the Czech Republic 1845–2010. Socio-Economic Driving Forces. Springer Geography, 215 p.

FISCHER-KOWALSKI, M., HABERL, H. (eds., 2007): Socioecological Transitions and Global Change. Trajectories of Social Metabolism and Land Use. Edward Elgar Publishing, UK and USA, 288 p.

GEIST, H. (ed., 2006): Our Earth's Changing Land: An Encyclopedia of Land-Use and Land-Cover Change. Greenwood Press, USA, 716 p.

LAMBIN, E.F., GEIST, H. (eds, 2006): Land-Use and Land-Cover Change. Local Processes and Global Impacts. Springer, USA, 222 p.

Students' duties

- a. Do not miss more than two lectures
- b. Read the compulsory literature in advance, be active during the lectures and participate in the discussions
- c. Write an essay (ca 3 pages long) and present it (ca 8 minutes)
- d. Pass an oral exam covering the compulsory literature

Syllabus

1. Introduction into the course, objectives and contents of the course, compulsory literature, syllabus and timetable, students' duties.
2. Introduction into land use and land cover change research; basic concepts and definitions; theory of land use research.
3. Approaches to land use research throughout the World; history and current state of global land use research.
4. GIS and remote sensing methods in land use research, data collection and classifications, spatial data sources of land use research.
5. Quantitative data and methods in land use research; Database of long-term land use changes in Czechia (1845-2010).
6. Representation of landscape on old maps; old maps as a source for the study of land use change.
7. Historic land use changes in Czechia (until 1845).
8. Modern-times and current land use changes in Czechia (1845-2015) - description, explanation, main "driving forces".
9. Socio-economic metabolism and its role in land use changes research.
10. Modelling and simulation approaches in land use changes research.
11. Greenways planning as an example of application of land use research.
12. Presentations of essays, final discussion.