

Exploring the Strengths, Weaknesses, Opportunities, and Threats of Female Extension Agents in Guatemala's Western Highlands

R. Ceme¹, S. Galindo², J. A. Molina³, P. Lamino⁴

Abstract

This study explores the Strengths, Weaknesses, Opportunities, and Threats (SWOT) that female health and nutrition extension agents in Guatemala's Western Highlands face. This research aims to understand extension agents' perceptions regarding their roles and challenges in delivering effective programs. Using an instrumental case study design, the research involved semi-structured interviews with 12 female extension agents, complemented by observations and analytical and methodological memoing. Significant findings reveal that strengths include effective communication, professional vocation, and emotional awareness. Weaknesses are primarily language barriers and difficulty demonstrating program value. Opportunities for expanding the network and professional growth were highlighted, while threats encompass gender inequality, political instability, and community resistance. Recommendations for practitioners and extension program implementers include promoting and enhancing multilingual training, providing professional development opportunities, and addressing gender biases through community engagement.

Article History

Received: March 13, 2025

Accepted: July 2, 2025

Published: July 14, 2025

Keywords

extension agents; SWOT analysis; rural development; SDG 5: Gender Equality; Guatemala

-
1. Renzo Ceme, Graduate Assistant, University of Florida, P.O. Box 110540, Gainesville, FL 32611, rcemevines@ufl.edu,  <https://orcid.org/0000-0002-1232-9001>
 2. Sebastian Galindo, Associate Professor, University of Florida, P.O. Box 110540, Gainesville, FL 32611, sgalindo@ufl.edu,  <https://orcid.org/0000-0002-4061-773X>
 3. Jose Antonio Molina, Graduate Assistant, University of Florida, P.O. Box 110540, Gainesville, FL 32611, j.molinagonzalez@ufl.edu,  <https://orcid.org/0000-0002-0946-7024>
 4. Pablo Lamino, Assistant Professor, University of Florida, P.O. Box 110540, Gainesville, FL 32611, pablo.lamino@ufl.edu,  <https://orcid.org/0000-0002-3941-4935>

Introduction and Problem Statement

Rural extension is a key driver of rural development (Oakley & Garforth, 1985). In agriculture, rural extension aims to improve livelihoods by helping farmers address challenges and implement sustainable practices (Davis, 2020; Oakley & Garforth, 1985). In Guatemala, extension prioritizes the comprehensive development of rural families, with a focus on food security and poverty reduction (Landini & Vargas, 2020). This approach often assumes equal benefits among household members, overlooking the distinct roles and needs of women, who play a vital role in household nutrition, health, and agricultural productivity (Hernandez et al., 2023; Wehr et al., 2014).

The latest World Bank (2025) report shows that 57.3% of Guatemalans live in poverty, with rural areas worse off. Guatemala also ranks among the highest in gender inequality in Latin America, especially in rural areas where women have limited access to education, land, and economic opportunities (Instituto Nacional de Estadística, 2025; Mosso et al., 2022; Programa de las Naciones Unidas para el Desarrollo, 2024). This intersection of poverty and gender disparity highlights the need for extension services that support women (Hernandez et al., 2023; Petrics & Barale, 2018) and include female extension workers (Berger et al., 1984; Ragasa, 2014).

Given their importance to community well-being and the critical role of gender-responsive extension services, this study conducts a Strengths, Weaknesses, Opportunities, and Threats [SWOT] analysis of the role of female health and nutrition extension agents in the Western Highlands of Guatemala. By examining participants' perceptions of the SWOT analysis components, this research aims to inform practitioners from government and non-government organizations about the factors that influence the implementation of nutrition and health-related extension programs in rural Guatemalan communities.

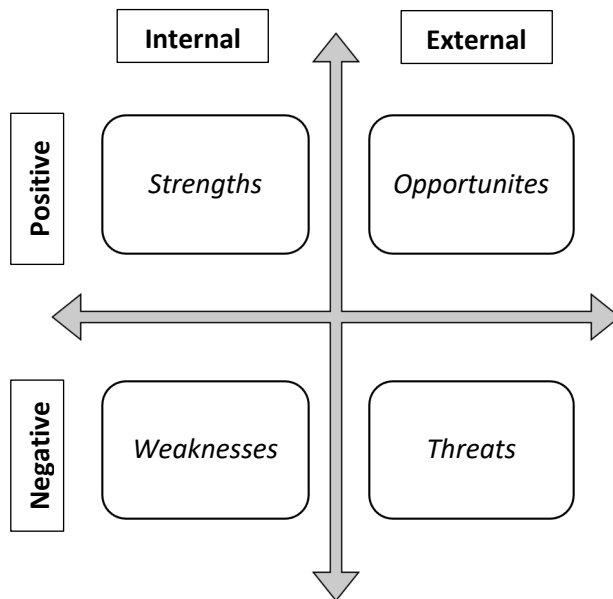
Conceptual Framework

In Guatemala's Western Highlands, agricultural extension services are critical for improving rural livelihoods, yet they often fail to reach women effectively (Mosso et al., 2022). Women in rural sectors play a central role in agriculture and nutrition, but face barriers such as entrenched gender norms and limited institutional support (Hoss-Cruz et al., 2024; Mosso et al., 2022). This study employs a SWOT analysis framework to explore the internal and external factors (Gürel, 2017; Sammut-Bonnici & Galea, 2015) influencing the work of female health and nutrition extension agents who work with local rural women in this region.

The SWOT analysis approach is employed in this study as a participatory tool to structure and synthesize the subjective perspectives (Chiodini, 2020) of female health and nutrition extension agents in Guatemala's Western Highlands. SWOT analysis is a qualitative tool used to structure strategic thinking by identifying internal strengths and weaknesses, and external opportunities and threats (Gürel, 2017; Sammut-Bonnici & Galea, 2015), as is illustrated in Figure 1:

Figure 1

4-Quadrants SWOT Analysis Model Adapted from Bull et al. (2016)



Strengths refer to characteristics that add value and make a difference compared to others; weaknesses are aspects that do not help create the necessary competence and are a disadvantage when compared to others (Gürel, 2017; Phadermrod et al., 2019). Opportunities involve conditions or situations that allow the development of activities, considering them as advantages; and finally, threats are conditions or situations that hinder the development of an activity, considering them as disadvantages (Gürel, 2017; Phadermrod et al., 2019).

SWOT analysis is particularly valuable in contexts where formal data is limited, and stakeholder insights are crucial. For this reason, the purpose of the SWOT analysis in this study is to structure subjective opinions of extension agents to examine their roles in addressing educational programs with women in the rural sector of Guatemala. To accomplish this, SWOT analysis is used to reflect the current context using a qualitative instrument for evaluating internal and external factors (Phadermrod et al., 2019; Rana et al., 2023).

By capturing the lived experiences of these agents, the SWOT framework helps identify key barriers and might assist stakeholders and decision-makers in generating alternatives to enhance collaborative development (Barati et al., 2017). This approach not only supports strategic planning and problem identification (Barati et al., 2017; Kelsey, 2018) but also ensures that the research is grounded in context-specific realities.

In this study, SWOT analysis is applied as a participatory diagnostic method to capture the lived experiences and professional insights of female health and nutrition extension agents in Guatemala's Western Highlands. Given the limited reach of agricultural extension services to women in this region, the framework provides a structured approach to identify internal and

external factors that influence their work. This approach ensures that the findings are grounded in the agents' realities and directly inform strategies aimed at enhancing extension systems.

Purpose

This research explores how female health and nutrition extension agents from the Western Highlands of Guatemala perceive their strengths, weaknesses, opportunities, and threats in their role of delivering community-based programs. These agents are frontline workers who provide nutritional and health-related education and support to rural women, often serving as critical links between government or NGO initiatives and local communities. The study pursued the following specific objectives: (a) Identify female extension agents' strengths, (b) Describe female extension agents' weaknesses, (c) Explain female extension agents' opportunities, and (d) Discuss female extension agents' threats.

Methodology

This research employed an instrumental case study design (Stake, 1995), which focuses on understanding a particular issue. In this context, it investigates the experiences of female health and nutrition extension workers in Guatemala's Western Highlands. The case is "instrumental" because it is used to gain broader insights into the systemic challenges and opportunities faced by female extension agents in rural Guatemala. The case was bound by location (the Western Highlands) and participants' occupation (female health and nutrition extension agents). A constructivist paradigm guided the research, emphasizing the co-construction of meaning and the importance of participants' subjective experiences (Creswell & Creswell, 2018).

Before reaching out to the participants, the Texas Tech University Institutional Review Board approved this study with the code 2022-773, which qualified for exemption. To recruit participants, one of the researchers conducted a workshop addressing gender-focused issues in rural areas of Guatemala, attended by 25 female field technicians. From this group, 12 participants were purposefully selected based on the following criteria: (1) at least one year of experience working with rural women in the Western Highlands, (2) age 18 or older, and (3) residence in a rural community.

Data Collection

Semi-structured interviews were the primary source of data, which balanced structured inquiry with the flexibility to explore participants' unique perspectives (Aurini et al., 2021). Interviews were conducted via Zoom and WhatsApp video calls (Archibald et al., 2019; Sah et al., 2020), recorded with consent, and transcribed using Sonix® software. To enhance depth and triangulation, interviews were supplemented with participatory and non-participatory observations, as well as analytical and methodological memoing throughout the research process (Lincoln & Guba, 1985; Saldaña, 2016).

Data Analysis

The data analysis process was guided by the SWOT framework, aligning directly with the study's objectives. The process began with preliminary data exploration, which involved repeated transcript readings and memo writing. An iterative coding process was used, beginning with open coding to identify meaningful units of data. These codes were then organized into categories corresponding to the four SWOT dimensions: strengths, weaknesses, opportunities, and threats. This method allowed for the identification of categories, subcategories, and dimensions relevant to the study (Saldaña, 2016). Pattern coding followed, grouping related codes into broader themes and providing insights that captured the relationships among data points (Morse & Richards, 2002). Two researchers independently coded the data, and discrepancies were resolved through discussion in three consensus meetings.

Trustworthiness

To ensure trustworthiness, the study followed the criteria of credibility, transferability, dependability, and confirmability (Creswell & Creswell, 2018). Credibility was supported through data triangulation, detailed descriptions, and reflexive memoing, using diverse sources like interviews and observations to enhance validity (Ary et al., 2010). Transferability was enhanced through purposive sampling and detailed context reporting, enabling readers to evaluate the relevance of findings to different settings (Cope, 2014). Dependability was ensured through process documentation, including transcripts and reflexive memoing. Confirmability was achieved through reflexivity, where researchers documented assumptions and reflected on biases; transcripts were reviewed repeatedly for accuracy and to limit preconceived notions (Lincoln & Guba, 1985).

Researcher as Instrument

The four investigators have lived and studied in Latin America and bring contextual knowledge of gender dynamics in rural development, gaining insight into the necessity of promoting inclusive practices in Extension. By directly engaging with participants and maintaining reflexivity, the researchers helped ensure that the findings were grounded in participants' realities and interpreted with cultural sensitivity (Ary et al., 2010).

Findings

Objective 1: Identify Female Extension Agents' Strengths

Effective Communication

Female extension agents highlighted their ability to communicate as a significant strength. Their capacity to engage with diverse communities has allowed them to form meaningful connections quickly, fostering trust and collaboration with rural populations. Eight participants emphasized the role of effective communication in successfully conveying valuable information and building lasting relationships.

One participant mentioned: "One of my strengths as an extension worker is that it does not take much for me to talk with people, and generally, I make friends quickly." This indicates that

her communication skills enable her to connect with people easily, which is crucial in extension work. This sentiment was echoed by other participants in quotes such as: “My way of addressing people, the trust I have had [...] for me is a strength,” and “I have always worked with groups of seniors [...] to gain people's trust.” Gaining trust and building rapport has contributed to their success in extension work. Another participant reinforced this by stating: “Being able to communicate, being able to say what we feel or listen to other people helps a lot.”

In addition to the previous quotes, the ability to simplify and share complex information enhances the communication effectiveness of extension workers; as another participant mentioned: “Through the years and experience, I have also accomplished [...] to try to talk to people in a slightly simpler way.”

Professional Vocation

The extension workers take great pride in their sense of vocation, seeing it as a key factor in their ability to help others and succeed in their roles. Their commitment to their job extends beyond regular duties, emphasizing a deep dedication to making a difference in the communities they serve. Seven participants believe achieving positive outcomes in extension work would be difficult without this strong sense of purpose and responsibility.

One of the participants shared: “I feel that my strengths are to be committed, responsible, and punctual,” emphasizing their personal commitment to the work. Another extension agent echoed this sentiment: “Responsibility. Humanism. Be a very tolerant person. Someone who knows [...], perhaps in terms of family care.” Punctuality and reliability were also repeatedly mentioned, as evidenced by the statement: “Be responsible. Make yourself known; for example, if I call at nine and arrive at 9:30 a.m., I am not making myself known (correctly) to the community as a responsible, punctual person.” Being responsible and exceeding expectations were also fundamental to their work ethic, demonstrating a willingness to do more than what is required; this sense of duty drives them to overcome challenges, as highlighted by another participant: “For me, one of the strengths is that I like my job, and I feel that even though there are obstacles, I try to find a solution.”

Emotional Awareness

Emotional awareness and empathy with the community are crucial for how extension workers approach their work. Ten of the participants mentioned that they come from the same or similar backgrounds as the audience they work with, which enables them to connect on a deeper level. This shared experience fosters trust and motivates extension agents to help rural populations with dedication and compassion, especially in areas with limited support. One participant stated: “I have always been very kind to people [...] support that being very much like being aware of them,” demonstrating her empathetic approach to helping others. This quote highlights how persistence and understanding are crucial to fostering positive outcomes.

The ability to persevere, even when challenges arise, was mentioned by several participants. For example, one extension agent described the importance of turning a negative response into a positive outcome: "The other thing that has also happened is that there are many people who are also very negative [...] So, sometimes they misinform people so that they do not participate in those activities, however, I managed to overcome those obstacles, and I did it with perseverance and hard work." To navigate these perception barriers, one of the participants underscored the importance of perseverance, stating: "Perseverance is that when one is insisting or giving time for changes [...] making visits and so on, we do not stop giving up." In addition, emotional strength was also tied to the confidence they gained through experience, as one participant remarked: "Having the confidence to do things [...] no longer being afraid, but being able to relate properly to them, for me is a strength." Respect in their interactions was also essential, as one participant mentioned: "You have to be humble, you have to be collaborative, and always open to new opinions because the community members really have some very good ideas," which illustrates their commitment to positive, respectful engagement with the communities they serve.

Objective 2: Describe Female Extension Agents' Weaknesses

Language Barriers

Ten out of twelve participants reported that language differences between themselves and the women they serve hindered communication. Many rural communities in the Western Highlands speak only indigenous languages, while most extension agents speak Spanish. This linguistic gap creates an obstacle in delivering extension program information effectively. Extension agents suggested using an interpreter as an alternative to bridge this gap, but there were concerns that the essence of the message could be lost in translation.

One participant explained: "The biggest problem we have is the language. Many women do not speak Spanish, and there are not enough translators for all languages," highlighting the insufficient number of translators available for the many indigenous languages. Another participant shared: "Sometimes we need translators to communicate with women, but we worry that the message will not get through the way we want it to," emphasizing the uncertainty of whether the message is fully conveyed through facilitators.

Participants echoed this concern, pointing out that relying on facilitators might still not ensure complete understanding. One participant remarked: "The fact that we do not speak the language of the community complicates everything. Even if we use facilitators, we feel that the message is not conveyed in the same way," while another participant added that as part of being an extension agent, she must adapt to the community needs she explained: "The challenge has been to understand and adapt to them because the work of extension is not to make people fit with us, but that we have to adapt to them so that they can work with us." This last statement underscores the essential adaptability required of extension agents in overcoming language and other barriers.

Difficulty Demonstrating Program Value

Eight participants expressed that they sometimes struggle to effectively communicate the value of their programs, especially when they are unable to provide tangible resources. This was perceived as a weakness in their ability to engage and motivate community members. Since the program focuses on knowledge dissemination rather than providing tangible benefits, many participants in the community are hesitant to adopt the new techniques. The lack of material support, such as seeds or tools, has led to skepticism about the value of the information provided.

As one participant mentioned: “People expect us to give them something, not just knowledge. They do not value information if it is not accompanied by a tangible benefit,” reflecting the difficulty in conveying the long-term benefits of knowledge alone. Another agent added: “The program does not provide inputs or direct aid, only information, and that is not what people want. For this reason, many are not interested,” underscoring the community’s reluctance to engage without material incentives.

Extension agents also identified a limited ability to persuade or inspire participation in their communities as a weakness in their communication or facilitation skills. One participant stated: “One challenge is to form the group and achieve attendance [...] where one has to struggle to achieve participation, and the other challenge is that they [community participants] will replicate what you teach them to achieve changes for their family.” This highlights the difficulty in fostering engagement when community members hesitate to participate due to preconceived notions or distrust. They emphasized that building trust with community members is crucial for overcoming these barriers, as mentioned by one of the extension agents: “At first, when people do not know you well, they just attend. However, when you gain their trust, the sessions become more effective.” This suggests that addressing the perception barriers is essential to enhance participation and ensure that shared information can lead to meaningful changes in the community.

The commitment to ongoing engagement is vital for reshaping community perceptions. They acknowledged the necessity for strategic approaches, as it was suggested by one of the participants: “If you do not have an answer, you must look for strategies. For example, sharing testimonies from other people and the changes they have achieved.” By sharing success stories from other communities, they aim to illustrate the value of their program and counteract skepticism, ultimately fostering a more receptive environment for knowledge dissemination.

Objective 3: Explain Female Extension Agents’ Opportunities

Expanding the Network

The extension workers meet diverse groups of people in various locations, allowing them to expand their networks and appreciation of cultural diversity in their regions, traveling throughout rural areas of Guatemala, and learning about new places. This opportunity was highly mentioned, and it was a motivation for most of the participants. One of the participants mentioned: “I feel very excited in my job because I go to different places, experience a shift of environments, and meet new people,” stating that female extension agents are motivated to

visit new places and know new people, other participants confirmed it when they said: “I have visited many places and learned about their traditions and cultures,” and “I have known many places where I have never been, so this job allowed me to meet people and do networking.” The opportunity to travel to different places has extended their knowledge capacity regarding cultural diversity, environmental landscapes, and people connections. Female extension workers find rewards from their jobs when they experience these indirect benefits. Other evidence that witnessed previous statements are the following responses from the extension agents interviews: “I like to spend time with people in different communities; this has helped me learn from them and value what I have,” and “I feel motivated to know new places and learn from the people, because every day we learn something different,” these quotations highlighted how importance these type of opportunities are in the job in order to feel motivated.

Professional Growth

All participants said they attend monthly workshops to improve their work. They also emphasized that the institution where they work allows them to pursue new careers and interact with colleagues from other programs, which helps to extend relations and exchange ideas.

Extension workers referred to professional development opportunities that help them to grow in their work; one participant mentioned: “We have opportunities to participate in technical training [...] and attend meetings to listen about experiences from other people,” another participant mentioned: “Since I am in this job, I have grown a lot [...] I am studying a new college career.” These statements prove that extension workers accomplish their tasks in their jobs and are in constant preparation through training, pursuing new professional careers, and learning from other people's experiences.

Objective 4: Discuss Female Extension Agents' Threats

Gender Inequality

This theme encompasses the limitation of women's participation in development and training activities in certain rural communities in Guatemala. Women often face barriers imposed by their husbands, hindering their personal growth and community involvement. Many women internalize these restrictions and often choose not to participate to avoid conflict with their husbands. One of the extension agents said:

The machismo is a very remarkable problem; I have been in communities where women do not have the opportunity to participate, they do not have a space of learning or the chance to receive support from us [...] women usually say ‘my husband does not allow me to go to meetings or training because he thinks that I am going to talk about him, so I prefer do not go to avoid problems.’

Gender inequality is a serious problem that needs to be addressed in rural communities, especially for extension agents who are working with families that are facing this kind of threat. It is important to recognize the problem and try to find ways to deal with it or find resources that help to address this issue adequately. Another participant stated: “Because in our culture,

there is too much machismo, and women think that they do not have rights (...) so, our job as extension agents is to provoke a change, letting women know what their rights are,” echoed by another extension agent comment: “There are men that do not allow their wives to participate in our programs.” These quotes are evidence of the machismo problem and how this could affect the implementation of extension programs.

Political and Financial Issues

This theme covers the impact of political instability on the continuity of projects and employment contracts. Political changes in Guatemala can affect the execution of projects, causing the cancellation of contracts and the impossibility of completing established objectives. One of the participants mentioned: “They took away our contract because at that time there was a political problem in Guatemala [...] so we could only deliver three products of the four,” other participants said: “One difficulty could also be that sometimes I would like people to change, but there are also economic situations that prevent them from making many changes.” These difficulties prevent the implementation of desired changes, even when agents wish to support and promote these changes but feel limited by a lack of resources. In addition, complications in accessing the communities were identified as a threat to the extension agents in delivering their programs; one participant mentioned: “Sometimes there have been difficulties in reaching the communities because of the rains, the roads are in poor condition.”

Community Resistance

Eight out of twelve extension agents expressed fear of rejection by communities and local leaders when participating in extension programs. Agents experience frequent difficulties when trying to involve people in projects, and they find resistance to participating in their activities. The main reasons for this are the presence of skepticism and the fact that community members are looking for tangible benefits, not only educational training.

One of the participants stated: “I feel that it is the rejection of people because we are looking for the acceptance of people [...] and in several circumstances, we have been told no from them.” Some participants hesitated to be part of the program because the extension agents aim to change behaviors and cannot provide tangible benefits for households, which could cause negativity during implementation. Another extension agent echoed this statement by mentioning: “There are women who don’t want to participate directly in the meetings, so it’s our responsibility to make individual visits. Unless they shut the door on us and say -Look, I don’t want to talk anymore, I don’t want you to bother me-.”

Conclusions, Discussion, and Recommendations

Female extension agents excel in simplifying technical information, making it accessible to diverse audiences. This tailored communication fosters trust and rapport with rural communities, enabling agents to engage populations and encourage sustainable behavioral changes. Castillo et al. (2024) similarly highlighted that effective communication is developed over time and employs diverse methods, such as producer meetings and Farmer Field Schools,

to disseminate information. The dedication of extension agents demonstrates their commitment to improving rural lives. Beyond routine responsibilities, their intrinsic motivation drives them to overcome challenges and sustain community engagement. Fanzo et al. (2015) also reported that efforts go beyond just a typical job, as extension agents often invest personal resources to support program needs, such as purchasing training materials.

The language barriers reported by extension agents reflect a key professional weakness in multilingual regions, where limited proficiency in indigenous languages hinders effective communication and program delivery. The lack of adequate translation resources and training hinders agents' ability to reach community members effectively. Another critical weakness lies in the difficulty of demonstrating program value due to the misalignment between community expectations and program goals. Many participants anticipate tangible benefits and may undervalue knowledge-based initiatives. Opportunities for extension agents include expanding their networking and engaging with diverse communities across rural sectors. This exposure increases their professional experience and understanding of local needs and challenges. Threats include gender inequality, which restricts women's participation in development activities. Political changes can disrupt project continuity, reduce funding, and sometimes result in contract cancellation. These issues threaten extension program implementations.

Extension programs should invest in ongoing professional development opportunities for female extension agents, specifically those promoting the exchange of viewpoints among colleagues (Landini & Villafuerte-Almeida, 2022). Training in communication, cultural competency, and trust-building can enhance their already existing capabilities. Providing agents with practical resources can empower them to maximize their outcomes. To address female extension agents' language barriers, programs should prioritize multilingual training to help agents develop basic proficiency in local indigenous languages. Access to professional translation tools and on-demand translators can ensure accurate and culturally authentic communication. Additionally, incorporating visual aids, such as videos, should be extended, as it has been shown to improve people's understanding and increase the adoption rate of new techniques (Fanzo et al., 2015).

Addressing the misalignment between community expectations and program goals requires improved communication strategies, including success stories to illustrate long-term program benefits. Involving community leaders can also help build trust and align expectations. Programs such as the *Gender-Sensitivity Training Module on Value Chains for Extensionists in Guatemala* (Smith, 2018) offer valuable insights into addressing these challenges effectively. Extension institutions should implement consistent and well-structured training and evaluation programs to ensure extension agents continuously develop their skills and knowledge (Akinbile & Otitolaye, 2008). Efforts to empower women through different educational programs should be implemented to combat male dominance in households.

Acknowledgments

Funding Information: The research was self-funded.

Conflict of interest: There are no conflicts of interest.

Previous Dissemination: Information from this article was previously presented in the 2025 Southern Region American Association for Agricultural Education Conference as an Oral Presentation (<https://aaaeonline.org/page-18465>) and in the 2025 Association for International Agricultural and Extension Education Conference as a Poster Presentation (<https://aiaee.org/page-18234>).

Artificial Intelligence: Grammarly and Microsoft 365 Copilot were used as an AI tool to assist with language refinement and grammar correction during manuscript preparation.

Author Contribution Statement: **R. Ceme** – conceptualization, data collection, coding, formal analysis, writing-original draft, and editing; **S. Galindo** – supervision, formal analysis, writing-review and editing; **J. Molina** – writing-review and editing; **P. Lamino** – conceptualization, supervision, data collection, coding, formal analysis, writing-review and editing.

References

- Akinbile, L. A., & Otitolaye, O. O. (2008). Assessment of extension agents' knowledge in the use of communication channels for agricultural information dissemination in Ogun state, Nigeria. *Journal of Agricultural & Food Information*, 9(4), 341–353. <https://doi.org/10.1080/10496500802451426>
- Archibald, M. M., Ambagtsheer, R. C., Casey, M. G., & Lawless, M. (2019). Using Zoom videoconferencing for qualitative data collection: Perceptions and experiences of researchers and participants. *International Journal of Qualitative Methods*, 18, 1609406919874596. <https://doi.org/10.1177/1609406919874596>
- Ary, D., Jacobs, L. C., Razavieh, A., & Ary, D. (2010). *Introduction to research in education* (8th ed). Wadsworth.
- Aurini, J. D., Heath, M., & Howells, S. (2021). *The how to of qualitative research* (2nd ed.). SAGE Publications.
- Barati, A. K., Kalantari, K., Nazari, M. R., & Asadi, A. (2017). A hybrid method (ANP-SWOT) to formulate and choose strategic alternatives for development of rural cooperatives in Iran. *Journal of Agricultural Science and Technology*. 19. <https://www.researchgate.net/publication/316957053>

- Berger, M., DeLancey, V., & Mellencamp, A. (1984). Bridging the gender gap in agricultural Extension. *International Center for Research on Women*. <https://www.icrw.org/wp-content/uploads/2016/10/Bridging-the-Gender-Gap-in-Agricultural-Extension.pdf>
- Bull, J. W., Jobstvogt, N., Böhnke-Henrichs, A., Mascarenhas, A., Sitas, N., Baulcomb, C., Lambini, C. K., Rawlins, M., Baral, H., Zähringer, J., Carter-Silk, E., Balzan, M. V., Kenter, J. O., Häyhä, T., Petz, K., & Koss, R. (2016). Strengths, weaknesses, opportunities and threats: A SWOT analysis of the ecosystem services framework. *Ecosystem Services*, 17, 99–111. <https://doi.org/10.1016/j.ecoser.2015.11.012>
- Castillo, H., A. P., Borrayo, A., Bonilla, M., & Navarro Racines, C. (2024). *Prácticas y experiencias de difusión de información, y el acceso y uso de los servicios agroclimáticos por parte de las mujeres rurales, los jóvenes y los pueblos indígenas en el contexto de las Mesas Técnicas Agroclimáticas en Guatemala*. AgriLAC Resiliente Reporte 12 p. <https://hdl.handle.net/10568/149217>
- Chiodini, M. (2020). Participatory evaluation: Methods and tools. In P. Meringolo (Ed.), *Preventing Violent Radicalisation in Europe* (pp. 173–187). Springer International Publishing. https://doi.org/10.1007/978-3-030-52048-9_9
- Cope, D. G. (2014). Methods and meanings: Credibility and trustworthiness of qualitative research. *Oncology Nursing Forum*, 41(1), 89–91. <https://doi.org/10.1188/14.ONF.89-91>
- Creswell, J. W., & Creswell, J. D. (2018). *Research design*. (5th ed.). Sage Publications
- Davis, K. E. (2020). *Comparison of national extension systems: Application of the best-fit framework*. International Food Policy Research Institute. https://doi.org/10.2499/9780896293755_03
- Fanzo, J. Q., Marshall, J., Wong, R. I., Merchan, M. I., Jaber, A., Souza, & Verjee, N.. (2015). The integration of nutrition into Extension and advisory services: A synthesis of experiences, lessons, and recommendations. *Food and Nutrition Bulletin*, 36(2), 120–137. <https://doi.org/10.1177/0379572115586783>
- Gürel, E. (2017). SWOT analysis: A theoretical review. *Journal of International Social Research*, 10(51), 994–1006.
- Hernandez, M. A., Alarcon, C., Berrospi, M. L., Lopera, D., Quintero, D., Reyes, B., & Olivet, F. (2023). Cultural and economic barriers and opportunities for the participation of women in agricultural production systems: A case study in Guatemala. *Frontiers in Sustainable Food Systems*, 7, 1185756. <https://doi.org/10.3389/fsufs.2023.1185756>
- Hoss-Cruz, K. M., Sanchez-Sandoval, D., Brenes, P., & Gonzalez-Alvarez, A. D. (2024). Secondary analysis assesses dietary diversity changes among maya Guatemalan women post-

- nutrition interventions. *Maternal and Child Health Journal*, 28(11), 1852–1860.
<https://doi.org/10.1007/s10995-024-03994-4>
- Instituto Nacional de Estadística. (2025). *INE presenta resultados estadísticos con enfoque de género*. <https://www.ine.gob.gt/2025/03/20/ine-presenta-resultados-estadisticos-con-enfoque-de-genero/>
- Kelsey, K. D. (2018). Building evaluation capacity within an agricultural NGO using SWOT analysis. *Journal of International Agricultural and Extension Education*, 25(1), 60–70.
<https://doi.org/10.5191/jiaee.2018.25106>
- Landini, F. P., & Vargas, G. L. (2020). Evaluación de los problemas que limitan el impacto de la extensión pública en el oriente de Guatemala. *Revista de Economía e Sociología Rural*, 58(1), e192529. <https://doi.org/10.1590/1806-9479.2020.192529>
- Lincoln, Y. S., & Guba, E. G. (1985). *Naturalistic inquiry*. Sage Publications.
- Landini, F., & Villafuerte-Almeida, I. (2022). Capacitación de extensionistas rurales en América Latina: Prácticas, problemas y propuestas. *Revista Electrónica Educare*, 26(2), 1–20.
<https://doi.org/10.15359/ree.26-2.17>
- Morse, J. M., & Richards, L. (2002). *Read me first for a user's guide to qualitative methods*. Sage.
- Mosso, C. E., Pons, D., & Beza-Beza, C. F. (2022). A long way toward climate smart agriculture: The importance of addressing gender inequity in the agricultural sector of Guatemala. *Land*, 11(8), 1268. <https://doi.org/10.3390/land11081268>
- Oakley, P., & Garforth, C. (1985). *Guide to extension training*. Food and Agriculture Organization of the United Nations. <https://www.fao.org/4/t0060e/T0060E00.htm#Contents>
- Petricks, H., & Barale, K. (2018). Applying a human rights-based approach and organisational change theory to create an enabling environment for gender-equitable extension services in Guatemala. *International Journal of Gender Studies in Developing Societies*, 2(4), 279–298. <https://doi.org/10.1504/IJGSDS.2018.093253>
- Phadermrod, B., Crowder, R. M., & Wills, G. B. (2019). Importance-Performance analysis based SWOT analysis. *International Journal of Information Management*, 44, 194–203.
<https://doi.org/10.1016/j.ijinfomgt.2016.03.009>
- Programa de las Naciones Unidas para el Desarrollo. (2024). *Las mujeres guatemaltecas en cifras: Una mirada desde la administración pública*. <https://www.undp.org/es/guatemala/blog/las-mujeres-guatemaltecas-en-cifras-una-mirada-desde-la-administracion-publica>

- Ragasa, C. (2014). Improving gender responsiveness of agricultural Extension. In A. R. Quisumbing, R. Meinzen-Dick, T. L. Raney, A. Croppenstedt, J. A. Behrman, & A. Peterman (Eds.), *Gender in Agriculture* (pp. 411–430). Springer Netherlands. https://doi.org/10.1007/978-94-017-8616-4_17
- Rana, R. K., Kaur, R., Singh, R., Shirur, M., Padaria, R. N., Monga, S., Singh, R. K., Singh, R., & Singh, A. K. (2023). A critical review and SWOT analysis of important extension agencies in India for improving extension management. *Agricultural Reviews*, *44*(4), 441–450. <https://doi.org/10.18805/ag.R-2522>
- Sah, L., Singh, D. R., & Sah, R. K. (2020). Conducting qualitative interviews using virtual communication tools amid COVID-19 pandemic: A learning opportunity for future research. *Journal of Nepal Medical Association*, *58*(232). <https://doi.org/10.31729/jnma.5738>
- Saldaña, J. (2016). *The coding manual for qualitative researchers* (3rd ed.). SAGE.
- Sammut-Bonnici, T., & Galea, D. (2015). SWOT Analysis. In: Cooper, C.L., McGee, J. and Sammut-Bonnici, T., Eds. In C. L. Cooper (Ed.), *Wiley Encyclopedia of Management* (1st ed., pp. 1–8). Wiley. <https://doi.org/10.1002/9781118785317.weom120103>
- Smith, E. (2018). *Developing a gender-sensitive training module on value chains for extensionists in Guatemala*. https://ingenaes.illinois.edu/wp-content/uploads/ING-Case-Study-2018_07-Gender-Sensitive-Module-on-Value-Chains-Guatemala-Smith.pdf
- Stake, R. E. (1995). *The art of case study research*. Sage Publications.
- Wehr, H., Chary, A., Webb, M. F., & Rohloff, P. (2014). Implications of gender and household roles in Indigenous Maya communities in Guatemala for child nutrition interventions. *International Journal of Indigenous Health*, *10*(1), 100–113. <https://doi.org/10.18357/ijih.101201513196>
- World Bank. (2025, July 3). *Guatemala overview*. World Bank. <https://www.worldbank.org/en/country/guatemala/overview>

© 2025 by authors. This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution license (<http://creativecommons.org/licenses/by/4.0/>).