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Building the evidence base for REDD+: Study design and methods for evaluating the impacts of conservation interventions on local well-being

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ABSTRACT

Climate change mitigation in developing countries is increasingly expected to generate co-benefits that help meet sustainable development goals. This has been an expectation and a hotly contested issue in REDD+ (reducing emissions from deforestation and forest degradation) since its inception. While the core purpose of REDD+ is to reduce carbon emissions, its legitimacy and success also depend on its impacts on local well-being. To effectively safeguard against negative impacts, we need to know whether and which well-being outcomes can be attributed to REDD+. Yet, distinguishing the effects of choosing particular locations for REDD+ from the effects of the interventions themselves remains a challenge. The Global Comparative Study (GCS) on REDD+ employed a quasi-experimental before-after-control-intervention (BACI) study design to address this challenge and evaluate the impacts of 16 REDD+ pilots across the tropics. We find that the GCS approach allows identification of control groups that represent the counterfactual, thereby permitting attribution of outcomes to REDD+. The GCS experience belies many of the common critiques of the BACI design, especially concerns about collecting baseline data on control groups. Our findings encourage and validate the early planning and up-front investments required to evaluate the local impacts of global climate change mitigation efforts with confidence. The stakes are high, both for the global environment and for local populations directly affected by those efforts. The standards for evidence should be concomitantly high.

1. Introduction

While the importance of monitoring and evaluation has long been recognized by the conservation community (Christensen, 2003; Kleiman et al., 2000; Stem et al., 2005), research in the past decade has sharpened the focus on testing attribution and quantifying the causal impacts of conservation interventions (Baylis et al., 2016; Ferraro and Hanauer, 2014). This research focus is motivated by the concern that conservation advocates might have been spending "money for nothing" (Ferraro and Pattanayak, 2006) and is designed to support "evidence-based policy," similar to recent work in other realms of international development (e.g., research supported by 3ie and the Millennium Challenge Corporation). It aligns well with growing interest in results-based financing or "pay-for-performance" approaches in international aid sectors including health (Honda, 2012), education (Slavin, 2010), social protection (Davis et al., 2012), and conservation (Pattanayak et al., 2010). Results-based financing plays a potentially important role in climate change mitigation, including reducing emissions from deforestation and forest degradation, plus conservation, sustainable management of forests, and enhancement of forest carbon stocks in developing countries, or REDD+. The basic concept of REDD+ is to pay governments, communities, and/or individuals for verified reductions in deforestation and degradation (and associated reductions in

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carbon emissions) below an established 'reference-level' or counterfactual.

There are high hopes that REDD+ will be more effective than previous efforts to conserve tropical forests, because of the promise of relatively large and long-term financial assistance conditional on measured outcomes that are demonstrably "additional," or attributable to REDD+ activities (Venter and Koh, 2012). Although no single global system for REDD+ has emerged, funding has flowed through mechanisms such as the REDD+ Partnership (http://reddpluspartnership.org), the Governors' Climate and Forest Taskforce (www.gcftaskforce.org/), the Green Climate Fund (http://gcfund.org/), and voluntary carbon markets (Hamrick et al., 2015). In 2015, the 21st Conference of the Parties (COP) of the UNFCCC adopted guidelines for REDD+ and called for countries to take action to conserve and enhance, as appropriate, sinks and reservoirs of greenhouse gases.

While reducing carbon emissions is the primary motivation for REDD+, much of the policy dialogue, media coverage, and criticism has focused on potential co-benefits and costs for local people and biodiversity conservation (Agrawal et al., 2011; Burgess et al., 2013; Visseren-Hamakers et al., 2012). Impacts on local well-being – both positive and negative – will affect the feasibility, legitimacy and cost of REDD+ (Fisher et al., 2011; Lubowski and Rose, 2013), its success in achieving long-term reductions in forest carbon emissions (Chhatre et al., 2012; Lawlor et al., 2010), and the continued availability of finance from both public and private sectors (Lawlor et al., 2013). There is widespread concern about potential negative impacts on people who rely on the forests targeted for REDD+ interventions (Sunderlin et al., 2014a,b), due to their historical exclusion from policy-making processes and fears that traditional land rights will not be recognized, and therefore opportunity costs of foregone traditional land uses not compensated. These concerns are exacerbated by the lack of clear evidence on the causal effects of previous forest conservation interventions (Miteva et al., 2012; Pattanayak et al., 2010).

In response to concerns about potential negative social impacts (i.e. direct impacts of interventions on local people), social safeguard policies were promulgated at the 16th COP (Decision 1/CP.16), and certification systems focused on monitoring these impacts – such as the Climate, Community, and Biodiversity (CCB) standards – have been widely adopted in voluntary carbon offset markets (Hamrick et al., 2015; Merger et al., 2011). These standards and safeguards require that REDD+ interventions be designed with local input to meet local needs, and be monitored and evaluated to assess their impacts on the well-being of local populations (Jagger et al., 2014). This has focused attention on how to measure local well-being, including livelihoods (e.g. collection of forest products) and welfare (e.g. household income). There has been less consideration of how to establish attribution (Agrawal et al., 2011; Caplow et al., 2011). Defining counterfactual scenarios that quantify what would have happened without REDD+ in order to assess the causal impacts of REDD+ on carbon emissions has been a key area of research and policy development (Olander et al., 2008; Romijn et al., 2015). We argue that social outcomes should also be compared to counterfactual outcomes in order to distinguish the impacts of interventions from the effects of where those interventions take place and contemporaneous policy and economic changes. However, there are unique challenges involved in designing monitoring and evaluation frameworks and obtaining the data required to apply such counterfactual thinking to the social impacts of conservation interventions, both because they cannot be observed objectively through remote sensing and because of confounding by human behaviors such as self-selection into participation.

Development of safeguard policies and certification standards would benefit from more systematic evidence on the social impacts of REDD+, including how they vary with intervention design and site characteristics. The more than 350 sub-national REDD+ pilot initiatives (Simonet et al., 2014; Sunderlin et al., 2014a, 2014b) offer an opportunity to generate this evidence based on real-world experience with REDD+ as it is being implemented on the ground. Recognizing these initiatives as an important testing ground for a new global system of forest conservation with uncertain impacts on local people, the Center for International Forestry Research (CIFOR) designed and implemented the Global Comparative Study on REDD+ (GCS), a quasi-experimental study that includes collection of "BACI" (before-after-control-intervention) data from a pan-tropical sample of households in 16 REDD+ sites in Brazil, Cameroon, Indonesia, Peru, Tanzania and Vietnam (Fig. 1). In these six countries, CIFOR selected initiatives where it was possible to apply the BACI study design starting in 2010. This meant that the implementing organizations had defined their intervention areas – allowing assignment of villages to 'control' or 'intervention' status, but had not yet offered performance-based incentives – allowing data to be collected on conditions both 'before' and 'after'(Sunderlin et al., 2016). We provide a full accounting of the study design and methods employed by the GCS, which has both the broadest scope and largest household sample of any empirical study of REDD+ to date.

Sunderlin et al. (2016) demonstrate that the REDD+ initiatives included in the GCS are representative of the global population of pilot initiatives, using a database of all REDD+ initiatives compiled independently by CIRAD (Simonet et al., 2014). In this database, the means and proportions of initiatives with different characteristics are qualitatively similar in the GCS sample and in the entire population of initiatives. This supports the external validity of the GCS for understanding REDD+ initiatives. However, there remain major challenges to internal validity, including that the locations of these initiatives are not random and that REDD+ is rarely implemented in isolation but rather in the context of many prior and on-going conservation and development interventions. Careful study design is required to overcome these challenges.

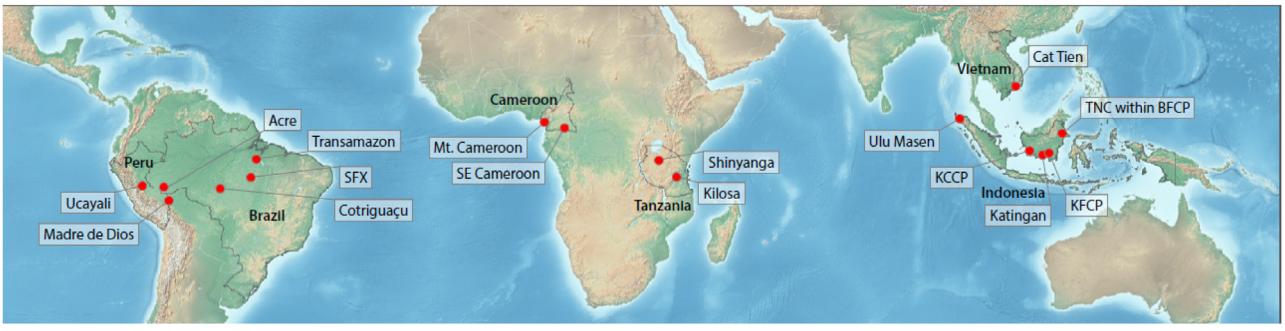

Fig. 1. Study sites: REDD+ Pilot Initiatives.