Land Registration: Mitigating Insider Attack via Blockchains

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Abstract

Land records maintenance is one of the biggest challenges, that gripped India, as here one is only presumed owner, and not a conclusive owner, until proved otherwise. Land record is a generic term used for “Register of Lands”, “Record of Rights (ROR)”, “Tenancy and crop inspection register” and “Disputed cases register”. These are maintained across different department at district or village level. In this work we propose a design for storing land records efficiently on Blockchain, mitigating threats like forgery and insider attack, while maintaining seamless coordination across different departments in real time.

Blockchain

Blockchain is a distributed immutable ledger, where blocks are chronologically arranged via cryptography. We use a public permissioned blockchain, where blocks could be read by anybody, but blocks could be generated only by few authorized users. We use Hyperledger-fabric blockchain to implement document verification and land record transactions on blockchain.

Department

Survey and Settlement
Land Records
Revenue Department
Stamp and registry

Record of Rights

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Chaincode and Peers

Chaincode:
- Updating land records
- Transaction and stamp collection
- Revenue calculation

Peers:
- Tehsildars,
- Revenue officers
- Survey and settlement department officers

References