

The Role of Cooperatives in Strengthening Food Systems

Implications for Food Security in the Philippines

Maria Theresa M. Castro and Karen Q. Custodio

Cooperatives are increasingly recognized as institutional vehicles for advancing food security, yet evidence on how they engage local food systems remains limited. Grounded in collective action and institutional theories, this study advances the proposition that cooperatives, as institutional forms of collective action, can strengthen food system governance in ways that potentially support food security. Using a descriptive–interpretive design, evidence was gathered through focus group discussions, a cooperative member survey and a validation workshop in Oriental Mindoro, Philippines—a province paradoxically marked by agricultural abundance and yet persistently experiences food insecurity. Findings reveal that cooperatives are active across all food system stages, with members perceiving meaningful contributions to food security. An enabling legal and policy environment supports cooperative engagement. However, multilevel constraints, including limited capital, weak intercooperative collaboration and policy imbalances persist, limiting their full potential. As these findings reflect perceived rather than causally established contributions, the study concludes that harnessing cooperatives as agents of food system transformation requires coherent institutional frameworks, nutrition-sensitive programming and multilevel partnerships that move beyond production-oriented support. These findings offer transferable lessons for other ASEAN countries where cooperatives remain underutilized as instruments of food system governance.

Keywords: cooperatives, collective action, food security, institutional theory, sustainable food systems

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1. Introduction

Food insecurity remains a persistent global challenge that threatens progress toward multiple Sustainable Development Goals (SDGs), particularly SDG 2 (Zero Hunger) and SDG 3 (Good Health and Well-being). Chronic food insecurity not only undermines economic productivity and human development but also exacerbates social inequality and weakens political and environmental stability (Deaton and Lipka 2015; Pollard and Booth 2019; Sova and Zambelli 2023). Beyond its nutritional dimension, food insecurity reflects structural inequities with respect to access to productive resources, markets and decision-making institutions.

In Southeast Asia, the Philippines recorded the highest prevalence of food insecurity among the countries between 2021 and 2023. Approximately 44 per cent of its population experienced moderate to severe food insecurity and about 6 per cent suffered from undernourishment (Food and Agriculture Organization of the United Nations [FAO] 2024). The disparity between rural and urban households is particularly striking. In 2021, one in four agricultural households in the Philippines was food insecure, compared to less than one in ten non-agricultural households (World Food Programme [WFP] 2024). These statistics underscore the paradox of food insecurity in food-producing areas.

Scholars have identified multiple factors that hinder food security. These limiting factors include household-level constraints, such as limited education, assets and social capital as well as institutional and environmental challenges, including market volatility, weak governance and climate-induced shocks (Bashir and Schilizzi 2013; Davis et al. 2022; Mirzabaev et al. 2023). Addressing these interlinked barriers requires technological and market solutions as well as institutional innovations that facilitate collective access to resources and decision-making. Within this context, cooperative enterprises are being increasingly recognized as critical institutional mechanisms for promoting inclusive agricultural transformation and sustainable food systems (Dantas 2020; Zeweld et al. 2015). From a food systems perspective, cooperatives operate at multiple nodes of the value chain, including production, processing, distribution and consumption, and thereby can contribute simultaneously to the four pillars of food security: availability, access, utilization and stability (FAO 1996).

In the Philippines, collective action is formally recognized in the Philippine Development Plan (PDP) 2023–2028 as a central strategy for achieving food and nutrition security through partnerships among the government, the private sector and communities. Yet, empirical evidence on how cooperatives contribute to food and nutrition security remains limited and fragmented. Most existing studies emphasize the production or availability dimension, often neglecting the broader institutional, behavioural and policy interfaces that shape food access and utilization outcomes (Custodio and Castro n.d.). This gap is particularly evident at the subnational level, where variations in cooperative structures and local food systems require closer examination.

The island province of Oriental Mindoro in the Philippines, situated within the MIMAROPA Region, provides an illuminating case for such analysis. MIMAROPA, whose name is derived from the five provinces: Occidental Mindoro and Oriental Mindoro (MI), Marinduque (MA), Romblon (RO) and Palawan (PA), is an archipelagic region in the south of Luzon Island in the Philippines, with an economy largely driven by agriculture, fisheries and ecotourism. Despite being regarded as MIMAROPA's "food basket" and "rice granary" as well as a leading producer of high-value crops such as bananas and calamansi, Oriental Mindoro exhibits a high prevalence of food insecurity and child malnutrition. Based on the Department of Science and Technology – Food and Nutrition Research Institute (DOST-FNRI 2022) Expanded National Nutrition Survey, about 55 per cent of households experience some degree of food insecurity, while child stunting (33 per cent) and wasting (7 per cent) are among the highest in the country. This paradox of agricultural abundance alongside persistent malnutrition raises critical questions about the functionality and inclusiveness of the local food system.

The insights from this study hold particular relevance for other Association of Southeast Asian Nations (ASEAN) countries facing similar food security challenges. Across Southeast Asia, smallholder farmers dominate agricultural production, yet they remain vulnerable to market volatility, climate shocks and institutional fragmentation (Do and Nguyen 2024; FAO 2024; Mirzabaev et al. 2023; Sundram 2023). Countries such as Indonesia, Thailand, Vietnam and Myanmar have long recognized cooperatives as instruments of rural development (Sundram 2023; Wanyama 2014), yet the link between cooperative participation and measurable food security outcomes remains underexplored (Wanyama 2014). The Philippine experience, where robust legal frameworks coexist with persistent malnutrition in food-producing regions, mirrors broader regional patterns of agricultural abundance amid food insecurity. By examining cooperatives through a food systems lens, this study offers transferable lessons for ASEAN contexts on how collective action institutions can bridge the gap between production capacity and household-level nutrition outcomes, particularly in island and upland communities where market access and governance capacity are constrained (FAO 2024; Mirzabaev et al. 2023).

By situating the analysis at the intersection of collective action, institutional theory and the sustainable food systems framework, this study offers a holistic understanding of how cooperatives function both as agents and as arenas of development in advancing food security. Empirically, it contributes to the limited body of literature on cooperative-food security linkages in local contexts. In practice, it generates insights that can inform the integration of cooperatives into local and national strategies to achieve more inclusive and sustainable food security outcomes.

Against this backdrop, this study examines the role of cooperatives as institutional mechanisms for improving food security in Oriental Mindoro, drawing on collective action and institutional theories within a sustainable food systems framework. The theoretical foundations underpinning this inquiry are elaborated in the next section.

2. Theoretical Framework

The study is principally grounded in the collective action theory, which examines how individuals coordinate their behaviour to achieve shared goals that cannot be attained independently (Olson 1965; Ostrom 1990). In contexts where individuals face common problems, such as limited access to markets, credit or information, collective action reduces coordination failures and transaction costs through shared norms, trust and reciprocal relationships. Cooperatives exemplify institutionalized collective action by transforming individual actors into organized groups capable of addressing market imperfections and social inequities (USAID 2022; Zeweld et al. 2015).

Within the food system, collective action enables producers, processors and consumers to pool resources, manage risks and exercise joint control over value chains. Empirical studies have shown that cooperative participation enhances productivity (Cishe and Shisanya 2019), improves access to markets and credit (Bacon 2015; Gyau et al. 2014), and strengthens resilience to shocks and stresses (Zeweld et al. 2015). Through economies of scale, cooperatives help smallholder farmers access inputs, technologies and markets that would otherwise be inaccessible. Moreover, collective decision-making mechanisms ensure inclusivity, accountability and empowerment, which are all essential for sustainable food system governance (Bowen et al. 2017). Thus, collective action provides the behavioural and institutional logic that associates cooperatives with improved food availability, access, utilization and stability.

Complementing collective action theory, the institutional theory, particularly the New Institutional Economics framework (North 1990; Williamson 2000), emphasizes how formal rules, informal norms and governance structures shape economic performance and development outcomes. Institutions serve as “rules of the game” that reduce uncertainty, define property rights and structure interactions among actors. Within this perspective, cooperatives are viewed as intermediary institutions that mediate relationships

between individuals, the government and the market. They coordinate collective decision-making, mobilize social capital, and facilitate access to resources and policy networks (Aoki 2001; Scott 2001).

From this standpoint, food insecurity is not merely a consequence of inadequate production but also of institutional failures, such as weak governance, fragmented policies and asymmetrical market relations. Cooperatives can therefore be interpreted as institutional responses that correct market failures, pool collective resources and embed local food systems within more accountable governance structures. Their participatory structure aligns with Ostrom's (1990) design principles for managing common-pool resources, which sustain long-term cooperation and resilience.

Collective action and institutional theories provide complementary lenses for understanding cooperative contributions to food and nutrition security. Collective action explains how members coordinate to pursue shared goals (micro-level). Institutional theory illuminates how macro-level structures and policy environments enable or constrain these collective efforts (macro-level). This dual framing leads to the study's central analytical proposition that cooperatives, as institutionalized forms of collective action, function as intermediary institutions that internalize collective benefits, reduce market inefficiencies and strengthen the governance of local food systems. These are conditions that can, in turn, support improvements in food security outcomes.

Building on these theoretical foundations, this study examines the role of cooperatives as institutional mechanisms for strengthening the governance of local food systems, thereby supporting improvements in food security. Specifically, it aims to:

1. Analyze how cooperatives contribute to the multiple dimensions of food security across the food systems;
2. Examine the institutional environment that shapes the operational capacity of cooperatives in Philippine local food systems;
3. Determine the structural and organizational constraints hindering cooperatives from achieving optimal food system contributions; and
4. Suggest policy recommendations to strengthen cooperative engagement in building sustainable and resilient food systems.

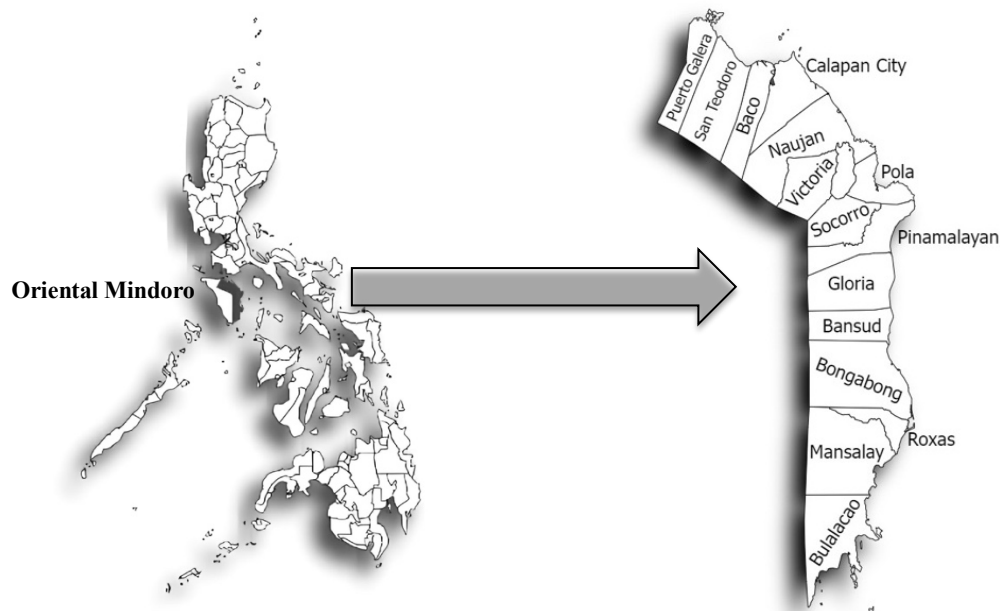
3. Methodology

3.1 Study Area

The study was conducted in the province of Oriental Mindoro, located in the MIMAROPA Region of the Philippines (Figure 1). The province comprises 14 municipalities and one component city (Calapan) and accounts for about 28 per cent of the total population of MIMAROPA (PhilAtlas 2024). It is administratively divided into two congressional districts and is characterized by a predominantly agricultural economy supported by both coastal and upland communities.

Six sites were purposively selected to represent the two districts of the province: Calapan City, Naujan and Victoria in the first district, and Pinamalayan, Bansud and Bongabong in the second district. These sites were chosen based on three criteria: (1) population size; (2) volume of rice production; and (3) concentration of active agricultural cooperatives. These six areas account for a combined share of 57 per cent of the total provincial population (Philippine Statistics Authority [PSA] 2025); 66 per cent of Oriental Mindoro's total rice production in 2024 (Agri-Infohub 2025); and 64 per cent of all registered cooperatives in Oriental Mindoro based on the 2023 master list of cooperatives of the Cooperative Development Authority (CDA). The site selection thus provides a representative cross-section of the province's agricultural and cooperative landscape.

FIGURE 1
Map of the Philippines and the Province of Oriental Mindoro



SOURCE: PaintMaps (Philippines: <https://paintmaps.com/blank-maps/173/samples>; Oriental Mindoro: <https://paintmaps.com/blank-maps/1699c/samples>). Copyright © PaintMaps.

3.2 Data and Methods of Data Collection

This study employed a descriptive–interpretive research design to capture multiple stakeholder perspectives on the role of cooperatives in the local food system and their perceived contributions to food security in Oriental Mindoro. Data were gathered through focus group discussions (FGDs), an online cooperative member survey and a multistakeholder validation workshop, which provided opportunities for triangulation and enhanced interpretive rigour.

3.2.1 Focus Group Discussions

Two FGDs were conducted to gather insights into the local food system, the food security situation in Oriental Mindoro and the roles that cooperatives play across the food system. The FGD participants were purposively selected to ensure the inclusion of individuals with institutional knowledge and lived experience within the local food system.

The first FGD, held on 28 August 2024, focused on the policy, governance and institutional mechanisms that support the local food system and food security. It engaged twenty-five multistakeholder representatives from regional, provincial and local government offices, research and development agencies, the cooperative sector and the academe (Table 1). Participants were either the heads or designated focal persons of their respective organizations or agencies, ensuring that discussions reflected both institutional policy perspectives and ground-level implementation experience.

TABLE 1
List of Participating Organizations/Institutions in the FGDs, Oriental Mindoro, Philippines

<i>Multistakeholder FGD (28 August 2024)</i>	<i>FGD with Cooperatives (29 August 2024)</i>
• Provincial Cooperative Development Office – Oriental Mindoro • Provincial Social Welfare and Development Office – Oriental Mindoro • Cooperative Development Authority – MIMAROPA • Cooperative Development Office – Naujan • Cooperative Development Office – Bongabong • Cooperative Development Office – Calapan • Cooperative Development Office – Victoria • Provincial Agriculturist Office – Oriental Mindoro • DOST Provincial Science and Technology Office – Oriental Mindoro • Municipal Government of Victoria • Mindoro State University • National Economic and Development Authority – MIMAROPA • Provincial Health Office – Oriental Mindoro • City Nutrition Action Office	• United Farmers and Irrigators Agriculture Cooperative (UFaIrCo) • Naujan United Farmers Agriculture Cooperative (NUFARCO) • Farmers Organization for the Rural Upliftment of Mindoro Agriculture Cooperative (FORUM) • Gabay sa Kaunlaran Agriculture Cooperative • Mindoro Dairy Cooperative • Calapan Labor Service Development Cooperative (CALSEDECO) • Calapan Vendors Multipurpose Cooperative (CVMPC)

NOTE: The list of organizations is based on the attendance sheets of the FGDs conducted for the study on 28 and 29 August 2024 in Calapan City, Philippines.

The second FGD, held on 29 August 2024, focused on exploring the roles of cooperatives in the food system and the food security challenges faced by cooperative members. Fourteen representative leaders, specifically chairpersons, vice-chairpersons and managers, from six invited cooperatives (Table 1) participated in the discussion. Cooperative leaders were considered ideal FGD participants given their knowledge and experience in both the strategic and day-to-day operations of their cooperatives, as well as the challenges and opportunities these organizations face in relation to food security. The cooperatives were selected based on the following criteria: (1) registered and compliant with the Cooperative Development Authority (CDA) with an agriculture-based primary business line; (2) actively engaged in agricultural production, marketing, agribusiness or agricultural support services at the time of the study; and (3) located within reasonable proximity to Calapan City, the capital of Oriental Mindoro where the FGD was held, to ensure participant accessibility.

3.2.2 Online Cooperative Member Survey

To complement the qualitative data, an online survey was administered via Google Forms from 15 September to 15 October 2024. The survey frame consisted of Oriental Mindoro-based cooperatives listed in the official 2023 CDA registry of Philippine cooperatives. Of the registered cooperatives in the

province, 102 had known and working contact details and were sent a request to disseminate the survey invitation to all their cooperative members. Individual participation was voluntary, and responses were received from anonymous cooperative members who chose to respond. A total of 53 valid responses were obtained. As the survey relied on cooperative-mediated dissemination and voluntary member participation, the sample is non-probability in nature. The survey findings are therefore exploratory and should not be taken as statistically representative of the entire cooperative membership population in Oriental Mindoro or the Philippines.

Most survey respondents were from Calapan City (26 per cent) and Naujan (28 per cent). The average age of respondents was 27, and the majority were female (62 per cent), married (60 per cent) and college graduates (66 per cent). Most participants were employed (68 per cent) and had a monthly household income of no more than PHP 24,000 (approximately US\$400), which is lower than the 2023 national average monthly income of PHP 29,436 (approximately US\$500) (PSA 2024). In terms of cooperative engagement, almost one-third of the respondents (30 per cent) had been members for more than 10 years, suggesting stable and long-term involvement. The respondents represented 26 cooperatives across the province, including agricultural (36 per cent), multipurpose (44 per cent), credit (8 per cent), transport (6 per cent), marketing (4 per cent) and consumer (2 per cent) cooperatives. The survey data enriched and validated findings from the FGDs by providing quantitative perspectives on cooperative practices and perceived contributions to food security.

3.2.3 Multistakeholder Validation Workshop

A validation workshop was subsequently held on 16 October 2024 to refine and verify the synthesized findings. The workshop involved fourteen participants, comprising officers and members from four local cooperatives, namely Oriental Mindoro Seed Producers Multipurpose Cooperative, Salika Agriculture Cooperative, Society of Entrepreneurial Advocate for Common Access on Trading (SEACAT) Marketing Cooperative, United Farmers of Oriental Mindoro Agriculture Cooperative (UFOMAC), representatives from CDA-MIMAROPA, Cooperative Development Office of the province and the capital city of Calapan, Mindoro State University, and Agriterra—a non-governmental development organization. Participants were purposively selected to ensure representation of those with practical experience and institutional knowledge of cooperative operations. This consultative process clarified ambiguous responses, enhanced data coherence and deepened the contextual interpretation of emerging themes.

3.3 Research Limitations

This study has limitations that should be considered when interpreting the findings. As a descriptive–interpretive inquiry grounded primarily in qualitative data from FGDs and a multistakeholder validation workshop, the research prioritizes meaning-making and participants’ lived experiences over the establishment of causal relationships. The findings reflect how cooperative stakeholders and members understand and articulate their realities rather than objective outcomes. Furthermore, the absence of a control group and longitudinal data means that observed associations between cooperative engagement and food security cannot be elevated to causal inferences. Consequently, the findings should be interpreted as indicative of potential relationships rather than evidence of direct impact.

The study is also context-specific, reflecting the socioeconomic and institutional dynamics of Oriental Mindoro. As an interpretive account of localized experiences, the findings are not intended to serve as a statistically representative provincial or national baseline, and caution should be exercised when applying them to other contexts without due consideration of local conditions. Moreover, the online

survey administered to cooperative members, which complemented and enriched the qualitative findings, relied on cooperative-mediated dissemination and voluntary participation rather than random selection. Thus, the 53 valid responses obtained constitute a non-probability sample. The survey findings should therefore be interpreted as exploratory and contextualizing rather than as the primary evidentiary basis of the study's conclusions.

Finally, as with all studies relying on self-reported data and qualitative accounts, the possibility of response bias cannot be entirely eliminated. Participants may be influenced by social desirability, leading them to emphasize positive outcomes and underreport organizational shortcomings. The multimethod design, combining FGDs, a member survey, and a validation workshop, was intended to partially mitigate this risk through triangulation, though future research would benefit from incorporating additional independent data sources to further validate these findings.

3.4 Informed Consent

This study adhered to the ethical principles outlined in the ESOMAR/ICC International Code on Market, Opinion and Social Research and Data Analytics (ESOMAR/ICC 2017), which provides widely accepted guidelines for responsible and voluntary participation in qualitative and quantitative social research.

For the FGDs and the validation workshop, all participants received an oral explanation of the study's objectives, procedures, potential risks, confidentiality measures and the voluntary nature of their participation. This briefing followed the ESOMAR/ICC Code's guidance on informed participation, autonomy and data protection. Participants were given the opportunity to ask questions and subsequently completed a standard written consent form confirming their willingness to participate. Participants agreed to the use of their organizations' names for contextual reporting, while their individual identities and specific responses were not disclosed in any part of the analysis or reporting.

For the online survey, informed consent was obtained through a digital consent statement embedded on the first page of the Google Forms questionnaire. Respondents were required to read and actively indicate agreement before proceeding with the survey items. The consent form described the purpose of the study, the anonymous nature of the survey, the voluntary nature of participation and the intended use of the data. No personally identifying information was collected, and all responses were analyzed in aggregate.

Across all components of the study, participation was entirely voluntary, and no coercion was used. All collected data were used solely for the purposes described to participants and handled in accordance with the ESOMAR/ICC Code's principles on confidentiality, responsible data processing and transparency in research reporting.

3.5 Analytical Approach

The analysis mainly employed a descriptive–interpretive thematic approach, combining pattern matching and comparative categorization to derive recurring themes from the qualitative data. Transcripts from the FGDs and validation workshop were manually coded and iteratively organized into thematic clusters based on conceptual and empirical relevance. Patterns identified across participant groups were complemented by a descriptive analysis of the survey data to assess convergence or divergence in views. This procedure facilitated both inductive identification of emergent insights and deductive validation against established literature on cooperatives and food security. The approach draws on the logic of pattern matching (Yin 2018) and descriptive–interpretive thematic analysis (Elliott and Timulak 2005), which emphasizes systematic organization and interpretation of qualitative data to identify underlying meanings and relational patterns.

4. Results and Discussion

Evidence from the FGDs, validation workshop and cooperative member survey indicates that cooperatives operate across every stage of the local food system, from production to waste management. Participants also perceived these activities to support the four pillars of food security: availability, access, utilization and stability. Using the sustainable food systems framework (FAO 2018) as the structural lens and the food security pillars as analytical categories, this section discusses how cooperatives function at multiple levels (i.e., micro, meso, meta and macro) to engage the province's food system. Figure 2 summarizes the outputs of the FGDs and workshop regarding the roles and contributions of cooperatives across the food systems. The specific mechanisms through which these functions operate across food system stages, and their implications for each pillar, are discussed in detail in the next section.

FIGURE 2
Roles of Cooperatives Across Food Systems Component and Level of Intervention,
Oriental Mindoro, Philippines

	PRODUCTION	PROCESSING	DISTRIBUTION	CONSUMPTION	WASTE
MICRO / COMPANY LEVEL	Increase production (i.e., clustering, home backyard farming)	Food processing (value addition)	Consolidation, purchase, and selling of individual producers' commodities (market)	Increased food variety/choices	Waste reduction through processing
	Production/supply and procurement of agricultural inputs		Supplier in government procurement	Food suppliers in government feeding programmes	Organic fertilizers from animal wastes
MESO LEVEL	Machinery equipment/facility rental/services		Storage and transportation of food		
	Training, seminars and other capacity-building programmes (i.e., on farming, gardening, enterprise development and building resilience)				
	Loans/credit services				
META and MACRO LEVEL	Advocacy, educational and promotional campaigns supporting food security				
	Facilitate partnership/collaborations and access to government and non-government programmes				
	Support governance of the food systems; Implementation and adoption of food security-related policies				
	Representation in the Congress; Lobbying for government support and protection				

SOURCE: Authors' synthesis based on the Multistakeholder Consultation Workshop and FGD in Calapan City, Philippines on 28 August 2024.

4.1 Member Motivations for Cooperative Participation

Before examining cooperative contributions across the food system, this section presents survey-based data on member motivations for joining cooperatives in Oriental Mindoro. These motivations provide contextual grounding for understanding the collective-action logic underpinning cooperative engagement, namely the perceived individual and community benefits that drive voluntary participation and sustain cooperative membership. Understanding what draws members to cooperatives illuminates the demand-side dynamics of collective action and helps contextualize the functional contributions documented in the succeeding sections.

Results from the cooperative member survey provide insights into how members perceive the benefits and functions of their organizations. As shown in Table 2, respondents' primary motivations for joining cooperatives include community-oriented participation (60 per cent), access to credit and financial assistance (47 per cent) and training or capacity-building opportunities (45 per cent). These motivations highlight how cooperatives are viewed not only as economic organizations but also as social institutions that foster solidarity, skill enhancement and shared responsibility. Such motivations align with the cooperative principles of mutual aid and member empowerment, which are foundational to building resilient local food systems.

Other frequently cited reasons include employment or livelihood opportunities (40 per cent) and access to government programmes and technologies (36 per cent). These responses reflect a pragmatic recognition that cooperatives serve as platforms that connect members to broader networks of financial, institutional and technical support, thereby improving household economic stability and food access. Access to affordable credit, in particular, was repeatedly mentioned. It enables members to purchase production inputs, experience smooth consumption during lean periods, or invest in small-scale livelihood activities, all of which directly influence household food security. Having better access to food (19 per cent) and to market or marketing assistance (11 per cent) were also reported as key reasons, suggesting that members also perceive cooperatives as mechanisms for direct food provision or market intermediation.

TABLE 2
Cooperative Members' Reasons for Joining a Cooperative, Oriental Mindoro, Philippines, 2024

<i>Reason for joining the cooperative</i>	<i>No. of responses</i>	<i>Percentage to the total no. of respondents (n=53)</i>
To have better access to food	10	18.9
To have access to production inputs	14	26.4
To have access to markets and marketing assistance	6	11.3
To have access to credit/financial assistance	25	47.2
To access capacity building trainings	24	45.3
To help communities	32	60.4
To get employment/job opportunities	21	39.6
To access government programmes, including access to facilities and technologies	19	35.8

SOURCE: Responses from the study's cooperative member survey conducted in Oriental Mindoro, Philippines from 15 September to 15 October 2024.

4.2 Cooperative Contributions Across the Food Systems

Synthesizing evidence across all data sources, this section highlights how cooperatives engage multiple dimensions of the food system in ways that may support food security while also contributing to broader systemic change at the local level. They enhance availability through expanded agricultural production, improved access to inputs and value-adding activities, and strengthen access via market linkages, credit services and affordable cooperative stores. Cooperatives also promote utilization through nutrition education, home gardening, and safe food-handling practices, as well as reinforce stability through circular economy initiatives, strategic partnerships and strong governance mechanisms.

4.2.1 Production and Processing: Strengthening Food Availability and Value Addition. At the production stage, cooperatives play a crucial role in enhancing food availability by organizing farm clustering, coordinating production cycles and facilitating access to agricultural inputs. They supply seeds, fertilizers and farm supplies through agri-stores, and some also provide shared equipment such as tractors, dryers and rice mills, which lower production costs. For instance, the Mabini Farm Family Multipurpose Cooperative reported a 20 per cent to 30 per cent reduction in expenses after accessing shared farm machinery through the Department of Agriculture's (DA) Philippine Rural Development Project. Likewise, the Bansud Goat Raisers and Other Ruminants Association (BAGORRA) used cooperative membership to secure grants for improved breeding stock and feed resources, demonstrating how collective action enhances productivity and reduces vulnerability to climate-related disruptions.

In the processing stage, cooperatives contribute to value addition and product diversification. The Mindoro Dairy Cooperative, for example, processes and packages fresh milk for sale to local markets and for inclusion in the Department of Social Welfare and Development (DSWD) feeding programmes. Other cooperatives are involved in calamansi juice bottling, banana-chip making and vegetable preservation, activities which extend shelf life and create off-farm employment.

FGD and survey participants recommended that cooperatives further strengthen production and processing functions by expanding access to affordable farm inputs, establishing demo farms and training centres and developing shared processing and packaging facilities for key commodities such as rice, dairy, banana and calamansi. Respondents emphasized that these investments would reduce post-harvest losses, promote value-adding and stabilize household income, reinforcing cooperatives' role in ensuring steady food availability at the local level.

4.2.2 Distribution and Marketing: Enhancing Access and Market Integration. Distribution and marketing activities remain the most visible arena of cooperative participation in local food systems. Many cooperatives consolidate their members' produce, enabling collective marketing and improved bargaining power. Some have partnered with government marketing programmes such as the *Kadiwa ni Ani* at *Kita* of DA and the Oriental Mindoro Consolidation and Trading Facility, which link producers directly to consumers and institutional buyers. Cooperatives such as the Calapan Labor Service Development Cooperative (CALSEDECO) provide logistics and transport services to smaller cooperatives, reducing post-harvest losses and improving food supply reliability.

Through cooperative stores, members gain access to consumer goods, often at lower prices than retail outlets, and benefit from patronage refunds that enhance household purchasing power. By serving as both market intermediaries and consumer outlets, cooperatives help improve both physical and economic access to food within the province.

Respondents identified several priorities for strengthening distribution systems. These included improving logistics infrastructure through transport vehicles, cold storage and warehouses; expanding intercooperative trading networks; and establishing direct contracts with schools, hospitals and feeding programmes. They also recommended expanding cooperative stores to diversify food

offerings and maintaining low mark-ups to enhance affordability for low-income households. These suggestions underscore the importance of more efficient marketing and logistics systems in bridging the production–consumption gap and achieving food access at scale.

4.2.3 Consumption and Utilization: Promoting Nutrition and Food Use. At the consumption stage, cooperatives contribute to food utilization by promoting the availability and use of nutritious, locally produced food. Partnerships with the DSWD enable dairy cooperatives to supply milk for school-based feeding programmes, contributing to nutrition interventions aimed at reducing childhood malnutrition. Agricultural cooperatives likewise distribute rice, vegetables and fresh produce within their communities, contributing to the availability of nutritious food, which may support improved diets.

Cooperatives also play a social role in promoting food literacy. Some conduct nutrition education and values-formation training that encourage responsible consumption, food safety awareness and reduced household food waste. These initiatives help transform cooperatives into community platforms for social learning and collective behaviour change.

Respondents proposed expanding nutrition and food-safety education, organizing home-gardening and cooking demonstrations, and launching cooperative-sponsored “Food for All” initiatives offering discounted nutritious food to vulnerable groups. Others suggested strengthening the promotion of organic farming and safe food handling. These activities have the potential to enhance food utilization by supporting the availability of nutritious food as well as the knowledge and capacity of households to consume it effectively.

4.2.4 Waste Management and Circular Practices: Reinforcing System Stability. Although less prominent, cooperatives contribute to food system stability through waste management and circular economy practices. Agricultural cooperatives recycle crop residues and livestock manure into organic fertilizers, while food-processing cooperatives convert by-products into compost or animal feed. These efforts reduce waste, cut production costs and improve environmental resilience.

In the FGDs and survey conducted, participants encouraged cooperatives to institutionalize waste segregation and recycling, expand training on sustainable waste management and promote community-based composting initiatives. These recommendations highlight a growing awareness among cooperative members that environmental stewardship and food security are interconnected, with waste reduction supporting more sustainable food system practices that, in turn, can benefit food security in the long run.

4.2.5 Governance, Advocacy and Institutional Partnerships: Anchoring Collective Impact. Beyond enterprise operations, cooperatives influence food-system governance through advocacy and partnerships. SEACAT and the Salika Agricultural Cooperative, for instance, implemented the *Pahingang Paisdaan* initiative, supported by the Department of Labor and Employment, to curb illegal fishing and create alternative livelihoods such as surimi production. These cases demonstrate how cooperatives can operationalize sustainability and ethical principles within their communities.

At the macro level, cooperative federations and party-list groups (e.g., Cooperative National Confederation of Cooperatives [COOP-NATCCO] and Agricultural Sector Alliance of the Philippines, Inc. [AGAP] Party List) advocated for policies on agricultural financing, market access and climate-resilient production. Cooperative representatives also participated in local development councils and consultations, ensuring that smallholder and community concerns are integrated into policy decisions.

Respondents urged stronger institutional partnerships with LGUs, national agencies and NGOs to enhance access to funding and technical support. They also recommended expanding leadership and governance training to improve transparency, accountability and participatory decision-making. Such

measures would strengthen cooperatives' institutional capacity to serve as both agents and advocates of sustainable, inclusive food-system governance.

4.3 Cooperative Members' Perceived Food Security Contributions

Beyond these functional contributions documented across food system stages, members were also asked to provide an overall assessment of their cooperatives' contribution to their household food security. Specifically, respondents were asked to rate the degree of this contribution on a scale of 1 (lowest) to 10 (highest). All 53 respondents indicated a perceived contribution, with ratings ranging from 3 to 10 and an overall mean of 7.85. These ratings reflect members' subjective assessment of cooperative relevance to their food-related conditions rather than an objectively measured food security outcome and should therefore be understood as indicative of a positive association rather than a direct causal contribution. Nonetheless, the consistency of positive ratings across all respondents suggests that members recognize cooperatives as meaningful actors in supporting household food security—a finding that aligns with the broader food systems perspective framing this study.

As noted in the earlier discussion of membership motivations, members join cooperatives primarily for instrumental and collective reasons that align most closely with the availability and access dimensions of food security. This alignment between joining motivations and perceived contributions reinforces the view that cooperatives function as demand-driven institutions responsive to members' food-related needs. However, the extent to which these perceived contributions translate into measurable improvements in food security status remains an empirical question that future longitudinal research should address.

4.4 Enabling Institutional Environment and Governance Structures

The Philippines has established a substantial legal foundation for cooperative development. Several national laws, particularly Republic Act 9520 (Philippine Cooperative Code of 2008), Republic Act 11364 (Reorganization and Strengthening of the Cooperative Development Authority), and Republic Act 11535 (Appointment of Cooperative Development Officers in Local Government Units [LGUs]), collectively established an enabling environment for cooperatives to operate as instruments of local economic empowerment and social inclusion. Although these statutes do not explicitly frame food security as a cooperative mandate, they empower cooperatives to mobilize local resources, manage enterprises and participate in local governance, which in turn can enhance food-system resilience.

Recent administrative issuances further reinforce support for cooperative policy. The Joint Memorandum Circular 2019–01 of the Department of the Interior and Local Government (DILG) and the CDA provides guidance to local governments on promoting cooperatives, encouraging inter-agency collaboration at the community level. CDA Memorandum Circular 2021–07, meanwhile, recognizes cooperatives as key partners in achieving environmental sustainability. Both frameworks institutionalize cooperatives' participation in local governance and foster integration between social, environmental and economic development goals.

Beyond legislation, numerous government programmes have directly or indirectly involved cooperatives as beneficiaries, implementing partners or co-implementers at different stages of the food system. The following initiatives, among others, were identified in the FGDs:

- In production and processing, cooperatives have benefitted from the High Value Crops Development Program, *Halina't Magtanim ng Prutas at Gulay* (HAPAG, or "Let's Grow Fruits and Vegetables" Program) initiative, and Rice Competitiveness Enhancement Fund (RCEF) Mechanization Program. These efforts expand access to farm machinery, seeds and post-harvest technologies.
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- Under processing and innovation, cooperatives participate in the SMART and Sustainable Communities/Cities Program, Food Innovation Center (MIMAROPA), and Manufacturing Productivity Extension (MPEX) Program, which strengthen local value-adding capacity.
- In distribution and market integration, projects such as DA's *Kadiwa ni Ani at Kita* On-Wheels Program, Farm-to-Market Roads Construction, and the Oriental Mindoro Consolidation and Trading Facility enhance physical and economic access to markets.
- A smaller number of initiatives address consumption (e.g., school- and community-based feeding programmes, nutrition education under the Regional Plan of Action for Nutrition) and waste management (e.g., composting).

These programmes reflect a strategic emphasis on production and market efficiency, while opening opportunities for cooperatives to scale their participation across the entire food system.

4.5 Structural and Organizational Constraints

Despite the enabling legal environment, cooperatives continue to face multilevel challenges that constrain their full potential in enhancing food security. At the micro- or enterprise level, many cooperatives struggle with limited capitalization, restricted access to credit and difficulties in expanding membership or market reach. Issues of mismanagement, low financial literacy and member delinquency undermine business sustainability. Competition with imported goods further weakens local market viability and discourages diversification into higher-value food enterprises.

At the meso-level, cooperatives encounter barriers in accessing grants and development funds, often due to inadequate proposal-writing capacity, weak networking and limited awareness of existing government support programmes. Fragmented intercooperative collaboration prevents economies of scale that could improve bargaining power in procurement and marketing. Local markets also remain underdeveloped, with poor logistics and information systems that restrict efficient product movement.

At the macro-level, policy and regulatory inconsistencies create systemic friction. Food security programmes remain production-centric, with less attention to marketing, consumption and waste management. Lengthy and complex compliance requirements from CDA, Food and Drug Administration and other agencies increase administrative burdens on small cooperatives. The absence of coherent local trade and procurement policies further limits their participation in public food-supply programmes.

Finally, at the meta-level, attitudinal and cultural factors, such as dependency on government assistance, limited entrepreneurial orientation and the limited practice of the “cooperation among cooperatives” principle, impede collective growth. These deeper sociocultural barriers highlight the need for mindset change, leadership development and intercooperative solidarity as essential preconditions for sustained transformation.

4.6 Policy and Programme Implications

The foregoing analysis highlights that the policy and institutional landscape in Oriental Mindoro presents a promising yet uneven foundation for cooperative contributions to local food system governance and food security. Legislative support and programme participation have empowered cooperatives to expand their roles in production and processing. However, persistent structural barriers and policy gaps constrain cooperatives' already limited influence on consumption patterns and market stability, which are driven by broader market and socioeconomic factors. A more balanced and resilient food system requires strengthening coherence between cooperative development policy and food security governance.

The analysis reveals an imbalance in policy focus across the food system. Government initiatives largely emphasize production and infrastructure, while fewer programmes support marketing, consumption and waste-management innovations. This uneven prioritization produces a paradox: even as agricultural output increases, local markets often experience a limited supply of high-quality, locally processed food because a large share of production is sold externally. Addressing this imbalance requires reorienting programmes to strengthen domestic market linkages, support cooperative-managed distribution channels, and promote local consumption of regionally produced commodities.

Future strategies should therefore:

1. Integrate cooperatives explicitly into national and provincial food-security plans;
2. Provide tailored financing windows and technical-assistance mechanisms for small and medium-sized cooperatives;
3. Strengthen capacity-building programmes on value-chain management, digital marketing and sustainability practices; and
4. Encourage multilevel partnerships among cooperatives, local governments and development agencies to co-design interventions that bridge production and consumption systems.

These implications underscore the need for a more balanced and coherent policy environment that aligns cooperative development with food security governance.

5. Summary and Conclusion

This study examined the roles of cooperatives across local food systems and their perceived contribution to food security, applying the sustainable food systems lens. Using the case of Oriental Mindoro, the study demonstrates how cooperatives act as vital intermediaries linking household livelihoods, local governance and community resilience. Their actions span multiple stages of the food system, indicating that food security is not only an agricultural or economic issue but also a collective, institutional process sustained by shared norms and coordinated participation. It is important to note, however, that this study documents the roles cooperatives play within the food system and their potential contributions to food security, rather than directly measuring changes in household food security attributable to cooperative membership.

Findings affirm that the cooperative model exemplifies collective action in practice, where members pool resources and responsibilities to overcome individual constraints in production, market access and risk management. This reinforces Ostrom's (1990) proposition that local institutions thrive when communities develop self-governing mechanisms built on trust, reciprocity and accountability. The results also support earlier observations (e.g., Birchall 2003; Chambo 2009; Wanyama 2014) that cooperatives serve as institutional vehicles for both economic empowerment and social cohesion, which are preconditions for food security. By providing access to inputs, credit, training and markets, cooperatives reduce individual transaction costs and expand members' capacity to secure stable and nutritious food supplies.

From an institutional perspective, the study highlights how policy and governance frameworks shape cooperatives' ability to function effectively within the food system. National laws and programmes provide an enabling environment, yet their focus remains largely production-oriented. Thus, while cooperatives benefit from existing legal and administrative structures, their potential to shape consumption behaviour, nutrition outcomes and environmental sustainability is not maximized.

A central insight emerging from this research is that cooperatives can act as bridging institutions, connecting local actors to multilevel governance processes. By operating at both community and policy interfaces, cooperatives have the potential to translate collective action into systemic change. The evidence from Oriental Mindoro illustrates how such transformations can occur incrementally through

improved access to production assets, strengthened market linkages and the social learning that underpins behavioural change toward sustainable consumption.

Ultimately, this study contributes to the evolving discourse on cooperatives and food systems in Southeast Asia by providing subnational empirical evidence on how these institutions function as agents of collective resilience. The findings reaffirm that the sustainability of food systems depends on both structural enablers, such as policies, markets, and infrastructure, and on the strength of cooperative institutions that coordinate these resources through trust-based participation. When embedded within coherent governance frameworks, such institutions have the potential to help reduce hunger, malnutrition and food insecurity. Strengthening these institutional capacities is essential not only for local food availability and access but also for achieving the broader goals of equity, environmental integrity and social well-being. Future interventions must therefore move beyond viewing cooperatives solely as economic intermediaries and instead support them as nutrition-sensitive institutions that actively bridge the gap between market success and household-level food utilization.

In the broader ASEAN context, the Oriental Mindoro case provides a blueprint for regional neighbours to localize food systems and buffer smallholder communities against climate shocks and market volatility. As the region grapples with the dual pressure of climate change and global market integration, cooperatives emerge as critical institutional anchors for smallholder communities facing climate shocks and market volatility while preserving local food sovereignty. The Philippine experience demonstrates that cooperatives are most effective when they operate not merely as economic enterprises, but as multifunctional institutions embedded in community governance structures. For ASEAN neighbours, this suggests that policy frameworks should move beyond production-centric support to enable cooperatives' roles in distribution, consumption and waste management, which are key nodes of the food system that directly influence household nutrition. Regional cooperation platforms, such as ASEAN's Cooperation on Food, Agriculture and Forestry, could facilitate cross-country learning on cooperative-led innovations, including digital market integration, climate-resilient production practices and nutrition-sensitive value chains. By positioning cooperatives as central actors in localized food systems, ASEAN member states can advance both SDG 2 and the broader regional goals of inclusive and sustainable development.

By illustrating that cooperatives function as vital bridging institutions that can address food security gaps when supported by coherent policy environments, this research advances both theoretical and practical understanding. It bridges the literature on collective action, institutional governance and food systems transformation, showing that cooperatives embody a governance mechanism capable of aligning local agency with sustainable development objectives.

6. Recommendations

Building on the study's findings and theoretical foundations, we propose several strategic actions to strengthen the role of cooperatives in advancing food security in the Philippines. These recommendations call for a multilevel, data-informed and systems-based approach to cooperative-led food security to enhance cooperatives' ability to function as efficient and accountable economic enterprises and to ensure that related programmes and interventions are accurately targeted, monitored and scaled. In doing so, cooperatives can be positioned not only as productive actors in local economies but also as key agents of inclusive, knowledge-driven and sustainable food-system transformation in the Philippines.

6.1 Strengthen Policy Coherence and Governance Mechanisms

Government support for cooperatives should go beyond production assistance and integrate food and nutrition security as a cross-cutting policy goal. Government agencies such as CDA, DA, DILG and the

Department of Trade and Industry (DTI) can jointly harmonize their mandates by aligning cooperative programmes with the Cooperative Development Plan and the Philippine Plan of Action for Nutrition.

Policy coherence can also be enhanced through province-wide or island-wide trade and food policies that protect local producers, support domestic markets and promote the consumption of locally produced food. Such policies are particularly relevant for island provinces like Oriental Mindoro, where market dependence and import competition undermine the stability of local food systems. To institutionalize long-term collaboration, local governments should establish or strengthen Local Cooperative Development Councils as formal multistakeholder platforms where cooperatives, the government and the private sector jointly plan and monitor food security initiatives. Local governments should also align cooperative development programmes with national and provincial food security plans and mandate the inclusion of cooperatives in Local Cooperative Development Councils and Province-led Agriculture and Fisheries Extension Systems to institutionalize their role in food-system planning and monitoring. In addition, it is suggested that programmes be reoriented from production to full value-chain support, shifting policy to focus beyond production assistance on marketing, processing and distribution. Thus, developing province-wide or island-wide trade policies that protect local producers, promote domestic market consumption and reduce dependence on imports that undermine local food system stability.

The findings reveal that while cooperatives are effective at mobilizing collective action, many face internal constraints related to governance, financial management and enterprise scaling. To address these challenges, we recommend targeted capacity-building interventions focusing on three core areas. They are: entrepreneurial and agribusiness management, including value-chain development, marketing and negotiation skills; governance and accountability mechanisms to improve transparency and member participation; and proposal writing and project implementation to enhance access to government grants and development financing. Embedding these training programmes within national and provincial cooperative development frameworks will help professionalize cooperative operations and ensure their active participation in local food-system governance.

Complementing these capacity-building efforts, we also recommend creating dedicated financing windows and technical assistance for small and medium-sized cooperatives. Such support should prioritize training in value-chain management, digital marketing and governance to address agency problems, information asymmetry and limited capitalization, the key barriers identified in the New Institutional Economics framework (North 1990; Williamson 2000).

Encouraging cooperation among cooperatives through federations, cooperative mergers and intercooperative alliances can further help smaller cooperatives pool resources, access larger funding, and improve competitiveness. In the Philippines, programmes such as the CDA's *Koop Kapatid* and the Special Program on Merger and Consolidation for Micro and Small Cooperatives (MC 2023–18) should be further strengthened and localized. These programmes promote the cooperative principle of “cooperation among cooperatives” and embody the collective-action logic of scale efficiency, in which shared assets are pooled to reduce transaction costs, facilitate collective bargaining and enhance resilience against market and environmental shocks.

Lastly, with food security being a collective institutional outcome requiring coordination among diverse actors, cooperatives, due to their embeddedness in local communities, are well-positioned to serve as bridging institutions between grassroots producers and higher levels of governance. For instance, integrating cooperatives into the province-led Agriculture and Fisheries Extension Systems (PAFES) of provincial governments in the country can operationalize hybrid governance structures. With PAFES, government, academia, civil society and the private sector can share roles in planning, financing and monitoring food-system initiatives. In addition, public–private partnerships with agribusiness companies and corporate social responsibility programmes can mobilize technical expertise, financing and technology transfer to expand cooperative-based food initiatives.

6.2 Strategic Directions for Cooperatives to Enhance Food Security and Sustainability

Cooperatives can strengthen their contribution to food security by diversifying beyond cash crops toward nutrition-sensitive enterprises. While high-value crops remain economically important, cooperatives may consider progressively expanding into staple food production and nutrition-sensitive activities to more directly address local dietary needs. Integrating complementary initiatives such as nutrition education, home gardening and school- and community-based feeding programmes can enable cooperatives to contribute not only to food availability, but also to the utilization and access dimensions of food security.

At the organizational level, investing in governance transparency and member accountability is essential for sustaining collective action. Strengthening internal mechanisms, such as transparent financial reporting, participatory decision-making, and continual member education, can enhance trust, reduce delinquency and mitigate free-rider problems. These efforts reinforce member commitment and ensure that the benefits of cooperative participation are equitably distributed, thereby improving both organizational performance and long-term viability.

Cooperatives can also expand their impact by leveraging multilevel partnerships, adopting environmentally sustainable practices, engaging with government programmes, development agencies and private sector actors to access technical expertise, financing and broader market opportunities. At the same time, already emerging environmental stewardship initiatives piloted among cooperatives, such as composting, organic fertilizer production and by-product conversion, can be formalized and scaled to reduce input costs and strengthen environmental resilience. These initiatives can be incentivized through grants or recognition programmes, for instance, under the CDA's environmental guidelines (MC 2021-07). Such innovations align with the sustainable food systems framework and contribute to the stability pillar of food security by reducing waste, promoting resource efficiency and strengthening ecological resilience.

6.3 Enhance Data Systems and Evidence-Based Planning

The absence of systematic data on cooperative performance across food system stages—a gap encountered in this study—points to the need for a comprehensive profiling and database system. This cooperative database system will support evidence-based policy design and facilitate programme targeting by cooperative type, capacity and commodity focus. Regular data collection on cooperative production, marketing and nutrition outcomes will also improve monitoring and evaluation. These systems can be institutionalized through collaboration among government agencies and academic institutions to bridge the current gap in empirical evidence on the cooperative–food security nexus.

Finally, this study underscores the need for continued empirical research to expand the evidence base on cooperative contributions to food and nutrition security in the Philippines. Comparative studies across provinces or regions, as well as longitudinal analyses of policy outcomes, will enhance understanding of how institutional and collective action dynamics evolve over time.

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