

## **Land use/ cover changes in European mountain areas: global driving forces and local destinies**

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Life conditions in mountain areas are defined by remoteness and physical processes related to gravity, such as landslides, avalanches and rockfall, and other extreme hydro-meteorological events like flash floods. The consequences of these events may be exacerbated even by minor land use/cover changes, such as housing on areas with high risk, or clear cutting a forest on slopes. In order to develop an advanced understanding on how global driving forces resulted in local land use/cover changes in European mountain areas, we focus on two particular case study areas: The Val Canale valley in the Eastern Italian Alps and the Buzau (Sub)Carpathians in Southeastern Romania.

Using applied remote sensing techniques, we analysed land use/cover changes in the last decades and described them in quantitative terms. As it is difficult to correlate these changes to global driving forces (e.g. GDP, political changes in Europe, policy changes), we explored causal relationships between different driving forces by interviewing a variety of different local and regional stakeholders. Afterwards we established links between the driving forces, and described the dynamics of land use/cover changes, instead of focusing only on individual variables.

Being a border area, the Italian area was a commercially very active area, until the changes in neighboring Yugoslavia and the later introduction of the Schengen regime. This has caused an abandonment of large army and custom zones, and consequently the fall of commercial, industrial and mining activities. What is more, nearly 15 % of the population left in the last 20 years, and altogether this lead to an abandonment of large parts of the area. European and national traffic and energy policies since the 1980s resulted in intensive infrastructural development. Expansion of residential and touristic areas, due to the rapid urbanisation rate, touristic development and real-estate speculation, occurred also on areas with high risk and resulted in catastrophic consequences of recent debris flow and flash flood events. The Romanian area also witnessed profound changes after the political changes: among others a breakdown of wood processing and mineral-extraction industries. Large unemployment rates lead to emigration of the vital population, leaving the elderly and the children behind. The land ownership reforms resulted in numerous small owners, and together with the poor socio-economic conditions, this lead to the emergence of subsistence farming and illegal logging. This has intensified activities on slopes in an area, where over 40% of the land is subject to landslides.

Urbanisation of the population, political changes in Europe, and decisions made at the national level, seemed to be the most important driving force. In relative terms, the prevailing process of land use/cover change in both areas is reforestation. Smaller scale phenomena however, proved to be most significant in terms of consequences. Therefore we think it is necessary to explore the changes of most importance on a local scale, as focusing only on relatively largest land use/cover changes in mountains could result in ignoring the actual issues.

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