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2. Mapping, visualisation and data access tools of ecosystem services (TWG 4,5)

Landscape mosaics maps as a basis for spatial assessment and negotiation of ecosystem services and their trade-offs at the meso-scale: Examples from Laos, Madagascar and China

Type: Presentation
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Mapping ecosystem services (ES) and their trade-offs is a key requirement for informed decision making for land use planning and management of natural resources that aim to move towards increasing the sustainability of landscapes. The negotiations of the purposes of landscapes and the services they should provide are difficult as there is an increasing number of stakeholders active at different levels with a variety of interests present on one particular landscape.Traditionally, land cover data is at the basis for mapping and spatial monitoring of ecosystem services. In light of complex landscapes it is however questionable whether land cover per se and as a spatial base unit is suitable for monitoring and management at the meso-scale. Often the characteristics of a landscape are defined by prevalence, composition and specific spatial and temporal patterns of different land cover types. The spatial delineation of shifting cultivation agriculture represents a prominent example of a land use system with its different land use intensities that requires alternative methodologies that go beyond the common remote sensing approaches of pixel-based land cover analysis due to the spatial and temporal dynamics of rotating cultivated and fallow fields.Against this background we advocate that adopting a landscape perspective to spatial planning and decision making offers new space for negotiation and collaboration, taking into account the needs of local resource users, and of the global community. For this purpose we introduce landscape mosaicsdefined as new spatial unit describing generalized land use types. Landscape mosaics have allowed us to chart different land use systems and land use intensities and permitted us to delineate changes in these land use systems based on changes of external claims on these landscapes. The underlying idea behindthe landscape mosaics is to use land cover data typically derived from remote sensing data and to analyse and classify spatial patterns of this land cover data using a moving window approach. We developed the landscape mosaics approach in tropical, forest dominated landscapesparticularly shifting cultivation areas and present examples ofour work from northern Laos, eastern Madagascarand Yunnan Province in China.