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“Development on the margin”

The Effectiveness of Global Carbon Mitigation Mechanisms, a Top-down Analysis. Reflexions from the Mata Atlantic Forest

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Abstract

Global climate change and population growth poses important challenges to the world in the near future, especially issues related to food security and the supply of ecosystem services. The framework for carbon sequestration projects under the framework of Land Use, Land Use Change and Forestry (LULUCF) of the Clean Development Mechanism (CDM) could represent a valuable opportunity to protect severely endangered ecosystems like the Atlantic Forest and at the same time enhance the living conditions of the inhabitants of the surrounding areas. The present study is the result of an analysis of the feasibility of carbon mitigation projects in the municipality of Cachoeiras de Macacu, Rio de Janeiro State, Brazil. Using land cover maps and a stakeholder analysis this approach tries to identify the main barriers that are limiting the implementation of carbon sequestration projects in the region.

Difficulties to measure the available areas, the costs, the lack of local communities' engagement and finally the absence of stakeholders' participation are main concerns. Additionally, the specificity of the existing methodologies (that limits their replication) and demonstration of additionality represent important barriers. In Cachoeiras de Macacu, 27 % (264 km²) of the municipality are potential lands for LULUCF projects. Lands are highly parceled and mainly represent pastures (194 km²) or agricultural lands (36,47 km²). Historically deforested areas (like Cachoeiras de Macacu) have relatively high suitable areas for LULUCF initiatives, but also significant demand for lands for settlements and food production. Nevertheless, the existing institutional infrastructure and the megacities in the vicinity of the area make a future appliance of Payment of Environmental Services in the region possible. There is a need to develop a more holistic and integrative approach that incorporates carbon mitigation alternatives to other ecosystem services.

Keywords: Brazil, Cachoeiras de Macacu, Mata Atlântica, payment for ecosystem services