

Tropical Land Use and Land Cover Change as Affected by Rural Immigration: A Case Study from Indonesia

Joerg A. Priess (corresponding author)
Center for Environmental Systems Research
University of Kassel
Kassel, Germany
e-mail: priess@usf.uni-kassel.de

Robert Weber
Department of Cultural and Social Geography
University of Goettingen
Goettingen, Germany

Heiko Faust
Department of Cultural and Social Geography
University of Goettingen
Goettingen, Germany

Matthias Mimler
Center for Environmental Systems Research
University of Kassel
Kassel, Germany

Thematic areas of the conference: C, D, J, K; author's preference C

Land use and land cover change, especially in tropical regions, have received much attention in recent years, often in the context of climate change studies. The processes of deforestation and expansion of agricultural land are very obvious forms of land cover and land use change, often observable by remote sensing. Simultaneously, less obvious, but very important processes of change occur. In forests timber and other products may be extracted, or the understorey is removed to install agroforestry systems, in any case changes mostly undetectable by satellites. In addition, agricultural land use may be undergoing intensification, in terms of increasing use of agrochemicals, improved seeds, irrigation and mechanization. In tropical regions, for example parts of Amazonia and Indonesia, agricultural expansion and intensification occur simultaneously as part of a general trend from subsistence towards a more market-oriented production. Land-use change is mostly driven by various underlying causes such as national and regional policies, economic conditions, demographic trends, but also including proximate factors such as local access-to-land policies, the presence of roads and climate and soil conditions. In combination with other driving forces such as availability of land and/or economic incentives, migration can act as a significant driver of land use change. In this paper we discuss the question how land use change processes in a tropical forest margin region are driven or influenced by regional and local policies, economic incentives and especially demographic changes. In addition to empirical results, we present simulation results of historical land use change and a 'No Immigration' scenario to assess the potential impact of immigrants on land use and land cover change and the regional environmental and economic gains and losses.

Most spontaneous migrants move between different periphery islands like Sulawesi. The destinations of spontaneous migration in Indonesia are mainly forest frontier zones, low-populated areas with abundant arable land. The number of immigrants to these regions is largely linked to the improvement of infrastructure, which was part of the 'national improvement program for remote regions' of the Outer Islands since the late 1970s. The population of Central Sulawesi increased by only 14% between 1930 and 1970 but by more than 41% during the period 1970-1980 with ongoing immigration until to date. Information networks within the ethnic groups between pioneer migrants and their families, which were still living at the places of origin, facilitated the succeeding chain migration to the forest frontier zones of Central and Southeast Sulawesi. Immigrants and adapting locals cleared unprotected forests, but also protected forests of the National Park, which was established in the mid-1990ies. However, not only forest land, but also existing agricultural fields were converted to more profitable cocoa agroforestry plots. Thus, the innovation of cocoa growing, which was brought to the region by immigrants on one hand boosted the local economy, but also contributed and still contributes to increased forest conversion rates. The ongoing process of intensification might reduce the pressure on forests, if simultaneously access to land is more strictly regulated than in the recent past.