

LAND REGISTRATION: MITIGATING INSIDER ATTACK VIA BLOCKCHAINS

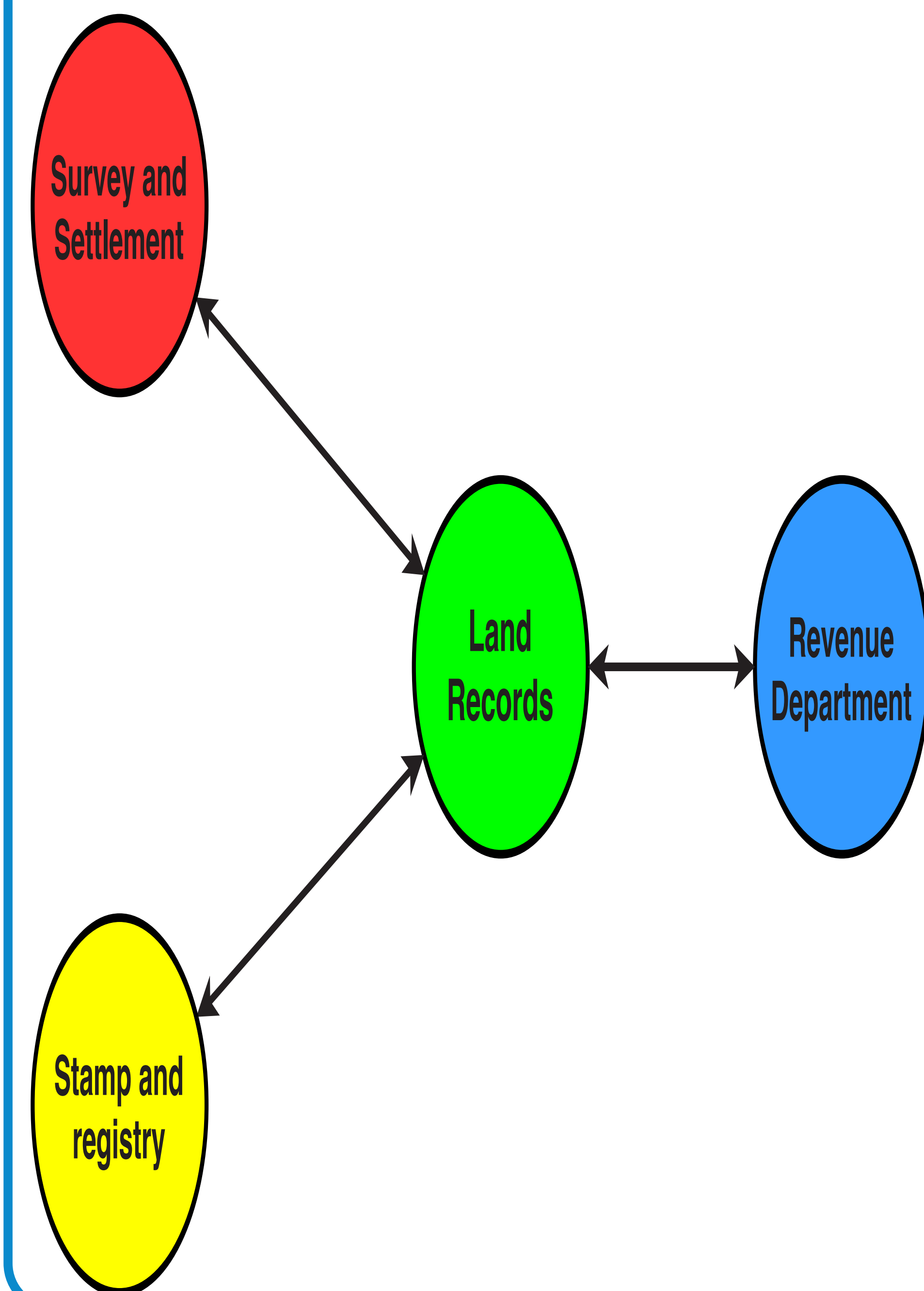


RAS DWIVEDI, ROHIT NEGI, DEVENDRA MEENA, ABHISHEK GUNDA, MANINDRA AGRAWAL, SANDEEP SHUKLA
INDIAN INSTITUTE OF TECHNOLOGY, KANPUR

ABSTRACT

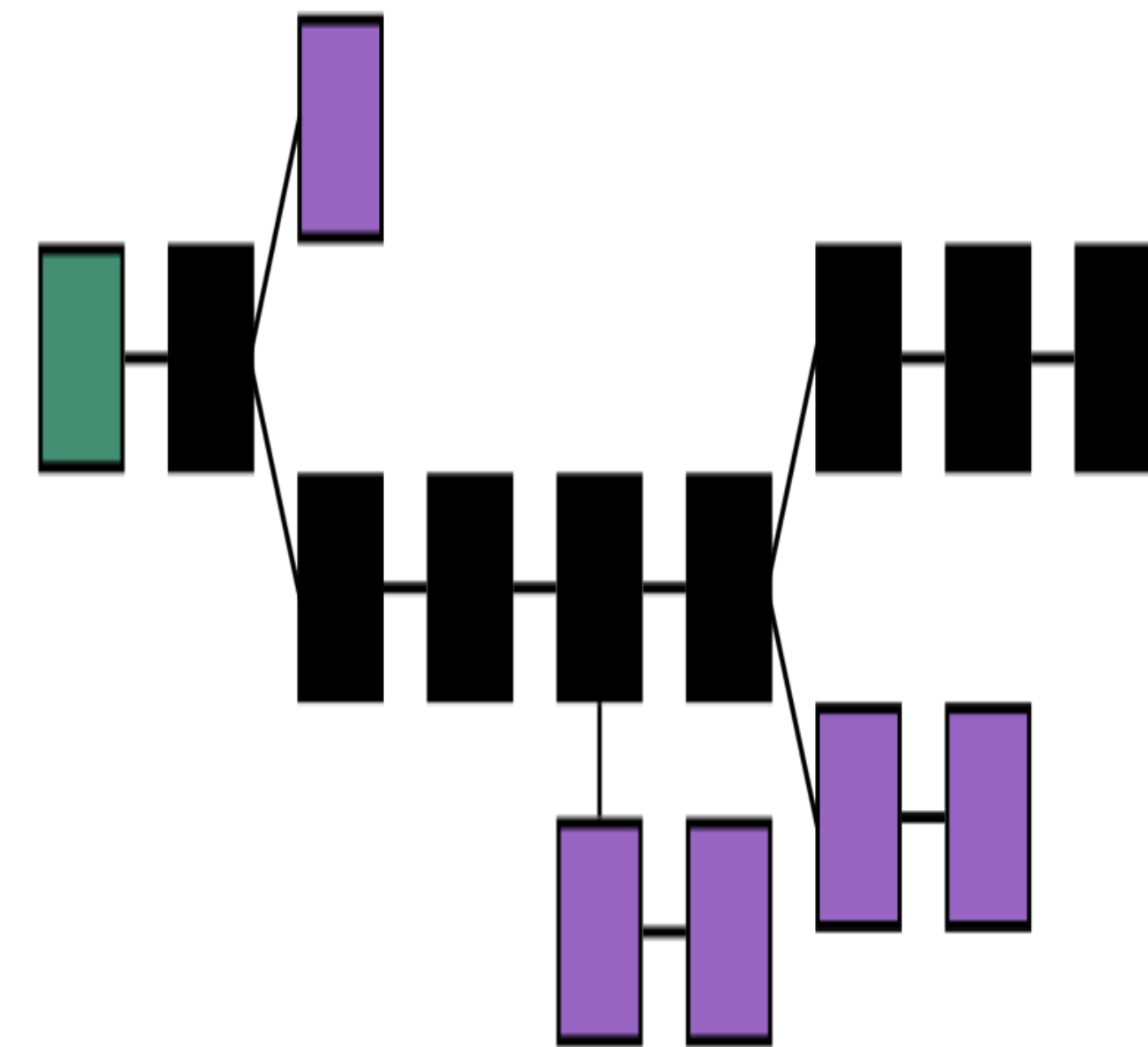
Land records maintenance is one of the biggest challenges, that gripped India, as here one is only presumed owner, and not a conclusive owner, until proved otherwise. Land record is a generic term used for "Register of Lands", "Record of Rights (ROR)", "Tenancy and crop inspection register" and "Disputed 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.

DEPARTMENTS



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



CHAINCODE AND PEERS

Chaincode:

- Updating land records
- transaction and stamp collection
- revenue calculation

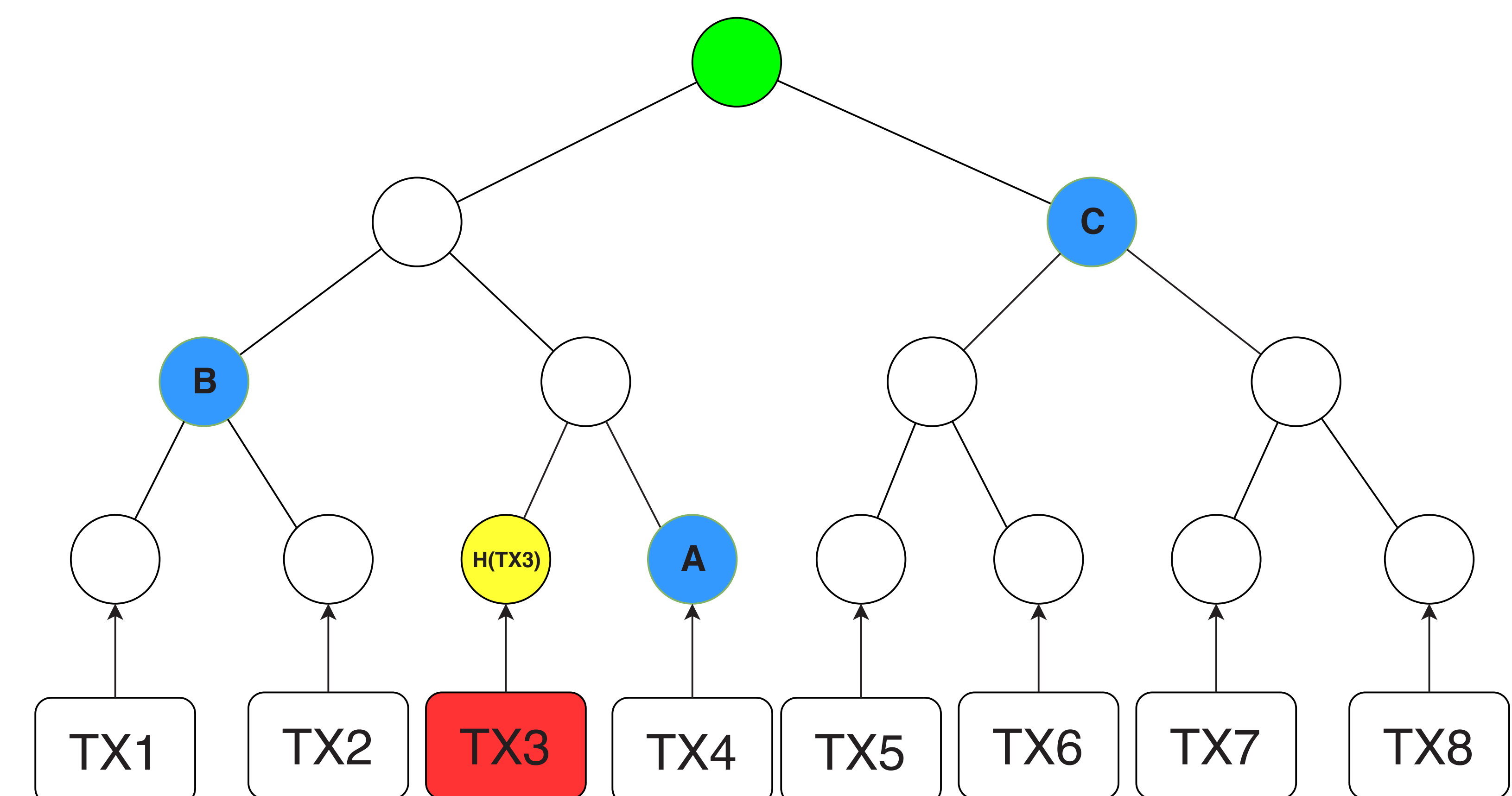
Peers:

- Tehsildars,
- Revenue officers
- survey and settlement department officers

RECORD OF RIGHTS

BHULEKH Uttar Pradesh					
खाता विवरण (अप्रमाणित प्रति)					
ग्राम का नाम : वीरपुर सलेमपुर	परगना : (भरथना)	तहसील : भरथना	जनपद : इटावा	फसली वर्ष : 1425-1430	भाग : 1
खातेदार का नाम / पिता पति संरक्षक का नाम / निवास स्थान			खसरा संख्या	क्षेत्रफल (हे.)	आदेश
टिप्पणी : 1-क / भूमि जो संक्रमणीय भूमिधरो के अधिकार में हो।					
अवधबिहारी / छोटेला / नि.ग्राम			36क	0.0280	
बरिन्द बहदुर / छोटेला / नि.ग्राम			698	0.1340	
कृष्ण मुरारी / छोटेला / नि.ग्राम			34	0.0240	
सत्यभान / हरिश्चन्द्र / नि.ग्राम					
चन्द्रभान / हरिश्चन्द्र / नि.ग्राम					
श्रवणकुमार / श्यामवाव / नि.ग्राम					
प्रदीपकु मार / सुरेन्द्रनाथ / नि.ग्राम					
संदीपकु मार / सुरेन्द्रनाथ / नि.ग्राम					
योग			3	0.1860	
Disclaimer: उक्त आँकड़े मात्र अवलोकनार्थ हैं, तहसील कम्प्यूटर केन्द्र एम.सी.एस.सी/लोकवाणी केन्द्र से उद्घरण की प्रमाणित प्रति प्राप्त की जा सकती है।					
Software Powered By: National Informatics Center, Uttar Pradesh State Unit, Lucknow.					

TOKENS



REFERENCES

[1] Satoshi Nakamoto Bitcoin: A Peer to Peer Electronic cash system

[2] <https://hyperledger-fabric.readthedocs.io/en/release-1.2/>

[3] http://upbhulekh.gov.in/public/public_ror/Public_ROR.jsp