

Technical Cooperation Abstract

I. Basic Project Data

▪ Country/Region:	BOLIVIA/CAN - Andean Group
▪ TC Name:	Evaluating the Effect of Bolivia's Environmental Rural Cadaster on Deforestation
▪ TC Number:	BO-T1452
▪ Team Leader/Members:	BLACKMAN, ALLEN (CSD/CSD) Team Leader; MATTOS VAZUALDO, JUAN DE DIOS ROGER (CSD/RND) Alternate Team Leader; SCHLING, MAJA (CSD/RND); MENDOZA BENAVENTE, HORACIO (LEG/SGO); GOMEZ, JUAN CARLOS (CSD/CCS)
▪ Taxonomy:	Client Support
▪ Number and name of operation supported by the TC:	N/A
▪ Date of TC Abstract:	09 Oct 2024
▪ Beneficiary:	Bolivia
▪ Executing Agency:	INTER-AMERICAN DEVELOPMENT BANK
▪ IDB funding requested:	US\$200,000.00
▪ Local counterpart funding:	US\$100,000.00 (In Kind)
▪ Disbursement period:	72 months
▪ Types of consultants:	Individuals
▪ Prepared by Unit:	CSD - Climate Change and Sustainable Development Sector
▪ Unit of Disbursement Responsibility:	CSD/CSD - Climate Change and Sustainable Development Sector
▪ TC included in Country Strategy:	No
▪ TC included in CPD:	Yes
▪ Alignment to the Update to the Institutional Strategy 2024-2030:	Social inclusion and equality ; Institutional capacity and rule of law; Environmental sustainability

II. Objective and Justification

- 2.1 This TC aims to answer three related research questions. First, what is the effect of the Bolivia's Environmental Rural Cadaster (ERC) on deforestation in the Bolivian lowlands, where the vast majority of the countries forest loss has occurred? Second, how are these effects moderated by the geophysical, socioeconomic, and institutional characteristics of rural properties? And finally, what are the implications of the answers to the first two research questions for the design and implementation of Bolivia's ERC and more broadly, for forest conservation and land regularization interventions in Latin American and the Caribbean?
- 2.2 Over the past several decades, IDB has provided hundreds of millions of dollars for rural land titling interventions, including large-scale operations in Brazil, Ecuador, Peru, and Guatemala. The principal aim has been to boost investment, productivity, food security, and other socioeconomic outcomes. As a result, impact evaluations have focused on these outcomes.
- 2.3 Less attention has been devoted to environmental outcomes, in particular deforestation, which is an urgent problem facing the region (Blackman et al. 2021). Unfortunately, both theory and empirical evidence indicate that in some contexts, land titling can exacerbate deforestation. Theory suggests that titling can increase landholders' access to credit, which in turn, boosts returns to agriculture relative to forest (Farzin 1984). And counterfactual evidence indicates that in some contexts, land tenure interventions lead to forest loss (Liscow 2013; Tseng et al. 2019).

- 2.4 These issues have recently come to the fore in Bolivia. The country's 51 million ha of forests are increasingly threatened. Since 2000, Bolivia has ranked among the world's 10 countries with the most net forest loss, almost all of which has occurred in the Bolivian lowlands (FAO 2010, 2020). During this same period, the IDB has provided financial and technical support for increasingly ambitious land titling and land tenure regularization efforts starting with a US\$2 million project in Santa Cruz in 2002 (1099/SF-BO), then a US\$22 million project also focused on Santa Cruz in 2003 (BO-0221), then a US\$60 million national project in 2016 (BO-L1113), and most recently, a US\$47 million national project in 2024 (BO-L1234).
- 2.5 To address concerns about potential adverse effects of land titling on deforestation, the most recent IDB operation (BO-L1234) features an innovative intervention, pioneered in Brazil over the past 15 years, but to our knowledge not used elsewhere: an environmental rural cadaster (ERC). Whereas conventional rural cadasters simply demarcate property boundaries, an ERC also maps the land uses (forest, agriculture, pasture, etc.) at baseline along with all applicable regulatory restrictions on land use and land cover on the property. The ERC is used to monitor and compel compliance with these restrictions. Brazil's ERC has mainly been used to ensure compliance with the country's 2012 Forest Code's 'Legal Reserve' provisions that require a minimum percentage of all private parcels be forested, ranging from 20 percent in the Atlantic Forest region to 80 percent in the Amazon region. Similarly, Bolivia's ERC will mainly be used to ensure compliance with the country's national Economic and Social Function (*Función Económica y Social*, FES) laws that require private parcels to have at least 50 percent forest cover. In addition, the ERC will be used to boost compliance with property-specific easements that, for example, require riparian areas (i.e., lands that border rivers and wetlands) to be protected. Enrollment in the ERC will be mandatory for all private properties. As discussed below, in principle, the ERC can reduce deforestation via three causal mechanisms: (i) enhancing formal regulatory pressure exerted by state institutions, (ii) strengthening informal regulatory pressure exerted by communities, capital markets and consumers; and (iii) bolstering landholders' management capacity. If this approach proves effective, it could be used in other LAC countries.

III. Description of Activities and Outputs

- 3.1 **Component 1. Design and data compilation.** This component will have the following elements: (i) randomization; (ii) land use and land cover data selection; (iii) administrative data acquisition; (iv) baseline survey design; and (v) data management system.
- 3.2 **Component 2. Randomized Controlled Trials (RCT) implementation.** This component will finance the implementation of the RCT. It will entail the following elements: (i) baseline survey administration; and (ii) data compilation.
- 3.3 **Component 3. Data analysis.** This component will finance data analysis and reporting.
- 3.4 **Component 4. Dissemination.** This component will finance write-up and dissemination of our results via the reports, workshops, and meetings described below.

IV. Budget

Indicative Budget (US\$)

Activity/Component	IDB Funding	Counterpart Funding	Total
Design and data compilation	70,000	0.00	70,000
RCT implementation	65,000	100,000	165,000
Data analysis	45,000	0	45,000
Dissemination	20,000	0	20,000
Total	200,000	100,000	300,000

V. Executing Agency and Execution Structure

- 5.1 This operation will be executed by the IDB in light of synergies and complementarities with Bank operations and research. The Climate Change and Sustainable Development sector's (CSD) Front Office will be responsible for the preparation, execution, and supervision of Components 1–3 and the administration module following the policies established by the Bank. The Team Leader, Allen Blackman, Economics Principal Advisor for CSD, will be responsible for the execution and monitoring of the operation. He will directly supervise the submission of deliverables and track that these products are delivered according to the project's planned timeline. He will be supported by the Alternate Team Leader and team member: Juan de Dios Mattos, (CSD/RND) Sector Senior Specialist working in the Bolivia COF (Project Team Leader for BO-L1234) and Maja Schling, CSD/RND Economics Senior Specialist, working at HQ (Alternate Team Leader for BO-L1234).
- 5.2 The principal reason for this execution structure is that the IDB, and the research team in particular, have the technical expertise to conduct the research described above. They have considerable experience conducting rigorous impact evaluations, including experimental ones, to evaluate the efficacy of forest conservation policies. In addition, the IDB and the project team have considerable experience implementing and analyzing IDB land tenure interventions. A second reason is that the Bank has the capacity to identify and fill knowledge gaps at the regional scale. A final reason has to do with dissemination: the policy implications from the proposed studies will be informative for other countries.

VI. Project Risks and Issues

- 6.1 The main risk to successful and timely execution of the project is that the implementation of the ERC under BO-L1234 is delayed. This risk and the measures taken to mitigate them are discussed in the BO-L1234 loan documents. Another risk is that implementation of ERC related activities will not adhere to the treatment assignment (randomization). This risk is mitigated by the fact that the research team is coordinating closely with the executing unit of the loan which has confirmed its willingness to randomize treatment assignment in part because it will allay potential concerns that it is driven by political considerations. The research team will continue to coordinate all research activities with the executing unit to ensure proper implementation of the evaluation.

VII. Environmental and Social Aspects

- 7.1 This TC does not have applicable requirements of the Bank's Environmental and Social Policy Framework (ESPF).