

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

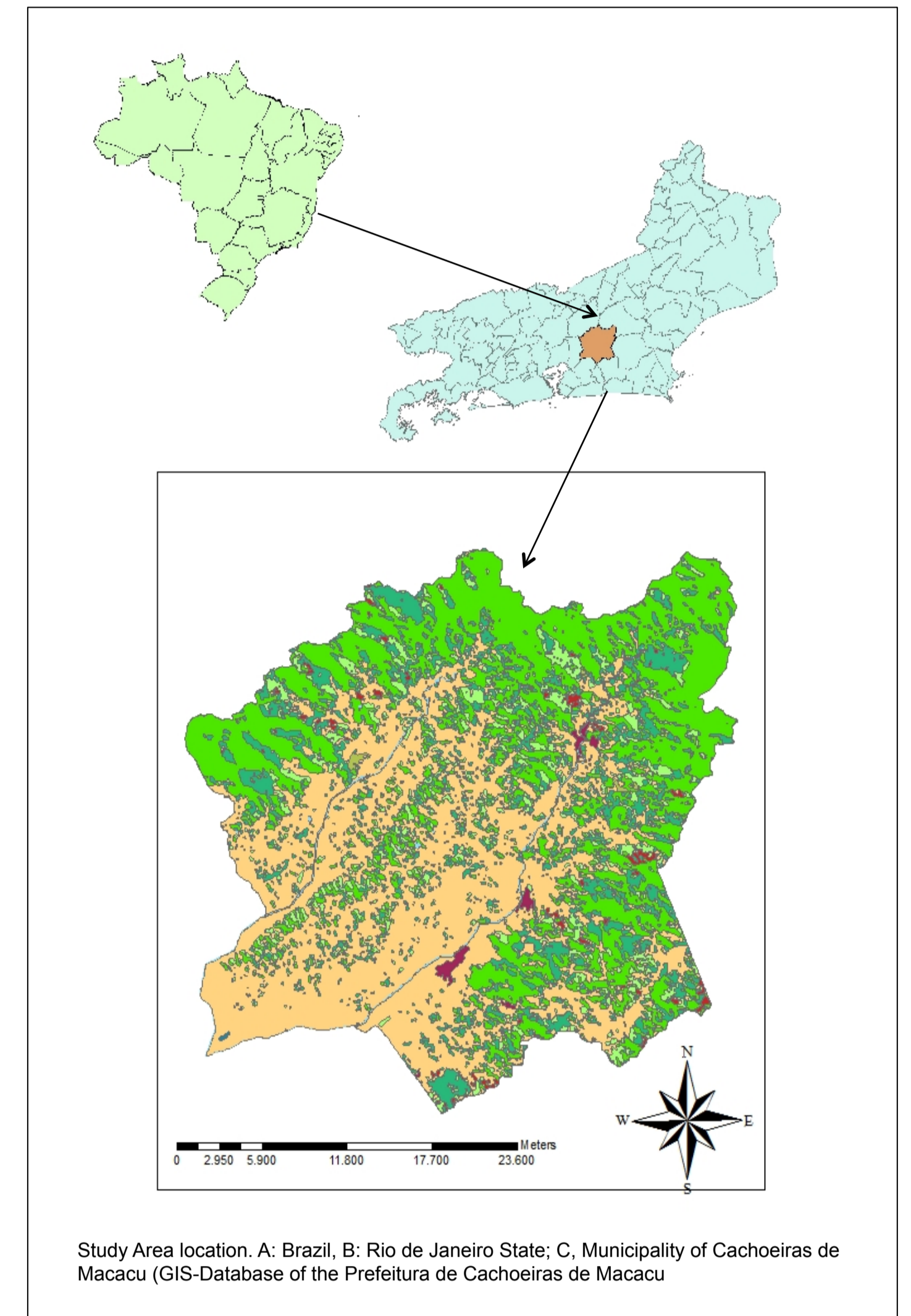
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Problem Statement

The municipality of Cachoeiras de Macacu (RJ) is located in a highly biodiverse but intense degraded ecosystem: the Atlantic Forest. The overexploitation has been continuous over the last 400 years (Instituto Bioatlantica, 2009) and increased in the last decades (Wilson et al., 2009) to supply the wealth of the habitants of the surrounding areas, especially highly-populated cities like Rio de Janeiro. Therefore, is necessary to integrate the complex human-social-environmental conditions in order to enhance the socio-economical well being of the inhabitants, but also to increase the biodiversity and the provision of ecosystemic services.

Goals

- Determine the potential areas for LULUCF projects according to the approved methodologies under CDM of the Kyoto Protocol.
- Realize a stakeholder analysis and map the institutional framework of carbon forestry projects and potential actors.
- Study the opportunities and barriers of carbon sequestration projects in the study region.



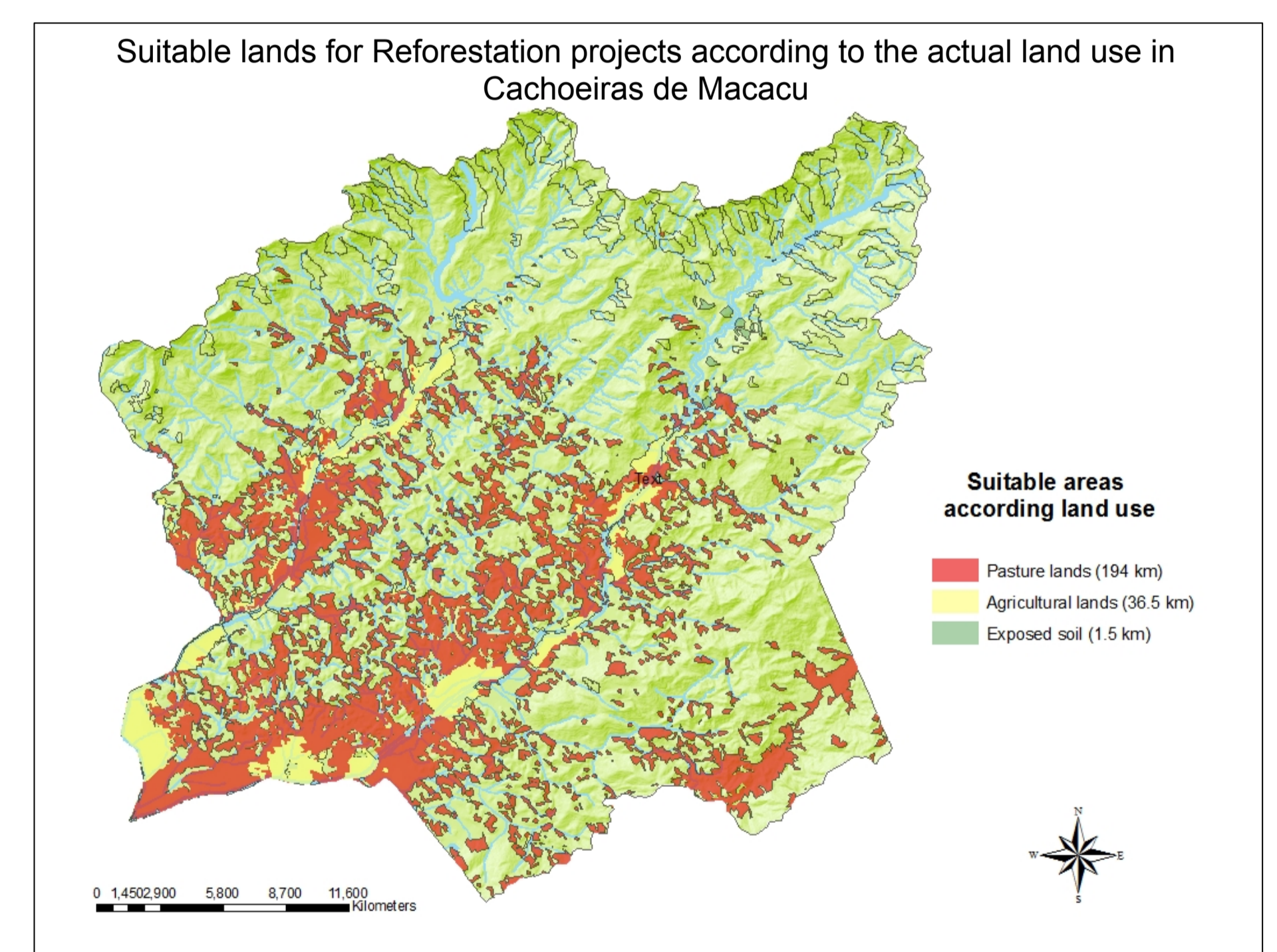
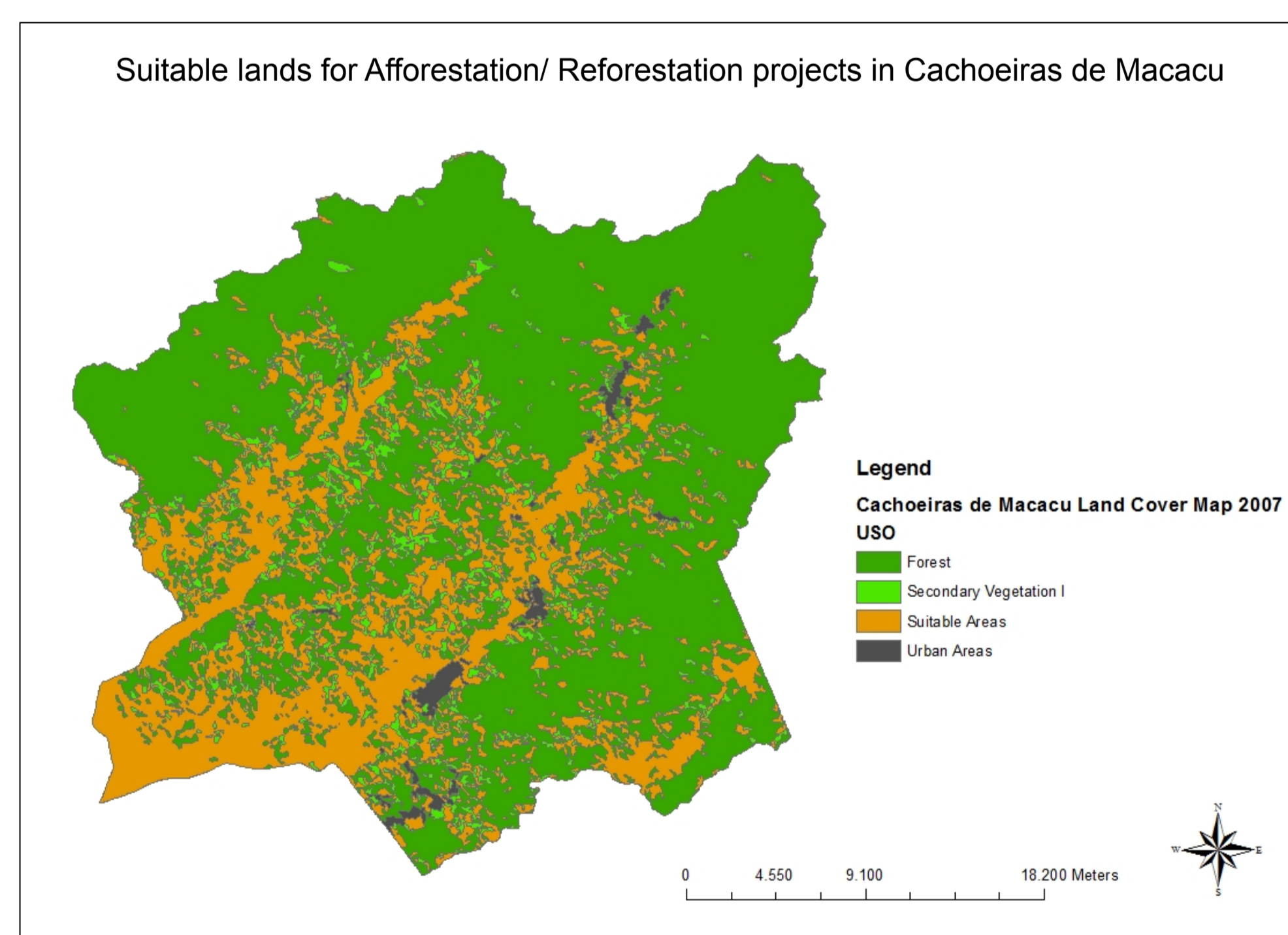
Methods

Top-down regional baseline approach (Sudha et al., 2007; Hargrave et al., 1998) and land cover analysis according Procedures IPCC (2006). Semi-structured interviews and the snowball sampling methodology (Reed et al., 2009; Corbera and Brown, 2008) and SWOT analysis (Wehrich, 1982; Minang et al., 2008).

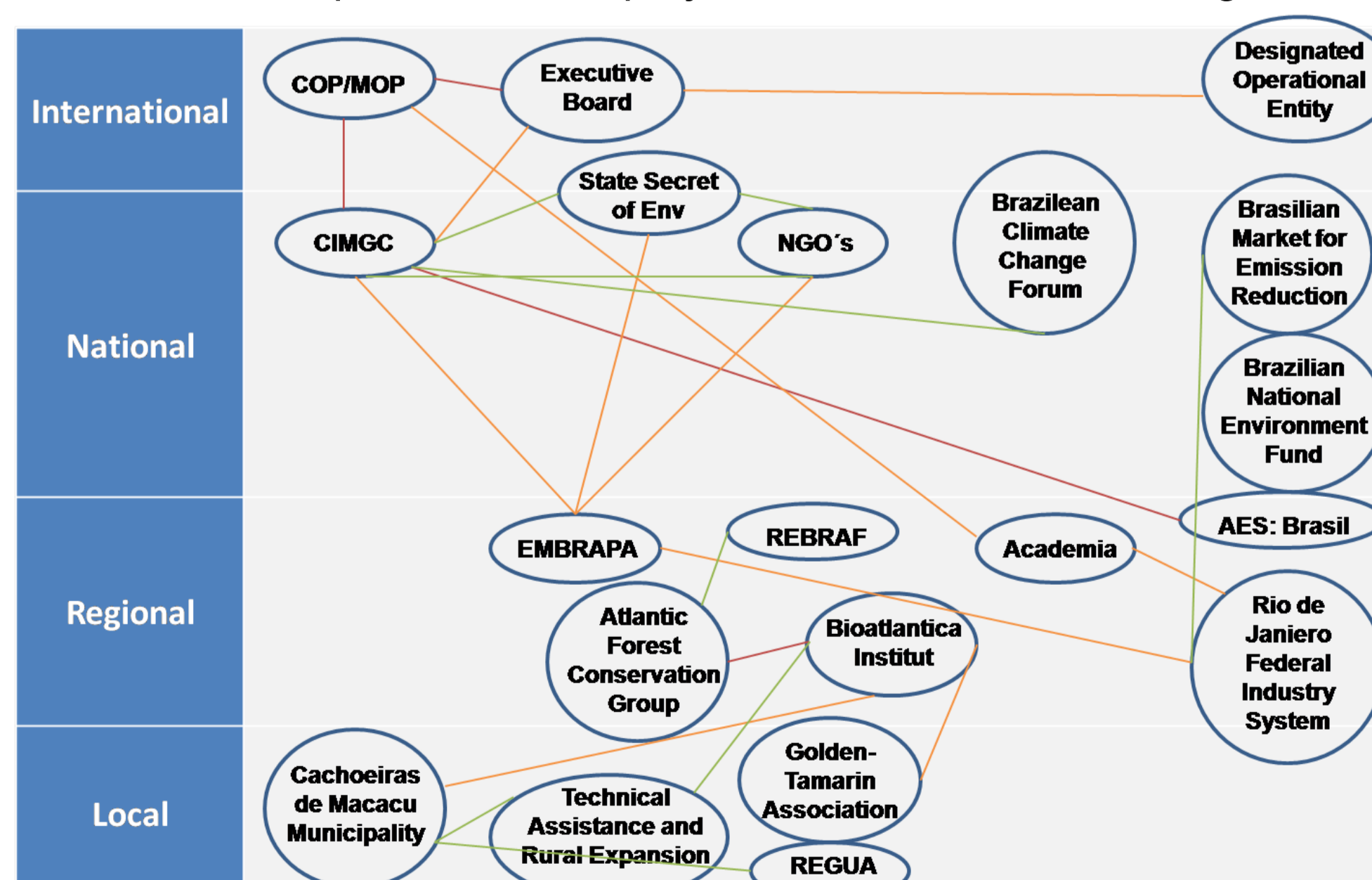
Results

Difficulties for the election of suitable lands, costs, lack of local communities' engagement and the absence of stakeholders' participation are main concerns. Additionally, the specificity of the existing methodologies (that limits their replication) and demonstration of additionality represent other important barriers.

In Cachoeiras de Macacu, 27% (264 km²) of the municipality are potential lands for LULUCF projects. Nevertheless, lands are highly parceled and mainly represent pastures (194 km²) or agricultural lands (36,47 km²). Historically deforested areas have relatively high percentage of suitable areas for LULUCF initiatives, but also significant demand for lands for settlements and food production.



Stakeholder map for LULUCF projects and Social Networking



Nevertheless, the existing institutional framework and the megacities in the vicinity area make a future appliance of Payment of Ecosystem Services in the region possible. There are other existing schemes like the tax on Goods and Services (ICMS, a tool to reward municipalities that prioritize sanitation and conservation units), voluntary carbon markets and PES that have demonstrate to be more effective than the CDM in protecting forests. Definitely, other mechanisms like REDD should be implemented and enforced to avoid deforestation and GHG emissions. There is a need to develop a more holistic and integrative approach.