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Abstract

This study explored the awareness, attitudes, and challenges faced by agricultural extension workers (AEWs) in Bulacan, Philippines, regarding the integration of selected Sustainable Development Goals (SDGs) into their work. The primary focus was to assess AEWs' understanding and engagement with SDGs 1, 2, 13, and 15 explicitly and to develop an action plan aimed at enhancing their capacity to promote sustainable agriculture. Data were gathered from 95 AEWs in Districts 2 and 3 using a structured survey questionnaire. The socio-demographic profile of the respondents revealed a relatively balanced sex distribution, with a slight male majority (54.7%) compared to females (45.3%). The largest age group was 20–30 years old (30.5%), while the smallest group was aged 61 and above (5.3%), suggesting a young and adaptable workforce with limited senior representation. All respondents were college graduates, with 9.5% holding master's degrees. Most held regular positions (67.4%), indicating workforce stability, while the most common length of service was 1–5 years (34.7%). Rice production was the leading area of specialization (29.5%), whereas organic agriculture, fishery, and soil science were among the least represented fields (each below 5%). In terms of training, AEWs most frequently attended programs related to SDG 1 (No Poverty) at 33.7%, and least frequently to SDG 15 (Life on Land) at 16.8%, indicating uneven exposure across sustainability goals. The findings revealed that AEWs generally demonstrated solid awareness of the SDGs, with particularly strong knowledge of climate-resilient practices. Positive attitudes toward SDG implementation were evident, with respondents expressing a high willingness to apply SDG principles in their work. However, key challenges such as insufficient funding, low farmer awareness, and limited training opportunities were identified.

Keywords: *agricultural extension workers, awareness, challenges, sustainable agriculture, Sustainable Development Goals*

Introduction

The United Nations created the Sustainable Development Goals (SDGs) in 2015 to as a worldwide framework for tackling environmental, social, and economic issues. The SDGs are a set of interrelated objectives that are closely related to the work of Workers in agricultural extension. As frontline agents of rural development, these professionals have a big role in disseminating innovative

farming practices, promoting resource-efficient technologies, and guiding farmers toward sustainability. However, their awareness, attitudes, and challenges in implementing the SDGs remain critical factors in achieving these global targets.

A report by the Food and Agriculture Organization (FAO) highlights that approximately 70% of the world's food is produced by smallholder farmers, many of whom rely on agricultural extension services for technical guidance and support (FAO, 2021). Despite their key role, studies suggest that awareness of SDGs among extension workers varies significantly.

Therefore, while previous research recognizes the importance of agricultural extension workers in sustainable agriculture, there are still few comprehensive studies evaluating their awareness, attitudes, and the difficulties they face when putting SDG-related activities into practice. Previous studies have primarily focused on farmers' adoption of sustainable practices rather than evaluating the readiness and competencies of extension workers. Moreover, limited empirical data exist on the institutional barriers, policy constraints, and resource limitations that hinder the effective dissemination of SDG-aligned agricultural practices. Without a deeper understanding of these issues, efforts to enhance agricultural sustainability may be fragmented and less impactful. This study aims to fill this gap by focusing on SDG 1 (No Poverty), SDG 2 (Zero Hunger), SDG 13 (Climate Action), and SDG 15 (Life on Land), as these goals directly relate to poverty alleviation, food security, climate resilience, and biodiversity conservation key areas that agricultural extension workers influence through their field interventions. Understanding their awareness and challenges in implementing these SDGs is essential in ensuring that sustainability efforts are effectively translated into practice at the grassroots level.

Research conducted by Qasemi et al., (2023) revealed that although agricultural experts generally demonstrate positive attitudes toward the Sustainable Development Goals (SDGs), their level of knowledge and understanding remains insufficient in several key areas. The study found that most respondents expressed significant educational needs across multiple SDGs, particularly those related to food security, poverty reduction, and environmental sustainability. This indicates that despite favorable perceptions, there is a critical need for targeted capacity-building programs, including training on sustainable farming practices, climate-resilient agriculture, and the integration of SDGs into agricultural extension services. According to Hameed and Sawicka (2023), agricultural extension services play an important role in promoting sustainable agricultural practices by providing farmers with necessary knowledge and innovations. However, their effectiveness is often limited due to inadequate training of extension workers, low farmer engagement, and poor information delivery methods. As a result, these challenges hinder the adoption of sustainable practices, highlighting the need to strengthen extension systems and improve capacity-building programs.

In the Philippines, Gumban and Baladjay (2025) reported that agricultural extension workers face several challenges that limit the effective delivery of sustainable agricultural practices. These include inadequate training, limited resources, logistical constraints, and low farmer participation. The study also found that extension workers primarily rely on traditional methods such as face-to-face interactions and demonstrations, while the use of digital tools remains limited. These constraints highlight the need for improved capacity-building programs and stronger institutional support to enhance the effectiveness of extension services. Meanwhile, Jaljalis et al., (2026) examined the challenges faced by agricultural extension officers in Basilan Province and found that several institutional and operational issues limit effective extension delivery. These include mismatched qualifications of personnel, lack of manpower, weak coordination with local government units, and insufficient logistical and financial support. The study emphasized that these systemic constraints hinder the ability of extension workers to effectively support

farmers, highlighting the need for improved training, stronger institutional coordination, and better resource allocation.

This study was significant as it provided valuable insights into the awareness levels, perceptions, and challenges faced by agricultural extension workers concerning the Sustainable Development Goals (SDGs). By identifying gaps in knowledge, training, and institutional support, the findings aimed to inform policymakers, agricultural institutions, and development agencies in designing targeted interventions. Furthermore, the study emphasized the importance of strengthening extension services to ensure they functioned as effective channels for sustainable agricultural transformation, particularly in developing municipalities where food security and environmental conservation remained urgent concerns.

The research was conducted to assess the awareness, attitudes, and challenges of agricultural extension workers toward the SDGs. By examining their levels of understanding, engagement, and the barriers they encountered, the study aimed to contribute to the broader discourse on sustainable agricultural development. The insights generated served as a basis for policy recommendations and capacity-building initiatives designed to enhance the effectiveness of extension services in promoting sustainable agriculture and rural development. Additionally, by focusing on SDG 1, SDG 2, SDG 13, and SDG 15, the research highlighted the vital connection between agricultural extension services and wider sustainability goals. The findings helped address the gap in literature regarding the role of extension workers in achieving the SDGs, ensuring that targeted training programs and institutional support systems were developed to improve their performance in the field.

Objectives of the Study

This study aimed to assess the awareness, attitudes, and challenges of agricultural extension workers regarding the implementation of the Sustainable Development Goals (SDGs) in agricultural extension services. It also aimed to develop an action plan to enhance the capacity of agricultural extension workers in aligning their programs and activities with the SDGs. Specifically, the study sought to:

1. Describe the socio-demographic characteristics of the respondents in terms of:
    1.1 age;
    1.2 sex;
    1.3 educational attainment;
    1.4 tenure of office;
    1.5 field of specialization
    1.6 number of years in extension work; and
    1.7 relevant trainings attended.
2. Determine the level of awareness of agricultural extension workers on selected SDGs (SDG 1, 2, 13, and 15), in terms of:
    2.1 basic knowledge of SDGs;
    2.2 familiarity with policies and programs;
    2.3 trainings and workshops; and
    2.4 practical application of SDGs.
3. Assess the attitude of agricultural extension workers toward SDG implementation in terms of:
    3.1 perceived importance;
    3.2 willingness to implement;
    3.3 confidence in applying SDGs; and
    3.4 support system satisfaction.

4. Identify the challenges faced by agricultural extension workers in implementing SDG-related programs.
5. Develop an action plan to improve the awareness, attitudes, and capacity of agricultural extension workers in integrating SDG principles into agricultural extension programs.

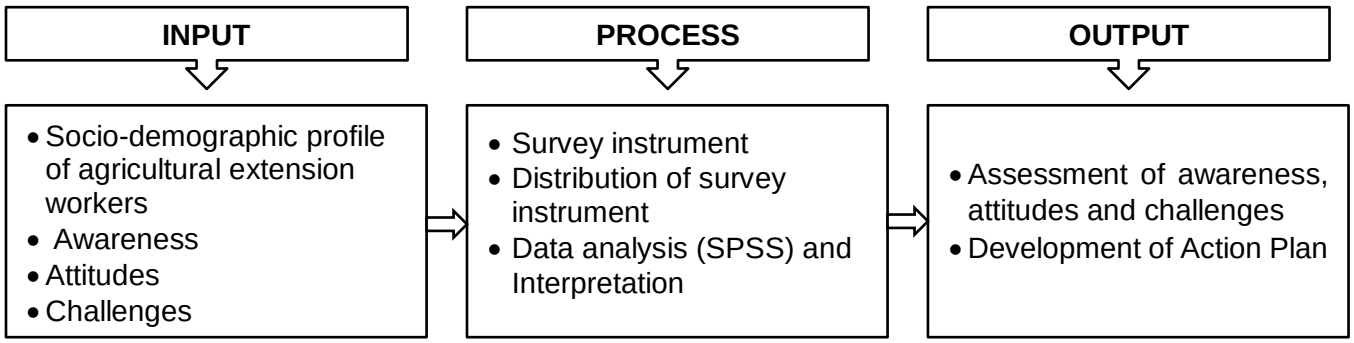
Conceptual Framework

The Input-Process-Output (IPO) Model has been widely used as a structured framework for analyzing agricultural extension programs, particularly in relation to the Sustainable Development Goals (SDGs). This model helps clarify how inputs such as training, government support, and available resources influence the performance of extension workers in SDG-related initiatives. In the process stage, it examines how extension workers apply their knowledge, use extension methods, and interact with farmers and stakeholders to promote sustainable practices. The output stage then assesses outcomes like awareness levels, attitudes toward sustainability, and the challenges faced in the field.

The IPO framework also highlights gaps in knowledge, skills, and support that may hinder the effective implementation of SDGs by extension workers. Studies have shown that strong technical expertise and support from government and local agencies are crucial for improving extension service delivery and farmer outcomes. Furthermore, extension programs that use the IPO model are better able to connect personal efforts and system-level support, leading to more successful adoption of sustainable agriculture practices and achievement of SDG targets. According to Omar et al., (2012), establishing a well-structured extension system is essential for the effective delivery of services across all areas of sustainable agriculture and rural development, with the ultimate goals of achieving food security, reducing poverty, empowering rural communities, and ensuring environmental stewardship.

Figure 1

Input-Process-Output Model



In the input phase, the study gathered essential information such as the socio-demographic profile of agricultural extension workers, including their educational attainment, work experience, and prior training. It also examined their awareness, attitudes, and the challenges they encountered in implementing SDG-related programs. These inputs served as the foundation for analyzing how various factors influenced their understanding and participation in sustainability efforts within the agricultural sector. During the process phase, a structured survey was administered to agricultural extension workers. This instrument was designed to measure their level of awareness of the SDGs, their attitudes toward sustainable practices, and the barriers they faced in their fieldwork. The answers were examined and examined with the Statistical Package for the Social Sciences (SPSS) to find patterns, connections, and notable variations between groups. This guaranteed that the analysis reflected the real experiences of the respondents and was grounded on evidence.

The output phase resulted in a comprehensive assessment of the awareness, attitudes, and challenges related to SDG implementation. Based on the findings, the study developed an action plan aimed at enhancing the integration of SDG principles in agricultural extension services. The action plan addressed gaps in knowledge, recommended improvements in extension strategies, and emphasized the need for stronger institutional support. It aimed to equip extension workers with the necessary tools to contribute more effectively to sustainable agriculture. The application of the IPO model carried important implications, as it demonstrated the need for improved training and capacity-building programs to increase extension workers' knowledge and confidence in promoting SDGs. The findings also offered valuable input for policymakers and institutions in designing policies and support systems that could address the challenges identified. Strengthening institutional support, improving resource access, and refining extension approaches were seen as essential to advancing SDG-aligned agricultural programs.

Furthermore, the use of SPSS allowed for a data-driven approach, ensuring that the conclusions and recommendations were based on reliable and valid evidence. This added credibility to the action plan and made it more applicable to real-world settings. The study contributed to the long-term sustainability of extension services by offering practical and structured strategies that aligned with SDG targets such as No Poverty (SDG 1), Zero Hunger (SDG 2), Climate Action (SDG 13), and Life on Land (SDG 15).

Materials and Methods

Research Design

The research employed a descriptive quantitative research design to assess the awareness, attitudes, and challenges of agricultural extension workers in implementing the Sustainable Development Goals (SDGs). This design was chosen because it allowed for a systematic description of the current state of awareness, perceptions, and challenges faced by the extension workers. By focusing on measurable data, the study provided a clear and objective understanding of the factors influencing the integration of SDGs into agricultural extension services.

Setting of the Study

The study was conducted in Districts 2 and 3 of Bulacan, specifically focusing on municipalities with active agricultural extension initiatives. In District 2, the study covered Baliwag City, Bustos, and Plaridel, while in District 3, it included San Rafael, San Ildefonso, Doña Remedios Trinidad (DRT), and San Miguel.

Sampling Procedure

Table 1

Distribution of Agricultural Extension Workers by Municipality

Municipality	Total Population (N)
San Ildefonso	32
San Miguel	21
San Rafael	14
DRT	6
Bustos	7
Baliuag City	8
Plaridel	7
Total	**95**

Source: Provincial Office of Bulacan

To ensure fairness and inclusivity in respondent selection, the study employed a total enumeration method, wherein all agricultural extension workers in Districts 2 and 3 of Bulacan were included. This

approach guaranteed comprehensive representation from each municipality based on the actual number of extension workers.

Table 1 displays the distribution of responders by municipality, reflecting the approximate number of agricultural extension agents in each location.

Research Instrument

The survey instrument was divided into four key sections:

Part I - Socio-Demographic Profile (7 items)

This section collected information on the respondents' background, including age, sex, educational attainment, tenure of office, field of specialization, number of years in extension work, and relevant trainings attended.

Part II - Awareness Level on Selected SDGs (20 items)

This section assessed extension workers' knowledge of SDGs, their familiarity with related policies and programs, participation in trainings and workshops, and practical application of SDG-related initiatives.

Part III - Attitude Toward SDG Implementation (20 items)

This section evaluated their perceived importance of SDGs, willingness to implement SDG-related programs, confidence in applying SDGs in extension work, and satisfaction with available support systems.

Part IV - Challenges in Implementing SDG-Related Programs (10 items)

This section identified the specific challenges faced by extension workers in incorporating SDG principles into agricultural extension services.

A five-point Likert scale was used for measurement, with responses ranging from 1 (Strongly Disagree) to 5 (Strongly Agree) to quantify levels of awareness, attitudes, and challenges.

Data Gathering Techniques

To ensure a systematic and ethical approach to data collection, the researcher first sought formal permission from the Mayor’s Office in the respective municipalities in Districts 2 and 3 of Bulacan. A letter of request was addressed to the Municipal Mayor and directed to the Municipal Agriculture Office (MAO) in each municipality. This procedure facilitated access to agricultural extension workers while ensuring compliance with ethical research protocols. The study involved agricultural extension workers from various municipalities in Districts 2 and 3 of Bulacan. A structured survey questionnaire was used to collect data on their socio-demographic profile, awareness levels of selected Sustainable Development Goals (SDGs), attitudes toward SDG implementation, and the challenges they faced in integrating SDGs into their extension services. To ensure validity and reliability of the research instrument, the survey questionnaire underwent expert validation by professionals in agricultural extension and SDG-related fields. Their feedback was incorporated to refine the instrument for clarity, relevance, and congruency with the aim of the study.

Thirty agricultural extension agents from the Municipal Agriculture Offices (MAOs) of Pulilan and Malolos participated in a pilot study which were outside Districts 2 and 3, to assess the reliability of the research instrument prior to full implementation. The Cronbach’s Alpha Test was used to determine the internal consistency of the questionnaire. The test yielded a Cronbach’s Alpha value of 0.936 for all 50 items included in the survey instrument. This result indicated a high level of reliability, as it exceeded the

commonly accepted threshold of 0.70. Therefore, the instrument was deemed internally consistent and appropriate for use in the main study.

Table 2

Cronbach's Internal Consistency

Cronbach's α	Internal Consistency
0.90 and above	Excellent
0.80-0.89	Good
0.70-0.79	Acceptable
0.60-0.69	Questionable
0.50-0.59	Poor
below 0.50	Unacceptable

The study followed ethical research guidelines to the letter. All respondents gave their informed consent, guaranteeing that they were aware of the goal of the study, their voluntary involvement, and their ability to discontinue participation at any moment. By anonymizing data and safely storing it to avoid unwanted access, the confidentiality of responses was preserved. All collected information was used exclusively for research purposes and handled with integrity, ensuring compliance with ethical research standards.

Data Analysis Scheme

The data collected from the survey were systematically processed, summarized, and analyzed using statistical software to ensure accurate and meaningful interpretations. The descriptive statistical method was applied to effectively address the research objectives.

To describe the socio-demographic characteristics of agricultural extension workers, frequencies and percentages were used. To determine the level of awareness of agricultural extension workers regarding selected SDGs (SDG 1, 2, 13, and 15), responses were measured using a five-point Likert scale, where 5 represented "Fully Aware" and 1 represented "Fully Not Aware." The standard and mean deviance were calculated to ascertain the respondents' level of knowledge and identify differences in their levels of expertise. A corresponding verbal interpretation was assigned based on the computed mean:

Table 3

Awareness Level of Agricultural Extension Workers on Selected SDGs

Verbal Description	Scoring Range	Scale
Fully Aware	4.20 – 5.00	5
Aware	3.40 – 4.19	4
Neither Aware or Not Aware	2.60 – 3.19	3
Not Aware	1.80 – 2.59	2
Fully not Aware	1.00 – 1.79	1

To assess the attitude of agricultural extension workers toward SDG implementation, a five-point Likert scale (where 5 represents "Strongly Agree" and 1 represents "Strongly Disagree") was used to measure their perceived importance of SDG implementation, willingness to implement SDG programs, confidence in applying SDG-related principles, and satisfaction with the support systems available to them, such as funding, policies, and institutional backing. The mean and standard deviation were used to quantify their overall attitude, with the following verbal interpretation assigned:

Table 4

Attitudes of Agricultural Extension Workers Toward SDG Implementation

Verbal Description	Scoring Range	Scale
Strongly Agree	4.20 – 5.00	5
Agree	3.40 – 4.19	4
Neutral	2.60 – 3.19	3
Disagree	1.80 – 2.59	2
Strongly Disagree	1.00 – 1.79	1

To identify the challenges faced by agricultural extension workers in implementing SDG-related programs, frequencies and percentages were used to summarize the most common issues reported by respondents. Since multiple responses were allowed, the total frequency may exceed the sample size. The challenges were ranked based on the number of respondents who identified them, with higher frequencies indicating more commonly experienced barriers. This ranking helped highlight the most pressing challenges encountered by agricultural extension workers in integrating SDG-related programs into their work.

Results and Discussion

The socio-demographic profile of the 95 agricultural extension workers (AEWs) surveyed revealed a relatively balanced gender distribution, with a slight male majority (54.7%) and female representation at 45.3%, reflecting inclusive participation in the sector. The workforce was predominantly young, with the 20–30 age group comprising the largest share (30.5%), while only 5.3% were aged 61 and above, highlighting a youthful and adaptable group alongside a need for knowledge transfer from senior staff. All AEWs were college graduates, with 15.8% having earned master's units and 9.5% holding master's degrees, though none held or were pursuing doctoral degrees, indicating strong foundational competencies with room for advanced academic growth. Most respondents (67.4%) held regular positions, signifying workforce stability, and the largest segment (34.7%) had 1–5 years of service, showing a mix of new and experienced personnel.

Rice production emerged as the most common area of specialization (29.5%), underscoring the centrality of staple crops in Bulacan's agricultural landscape. In contrast, fields such as organic agriculture, fishery, and soil science were the least represented, each accounting for less than 5% of respondents. This imbalance suggests that while AEWs are well-placed to support rice farmers, there may be competency gaps in promoting agricultural diversification and sustainability practices. Regarding training, AEWs most frequently attended programs aligned with SDG 1 (No Poverty, 33.7%) and SDG 13 (Climate Action, 28.4%). These trainings typically focused on livelihood enhancement projects, poverty alleviation initiatives, and climate-resilient farming practices such as adaptive crop management and disaster preparedness. In contrast, participation was lower in programs related to SDG 2 (Zero Hunger, 21.1%) and SDG 15 (Life on Land, 16.8%), which often emphasize food security strategies, soil and water conservation, and biodiversity protection. The uneven distribution of training exposure highlights the need for more targeted capacity-building initiatives to ensure balanced competencies across all sustainability goals.

The overall weighted mean scores across different awareness indicators ranged from 3.40 to 3.52. Specifically, AEWs demonstrated basic knowledge of SDGs (WM = 3.52) and familiarity with relevant policies and programs (WM = 3.47), especially those concerning climate adaptation strategies (Mean = 3.64). However, awareness gained through formal training programs on sustainability was the least developed (Mean = 3.31), suggesting a gap in structured learning opportunities. On the other hand, awareness rooted in field practice was stronger, as shown in their ability to promote climate-resilient

agricultural practices (Mean = 3.56). Moreover, Cruz and Corpuz (2020) concluded that sustained participation in knowledge development programs enhanced AEWs' ability to integrate localized and data-driven solutions to hunger, poverty, and climate issues. These findings affirmed that regular and relevant trainings were critical not only for professional growth but also for empowering AEWs to be proactive agents of sustainable rural development.

Willingness, Confidence, and Support for SDG Implementation

The data show that agricultural extension workers (AEWs) have a highly positive attitude toward implementing Sustainable Development Goals (SDGs) in their work. This attitude is reflected across three key areas: their willingness to act, their confidence in their abilities, and their satisfaction with the support they receive. High Willingness to Implement: AEWs are very willing to integrate SDGs into their agricultural extension activities. The weighted mean for all statements related to willingness was 3.77 (on a 4.0 scale), which is a strong "Agree" rating. Key points include: They are ready to integrate specific SDGs (1, 2, 13, and 15) into their work, they are committed to encouraging farmers to adopt sustainable practices, and they are open to continuous learning and training to improve their SDG-aligned strategies.

General Confidence in Applying SDGs AEWs feel confident in their ability to apply SDG-related principles. The weighted mean for confidence was 3.62, also falling into the "Agree" category. They are most confident in guiding farmers on best practices for poverty reduction, food security, climate adaptation, and land sustainability. They feel well-equipped to handle challenges that arise when integrating SDGs into their work. Supporting policies and programs was the category with the lowest level of confidence, even if it was still in the "Agree" range, was advocating for policies and program suggesting that they are more confident in on-the-ground implementation than in influencing policy decisions.

Overall Satisfaction with Support Systems AEWs are generally satisfied with the support systems available to them, with a weighted mean of 3.49. They believe that strong partnerships with government agencies and other stakeholders are crucial for successful SDG implementation. They are satisfied with the training and technical guidance they receive. The area with the lowest satisfaction rating was the availability of resources and funding. While still rated as "Agree," this indicates a potential need for more consistent financial and material support to fully realize SDG initiatives.

With regard to attitudes toward SDG implementation, AEWs expressed high levels of agreement and positive disposition toward the goals. In the area of perceived importance, poverty alleviation and food security emerged as the most valued priorities (Mean = 3.65), aligning with the core mandates of SDGs 1 and 2. In terms of willingness to implement, the weighted mean of 3.77 reflects a strong inclination among AEWs to integrate SDG-related strategies into extension work. Confidence in applying SDG principles also showed promising results (WM = 3.62), with AEWs particularly confident in guiding farmers on sustainable practices related to poverty, food, climate, and land.

However, the evaluation of support system satisfaction produced a somewhat lower mean (WM = 3.49), suggesting that while internal motivation is there, institutional support and external reinforcement may be increased even further. The belief in strong partnerships as a key enabler of SDG success (Mean = 3.63) highlights the need for collaborative mechanisms among government, academe, and local communities. Farmers must have access to knowledge about marketing and other support services that are essential for agricultural growth in order to enhance global development in order to achieve greater farm productivity (Kalogiannidis & Syndoukas, 2024).

Despite the positive trends, the study identified persistent challenges that hinder the full integration of SDG-related programs in agricultural extension. Among the most frequently cited were the lack of funding and resources (Rank 1), low awareness of SDGs among farmers (Rank 2), and limited training

and capacity-building opportunities (Rank 3). These challenges underline systemic limitations that require a multifaceted and collaborative response.

In light of these findings, a comprehensive action plan was formulated to address the gaps in awareness, attitude, and capacity. The plan focuses on five key areas: Awareness Enhancement – through structured orientation seminars and the development of context-specific IEC materials to simplify SDG concepts; Capacity Building – by conducting specialized training on sustainable and climate-smart agriculture, and involving experts from the academe and national agencies; Fostering Positive Attitudes and Commitment – by sharing success stories, recognizing role models, and cultivating a culture of purpose-driven service; Strengthening Support Mechanisms – through the creation of SDG task forces, partnerships among LGUs, SUCs, and civil society groups, and the integration of SDG efforts into local development plans; and Monitoring and Continuous Improvement – by implementing tools for regular progress tracking and feedback to ensure that programs remain responsive and adaptive.

This action plan, grounded in the study's empirical data, aspires to build a resilient extension workforce that not only understands the SDGs but embodies them in daily practice. With proper implementation, it can catalyze the transformation of rural agricultural systems toward a more sustainable, inclusive, and climate-resilient future.

Challenges in Implementing SDG-Related Programs

This section aimed to identify the challenges encountered by agricultural extension workers (AEWs) in implementing programs aligned with the Sustainable Development Goals (SDGs), specifically SDG 1 (No Poverty), SDG 2 (Zero Hunger), SDG 13 (Climate Action), and SDG 15 (Life on Land). Respondents reflected on a range of institutional, operational, and contextual barriers that hindered the effective localization and execution of these goals in agricultural settings. Findings revealed that although AEWs exhibited a considerable level of awareness and a generally favorable disposition toward the principles of the SDGs, they encountered persistent obstacles that limited their implementation efforts.

Among the most frequently reported challenges were inadequate financial and logistical resources, which constrained the delivery of extension services and the sustainability of programs. Many AEWs expressed concerns about the insufficiency of funding to support fieldwork, procure inputs, and sustain long-term community-based interventions. Additionally, the lack of continuous training and technical upskilling was noted as a significant barrier, especially in keeping pace with evolving sustainability frameworks and agricultural innovations relevant to SDG implementation. Furthermore, respondents highlighted issues related to weak inter-agency collaboration, where fragmented communication and uncoordinated efforts between government agencies, non-government organizations, and local government units hindered program integration. Cultural resistance and hesitation among farming communities, often rooted in traditional practices and skepticism toward new initiatives, further complicated the adoption of SDG-aligned practices.

These challenges collectively affected the consistency, reach, and impact of extension efforts. The findings underscored the urgent need to enhance institutional support systems, establish regular capacity-building programs, and promote stakeholder engagement to bridge existing gaps and strengthen the role of AEWs in achieving sustainable development objectives at the grassroots level.

Table 5 presents the ranked challenges faced by agricultural extension workers in integrating SDGs into their extension work. Among the various barriers to the successful integration of the Sustainable Development Goals (SDGs) in agricultural extension work, three key challenges emerged as the most pressing, based on frequency rankings. The lack of funding and resources for SDG-related programs (f=30, Rank 1) stands out as the foremost constraint, having far-reaching implications for the

operational capacity of extension services. Insufficient financial support restricts extension offices from conducting regular training sessions, on-site visits, and the production and distribution of SDG-aligned learning materials. For example, without sufficient budgets, extension workers are often unable to travel to geographically isolated or marginalized communities, reducing their ability to provide technical guidance, introduce sustainable technologies, and monitor on-the-ground implementation.

Table 5

Ranked Challenges of the Respondents on SDG Integration in Agricultural Extension

Challenges Encountered	Frequency	Rank
Lack of funding and resources for SDG-related programs	30	1
Low awareness and understanding of SDGs among farmers	29	2
Limited training and capacity-building opportunities on SDGs	28	3
Inadequate government and institutional support for SDG initiatives	27	4
Resistance to change among farmers and stakeholders	26	5
Difficulty in integrating SDGs into existing extension programs	24	
Limited access to relevant technologies and innovations	23	7
Weak collaboration between extension workers, government agencies, and private sectors	22	8
Challenges in monitoring and evaluating the impact of SDG-related programs	20	9
Climate-related risks affecting agricultural sustainability	18	10

Note. Multiple Responses were allowed since respondents could identify more than one challenge.

Even when extension activities are mobilized, poor farmer awareness impedes the internalization of SDG concepts and limits behavioral change. Ranked third is the limited training and capacity-building opportunities on SDGs for extension workers themselves (f=28, Rank 3), suggesting that many frontliners may lack the technical knowledge or confidence to effectively integrate SDG principles in their work. When extension personnel are not equipped with updated tools, frameworks, or methodologies, their role as change agents is undermined.

While these top three challenges highlight financial, informational, and institutional deficits, it is also important to consider the least frequently cited but still significant constraint: climate-related risks affecting agricultural sustainability (f=18, Rank 10). Though ranked lowest, this issue cannot be overlooked, as it presents external threats such as erratic weather, droughts, and floods that can render even well-planned SDG interventions ineffective. These risks further stress the need for climate-adaptive strategies within extension programs and underscore the interconnection between environmental resilience and sustainable development goals. Furthermore, these findings reveal that the integration of SDGs into agricultural extension is hindered not by a single limitation but by an interplay of financial insufficiency, low grassroots awareness, gaps in institutional training, and external environmental threats. Addressing these multifaceted challenges will require coordinated efforts, increased investments, and sustained capacity-building initiatives that are both farmer-centered and climate-resilient.

Table 6

Action Plan for Agricultural Extension Workers (AEWs) in Districts 2 and 3: Enhancing Awareness, Commitment, and Capacity for SDG Integration

Key Area	Objectives	Planned Activities	Responsible Agencies/ Persons	Timeline	Expected Outputs	Funding Source
1. Awareness Enhancement on other SDG's- through farmers and community	To improve the knowledge and understanding of Agricultural Extension Workers (AEWs) regarding Sustainable Development Goals 1 (No Poverty), 2 (Zero Hunger), 13 (Climate Action), and 15 (Life on Land), and to encourage awareness among farmers and community members.	Conduct localized orientation seminars on SDGs- Disseminate Filipino-translated IEC materials (infographics, flyers, AVPs)	DA-ATI, LGU Municipal Agriculturists, BASC, NGOs	Q3 2025	At least 80% of AEWs demonstrate improved post-assessment scores in SDG knowledge	DA-ATI Regional Budget, LGU Development Funds
2. Capacity Building for AEWs, Farmers, and the Community	To strengthen the practical and technical skills of AEWs in implementing SDG-aligned programs that address the needs of farmers and contribute to community development.	- Organize hands-on training on climate-resilient farming, food security, and soil/land stewardship- Implement expert-led mentoring and coaching programs	SUCs (BASC), PhilRice, TESDA, PCAARRD, DA-Regional Office	Q3–Q4 2025	Four (4) capacity-building sessions completed; improved skills observed in AEW field performance	Provincial Government Funds, Project-Based Grants
3. Fostering Commitment to Sustainable Community Development	To promote a consistent and responsible attitude among AEWs toward integrating SDG principles into extension services, with lasting benefits for local communities.	- Share case studies of successful SDG implementation during AEW assemblies- Conduct motivational forums with exemplary AEWs and leaders	Municipal Agriculture Offices, Model AEWs, Development NGOs	Q4 2025	Increased proactive participation by AEWs in SDG-aligned activities, based on documentation and self-assessment	LGU Allocations, FAO/UNDP Local Partnerships
4.Institutional and International Support and Inter-agency Collaboration	To improve institutional structures and enhance collaboration between agencies in support of effective and coordinated SDG implementation.	-Create district-level SDG Task Forces- Develop partnerships through MOUs among LGUs, SUCs, DA, and CSOs	LGUs, DILG, DA, BASC, Civil Society Organizations	Q4 2025 – Q1 2026	Two operational task forces established; signed collaborative agreements with key stakeholders	Local Investment Plans, CSO and NGO Support Funds
5. Monitoring, Evaluation, and Continuous Improvement	To establish a regular monitoring and evaluation process that supports continuous learning, accountability, and the sustainability of extension initiatives aligned with the SDGs.	- Develop SDG-aligned monitoring and evaluation (M&E) tools- Conduct semi-annual progress reviews and feedback workshops	Provincial Agriculture and Planning Offices, BASC Faculty and M&E Teams	Semi-annual 2025–2026	Documented reports reflecting measurable improvements and adaptive adjustments in program delivery	DA M&E Funds, LGU Planning and M&E Units

Conclusion

The study's findings lead to the following conclusions:

AEWs demonstrate a basic understanding and some knowledge of climate adaptation when it comes to awareness of specific SDGs, namely SDG 1 (No Poverty), SDG 2 (Zero Hunger), SDG 13 (Climate Action), and SDG 15 (Life on Land). However, their awareness from formal training is low, which means more structured and focused training is needed. Since they are already applying some SDG ideas in the field, future training should be more practical and related to their actual work.

AEWs also show positive attitudes toward the SDGs. They believe in their importance, especially in reducing poverty and hunger, and are willing and confident to apply them. However, they are somewhat dissatisfied with the current support they receive, especially in terms of partnerships and institutional help. This shows that even though they are ready and motivated, they need stronger support systems to succeed. The study also found challenges such as lack of funding, low awareness among farmers, and limited training opportunities. These problems make it harder for AEWs to fully apply SDG programs. Addressing these issues will require the help of local government units, schools, and national agencies. Lastly, the proposed action plan in this study directly addresses these problems. It focuses on improving awareness, building skills, strengthening support systems, and encouraging teamwork. Its success will depend on continued support, enough resources, and strong partnerships among all involved.

Recommendations

The following suggestions are asked to be carried out considering the study's results and conclusions to guarantee the successful and long-term integration of Sustainable Development Goals (SDGs) in agricultural extension services:

1. Ensuring sustainability and long-term impact of these projects, priority may be given to institutionalizing consistent funding and resource allocation for SDG-related agricultural extension programs at both local and national levels.
2. Agricultural extension workers may be encouraged to participate in regular training and capacity-building activities that enhance their understanding of the Sustainable Development Goals and improve their ability to promote sustainable agricultural practices.
3. Local government units may support the development and dissemination of localized Information, Education, and Communication (IEC) materials in native languages to increase awareness and promote farmer engagement in SDG-related programs.
4. Capacity-building initiatives may include policy training for local officials and decision-makers to strengthen institutional knowledge, leadership, and implementation of SDG-aligned strategies within agricultural extension systems.
5. To guarantee that SDG integration initiatives are cooperative, inclusive, and in line with regional agricultural needs, stronger collaborations between government agencies, non-governmental organizations, academic institutions, and private sector entities may be formed.

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