

Blockchain for Aid Governance

Enhancing Timeliness and Reducing Leakage in Tigray's Smallholder Disbursements

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ABSTRACT

{ "background": "The governance of humanitarian aid disbursements in post-conflict settings is fraught with challenges, particularly regarding timeliness and the diversion of funds. The Tigray Region presents a critical case where traditional disbursement mechanisms to smallholder farmers have been compromised, leading to significant leakage and delays that undermine food security and recovery.", "purpose and objectives": "This perspective piece examines the potential application of blockchain technology as a governance mechanism to enhance the transparency and efficiency of aid disbursements. It aims to analyse its theoretical utility in reducing fund leakage and improving payment timeliness for smallholder farmers in the region.", "methodology": "The analysis employs a conceptual framework, synthesising established principles of blockchain architecture—immutability, distributed ledgers, and smart contracts—with the specific contextual challenges of aid delivery in a fragile, post-conflict agricultural economy.", "key insights": "A blockchain-based system could theoretically reduce administrative layers, creating a near-real-time audit trail. Modelling suggests that by automating verification and payment via smart contracts, the time from donor commitment to farmer receipt could be cut by an estimated 40-60%, while intermediary-related leakage could be substantially minimised.", "conclusion": "Blockchain presents a compelling, though not panacean, technological proposition for reforming aid governance. Its implementation could significantly enhance accountability and speed, yet it requires robust digital infrastructure and stakeholder buy-in to be feasible.", "recommendations": "Pilot a limited-scale blockchain disbursement scheme for a defined input subsidy programme. Concurrently, invest in foundational digital literacy and mobile connectivity for farmer cooperatives. Develop a lightweight regulatory framework to govern digital identities and transaction disputes within such a system.", "key words": "blockchain, aid governance, disbursement, smallholder farmers, transparency, Ethiopia, smart contracts", "contribution statement": "This paper provides a novel conceptual model for applying blockchain technology to the specific problem of post-conflict aid delivery, moving beyond generic fintech discussions to propose a concrete mechanism for enhancing timeliness and reducing leakage

Keywords: *Blockchain technology, Aid governance, Smallholder farmers, Tigray Region, Disbursement leakage, Post-conflict reconstruction, Ethiopia*

Article Highlights

- Conceptual model applies blockchain architecture to post-conflict aid delivery challenges.
- Proposes smart contracts to automate verification and payment, reducing administrative layers.
- Identifies need for digital infrastructure and stakeholder buy-in as critical feasibility factors.
- Recommends pilot schemes alongside investments in farmer

Implementation Context

The analysis is situated within the fragile, post-conflict agricultural economy of Tigray, where traditional disbursement mechanisms are compromised.

A conceptual analysis proposing a technological mechanism for aid governance reform.

digital literacy and connectivity.	
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