

## Reserve Areas in Public Agrarian Reform Settlements as a Potential for Carbon Credit in the State of Pernambuco, Northeastern Brazil

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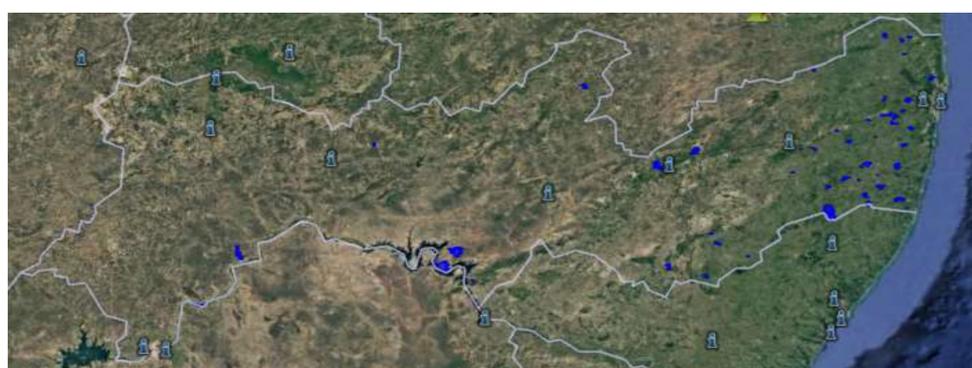
### INTRODUCTION & AIM

The preservation of reserve areas in rural public settlements plays a fundamental role in 10 maintaining ecosystem services, mitigating climate change, and promoting sustainable development. Given the growing interest in the carbon credit market, the conservation and 12 restoration of these areas have become strategic instruments for environmental and economic development.

This article discusses the relevance of preserving legal reserves and 14 permanent preservation areas (PPAs) in public settlements under the jurisdiction of the 15 state of Pernambuco, highlighting their ecological, social, and financial benefits. It also analyzes the potential of these territories for participation in carbon offsetting and credit generation mechanisms.

### METHOD

This research was based on descriptive research with individual on-site analysis in 63 state public settlements (Figure 1), located in 37 municipalities, totaling an area of 32,147.05 hectares, divided into 4,134 plots that benefit 6,853 families with access to land through family farming. Thus, 3,219.16 ha of legal reserve area and 1,352.29 ha of Permanent Preservation Area (APP) in the Caatinga, Cerrado de Altitude, and Atlantic Forest biomes were included. After identifying the areas, a bibliographic and documentary review was carried out, based on scientific publications, environmental legislation, and technical reports from institutions such as the Ministry of the Environment, INCRA, and Embrapa. Experiences with PSA and carbon credit projects in settlements and conservation units were verified, seeking to identify potentialities, obstacles, and observed results.

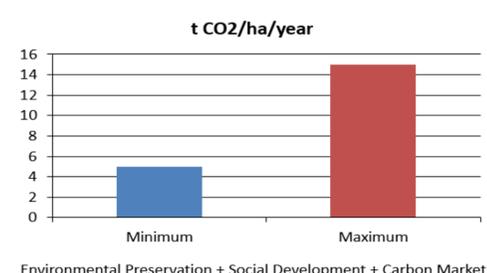


### RESULTS & DISCUSSION

Studies by Embrapa (2022) indicate that regenerating reserves can sequester 5 to 15 tons of CO<sub>2</sub>/ha/year, allowing the generation of carbon credits in settlements in Pernambuco. In addition to economic returns, conservation improves quality of life, although it depends on technical assistance, regularization, and incentive public policies.

Legal Reserves and Permanent Preservation Areas (APPs) guarantee the protection of water resources, biodiversity, and ecological balance, and are fundamental for mitigating climate change. In public settlements in Pernambuco, their recovery and sustainable management represent an essential strategy to reverse environmental degradation and enable the generation of carbon credits as an instrument for economic valuation and conservation.

Carbon Sequestration Potential



### CONCLUSION

Consolidation as a central strategy in preserving reserve areas in public settlements, combining environmental conservation, climate mitigation, and sustainable development, while simultaneously enabling the generation of carbon credits, reinforces the leading role of these communities in the national climate agenda.

### FUTURE WORK / REFERENCES

EMBRAPA. Carbon sequestration potential in agroforestry systems and native vegetation. Brasília: Embrapa Solos, 119 2022.

SANTOS, D. F.; RIBEIRO, A. L. Forest fragments in rural settlements: ecological importance and conservation challenges. Brazilian Journal of Environmental Sciences, v. 57, n. 1, p. 72-89, 2022. 126 9.

SOUZA, L. C.; FERREIRA, T. A. Carbon market and environmental sustainability: perspectives for Brazil. Brazilian Journal of Environmental Management and Sustainability, v. 9, n. 3, p. 45-58, 2022.