



Perceived effects of professionalization of extension services on delivery by agents in Sierra Leone

Efectos percibidos de la profesionalización de los servicios de extensión en la prestación de servicios por parte de los agentes en Sierra Leona

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ABSTRACT: This study examines the perceived benefits of professionalization on extension services in Sierra Leone's Eastern Province. A cross-sectional, descriptive study design was employed, utilizing quantitative data collection methods. A purposive and simple random sampling techniques were employed to select 300 extension agents in the study area. Data were collected through a structured questionnaire comprising six sections, each addressing specific objectives. The results indicate that the majority of respondents have 8-11 years of experience, with a significant portion residing in their job locations. A moderate to high level of knowledge about professionalization concepts was observed, alongside diverse information sources used by the agents. While respondents exhibited strong awareness of accreditation, certification, and registration's role in enhancing service delivery, there was a weaker understanding of professionalization's impact on ethical standards. Several barriers to professionalization were identified, with respondents acknowledging its positive effect on service delivery. Most of the extension agents are experienced, well-educated, and maintain strong connections with rural communities but their attitudes towards professionalization are polarized with respect to positive and negative dimensions. There is considerable support for its potential to improve service quality, accountability, and the profession's image. However, the study highlights the need to address barriers to foster positive attitudes and fully realize the benefits of professionalization in extension services. The factors that influence perception are household size, job location, and number of farmers covered, knowledge acquisition and access to information sources

Key words: extension services, certification, registration, accreditation.

RESUMEN: Este estudio examina los beneficios percibidos de la profesionalización en los servicios de extensión en la provincia oriental de Sierra Leona. Se empleó un diseño de estudio transversal y descriptivo, utilizando métodos de recopilación de datos tanto cualitativos como cuantitativos. Se emplearon técnicas de muestreo intencional y aleatorio simple para seleccionar a 300 agentes de extensión en el área de estudio. Los datos se recopilaron mediante un cuestionario estructurado que constaba de seis secciones, cada una de las cuales abordaba objetivos específicos. Los resultados indican que la mayoría de los encuestados tienen entre 8 y 11 años de experiencia, y una parte significativa reside en sus lugares de trabajo. Se observó un nivel de conocimiento de moderado a alto sobre los conceptos de profesionalización, junto con diversas fuentes de información utilizadas por los agentes. Si bien los encuestados mostraron una gran conciencia del papel de la acreditación, la certificación y el registro en la mejora de la prestación de servicios, se observó una menor comprensión del impacto de la profesionalización en las normas éticas. Se identificaron varias barreras para la profesionalización, y los encuestados reconocieron su efecto positivo en la prestación de servicios.

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La mayoría de los agentes de extensión tienen experiencia, un buen nivel de formación y mantienen fuertes vínculos con las comunidades rurales, pero sus actitudes hacia la profesionalización están polarizada con respecto a las dimensiones positivas y negativas. Existe un apoyo considerable a su potencial para mejorar la calidad del servicio, la rendición de cuentas y la imagen de la profesión. No obstante, el estudio destaca la necesidad de abordar los obstáculos para fomentar actitudes positivas y aprovechar plenamente los beneficios de la profesionalización en los servicios de extensión. Los factores que influyen en la percepción son el tamaño del hogar, la ubicación del empleo, el número de agricultores atendidos, la adquisición de conocimientos y el acceso a fuentes de información.

Palabras clave: servicios de extensión, certificación, registro, acreditación.

INTRODUCTION

Agriculture remains the primary income source for rural populations worldwide, with over 40% relying on it for their livelihoods (1). Agricultural extension services play a critical role in supporting farming households, enhancing food production, and improving farm yields, which in turn raises incomes and living standards (2). In Sierra Leone, agriculture is the backbone of the economy, influencing multiple sectors. It supplies raw materials for manufacturing and plays a key role in food security and industrialization (3, 4). Extension services provide farmers with crucial information and link them to research for increased productivity. Historically, extension services in Sierra Leone focused on improving rural livelihoods through access to inputs, technology, and effective extension. Initially, extension services centered on information transfer, this approach has evolved to emphasize participatory methods in line with modern rural development practices (5, 6). Over the past two decades, there has been a growing push to professionalize extension services, shifting from government-led to private-sector-led models (7). This transition aims to address inefficiencies such as poor extension agent knowledge, weak communication, and limited research linkages. Donor organizations have also raised concerns over declining returns on investment in extension services, leading to reduced funding (8). Consequently, professionalizing agricultural extension has become imperative. Professionalism in agriculture extends beyond technical competence to include integrity, ethical behavior, and a commitment to excellence (9). In extension services, professionalism ensures that extension agents are skilled, ethical, and responsive to farmers' needs. It is categorized into occupational and organizational professionalism, emphasizing accreditation, certification, and ongoing training (10). Professionalization enhances credibility, accountability, and service quality, ensuring extension agents adhere to high standards and operate effectively (11). The process involves policy development to certify practitioners and uphold shared professional norms (12). Despite these benefits, Sierra Leone's extension system faces challenges, including a lack of formal policy, inadequate funding, and weak research-extension-farmer linkages (6). Many rural farmers remain illiterate, relying on traditional knowledge rather than modern agricultural techniques. Extension services are crucial for disseminating new technologies and best practices (13).

However, inefficiencies and poor accountability have led to criticisms, with agents often perceived as disconnected from farmers' realities (14). Limited investment and economic sustainability further exacerbate these issues, highlighting the need for reform. Establishing a policy framework promoting ethics and continuous training is essential for enhancing extension service delivery (10). The International Academy of Rural Advisors underscores the importance of professionalizing extension through accreditation and certification to ensure extension agents possess the necessary skills to support farmers effectively (15). In Sierra Leone, similar professionalization efforts could improve extension agents' qualifications, competence, and work ethics, ultimately strengthening service delivery and the agricultural sector's overall performance. This study aims to examine the professionalization of extension services and its impact on service delivery in Sierra Leone's Eastern Province. The specific objectives are: (a) to describe the socio-economic characteristics of extension agents in the study area, (b) to identify the sources of information on the professionalization of extension used by extension agents, (c) to assess the knowledge of extension agents regarding the professionalization of extension services, (d) to evaluate the attitudes of extension agents towards the professionalization of extension services in the study area, (e) to identify the barriers to the professionalization of extension service providers in the study area, and (f) to determine the perceived effects of professionalization on the quality and effectiveness of extension service delivery in the in the Eastern Province of Sierra Leone.

MATERIALS AND METHODS

This study was conducted in Kailahun, Kenema, and Kono districts in Sierra Leone's Eastern Province, covering 15 553 km² with a population of 1 641 012. The region hosts key agricultural institutions, including the Sierra Leone Agricultural Research Institute, extension agencies, and agro-focused NGOs (3). At the national level, the Director of Extension Services, assisted by a Deputy Director, oversees extension services. District Extension Officers (DEOs) manage district-level services, while Block Extension Supervisors (BES) oversee blocks within districts. Each block is further divided into circles, led by Frontline Extension Workers (FEWs) who directly engage with farmers (3). The Ministry of Agriculture and Forestry (MAF) is the primary provider of public extension services, with NGOs collaborating to extend services in rural areas.

Across the three districts, there are 526 public extension agents and 309 private extension agents from agro-based NGOs (3). A total of 300 including 150 government and 150 NGO/private extension agents were selected for this study.

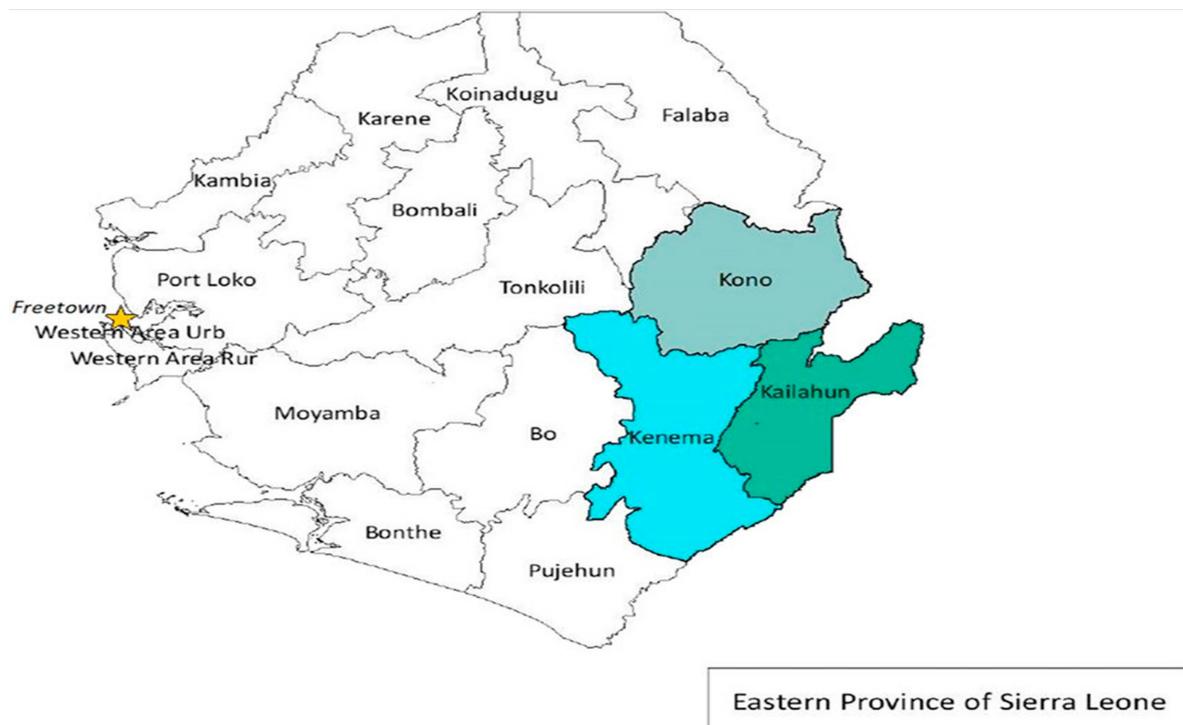
A cross-sectional descriptive study design was employed, using quantitative methods. The sampling involved two stages: purposive selection of the three districts and random selection of 300 extension agents, ensuring equal representation of public and private sectors. Data were collected using adapted structured questionnaire (16), covering socio-economic characteristics, sources of information, knowledge, attitudes, barriers, and perceived effects of professionalization. Data analysis

was conducted using SPSS version 26.0, employing frequency counts, percentages, correlation, t-tests and multiple regression analysis.

RESULTS

The results of on the socio-economic characteristics of extension agents are presented in Table 2. It covers age, gender, educational level, job tenure and their engagement in extension activities.

The results in Table 3 cover the level of knowledge of extension agents on professionalization of extension. It covered the major areas of accreditation, certification and registration.



Source: (MAF 3)

Figure 1. Map of Sierra Leone Showing the Study Area

Table 1. Distribution of key operational extension agents across three districts in eastern province, Sierra Leone

List of Public Extension organization	Total number of extension officers in public extension organizations	Number of sample extension officer for the study from each public organization	List of Private Extension organizations	Total number of Extension officers in Private Extension organization	Number of sample extension officer for the study from each private organization
Ministry of Agriculture and Food (MAF)	156	50	Solidaridad	71	50
Agricultural Value-chain Development Program (AVDP)	87	25	Catholic Relief Services (CRS)	110	50
Sierra Leone Agricultural Research Institute (SLARI)	189	50	Hellenkeller International	78	25
Boosting Agriculture and Food Security (BAFS)	94	25	Action Against Hunger (AAH)	50	25
Total	150		Total		150

Source: MAF 3

Table 2. Distribution of extension agents according to their socio-economic characteristics

Socio-economic Characteristics	Options	Frequency	Percentage
Age	26-35	95	31.7
	36-45	83	27.7
	46-55	72	24.0
	56-65	50	16.7
Gender	Male	204	68.0
	Female	96	32.0
Religious Affiliation	Christianity	105	35.0
Marital Status	Islam	195	65.0
	Single	129	43.0
	Married	171	57.0
Number of children	0	11	3.7
	1-2	160	53.3
Household Size	3-4	97	32.3
	5 and above	32	10.6
	3-5	137	45.6
	6-8	137	45.7
Educational Level	9 and above	26	8.7
	College of Agriculture	7	2.3
	OND	25	8.3
	HND	82	27.3
Higher Degree Study	B. Sc	148	49.3
	M. Sc	38	12.7
	Studying B.Sc	52	17.3
	Studying M.Sc.	69	23.0
Average Annual Income	Not studying	179	59.7
	3000-6000	155	51.5
Years of Experience	7000-9000	88	29.4
	10000-14000	47	12.3
	15000 and above	10	3.2
	4-7	108	36.0
Living in the Job location	8-11	162	54.0
	12 and above	30	10.0
Number of communities covered	No	126	42.0
	Yes	174	58.0
Number of farmers' groups covered	<20	96	32.0
	21-35	170	56.7
	36 and above	34	11.3
Means of mobility	<10	108	36.0
	11-19	120	40.0
	20 and above	72	24.0
Average Distance	Trekking	104	34.7
	Motorcycle	196	65.3
	< 15	43	14.3
Rural-Urban Background	16-20	108	36.0
	21-25	99	33.0
	26 and above	50	16.7
	Born in a rural area	198	66.0
	Born in an urban area	64	21.3
	Brought up in the rural area	32	10.7
Brought up in the urban area	Brought up in the urban area	6	2.0

Source: Field data, 2024

The results on attitude of extension agents towards professionalization were presented in [Table 4](#). It covers the attitudinal statements on all indicators for measuring professionalization namely registration, accreditation and certification.

The findings on the perceived effects of the professionalization on extension services delivery are presented in [Table 5](#). This shows how the critical components of professionalization influence extension services delivery. It further espouses how accreditation, registration and certification of extension agents influence the quality, standards and accountability in extension services delivery.

The correlation matrix in [Table 6](#) shows the correlational relationships among the indicators of professionalization in the study area.

The findings of the relationships between socio-economic characteristics, attitude, knowledge and job characteristics of extension agents were explored in [Table 7](#) using the linear regression.

[Table 8](#) presents the findings of the comparison of male and female extension agents in relation to indicators of the professionalization in the study area.

DISCUSSION

The findings on the socio-economic characteristics of extension agents in [Table 2](#) indicate that the agricultural extension workforce in the study area is relatively young, with the majority (31.7 %) aged 26-35, followed by those aged 36-45 (27.7 %) and 46-55 (24.0 %). Younger agents may also be more receptive to innovation and professionalization efforts, as they are more open to adopting new concepts and approaches in extension service delivery ([17](#)). The lower representation of individuals aged 56-65 (16.7 %) may be attributed to retirement or reduced engagement in extension activities. Gender representation is skewed, with males (68.0 %) outnumbering females (32.0 %), likely due to cultural norms and the mobility-intensive nature of the profession. This gender disparity aligns with broader trends observed in extension services across sub-Saharan Africa, where men tend to dominate extension roles ([17](#)). The low representation of women in extension services may have implications for gender-responsive agricultural advisory services, as female farmers often feel more comfortable interacting with female extension officers ([18](#)). Religious affiliation reflects regional demographics, with Islam (65.0 %) being predominant. This distribution reflects the general religious composition of the region and may influence social capital, trust, and participation in extension activities ([19](#)).

Marital status data show that most respondents are married (57.0 %), aligning with societal expectations in rural settings where family stability is crucial. Household size remains substantial, with 45.6 % comprising 3-5 members and 45.7 % having 6-8, indicating the persistence of extended family living. Educational qualifications are relatively high, with nearly half (49.3 %) holding a B.Sc., yet only 40.3 % are pursuing further studies, possibly due to financial or work constraints.

Table 3. Knowledge Level of Extension Agents on Professionalization- n = 300

Professionalization Concept	True	False
Professionalization is a process of setting up policies and structures to guide the extension profession	172 (57.3)	128 (42.7)
Professionalization signifies commitment by extension agents to maintain currency of skills and knowledge in the profession	183 (61.0)	117 (39.0)
Professionalization ensures only extension agents that have met the professional required standards are certified by recognized professional bodies	165 (55.0)	135 (45.0)
Accreditation of extension personnel is an essential criterion for professionalization of extension service	188 (62.7)	112 (37.3)
Registration of extension personnel is an essential criterion for the professionalization of extension service	176 (58.7)	124 (41.3)
Certification of extension personnel is an essential criterion for the professionalization of extension service	201 (67.0)	99 (33.0)
Professionalization ensures appropriate regulation for extension service	187 (62.3)	113 (37.7)
Accreditation is a channel of injecting more integrity and competence into extension service delivery	192 (64.0)	108 (36.0)
Registration is a channel for injecting more integrity and competence into extension service delivery	168 (56.0)	132 (44.0)
Certification is a channel of injecting more integrity and competence into extension service delivery	179 (59.7)	121 (40.3)
Professionalization is a mechanism for ensuring that extension agents abide by the code of ethics set for the practice of the extension profession	121 (40.3)	179 (59.7)
Professionalization is a mechanism to protect, promote, and ensure extension service sensitivity to the needs of farmers	170 (56.7)	130 (43.3)
Accreditation is a mechanism for quality improvement and assurance in extension service delivery	184 (61.3)	116 (38.7)
Registration is a mechanism for quality improvement and assurance in extension service delivery	184 (61.3)	116 (38.7)
Certification is a mechanism for quality improvement and assurance in extension service delivery	182 (60.7)	118 (39.3)
Accreditation promotes accountability	181 (60.3)	119 (39.7)
Registration promotes accountability	192 (64.0)	108 (36.0)
Certification promotes accountability	148 (49.3)	152 (50.7)
Accreditation promotes credibility	201 (67.0)	99 (33.0)
Registration promotes credibility	193 (64.3)	107 (35.7)
Certification promotes credibility	191 (63.7)	109 (36.3)
Accreditation will improve standards of practice in the extension profession	177 (59.0)	123 (41.0)
Registration will improve standards of practice in the extension profession	183 (61.0)	117 (39.0)
Certification will improve standards of practice in the extension profession	177 (59.0)	123 (41.0)
Professionalization ensures periodic quality reviews of extension personnel and the services they render	180 (60.0)	120 (40.0)
Professionalization promotes the efficient and effective use of resources and access to certified information on infrastructures and facilities for service delivery	185 (61.7)	115 (38.3)
Professionalization legalizes extension practice	191 (63.7)	109 (36.3)
Professionalization points out areas of improvement in extension service delivery	170 (56.7)	130 (43.3)
Professionalization involves consistent monitoring, evaluation, and assessment of extension services	170 (56.7)	130 (43.3)
Professionalization sets a foundation for continuous improvement in service delivery	179 (59.7)	121 (40.3)
Accreditation strengthens community confidence in quality-of-service delivery	179 (59.7)	121 (40.3)
Registration strengthens community confidence in quality-of-service delivery	187 (62.3)	113 (37.7)
Certification strengthens community confidence in quality-of-service delivery	181 (60.3)	119 (39.7)
Accreditation ensures a disciplined, systematic, and reliable approach to extension training	172 (57.3)	128 (42.7)
Registration ensures a disciplined, systematic, and reliable approach to extension training	184 (61.3)	128 (42.7)
Certification ensures a disciplined, systematic, and reliable approach to extension training	190 (63.3)	110 (36.7)

Source: Field data, 2024

Table 4. Attitude towards extension professionalization

Attitudinal Statements	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
Professionalization will improve the image of the extension profession	69 (23.0)	75 (25.0)	63 (21.0)	64 (21.3)	69 (23.0)
Accreditation will improve the quality of extension service delivery	32 (10.7)	72 (24.0)	50 (16.7)	46 (15.3)	100 (33.3)
Registration will improve the quality of extension service delivery	56 (18.7)	53 (17.7)	75 (25.0)	63 (21.0)	53 (17.7)
Certification will improve the quality of extension service delivery	25 (8.3)	42 (14.0)	85 (28.3)	73 (24.3)	75 (25.0)
Professionalization protects the interest of the extension profession	33 (11.0)	78 (26.0)	62 (20.7)	76 (25.3)	51 (17.0)
Accreditation ensures a high level of integrity and ethical conduct in the extension profession	33 (11.0)	54 (18.0)	56 (18.7)	90 (30.0)	67 (22.3)
Registration ensures a high level of integrity and ethical conduct in the extension profession	35 (11.7)	37 (12.3)	63 (21.0)	70 (23.3)	95 (31.7)
Certification ensures a high level of integrity and ethical conduct in the extension profession	38 (12.7)	64 (21.3)	79 (26.3)	64 (21.3)	55 (18.3)
The conditions and demands of Accreditation will be too much for extension agents	23 (7.7)	44 (14.7)	69 (23.0)	70 (23.3)	94 (31.3)
The conditions and demands of Registration will be too much for extension agents	31 (10.3)	62 (20.7)	63 (21.0)	84 (28.0)	60 (20.0)
Conditions and demands of Certification will be too much for extension agents	42 (14.0)	43 (14.3)	78 (26.0)	76 (25.3)	61 (20.3)
Extension profession in Nigeria cannot benefit from professionalization	30 (10.0)	50 (16.7)	80 (26.7)	74 (24.7)	66 (22.0)
My Leadership and administrative capabilities will be enhanced through professionalization	36 (12.0)	69 (23.0)	68 (22.0)	69 (23.0)	58 (19.3)
Professionalization will increase my productivity	33 (11.0)	44 (14.7)	61 (20.3)	80 (26.7)	82 (27.3)
Professionalization will improve the linkage system between extension and other stakeholders in the agricultural profession	30 (10.0)	48 (16.0)	66 (22.0)	67 (22.3)	89 (29.7)
The job satisfaction level of extension agents will increase as a result of Professionalization	30 (10.0)	48 (16.0)	66 (22.0)	67 (22.3)	89 (29.7)
Professionalization will increase the workload and demand for extension agents	39 (13.0)	53 (17.7)	64 (21.3)	71 (23.7)	73 (24.3)
Accreditation will make extension work more stressful and cumbersome	44 (14.7)	52 (17.3)	69 (23.0)	68 (22.7)	67 (22.3)
Registration will make extension work more stressful and cumbersome	43 (14.3)	47 (15.7)	60 (20.0)	77 (25.7)	73 (24.3)
Certification will make extension work more stressful and cumbersome	41 (13.7)	59 (19.7)	65 (21.7)	64 (21.3)	71 (23.7)
The standard of entry and practice in the extension profession will be raised through accreditation	45 (15.0)	56 (18.7)	64 (21.3)	75 (25.0)	60 (20.0)
The standard of entry and practice in the extension profession will be raised through registration	45 (15.0)	56 (18.7)	64 (21.3)	75 (25.0)	60 (20.0)
The standard of entry and practice in the extension profession will be raised through certification	45 (15.0)	53 (17.7)	79 (26.3)	63 (21.0)	60 (20.0)
Professionalization will improve the rights of farmers	36 (12.0)	46 (15.3)	65 (21.7)	77 (25.7)	76 (25.3)
Accreditation will promote competent and need-driven extension service delivery	66 (22.0)	36 (12.0)	68 (22.7)	65 (21.7)	65 (21.7)
Registration will promote competent and need-driven extension service delivery	43 (14.3)	55 (18.3)	57 (19.0)	70 (23.3)	75 (25.0)
Certification will promote competent and need-driven extension service delivery	68 (22.7)	44 (14.7)	45 (15.0)	68 (22.7)	75 (25.0)
Professionalization will bring about motivation and better work conditions	38 (12.7)	56 (18.7)	77 (25.7)	61 (20.3)	68 (22.7)
Accreditation will enhance the much-needed transformation in the extension sector	54 (18.0)	79 (26.3)	71 (23.7)	35 (11.7)	61 (20.3)
Registration will enhance the much-needed transformation in the extension sector	82 (27.3)	61 (20.3)	62 (20.7)	62 (20.7)	33 (11.0)
Certification will enhance the much-needed transformation in the extension sector	66 (22.0)	54 (18.0)	76 (25.3)	60 (20.0)	44 (15.7)
Professionalization will make extension personnel more prone to chances of litigation from farmers	71 (23.7)	58 (19.3)	82 (27.3)	33 (11.0)	58 (19.3)
Professionalization will encourage more teamwork, networking, and collaboration in the sector	42 (14.0)	58 (19.3)	68 (22.7)	71 (23.7)	61 (20.3)
Continuous knowledge upgrade and development will be encouraged through Accreditation	64 (21.3)	74 (24.3)	70 (23.3)	48 (16.0)	45 (15.0)
Continuous knowledge upgrade and development will be encouraged through Registration	71 (23.7)	49 (16.3)	83 (27.7)	67 (22.3)	30 (10.0)
Continuous knowledge upgrade and development will be encouraged through Certification	60 (20.0)	69 (23.0)	59 (19.7)	74 (25.7)	38 (12.7)
Accreditation will increase the confidence of extension agents	76 (25.3)	72 (24.0)	56 (18.7)	44 (14.7)	52 (17.3)
Registration will increase the confidence of extension agents	77 (25.7)	55 (18.3)	64 (21.3)	63 (21.0)	41 (13.7)
Certification will increase the confidence of extension agents	62 (20.7)	73 (24.3)	68 (22.7)	61 (20.3)	36 (12.0)
Accreditation will provide a proper foundation and sense of direction for the extension profession	78 (26.0)	67 (22.3)	42 (14.0)	59 (19.7)	54 (18.0)
Registration will provide a proper foundation and sense of direction for the extension profession	79 (26.3)	49 (16.3)	64 (21.3)	60 (20.0)	48 (16.0)
Certification will provide a proper foundation and sense of direction for the extension profession	55 (18.3)	33 (11.0)	63 (21.0)	73 (24.3)	76 (25.3)
Professionalization is just a base for further initiatives to improve service delivery	42 (14.0)	57 (19.0)	64 (21.3)	69 (23.0)	68 (22.7)

Source: Field data, 2024

Table 5. Perceived effect of extension professionalization on service delivery

Effects	Greatly Improve/Enhance	Improve/Enhance	Slightly Improve/Enhance	Not Improve/Enhance
Accreditation				
Accountability in the extension profession	68 (22.7)	106 (35.3)	67 (22.3)	59 (19.7)
Clients' (farmers') confidence and satisfaction that professional quality-assured standard is expected from extension personnel	59 (19.7)	68 (22.7)	106 (35.3)	67 (22.3)
Maintenance of currency of knowledge and skills at all levels by extension agents	41 (13.7)	57 (19.0)	115 (38.3)	87 (29.0)
Regulation of the extension profession	49 (16.3)	61 (20.3)	74 (24.7)	116 (38.7)
Extension service working conditions	87 (29.0)	42 (14.0)	75 (25.0)	96 (32.0)
Sensitivity to accurately solving farmers' needs	76 (25.3)	52 (17.3)	77 (25.7)	95 (31.7)
Integrity and ethics in the extension profession	81 (27.0)	95 (31.7)	68 (22.7)	56 (18.7)
Networking of like-minded professionals and peer group acceptance among extension stakeholders at home and abroad	54 (18.0)	66 (22.0)	101 (33.7)	79 (26.3)
Transparency in extension services and reduction in favoritism issues	62 (20.7)	104 (34.7)	80 (26.7)	54 (18.0)
Registration				
Specialization of Extension agents in service delivery	113 (37.7)	171 (57.0)	14 (4.7)	2 (0.7)
Research culture and skills among extension agents	40 (13.3)	47 (15.7)	140 (46.7)	73 (24.3)
Elimination of lackadaisical attitude among extension agents	181 (60.3)	84 (28.0)	27 (9.0)	8 (2.7)
Provision of a mechanism to manage risks through due diligence for litigation defense	161 (53.7)	91 (30.3)	41 (13.7)	7 (2.3)
Reduction of rifts between extension agents and farmers	135 (45.0)	7 (2.3)	27 (9.0)	131 (43.7)
Mechanisms and channels for feedback in extension services	17 (5.7)	43 (14.3)	181 (60.3)	59 (19.7)
Identification and tracking of extension personnel identity	86 (28.7)	155 (51.7)	54 (18.0)	5 (1.7)
Extension personnel paying more attention to details	141 (47.0)	123 (41.0)	27 (9.0)	9 (3.0)
Certification				
Professional image of the extension profession	185 (61.7)	112 (37.3)	3 (1.0)	0 (0.0)
Quality and credibility of extension service	94 (31.3)	122 (40.7)	58 (19.3)	26 (8.7)
Confidence of Extension agents	171 (57.0)	125 (41.7)	4 (1.3)	0 (0.0)
Enhancement of decision-making capabilities of extension agents	163 (54.3)	110 (36.7)	27 (9.0)	0 (0.0)
Job motivation	100 (33.3)	86 (28.7)	114 (38.0)	0 (0.0)
Strength of Extension Organization and Profession	14 (4.7)	105 (35.0)	120 (40.0)	61 (20.3)
Job satisfaction	123 (41.0)	118 (39.3)	51 (17.0)	8 (2.7)
Promotion of better and faster agricultural solutions	133 (44.3)	112 (37.3)	52 (17.3)	3 (1.0)
Improvement in the quality of information in the sector	139 (46.3)	90 (30.0)	52 (17.3)	19 (6.3)

Source: Field data, 2024

Table 6. Correlation Matrix

	Information Sources	Knowledge	Attitude	Barriers	Effect on Ext
Information Sources	1	.089	-.007	-.001	-.054
Knowledge	.089	1	-.020	.019	.062
Attitude	-.007	-.020	1	-.129*	-.011
Barriers	-.001	.019	-.129*	1	.147*
Effects on Ext	-.054	.062	-.011	.147*	1

Source: Field Survey, 2024

Table 7. Determinants of perceived effects of extension professionalization on service delivery

	Unstandardized coefficients		Standardized Coefficients		T	Sig.
	B	Std. Error	Beta			
(Constant)	84.477	11.943			7.073	.000
Information sources	-.067	.326	-.019		-.205	.838
Frequency of info sources	-.228	.202	-.112		-1.125	.264
Knowledge total	.240	.166	.136		1.449	.151
Attitude total	.025	.062	.039		.409	.683
Age	-.056	.066	-.106		-.855	.395
Gender	.466	1.054	.039		.442	.659
Religion	-1.235	1.057	-.108		-1.168	.246
Marital status	.533	1.166	.047		.457	.649
Number of Children	1.035	.541	.245		1.912	.050
Household size	-.823	.384	-.255		-2.143	.035
Educational qualification	-.798	1.029	-.107		-.776	.440
Currently studying for higher Degree	2.510	4.587	.059		.547	.586
Higher educational degree	.798	1.601	.070		.499	.619
Annual income	6.224E-05	.000	.036		.341	.734
Years of experience	.164	.252	.065		.650	.517
Currently Job position	.276	.486	.054		.569	.571
Job location	-2.845	.653	-.407		-4.359	.000
Living job location area	-1.191	1.043	-.106		-1.141	.257
Number of communities covered	.039	.076	.050		.516	.607
Number of farmers group covered	-.138	.080	-.165		-1.732	.087
Means of mobility	.188	1.071	.017		.176	.861
Average distance to clients	.033	.098	.032		.337	.737
Rural-Urban background	.130	.668	.018		.194	.846
R	.592					
R Square	.350					
Adjusted R Square	.184					
F	2.109					
P	.007					

Source: Analysis of Field Survey, 2024

Table 8. Gender analysis of indicators of professionalization of extension services

Professionalization indicators	Gender	N	Mean	Std. Deviation	Std. Error Mean	Mean Difference	Std. Error Difference	t	df	p
Information sources	Male	204	5.9657	1.59550	.11171	-.60723	.22146	-2.742	162.069	.007
	Female	96	6.5729	1.87361	.19122					
Frequency	Male	204	21.7304	2.66539	.18661	-.44669	.33924	-1.317	179.509	.190
	Female	96	22.1771	2.77582	.28331					
Section B Freq	Male	204	27.6961	3.18181	.22277	-1.05392	.40074	-2.630	181.945	.009
	Female	96	28.7500	3.26384	.33311					
Knowledge	Male	204	21.6814	3.01906	.21138	-.27696	.40842	-.678	166.778	.499
	Female	96	21.9583	3.42411	.34947					
Attitude	Male	204	117.7598	8.60955	.60279	-.24020	1.03734	-.232	193.072	.817
	Female	96	118.0000	8.27170	.84423					
Barriers	Male	204	30.2500	2.83907	.19877	-.08333	.39704	-.210	160.762	.834
	Female	96	30.3333	3.36754	.34370					
Effect Ext	Male	204	79.8480	5.37568	.37637	-.62071	.65910	-.942	188.523	.348
	Female	96	80.4688	5.30135	.54107					

Source: Analysis of Field Survey, 2024

According to the Ministry of Agriculture and Forestry (3), most government extension personnel in Sierra Leone hold general agricultural degrees, with fewer specializing in Agricultural Extension or Agricultural Communication. Income levels among extension agents show that 51.5 % earn between Le 3,000 and Le 6,000 annually, indicating that agricultural extension may not be highly lucrative. This income distribution is consistent with findings that lower-income extension agents often struggle with meeting household needs, while those in slightly higher brackets may experience improved living standards but still face challenges related to savings and investment (20). The financial limitations of extension agents may affect their ability to participate in professional development programs, further underscoring the need for structural and policy interventions to support career growth and professionalization. A majority (54.0 %) have 8-11 years of experience, indicating a moderately experienced workforce, but only 10.0 % have over 12 years, which may signal high turnover. While 58.0 % live in their job locations, 42.0 % do not, potentially affecting engagement with farmers. Extension professionals who live within their work communities tend to establish higher levels of trust and effectiveness, particularly in community-based roles (21). Workload distribution varies, with most extension workers covering 21-35 communities (56.7%) and managing 11-19 farmers' groups (40.0 %), indicating significant job demands. Mobility remains a challenge, as 34.7 % rely on trekking, and many travel long distances (16-25 km), likely impacting service efficiency. Improved mobility among extension workers would significantly enhance service coverage and timeliness of agricultural extension services delivery (20). Notably, 66.0 % of respondents were born in rural areas, reinforcing their familiarity with socio-cultural dynamics of the farming communities, which enhances their ability to connect with and support farmers effectively.

The findings in Table 3 underscore strong support for the professionalization of agricultural extension services, with respondents recognizing its role in enhancing credibility, accountability, and quality assurance. A majority view certification (67.0 %), accreditation (62.7 %), and registration (58.7 %) as essential for professionalization, reflecting awareness of the need for structured guidelines in extension service delivery. Accreditation (64.0 %) and registration (56.0%) are widely perceived as mechanisms for improving integrity and competence, reinforcing their importance in maintaining service quality. However, only 40.3 % believe professionalization ensures adherence to ethical codes, suggesting gaps in awareness or enforcement of ethical standards. There is also broad agreement that professionalization contributes to improved service standards (59.0-61.0 %), periodic quality reviews (60.0 %), and the legalization of extension practice (63.7%). Furthermore, accreditation (60.3%) and registration (64.0 %) are seen as key drivers of accountability, while certification appears to be less convincing in this regard (49.3 %). The perception that accreditation (67.0 %) and registration (64.3 %) promote credibility indicates that formal recognition strengthens trust in extension services.

Additionally, accreditation (59.7 %) and registration (62.3 %) are viewed as essential for fostering community confidence, further emphasizing the role of professionalization in improving public trust. The strong support for accreditation, registration, and certification in ensuring systematic and disciplined training (57.3-63.3 %) highlights the need for structured capacity-building initiatives. These findings align with the significance of accreditation and certification in enhancing the credibility and accountability of agricultural extension services in Nigeria (20). Their study demonstrated that professionalized extension systems were more effective in delivering quality advisory services. Similarly, in East Africa it was found that consistent monitoring and evaluation mechanisms, integral to professionalization, improved service delivery and farmer satisfaction (31). Furthermore, in Ghana certification and accreditation help to upholding ethical standards, ensuring integrity, and improving competency among professional bodies (22).

The findings in Table 4 highlight a range of perspectives on the professionalization of the agricultural extension sector, with both optimism and skepticism regarding its impact on service quality, workforce competence, and accountability. Extension agents recognize the value of professionalization but often express concerns about its practical implementation and impact on daily responsibilities (10). Additionally, there is apprehension about the increased workload and complexity that professionalization may introduce, as reflected in concerns about accreditation (14.7 %) and registration (14.3 %) making extension work more stressful and cumbersome. While professionalization is also linked to motivation and better working conditions (18.7 %), a larger proportion remains undecided (25.7 %), implying skepticism about whether these benefits will materialize. Despite these concerns, accreditation (26.0 %) and registration (26.3 %) are widely perceived as providing a strong foundation and sense of direction for the extension profession, indicating that formalization is generally seen as a step toward long-term improvement. Moreover, the findings suggest that professionalization can support continuous professional development through accreditation (24.3 %) and registration (23.7 %), reinforcing the need for structured learning opportunities. However, concerns about increased litigation risks (23.7 %) point to fears of heightened accountability pressures, which may discourage some extension personnel. Overall, while professionalization is recognized as a potential avenue for strengthening extension services, addressing concerns related to implementation, workload, and enforcement mechanisms will be crucial to ensuring widespread acceptance and effectiveness.

Table 5 provides insights into the effects of accreditation, registration, and certification on various aspects of the extension profession, revealing significant improvements in several areas. Accreditation is perceived to greatly enhance accountability and integrity/ethics within the profession, with respondents also recognizing its positive impact on clients' (farmers') confidence in professional standards (23). However, the impact of accreditation on maintaining the currency of knowledge and regulating the profession

appears more moderate, suggesting challenges in keeping knowledge current and establishing strong regulation across diverse extension services (24). With regards to registration, respondents see a substantial improvement in the specialization of extension agents, as well as a reduction in lackadaisical attitudes and the establishment of mechanisms for managing litigation risks (25). However, the impact on feedback mechanisms in extension services is seen as less significant, possibly due to existing gaps in structured communication systems (26). Certification stands out for its strong impact on the professional image of the extension profession, with most respondents believing it would enhance job satisfaction and decision-making capabilities (27). The effect on strengthening extension organizations is less optimistic yet, likely due to organizational challenges not fully addressed by individual certification (28). Overall, while accreditation, registration, and certification are viewed as crucial for enhancing the extension profession, challenges remain in improving feedback mechanisms and organizational strength, indicating the need for broader structural changes alongside professionalization efforts (29).

The correlations between various variables related to professionalization of extension services, including information sources, knowledge, attitudes, barriers, and the effects on extension is presented in Table 6. The findings indicate that while information sources have a positive correlation with knowledge (0.089), indicating that better access to information may slightly improve extension agents' knowledge, the relationship is weak. This implies that other factors, beyond just the availability of information, could play a more significant role in shaping knowledge (30). Additionally, the correlation between knowledge and attitude is negligible (-0.007), indicating that an extension worker's knowledge does not have a significant impact on their attitude towards the profession. This could imply that attitudes may be shaped by personal experiences or external influences rather than the level of knowledge alone (29). There is a significant negative correlation between attitude and barriers (-0.129*), indicating that individuals with negative attitudes may perceive greater barriers, possibly because they are more sensitive to challenges or obstacles in their work. On the other hand, barriers have a moderate positive correlation with the effects on extension (0.147*), indicating that barriers have a tangible impact on the effectiveness of extension services. Institutional and structural barriers often hinder professionalization initiatives, which, in turn, negatively affect extension agents' attitudes (27). However, removing these obstacles can lead to improved service delivery outcomes. Similarly, enhancing agents' skills and improving their attitudes can reduce resistance to professionalization, thereby maximizing its positive impact on agricultural extension services, as these findings underscore the need for a holistic approach that tackles both institutional barriers and individual attitudes to effectively improve extension service delivery (30, 31).

The results presented in Table 7 highlight the determinants influencing extension agents' perceptions of the effects of professionalization on service delivery. The adjusted R^2 value of 0.184 indicates that the model's variables explain only 18.4 % of the variation in service delivery effectiveness, suggesting that other factors also play a significant role. Among the predictors, job location ($B = -2.845$, $p = 0.000$) emerges as the strongest determinant. Extension agents in urban or centralized areas are likely to face fewer challenges in service delivery compared to those in rural areas, where resources and infrastructure may be more limited. Similarly, household size ($B = -0.823$, $p = 0.035$) negatively affects service delivery, suggesting that larger households may reduce the time and focus extension agents can dedicate to their work. Additionally, while knowledge total ($B = 0.240$, $p = 0.151$) and attitude total ($B = 0.025$, $p = 0.683$) show positive contributions, they are statistically insignificant, emphasizing that professionalization alone does not automatically translate into improved service delivery outcomes. It was noted that while professional training enhances technical knowledge, the organizational environment plays a crucial role in its practical application (32). Similarly, educational level and years of experience were significant predictors of perceived professionalization impacts (10). While work location and household size were not directly examined in their study, the importance of educational attainment and experience further supports the current findings, indicating that multiple factors influence the perceived effectiveness of professionalization in extension services.

From Table 8, the gender analysis of professionalization indicators reveals significant differences between male and female extension agents, particularly in relation to information sources and the frequency of professional activities. Female agents scored significantly higher than male agents in both information sources (Mean Difference = -0.607, $p = 0.007$) and the frequency of professional activities (Section B Freq) (Mean Difference = -1.054, $p = 0.009$). These results suggest that female extension agents may engage more actively with professional development opportunities and adhere more closely to professional standards. However, no statistically significant gender differences were observed in other indicators, such as knowledge, attitude, barriers, and the effectiveness of extension services (Effect Ext). This indicates that, despite differences in perceptions of professionalization, the practical aspects of knowledge, attitudes, and perceived barriers to service delivery are similar across genders. These findings highlighted that female extension agents tend to excel in establishing trust and inclusiveness, particularly in rural communities, which could account for their higher scores in professionalization-related activities (30). Nevertheless, the lack of significant gender differences in core competencies like knowledge and attitude aligns with the fact that training and organizational support are more pivotal in improving extension delivery effectiveness than gender-based differences (33). These results suggest the need for policies that capitalize on the strengths of both male and female agents while addressing the unique challenges each group faces.

CONCLUSIONS

- The findings of this study indicate that extension agents are generally experienced, well-educated, and deeply connected to rural communities, providing a solid foundation for effective extension services. However, challenges such as reliance on motorcycles for transportation, gender imbalances, and income inequities highlight the need for targeted interventions to address these barriers. While extension agents recognize the core principles of professionalization, there is a lack of understanding regarding its specific mechanisms, particularly the role of ethical standards and farmer-centric service delivery.
- Attitudes toward professionalization are polarized, with strong support for its potential to improve quality, accountability, and the overall image of the profession. Despite this support, professionalization efforts face significant obstacles, particularly in terms of organizational commitment, financial resources, and stakeholder involvement.
- The study emphasizes that overcoming these barriers is crucial to fostering positive attitudes and maximizing the benefits of professionalization in enhancing extension service delivery. Although knowledge acquisition and access to information sources shape perceptions, their impact on actual practice remains limited.
- These findings underscore the need for comprehensive strategies to strengthen organizational support, address financial constraints, and enhance understanding of professionalization mechanisms in order to achieve meaningful improvements in extension services.

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