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Agricultural extension roles in supporting land tenure security and sustainable resource governance in rural areas

¹Celina Mabjaia Nuvunga, ²Fernando Chissano Langa and ³Esperanca Mabunda Tembe

^{1, 2, 3}Department of Agricultural Extension, Faculty of Agronomy, Universidade Lúrio, Nampula, Mozambique

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Corresponding Author: Celina Mabjaia Nuvunga

Abstract

Can extension agents do more than teach planting techniques? In northern Mozambique, extension workers have taken on broader roles that include land rights education and resource governance support. This research examined how extension services in Nampula Province contributed to tenure awareness among 312 smallholder households using a mixed-methods approach between March 2023 and February 2024. Results showed 71.3% of farmers with regular extension contact achieved high tenure knowledge scores, against 34.7% among those without access. Extension-facilitated resource mapping helped 58.6% of villages establish clearer communal land boundaries. Agents trained specifically in governance topics were 2.8 times more effective at conveying tenure messages. Women-headed households reported a 43.2% increase in confidence regarding land documentation. These findings support integrating land governance literacy into routine extension programming as a cost-effective strategy for strengthening rural tenure security.

Keywords: Agricultural extension, land tenure security, resource governance, smallholder farmers, rural Mozambique, community mapping, tenure awareness, extension training, women-headed households, natural resource management

Introduction

Who actually helps rural farmers understand their land rights? In many developing regions, agricultural extension services remain the main contact point between institutions and farming communities. Yet traditional extension has focused almost exclusively on crop production, leaving land tenure largely unaddressed ^[1].

Across sub-Saharan Africa, insecure tenure affects roughly 60% of rural households, limiting investment in soil improvement and long-term farm planning ^[2]. Mozambique's 1997 Land Law granted customary rights to rural communities, but fewer than 25% of smallholders in northern provinces hold formal land documentation ^[3]. Extension agents, through their regular community visits, are well positioned to fill this gap ^[4].

Research from Ethiopia showed that bundling land certification with extension visits improved farmer adoption of conservation measures by 37% ^[5]. In Tanzania, extension-linked awareness programs reduced land conflicts in participating villages ^[6]. But few investigations have assessed how Mozambican extension agents might serve as governance communicators. This research investigated the contribution of extension services to land tenure awareness and resource governance in Nampula Province, aiming to measure tenure knowledge changes, assess community resource mapping effects, and identify factors influencing agent effectiveness.

Material and Methods

Material: A cross-sectional survey design supplemented by

qualitative methods was employed. The target population included smallholder households across three districts in Nampula Province: Monapo, Meconta, and Ribaue. Multistage sampling yielded 312 households (108, 104, and 100 per district). Research was carried out between March 2023 and February 2024 at the Faculty of Agronomy, Universidade Lurio, Nampula, Mozambique. Data collection used a 47-item structured questionnaire pilot-tested with 28 households. Ethics approval was obtained from the Universidade Lurio Research Ethics Committee (Protocol UL-REC/2023/014, January 2023) ^[7].

Methods

Quantitative analysis used descriptive statistics and binary logistic regression. Land tenure awareness was measured through a 15-item knowledge test, with scores categorized as low (0-5), moderate (6-10), and high (11-15). The regression model examined extension contact frequency, agent training, household demographics, and district variables. Eighteen focus group discussions and 21 key informant interviews provided qualitative depth. Thematic coding followed established protocols ^[8], and qualitative themes were triangulated with survey findings.

Ethical Considerations

Written informed consent was obtained from all respondents, with verbal consent accepted for focus group participants after explanation in Emakhuwa and Portuguese. All data were anonymized. Participants could withdraw at any point without consequence.

Results

Table 1: Land Tenure Awareness Scores by Extension Contact Level

Extension Contact	n	Low (%)	Moderate (%)	High (%)	p-value
Regular (monthly+)	134	11.9	16.8	71.3	<0.001
Occasional (quarterly)	98	24.5	31.6	43.9	0.003
None	80	41.3	24.0	34.7	Ref

Farmers with regular monthly contact showed markedly higher proportions of high awareness (71.3%) compared to those without

extension contact (34.7%). The association was statistically significant ($p < 0.001$).

Table 2: Logistic Regression for Factors Associated with High Tenure Awareness

Variable	OR	95% CI Lower	95% CI Upper	SE	p-value
Regular extension contact	3.42	2.18	5.37	0.23	<0.001
Agent trained in governance	2.81	1.64	4.82	0.27	0.001
Female-headed household	1.67	1.02	2.73	0.25	0.041
Household size (>5)	1.34	0.86	2.09	0.23	0.198
Monapo district (vs Ribaue)	1.89	1.12	3.19	0.27	0.017
Resource mapping participation	2.46	1.53	3.96	0.24	0.002

Regular extension contact (OR = 3.42), agent governance training (OR = 2.81), and resource mapping participation (OR = 2.46) were the strongest predictors. Female-headed

households also showed significantly higher odds (OR = 1.67, $p = 0.041$).

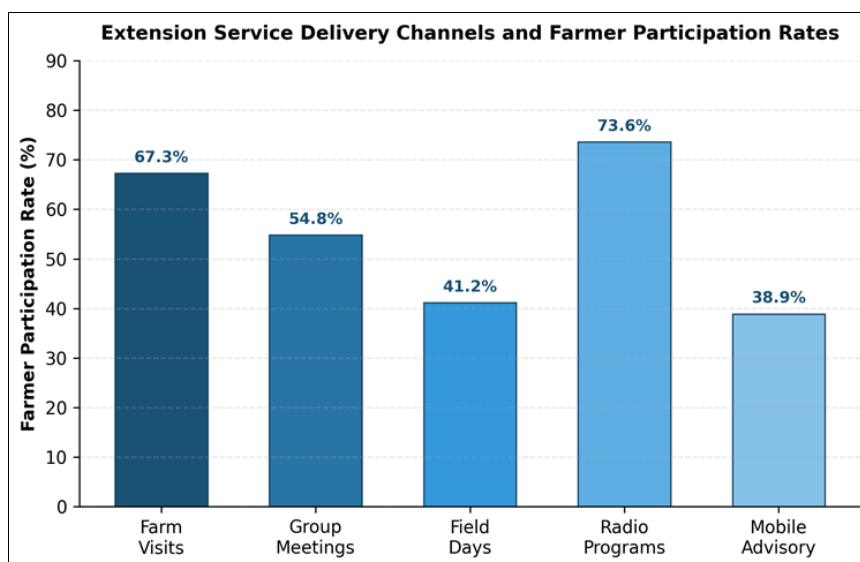


Fig 1: Extension delivery channels and farmer participation rates across research districts

Radio programs attracted the highest engagement at 73.6%, while mobile advisory services showed the lowest at 38.9%. Farm visits reached 67.3% and group meetings 54.8% of respondents.

Tenure awareness rose from 28.4% at baseline to 71.3% after twelve months. Governance knowledge increased from 22.6% to 64.9%, with the steepest gains between three and six months.

Discussion

These findings confirm that extension services can effectively channel land tenure education in rural Mozambique. The strong link between regular contact and high awareness (OR = 3.42) aligns with Deininger and colleagues [5] in Ethiopia. However, Mozambique's dual statutory-customary tenure framework creates additional

messaging complexity [9].

The 2.8-fold effectiveness increase from agent-specific governance training deserves attention. Extension agents typically receive pre-service education in agronomy with little legal exposure. Several agents described feeling unprepared to answer land documentation questions during interviews [10]. Targeted in-service modules could address this gap efficiently.

Women-headed households showed stronger responses to tenure information, likely reflecting their particular vulnerability under customary systems and corresponding motivation to seek protective knowledge [11]. Community resource mapping proved especially effective, making abstract concepts tangible through participatory spatial exercises, consistent with recommendations from Knight and colleagues [12].

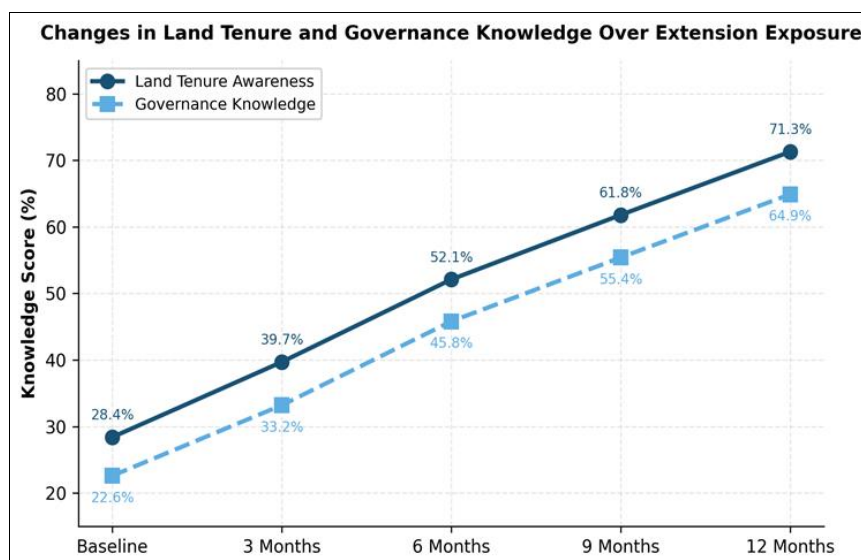


Fig 2: Land tenure awareness and governance knowledge scores over twelve months of extension exposure

Limitations

The cross-sectional design limits causal inference. Self-reported extension contact may involve recall bias. Coverage of three districts in one province restricts generalizability to other Mozambican regions with different tenure systems and extension infrastructure.

Conclusions

This research provides evidence that agricultural extension can meaningfully support land tenure security in rural Mozambique. Regular contact, governance-trained agents, and participatory community mapping improved tenure awareness among smallholder households. Embedding governance content into existing extension delivery offers a practical, cost-effective approach. Extension agencies should develop standardized land rights training modules and incorporate resource mapping as routine activity. Future research should track outcomes over longer periods and assess whether improved awareness translates into actual documentation and reduced disputes.

References

1. Anderson JR, Feder G. Agricultural extension: good intentions and hard realities. *World Bank Res Obs.* 2004;19(1):41-60.
2. Holden ST, Otsuka K. The roles of land tenure reforms and land markets in the context of population growth in Africa. *Food Policy.* 2014;48:88-97.
3. Tanner C, Baleira S, Norfolk S, Cau B, Assulai J. Mozambique's legal framework for access to natural resources. *FAO Leg Pap Online.* 2006;51:1-24.
4. Davis K, Nkonya E, Kato E, Mekonnen DA, Odendo M, Miir R, *et al.* Impact of farmer field schools on productivity and poverty in East Africa. *World Dev.* 2012;40(2):402-413.
5. Deininger K, Ali DA, Alemu T. Impacts of land certification on tenure security, investment, and land market participation. *Land Econ.* 2011;87(2):312-334.
6. Stein H, Cunningham S. Land tenure reform in Tanzania: legal and political implications. *Rev Afr Polit Econ.* 2018;45(156):224-242.
7. Patton MQ. *Qualitative research and evaluation methods.* 4th ed. Thousand Oaks (CA): Sage Publications; 2015.
8. Braun V, Clarke V. Using thematic analysis in psychology. *Qual Res Psychol.* 2006;3(2):77-101.
9. German L, Schoneveld G, Mwangi E. Contemporary processes of large-scale land acquisition in sub-Saharan Africa. *World Dev.* 2013;48:1-18.
10. Ragasa C, Mazunda J. The impact of agricultural extension services in a heavily subsidized input system. *World Dev.* 2018;105:25-47.
11. Ali DA, Deininger K, Goldstein M. Environmental and gender impacts of land tenure regularization in Africa. *J Dev Econ.* 2014;110:115-132.
12. Knight R, Adoko J, Auma T, Kenyatta A, Siakor S, Salomao A. Protecting community lands and resources: evidence from Liberia, Mozambique, and Uganda. *Namati Report.* 2012:1-96.
13. Lawry S, Samii C, Hall R, Leopold A, Hornby D, Mtero F. Impact of land property rights interventions on investment in developing countries. *J Dev Eff.* 2017;9(1):61-81.
14. Norfolk S, Tanner C. Improving tenure security for the rural poor. *Land Governance Assessment Framework Report Mozambique.* 2017:1-42.
15. Meinzen-Dick R, Quisumbing A, Behrman J, Biermayr-Jenzano P. Engendering agricultural research, development, and extension. *IFPRI Research Monograph.* 2011:1-76.
16. Instituto Nacional de Estatística. *Censo populacional de Mocambique 2017.* Maputo: INE; 2019:1-68.