

From Planning to Collective Enterprise: Implementing Farm and Fisheries Clustering and Consolidation (F2C2) in Mountainous Kalinga, Philippines

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Abstract: This study assessed the status, implementation practices, program support, facilitating assets, and challenges of the Farm and Fisheries Clustering and Consolidation (F2C2) Program in Kalinga Province to develop evidence-based enhancement measures. A descriptive-correlational design with qualitative supplementation from open-ended survey responses was used. Administrative records verified selected status indicators for 44 officially identified clusters, while 101 survey records represented cluster management, Big Brother organizations, local agriculture offices, and provincial and regional program units. Weighted means, standard deviations, rankings, Spearman rank-order correlation, and thematic grouping were applied. Overall practices were moderate (mean = 3.32). Cluster development planning was strongest (4.12), whereas production and enterprise consolidation was slight (2.39), indicating a gap between formal planning and operational aggregation. Overall support was great (3.74), led by coordination and partnership support (4.55), while operational, production, and logistical resources were moderate (3.05). Across 30 represented clusters, practices and support were positively associated (Spearman $\rho = 0.391$, $p = .033$). Physical and economic assets were the strongest facilitators, while irregular participation, difficult terrain, personnel turnover, financing constraints, access delays, logistics costs, and unstable markets were major barriers. Open-ended responses emphasized more frequent and inclusive capacity-building, stronger local government engagement, and clearer communication of changing program guidelines. The findings indicate that Kalinga has established organizational and planning foundations but has not yet consistently translated them into coordinated production, aggregation, and commercialization. Program enhancement should prioritize active membership validation, cluster-specific operational support, production and logistics coordination, continuity mechanisms, financing, and sustained market linkages.

Keywords: *collective action; local governance; rural enterprise; smallholder commercialization; value chains*

INTRODUCTION

Small-scale farmers and fisherfolk increasingly operate in markets that reward reliable volume, consistent quality, traceability, timely delivery, and the capacity to negotiate with buyers and service providers. These requirements are difficult to meet when production is fragmented across many small holdings and organizations. Producer organizations and collective arrangements can reduce transaction costs, strengthen bargaining power, improve access to inputs and finance, and create pathways to higher-value markets, but organizational membership alone does not guarantee these outcomes. Recent reviews emphasize that the performance of producer organizations depends on governance, managerial capability, member participation, market relationships, and the institutional environment in which collective action occurs (Sellare et al., 2023; Bhunia & Singh, 2025).

Cluster farming represents one response to these structural constraints. Evidence from Ethiopia shows that clustering can improve commercialization when farmers coordinate production and engage

markets collectively, although gains vary across farm sizes, crops, and local conditions (Dureti et al., 2023; Endalew et al., 2024; Gidelew et al., 2025). Broader market-access literature likewise shows that aggregation is most effective when it is accompanied by reliable market information, logistics, finance, quality management, and stable buyer relationships (Ma et al., 2024; Magakwe & Olorunfemi, 2024; Permadi & Winarti, 2025). These findings suggest that the critical question is not simply whether farmers are organized, but whether collective structures are translated into routine production, enterprise, and marketing practices.

In the Philippines, this policy logic is institutionalized through the Farm and Fisheries Clustering and Consolidation Program. The program was established by Department of Agriculture Administrative Order No. 27, Series of 2020 and further operationalized through Memorandum Circular No. 21, Series of 2022. It builds on the modernization and farmer-enterprise directions of the Agriculture and Fisheries Modernization Act and the Sagip Saka Act and is aligned with the National Agriculture and Fisheries Modernization and Industrialization Plan 2021–2030 (Department of Agriculture [DA], 2020, 2022a, 2022b; Republic Act No. 8435, 1997; Republic Act No. 11321, 2019). The program combines cluster organization, five-year Cluster Development Plans, capacity-building, value-chain development, market facilitation, financing, mechanization, monitoring, and partnerships. The harmonized Cluster Development Plan guidelines issued in 2025 further stress evidence-based planning, annual work and financial programming, value-chain analysis, and monitoring (DA, 2025).

Kalinga Province offers a demanding setting for this approach. Mountainous terrain, dispersed farms, long travel distances, and fragmented production parcels increase the costs of field coordination, aggregation, hauling, and service delivery. At the same time, these conditions make collective logistics and coordinated market engagement especially important. Kalinga participated in the Cordillera pilot experience beginning in 2020. Two clusters were established that year as pilot clusters: the Pinukpuk Agricultural Corn Cluster, now Pinukpuk Agricultural Cluster 1, and the Western Tabuk Rice Cluster, now Tabuk City Agricultural Cluster 1. The current provincial portfolio expanded substantially in 2025, and regional records document continuing cluster planning, training, and intervention activities (Agricultural Training Institute-Cordillera Administrative Region [ATI-CAR], 2022; Department of Agriculture-Cordillera Administrative Region [DA-CAR], 2024, 2025).

The Philippine literature supports agricultural integration and producer partnerships, but it also shows that consolidation must be accompanied by enterprise capability, functioning market links, and clear institutional roles (Ballesteros & Ancheta, 2022; Inocencio et al., 2022). This point is particularly relevant in newly expanded cluster portfolios where formal organization and planning may advance faster than coordinated production and commercialization. Yet publicly available reports on Kalinga largely describe activities, beneficiaries, and interventions; they do not provide a province-wide assessment of how consistently core clustering practices are carried out, how much support is available, which local assets facilitate implementation, or which barriers most strongly hinder cluster operations.

This study addresses that implementation gap using Asset-Based Community Development as its principal interpretive lens. Rather than treating clusters only as recipients of government assistance, the asset-based perspective directs attention to the knowledge and leadership of local actors, farmer organizations, institutions, physical and economic resources, and relationships that can be mobilized for development (Kammer-Kerwick et al., 2022; Chen et al., 2024). The study therefore examines both external support and internal or locally accessible assets, while recognizing that structural constraints such as terrain, finance, market instability, and personnel turnover cannot be solved by community assets alone. Its contribution is an empirically grounded account of how a national clustering policy is being translated into practice in a mountainous provincial setting and what is required to move from formal cluster formation toward functional collective enterprise.

RESEARCH OBJECTIVES

The study aimed to determine the current status of officially identified Farm and Fisheries Clustering

and Consolidation (F2C2) clusters in Kalinga Province and to examine the implementation conditions that may inform program enhancement. Specifically, it sought to:

1. describe cluster status in terms of establishment, commodity, participating farmer cooperatives and associations, planning status, partnerships, and selected profile indicators;
2. determine the extent of clustering and consolidation practices in organization and governance, cluster development planning, production and enterprise consolidation, market linkages and partnerships, and monitoring and reporting;
3. determine the level of technical, operational, organizational, partnership, and information support available to the program;
4. test the relationship between the overall extent of practices and the overall level of support;
5. identify the local assets that facilitate implementation; and
6. determine the challenges that hinder implementation and the program enhancements recommended by respondents.

METHODS

A descriptive-correlational design with qualitative supplementation was employed. The descriptive component summarized cluster status, implementation practices, program support, facilitating assets, and implementation challenges. The correlational component examined the association between practice and support scores without making causal claims. Qualitative supplementation came from open-ended survey responses that were grouped into recurring themes.

The study was conducted in Kalinga Province in the Cordillera Administrative Region of the Philippines. The province consists of Tabuk City and the municipalities of Balbalan, Lubuagan, Pasil, Pinukpuk, Rizal, Tanudan, and Tinglayan. The administrative program frame contained 44 officially identified clusters across these eight local government areas. Two were pilot clusters established in 2020 and 42 were established in 2025.

Respondent eligibility was based on direct and current involvement in program implementation, coordination, management, technical support, or monitoring. The final dataset contained 101 respondent records: 41 authorized cluster management coordinating representatives, 43 authorized Big Brother representatives, six city or municipal agriculturists, six city or municipal program focal persons or officers-in-charge, one provincial focal person or officer-in-charge, two Agricultural Cooperative Enterprise Development Division staff members, one regional focal person assigned to Kalinga, and one formally designated alternate provincial focal person. The respondent frame was role-based rather than probability-based. Eighty-five respondents had a verified affiliation with one specific cluster; these respondents represented 30 of the 44 official clusters. The remaining 16 respondents held municipality-, province-, or region-wide roles and were retained in province-wide descriptive analyses but excluded from analyses requiring a single cluster assignment.

The study primarily used a researcher-developed survey questionnaire to gather data on the extent of F2C2 practices, the level of program support, facilitating factors, challenges, and recommendations for program enhancement. The questionnaire also gathered selected respondent-reported information on cluster status, including approximate membership, RSBSA or FishR registration coverage, and compliance with applicable production-area or scale requirements. Available administrative records from the Agricultural Cooperative Enterprise Development Division (ACEDD) were consulted only to verify selected factual information on the officially identified clusters, including the cluster roster, location, commodity, cluster type, participating Farmers' Cooperatives and Associations (FCAs), Big Brother identification, formalization documents, and Cluster Development Plan (CDP) status. Information not documented in the administrative file was not inferred from that source. The scaled sections of the questionnaire used a five-point extent scale ranging from 1 (Not at All) to 5 (Very Great Extent), with a not-applicable option for items outside the respondent's direct knowledge.

Content and face validation focused on relevance, clarity, alignment with program laws and policies, respondent suitability, question order, and neutral wording. A pre-test with 15 cluster management and Big Brother representatives who were not part of the actual survey produced a Cronbach's alpha of 0.73, indicating acceptable internal consistency for the scaled instrument. Participation in the main survey was voluntary and anonymous. Respondents were advised that the study was academic and developmental rather than an employee or organizational performance audit, and they could leave an item unanswered or select not applicable when appropriate. Contextual observations recorded during survey administration were used only to help interpret selected quantitative patterns and were not treated as independently coded qualitative data.

Frequencies and percentages summarized verified administrative status indicators and open-ended response counts. Weighted means and sample standard deviations summarized the scaled items, with blank and not-applicable responses excluded from the corresponding calculation. Supplementary status percentages on membership, RSBSA or FishR coverage, and production-area or scale compliance were treated as respondent-level reports rather than as unique cluster-level observations. For the primary relationship test, valid respondent composite scores for practices and support were averaged within each verified cluster, producing 30 paired cluster means from 85 cluster-linked respondents. Spearman's rank-order correlation was used because the composites originated from ordered rating-scale data; statistical significance was evaluated at the .05 level. Open-ended responses were reviewed, grouped by recurring meaning, assigned descriptive themes, and counted following the general logic of thematic analysis (Braun & Clarke, 2021).

FINDINGS

Cluster profile and current status

The available ACEDD profile verified selected status information for 44 officially identified F2C2 clusters in Kalinga. Two pilot clusters were established in 2020: the Pinukpuk Agricultural Corn Cluster, now Pinukpuk Agricultural Cluster 1, and the Western Tabuk Rice Cluster, now Tabuk City Agricultural Cluster 1 (Western Tabuk Agricultural Cluster). The remaining 42 clusters were established in 2025. Thirty-seven clusters were composed of groups of FCAs and seven were stand-alone organizations; rice was the dominant commodity. Every cluster had an identified Big Brother organization. Under the implementation arrangement documented for this study, the Big Brother represents the cluster when receiving interventions valued at PHP 5 million or more, while cluster-level coordination is facilitated by Cluster Management Coordinating Officers (CMCOs). Cluster development planning also showed substantial progress: 35 clusters had CDPs recorded at the municipal or city local government level. Eight clusters had no CDP recorded at the time of profiling and therefore remain priority clusters for CDP preparation, while one cluster had no recorded planning status. The profile also listed 389 endorsed participating FCAs, demonstrating the broad organizational reach of the program across the province.

Table 1. Selected status indicators of the 44 officially identified clusters

Indicator	Category	n	%
Cluster type	Group of farmer cooperatives/associations	37	84.1
	Stand-alone	7	15.9
Year established	2020 pilot clusters	2	4.5
	2025 clusters	42	95.5
Commodity	Rice	31	70.5
	High-value crops	7	15.9
	Corn	5	11.4

	Livestock	1	2.3
Big Brother	Identified Big Brother organization	44	100.0
Formalization	Applicable formalization document completed	44	100.0
Cluster Development Plan	Municipal/city local government level	35	79.5
	No plan	8	18.2
	Not recorded	1	2.3

Survey results further indicated that 62.0% of the cluster-linked respondents reported that their respective clusters had approximately 100-199 members, while 38.0% reported 50-99 members. For RSBSA or FishR registration, 78.0% reported that 75%-89% of cluster members were registered, whereas 22.0% reported coverage below 75%. These percentages describe respondent-reported patterns rather than 85 unique cluster observations. Respondents from mountainous areas also reported difficulty meeting the applicable production-area or scale requirements because farms are frequently fragmented and geographically dispersed.

Implementation practices and program support

The overall extent of F2C2 practices obtained a weighted mean of 3.32, interpreted as Moderate Extent. The dimension-level results show that planning and formal organization are already more established than production consolidation, collective marketing, and routine reporting. Program support, in contrast, was rated Great Extent overall (WM = 3.74), but its strength varied markedly between coordination-oriented support and operational resources.

Table 2. Dimension-level results for implementation practices and program support

Domain	Dimension	WM	SD	Interpretation
Practices	Cluster organization and governance	3.52	0.98	Great Extent
Practices	Cluster development planning	4.12	0.94	Great Extent
Practices	Production and enterprise consolidation	2.39	0.86	Slight Extent
Practices	Market linkages and partnerships	3.26	0.52	Moderate Extent
Practices	Monitoring, documentation, and reporting	3.30	1.33	Moderate Extent
Support	Technical assistance and capacity-building	3.54	1.22	Great Extent
Support	Operational, production, and logistical resources	3.05	1.06	Moderate Extent
Support	Management and organizational support	3.42	0.91	Great Extent
Support	Coordination and partnership support	4.55	0.67	Very Great Extent
Support	Information, monitoring, and reporting support	4.12	0.73	Great Extent

Cluster Development Planning obtained the highest practice mean of 4.12 (Great Extent). Respondents rated the CDP particularly high for identifying production, organizational, enterprise, marketing, financing, and investment needs (WM = 4.58, Very Great Extent) and for being reviewed and updated when necessary (WM = 4.42, Very Great Extent). Participatory preparation was also rated Great Extent (WM = 4.00). However, the alignment of actual programs and interventions with the CDP was lower (WM = 3.37, Moderate Extent), showing that planning is more advanced than the consistent conversion of plan priorities into implemented support.

Cluster Organization and Governance followed at 3.52 (Great Extent), driven by the strong rating for functioning management structures with clearly assigned responsibilities (WM = 4.56, Very Great Extent). Member participation (WM = 3.27), FCA identification and validation (WM = 3.19), and updating of membership and organizational records (WM = 3.00) were only Moderate Extent. Contextual observations recorded during data collection indicated that active-FCA validation had not been fully completed in some clusters, so organizations with limited or inactive participation were included in the initial cluster composition. The same observations indicated that some Big Brother organizations were designated by LGU staff-in-charge rather than selected through a broader participatory process. These conditions help explain why formal structures were stronger than participation and collective ownership.

Market Linkages and Partnerships obtained a mean of 3.26 (Moderate Extent). Communication with potential buyers, processors, consolidators, and investors was already rated Great Extent (WM = 4.00), but market-information sharing (WM = 2.85), active working relationships with Big Brother organizations and other partners (WM = 3.15), and documentation and follow-up of transactions (WM = 3.00) remained Moderate. Farmers generally continued to sell their produce individually to established private buyers or traders. Thus, the lower market-linkage rating does not indicate the absence of markets; it indicates that existing individual transactions have not yet been converted into coordinated cluster-level aggregation, collective selling, negotiated volume and quality requirements, and scheduled delivery arrangements.

Monitoring, Documentation, and Reporting obtained 3.30 (Moderate Extent). Regular monitoring of cluster activities and concerns (WM = 3.49) and reporting concerns to the appropriate office or partner (WM = 3.77) were rated Great Extent. In contrast, timely preparation and submission of required reports received 2.57 (Slight Extent), while the use of monitoring results to improve plans and activities was 3.37 (Moderate Extent). Monitoring is therefore taking place, but regular documentation, timely submission, and systematic use of results still require stronger routines.

Production and Enterprise Consolidation was the weakest practice dimension at 2.39 (Slight Extent). Coordination of production plans and schedules was rated 2.27, product consolidation to meet buyers' volume, quality, and delivery requirements was 2.00, and management of shared facilities and equipment was 2.52, all Slight Extent. Maintenance of production, inventory, sales, and financial records was higher at 2.90 (Moderate Extent). The low rating reflects the current developmental stage of the portfolio: 42 of the 44 clusters were established in 2025, and systematic cluster-level consolidation had not yet been fully established. Most clusters were still moving from organization and planning toward synchronized production, pooled volume, common quality standards, shared enterprise arrangements, and collective delivery.

On the support side, Coordination and Partnership Support was strongest at 4.55 (Very Great Extent). Regular coordination among DA, LGUs, CMCs, FCAs, and cluster officers was rated 4.68; coordination of interventions according to cluster priorities was 4.53; and guidance to Big Brother organizations was 4.45. Information, Monitoring, and Reporting Support was likewise strong at 4.12

(Great Extent), with feedback on submitted reports, concerns, and requests rated 4.39 (Very Great Extent). These results show that communication, coordination, and information channels are among the most established forms of program support.

Technical Assistance and Capacity-Building obtained 3.54 (Great Extent), while Management and Organizational Support obtained 3.42 (Great Extent). Orientation on F2C2 policies and responsibilities, training responsiveness, and access to technical experts were all rated Great Extent. Role clarity was particularly strong (WM = 4.28, Very Great Extent), but continuity measures when focal persons or officers were replaced were rated only 2.42 (Slight Extent). The results indicate that technical guidance and formal role arrangements are available, but knowledge transfer and continuity during personnel changes remain vulnerable.

Operational, Production, and Logistical Resources obtained the lowest support mean at 3.05 (Moderate Extent). Resources for meetings, field visits, coordination, documentation, and monitoring were rated 3.40; production, processing, storage, and transport support was 2.95; and operation and maintenance arrangements for facilities and equipment were 2.80. The lower rating reflects the early stage of most clusters. Many newly organized clusters had not yet received substantial production, equipment, processing, storage, transport, or other operational interventions specifically intended for collective cluster operations. Some individual farmers and participating FCAs had previously received Department of Agriculture assistance, but those interventions were not necessarily delivered to the newly organized cluster as a collective enterprise. Cluster-level resources were therefore less developed than coordination, technical guidance, and information support.

Taken together, the findings describe a program that has progressed strongly in cluster formation, planning, role definition, and institutional coordination, while collective production, aggregation, marketing, and cluster-specific operational support are still being built. The central implementation task is therefore to translate existing plans and partnerships into coordinated production calendars, common quality standards, aggregation systems, cluster-level marketing arrangements, and the logistics and enterprise resources needed to operate them.

Relationship between support and implementation

The cluster-level relationship test used 30 paired cluster means derived from 85 respondents with verified cluster affiliations. Spearman's rank-order correlation yielded $\rho = 0.391$ with a two-tailed p-value of .033. Because p was below the .05 significance level, the null hypothesis of no relationship was rejected. The result indicates a statistically significant positive association: clusters reporting higher overall support also tended to report stronger implementation of F2C2 practices.

The association is substantively consistent with the dimension results. Coordination, technical guidance, information support, and organizational assistance provide conditions that enable cluster officers and FCAs to implement program requirements, while the weaker operational-support ratings show that coordination alone is insufficient for production and enterprise consolidation. Support is most useful when it is matched to the cluster's development stage and translated into production assistance, logistics, facilities, financing, market arrangements, and sustained technical follow-through.

The correlation does not establish cause and effect. Most clusters were newly established in 2025, cluster means were based on unequal numbers of respondents, and implementation is also shaped by member participation, terrain, personnel continuity, financing, logistics, and the continued practice of individual selling to private buyers. The result should therefore be interpreted as evidence of association rather than proof that support alone produces stronger implementation.

Table 3. Cluster-level relationship between implementation practices and program support

Statistic	Result
Clusters represented	30 of 44
Cluster-linked respondents	85
Spearman coefficient	0.391
Two-tailed p-value	.033
Decision at $\alpha = .05$	Reject the null hypothesis
Interpretation	Statistically significant positive association

Facilitating assets and implementation challenges

F2C2 implementation in Kalinga is supported by a combination of physical, economic, human, organizational, and relational assets. Physical and economic assets ranked first (WM = 3.93, Great Extent), followed by experienced farmer-leaders and technical specialists (WM = 3.71) and the knowledge, leadership, and enterprise skills of implementers and cluster officers (WM = 3.57). These results identify facilities, equipment, information, financing opportunities, logistics, and experienced people as important foundations for moving clusters from organization toward production and enterprise operations.

Reliable buyers and market opportunities (WM = 3.50), member participation and cooperation (WM = 3.49), and relationships among DA, LGUs, clusters, Big Brother organizations, buyers, and other partners (WM = 3.43) were also rated Great Extent. Existing buyer relationships are therefore an important asset even though most sales remain individual. The developmental challenge is to convert those relationships into collective marketing arrangements that can support consolidated volume, common quality standards, and repeat cluster-level transactions.

Trust, shared goals, and willingness to work together (WM = 3.34) and local institutional support (WM = 3.30) were rated only Moderate Extent. These lower scores are consistent with the uneven participation observed among some FCAs and the need for more consistent local follow-through. Where inactive or weakly participating organizations remain in the cluster roster, or where designated local personnel are not consistently engaged, collective commitment and the practical value of institutional relationships are reduced.

Irregular participation or differing commitments among cluster members was the highest-ranked challenge (WM = 3.92, Great Extent). This directly reinforces the governance findings: formal structures can exist while actual participation remains uneven. When FCA representatives do not consistently attend meetings, CDP activities, production planning, or agreed undertakings, coordination burdens shift to the more active CMCs, Big Brother officers, and FCA representatives, slowing collective decision-making and implementation.

Scattered production areas and difficult terrain ranked second (WM = 3.83), while turnover of focal persons, officers, or coordinators ranked third (WM = 3.69), both Great Extent. Mountainous and geographically dispersed farms complicate field visits, production synchronization, aggregation, hauling, and compliance with scale requirements. Personnel changes create a different continuity risk: when cluster profiles, CDPs, partner commitments, and pending requirements are not systematically transferred, implementation loses momentum. The very low rating for continuity measures during personnel replacement (WM = 2.42) reinforces this concern.

Financing and working-capital constraints (WM = 3.60), delays in accessing programs and interventions (WM = 3.59), transportation and logistics costs (WM = 3.58), and limited stable market arrangements (WM = 3.57) were additional Great Extent challenges. These constraints are closely connected with the early development stage of the clusters: most have not yet received substantial interventions specifically organized for collective cluster operations, and collective marketing has not yet been fully initiated. Existing government assistance and private-buyer relationships therefore remain important assets, but they still operate largely at the individual farmer or FCA level.

Overall, the asset and challenge results show that Kalinga is not starting from a position of institutional or resource absence. It already has experienced leaders, organizations, facilities, partners, and market relationships that can be mobilized. The main task is to connect these assets through stronger participation, responsive local support, continuity systems, financing, mountain-adapted logistics, and a deliberate transition from individual transactions to collective enterprise operations.

Table 4. Ranked facilitating assets and challenges

Type	Indicator	WM	SD	Rank
Facilitator	Physical/economic resources	3.93	0.77	1
Facilitator	Experienced farmer-leaders and technical specialists	3.71	0.97	2
Facilitator	Knowledge, leadership, and enterprise skills	3.57	1.04	3
Facilitator	Reliable buyers and market opportunities	3.50	1.10	4
Facilitator	Member participation and cooperation	3.49	0.90	5
Facilitator	Relationships among agencies, clusters, buyers, and partners	3.43	1.42	6
Facilitator	Trust, common goals, willingness to work together	3.34	1.43	7
Facilitator	Local institutional support	3.30	1.15	8
Challenge	Irregular participation/differing member commitments	3.92	1.35	1
Challenge	Scattered production areas and difficult terrain	3.83	1.31	2
Challenge	Turnover of focal persons/officers	3.69	1.72	3
Challenge	Limited financing/working capital	3.60	1.22	4
Challenge	Delayed or limited access to interventions	3.59	1.44	5
Challenge	High transportation, hauling, and logistics costs	3.58	1.04	6
Challenge	Limited stable buyers/market	3.57	1.24	7

Challenge	arrangements Limited time, personnel, and operating resources	3.44	1.18	8
Challenge	Production schedule, volume, and quality coordination	3.15	0.84	9
Challenge	Incomplete or delayed records and reports	2.13	0.37	10

Open-ended program priorities

The open-ended responses identified three implementation priorities that deepen the quantitative results. First, regional orientation and training for personnel involved in the program was the most frequently cited practice to continue and strengthen (56.4%). Respondents emphasized that capacity-building should be conducted more frequently and should include a broader set of cluster officers and key FCA representatives rather than concentrating participation on the president or a single representative. Distributing knowledge across officers would reduce dependence on one or two individuals and strengthen organizational continuity.

Second, 51.5% of respondents identified insufficient support from some LGU officers-in-charge as an urgent concern. Respondents described instances of limited follow-through or non-attendance during activities conducted by the implementing agency. This places additional coordination burdens on CMCOs, Big Brother officers, and participating FCAs when validation, clarification, endorsement, or local action is required. Consistent participation of designated LGU personnel, together with formally identified alternates when necessary, would improve responsiveness and accountability.

Third, 39.6% of respondents identified changing program guidelines as a major implementation difficulty. CMCOs and Big Brother officers reported that revised requirements require document reworking, procedural clarification, and adjustment of previously prepared outputs. These changes have contributed to delays in completing and finalizing CDPs. The issue is therefore not resistance to program improvement; it is the administrative cost of implementing changing requirements without sufficiently stable, timely, and consistently communicated guidance.

Taken together, the open-ended findings point to a clear program-management agenda: more frequent and inclusive capacity-building, stronger engagement and accountability among designated LGU personnel, and a more disciplined system for communicating, explaining, and transitioning to revised F2C2 guidelines. These measures would reduce the burden on CMCOs and Big Brother officers, accelerate CDP completion, broaden organizational ownership, and strengthen continuity across the cluster network.

Table 5. Most frequently reported open-ended priorities

Response area	Theme	n	%
Practice to continue	Regional orientation/training for staff in charge	57	56.4
Practice to continue	Unity and communication among farmer organizations	28	27.7
Urgent issue	Insufficient support from some local government officers-in-charge	52	51.5

Response area	Theme	n	%
Urgent issue	Changing guidelines difficult for farmer organizations to follow	40	39.6
Enhancement	More training and seminars	21	20.8
Enhancement	Clearer program vision and direction	15	14.9
Enhancement	Comprehensive profiling and individual organization assessment	15	14.9
Enhancement	Equal attention across commodities	14	13.9
Enhancement	Machinery access / youth and women participation / market linkages	12 each	11.9 each

DISCUSSION

The study shows that F2C2 implementation in Kalinga is best understood as a staged transition from formal organization to collective enterprise. Planning and organizational structures are already comparatively strong, whereas production and enterprise consolidation remains weak. Because 42 of the 44 clusters were established only in 2025, this pattern reflects an implementation sequence in which institutional formation has advanced faster than operational aggregation. Recent studies of cluster farming reach a similar conclusion: commercialization benefits emerge when producer groups move beyond nominal organization and coordinate production, volume, quality, and market participation in practice (Dureti et al., 2023; Endalew et al., 2024; Gidelew et al., 2025). The two 2020 pilot clusters therefore represent an important local learning resource for newer clusters, while the newer cohort requires support appropriate to an earlier stage of organizational maturity.

The governance findings add a second insight: formal structure does not automatically produce collective ownership. A functioning management structure was one of the strongest practice items, yet member participation, FCA validation, and organizational record updating were only moderate. Contextual observations recorded during data collection indicated that some inactive or weakly participating FCAs remained in the initial cluster composition and that some Big Brother organizations were designated by LGU staff-in-charge rather than selected through a broader participatory process. These patterns matter because producer organizations depend on active membership, bottom-up ownership, leadership legitimacy, and clear organizational rules, not only on formal registration or assigned roles (Sellare et al., 2023; Chowdhury et al., 2024; Suresh & Sreejith, 2024; Zhu & Wang, 2024). For Kalinga, governance strengthening therefore begins with validating who is actively participating and ensuring that major organizational decisions are understood and owned by cluster members.

The significant positive association between support and implementation ($\rho = 0.391$, $p = .033$) reinforces the importance of an enabling institutional environment, but the dimension results show that support must be differentiated by type. Coordination and partnership support was very strong, whereas operational, production, and logistical resources were only moderate. This distinction helps explain why planning and inter-agency coordination can appear advanced while actual aggregation remains limited. Some farmers and FCAs had previously received Department of Agriculture interventions, but assistance delivered to individual beneficiaries or organizations does not automatically become a shared cluster asset. Producer-organization research likewise shows that managerial capacity, infrastructure, finance, and market services determine whether institutional support is translated into functioning enterprise activity (Ballesteros & Ancheta, 2022; Ma et al., 2024; Suresh & Sreejith, 2024). The Kalinga result therefore supports a shift from generic assistance toward

cluster-specific, maturity-matched operational support.

The market findings further clarify the nature of the transition. Farmers in the represented clusters are not without buyers; many continue to sell directly to established private traders. The weakness lies in collective commercialization. Product consolidation was rated Slight Extent, while communication with potential buyers was relatively strong. This means that market access exists, but it has not yet been reorganized around cluster-level volume, common quality standards, negotiated delivery schedules, and documented collective transactions. Collective-marketing research consistently identifies this conversion from individual selling to organized marketing as a critical source of bargaining power and market advantage, while also showing that mistrust, weak participation, transaction costs, and limited infrastructure can prevent producers from using collective channels (Magakwe & Olorunfemi, 2024; Ma et al., 2024; Permadi & Winarti, 2025). In Kalinga, existing private buyers should therefore be viewed as potential anchors for pilot cluster-level marketing arrangements rather than as evidence that collective marketing is already functioning.

Kalinga's geography makes this operational transition more complex. Scattered production areas and difficult terrain were the second-highest challenge, and transportation and logistics costs were also rated to a Great Extent. These conditions challenge consolidation models that implicitly assume contiguous production areas and short transport distances. A more appropriate model for mountainous agriculture is functional consolidation: geographically dispersed farms can still operate as one enterprise network through parcel mapping, barangay-level collection points, synchronized production calendars, shared hauling, common quality specifications, and coordinated delivery. This approach preserves the economies-of-scale objective while adapting implementation to Cordillera conditions documented by regional agriculture authorities (DA-CAR, 2024). It also explains why production-area validation and logistics planning should be treated as central program functions rather than administrative details.

The open-ended findings reveal a related implementation-capacity issue. Respondents strongly valued regional orientation and training, but they also called for more frequent sessions that include multiple officers rather than only presidents or single representatives. At the same time, limited responsiveness or attendance of some LGU staff-in-charge and repeated changes in program guidelines created coordination burdens and delayed CDP finalization. Personnel turnover intensified this problem because continuity measures were weak. These findings point to a need for institutional memory and implementation discipline: version-controlled guidelines, clear change advisories, designated alternates, multi-officer training, documented handovers, and action tracking. Recent work on producer organizations similarly emphasizes that capacity-building, leadership, organizational learning, and consistent institutional support are essential to sustainability (Bhunias & Singh, 2025; Suresh & Sreejith, 2024).

The Asset-Based Community Development perspective helps integrate these findings. Physical and economic resources and experienced leaders were the strongest facilitators, whereas local institutional support and shared trust were weaker. This means that Kalinga already possesses important development assets, but their value depends on how well they are connected and governed. Equipment without coordinated production, buyers without aggregation, leaders without broad participation, and plans without operational resources cannot by themselves produce a functioning cluster enterprise. The study's main contribution is therefore an implementation framework centered on sequencing and fit: cluster development should be matched to organizational maturity, territorial conditions, and the specific assets and constraints of each cluster. Program monitoring should increasingly complement formal indicators such as plans and partnerships with operational measures such as synchronized production, aggregated volume, delivery compliance, repeat buyers, facility utilization, enterprise records, and working-capital access.

CONCLUSION

F2C2 in Kalinga has established a substantial organizational base, expanding from two pilot clusters in 2020 to a 44-cluster portfolio in which 42 clusters were established in 2025. The strongest aspects of implementation are cluster development planning, formal management structures, coordination, and information support. The weakest aspect is production and enterprise consolidation. The central conclusion is therefore not that the program lacks organization or support, but that most clusters are still converting those foundations into coordinated production, aggregation, and collective marketing.

Support and implementation were positively associated across the 30 represented clusters, indicating that stronger support tends to accompany stronger F2C2 practices, although the study does not establish causation. The type of support matters: coordination and technical guidance are already relatively strong, while cluster-specific operational resources, logistics, continuity mechanisms, financing, and stable market arrangements remain less developed. At the same time, experienced leaders, physical and economic assets, and existing buyer relationships provide a strong base for continued development, provided that inactive membership, uneven participation, personnel turnover, and local institutional follow-through are addressed.

For a mountainous province, successful consolidation should not be judged solely by the creation of formal clusters or the existence of CDPs. It should be judged by whether geographically dispersed producers can function as a coordinated enterprise system. In Kalinga, this requires active and participatory cluster membership, stable and responsive institutional support, maturity-based interventions, mountain-adapted logistics, and the gradual conversion of individual buyer relationships into collective marketing arrangements. This implementation pathway is the study's principal practical contribution to F2C2 program enhancement.

RECOMMENDATIONS

1. Complete active-FCA validation and strengthen participatory governance. ACEDD, LGUs, CMCOs, and cluster officers should maintain a dated master profile that identifies active participating FCAs, current officers, RSBSA or FishR coverage, mapped production areas, and participation status. Inactive organizations should be reviewed before being retained in operational cluster plans. The identification or confirmation of Big Brother organizations should also use a documented participatory process so that cluster members understand and support the partnership.
2. Stabilize, finalize, and operationalize Cluster Development Plans. Updated F2C2 requirements should be issued through version-controlled guidance, written change advisories, and technical clinics so that CMCOs and Big Brother officers can revise documents efficiently. When requirements change, clear transition instructions and reasonable completion timelines should be provided. Finalized CDPs should then be translated into annual work and financial plans, production calendars, aggregation targets, buyer requirements, financing needs, and measurable monitoring indicators.
3. Make capacity-building more frequent, inclusive, and accountable. Orientations and training should involve several officers from each cluster and participating FCA, including those responsible for production, marketing, finance, records, and monitoring, rather than relying primarily on the president or one representative. Designated LGU staff-in-charge should participate consistently in implementing-agency activities, with formally assigned alternates when necessary. Attendance, action points, responsible persons, and completion dates should be documented and followed up.
4. Adopt a maturity-based, cluster-specific support model. The 2025 cohort should first receive support for membership validation, production mapping, governance routines, records, basic logistics, and initial market organization. More mature clusters should receive progressively stronger support for

machinery, processing, storage, facility operation and maintenance, working capital, value addition, and repeat marketing arrangements. Interventions previously received by individual farmers or FCAs should be mapped, but new support should be designed around verified collective cluster needs.

5. Pilot actual production consolidation and collective marketing. Each cluster should begin with manageable commodity- or season-specific aggregation cycles using production schedules, agreed quality standards, target volumes, collection points, sales records, and delivery protocols. Existing private buyers should be engaged as potential cluster buyers through written or documented delivery arrangements so that individual selling can gradually transition into coordinated cluster-level transactions without disrupting farmers' current market access.
6. Use mountain-adapted logistics and financing mechanisms. For geographically dispersed production areas, clusters should use parcel and route mapping, barangay-level collection points, synchronized hauling schedules, shared transport arrangements, and realistic aggregation zones rather than relying solely on contiguous-area assumptions. These arrangements should be paired with working-capital facilitation, appropriate financing referrals, and access to suitable institutional markets such as KADIWA where feasible.
7. Institutionalize continuity and performance monitoring. Personnel changes should trigger a standard turnover protocol containing the current cluster profile, CDP and annual plan, reporting calendar, partner contacts, pending actions, and digital copies of key records. Program monitoring should track not only formal documents and activities but also operational outcomes such as member participation, production synchronization, aggregated volume, delivery compliance, repeat buyers, facility utilization, report timeliness, and access to working capital.

LIMITATIONS OF THE STUDY

The study was conducted within a limited timeframe and therefore provides a cross-sectional assessment of F2C2 implementation at a particular stage of program development. This is especially important because 42 of the 44 officially identified clusters in Kalinga were established only in 2025 and were still undergoing organization, Cluster Development Plan preparation, capacity-building, and other preparatory activities during the conduct of the study. Consequently, the findings reflect the clusters' current stage of development and do not capture how production consolidation, collective marketing, enterprise operations, and program support could evolve as the clusters mature.

Another limitation was the limited availability of directly comparable empirical studies on F2C2 implementation, particularly studies conducted in Kalinga, the Cordillera Administrative Region, and other mountainous Philippine settings. Most available local sources consist of policy issuances, administrative reports, program documentation, and activity reports rather than empirical assessments of implementation practices, support systems, facilitating factors, and challenges. This limited the extent to which the present findings could be compared directly with previous Philippine F2C2 research. To address this, the study drew on recent literature on agricultural clustering, producer organizations, collective action, market access, and asset-based community development while maintaining the specific institutional and geographic context of Kalinga.

FUTURE RESEARCH DIRECTIONS

Further studies should compare the two pilot clusters with the 2025 cohort, examine differences across commodities and cluster maturity levels, and assess the quality and contribution of Big Brother partnerships and LGU implementation arrangements. Research could also test whether member participation, trust, institutional responsiveness, operational resources, and guideline stability mediate

or moderate the relationship between program support and implementation.

ETHICS STATEMENT

Participation was voluntary and based on the consent statement included in the questionnaire. Respondent names were not required, participants could decline items or select not applicable when they lacked direct knowledge, and findings were reported in aggregate. Personal information was handled according to the privacy principles of Republic Act No. 10173. The source study does not report a separate institutional ethics approval number; therefore, no approval number is stated in this article.

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