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## Climate Change, Landscape Dynamics, Land Use and Natural Resources in the Atlantic Forest of Rio de Janeiro

HARTMUT GAESE, JUAN CARLOS TORRICO, SABINE SCHLÜTER

*Cologne University of Applied Sciences, Institute for Technology and Resource Management in the Tropics and Subtropics, Germany*

### Abstract

This research project addressed the objectives to develop an assessment framework for understanding the causes and processes of landscape change, taking into account relevant aspects of global change, in particular future climate conditions. The second objective is to assess the ecological and socio-ecologically viable concepts to establish forest connectivity in dynamic rural landscapes in the Atlantic Forest of Rio de Janeiro. Assessment of economic and ecological impacts of land-use and land-use change to define appropriate land-use systems related to landscape context and environmental changes, and finally, to design planning tools for decision making for natural and agricultural resources management and conservation under multiple objectives. The main outputs of the project are the understanding of natural and socio-economic systems behaviour in short-term and long-term, focusing on the interactions between water quality and availability, agricultural production and environmental resilience. Understanding causes and processes of landscape change, and the effects of the climate change on the natural and agricultural systems. The second output is an ecological and socio-ecologically viable concepts to establish forest connectivity in dynamic rural landscapes in the Atlantic Forest of Rio de Janeiro. Economic and ecological evaluation of land-use systems (agriculture, economic forestry and husbandry) within their specific landscape context and adaptation of those systems to the local environment. Comparative assessment of primary forest and secondary forests to classify the forest systems, and finally, define information requirements of implementing institutions in regional planning and conservation in relation to climate change and landscape dynamics. Design tools for the elaboration of sustainable development strategies for the Mata Atlântica region taking into account relevant aspects of global change on private level (farm level) and on public level (natural park administration, and municipality administration).

**Keywords:** Atlantic forest, climate change, land use, landscape dynamics