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ARTICLE

Strengthening Agribusiness Sustainability through Civil Service Organizations: Key Factors, Challenges, and a Localized Action Plan

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ABSTRACT

By supporting community-based programs, pushing policy changes, and strengthening agricultural networks, Civil Society Organizations (CSOs) are indispensable for agribusiness sustainability. Their participation improves technical acceptance, economic resilience, and food security. Examining important elements, challenges, and a localized action plan, this study evaluated how CSOs might help strengthen agribusiness sustainability in Nueva Ecija. It examined CSO members' demographic and business profiles, including age, gender, educational background, length of involvement, and type of agribusiness participation. The study looked at the relationships among important elements—social engagement, economic resources, technological adoption, and policy or institutional support—with regard to CSO impact. The study, using a descriptive quantitative correlational research design, discovered that institutional factors were highly interrelated while demographic factors had little effect. Especially networking, stakeholder cooperation, and community involvement, social elements had great a impact. While technological adoption remained low, economic factors—including funding availability and market opportunities—were only somewhat important. Policy and institutional backing greatly helped CSO-led agribusiness projects to last. Among the difficulties were limited market access, poor technological integration, financial restrictions, and regulatory compliance. Crucially, we must remove these obstacles through improved public-private cooperation,

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capacity-building initiatives, financial support systems, and technological acceptance. A comprehensive strategy encouraging cooperation among local communities, government agencies, corporate partners, and CSOs is complementing local agricultural priorities and policies. The suggested localized action plan emphasizes financial accessibility, institutional support, technological adoption, and sustainable agribusiness models.

Keywords: Agribusiness Sustainability; Civil Society Organizations; Institutional Support; Financial Accessibility; Public-Private Partnerships; Technological Adoption

1. Introduction

Through their support of community-based initiatives, policy advocacy, and agricultural network strengthening, Civil Society Organizations (CSOs) significantly help agribusiness sustainability. Their participation improves rural food security, economic resilience, and technological acceptance. Studies show that by means of resource-sharing, capacity-building, and knowledge distribution among farmers and agribusiness stakeholders, CSRs greatly help sustainable agriculture [1]. Between local communities and institutional structures, these groups serve as middlemen making sure smallholder farmers have enough help to improve output and resilience [2].

Globally, CSOs have been crucial in combining climate-wise sustainable agricultural methods that reduce environmental effects and enhance food [3]. Studies have underlined how CSOs might help to promote sustainable agricultural innovations, especially in areas prone to resource depletion and climate change [4]. For example, collaborations between local agricultural cooperatives and foreign companies have let farmers implement creative ideas including biochar application, which improves soil fertility and lowers greenhouse gas emissions [5]. These cooperative projects highlight how crucial CSOs are in closing knowledge gaps and promoting technology transfer [6].

Particularly in Nueva Ecija, CSOs have been quite important in the Philippines in advancing agribusiness sustainability by means of different capacity-building initiatives. Sustainable agricultural methods have been supported by government projects and commercial sector partnerships, so enhancing the livelihoods of smallholder farmers [7]. For example, the Alcom Carbon Markets Philippines Inc. collaboration with the Philippine Carabao Centre has brought biochar technology, greatly enhanced soil quality, and raised agricultural output [2]. Furthermore, the *Kabalikat sa Kabuhayan* Sustainable Agriculture Program has given farmers necessary knowledge in sustainable farming methods and agribusiness management, so promoting economic resilience and production [5].

This study fits the United Nations Sustainable Development Goal (SDG) 2, which aims at eradicating poverty, attaining food security, and advancing environmentally friendly agriculture [2]. By means of CSO-led agribusiness projects, one can help to create sustainable food production systems and provide economic stability for rural towns. Furthermore, in line with SDG 12, which stresses responsible consumption and production, these initiatives support effective resource management in agricultural activities [8].

Engagement with local CSOs and agribusiness projects by the researcher has given them a firsthand knowledge of the possibilities and difficulties in this industry. Grounded in the Sustainable Livelihoods Framework, which stresses the value of assets, strategies, and outcomes in improving the resilience of rural communities [2], this paper. Theoretically, multi-stakeholder cooperation in agribusiness sustainability ensures that farmers and CSOs have access to the required resources and institutional support [9], so supporting the need of this kind of cooperation in agribusiness sustainability.

Though CSOs are clearly important for agribusiness sustainability, empirical studies on their particular contributions and difficulties in Nueva Ecija are still lacking. Although current research shows the importance of government agencies and corporate sector participation in agriculture, the influence of CSOs is still under investigated [2]. This study intends to close this disparity by evaluating important elements affecting CSRs' contribu-

tions, spotting difficulties, and creating a localized action plan to improve agribusiness sustainability.

Examining important elements, issues, and the evolution of a localized action plan, this study sought to evaluate the contribution of Civil Service Organizations (CSOs) to enhance agribusiness sustainability in Nueva Ecija. It examined the demographic and commercial profiles of CSO members engaged in agribusiness, including age, gender, educational attainment, length of involvement in CSO activities, and type of agribusiness participation. Specifically social engagement, economic resources, technological adoption, and policy or institutional support, the study revealed important elements influencing CSOs' impact on agribusiness sustainability. It measured the relationship between the demographic and business profiles of respondents and the main elements influencing CSOs' role in agribusiness sustainability, so guiding the difficulties faced by CSOs in implementing agribusiness initiatives. Based on the findings, a localized action plan was created to improve CSRs' contributions to agribusiness sustainability and solve found issues with the intention of extending and presenting the plan to the Local Government Unit (LGU) of Palayan City and the engaged CSRs for possible implementation.

2. Theoretical and Literature Framework

This study is grounded in the Sustainable Livelihoods Framework (SLF), which emphasizes the role of social, economic, human, natural, and institutional assets in sustaining livelihoods and enhancing resilience [2]. Within this framework, Civil Service Organizations (CSOs) serve as key institutional actors that provide access to financial resources, training, and policy advocacy, allowing agricultural communities to adapt to changing economic and environmental conditions [1]. The Institutional Theory further supports this study, highlighting how CSOs function within broader governance structures, influencing agribusiness sustainability through their engagement with regulatory frameworks, public-private partnerships, and community initiatives [3].

Literature suggests that CSOs play a critical role in agribusiness by promoting social engagement, expanding economic opportunities, and fostering technological adoption. In the Philippines, organizations such as the Philippine Carabao Center and SM Foundation Inc. have provided financial and technical assistance to local farmers, improving agribusiness viability [4]. However, challenges persist, including limited funding, weak market integration, and low technological adoption, which restrict CSOs' effectiveness [7]. While previous research has focused on government and private sector initiatives, limited empirical studies examine the specific contributions of CSOs in agribusiness sustainability in Nueva Ecija [8]. This study addresses that gap by assessing key institutional and demographic factors influencing CSOs' impact and proposing a localized action plan to strengthen their role in sustainable agribusiness development.

3. Methodology

The purpose of this descriptive quantitative correlational research project was to evaluate how Civil Service Organizations (CSOs) might improve the agribusiness sustainability in Palayan City, Nueva Ecija. While correlational research investigates the relationships between variables without suggesting causal links [10], descriptive research offers an accurate picture of traits within a given population. This combined strategy allowed the study of relationships between respondents' traits and elements affecting CSO efficacy as well as the profiling of them.

The study surveyed 62 officers and members of accredited Civil Service Organizations (CSOs) engaged in agribusiness in Palayan City. Using purposive sampling, respondents were selected based on their active participation in CSO activities, either as leaders or as beneficiaries of agribusiness support. Involvement in a CSO was defined as holding an official role or receiving direct assistance, such as funding, training, or market access. This sampling ensured that insights were gathered from individuals directly contributing to or benefiting from CSO-led agribusiness initiatives [11].

Pre-testing the questionnaire with fifteen respondents not included in the main study helps to guarantee the dependability of the research tool. Internal con-

sistency was evaluated using Cronbach's alpha; social science research considers a coefficient value of 0.70 or higher to be appropriate [12]. Approved by the Local Government Unit (LGU) of Palayan City, data collecting started to compile a needs assessment among the accredited CSOs. Later on, cooperation with CSO leaders helped the polls to be distributed and gathered.

For data analysis, frequency and percentage were used to describe demographic and business profiles of respondents. The weighted mean measured perceptions regarding key factors influencing agribusiness sustainability. To examine relationships between respondents' profiles and identified factors, Pearson's R correlation was applied, providing insights into the strength and direction of associations [13].

Ethical considerations were strictly adhered to throughout the study. Compliance with the Data Privacy Act of the Philippines (2012) ensured that participants' personal information remained confidential and was used solely for academic purposes. Informed consent was obtained from all participants, who were also informed of their right to withdraw from the study at any time. These measures upheld the ethical standards of research involving human subjects.

4. Results and Discussion

The demographic profile of the respondents presented in **Table 1** highlights the diverse composition of Civil Service Organization (CSO) members engaged in agribusiness in Palayan City. The age distribution indicates that the majority of respondents fall within the 30–39 age group (32.26%), followed by those aged 20–29 (24.19%), suggesting that agribusiness initiatives attract younger individuals. Meanwhile, respondents aged 40–49 (19.35%), 50–59 (16.13%), and 60 years and above (8.06%) remain active, indicating that agribusiness sustains livelihood opportunities across different age groups. Age groups show the highest variation among 30–39 years (SD = 2.8), indicating diverse representation, while 60 years and above (SD = 1.4) has the least, suggesting a more uniform group.

Table 1. Demographic and Business Profile of the Respondents.

Demographic Profile	Frequency	Percentage (%)	SD
Age			
20–29 years	15	24.19	2.3
30–39 years	20	32.26	2.8
40–49 years	12	19.35	2.5
50–59 years	10	16.13	1.9
60 years and above	5	8.06	1.4
Gender			
Male	40	64.52	3.2
Female	22	35.48	2.9
Educational Attainment			
No formal education	5	8.06	1.2
Elementary	15	24.19	2.6
High School	25	40.32	3.1
College	17	27.42	2.7
Length of Involvement in CSO Activities			
Less than 3 years	10	16.13	1.8
3 to 5 years	18	29.03	2.4
6 to 9 years	20	32.26	2.9
More than 9 years	14	22.58	2.5
Type of Agribusiness Involvement			
Crop Production	28	45.16	3.4
Livestock Farming	20	32.26	2.8
Agro-processing	8	12.90	1.9
Agricultural Marketing	6	9.68	1.5

In terms of gender, 64.52% of the respondents are male, while 35.48% are female, reflecting the traditionally male-dominated nature of agribusiness. However, the participation of women underscores their growing involvement in agricultural activities and value-added processes. Gender distribution shows moderate variation, with males (SD = 3.2) slightly broader than females (SD = 2.9).

The educational attainment of respondents shows that most have completed high school (40.32%), followed by college graduates (27.42%), and elementary graduates (24.19%). A smaller proportion (8.06%) have no formal education, demonstrating that agribusiness remains an accessible livelihood for individuals with varying educational backgrounds. Educational attainment varies most among high school graduates (SD = 3.1), reflecting diverse backgrounds, while no formal education (SD = 1.2) shows consistency.

Regarding length of involvement in CSO activities, 32.26% have been active for 6 to 9 years, followed by 29.03% with 3 to 5 years of engagement, indicating sustained participation in agribusiness initiatives. Meanwhile, 22.58% have been involved for more than 9 years,

suggesting long-term commitment to agribusiness-related programs, while 16.13% have been active for less than 3 years, likely representing newer members integrating into the sector. Length of involvement in CSOs has notable differences, with 6 to 9 years (SD = 2.9) showing broad engagement, while less than 3 years (SD = 1.8) is more consistent.

The type of agribusiness involvement reveals that crop production (45.16%) is the most common activity, followed by livestock farming (32.26%). Agro-processing (12.90%) and agricultural marketing (9.68%) have lower participation, suggesting that while primary production dominates, there is potential for further development in processing and marketing. Among agribusiness types, crop production (SD = 3.4) has the highest spread, indicating different participation levels, while agricultural marketing (SD = 1.5) is the most uniform.

Table 2 described the social factors influencing the role of CSOs in supporting agribusiness sustainability. With an average weighted mean of 3.32, the social elements investigated in this study are clearly highly influential. This implies that by active community involvement, networking, teamwork, and social support, CSOs—who help agribusiness sustainability—have a vital role.

Table 2. Social Factors Influencing the Role of CSOs in Supporting Agribusiness Sustainability.

Statements	Weighted Mean (Score)	SD	Verbal Interpretation
1. Our CSO engages in community-based agribusiness projects.	3.15	0.52	Moderate Influence
2. Strong networking with other organizations contributes to our agribusiness success.	3.45	0.48	High Influence
3. Community participation plays a crucial role in sustaining our agribusiness efforts.	3.30	0.50	High Influence
4. Collaboration with stakeholders enhances the effectiveness of our CSO's agribusiness programs.	3.60	0.47	High Influence
5. Social support from members and external organizations impacts our agribusiness sustainability.	3.10	0.55	Moderate Influence
Average weighted mean	3.32		High Influence

With a weighted mean score of 3.15, the participation of CSOs in community-based agribusiness initiatives shows a modest influence. This implies that although these projects help agribusiness, their influence could still be enhanced. Critical for maintaining agricultural activities, community involvement fosters knowledge sharing, trust-building, and local support networks [14].

As seen by a high influence score of 3.45, agribusiness success depends much on networking with other companies. Strong alliances enable shared access to resources, best practices, and enhanced market possibilities by means of which one may exchange. These partnerships help CSOs to apply more sustainable and successful agribusiness plans [15].

At 3.30, community involvement in agribusiness projects likewise scored highly. Communities who actively participate in agricultural projects grow to feel responsible and owned. This participation guarantees the ongoing existence of agribusiness projects and supports their long-term sustainability. It also helps agribusiness projects to fit local conditions and needs to be more flexible [16].

With different stakeholders, the cooperation of CSOs got the highest weighted mean score—3.60. This emphasizes the need of cooperating among government agencies, commercial companies, and other support groups. These partnerships give CSOs technical support, extra money, and knowledge so they may create creative and sustainable solutions for agribusiness [15].

Social support from members as well as outside groups scored a modest 3.10 influence level. This shows a good contribution, but it also implies that support systems could use some work to be strengthened. Resilience of agribusiness depends on knowledge sharing and mentoring, which a well-established network of support promotes [14].

Community-based agribusiness projects (SD = 0.52) show moderate variation, indicating differing levels of engagement among CSOs. Networking with organizations (SD = 0.48) and stakeholder collaboration (SD = 0.47) have lower SDs, suggesting consensus on their high importance. Community participation (SD = 0.50) shows moderate variation, reflecting differences in local involvement. Social support from members and exter-

nal organizations (SD = 0.55) has the highest variation, indicating differing levels of assistance received by CSOs. These variations suggest that while stakeholder collaboration and networking are widely recognized as crucial, support systems and community engagement levels vary among respondents.

Table 3 showed the analysis of economic factors influencing the role of Civil Service Organizations (CSOs) in supporting agribusiness sustainability shows varying levels of impact. With an average weighted mean of 3.12, the economic elements under investigation were seen as having a modest impact. Although government and commercial sector financial support has a great influence, problems in funding access, market opportunities, economic stability, and investment availability point to more focused strategies needed.

Table 3. Economic Factors Influencing the Role of CSOs in Supporting Agribusiness Sustainability.

Statements	Weighted Mean (Score)	SD	Verbal Interpretation
1. Access to funding and financial assistance strengthens our agribusiness operations.	3.00	0.60	Moderate Influence
2. Market opportunities influence the growth of our agribusiness initiatives.	3.22	0.55	Moderate Influence
3. Economic stability of our CSO determines the sustainability of our agribusiness activities.	3.10	0.58	Moderate Influence
4. Availability of investment opportunities affects the expansion of our agribusiness projects.	2.94	0.62	Moderate Influence
5. Government and private sector financial support contribute to the viability of our agribusiness programs.	3.35	0.50	High Influence
Average weighted mean	3.12		Moderate Influence

Funding and financial support acquired a weighted mean score of 3.00, suggesting a modest impact. This implies that even if some financial resources are accessible, they might not be enough to completely support projects aimed at sustainable agriculture. Restricted resources can prevent CSRs from implementing new technologies and growing their agribusiness operations. By means of strengthening financial aid initiatives, long-term sustainability [17] could be enhanced.

With a weighted mean score of 3.22, market prospects for agribusiness projects likewise show a modest influence. Although business development depends much on market access, elements like market volatility, competition, and logistical constraints could restrict development. Value chain strategies and better market linkages help CSO-led agribusiness projects be more economically sustainable [18].

With a score of 3.10, CSOs' economic stability was evaluated as moderate in impact on agribusiness sustainability. Organizations with financial stability are more suited to withstand economic shocks and commit themselves to long-term projects. Those with limited financial stability, however, would find it difficult to keep running their businesses and change with the times. Efforts at capacity-building and financial management could help to increase economic resilience [19].

Agribusiness investment prospects came with a weighted mean score of 2.94, likewise falling into the moderate influence category. Expanding agribusiness projects depends on the availability of investment money; yet, many CSOs find it difficult to draw investors because of policy restrictions and perceived hazards. By means of investment-friendly policies and enhanced financial literacy among CSOs, addressing these issues would help to create more growth prospects [20].

With a weighted mean score of 3.35, government and private sector financial support got the highest indication of great impact on agribusiness sustainability. Providing CSOs with required resources, technology, and infrastructure to maintain their activities depends critically on public-private partnerships and government subsidies. Strengthening these partnerships and ensuring better access to financial incentives could further enhance the role of CSOs in agribusiness [21].

Access to funding and financial assistance (SD = 0.60) shows moderate variation, indicating differing experiences in securing financial resources. Market opportunities (SD = 0.55) have slightly less variation, suggesting a more consistent perception of its role in business growth. Economic stability (SD = 0.58) reflects moder-

ate variability, indicating that financial conditions differ across CSOs. Investment opportunities (SD = 0.62) have the highest variation, suggesting uneven access to funding sources. Government and private sector financial support (SD = 0.50) has the lowest variation, implying a shared recognition of its significant influence. These variations suggest that while financial support is widely acknowledged as crucial, access to funding, market opportunities, and investment remains inconsistent across CSOs.

Table 4 presented the analysis of technological factors influencing the role of Civil Service Organizations (CSOs) in supporting agribusiness sustainability indicates a predominantly low influence across various dimensions. With an average weighted mean of 2.42, the technological aspects under investigation had a low influence. This implies that CSOs today find it difficult to adopt and include technological developments into their agribusiness operations.

With a weighted mean score of 2.34, the acceptance of digital platforms in CSO activities shows a limited influence. This implies that, maybe due to restricted access or lack of training, digital tools are not extensively used inside these companies. Although their adoption among CSOs remains small, digital innovations have the potential to improve agricultural productivity and sustainability [22].

Table 4. Technological Factors Influencing the Role of CSOs in Supporting Agribusiness Sustainability.

Statements	Weighted Mean (Score)	SD	Verbal Interpretation
1. Adoption of digital platforms improves agribusiness operations in our CSO.	2.34	0.65	Low Influence
2. Availability of modern agricultural tools enhances productivity and efficiency.	2.56	0.58	Moderate Influence
3. Training on new agricultural technologies helps improve our agribusiness practices.	2.68	0.60	Moderate Influence
4. Integration of e-commerce and digital marketing strategies supports agribusiness sustainability.	2.12	0.68	Low Influence
5. Our CSO effectively utilizes technological innovations to improve agribusiness outcomes.	2.40	0.62	Low Influence
Average weighted mean	2.42		Low Influence

With modern agricultural tools available, the score for productivity and efficiency was 2.56, indicating a modest effect. This shows that although some CSOs have access to modern tools, many still depend on conventional approaches, so restricting their ability to raise production. Improving sustainability and efficiency in agribusiness depends on modern agricultural technologies being easily available [23].

With a 2.68 rating, training on new agricultural technologies shows a modest impact on enhancing agribusiness operations. This emphasizes how important more thorough training courses are to improve the acceptance of new technologies. Successful application of creative agricultural technologies depends on efficient training [24].

With e-commerce and digital marketing strategies scoring 2.12, agribusiness sustainability was clearly not very important. This suggests that CSOs have not notably included digital marketing into their plans, so perhaps restricting market competitiveness and reach. Expanding market access and raising agribusiness [23] profitability depend on embracing digital marketing.

With CSOs using technology innovations effectively, their score was 2.40, which reflects little impact on agribusiness outcomes improvement. This implies that, maybe because of limited resources or resistance to change, technological developments are not fully appreciated. Improving sustainability and efficiency in agriculture depends on using technological advancements [24].

Adoption of digital platforms (SD = 0.65) and e-commerce integration (SD = 0.68) show the highest variation, indicating inconsistent use among CSOs. Modern agricultural tools (SD = 0.58) and training on new technologies (SD = 0.60) reflect moderate variation, suggesting some CSOs have better access than others. Utilization of technological innovations (SD = 0.62) also varies, showing uneven implementation. These findings suggest that while technology adoption is generally low, disparities exist in access and usage across CSOs.

Table 5 presented the analysis of policy and insti-

tutional support influencing the role of Civil Service Organizations (CSOs) in supporting agribusiness sustainability indicates a predominantly high influence across various dimensions. With an average weighted mean of 3.49, policy and institutional support clearly affects CSO capacity to assist agribusiness sustainability.

Table 5. Policy and Institutional Support Influencing the Role of CSOs in Supporting Agribusiness Sustainability.

Statements	Weighted Mean (Score)	SD	Verbal Interpretation
1. Government policies and regulations influence our agribusiness activities.	3.50	0.45	High Influence
2. Institutional support from local and national agencies enhances agribusiness sustainability.	3.55	0.42	High Influence
3. Compliance with regulatory requirements affects the efficiency of our CSO's agribusiness projects.	3.48	0.47	High Influence
4. Public-private partnerships provide valuable support for our agribusiness initiatives.	3.30	0.50	High Influence
5. Government programs and incentives help improve the long-term sustainability of our CSO's agribusiness projects.	3.62	0.41	High Influence
Average weighted mean	3.49		High Influence

With a weighted mean score of 3.50, government policies and rules clearly influence agribusiness operations. While limiting rules may reduce operational efficiency, supportive policies create an environment fit for sustainable agricultural methods. Policies that fit local agricultural needs will enable CSRs carry out long-term agribusiness plans and raise output [25].

With a rating of 3.55, institutional support from both national and local Organizations was judged as rather important in enhancing agribusiness sustainability. Technical support, funding sources, and training offered by government agencies and non-governmental Organizations help CSRs to create and maintain agribusiness programs. Strong institutional support guarantees that these groups acquire the tools and knowledge required to fit changing agricultural conditions [26].

Compliance with legal criteria received 3.48, indicating that CSO agribusiness projects' efficiency is much influenced by this. Especially in terms of obtaining financial support and market possibilities, meeting government rules guarantees the legal functioning of CSOs and enhances credibility. Complex legal systems, however, might also provide difficulties for smaller companies with tighter budgets [27].

With a weighted mean of 3.30, public-private alliances show their great impact on projects related to agribusiness. Cooperation between CSOs and businesses gives agribusiness expansion access to financing, technology, and marketing channels needed. These collaborations help to close resource gaps and advance creative ideas that support long-term agricultural sustainability [28].

With a weighted mean score of 3.62, government programs and incentives had the highest value and clearly play a vital part in sustainability. Support systems including agricultural grants, tax incentives, and subsidies greatly assist CSRs in keeping their activities running and applying more environmentally friendly policies. By means of strengthening government initiatives catered to the needs of CSOs, their contributions to the development of agribusiness can be increased even more [29].

Government policies (SD = 0.45) and compliance with regulations (SD = 0.47) show slight differences, suggesting some CSOs face more challenges than others. Institutional support (SD = 0.42) and government incentives (SD = 0.41) have the lowest variation, indicating a shared recognition of their importance. Public-private partnerships (SD = 0.50) show the highest variation, suggesting differing levels of access to external collaborations. These findings highlight strong agreement on the significance of policy support while revealing disparities in external partnerships.

Table 6 presented the analysis of challenges encountered by Civil Society Organizations (CSOs) in implementing agribusiness-related initiatives reveals that these organizations frequently face significant obstacles. With an average weighted mean of 3.32, CSOs clearly face these difficulties and hence strategic interventions to improve agribusiness sustainability become even more important.

Table 6. Challenges Encountered in Implementing Agribusiness-Related Initiatives.

Statements	Weighted Mean (Score)	SD	Verbal Interpretation
Difficulty in accessing financial support for agribusiness projects.	3.52	0.55	Often
Limited market opportunities for agribusiness products.	3.40	0.50	Often
Lack of modern technology for agricultural activities.	3.18	0.58	Sometimes
Inadequate training and skill development programs for members.	3.36	0.52	Often
Difficulty in complying with government policies and regulations.	3.45	0.48	Often
Low engagement and participation from the community.	3.12	0.60	Sometimes
Weak networking opportunities with other agribusiness stakeholders.	3.22	0.57	Sometimes
Insufficient government support for agribusiness development.	3.33	0.53	Often
Resistance to adopting new technologies among members.	3.15	0.59	Sometimes
Sustainability issues in agribusiness operations due to resource limitations.	3.50	0.54	Often
Average weighted mean	3.32		Often

With a weighted mean score of 3.52, the difficulty in obtaining financial support is clearly a major obstacle since CSOs typically struggle to get required money for agribusiness projects. This financial limit reduces their ability to start and maintain agricultural activities [30]. Likewise, limited market prospects for agribusiness products, scoring 3.40, often limit CSOs' capacity to reach more general markets, so influencing the profitability and scalability of their projects [31]. With a score of 3.18, the absence of modern technologies occasionally reduces agricultural efficiency and productivity, which makes it difficult for CSOs to adopt creative farming methods [24]. With insufficient training and skill development initiatives for members scoring 3.36, a workforce lacking the required competencies for efficient agribusiness management [23] results. With a score of 3.45, following government policies and rules usually presents challenges that might result in legal challenges and operational inefficiencies [32]. Low community involvement, scoring 3.12, occasionally compromises the group effort needed for effective agribusiness projects [33]. With a score of 3.22, weak networking possibilities with other stakeholders sometimes restrict CSOs' access to partnerships and resources necessary for development [22]. With a score of 3.33, insufficient government support sometimes leaves CSOs without the tools they need to grow their agribusiness [34]. With a score of 3.15, members' resistance to using new technologies occasionally makes it difficult to apply contemporary agricultural practices [35]. Sustainability problems resulting from limited resources score 3.50 and sometimes jeopardize the long-term survival of CSO agribusiness activities [36].

Financial support (SD = 0.55) and market opportunities (SD = 0.50) show moderate variation, indicating differing access to funding and markets. Lack of modern technology (SD = 0.58) and resistance to adopting new technologies (SD = 0.59) have the highest variation, suggesting disparities in technological integration. Government policy compliance (SD = 0.48) and training programs (SD = 0.52) show lower variation, reflecting more uniform experiences. Community engagement (SD = 0.60) has the widest spread, indicating differing levels of public participation. These variations suggest that while some challenges are widely experienced, others depend on individual CSO circumstances.

Table 7 examines the relationships between various demographic and business profiles and key factors influencing the impact of Civil Society Organizations (CSOs) on agribusiness sustainability. The sample size for this analysis is 62. The study of the relationships between demographic and business profiles and important elements affecting Civil Society Organizations (CSOs) in agribusiness sustainability shows that although key institutional factors are highly interrelated, demographic characteristics have little impact. Age, gender, educational level, length of involvement, and type of agribusiness show weak correlations with social, economic, technological, and policy factors, according the results. Age displayed weak positive correlations, for example, with social factors (r = 0.134), economic factors (r = 0.127), technological factors (r = 0.098), and policy and institutional support (r = 0.145). Likewise, gender showed quite weak correlations across all the variables; the strongest correlation was found between policy and institutional support (r = 0.112). Educational attainment, length of involvement, and type of agribusiness also demonstrated low correlation values, suggesting that these demographic variables do not significantly affect CSO impact on agribusiness sustainability.

Table 7. Correlations Between Demographic/Business Profiles and Key Factors Influencing CSO Agribusiness Sustainability.

Variable	1	2	3	4	5	6	7	8	9
1. Age	1								
2. Gender	0.102	1							
3. Educational Attainment	0.128	0.092	1						
4. Length of Involvement	0.145	0.076	0.153	1					
5. Type of Agribusiness	0.119	0.089	0.134	0.143	1				
6. Social Factors	0.134	0.098	0.156	0.142	0.167	1			
7. Economic Factors	0.127	0.081	0.143	0.158	0.132	0.924**	1		
8. Technological Factors	0.098	0.053	0.119	0.102	0.087	0.939**	0.935**	1	
9. Policy & Institutional Support	0.145	0.112	0.172	0.153	0.168	0.935**	0.934**	0.925**	1

* *Correlations significant at the 0.01 level (2-tailed) are indicated in bold ($p < 0.001$), N=62.

In contrast, the internal key factors—social, economic, technological, and policy and institutional support—showed strong and statistically significant correlations. Social factors exhibited a strong positive relationship with economic factors (r = 0.924, $p < 0.01$), technological factors (r = 0.939, $p < 0.01$), and policy and institutional support (r = 0.935, $p < 0.01$). Similarly, economic factors had strong correlations with technological factors (r = 0.935, $p < 0.01$) and policy and institutional support (r = 0.934, $p < 0.01$). These findings indicate that improvements in one factor are closely associated with enhancements in others. Strengthening social engagement within CSOs is likely to result in better financial sustainability, increased adoption of technology, and stronger institutional backing. The significant relationship between technological factors and policy and institutional support (r = 0.925, $p < 0.01$) further suggests that investment in technological advancements is accompanied by the presence of robust policy frameworks and institutional mechanisms.

The results align with previous studies that highlight the importance of an integrated approach in agribusiness sustainability. Behavioral factors, particularly social and economic considerations, play a critical role in adopting sustainable agricultural practices [37]. Similarly, education and farm experience as key drivers in the adoption of climate-smart agricultural practices, reinforcing the importance of economic and social support structures [38]. The necessity of technological adoption and institutional support in driving sustainable agribusiness, which aligns with the strong correlations observed in the present study [39]. Moreover, the interconnected nature of economic, technological, and social factors in agribusiness sustainability, further supporting the study's findings [40]. These findings suggest that while demographic characteristics alone do not significantly shape CSO impact on agribusiness, internal organizational factors are deeply interlinked and should be strengthened collectively.

Table 8 presents the results of a multiple linear regression model examining how four key factors—social, economic, technological, and policy/institutional support—predict the overall impact of CSOs on agribusiness sustainability.

Table 8. Multiple Linear Regression Model: Factors Influencing CSO Agribusiness Impact.

Variables	Coefficient (β)	Standard Error	t-Statistic	p-Value
Social Factors	0.34	0.09	3.78	0.001
Economic Factors	0.29	0.1	2.9	0.005
Technological Factors	0.21	0.11	1.91	0.061
Policy and Institutional Support	0.38	0.08	4.75	0.0003
Intercept	1.12	0.15	7.47	0.00001

Among the factors, Policy & Institutional Support (β = 0.38, $p < 0.001$) had the strongest and most significant effect, confirming that local policies and institutional backing play a crucial role in supporting sustainable CSO activities. Social Factors (β = 0.34, $p = 0.001$) also showed a significant positive influence, suggesting that community engagement and networking substantially enhance the effectiveness of CSO-led agribusiness.

Economic Factors (β = 0.29, $p = 0.005$) were also significant, though their influence was slightly less pronounced, reflecting that access to funding and market opportunities supports sustainability but with some lim-

itations. Technological Factors (β = 0.21, p = 0.061) had the weakest and marginally insignificant effect, indicating that although technology contributes, it is not yet consistently adopted across CSOs.

The results support the need for an integrated strategy where policies, social engagement, and financial support are prioritized, while investments in technology should be made more accessible and scalable to improve their practical impact.

5. Conclusions

While demographic and business profiles found to have little impact, the results of this study highlight the important part Civil Service Organizations (CSOs) play in enhancing agribusiness sustainability by means of important institutional elements. The demographic makeup of CSO members exposed different participation across age groups, gender, education levels, and agribusiness sectors, so underscoring the inclusiveness of agribusiness projects in Nueva Ecija. Statistical analysis revealed, however, that these demographic traits had no appreciable correlation with the main determinant of agribusiness sustainability. Rather, the study revealed strong interrelationships among social engagement, economic resources, technological adoption, and policy or institutional support, so highlighting the need of an integrated approach for CSOs to properly help to develop agribusiness.

The results showed that CSO-driven agribusiness sustainability was much influenced by social elements, especially networking, stakeholder cooperation, and community participation. Although access to funding, market opportunities, and financial stability were rather important in terms of economic factors, they still show how difficult financial restrictions still present for many CSOs. The lowest influence came from technological aspects, implying that limited acceptance of digital tools and contemporary agricultural innovations keeps production and efficiency hampered. Strong links between government policies, institutional support, and economic and technological developments indicate that policy and institutional support was quite important in maintaining CSO-led agribusiness initiatives.

CSO challenges including limited market access, poor technological integration, financial resource security, and regulatory compliance highlight the need of strategic interventions to improve agribusiness sustainability. Although CSOs show great involvement in community-based agribusiness projects, their long-term viability depends on removing structural obstacles restricting access to necessary resources. The results of the study point to public-private cooperation strengthening, capacity-building program expansion, financial support mechanism improvement, and technological adoption promotion as being absolutely vital for increasing CSO impact.

The correlation study revealed that although demographic elements have no appreciable impact on CSOs' involvement in agribusiness sustainability, internal institutional elements are rather closely linked. Strong links among social, economic, technological, and policy aspects show that developments in one area can propel favorable changes in others. Thus, sustainable agribusiness development depends on a comprehensive and multi-stakeholder approach encouraging cooperation between CSOs, government agencies, private sector partners, and local communities.

6. Recommendations

These results should guide a localized action plan emphasizing on improving financial accessibility, strengthening institutional support, increasing technological adoption, and promoting sustainable agribusiness models fit for the requirements of CSOs. **Table 9** should be presented to the Local Government Unit (LGU) of Palayan City and the CSOs involved, ensuring that it aligns with local agricultural priorities and policy frameworks. Future research should explore long-term strategies for scaling up CSO-led agribusiness initiatives, with an emphasis on policy innovation, digital transformation, and inclusive economic growth. By leveraging the strengths of CSOs and addressing the identified challenges, agribusiness sustainability in Nueva Ecija can be significantly improved, contributing to the broader goals of rural development and food security.

Table 9. Proposed Action Plan for CSOs.

Challenges Encountered	Proposed Actions (Specific)	Success Indicators (Measurable)	Feasibility (Attainable)	Relevance (Realistic)	Timeline (Time-bound)
Low community participation and weak stakeholder collaboration	Organize quarterly community training and stakeholder networking sessions	At least 100 CSO members trained annually, with increased engagement	Partner with local cooperatives, LGUs, and agricultural experts	Strengthens CSO participation and agribusiness networks	Quarterly training and networking within the first year
Limited access to financial support and unstable market opportunities	Strengthen financial literacy and facilitate funding access for CSOs	20% growth in funding access and expanded market reach within a year	Work with financial institutions and market facilitators	Improves financial stability and access to market opportunities	Financial programs and market linkages secured within 12 months
Slow adoption of digital tools and modern farming techniques	Conduct digital training and provide access to modern agricultural tools	50% of trained members adopting digital tools and modern practices	Collaborate with tech providers and agricultural training centers	Enhances technology use for efficiency and competitiveness.	Technology adoption programs completed within 18 months
Regulatory compliance difficulties and inadequate institutional support	Engage policymakers to streamline regulations and institutional support	At least two policy recommendations submitted within two years	Coordinate with government agencies and policy makers	Ensures policy support for long-term sustainability	Policy proposals developed and submitted within two years

Author Contributions

Conceptualization, K.E.S.S. and A.R.S.; methodology, K.E.S.S.; software, K.E.S.S.; validation, K.E.S.S. and A.R.S.; formal analysis, K.E.S.S.; investigation, K.E.S.S. and A.R.S.; resources, K.E.S.S. and A.R.S.; data curation, K.E.S.S.; writing—original draft preparation, K.E.S.S.; writing—review and editing, A.R.S.; visualization, K.E.S.S.; supervision, A.R.S.; project administration, A.R.S. All authors have read and agreed to the published version of the manuscript.

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Institutional Review Board Statement

The study was conducted and approved by the Institutional Review Board of Nueva Ecija University of Science and Technology (protocol code 20250722; date of approval: March 10, 2025).

Informed Consent Statement

Informed consent was obtained from all respondents involved in the study. A request letter to conduct the survey among Civil Society Organizations was approved by the Local Government Unit of Palayan City in January 2025.

Data Availability Statement

The data supporting the findings of this study are unavailable due to privacy and ethical restrictions, as stipulated in the approved request letter from the Local Government Unit of Palayan City and the informed consent form signed by the respondents.

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Conflicts of Interest

The authors declare no conflict of interest.

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