ANALYSING RECENT LAND USE CHANGE WITH RESPECT TO ECOSYSTEM SERVICES PROVISION IN MOUNTAIN AREAS

Ž. Malek[1], A. Patt[1],D. Schröter[1]
[1]*International Institute for Applied Systems Analysis, Laxenburg, Austria*

Mountain ecosystems provide diverse ecosystem services to downstream communities. This spatial decoupling of provisioning and benefit is a well-recognized challenge to sustainable management of mountain areas. Land use changes upstream can have profound effects on services provided to downstream communities. To gain better understanding of these dynamics between land use changes and the provision of ecosystem services, we have chosen to focus on two mountain case study areas in two European biodiversity hotspots: the Alps (North-Eastern Italy) and the Carpathians (South-East Romania).

Our first step is the identification of most important ecosystem services that link upstream and downstream areas, as well as an understanding of the current land use pattern in the case study areas. Examples of ecosystem services that support and enhance lives at the case study areas are regulation of hydro-meteorological hazards through a healthy vegetation cover, timber supply, biodiversity provision, and an aesthetic landscape image as a result of complex physical-geographic features and land cultivation.

Whereas a homogenous forest cover covering over 70 % of surface characterizes the land use pattern in Italy, in Romania the forests cover around 40 % of the much more fragmented land use pattern. The Italian site witnessed land abandonment and reforestation in the last decades, the Romanian however experienced rapid socio-economic and structural changes with respect to land use distribution and ownership, which lead to deforestation and fragmentation.

Correlating recent changes to regional socio-economic and natural variables will enable us to choose plausible scenarios, also taking global variables into account. Generating future environmental conditions by land use change modeling will follow. Finally, we plan to identify the opportunities for optimal management of ecosystem services in mountain areas, through analyzing the consequences of land use. This work is part of the CHANGES project (Grant Agreement No. 263953, European Community 7th Framework Programme).