

TC ABSTRACT

I. Basic Project Data

▪ Country/Region:	REGIONAL/CAN - Andean Group
▪ TC Name:	Distributed Ledger Technology (Blockchain): The Future of Land Titling and Registry
▪ TC Number:	RG-T3356
▪ Team Leader/Members:	LIMA, EIRIVELTHON SANTOS (CSD/RND) Team Leader; MUNOZ, GONZALO P. (CSD/RND) Alternate Team Leader; MATTOS, JUAN DE DIOS (CSD/RND); PENARANDA, GINA (CAN/CBO); FRUGONE, MARIA DEL ROSARIO (CSD/RND); GARCIA NEGRO, ALVARO (CSD/RND); CHRETIEN, LOUIS-FRANCOIS (LEG/SGO); CATALANO, FERNANDO DAVID (GRU/CBO); VALLE PORRUA, YOLANDA (CSD/RND); RAMOS ANAVE, SANDRA VIVIANA (CAN/CPE); MIRANDA BAEZ, LUIS ENRIQUE (CSD/RND); PARDO, ALEJANDRO; ALLENDE LOPEZ, MARCOS (ITE/IPS); ALCARAZ RIVERO, ANDREA SERGIA (CSD/RND)
▪ Taxonomy:	Client Support
▪ Number and name of operation supported by the TC:	N/A
▪ Date of TC Abstract:	18 Jan 2019
▪ Beneficiary:	Land Titling and Registry Institutions of Bolivia, Paraguay, y Peru
▪ Executing Agency:	INTER-AMERICAN DEVELOPMENT BANK
▪ IDB funding requested:	\$ 500,000.00
▪ Local counterpart funding:	\$ 0.00
▪ Disbursement period:	36 months
▪ Types of consultants:	Individuals; Firms
▪ Prepared by Unit:	Env, Rural Dev & Disaster Risk
▪ Unit of Disbursement Responsibility:	Country Office Bolivia
▪ TC included in Country Strategy (y/n):	Yes
▪ TC included in CPD (y/n):	No
▪ Alignment to the Update to the Institutional Strategy 2010-2020:	Productivity and innovation ; Institutional capacity and rule of law

II. Objective and Justification

- 2.1 The main objective of this TC is to implement three blockchain pilot projects in Bolivia, Paraguay and Peru, where the Bank has executed and/or is currently executing rural land titling projects (Rural Land Regularization and Titling Program - 37222/BL-BO and Rural land Titling and Registration Project in Peru - 3370/OC-PE). The expected results of the TC include the following: (i) to prove that blockchain technology is fit to solve the problem of land titling and registry; (ii) develop a thorough understanding of the legal matters related to the application of blockchain technology to land titling and registry; (iii) identify the information technology requirements to implement the blockchain solution to land titling and registry; (iv) to understand the technology and process integration with existing land titling and registry systems; (v) to understand the blockchain governance required (incentives and coordination) to implement the proposed solution; and (v) to understand the costs and benefits of the application of blockchain technology to land titling and registry.
- 2.2 Land sale transactions often obligate buyers and sellers to contend with mountains of paperwork and lengthy procedures. Consequently, there are many parts of the real

estate land transactions, the sale of a property, that take a long time to be updated in the land registry institutions. In many cases, land transactions are not even registered because the process is lengthy and costly for poor landholders. In Bolivia, for instance, the land registry process requires 14 steps and it takes nearly 40 labor days to get it done, it is estimated it costs nearly USD1,152 for a small-scale farmer to register a land transaction. This problem leads to the following consequences:

- 2.3 (i) Land registry institutions are involved only in the final few steps of the real estate transaction. This results in a process that is not very transparent, visible to the public and/or other stakeholders. (ii) As the process is not transparent, there is significant room for corruption and land fraud, which has negative impact on the rural poor. (iii) As the transaction costs are high for small-scale farmers, the early public sector investment in the development of a cadaster of rural properties loses its value as the land cadaster becomes easily outdated.
- 2.4 By using Blockchain technology, it is possible to unlock the value of real-world assets and to exchange them in real time. In addition, Blockchain applied to land registry could:
- 2.5 (i) Reduce the need for trust between stakeholders by making actions within the system independently verifiable by each participant, therefore, improving accountability, and dis-incentivizing misbehavior through public auditability; (ii) Streamline business processes across multiple entities – separate entities using Blockchain network can leverage that shared infrastructure to effectively streamline inter-organizational business processes, with strong verifiability guarantees to have a consistent view of the data; and (iii) Increase record transparency and ease of auditability – the ledger gives participants assurance that everyone is storing, seeing, using, and processing the same database as everyone else, therefore, fraud can be immediately detected, and auditing is made significantly easier and less expensive as the Blockchain provides a real-time audit trail.
- 2.6 In summary, putting a real-world asset like land into digital form using Blockchain so that it can be exchanged easily and without friction promises to be disruptive for countries in Latin America and the Caribbean.

III. Description of Activities and Outputs

- 3.1 The activities and outputs are described in the components as requested by the participating countries.
- 3.2 **Component I. Understanding the problem and the applicability of blockchain to land titling and registry.** This component will: (i) undertake an in-depth diagnostic of land titling and registry process at both Bolivia, Paraguay, and Peru; (ii) analyze the applicability of the blockchain technology to land titling and registry; (iii) develop a business case and business model for the blockchain solution; and (iv) determine a minimum viable ecosystem (MVE) to implement a pilot project and identify key drivers of blockchain technology adoption to land titling and registry.
- 3.3 **Component II. Implementing a pilot blockchain technology in Bolivia and Peru.** This component will: (i) deploy a blockchain application to a starter network to run a proof of concept; (ii) simulate the creation and settlement of land sales transactions, advancing participants understanding of the technology; (iii) assess a list of requirements in terms of information technology; and (iv) investigate the need to integrate with existing systems and processes to ensure that the service works with the partners involved.
- 3.4 **Component III. Unlocking the Blockchain – legal requirements and governance.** This component will assess alternative blockchain governance models. The main outputs of this component are: (i) a report about the legal requirements to implement

blockchain in Bolivia, Paraguay and Peru; and (ii) a report detailing the alternative governance models that could be applied to the pilot countries.

- 3.5 **Component IV. Dissemination of the Results.** This component will finance a series of workshops to showcase: (i) the applicability of blockchain to land titling and registry, (ii) the lessons learned from the implementation of the three pilot projects (Bolivia, Paraguay, and Peru), and (iii) the assessment of the legal requirements and governance framework to implement the blockchain technology. The methodology to communicate the results of this TC will be developed together with the Knowledge, Innovation, and Communication Sector (KIC).

IV. Budget

Indicative Budget

Activity/Component	IDB/Fund Funding	Counterpart Funding	Total Funding
Component 1. Understanding the problem and the applicability of blockchain to land titling and registry.	\$ 40,000.00	\$ 0.00	\$ 40,000.00
Component 2. Implementing a pilot blockchain technology in Bolivia and Peru.	\$ 400,000.00	\$ 0.00	\$ 400,000.00
Component 3. Unlocking the Blockchain – legal requirements and governance.	\$ 40,000.00	\$ 0.00	\$ 40,000.00
Component 4. Dissemination of the Results	\$ 20,000.00	\$ 0.00	\$ 20,000.00

V. Executing Agency and Execution Structure

- 5.1 The IDB will be the executing agency.
- 5.2 Given the regional nature of the technical cooperation, the execution of the TC will be carried out by the Bank through the Environment and Rural Development Division (RND/CBO) in coordination with a working group conformed by the following institutions: (i) Bolivia - Instituto Nacional de Reforma Agraria (INRA) and Registro de Derechos Reales (DDRR); (ii) Perú - Unidad Ejecutora Gestión de Proyectos Sectoriales (UEGPS) and Superintendencia Nacional de Registros Públicos (SUNARP); and (iii) Paraguay - Servicio Nacional de Catastro (SNC) y Dirección General de Registros Públicos. The activities to be executed in the proposed CT will be included in a procurement plan and will be contracted in accordance with Bank policies as follows: (a) AM-650 for Individual consultants; (b) GN-2765-1 and Guidelines OP-1155-4 for Consulting Firms for services of an intellectual nature and; (c) GN-2303-20 for logistics and other related services.

VI. Project Risks and Issues

- 6.1 Major risks include: (i) changes in leadership, resource patterns, organizational and/or political priorities, communication failures (internal and external to the organization), resistance to change from invested parties and fatigue in implementation. To mitigate any potential disruption, the technical assistance will be contextually appropriate, modular and flexible, with identification and sustained monitoring of threats in implementation. Engagement with the decision makers will be constant to ensure an efficient approach in the execution of project activities. As the TC will be executed by

the Bank, it does not present risks related fiduciary management. Therefore, it will not require financial auditing.

VII. Environmental and Social Classification

7.1 The ESG classification for this operation is "C".