A Comparison of Incentives Strategies and Impacts of Four Incipient REDD+ Initiatives in the Brazilian Amazon

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Background and focus:

Strategies to reduce carbon emissions through avoided deforestation and forest degradation and enhancement of carbon stocks (REDD+) have been proposed as an effective way to mitigate global climate change through interventions in developing countries. REDD+ is also seen as a way to bolster livelihoods of local communities and promote other social and environmental co-benefits. Since the Bali Road Map of 2007, hundreds of first-generation REDD+ projects have emerged at the sub-national scale throughout the tropics. These sub-national projects are comprised of a suite of incentives packages that are designed to promote sustainable forest and land use behaviors among local people, and are in the process of being tested on the ground.

As part of the Center for International Forestry Research's (CIFOR) Global Comparative Study on REDD+, we examined four sub-national REDD+ pilot projects in the Brazilian Amazon as a way to understand current and future land use and livelihoods impacts of incipient REDD+ initiatives that target local people. Fieldwork was carried out at the four pilot sites between June 2010 and May 2011 through interviews with project proponents to understand project design and early implementation strategies and through surveys with target communities and land managers to understand current land use and livelihood strategies.

In this panel, we present the results of research conducted at these four REDD+ pilot sites. Following a brief introduction to CIFOR's Global Comparative Study on REDD+, the first two presentations will address impacts associated with projects that have already been implemented. The first presentation highlights how land use and livelihoods impacts associated with an earlier Payments for Environmental Services (PES) project in the Transamazon Highway region of Pará (Proambiente) can inform the intervention strategies of a REDD+ pilot project that is being implemented with the same households. Results show that households participating in Proambiente adopted more intensified agricultural production strategies than their non-participating neighbors, based on project training and inputs, which possibly resulted in less clearing of mature forest. The second presentation focuses on sustainability of the Bolsa Floresta Program, which targets riverine populations in Sustainable Development Reserves in Amazonas and includes the pioneer Juma REDD+ project. Results of this study highlight that while agricultural and livestock income sources are central to local livelihoods of Bolsa Floresta participants, forest clearing within the reserves is minimal. That said, there are strong deforestation pressures immediately adjacent to the project sites. These findings lead to questions about whether or not community empowerment and incentive payments associated with Bolsa Floresta will be enough to deter forest conversion over the long term. The third and fourth presentations in the panel focus on two larger-scale REDD+ pilot projects in their design and early implementation phase in the municipalities of São Félix do Xingu, Pará and Cotriguaçu,

Mato Grosso, respectively. The third presentation addresses the multi-scalar institutions that govern REDD+ implementation in São Félix do Xingu, and the possible impacts of the project on changing forest and land use behaviors among both large and small landholders in the project area. Results emphasize the need for socially-oriented REDD+ implementation to promote project effectiveness, including capacity building for local stakeholders. The fourth presentation focuses on the potential impact of the project proponents' decision to not include direct conditional payments in the REDD+ pilot project in Cotriguaçu, Mato Grosso. Results of this study show that while local acceptance of and participation in this project would likely be greater if PES were included, direct cash payments could result in increased deforestation among smallholders and would likely not be able to discourage large landholders from clearing forests for more profitable land uses. This panel allows us to understand a diverse set of REDD+ intervention approaches in different contexts, shedding light on the potential for and challenges associated with REDD+ implementation in the Brazilian Amazon and elsewhere.

1st Presentation –
Smallholder Livelihoods and Land Use in the Eastern Brazilian Amazon: Lessons for REDD+ from Proambiente

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Many sub-national projects for reducing carbon emissions through avoided deforestation and forest degradation and enhancement of carbon stocks (REDD+) are being proposed in areas that have had previous Integrated Conservation and Development Projects (ICDPs) and/or Payments for Environmental Services (PES) projects. Therefore, understanding earlier project contexts and outcomes can help improve REDD+ project design and implementation. Since REDD+ projects will directly affect local livelihoods, it is essential to define appropriate incentives packages that will encourage sustainable land use behaviors among local people.

In this paper, we focus on a comparative analysis of livelihoods and land uses of participants and non-participants of the Proambiente program in the Transamazon region of the Eastern Brazilian Amazon. Proambiente was born in the Transamazon as a result of articulation by small farmers and civil society with the aim of conciliating smallholder production with natural resource conservation through land use planning, technical assistance and PES. In 2004, Proambiente became a federal pilot program and expanded to 12 pilot sites in the Brazilian Amazon. In the Transamazon, 350 families participated in the project from 2003 to 2006; all participating households received payments over a six-month period. Although, there were notable community organization, participation, and training benefits associated with Proambiente, it ended prematurely primarily due to lack of long-term support at the national level. To provide continuity to this initiative, a Brazilian non-governmental organization has proposed a REDD+ pilot project that will target these same families.

As part of CIFOR's Global Comparative Study on REDD+, we conducted field research in the Transamazon region from June to August 2010. We first interviewed the project proponent to understand project goals and strategies. We then conducted 137 interviews with families at the Proambiente project site that were randomly selected from a stratified sample to include participants (n=67) and non-participants (n=70).

Our results show that mean total income (cash and subsistence; 2009-2010) was not significantly different among the two groups. Both groups earned the majority of their income from livestock and agriculture (Pro: 41% from livestock, mainly cattle, and 28% from agriculture; NPro: 35% from agriculture and 28% from livestock). Income derived from forests was negligible in both groups. That said, agricultural crop diversity was greater in the Pro group ($p = 0.025$). Also, while Pro households used smaller areas for crops, they obtained higher mean incomes from this sector than NPro households ($p=0.057$). Finally, Pro households reported that the project contributed to reduced use of fire for agriculture. While the mean amount of recent annual deforestation (2008-2010) was quite low for households in both groups (Pro: 3.4 ha; NPro: 3.7 ha), only 15% of the Pro households included mature forest in these recent clearings, in contrast with 30% of NPro households. Despite the low annual clearing, both groups were environmentally non-compliant, according to the Brazilian Forest Code, with less than 80% of their landholdings in forest cover (Pro:66%; NPro:58%), emphasizing high rates of historical deforestation.

Our results indicate that Proambiente households used agricultural land more efficiently than non-participants, which was evidenced by the fact that they gleaned more agricultural income from smaller areas. Even though Proambiente households were non-compliant with the Brazilian Forest Code, the majority of them chose to clear secondary forest instead of mature forest. Given the importance of income from livestock and agriculture in local livelihoods, promoting more intensive and diversified production techniques represents a key intervention strategy of the proposed REDD+ project in the region, as already anticipated by the project proponent. Reforestation on degraded lands will also be an important REDD+ strategy to promote environmental compliance among participating families.

Keywords: PES, smallholders, livelihoods, land use

2nd Presentation –
Land Use, Deforestation Pressures and Sustainability under Brazil's Bolsa Floresta Program in Amazonas

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Payments as incentives for avoiding deforestation to mitigate climate change have gained increasing consideration as a means to achieve REDD+ (Reduced Emissions from Deforestation and Degradation) in developing countries. Particular attention is focused on preparing tropical, forest-rich countries for REDD+ implementation, which aims to pay local landholders to avoid clearing forests. The Amazon Basin has been a priority area for initiation of pilot REDD+ activities, and Brazil, which houses the largest tract of Amazonian forests, has been significantly engaged in these activities. Research on who exactly is participating in pilot REDD+ projects in the Brazilian Amazon was conducted to highlight the current issues and successes that these initiatives face.

The study was conducted in two Sustainable Development Reserves in the state of Amazonas, Juma and Uatuma, which are both involved in a payment program called the Bolsa Floresta (Forest Allowance) Program. Furthermore, the Juma Reserve represents one of the first credited REDD+ programs in the Brazilian Amazon. Families in these reserves receive village level assistance in the form of infrastructure, but most publicized is its incentive payment of US$30 per month per family who commit to zero deforestation of mature forest. Juma Reserve is traversed by a road which connects the main town in the reserve to a large regional city, where access to the Uatuma Reserve is solely by river. Current deforestation rates (2010) were measured at <1% in both reserves, but by 2050, these figures are expected to increase to around 70-75% in each. Pressures for land clearing threaten the integrity of the Sustainable Development Reserves, and the Bolsa Floresta Program aims to meet this heavy pressure through community empowerment, including creation of community infrastructure (e.g., schools, transport) and providing means to develop small-scale businesses.

As part of CIFOR's Global Comparative Study on REDD+, a survey was conducted including 340 households both inside and outside Juma and Uatuma Reserves from February to April 2011. Of these households, 244 were inside the reserves and eligible to receive Bolsa Floresta payments. Preliminary socio-economic analysis of respondents showed that small-scale agriculture remains the prominent livelihood within the reserves, contributing 37% (Juma) and 33% (Uatuma) of the total annual cash and subsistence income. Interestingly, outside Uatuma, agricultural incomes contributed to 30% of the total and only 12% outside Juma. Forest income was the second most prominent livelihood inside Juma and Uatuma comprising 30% and 29% of total incomes respectively, compared to 12% and 23% outside the respective reserves. Households outside Juma also earned most from livestock and animal product income (41% of total income), and held the largest share of livestock assets (64% of total assets).

These results highlight that, based on potential pressures from outside the reserves, long-term sustainability of the Bolsa Floresta program could be threatened. Using household lifecycle theory, this paper examines the land use trajectories of households inside and outside reserves to help predict future land use patterns. This paper speculates about whether the integrated conservation and development approach of the program, through community empowerment and

development initiatives, including incentive payments, is sufficient to deter land conversion to more profitable uses and ensure its continued success and integrity.

Keywords: land use, deforestation, REDD+, Brazil, sustainability

3rd Presentation –
Analyzing Possible Impacts of REDD+ Initiatives on the Ground: Lessons from São Félix do Xingu, Brazil

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This paper explores how and for what reasons forest managers in the southeastern Brazilian Amazon may react to initiatives related to Reducing Emissions from Deforestation and Degradation and enhancement of carbon stocks (REDD+). Focusing on the municipality of São Félix do Xingu, in the state of Pará, it describes conventional land and forest use strategies of small and large landholders in the area, and addresses how these behaviors could be affected by the introduction of a proposed municipality-wide REDD+ pilot program. Since behavior change rests on the assumptions of the individuals who are being targeted, different forest actors in São Félix do Xingu will likely respond to REDD+ interventions in a variety of ways. We ask: (1) what governs REDD+ initiatives in the project area?; (2) how might different local actors react to the proposed REDD+ mechanisms, including possible behavior changes that could occur?; and (3) will these new institutions be efficient, effective and fair when applied to different actors? This analysis intends to show that selected REDD+ initiatives will likely cause different reactions depending on the factors that govern land and forest use behavior.

Using evidence from data collected within CIFOR's Global Comparative Study on REDD+, this paper explores the relationship between government restrictions on land and forest use, and regulatory and incentive-based mechanisms for REDD+. From September of 2010 to November of 2011, we interviewed the REDD+ project proponents to understand project goals and strategies and conducted surveys with 40 large landholders and 124 smallholders in the project area to gather baseline data on land and forest use. Preliminary results show that capacity building will play a key role in building a REDD+ program in the municipality. Some challenges facing the implementation of REDD+ in São Félix do Xingu include the diversity of land use and actors in the project area and the varying interests behind deforestation activities. This analysis argues for the need to establish and reform national and international institutions for REDD+ with a more "social oriented" focus. This is because institutions are not only constraints, but they are also what shape the individual and define which rationality is relevant or appropriate in each type of choice-setting. Understanding the factors that govern forest actors' behavior in relation to land and forest use, and providing adequate incentives for sustainable behaviours, can allow for positive social and environmental outcomes of REDD+. Going one step further, the analysis permits the consideration of the structures, power and self that are responsible for the emergence of new institutions and the rationality and choices they want to promote.

Keywords: behavior change, climate change, mitigation, forests, Amazon

4th Presentation –
REDD+ with or without Payments for Environmental Services? A case study from northwestern Mato Grosso in the Brazilian Amazon

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Mato Grosso has historically been one of the states with the highest deforestation rate in the Brazilian Amazon with timber extraction, cattle ranching, and soy production as major drivers. With 80% of its tropical forest intact and high imminent threat of deforestation, the municipality of Cotriguaçu in northwestern Mato Grosso has become the target of a Reduced Emissions from Deforestation and Degradation (REDD+) pilot project, led by the state government and several NGOs. Since 2009, when the project was conceived, the strategies of implementing the REDD+ project in Cotriguaçu changed substantially to align with economic and political interests from local stakeholders, and available project financial resources. One important change was the proponents' decision to not include payments for environmental services (PES) and focus more on the promotion of sustainable livelihoods, through provision of tools and materials, and improved governance in Cotriguaçu. The first phase of REDD+ implementation in the municipality is called the "Cotriguaçu Sempre Verde Project" (CSV). This project intends to promote social and economic development in Cotriguaçu focusing on conservation and sustainable management of natural resources through the following lines of action: (1) restructuring environmental management; (2) support for sustainable forest management; (3) support for best agro-pastoral practices; (4) strengthening of governance over natural resources in the rural settlements; and (5) integration of the Rikbaktsa indigenous group.

Although there is no doubt that these actions are relevant, the major gap in the REDD+ project is related to the absence of PES implementation. This gap could result in low adhesion or even a mischaracterization of the project. In this paper, I will focus on two questions. Firstly, how does the exclusion of PES affect local beneficiaries' acceptance of the REDD+ project (especially medium and large private landholders and small rural settlers)? And secondly, how might the resource allocation of small producers change if they were economically compensated by a PES program? To answer these questions, I conducted a field-level analysis in the municipality of Cotriguaçu in 2010 and 2011 as part of the CIFOR's Global Comparative Study on REDD+. Field methods included the collection of quantitative and qualitative data through meetings and interviews with small rural settlers (122 households) and medium and large private landholders (40 households). I also conducted open-ended interviews with local leaders and project decision makers.

Preliminary results show that acceptance and adhesion to the REDD+ project in Cotriguaçu would be higher if PES were included, since the opportunity costs of protecting the forest are high, and producers' decisions to conserve forest may depend on direct financial compensation. Despite the potentially important role of PES in REDD+, preliminary results of a hypothetical scenario for resource allocation showed that indeed PES may not be enough, since without adequate enforcement measures and alternative livelihood options, small producers are likely to use direct cash inputs to expand their agricultural and livestock activities. Additionally, among medium and large private landholders, a PES strategy seems unviable due to the high profitability of conventional timber extraction and cattle ranching. Promotion of more sustainable land use activities that promise high profits, such as sustainable forest management, may indeed be more appropriate than PES. The main challenge is to convince local stakeholders

to invest their resources in such livelihood activities. This study is important for informing the best strategy for design and implementation of a REDD+ project in northwestern Mato Grosso to promote both forest conservation and development of local livelihoods.

Keywords: deforestation, degradation, livelihoods, resource allocation