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Can REDD+ achieve its goal?

An examination of the effect of various combinations of interventions

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Key messages

- Many subnational REDD+ initiatives are continuations of, and elaborations upon, pre-existing Integrated Conservation and Development projects (ICDPs), which combine negative incentives (e.g. prohibition against forest conversion) and positive incentives (e.g. alternative livelihoods).
- While in ICDPs livelihood benefits were not conditional, the key intended innovation in REDD+ was a *conditional* positive incentive (i.e., direct livelihood benefit) to participating households.
- To date little is known about (a) the frequency and distributions of diverse kinds of interventions in subnational REDD+ initiatives (whether positive, negative or enabling), or about (b) whether these combinations of interventions have served the REDD+ climate change mitigation goal of reduced forest carbon emissions.
- Field research conducted through 2,118 household interviews in 67 villages at 17 REDD+ sites during 2013–2014 helps fill these knowledge gaps.
- The research method involved asking respondents about the effects of specific interventions on household land and forest management practices.
- Among the findings are that fewer than a third of households had been offered conditional benefits, and that households were more likely to report land-use changes that result in reduced forest carbon emissions when they were exposed to both more interventions and at least one negative intervention.

Introduction

Natural climate solutions will be key to attaining the goal of keeping the temperature increase of planet Earth to no more than 1.5 degrees centigrade above pre-industrial times (Griscom et al. 2017; Roe et al. 2019). REDD+ has been one of the most prominent of the natural climate solutions deployed to date. As of December 2020, there were 377 active REDD+ initiatives in 56 countries covering 53 million hectares.

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Interventions at REDD+ sites – designed to secure the goal of reduced forest carbon emissions and increased carbon sequestration – are a complex array of approaches from before the time of REDD+ as well as a new approach pioneered through REDD+. This mix of old and new approaches stands to reason because many subnational REDD+ initiatives are continuations of, and elaborations upon pre-existing Integrated Conservation and Development Projects (ICDPs) (Sunderlin and Sills 2012). ICDPs feature a classic tandem of positive and negative incentives. The positive incentives are frequently in the form of an alternative livelihood support, designed to reduce reliance on forest resources or forest conversion. Some examples are animal husbandry projects focused on poultry, pigs, beekeeping or aquaculture. The negative incentives are often in the form of prohibition against deforesting and using or overusing certain forest resources. Different

from its ICDP predecessor, REDD+ has introduced *conditional* positive incentives, which is to say, direct livelihood benefits that are conditional upon verified success in protecting or enhancing local forest resources. Importantly, for various reasons, conditional incentives were often not employed, especially in the early years of REDD+, with the result that many initiatives strongly resemble classic ICDPs that have not evolved (or evolved fully) to the conditional reward system envisioned in REDD+. In addition to combinations of forest interventions following either the ICDP or the REDD+ archetypes, there are also 'enabling' forest interventions, viewed by implementers as vital for the functioning of REDD+ initiatives; examples of this include community education around the value of healthy forests, and clarification of tenure status. Our classification of interventions observed in subnational REDD+ initiatives is shown in Figure 1.

Research to-date on the achievement of REDD+ in reducing net forest carbon emissions has given little attention to the causal link between the intensity and composition of interventions, and forest carbon outcomes.

This research addresses that gap by asking: (1) What is the composition of interventions deployed by local REDD+ initiatives? and (2) How have various combinations of interventions influenced household land use, and what are the implications for carbon emissions? (Sunderlin et al. 2024).

Methods

Field research to answer these two questions was implemented by CIFOR's Global Comparative Study on REDD+ (GCS-REDD+) during 2013–2014 in Brazil, Cameroon, Indonesia, Peru, Tanzania and Vietnam, looking at 17 REDD+ initiatives encompassing 67 intervention villages and 2,188 households.

Upon gathering intervention data at the village level, we classified each of the 1,510 households subject to forest interventions in terms of whether they were exposed to REDD+ archetype interventions (i.e., had at least one conditional benefit), or ICDP archetype interventions (i.e., no conditional benefit was included). We also classified households by whether they were subject to

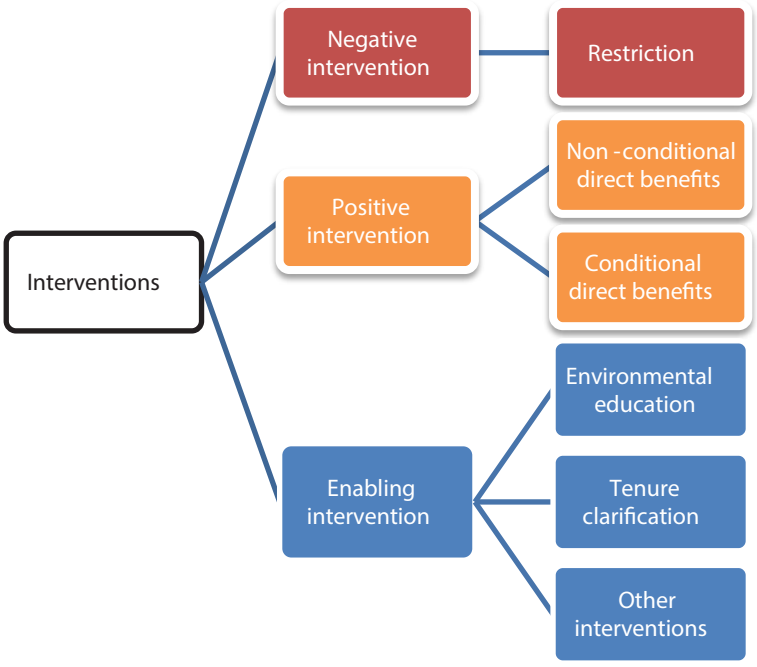

Figure 1. Classification of interventions observed at REDD+ sites

a 'positive only' archetype of interventions (whether conditional or not), to a 'negative only' archetype of interventions, or to an archetype that combines both 'positive' and 'negative' interventions. These archetypes were the basis for our treatment variables.

To construct the dependent variable, we asked household respondents to assess what effect each of the (possibly multiple) interventions they experienced had on their use of land and forests. Afterwards we classified each of their responses as to whether it likely decreased forest carbon emissions ('success'), increased them ('failure'), or had no effect on them. To assure our approach was conservative, a given household was only classified as registering an overall 'success' in reducing emissions if at least one of the interventions produced a 'success' *and* none registered a 'failure'.

Probit regression analysis was used to estimate the effects of the number of interventions and the different archetypes of interventions on the probability of 'success' or reducing forest carbon emissions, controlling for certain household characteristics and for the country where the initiative is located.

Findings

In answer to the first research question, it was found that 1,510 (71%) of the 2,118 households were subject to forest interventions, although the percentage of households subject to forest interventions in each country varied considerably. Of these 1,510 households, slightly more than a quarter (28%) were engaged in REDD+ archetype intervention combinations, almost two-thirds (65%) in ICDP archetype intervention combinations, and 7% in 'enabling only' intervention combinations. Across these households, 42% were involved in interventions classified as 'positive only', 31% in a combination of 'positive' and 'negative' interventions, 21% in 'negative only' interventions, and 7% in 'enabling only' interventions.

We found lots of variation among sample countries when it came to the distribution of intervention categories, for both archetypes. At Peru sites almost all intervention combinations were of the ICDP archetype (98% of the total) and none were REDD+ interventions, whereas at Tanzania sites, intervention combinations were almost all the REDD+ archetype (96%) with very few being the ICDP archetype (4%). Distributions in the other four countries fall between these extremes. At the Cameroon, Tanzania, Indonesia and Vietnam sites there was frequent use of 'positive only' or a combination of 'positive' and 'negative' interventions, and correspondingly, 'negative only' interventions were avoided. By contrast, in Brazil and Peru we see relatively strong use of the 'stick' in comparison to the 'carrot', with 41% of households at the Brazil sites and 31% at the Peru sites experiencing 'negative only' interventions. The strongest tendency to use 'positive only' interventions was in Indonesia (71%) and the lowest was in Brazil (18%). The strongest tendency to use a combination of 'positive' and 'negative' interventions was at the African sites (Cameroon = 50%; Tanzania = 48%) and the lowest at the Asian sites (Indonesia = 13%; Vietnam = 0%).

Regarding the second research question about which combinations of interventions were most likely to produce success in reducing carbon emissions, we found that the overall number of interventions was statistically the most reliable predictor of success. In practice, intervention combinations with a larger number of interventions tended to include conditional incentives and a mix of 'positive' and 'negative' interventions. Accordingly, in specifications that did not include the count of interventions, we found that intervention combinations including conditional incentives together with mixes of 'positive' and 'negative' interventions were positively related with success. More robustly, 'positive only' bundles of interventions had a negative effect on the probability of success, regardless of which controls were included.

To illustrate the real-world circumstances through which interventions can alter household forest management practices and lead to reduced carbon emissions, we spotlight one of the 17 sites, the 'Pilot project on community-based REDD mechanisms for sustainable forest management in semiarid areas' in the Shinyanga region of Tanzania (Dwi Putri and Kweka 2014). The Shinyanga initiative is notable for its application of both 'positive' incentives (conditional as well as non-conditional) and 'negative' incentives with resulting reduction of pressures on local forests, and approval by local stakeholders (Wainaina et al. 2021).

Recommendations

At a time when REDD+ is in the process of transitioning from the pilot/local project phase to jurisdictional implementation on a wider scale, it is crucial for REDD+ policymakers and implementers to heed what science reveals about pathways to success. The results of this research show that implementers must pay close attention to the variety, combination and number of interventions deployed, if they are to achieve success in reducing forest carbon emissions. In particular, we find that multiple interventions are a precondition for success, that higher counts of interventions are linked to mixes of positive and negative interventions, and that including at least one negative intervention increases the chances of success.

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