Pilot projects and agro-environmental measures in northwest Mato Grosso, Brazil: impacts and lessons for forest frontier "policyscapes"

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This case study, located within the Brazilian Amazon "Arc of Deforestation" examines the effectiveness of a sequence of Integrated Development and Conservation projects (ICDPs) and respective Agro-Environmental Measures promoted for deforestation mitigation, in Northwest Mato Grosso. The study evaluates ecological, economic and institutional variables as vectors for land use decisions on deforestation on family farms in agrarian reform settlements, on lots of between 50-100 hectares. The region is a forest frontier comparable in size to Panama, and exhibits the highest deforestation rates in the Amazon, despite having experienced a broad range of initiatives aimed at halting deforestation and biodiversity loss over the past 15 years.

The study is based on a sample of farmers in three municipalities (Juína, Juruena, Cotriguaçú) with varying exposure to ICDPs between 1995 and 2010. We performed an ex post analysis of ICDP impacts by assessing: (a) biophysical indicators of land use, carbon stocks, and tree biodiversity in forest and agroforestry plots; (b) the distribution and magnitude of economic gains leading to permanence of the ecological impacts; and (c) the institutional design and social-political context behind the cases, assessed through farmer interviews considering perceptions on institutions and governance.

We identify opportunities for introducing sustainable land use practices and the need for a more systemic approach to project evaluation arising from ICDP experience. Environmental licensing and alternative, sustainable forest product marketing outcomes supportive to local livelihoods were achieved by integrating social organization with material and institutional infrastructure. The particular combination and sequence of ICDP interventions produced synergies between cooperative social organization, alternative commodity markets and state-administered policy instruments.

Case study comparison of forest cover dynamics over a 15-year period indicated that more forest area was conserved in settlements with sustained ICDP interventions. The Vale do Amanhecer settlement in the municipality of Juruena retained 57% of forest cover in 2011, in comparison to 35% in the Nova Cotriguaçu settlement in the municipality of Cotriguaçu, and 18% in the Iracema settlement in Juína. Alternative land use revealed that land rents were considerably enhanced in comparison to a smallholder farmer baseline of mixed beef and dairy. Participation in environmental regulation and

licensing, as well as the social legitimacy of the regulatory system, emerged through attention to cooperative institutional arrangements.

In conclusion, even in a landscape subject to adverse political economic conditions, support for an integrated set of instruments over longer temporal scales and at finer spatial scales may be effective routes for forest and biodiversity conservation as well as economic and institutional improvements. On this forest frontier, ‘policyscape’ viability may be a function of the management of institutional and market synergies, which involve interfaces between formal and informal institutions and the socio-ecological evolution of ‘rules in use.’ These achievements may also lead the way toward effective application of other conservation-oriented economic instruments.