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Enhancing Food Security And Resilience In Sierra Leone Through The Acting Now Programme

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Abstract
The Acting Now Project, implemented by Solidaridad West Africa in Sierra Leone (2023–2025), is a three-year initiative responding to the ongoing food crisis across six African countries. The program seeks to enhance the production and availability of locally grown nutritious foods by supporting 163,000 farmers regionally, including approximately 7,200 in Sierra Leone's Bo, Kenema, and Port Loko districts. This study presents the outcome review conducted at the midterm stage of the project to evaluate its impact on food security, agricultural productivity, and resilience among beneficiary smallholder farmers. A mixed-methods research design was employed, combining quantitative surveys with qualitative focus group discussions and key informant interviews. The evaluation utilized a pseudo two-group pretest–posttest design comparing treatment (beneficiaries) and counterfactual (non-beneficiaries) groups across key indicators measured at baseline and midterm.
This enables attribution of observed changes to project interventions. Findings reveal significant improvements in project communities relative to non-project areas. About 69.9% and 67.3% of households received support for groundnut and cassava cultivation, respectively, with these value chains demonstrating over 80% commercialization. Rice cultivation, predominantly subsistence-oriented, showed lower commercialization (~38.5%). Farming households in project areas reported marked increases in farm income, cultivated area (43.5% vs. 6.1%), and productivity (48.1% vs. 11.1%). Adoption of good agronomic practices and training on financial management and market access were substantially higher among beneficiaries (over 90%), directly contributing to enhanced production and resilience. Notably, 81% of women in project communities reported control over farm income compared to 54.7% in non-project areas, highlighting gender empowerment achievements.
Additionally, the project strengthened agricultural service providers through capacity building, business development support, and financing linkages, thereby reinforcing the enabling environment for sustainable food systems.
This outcome review underscores the effectiveness of the Acting Now Project in improving local food security, promoting sustainable farming practices, and empowering vulnerable groups in Sierra Leone. The results provide critical insights to inform ongoing implementation and policy alignment toward resilient agricultural development.

Key Words; *Agriculture, Food Security and Nutrition, Resilience, and impact*

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I. Introduction

The ongoing global food crisis, exacerbated by climate change, economic shocks, and geopolitical instability, has heightened the urgency to promote resilient and sustainable food systems, particularly in sub-Saharan Africa (Lele & Goswami, 2021; FOOD & AFFORDABLE, 2022). In response, Solidaridad West Africa launched the Acting Now program, a three-year initiative (2023–2025) aimed at enhancing the production and availability of locally grown nutritious foods in six African countries: Kenya, Ethiopia, Nigeria, Ghana, Sierra Leone, and Mozambique. The program targets 163,000 smallholder farmers across these countries, with a strategic focus on strengthening local markets to mitigate the immediate threat of food stress (Chevallier et al., 2024).

The Acting Now program's primary objective is to increase the supply of nutrient-rich crops by supporting smallholders through a combination of training, input provision, and market facilitation. Beyond addressing immediate food insecurity, the program is designed to build medium- to long-term resilience within food systems, preparing farmers and communities to better withstand future climate variability and economic shocks (Taylor, 2018; Change, 2021). In West Africa, the program focuses on Nigeria, Ghana, and Sierra Leone, where local food production faces dynamic challenges including soil degradation, market inefficiencies, and limited access to technologies (Bonuedi, 2022).

Since its inception in Sierra Leone in 2023, the Acting Now program has mobilized approximately 6,000 farmers in the districts of Bo, Kenema, and Port Loko. Through targeted interventions concentrating on key staple and nutritious crops such as rice, cassava, and groundnuts, the program has contributed significantly to improving agricultural productivity and community resilience (Battersby, 2024). To assess the program's progress and effectiveness, a comprehensive outcome survey was conducted to measure key indicators as outlined in the project log frame. This evaluation serves to document tangible benefits, gauge the socio-economic impact on smallholder farmers, and inform ongoing project implementation.

The outcome review employed mixed methods to generate robust quantitative and qualitative evidence, enabling an assessment of program responsiveness to beneficiary needs and alignment with national development priorities, particularly Sierra Leone's Feed Salone strategy (Bangura et al., 2020). Additionally, the review considers the program's coherence with other donor interventions, gender and youth dynamics within the farming communities, and existing resource gaps that influence food security outcomes.

Key performance indicators evaluated include improvements in farm income, crop yields, adoption of good agronomic practices, access to inputs and services, and increased market participation. Notably, the program has demonstrated considerable progress in empowering women farmers, with approximately 81% reporting control over their income, a critical factor in ensuring household nutrition and economic stability (Alderman & Headey, 2017).

This midterm evaluation provides valuable insights into the effectiveness and impact of the Acting Now program in Sierra Leone, contributing to the broader discourse on climate-resilient agriculture and food system transformation in vulnerable regions of Africa.

II. Methodology

Research Design

This study employed a Mixed Methods Research Design (MMRD) combining qualitative and quantitative approaches to generate comprehensive data from multiple stakeholders (Wisdom & Creswell, 2013). The mixed methods approach facilitates a holistic understanding of the Acting Now program's impacts from diverse perspectives within the project communities.

The outcome assessment adopted a pseudo two-group pretest–posttest (TGPP) design, involving two rounds of data collection at baseline and midterm stages. This TGPP framework compares changes over time between treatment (project beneficiaries) and counterfactual (non-beneficiaries) groups, allowing for credible attribution of observed effects to the project interventions, provided baseline equivalence is established (Shadish et al., 2002).

Data Collection Instruments and Procedure

Three primary data collection tools were developed for the study: a structured household questionnaire, a semi-structured Key Informant Interview (KII) guide, and an unstructured Focus Group Discussion (FGD) guide. The household questionnaire was aligned with the project logframe indicators to capture quantitative data on production, income, practices, and market access. The KII and FGD guides addressed similar thematic areas but were designed to elicit in-depth qualitative insights from stakeholders at community and institutional levels.

The household questionnaire was programmed in KoboToolbox to enhance data accuracy and included skip logic to tailor questions based on prior responses, thereby minimizing irrelevant or ambiguous data entries. The questionnaire permitted disaggregation by sex, age, and location to capture differential impacts across demographic groups. Prior to deployment, the instruments underwent review and validation by Solidaridad's Monitoring, Evaluation, Accountability, and Learning (MEAL) team and project officers to ensure relevance and clarity.

Sampling Strategy

A combination of purposive and systematic random sampling was employed to select study participants across Bo, Kenema, and Port Loko districts. Purposive sampling ensured inclusion of project beneficiaries with a minimum of 50% female representation, reflecting the program's focus on gender inclusiveness. Within each district, systematic random sampling was applied by selecting every nth individual from an enumerated list of beneficiaries, ensuring unbiased probability-based selection (Kish, 1994).

Sampling Frame

The sampling frame encompassed farming households participating in the program, alongside key community stakeholders (local authorities, women's and youth leaders, master farmers, traders) and representatives from institutional bodies involved in agricultural development, food security, gender, youth affairs, environment, and rural finance. The total population of farming households registered in the project was approximately 6,000, forming the initial frame for sampling.

Sample Size Determination

The household survey sample size was calculated using the Yamane (1973) formula, appropriate for finite populations with a known size, setting a 95% confidence level and 5% margin of error. Based on a beneficiary population of 3,908 farmers across the three districts, the calculated sample size was 363 households Mohanasundaram & Harsha, 2017).

Key Informant Interviews targeted 20 knowledgeable individuals,10 from the community level inclusive of chiefs, councilors, church leaders, and farmer leaders, and 10 from institutional stakeholders such as district councils, Ministries (Agriculture, Gender, Youth Affairs, Environment), agribusinesses, and civil society organizations.

Focus Group Discussions were conducted with Farmer-Based Organizations (FBOs) and Village Savings and Loan Associations (VSLAs). Ten FGDs were held in total, with at least three per district, each comprising 8–12 participants ensuring gender balance (minimum 50% women) and inclusivity of youth, persons with disabilities, and marginalized groups facilitated by Solidaridad field staff and community animators.

Sample Allocation

The household sample was allocated proportionally to the size of beneficiary populations in each district, calculated using probability proportional to size (PPS) sampling. District-level beneficiary numbers from project records were divided by the total beneficiary population to determine population weights, which were then applied to distribute the total sample size (363) across Bo, Kenema, and Port Loko districts accordingly.

Table 1: Household sample size distribution using the probability proportional to size approach

District	Listed farmers	Population probabilities	Household sample size
Port Loko	1,254	0.32	116
Bo	1,807	0.46	167
Kenema	847	0.22	80
Total	**3,908**	**1.00**	**363**

The final sample allocation was established in collaboration with Solidaridad to ensure a spatially representative distribution across the target communities. Selection of communities was conducted jointly by the consultant and Solidaridad project staff, with particular attention to include the most remote and vulnerable populations. Within each district, the sample was evenly divided, with 50% comprising participating households and 50% non-participating households. This balanced allocation facilitated robust counterfactual analysis to assess the program's impact.

Data Collection

Primary Data Collection

Quantitative Data

Quantitative data were collected using a structured household questionnaire administered via Kobo Toolbox and Kobo Collect platforms on Microsoft and Android devices. Fifteen data collectors were recruited and organized into two teams, each consisting of four enumerators led by a team leader. To ensure uninterrupted data collection, enumerators were equipped with power banks for continuous device operation and mobile internet connectivity to enable real-time GPS coordinate capture and daily submission of completed surveys. Motorbikes were hired to facilitate flexible and efficient movement across the diverse and often remote project communities.

Qualitative Data Concurrently, the two team leaders conducted Key Informant Interviews (KIIs) and Focus Group Discussions (FGDs). Considering the busy schedules of some key informants, remote interviews via telephone or email were employed as alternatives when face-to-face meetings were not feasible. A list of relevant KIIs was developed in collaboration with Solidaridad, targeting community leaders, local authorities, and institutional stakeholders. KIIs followed a semi-structured format to allow focused yet flexible inquiry, enabling respondents to elaborate on pertinent issues. FGDs provided a platform for comprehensive community assessments, exploring project participants' needs, livelihood challenges, socio-economic conditions, gender and governance relations, access to and control over natural resources (e.g., land), as well as vulnerabilities impacting livelihood sustainability. The discussion encouraged inclusive participation, ensuring that all voices were heard, including those of women, youth, people with disabilities, and other marginalized groups.

Secondary Data A detailed literature review supplemented the preliminary data collection, including Solidaridad project documents, strategic plans, implementation manuals, and similar interventions by other development partners. Relevant national policies and government documents affecting agricultural development and food security were also reviewed. The literature review laid the theoretical foundation for the final evaluation and informed the study's objectives and analytical framework. Additionally, covert observation techniques were employed in the field to assess behaviors and situations that might not be effectively captured through direct

questioning. The combined methodologies facilitated collection of location-, gender-, and age-disaggregated data, enabling nuanced analysis of program impacts across demographic groups in the targeted districts.

Training and Pretesting

Prior to field deployment, a comprehensive one-day training session was conducted for all data collectors under the guidance of the consultant. The training covered ethical research practices, including obtaining informed consent, managing participant refusals, effective probing techniques, and covert observation methods. Each questionnaire item was carefully reviewed to ensure alignment with project objectives, outcomes, and cross-cutting themes, while ensuring cultural and linguistic appropriateness.

A pretest of the data collection instruments was subsequently carried out to familiarize enumerators with the tools and identify any necessary adjustments before full-scale data collection commenced.

Quality Assurance and Control

To uphold data quality and integrity, data collectors received training on ethical standards and respondent privacy. The relevance and consistency of data collection tools were rigorously assessed through pilot testing and internal reviews prior to use.

All survey responses were geo-referenced using Global Positioning System (GPS) coordinates to verify enumerators' presence at designated locations. GPS data were cross-checked by overlaying coordinates on OpenStreetMap platforms as part of spatial quality control.

Furthermore, daily data submissions enabled continuous monitoring and supervision of fieldwork. The project team regularly reviewed incoming data on the central server to identify discrepancies or gaps promptly. Comprehensive data cleaning procedures were conducted prior to analysis to ensure accuracy, completeness, and reliability of the dataset.

Data Analysis

Prior to analysis, data underwent rigorous cleaning to correct errors, address missing values, and standardize formats, ensuring integrity and readiness for both qualitative and quantitative analysis. Descriptive statistics, including measures of central tendency (mean, mode, frequency), summarized the data and were visually presented using tables, charts, and graphs. Quantitative data distributions were examined with histograms and pie charts, with disaggregation by gender, age, and location to identify trends and group differences.

Qualitative data were analyzed using conceptual content analysis. Data were organized into themes aligned with project indicators, enabling the aggregation of related responses for triangulation with quantitative findings. This concurrent analysis substantiated interpretations and enriched understanding of project impacts. Food and nutrition security were assessed using the Minimum Dietary Diversity for Women (MDD-W) and the Months of Adequate Household Food Provisioning (MAHFP), providing disaggregated insights into dietary quality and food availability.

Results were interpreted and presented through clear narratives supported by tables, charts, and an indicator summary matrix outlining project outputs against measurable targets. Limitations affecting interpretation include potential respondent bias due to cultural factors, challenges arising from high illiteracy rates, subjectivity in qualitative coding, spatial sampling limitations, and temporal variability across data collection points.

Participation was entirely voluntary, with informed consent obtained prior to data collection. Respondents could withdraw or decline to answer at any stage. To protect privacy, no personal identifiers were collected; only community or institutional affiliations were recorded.

Additional protective measures included: interviewing only consenting participants; respecting participant dignity by avoiding intrusive photography; conducting interviews in open, visible spaces; seeking permission from household heads when interviewing women; using local languages to ensure understanding; scheduling interviews to minimize disruption; and enforcing strict conduct codes prohibiting sexual abuse, discrimination, and disrespect for cultural or religious practices. The "Do No Harm" principle was rigorously observed throughout the study.

III. Results And Discussion

Socio-Demographic Characteristics of Household Respondents

A total of 303 household interviews were completed, with 51.5% representing project beneficiaries and 48.5% representing non-beneficiaries (counterfactual group). Among respondents, 57.4% were male and 42.6% female. The majority (75.9%) fell within the youth age category of 18 to 35 years.

Regarding marital status, 86.5% of respondents were married, 6.6% widowed, 4.3% single, 1.9% separated, and 0.7% divorced. Religious affiliation was predominantly Islamic (69.6%) followed by Christianity

(30.4%). Literacy levels were low overall, with 47.2% of respondents reporting no formal education. Illiteracy was notably higher among females (57.4%) compared to males (39.7%).

Most respondents (70%) identified as household heads. Gender disaggregation revealed that 97.7% of male respondents were household heads, contrasting with only 30.2% of female respondents, many of whom were single, divorced, separated, or widowed. The average household size was 7.7 people, with a median of 7, though the majority of households reported five members.

Impact Indicator: Food Sufficiency Among Small-Scale Producer Households

Focus group discussions and household reports identified November to February as the period of greatest food security, with June to August representing the leanest months. Quantitatively, the average Months of Adequate Household Food Provisioning (MAHFP) score was five months (November–March) in project communities, compared to three months (November–January) in non-project communities. This suggests a positive impact of the Acting Now Project on extending the period of food sufficiency in beneficiary households.

Further disaggregation of food security indicators by community status consistently showed that participating communities exhibited higher food security levels than their non-participating counterparts (see Table 2), underscoring the program's contribution to improving household food availability.

Table 2: Percentage disaggregation of the food security of household respondents by community type.

Indicator	Community type	Frequency (%)	
		Never	Rarely
In the past one month, how often do you spend a whole day without food due to lack of food?	Participant	96.1	3.9
	Non-participant	89.1	10.9
In the past one month, how often do you go to bed on an empty stomach due to lack of food?	Participant	95.5	4.5
	Non-participant	89.8	10.2

Additionally, 57.7% of women of reproductive age in project communities met the Minimum Dietary Diversity for Women (MDD-W) criterion—consuming at least five food groups within a 24-hour recall period—compared to 49.9% in non-project communities. This indicates a positive contribution of the Acting Now Project toward improving women's nutritional diversity.

Outcome Indicator 1: Improved Income Among Small-Scale Food Producers

The Acting Now Project in Bo, Kenema, and Port Loko districts targeted key staple value chains, including rice, cassava, and groundnuts. Among participating households, 69.9% received support for groundnut cultivation, 67.3% for cassava, and 47.4% for rice. Table 3 details the median household production and income values disaggregated by the promoted value chains, illustrating the program's impact on enhancing smallholder productivity and livelihoods.

Table 3: Household median values of production and income across the project communities.

Value chain crop	Indicators				
	Cost of production (SLE)	Quantity produced (in 50 kg rice bag)	Quantity sold (in 50 kg rice bag)	Sales price per 50 kg rice bag (SLE)	Total sales income (SLE)
Groundnut	2,000	5.0	4.0	1,000	4,000
Cassava	1,200	8.0	6.0	250	1,500
Rice	1,400	6.5	2.5	800	2,000

As shown in Table 3, the groundnut and cassava value chains exhibit higher levels of commercialization, with over 80% of produce sold. In contrast, rice—being the staple food crop—is less commercialized, with only 38.5% of production marketed. Rice cultivation remains predominantly subsistence-based or involves small-scale commercialization.

Figure 1 illustrates the distribution of households by their primary sales outlets for farm produce and their perceptions of changes in household farm income in 2024 compared to previous cropping seasons. The majority of households (73.8%) sold their produce at open markets, followed by 25.5% engaging with traders or agents, and a minimal 0.7% using cooperatives as sales channels. Regarding income perceptions, 43.1% of households reported no change in farm income, 42.1% reported an increase, and 14.8% indicated a decline compared to prior seasons.

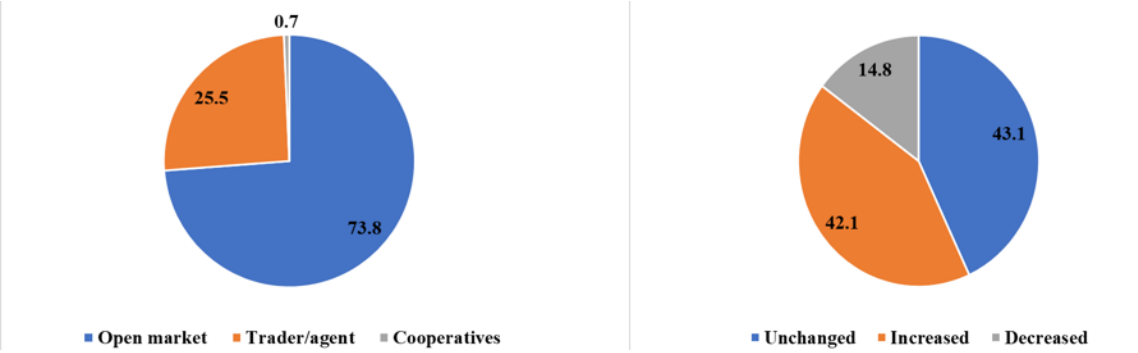

Figure 1: Percentage distribution of farming households by (a) main point of sale of farm produce, (a) perceived changes in farm income between 2024 and previous seasons.

A disaggregation of perceptions on changes in farm incomes by community type (Table 4) revealed that more households in the project communities recorded an increase in farm incomes than those in non-project communities, indicating a positive impact of the Acting Now Project.

Table 4: Percentage disaggregation of households by income change between 2024 and previous seasons

Community type	Perceptions on changes in income (%)			Total (%)
	Decreased	Increased	Unchanged	
Beneficiary	7.1	55.8	37.1	100
Non-beneficiary	23.1	27.2	49.7	100

Insights from focus group discussions (FGDs) and key informant interviews (KIIs) attribute the observed income increases to several factors: expansion of cultivated land, higher market prices, improved crop yields, timely planting, reduced crop theft, availability of quality farm inputs (such as improved seeds), adoption of good agricultural practices, enhanced soil fertility, access to farm labor, increased farmer knowledge, better market access, support from Solidaridad, presence of service providers, value addition activities, and strengthened marketing and business skills.

Conversely, households reporting income declines cited challenges including climate change impacts—characterized by erratic rainfall and elevated temperatures—limited availability of inputs and extension services, labor shortages, inadequate capital, insufficient service providers, poor farming education and management, delayed planting, suboptimal harvesting and crop management practices, theft, and crop damage caused by animals.

Among female respondents, 67.7% reported having control over their income, while 32.3% indicated that household income decisions were primarily controlled by husbands or male heads of household. Notably, cross-tabulation revealed that 81% of women in project communities exercised control over their farm income compared to 54.7% in non-project communities, underscoring the Acting Now Project's positive impact on enhancing women's financial autonomy and access to resources.

Outcome Indicator 2: Increased Crop Yield and Cultivated Area Among Small-Scale Food Producers

Between 2023 and 2024, 43.5% of households in project communities reported an expansion in cultivated land, compared to only 6.1% in non-project communities. This increase is largely attributed to support from the Acting Now Project, which enhanced access to agro-inputs, agricultural services, and labor within participating communities.

Table 5 presents an assessment of changes in productivity, measured as yield per unit area, between 2024 and previous cropping seasons. Nearly half (48.1%) of households in project communities reported increased productivity, whereas only 11.1% of households in non-project communities observed similar gains. These improvements reflect the project's contributions in facilitating access to quality inputs, dissemination of improved agronomic practices, introduction of enhanced crop varieties, availability of finance, and training in climate-smart agriculture.

Table 5: Percentage disaggregation of households by productivity between 2024 and previous seasons.

Community type	Perceptions on changes in productivity (%)			Total (%)
	Decreased	Increased	Unchanged	
Beneficiary	6.5	48.1	45.4	100
Non-beneficiary	22.2	11.1	66.7	100

Outcome indicator 3: Small-scale food producers with new or improved access to inputs and services

Figure 2 presents the percentage distribution of households in the project communities by the inputs and services they have received with support from the Acting Now Project. The household survey showed that agro-input supply, farm management and farming education, marketing of produce, and farm equipment/machinery are the most provided inputs and services, while there is limited provision of processing, packaging, transporting, weighing credits, and storage services.

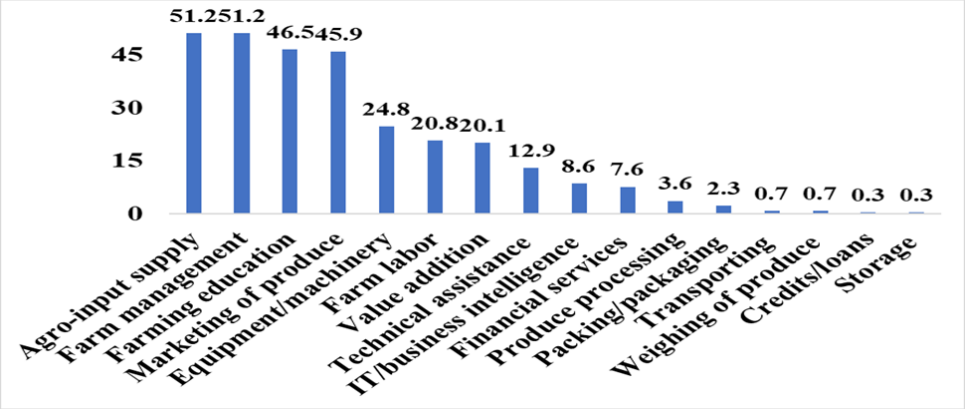

Figure 2: Percentage distribution of households by agro-inputs and services received.

The survey revealed that a greater proportion of farming households in project communities (68.2%) have access to land preparation services compared to those in non-project communities (47.9%). Similarly, access to agro-chemicals was higher among project participants (51.3%) than non-participants (35.6%). Extension service coverage was markedly greater in project communities, with 93.5% of households receiving support, compared to only 2.7% in non-project areas. Among those receiving extension services, 64.2% attributed this support to the Acting Now Project, followed by 29.1% from independent service providers and 6.7% from the Ministry of Agriculture and Food Security (MAFS). Notably, 79.2% of households in project communities reported that the Acting Now Project introduced new agricultural services, 94.4% of whom rated these services positively.

Qualitative data from FGDs and KIIs corroborated these findings, highlighting that the enhanced services have improved farming knowledge, access to finance, produce processing techniques, market awareness, availability of inputs, adoption of improved varieties, crop handling, yields, and farm incomes.

Output Indicator 1: Farmer Capacity Building through Skills and Knowledge Development

Figure 3 illustrates the adoption rates of good agronomic practices among surveyed households over the past three years. Mixed cropping, cover cropping, and crop rotation were the most widely adopted practices, whereas organic manure application, zero burning, and reduced or zero tillage showed limited uptake. Adoption was predominantly concentrated in project communities, where 94.2% of households received training on good agronomic practices, compared to only 1.4% in non-project communities.

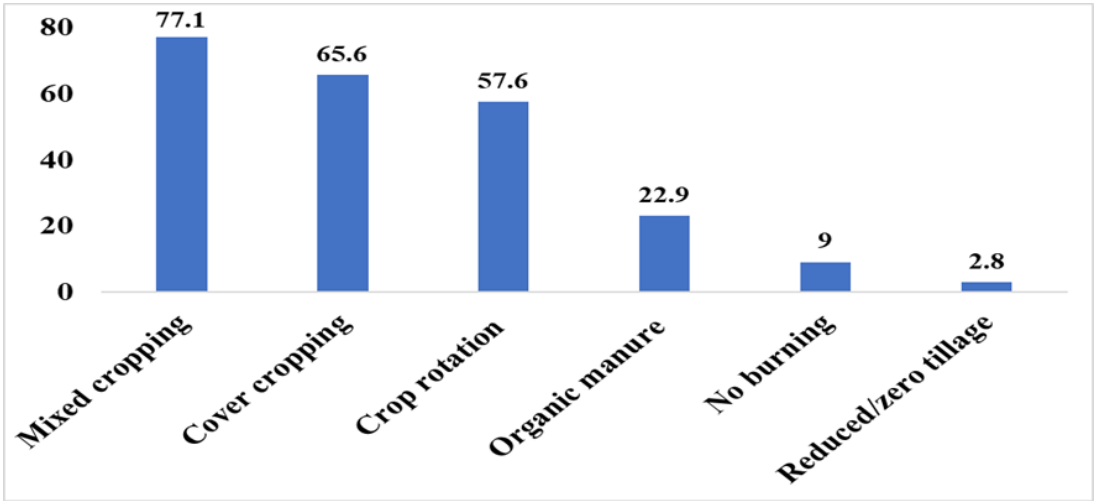

Figure 3: Percentage distribution of households to agronomic practices adopted over the past 3 years.

While 98.7% of farming households in the project communities have received training on good financial management, only 2.1% of farming households have received the same in non-project communities. Additionally, 97.4% of the participating households have received training on marketing and access to markets, while only 2.1% of the households have received training on the same in non-project households.

Output Indicator 2: Support to Input and Service Providers

The Acting Now Project has extended support to five agricultural service providers within the project communities. However, only two service providers were available for interviews during the outcome review. The first, Women's Enterprise, is a women-led, community-based organization established in January 2018. The second, Mariama Kalokoh, is an individual service provider who launched her business in August 2022. Both serve over 1,000 clients each and offer a comprehensive range of agricultural services, including input supply, farmer education, credit and loan facilitation, business information, produce processing, value addition, packaging, and marketing.

Both providers credited the Acting Now Project with introducing new services, which they rated positively. They have benefited from support encompassing business establishment, development of business plans, access to farm equipment and machinery, technical capacity building, linkage to investors, access to finance, and connection to farmer clients. The project's engagement has thus significantly enhanced the capacity of agricultural service providers and improved farmers' access to critical services.

IV. Conclusion

Comparative analysis between project and non-project communities demonstrates that the Acting Now Project has achieved significant impacts in Bo, Kenema, and Port Loko districts. Participating households report enhanced access to agricultural inputs and services, increased crop productivity and cultivated area, improved farming knowledge, and higher adoption rates of good agronomic practices. Additionally, there is greater access to finance and strengthened farm management skills among beneficiaries.

The project has notably contributed to women's empowerment, with more women in project communities exercising control over farm income compared to those in non-project areas. Furthermore, commercialization has increased across the supported value chains; rice, groundnut, and cassava, resulting in improved farming practices, household incomes, and food and nutrition security.

References

[1] Alderman, H., & Headey, D. D. (2017). How Important Is Parental Education For Child Nutrition? World Development, 94, 448-464.
[2] Bangura, S., Sesay, A. K., Bah, D. K. S. C. J., & Mansaray, I. (2020). The Impact Of Microfinance On Smallholder Agricultural Productivity In Sierra Leone: A Case Study Of Koinadugu District. Gsj, 8(12), 1586-1620.
[3] Battersby, B., Duarte, I., Makau, P., Nyakahuma, J., Radebe, N., & Tufan, I. (2024). Sierra Leone.
[4] Bonuedi, I., Kornher, L., & Gerber, N. (2022). Agricultural Seasonality, Market Access, And Food Security In Sierra Leone. Food Security, 14(2), 471-494.
[5] Change, I. P. O. C. (2001). Climate Change 2007: Impacts, Adaptation And Vulnerability. Genebra, Suíça.
[6] Chevallier, R., Gosling, A., & Cramer, L. (2024). Farmer-Led Adaptation: Best Practice Case Studies.
[7] Food, R., & Affordable, H. D. M. (2022). Food Security And Nutrition In The World.
[8] Kish, L. (1994). Multipopulation Survey Designs: Five Types With Seven Shared Aspects. International Statistical Review/Revue Internationale De Statistique, 167-186.
[9] Lele, U., & Goswami, S. (2021). From Food Security To Nutrition Security For All. Food For All: International Organizations And The Transformation Of Agriculture, 196.
[10] Mohanasundaram, S. S. T., & Harsha, P. B. H. Selecting The Right Sample Size: Methods And Considerations For Social Science Researchers.
[11] Shadish, W. R., Cook, T. D., & Campbell, D. T. (2002). Experimental And Quasi-Experimental Designs For Generalized Causal Inference. Houghton, Mifflin And Company.
[12] Taylor, M. (2018). Climate-Smart Agriculture: What Is It Good For?. The Journal Of Peasant Studies, 45(1), 89-107.
[13] Wisdom, J., & Creswell, J. W. (2013). Mixed Methods: Integrating Quantitative And Qualitative Data Collection And Analysis While Studying Patient-Centered Medical Home Models. Rockville: Agency For Healthcare Research And Quality, 13, 1-5.
[14] Yamane, T. (1973). Statistics: An Introductory Analysis.