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## The Sustainability of Systemic Land-use Innovations in Tropical China

PATRICK ARTUR GRÖTZ, THOMAS AENIS

*Humboldt-Universität zu Berlin, Department of Agricultural Economics and Social Sciences, Germany*

### Abstract

In Xishuangbanna, Southwest China, rapid economic growth is coupled with a rigorous drop in biodiversity and loss of tropical rain forest. This is particular the case in the Nabanhe National Nature Reserve (NNNR), where the authors conduct their research within the joint project LILAC- Living Landscapes China.

The capacity lies in potential innovations, which ameliorate the existing monoculture systems and help to strike a balance between economic development and environmental protection.

The presentation will show the ‘critical triangle’ relationship between economic growths, sustainable land-use systems and poverty reduction in two villages in the NNNR. One village has already experienced a complete change of its land-use system through the introduction of a systemic innovation, mainly consisting of the components rubber, hybrid paddy rice and a higher level of mechanisation. The second village is still experiencing the successive introduction of a number of autonomous innovations such as various types of tea-intercropping systems.

The study has clearly demonstrated that the rubber-dominated systemic innovation has hardly left any space for options that go in other, more sustainable directions. The latter is a better choice with regard to sustainable land-use as it can be gradually and more gently adjusted to the existing natural conditions.

For farmers within the rubber production zone, possible innovations must be identified to help improve the existing monoculture and ways must be found to create a balance between economic growth and a more environmentally friendly production system. For farmers operating above an agro-ecologic ‘rubber limitation line’, more autonomous innovations are to be found, which aim to make their land-use systems and their sources of income more sustainable. Furthermore, it must be elaborated on how they also can directly or indirectly benefit from the booming rubber business.

**Keywords:** Biodiversity, China, critical triangle, economic growth, land-use changes, rubber, sustainability, systemic innovations, Xishuangbanna