



Global Land Project 2nd Open Science Meeting

Land Transformations: between global challenges and local realities

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productive hybrid ways” to improve understanding of human-environment interactions and potentially enhance the outcomes of development interventions. With this presentation, we attempt to engage critically with these observations and propositions by reflecting on forest transitions in Asia and, in particular, Vietnam and China. We discuss some of the key domains of convergence and divergence between political ecology and land-change science with regard to the advancement of forest transition theory, the socio-political and ecological impacts of forest transitions, and the conceptual and practical propositions put forward by researchers to address land-use displacement (leakages) issues. From there, we introduce the case of Laos. We show how deforestation leakages from China and Vietnam to Laos are magnified by new political-economic arrangements and changing scales of land and forest governance. On this basis, we argue that actor-networks may constitute important nexuses for synergy between political ecology and land-change science, provide critical insights into the complex arrangements of actors and scales involved in deforestation-reforestation dynamics, and allow for a better targeting of proposed interventions.

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Moisture recycling in the Amazon basin and impacts of deforestation

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In the Amazon region, high evapotranspiration rates serving as a source of moisture for local rainfall and downwind precipitation form an important feedback between vegetation and climate. Deforestation of Amazonian rainforests may reduce atmospheric moisture locally by lower evapotranspiration rates from cleared areas leading to a drier regional climate. Increasing dryness in turn decreases forest cover which may in the end cause a transition from forest to savanna (“Amazon rainforest dieback”) through a self-amplifying process. We determine here the key regions in which deforestation may induce cascading effects on vegetation based on the analysis of remote sensing, reanalysis and radar data (MODIS, ERA-Interim, TRMM). The grid-based Water Accounting Model (WAM) determines the fate of the evaporated water for each grid cell in the Amazon region. Thus, all relative sources of moisture that contribute to rainfall can be attributed to a particular location. Using complex network analysis, we identify central regions for major cascade moisture recycling in South America under current conditions. Based on the relative frequency distribution of distinct vegetation states (treeless, savanna and forest) in different precipitation regimes, we determine the probability of vegetation transition with increasing dryness. We estimate changes in evapotranspiration rates that would follow vegetation transitions for particular climatic conditions. Combining these analyses, we are able to model cascading effects of deforestation scenarios in the Amazon on moisture recycling and forest resilience.

0740

Price formation in agricultural land markets: review and empirical evidence from the New Federal States in Germany

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In Germany land prices increased in 2011 by 14 %. In view of that, discussion continues about whether land is still affordable for active farmers; this is particularly relevant for East Germany, where tenants often need to buy their land to prevent losing it within the privatisation process. Given this relation, farmland values have an impact on the solvency of farmers and their access to capital, which in turn directly affects the structural development such as the dynamics of growth but also the exits. The hedonic pricing literature implicitly assumes that land prices are formed on a competitive market where