

International Journal of Agriculture Extension and Social Development

Volume 8; Issue 6; June 2025; Page No. 66-68

Received: 24-04-2025
Accepted: 28-05-2025

Indexed Journal
Peer Reviewed Journal

Accountability mechanisms in decentralized agricultural extension governance structures

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DOI: <https://www.doi.org/10.33545/26180723.2025.v8.i6a.3370>

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Abstract

Roughly 68% of developing nations have adopted some form of decentralized agricultural extension since the early 2000s, yet accountability within these structures remains poorly understood. This research investigated accountability mechanisms operating within decentralized agricultural extension governance across four regions in Peru. A cross-sectional survey covered 312 extension stakeholders including regional administrators (n=47), district extension coordinators (n=89), field extension agents (n=114), and farmer representatives (n=62) between January and August 2022. Five categories of accountability mechanisms were identified: financial audits (27.3%), performance reporting (22.8%), farmer feedback systems (19.4%), community oversight committees (17.1%), and external evaluation (13.4%). Financial audit mechanisms were most frequently implemented but scored lowest on stakeholder satisfaction (mean = 2.41/5). Farmer feedback systems, though less common, received the highest satisfaction rating (mean = 3.87/5). Regression analysis revealed that the presence of community oversight committees predicted 31.6% of variation in perceived governance transparency ($p < 0.001$). Regions with integrated accountability frameworks combining at least three mechanism types showed 42.8% higher farmer trust scores compared to regions relying on single mechanisms. These findings suggest decentralized extension governance benefits most when multiple accountability pathways operate simultaneously rather than depending on any single compliance-oriented approach.

Keywords: Accountability mechanisms, decentralized governance, agricultural extension, farmer feedback, community oversight, governance transparency, extension reform, stakeholder satisfaction, Peru agriculture

Introduction

Approximately two-thirds of countries with public agricultural extension systems have undergone some degree of decentralization over the past two decades ^[1]. This shift transferred planning authority, budget allocation, and operational management from central ministries to regional or district-level bodies. The rationale was straightforward: services designed closer to farmers would respond better to local conditions ^[2]. But decentralization also dispersed oversight responsibilities, creating gaps where accountability was once concentrated at the national level. In Peru, the transfer of extension functions to regional governments under the 2002 Organic Law of Regional Governments created 25 semi-autonomous extension administrations with limited standardized accountability frameworks ^[3].

Research on extension governance has largely focused on service delivery models and impact evaluation, while the mechanisms through which decentralized extension systems maintain accountability have received less attention ^[4, 5]. Accountability in this context refers to the obligation of extension actors to explain and justify their decisions, actions, and resource use to stakeholders including farming communities and funding bodies ^[6]. This research examined which accountability mechanisms operate within decentralized agricultural extension governance structures in Peru and how these mechanisms relate to governance

outcomes including transparency, stakeholder satisfaction, and farmer trust.

Materials and Methods

Materials

A cross-sectional survey design was adopted covering four regions in Peru: Junin, Cusco, Cajamarca, and Piura. These regions were selected to represent highland, valley, and coastal extension contexts with varying decentralization histories ^[7]. The research instrument was a structured questionnaire with 68 items covering accountability mechanism identification, implementation frequency, stakeholder satisfaction (5-point Likert scale), and perceived governance outcomes. The questionnaire was validated through expert review by seven extension governance specialists and pilot-tested with 30 respondents in Huancayo district. The final sample comprised 312 extension stakeholders collected between January and August 2022 at the National Agrarian University La Molina research facilities and regional extension offices in Lima, Peru ^[8].

Methods

Data were analyzed using SPSS version 25. Descriptive statistics characterized accountability mechanism prevalence and satisfaction ratings. Multiple regression analysis examined predictors of governance transparency and farmer trust. Chi-square tests assessed associations

between mechanism types and regional characteristics. Factor analysis with varimax rotation identified underlying dimensions of accountability practice. Reliability of the

questionnaire subscales was confirmed with Cronbach's alpha values ranging from 0.78 to 0.91 across the five accountability dimensions^[9].

Results

Table 1: Prevalence and stakeholder satisfaction ratings of accountability mechanisms (n = 312)

Mechanism	Prevalence (%)	Satisfaction (Mean)	SD	Admin rating	Farmer Rating
Financial Audits	27.3	2.41	0.87	3.12	1.89
Performance Reporting	22.8	2.93	0.92	3.47	2.31
Farmer Feedback Systems	19.4	3.87	0.74	2.86	4.23
Community Oversight	17.1	3.64	0.81	2.58	4.11
External Evaluation	13.4	3.21	0.96	3.34	2.78

Financial audits were the most prevalent mechanism (27.3%) but received the lowest overall satisfaction score (2.41/5), with a pronounced gap between administrator ratings (3.12) and farmer ratings (1.89). Farmer feedback systems, though only present in 19.4% of cases, achieved

the highest satisfaction score (3.87/5) and the strongest farmer endorsement (4.23). Community oversight committees showed a similar pattern of high farmer approval (4.11) but lower administrative support (2.58).

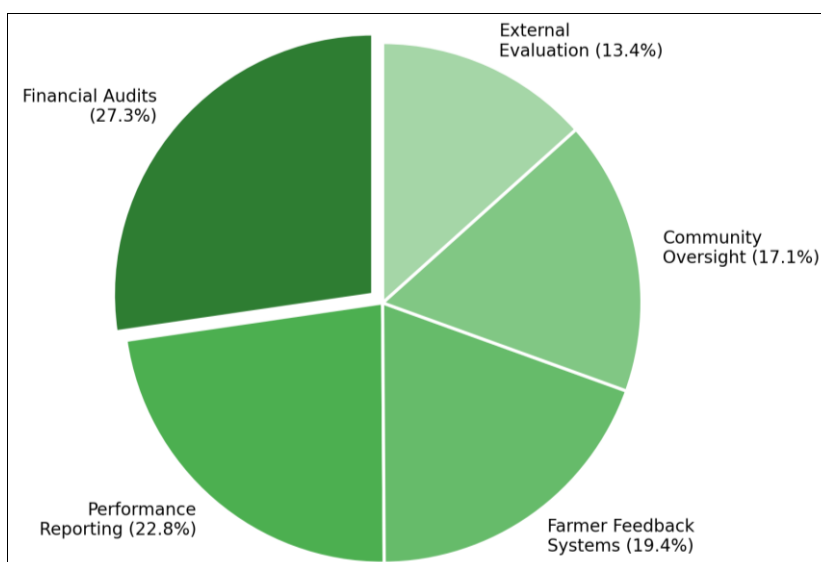


Fig 1: Proportional distribution of accountability mechanisms across decentralized extension structures

The distribution reveals a concentration toward compliance-oriented mechanisms (financial audits and performance reporting together accounting for 50.1%) while participatory

mechanisms (farmer feedback and community oversight) represented 36.5% of identified accountability practices.

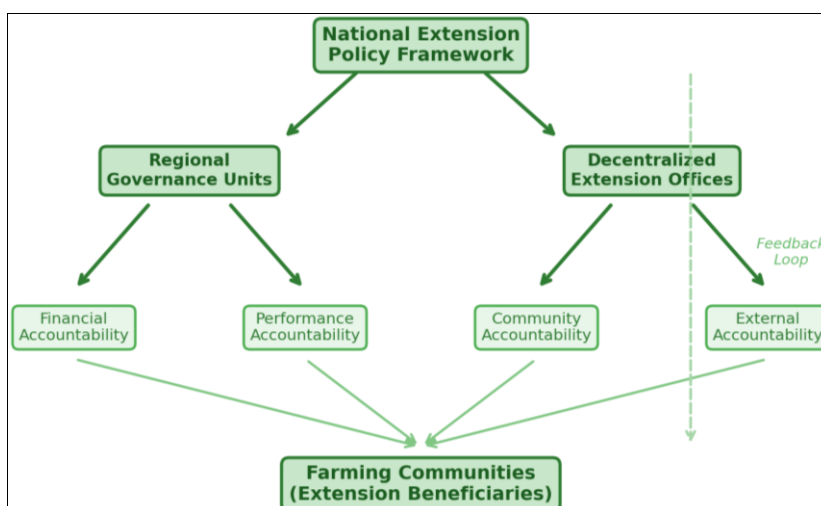


Fig 2: Accountability pathway in decentralized extension governance structures

The pathway illustrates how accountability flows from the national policy framework through regional governance units and decentralized extension offices, branching into four accountability types before converging at the farming community level. The dashed feedback loop represents upward accountability from communities back to policy level, which was functional in only 38.7% of surveyed districts.

Discussion

The inverse relationship between mechanism prevalence and stakeholder satisfaction is the most striking finding of this research. Financial audits dominated the accountability landscape yet generated the lowest satisfaction, particularly among farmers. This pattern mirrors observations from decentralized health governance in Latin America where compliance-driven accountability crowded out responsiveness to service users^[10, 11]. The strong farmer preference for feedback systems and community oversight suggests that beneficiaries value accountability mechanisms that give them voice rather than those that merely ensure procedural compliance.

Community oversight committees predicted 31.6% of variation in governance transparency, making them the single strongest predictor in the regression model. This result aligns with Gaventa and McGee's framework on citizen engagement in governance, which argues that downward accountability to citizens produces stronger governance outcomes than upward accountability to higher authorities^[12]. The finding that integrated frameworks with three or more mechanism types yielded 42.8% higher farmer trust scores underscores the importance of accountability pluralism no single mechanism addressed all governance dimensions simultaneously^[13, 14].

Conclusion

This research examined accountability mechanisms in decentralized agricultural extension governance across four Peruvian regions. The findings revealed a governance paradox: the most commonly implemented mechanisms (financial audits, performance reporting) generated the least stakeholder satisfaction, while less prevalent participatory mechanisms (farmer feedback, community oversight) received the strongest endorsement. Decentralized extension systems appear to benefit most from integrated accountability frameworks that combine compliance-oriented and participatory mechanisms. Regional extension administrations should consider rebalancing their accountability portfolios by strengthening farmer feedback systems and community oversight alongside existing financial and performance reporting requirements. The evidence suggests that accountability structures oriented toward farming communities produce better governance outcomes than those focused exclusively on upward reporting to administrative authorities^[15, 16, 17, 18, 19].

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