

# Brazil's national environmental registry of rural properties: Implications for livelihoods

## KPI-3 Forests and Livelihoods: Research Evidence Report 3

By

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### Introduction

Brazil faces major challenges in the implementation of the 2012 Forest Code which relaxes the previous code from 1965. One potentially promising mechanism of the new Forest Code is the *Cadastro Ambiental Rural* (the Rural Environmental Registry – CAR), which mandates all rural properties to be registered (Soares-Filho et al. 2014). While the CAR is primarily expected to enhance the ease of monitoring and enforcement of the Forest Code and other environmental legislations, this may in turn directly or indirectly affect what activities landowners can conduct on their land and subsequently impact landowners' livelihoods. Yet, both scholarly and policy efforts have concentrated on the environmental aspects associated with CAR registration with little assessment of how livelihoods (the capabilities, assets, and activities required for a means of living (Scoones 1998)) may be affected.

This note, based on Jung et al. 2017, investigates theories of change in livelihoods as a result of the CAR and CAR related programs. CAR related programs are defined as programs that either a) facilitate registration in the CAR by helping farmers to geo-reference their properties; and/or b) build capacity among farmers on how to be in compliance with the Forest Code, including knowledge on the CAR and how to restore degraded areas. Such programs include the International Climate Fund (ICF), Amazon Fund and German Development Bank (KfW)'s state CAR programs and the Responsible Soy Project by The Nature Conservancy and Cargill. We develop theories of change that may underpin potential livelihood impacts of the CAR and CAR related programs. Establishing theories of change is an essential, yet undervalued, first step to any program evaluation and as such we see this work as valuable for future assessments of the CAR and CAR related programs.

### Methods

We first outline multiple pathways through which the CAR and CAR related programs may affect livelihoods of rural households by modifying Ellis' framework for micro policy analysis of rural livelihoods (Ellis 2000) and adopting a Sustainable Livelihood Approach (SLA) (DFID 1999). Second, we apply the framework to two biomes in Brazil to assess plausible livelihood impacts using information collected through semi-structured interviews with farmers and other stakeholders involved in the CAR and CAR related programs. We use data collected from three rounds of interviews, conducted in 2011, 2015, and 2016 in the Amazon and Cerrado biomes. These three rounds of interviews were conducted with stakeholders directly involved in the CAR and CAR related programs including farmers, municipality and state government officials, key personnel from KfW, the Amazon Fund, and ICF - the three major funding agencies supporting CAR related programs in the Cerrado biome.

### Findings

The table below summarizes examples of livelihood impacts of CAR and CAR related programs. It does so by describing the mediating factors and channels of capital assets through which the impacts are delivered with lighter grey rows indicating positive channels and outcomes and darker grey rows indicating negative channels and outcomes.

Assets	Mediating factors	Channels of capital assets affecting livelihoods
Natural capital	Amount of initial LR area and monitoring efforts by the government	Increased productivity and provisioning of ecosystem services, e.g., water quality, through preservation of Legal Reserve (LR) and Areas of Permanent Preservation (APP)

		Less available land to cultivate if initial amount of LR was lower than 20%; Expenses related to restoration/purchasing additional land to comply with the Forest Code; Expenses related to intensification and expansion of agricultural land into new areas; Decreased provisioning of ecosystem services through increased input use, e.g., fertilizer
Financial capital	Use of credit lines	Continued or improved access to credits and help with the registration for CAR
		Expenses related to geo-referencing property boundaries (compensated by CAR related programs); Inability to pay back loans (e.g., in case of crop failure due to weather events)
Human capital	Education, participation, and interaction among farmers	Increased knowledge on the Forest Code, how to comply with it, and consumer demands for sustainable products
		Less cultivation and no compensation for compliance or lack of other economic opportunities, e.g., off-farm jobs
Social capital	Formation of new networks and shared knowledge among members of the network	Increased access to inputs and markets and shared knowledge on restoration/preservation of LR and APP
Physical capital	Existing infrastructure and the number of farmers	Decreased costs of production and market accessibility if improvement in infrastructure
		Increased costs of production and market accessibility if decrease in infrastructure

## Conclusion

We find that the CAR and CAR related programs have affected rural livelihoods in the state of Pará by changing farmers' natural, human, financial, and social physical capital assets, albeit these outcomes are not explicit program goals. While CAR registration was initiated earlier in Pará than in the Cerrado, such pathways of change are also likely to occur in the Cerrado biome as a result of the ongoing registrations. We argue that both the governments and funding agencies that are facilitating CAR registration need to consider the possible livelihood impacts of their programs when they promote policies to bring farmers into legality. Given the high poverty rates in many states in the Amazon and Cerrado biomes, the inclusion of such activities to raise income after the CAR registration may be a necessary step to improve livelihoods, although it remains unknown whether it will also promote environmental conservation or by contrast cause deforestation.

## References:

- DFID (1999) Sustainable livelihood guidance sheets. Department of International Development, UK.
- Ellis F. (2000) Rural livelihoods and diversity in developing countries. New York: Oxford University Press.
- Jung S., Rasmussen L., Watkins C., Newton P., Agrawal A. (2017) Brazil's national environmental registry of rural properties: Implications for livelihoods. *Ecological Economics*, In press.
- Scoones, I (1998) Sustainable rural livelihoods: a framework for analysis, IDS Working Paper, No. 72.
- Soares-Filho B., Rajao R., Macedo M., Carneiro A., Costa W., Coe M., Rodrigues H., Alencar A. (2014) Cracking Brazil's Forest Code. *Science* 344, 363-364.