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DO INITIATIVES FOR COLLECTIVE ACTION DRIVE BENEFITS FOR SMALLHOLDERS? COMPARING AGRO-BASED CLUSTERS AND COOPERATIVES IN THE PHILIPPINES CACAO SECTOR

A thesis presented in partial fulfilment of the requirements for the degree of

Master of Agribusiness

at Massey University, Palmerston North,
New Zealand

Marvin Louie G. Orbeta

2025

Abstract

The Philippines cacao sector is an emerging industry constrained by low productivity and the marginalization of smallholders due to limited bargaining power. To address these challenges, the government fosters collective action through agro-based clusters (ABC) and cooperatives. While both are recognized as vehicles for rural transformation, comparative analysis on organizational structures as drivers of farmer benefits is still lacking. This study examined how the structure of ABCs and cooperatives influence the benefits received by smallholder cacao farmers in the Davao region.

A theoretical framework was developed linking organizational structures to four latent constructs of benefits: financial and economic, social, farm, and environmental performance. Using a mixed methods approach, the study combined case studies of two ABCs and two cooperatives with survey data from 186 farmers. Exploratory Factor Analysis identified the four benefit constructs, and the Wilcoxon-Mann-Whitney test assessed the differences between organizational forms.

Results showed unique structural drivers of farmer benefits. ABCs, shaped by flexible membership and a coordinated network of firms and stakeholders, delivered better social, farm, and environmental performance using effective knowledge transfer, product and process upgrading, and supporting sustainable practices. By comparison, cooperatives founded on formal membership, democratic governance, and member-sourced capital, outperformed ABCs in financial and economic benefits by providing accessible financing, reduced input costs, and a stable market. Variations between organizations underscore how structural mechanisms and investment horizons drive farmer outcomes.

Key insights provided evidence that organizational attributes and maturity level shaped benefit portfolios, suggesting that organizational support should be tailored to each organizational form rather than imposing one model. Policies should promote hybrid organizational models, strengthen cooperative governance through safeguards enacting rules to enhance member representation and accountability, and codify inclusive policies in buyer-supplier networks in ABCs. Recommendations support bundled services, combining learning hubs with financing, and emphasizing value chain integration that enhances competitiveness and sustainability to smallholder cacao farmers.

This study adds qualitative and quantitative evidence on collective action models to the agribusiness literature. It also provides practical recommendations for policymakers, development agencies, and organization leaders aiming to integrate smallholders into high-value markets.

Keywords: agro-based clusters, cooperatives, organizational structures, collective action, comparative analysis, exploratory factor analysis, cacao, Philippines

Acknowledgements

This thesis is the final product of my 18-month journey in New Zealand, and I am grateful to the people and organizations that was with me since I started in 2024. Their guidance, words of encouragement, and support was instrumental not only in completing this research, but this character shaping portion of my life.

To my supervisor, Dr. Garnevska, I am grateful for her patience in guiding me throughout the process. Her attention to detail shaped the quality of my output. I am equally grateful to Dr. Thiagarajah, my co-supervisor, for his methodological advice and insightful feedback during the process.

A special thanks to Dr. Digal for his mentorship and steady support throughout the development of this thesis. I am also grateful to Carol and Deewai, whose assistance in facilitating access to respondents and supporting the data collection process was invaluable.

I also acknowledge the Ministry of Foreign Affairs and Trade (MFAT) and Education New Zealand for awarding me the Manaaki New Zealand Scholarship and providing the research grant that supported my academic journey and fieldwork in the Philippines. I would like to thank the Manaaki New Zealand Scholarship Team, especially Anna, Tina, and Vivienne for their time, openness, and commitment to supporting all my needs.

My heartfelt appreciation goes to the Guinto Family, whose generosity in lending me their car during data collection significantly eased the logistical challenges of fieldwork. I am also deeply thankful to my family, whose unwavering support sustained me during my time in New Zealand and gave me the strength to persevere.

Finally, to my wife Kathy, for her constant encouragement, genuine pride in my work, and unwavering love. Her belief in me has been my anchor throughout this journey.

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Abbreviations

ABC	Agro-based cluster
ACPC	Agricultural Credit Policy Council
AFF	Agriculture, Forestry, and Fishing
ARB	Agrarian Reform Beneficiaries
ARC	Agrarian Reform Communities
AVA	Agribusiness Venture Agreement
BKCF	BIMP-EAGA-Republic of Korea Cooperation Fund
CAMP	Centre for Asian Mission for the Poor
CAO	City Agriculture Office
CARL	Comprehensive Agrarian Reform Law
CDA	Cooperative Development Authority
CLOA	Certificate of Land Ownership Award
CNFIDP	Comprehensive National Fisheries Industry Development Plan
DA	Department of Agriculture
DAR	Department of Agrarian Reform
DENR	Department of Environment and Natural Resources
DOLE	Department of Labor and Employment
DOST-PCAARRD	Philippine Council for Agriculture, Aquatic and Natural Resources Research and Development
DTI	Department of Trade and Industry
EB	Environmental Benefits
EFA	Exploratory Factor Analysis
EEZ	Exclusive Economic Zone
EPR	Extended Producer Responsibility
ESAP	Environmental and Socially Sustainable Agriculture Practices
ESG	Environmental, Social, and Governance
EU	European Union
F2C2	Farm and Fisheries Clustering and Consolidation Program
FB	Farm Benefits
FEB	Financial and Economic Benefits
FG	Farmer Group
FODCI	Filipinas Oro de Cacao, Inc.,
FPC	Farmer Producer Company
FPO	Farmer Producer Organization
GA	General Assembly
GDP	Gross Domestic Product
GGGI	Global Green Growth Institute
GIDA	Geographically Isolated and Disadvantaged Areas
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit
GLF	Global Lead Firm
GMP	Good Manufacturing Practice
HACCP	Hazard Analysis and Critical Control Points
HUCAFC	Highly Urbanized City Agriculture and Fisheries Council

ICA	International Cooperative Alliance
IOF	Investor-Oriented Firm
IP	Indigenous People
IPM	Integrated Pest Management
IRA	Internal Revenue Allotment
KMO	Kaiser-Meyer-Olkin
KOICA	Korea International Cooperation Agency
LAMPCO	Laak Multipurpose Cooperative
LBP	Landbank of the Philippines
LGU	Local Government Unit
MAFC	Municipal Agricultural and Fishery Council
MAMPCO	Maragusan Multipurpose Cooperative
MASIPAG	Magsasaka at Siyentipiko para sa Pag-unlad ng Agrikultura
MEDA	Mennonite Economic Development Associates
MPC	Multipurpose Cooperative
MSA	Measure of Sampling Adequacy
MUHEC	Massey University Human Ethics Committee
NAFMP	National Agricultural and Fisheries Mechanization Program
NGA	National Government Agency
NGO	Non-government organization
NGP	National Greening Program
NIA	National Irrigation Administration
NIR	Negros Island Region
PARCCOM	Provincial Agrarian Reform Coordinating Committee
PCIA	Philippine Cacao Industry Association
PCIC	Philippine Cacao Industry Council
PDP	Philippine Development Plan
PEF	Peace and Equity Foundation
PNS	Philippine National Standards
PPFA	Purok Pag-asa Farmers Association
PPP	Public-Private Partnership
PRDP	Philippine Rural Development Project
PSA	Philippine Statistics Authority
PTDC	Paquibato Tree Developers Cooperative
RAPID Growth	Rural Agro-enterprise Partnership for Inclusive Development and Growth
RCC	Revised Corporation Code
RCEF	Rice Competitiveness Enhancement Fund
RDC	Regional Development Council
RIISA	Resilience and Inclusion through Investment for Sustainable Agrikultura
SAAD	Special Area for Agricultural Development
SB	Sangguniang Bayan
SEA	Southeast Asia
SEC	Securities and Exchange Commission
SFLF	Small Farmers Large Field

SIDA	Sugar Industry Development Act
SOFA	Saloy Organic Farmers Association
SB	Social Benefits
SSP	Sustainable Sourcing Policy
TCE	Transaction Cost Economics
UN	United Nations
UNORKA	Ugnayan ng mga Nagsasariling Lokal na Organisasyon sa Kanayunan
UPLB	University of the Philippines Los Baños
USA	United States of America
USEP	University of Southeastern Philippines
USM	University of Southern Mindanao
VC	Value Chain
WMN	Wilcoxon-Mann-Whitney
ZDS	Zamboanga del Sur

Chapter 1: Introduction

1.1 Background of the research

Sustainable transformation of agri-food value chains (AVCs) in developing countries involves moving from traditional systems to modern value chains (VC) that follow best practices and balance economic, environment, and social dimensions of sustainability (Hidayati et al., 2021a; Truelove et al., 2023). Changes in consumer behavior and values require innovations in VCs, not only in technologies, but also in the creation of value networks that champion collective action and drive the shift towards sustainability (Ammirato et al., 2021; Gálvez-Nogales, 2010). For smallholder farmers, adopting the sustainability paradigm requires enhanced collaboration through organizational structures involving private companies, government, research institutions, academia, and fellow farmers to support sustainable development (De Silva et al., 2023; Hidayati et al., 2021a). For this study, the focus is on two collective action models, agro-based clusters (ABCs) and cooperatives, that have distinct organizational structures shaping smallholder participation and the benefits they receive (Ammirato et al., 2021; De Silva et al., 2023; Hidayati et al., 2021a).

Multiple authors have argued separately that Agro-based Clusters (ABC) (Giuliani et al., 2005; Inocencio et al., 2022; Kucukvar et al., 2019) and cooperatives (Asian et al., 2019; Cook & Grashuis, 2019; Fernando et al., 2024; Imami et al., 2021) create governance structures that are effective in helping smallholders overcome challenges in integration and coordination within their VC. ABCs, unlike Industry Clusters (IC), have a value chain that covers a larger geographical area, the emphasis is put on the market linkages between clustered suppliers (e.g., farmers) and processor and/or marketing companies concentrated in a separate area within a proximate geographical location (Otsuka & Ali, 2020). Formation of ABCs seek to reduce transaction costs, promote innovation, and deliver services more effectively and efficiently (Giuliani et al., 2005; Inocencio et al., 2022; Kucukvar et al., 2019). Meanwhile, cooperatives contribute to sustainable AVC transformation by grouping farmers in jointly-owned and democratically controlled enterprises (Cook & Grashuis, 2019; Cooperative Development Authority (Philippines), 2015) to enhance economic benefits of its members (Asian et al., 2019), improve vertical integration and food safety (Fernando et al., 2024; Imami et al., 2021), and capacitate smallholder members by improving practices to meet sustainability and international market standards (Hidayati et al., 2021b). Both approaches impact sustainable transformation differently due to the complex and multifaceted nature of AVCs in VC networks (Reardon et

al., 2019) and the local realities shaping these social networks (Ajates, 2020) in developing countries.

Numerous VC development programs in the Philippine cacao sector use various organizational models to promote collective action and achieve sustainable value chain transformation (CDA, 2021; Department of Agriculture (Philippines), 2022; IFAD, 2017). ABCs in the cacao sector are initiated by government agencies to link smallholder farmers to HVMs, drive collective action by creating an enabling environment using support activities that enable sustainable VC performance for smallholders (Garcia et al., 2022; IFAD, 2017). On the other hand, shared ownership and cooperative services such as financial assistance, production and process training, and market development encourage collective action by improving member's practices, facilitate vertical integration, and sustained benefits for its members (CDA, 2021; Department of Agriculture (Philippines), 2022). The use of these two approaches in the Philippine cacao sector present an opportunity to investigate how collective action enables sustainable benefits for smallholders (Allali et al., 2024; Hidayati, 2023).

1.2 Problem statement

In this context, the cacao sector in the Philippines faces specific structural challenges. These include low productivity, weak smallholder bargaining power, and capability to meet strong demand pressures. These issues prompted initiatives that promote collective action among farmers (Garcia et al., 2022; Reardon et al., 2019). Low productivity among smallholders underpins the need for consolidation and more coordinated production networks (Briones, Navarro, et al., 2023). Simultaneously, weak vertical integration and the strong market power of larger enterprises limit the capability of smallholders to capture value in the cacao markets (Adriano & Adriano, 2023; Inocencio et al., 2022).

To overcome these constraints, ABCs and cooperatives are the two organizational forms used to integrate smallholders into VCs and deliver economic, environmental, farm, and social benefits. As a collective enterprise, ABCs integrate small-scale farmers into high-value markets by coordinating horizontal and vertical links, improve income through economies of scale, access to information, reduced transaction costs, and supporting innovation (Gyau et al., 2014; Kruijssen et al., 2009; Mutonyi, 2019; Oakeshott, 2016). However, ABC performance is affected by market power in vertical linkages that keeps farmers from improving their

bargaining position along the chain (Gereffi, 2018; Humphrey & Schmitz, 2002). To be effective, ABCs need institutional support, social capital, and capability building that can deliver sustained benefits to marginalized farmers (Oakeshott, 2016; Otsuka & Ali, 2020).

Likewise, cooperatives are formed to support smallholders by granting market access, enhancing group efficiency, and spearheading innovation which are factors linked to sustained member benefits (Blekking et al., 2021; Fischer & Qaim, 2012; Missiame et al., 2023; Mojo et al., 2017). However, cooperative failures are also well-documented, often because of limited participation, uneven risk sharing, and poor communication between members (Cook & Grashuis, 2019; Fernando, 2021). Thus, strong organizational structures are key to address free riding, improve inclusivity, and deliver intended benefits (Fischer & Qaim, 2012; Mojo et al., 2017).

Though ABCs and cooperatives promote collective action, they are distinct in how they govern value chains and organize farmer participation. These structural differences are critical, as they dictate the types of benefits their members receive (Cook & Grashuis, 2019; Hidayati et al., 2021b; Otsuka & Ali, 2020). Yet, ABCs and cooperatives are examined separately in the literature. There remains a lack of comparative analysis linking these unique organizational structures to the differences in outcomes experienced by their farmer members.

The Davao region of the Philippines is an appropriate study area because it accounts for nearly 80 percent of national cacao production (Philippine Statistics Authority, 2024d) and has been the center of government and private sector initiatives that engaged smallholders through ABCs and cooperatives (Briones, 2023a; Department of Agriculture (Philippines), 2022; Garcia et al., 2022). By comparing these two collective business enterprises in this context, the study examined how each organizational form encouraged participation, drives member benefits, and supports smallholder integration in an export-oriented agri-food subsector. The insights from this study can inform future programs and policies aimed at developing more inclusive and sustainable agricultural VCs.

1.3 Research aims, questions, and objectives

This study aims to investigate how agro-based clusters and cooperatives drive benefits for smallholder cacao farmers in the Davao region. The analysis focuses on the link between

different organizational structures to the benefits perceived by participating smallholder cacao farmers. This leads to our main research question:

- How do the organizational structures of agro-based clusters and cooperatives differ in driving benefits for smallholder cacao farmers in the Davao region?

Based on the stated research question, the specific objectives for this study are the following:

1. To develop and apply a theoretical framework linking the analysis of organizational structures of agro-based clusters and cooperatives to the benefits perceived by participating smallholder cacao farmers.
2. To analyze and compare the organizational structures of both agro-based clusters and cooperatives in the cacao sector.
3. To analyze and compare the benefits perceived by smallholder cacao farmers for participating in agro-based clusters and cooperatives in the cacao sector.

1.4 Significance of the research

The study advances knowledge on organizational structures for collective action that drive economic, social, and environmental performance of smallholder cacao farmers. Government practitioners can use the knowledge generated from this comparative case study as reference in developing and/or improving collective organizations to make them more effective in providing benefits for smallholder farmers. Lastly, managers of ABCs, heads of cooperatives, international organizations, government implementers, extension workers, and policymakers can use this study as a supplemental resource to create a more focused agenda in steering multistakeholder development initiatives for a more sustainable cacao industry.

1.5 Thesis structure

This study is divided into seven chapters. To begin, the first chapter provided a background of the topic, defined the problem statement, and identified the research aims, questions, and objectives. Following this, the second chapter presented a brief overview of the Philippines agriculture sector. Then, it focused on the local cacao industry and challenges faced by smallholder cacao farmers. This also included background information on ABCs, the

cooperative sector, and cooperative law in the Philippines. The following section, Chapter 3, provided a comprehensive review of the available literature on ABCs and cooperatives, relevant theories on organizational structures, benefits from collective action, and organizational factors driving benefits to smallholders. Building on this, the fourth chapter discussed the research methods used. Specifically, it covered study design, study area, sampling method, data collection, and qualitative and quantitative techniques used to compare key dimensions in the organizational structures of ABCs and cooperatives and the factors driving the benefits perceived by their farmer members. Based on these methods, the fifth chapter presented the results including case descriptions, key organizational attributes of ABCs and cooperatives, and descriptive statistics on the data collected from the farmers. The sixth chapter builds on the results through a comparative analysis of key structural attributes of ABCs and cooperatives, comparisons between latent construct such as financial and economic, social, farm and environmental performance between groups. Finally, the seventh chapter provided concluding remarks on key insights and implications, offered practical recommendations, and suggested topics for future research.

Chapter 2: Background to research in the Philippines

This chapter provided background information on the Philippine Republic, its agriculture sector, its cacao industry, the cacao value chain, agro-based clusters, cooperatives, the area of study (Davao region). This chapter provides a comprehensive overview of the Philippines, setting the stage for understanding the broader context in which the nation's agricultural sector and related industries operate.

2.1 Overview of the Philippines

Situated in Southeast Asia (SEA), the Philippines is a unique archipelago with a diverse population, and economic profile that plays a pivotal role in shaping the country's agricultural landscape. The Philippine archipelago has approximately 7,641 islands and bounded by massive bodies of water granting it an Exclusive Economic Zone (EEZ) of about 2.2 million square kilometers (km²) (PSA, 2022b; United Nations, 2024). In 2022, the Philippine Statistics Authority (PSA) reported a population of 109,033,245 within approximately 300,000 km² of land resulting in a population density of 363 persons per km² (PSA, 2022a). There are about equal proportions of male (50.6%) to female (49.4%) and about 63.9 percent fall in between the ages 15 to 64, another 30.7 percent are 14 and below, with the remaining 5.4 percent being senior citizens (PSA, 2024). In 2025, the country's GDP was recorded at \$497.5 billion and grew only 4.4 percent well below the 5.9 percent target by the World Bank (World Bank, 2025). The diverse geographic, social, and economic attributes of the Philippines influence the dynamics and development of its important sectors.

To contextualize the demographic and geographic attributes, it is important to know the political and administrative structure in the country. The Philippines is a sovereign nation that has a unitary presidential republic form of government (NGP, 2024). The country has adopted a decentralized form of government with government leadership at the provincial, city, municipal, and barangay level which are called Local Government Units (LGU) designed to deliver services more effectively to constituents (Cidro, 2015). Figure 1 shows the country's 17 administrative regions and major cities. To expound, PSA (2024) reported five distinct administrative and political divisions in the country which are the following: (1) 17 administrative regions, (2) 81 provinces, (3) 141 cities, (4) 1,488 municipalities, (5) 42,046 barangays. It is important to take note of the role of this decentralized structure in shaping the agricultural sector of the country.



Figure 1. Administrative Map of the Philippines
Source: Esri (2022)

2.2. Philippines Agriculture Sector

The Philippines agriculture sector remains an important contributor to the national economy and a major source of income for millions of Filipinos. Figure 1 shows that the Agriculture, Forestry, and Fisheries (AFF) sector is one of the three major economic sectors contributing a modest 7.99 percent share to the country's Gross Domestic Product (GDP) relative to the industry and services sector. Despite its modest contribution, it employs more than eight million Filipinos making it an important source of livelihood for its citizens (PSA, 2020). However, the recent 1.49 percent decline in its GDP indicates the need for structural reform and addressing limited modernization to enhance productivity (Briones, 2021). Overall, despite the recent decline in gross output, AFF remains important for jobs generation and rural income requiring policy attention to drive the country's growth and development (World Bank, 2024).

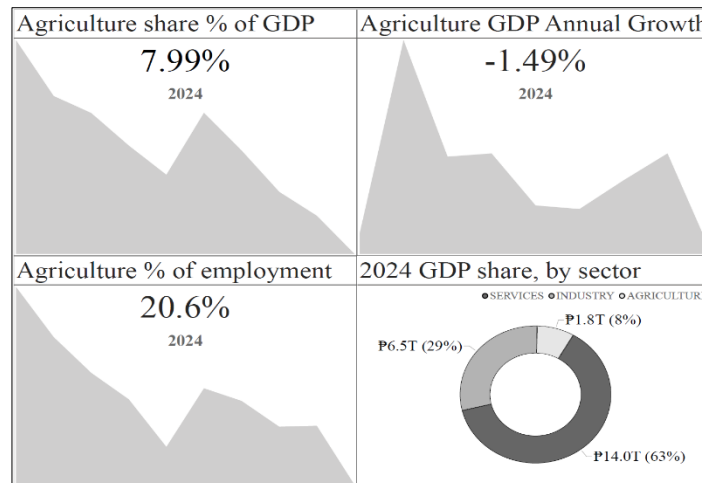


Figure 2. Agriculture in the Philippines by economic and labor share in 2024

Source: Philippine Statistics Authority (2024a)

The crops subsector contributes the largest share to agriculture and has been growing steadily the last two decades relative to other sectors. There are four major subsectors in the Philippines: crop, fisheries, livestock, and poultry (Philippine Statistics Authority, 2024a). Figure 2 shows that the crops subsector contributes the largest gross value among the four major subsectors and has been on strong upward trend the last two decades. The crops that contribute the largest share are cereals (rice and corn) and industrial crops (banana, coconut, and pineapple) for export (Philippine Statistics Authority, 2024a). Briones (2023b) reported that the output and productivity of these crops has been increasing owing to growing land allocation and capital investment. Overall, the expansion activities in major crops is a major driver of growth and resilience in Philippine agriculture (Philippine Statistics Authority, 2023).

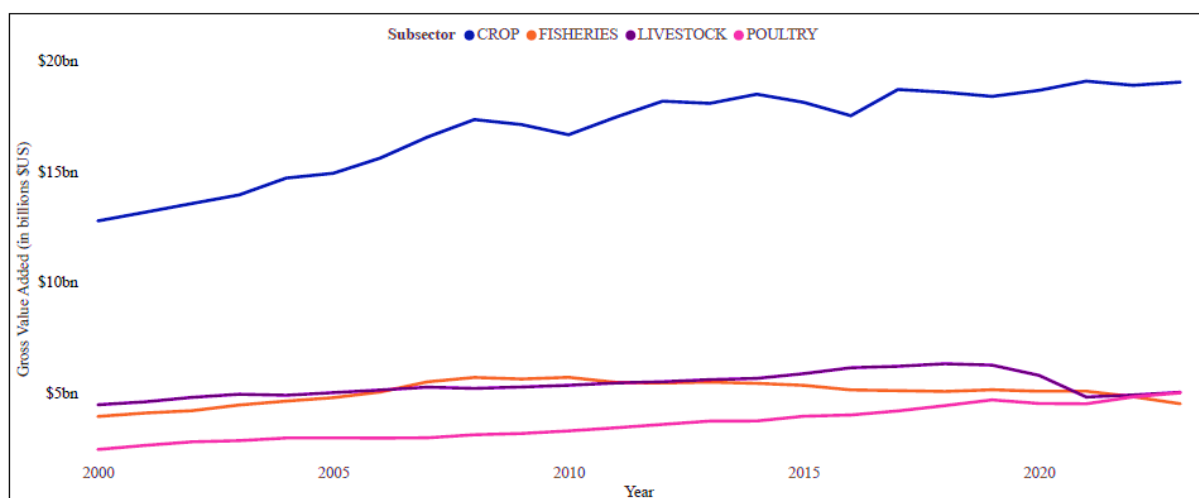


Figure 3. Gross Value Added of Philippine Agricultural Subsectors at 2018 constant prices
Source: Philippine Statistics Authority (2024d)

Building on the national crop subsector data, it is essential to examine the distribution of agricultural crop production across the various regions of the country. Agricultural crop production is present across all 17 regions in the Philippines. Table 1 shows that the Negros Island Region (NIR) produced the largest volume of crops in 2024. While NIR is in the Visayas, the island group responsible for the largest share of crop production, at 45 percent or 38 million metric tons, is Mindanao. The main drivers of Mindanao's production are Northern Mindanao, SOCCSKSARGEN, and the Davao region producing 68 percent of the island's total volume. Table 1 also shows that production of agricultural crops is driven by staple crops such as, rice and sugarcane, and export crops such as, coconut and banana. The diversity in regional crop production highlight land use patterns in large portions of the country, which can be further dissected by looking structure of the farming sector.

Table 1. 2024 Agricultural crop production in the Philippines, by region

Region	MT (in millions)	Top crop
Negros Island Region (NIR)	13.1	Sugarcane
Northern Mindanao	12.7	Sugarcane
SOCCSKSARGEN	6.7	Rice
Davao Region	6.6	Banana
Cagayan Valley	6.4	Rice
Bangsamoro Autonomous Region in Muslim Mindanao (BARMM)	6.3	Coconut
Central Luzon	5.1	Rice
Western Visayas	3.9	Rice
Zamboanga Peninsula	3.6	Coconut
Ilocos Region	3.5	Rice
Bicol Region	3.2	Rice
Eastern Visayas	3.0	Coconut
CALABARZON	2.9	Coconut
MIMAROPA Region	2.7	Rice
Caraga	2.0	Coconut
Cordillera Administrative Region (CAR)	1.0	Rice
Central Visayas	0.8	Rice
Total	83.7	

Source: Philippines Statistics Authority (2024c)

The Philippines dedicates a significant portion of its land to agricultural use, but the crops are planted mostly in smallholdings of less than 3 hectares. For land use, 126,830 sq. km. of land is used for agricultural purposes which is 42.5 percent of the total land area while the remaining are divided to forest, rural, and urban land uses (World Bank, 2021a, 2021b). Figure 4 shows that there were 5.6 million farms occupying 7.3 million hectares of land in the country in 2012. Broken down, the average farm size is at 1.3 hectares with 89 percent of these farms are

classified as smallholdings with a size of less than 3 hectares in land area. Briones (2022) describes the prevalence of smallholders as land fragmentation that makes it difficult to achieve economies of scale resulting in low agricultural productivity. Given the characteristics of land use and farm size, understanding how key agricultural policies affect smallholder farms and the future direction of the sector is crucial.

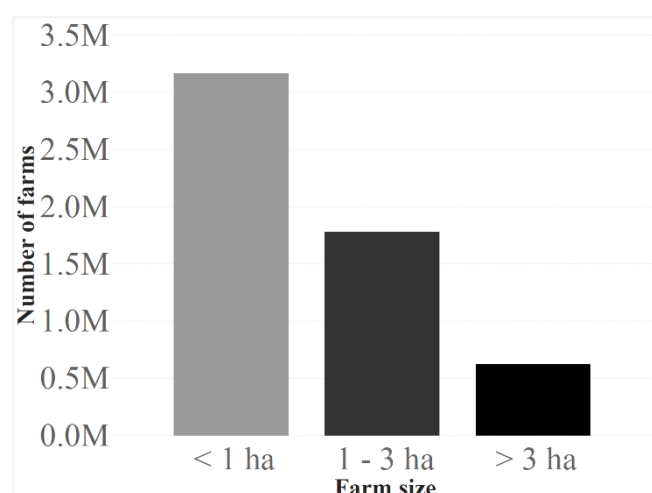


Figure 4. Number of farms per size class in the Philippines, 2012

Source: Philippine Statistics Authority (2012)

2.3 Structure of the Philippine agriculture sector

2.3.1 Land ownership

Understanding smallholder dominance in Philippine agriculture should begin by identifying land laws that attempted to address unequal land ownership. Land reform began in 1963 with the Agricultural Land Reform Code (Republic Act No. 3844) and Presidential Decree No. 27 (1972) transferring private land ownership from landlords to tenants/tillers creating family-sized farms ("Agricultural Land Reform Code," 1963; Guardian, 2003). However, Guardian (2003) reported that these laws failed to address the landlord-tenant arrangement because the landowners were allowed to exempt a significant portion of their land from redistribution and there was a lack of support services to the tenants who did acquire land assets. Consequently, these earlier land ownership laws fell short in stabilizing tenure for farmers.

The current Comprehensive Agrarian Reform Law (CARL), enacted in 1988 and extended in 2009, was mandated to redistribute eight million hectares of both public and private agricultural lands to farmer tenants and plantation workers, coupled with support services (Hill et al., 2022). To gain ownership, only Filipino citizens or 60 percent Filipino-owned corporations can own agricultural land in the country. At that time, existing landowners were only allowed to retain a

maximum of five hectares per individual and an additional three hectares per heir (Borjesson & Nilsson, 2003; Elvinia, 2011). However, Elvinia (2011) stated that despite the good intentions of the law, the terms of land transfer were heavily influenced by the landed elite of the country resulting in a persistent struggle for smallholders.

The recipients of the land reform program are farmers, plantation workers, and tenants collectively called Agrarian Reform Beneficiaries (ARB) (Department of Agrarian Reform (Philippines), 1998). ARBs are entitled to not more than three hectares of land and ownership is formalized through a Certificate of Land Ownership Award (CLOA) awarded by the Department of Agrarian Reform (DAR), the office mandated to implement land reform (Borjesson & Nilsson, 2003). This system was evaluated by Guardian (2003) wherein he reported a reduction in poverty incidence, higher capital investment, and improved welfare of ARBs. However, the restrictions on the size of the landholding awarded and the 10-year holding period for transfer or sale has put a ceiling on efficiency, expansion, and modernization of farm operations in the country (Briones, 2022; Hill et al., 2022). These inefficiencies became the basis for initiatives that promoted land aggregation and collective action, such as, cooperatives, associations, and clusters where support is directed to enterprises composed of smallholder farmers (J. A. Oakeshott, 2020). Despite the gains from the land reform program, innovations in producer organizations through collaborative approaches remain essential.

2.3.2 Collective Action Organizations in Philippine Agriculture

2.3.2.1 Agro-based Clusters in Philippine Agriculture

Recently, Agro-based Clusters (ABC) have emerged as a collective action strategy to consolidate small, fragmented farms and enhance their competitiveness in value chains. Through clustering, smallholders and agribusiness firms can pursue joint activities supporting product consolidation production, coordination, and accessing external support (Songco, 2023). In the Philippines, ABCs first found success in 2004 when the Davao Region organized key stakeholders in the banana export industry, led by large exporting corporations, and government support directed to the cluster (Regional Development Council XI, 2014).

Other forms of ABCs emerged via national programmes. Inocencio et al. (2022) reported government-initiated clustering of smallholder farmers/fisherfolk through programs such as the Philippine Rural Development Project (PRDP) of Department of Agriculture (DA) and Agribusiness Venture Agreements (AVA) for ARBs under the DAR. J. Oakeshott (2020)

described ABCs developed around a multinational corporation that used clustering and long-term contracts for easier supply consolidation and embedding services in their supply chain. Altogether, these examples highlighted the influence of state policy and corporate strategy in the development of ABCs as hybrid organizational models.

Following these successes, the DA formalized ABCs as a national strategy to structure smallholder participation under the Farm and Fisheries Clustering and Consolidation Program (F2C2) (Inocencio et al., 2022). Under F2C2, the ABCs are defined as community or inter-community groupings of agricultural producers organized by proximity, common inputs, production processes, and outputs to facilitate unified management of their shared activities (Department of Agriculture (Philippines), 2020). This aligned with Otsuka and Ali's (2020) definition of ABCs as groups of producers who integrate primary production with downstream tasks such as post-harvest, processing, logistics, and marketing. Within F2C2, ABC can form in contiguous and non-contiguous areas, as long as they're within proximity or managed by an LGU (Department of Agriculture (Philippines), 2022). In 2024, Ordoñez (2024) reported that 1,296 ABCs had been organized across commodities such as, rice, corn, high value crops, and livestock.

Knowing the evolution and strategy behind ABCs in the Philippines, these hybrid models can be grouped into three types:

1. Commodity-based clusters (production-focused): An ABC formed around a high-value crop for export. Regional Development Council XI (2014) cited the agricultural clusters on banana, mango, coconut, seaweed, and livestock and poultry that would fall under this type.
2. Agro-Industrial clusters (processing-focused): An ABC formed to facilitate the value adding of agri-food items, typically within designated economic zones (National Economic and Development Authority (Philippines), 2023). Prime examples are the registered economic zones hosting canning and feed milling facilities in CALABARZON and Northern Mindanao (Department of Trade and Industry (Philippines), 2013).

Institutional/Reform-based clusters (government-supported): These are clusters formed by government through programs targeting smallholder farmers. Briones, Galang, Espineli, et al. (2023) reported on the gains of Agrarian Reform Communities (ARCs)

that targeted land reform beneficiaries for clustering. Clusters under the F2C2 program would also fall under this type.

From this, ABCs represent a recently institutionalized collective action organization, formally designed to facilitate smallholder inclusion in value chains. In this study, ABCs are a suitable organizational model where smallholder cacao farmers can be under a structure and receive benefits.

2.3.2.2 Cooperatives in Philippine Agriculture

Key policies in agriculture reveal the importance of cooperatives in the country. Their role is enshrined in the Philippine Constitution, which recognized cooperatives as organizations where citizens can participate in the development and management of its natural resources, with support from the government (Nair et al., 2025). Through the years, a series of cooperative laws were passed, starting with the Rural Credit Cooperative Association Act (1915), followed by the Cooperative Code of the Philippines (R.A. 6938), and then revised to the Philippine Cooperative Code of 2008 (R.A. 9520) (Castillo & Castillo, 2017). These laws are strengthened by the establishment of the Cooperative Development Authority (CDA) through R.A. 6939 and R.A. 11364 (Republic Act No. 11364, 2019).

Together, these policies define cooperatives as member-owned organizations designed to pool resources, share risks, and deliver services that enhance member's welfare. In the Philippines, cooperatives engaged in agriculture are intended to assist achieving scale, access to farm inputs and financing, and modernizing the agricultural sector (Cooperative Development Authority (Philippines), 2023b).

The cooperative sector in the Philippines had grown steadily recently, supported by institutions, fiscal incentives, and development programs. Figure 5 shows 6.5 percent and 7.6 percent growth in the number of cooperatives and their membership in the last five years. Its growth can be attributed to the various programs of the CDA and other agencies as vehicles for rural development (Cooperative Development Authority (Philippines), 2023b). Aside from institutional promotion, benefits such as tax exemptions, organizational development, and preferential access to programs support formation (Nair et al., 2025).

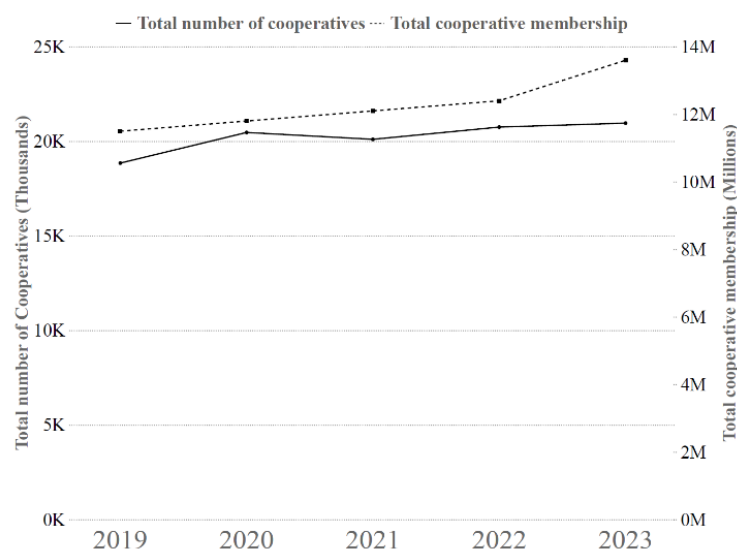


Figure 5. Trends in number of cooperatives and size of membership
Source: Cooperative Development Authority (Philippines) (2025)

The growing number of cooperatives is also supported by the diversity of cooperative types. The Cooperative Development Authority (Philippines) (2023a) identified 27 types of cooperatives with varying functions from financial services, agricultural production, and utilities. Figure 6 shows that more than one-third of cooperatives are classified as multipurpose cooperatives (MPC), which are cooperatives that combine multiple functions (International Cooperative Alliance (ICA), 2020). Agriculture-related cooperatives, including agriculture, agrarian, and producer's cooperatives, account for around a quarter of all cooperatives, reflecting the agrarian character of the sector. The agrarian reform cooperatives (ARC) composed mainly of ARBs offer support in securing land tenure, production, and marketing (Cooperative Development Authority (Philippines), n.d.). Commodity-specific cooperatives, such as dairy cooperatives and fisherfolk cooperatives, prioritize services for production and processing needs of their members (Cooperative Development Authority (Philippines), 2015).

Cooperatives have had a direct impact on economies of scale and well-being of their members. Agencies such as Philippine Council for Agriculture, Aquatic and Natural Resources Research and Development (DOST-PCAARRD) reported higher adoption of technology bundles among cooperative members in coffee and dairy buffalo than non-members (Castillo, 2019). Nair et al. (2025) found that cooperative members who participated in DARs Agrienterprise Development Approach had income gains by accessing better markets. These demonstrated how cooperatives served as a platform for technology transfer, market access, and better livelihoods.

In the Philippines, the national government often route smallholder support through cooperatives. Financial, technical, and organizational support for agri-focused cooperatives are often provided by government banks and the DA (Castillo & Castillo, 2017). Cooperatives also get preferential treatment to supply government agencies, local government allocations for farm inputs, machinery, and rice, trainings and extension services, and even managing public markets through government partnerships (Castillo & Castillo, 2017; Cooperative Development Authority (Philippines), n.d.; Republic Act No. 11364, 2019).

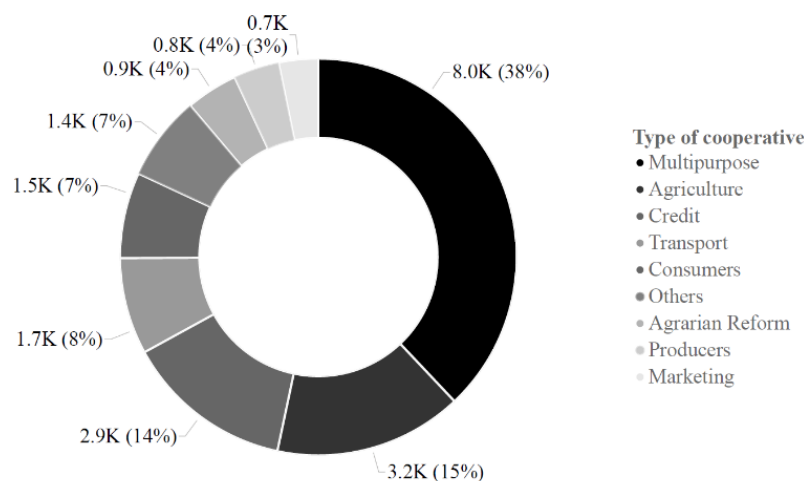


Figure 6. Distribution of types of cooperatives in 2023
Source: Cooperative Development Authority (Philippines) (2025)

For this study, cooperatives are one of the collective action organizations examined in the local cacao sector. Institutionalized through policy, cooperatives have a wide coverage and their critical role as conduits of government support makes them an appropriate model to analyse how organizational structures are linked to smallholder benefits.

2.4 Challenges Facing Philippine Agriculture

The challenges facing the Philippines agriculture are systemic and widespread (Briones, Galang, & Latigar, 2023). First, there structural constraints that causes the low productivity and growth of the sector (Briones, 2021; Javier, 2016). Briones (2021) points to the slow expansion of factors of production such as land, labour, capital and financing, and rural infrastructure. Small and fragmented farmlands exacerbated by policies of land redistribution make economies of scale and mechanization difficult (Alip, 2025; Asian Development Bank, 2023). The Asian Development Bank (2023) also pointed to farmers overreliance on subsidies as an impediment to capital investment levels that lead to more efficient and productive use of land. Low

productivity can be traced to conflicting policies that promote disaggregation of land resources and government dependency.

Low productivity in the agriculture sector can also be due to external shocks related to climate change. Galang and Briones (2024) reported that, in the Philippines, 60 percent of the property-related damage from disasters are from agriculture. The increasing frequency of extreme weather events such as drought, typhoons, and flooding have resulted in huge production losses and loss of livelihoods for many Filipino's (Alip, 2025). Measures aimed to protect farmers from natural disasters such as crop insurance has had limited adoption because the current policy has more safeguards for lender default than insurance claims (Asian Development Bank, 2023; Congress (Philippines), 2025). The challenge climate change brings underscores the need for stronger policies that reduce vulnerabilities to climate shock.

Aside from climate vulnerabilities, farmers are also exposed to several market vulnerabilities. According to the Asian Development Bank (2023), the fragmented structure of the agriculture sector has led to the dominance of middlemen where they often dictate prices on farmers lowering their profit margins. Also, vulnerabilities related to inadequate road networks and insufficient post-harvest facilities have caused high transport costs and losses due to inefficient logistics for farmers forcing them to rely on intermediaries (Congress (Philippines), 2025; Llanto, 2012). Aside from costs, farmers also suffer from a lack of access to market information effectively limiting their power to bargain with intermediaries (Alip, 2025; Geron et al., 2016). Government programs like *Bagsakan Centres*, intended to link farmers to consumers, are underutilized as they only provide consolidation services rather than marketing (Asian Development Bank, 2023). Llanto (2012) also pointed out that most smallholders lack the consolidated volume to bargain with buyers in higher value markets. In sum, challenges in market access result from limited infrastructure, pricing information, and low bargaining power in supply chains.

Structural weaknesses, climate and market vulnerabilities have all resulted in high poverty incidence in the agricultural sector. Javier (2016) attributed high rural poverty partly to the failure to diversify the agricultural sector heavily relying on low income per hectare crops such as rice, corn, and coconut. Farmers' low income is also attributable to the high cost of production driven by the prices of important inputs, such as fertilizers and pesticides, often accounting for more than 30 percent of production costs (Asian Development Bank, 2023).

Furthermore, the rice-focused budget and poor budget utilization of the DA result to ineffective resource allocation which exacerbate the problem of rural poverty (Congress (Philippines), 2025). In sum, the challenges mentioned are systemic and policy-related which underscore the persistently low growth of the agricultural sector in the Philippines.

2.5 Policy and Institutional Context

2.5.1 Government support

Government support for agriculture is based on the goals outlined in the Philippine Development Plan (PDP), with DA as the primary agency (House of Representatives (Philippines), 2025). DA has four banner programs, National Rice Program, National Corn Program, National Livestock Program, and the High Value Crops Development Program, defining the primary subsectors for government investment in agriculture (Congress (Philippines), 2025). Budget allocations cover production support, extension services, research and development, market development, mechanization, infrastructure, and regulatory functions (Congress (Philippines), 2025).

Several legislative measures allocate commodity-specific funds for programs, such as the Rice Competitiveness Enhancement Fund (RCEF), Sugarcane Industry Development Act (SIDA), and Comprehensive National Fisheries Industry Development Fund (CNFIDP) (Bureau of Fisheries and Aquatic Resources (Philippines), 2022; Congress (Philippines), 2025; DA, 2022; House of Representatives (Philippines), 2025). Similarly, agricultural modernization is supported by DAs National Agricultural and Fisheries Mechanization Program (NAFMP) and foreign-funded projects like the Philippine Rural Development Project (PRDP), which prioritize producer organizations to receive grants or infrastructure support (House of Representatives (Philippines), 2025).

Inclusivity is also promoted through programmes, such as the Special Area for Agricultural Development (SAAD) (Annor et al., 2025) and the Mindanao Inclusive Agricultural Development Program (Congress (Philippines), 2025) for farmers in geographically isolated and disadvantaged areas (GIDA) and indigenous peoples (IP). Meanwhile, financial and credit support is coordinated by the Agricultural Credit Policy Council (ACPC) (Geron & Casuga, 2012), which manages credit facilities targeting farmer and fisherfolk in disaster-hit areas, youth farmers, rice and corn farmers, and agrarian reform beneficiaries (Aspilan et al., 2020).

Other agencies including DAR, the National Irrigation Administration (NIA), and the Philippine Crop Insurance Corporation (PCIC), complement these initiatives (Congress (Philippines), 2025; The World Bank, 2023).

In summary, these policies and agencies determine agricultural sector outcomes. Their support is often channelled through organized producer groups, particularly cooperatives and, more recently, clusters, which is directly relevant to the focus on ABCs and cooperatives as collective action organizations that deliver benefits to smallholders.

2.5.2 Decentralized structure

The enactment of the Local Government Code of 1991 devolved significant agriculture-related functions to LGUs, allowing them to fund their own agricultural programs that deliver extension services and farm inputs (Cidro, 2015; Diokno, 2008). Today, LGUs hire their own agricultural technicians, develop agricultural development plans, and implement local agricultural projects funded by their own budget allotment. They also partner with national agencies like the DA to implement nationally-funded programs locally (Bacongus, 2022).

Convergence initiatives assist in coordinating support between national agencies. The National Convergence Initiative for Sustainable Rural Development (NCI-SRD) is a platform to jointly manage and oversee agricultural services delivery across multiple institutions (Bacongus, 2022; Diokno, 2008). Locally, LGUs coordinate with agencies such as the DA, DOST-PCAARRD, DAR to implement their banner programs, extension models, harmonize research and extension activities, and deliver support for both local extension workers and farmers (Bacongus, 2022, 2023; Briones, 2023a).

In this study, decentralization and convergence initiatives are relevant because they influence how ABC and cooperatives receive external support. LGUs are often tasked to organize clusters (Department of Agriculture (Philippines), 2022), facilitate cooperative growth (Cooperative Development Authority (Philippines), 2015), and serve as link to national programs (Songco, 2023). This shapes the local environment for collective action organizations and will influence their success and failure.

2.5.3 Private and non-government organization (NGO) partnerships

Private partnerships are common strategies facilitated by government to engage the private sector in initiatives that aim to integrate smallholders into value chains. Big ticket projects, such

as the Agricultural Food Hub Project and PRDP-funded cold storage facilities, provide post-harvest and logistics infrastructure benefitting farmers, cooperatives, and traders through Public-Private Partnerships (PPP) (House of Representatives (Philippines), 2025). Innovations such as the warehouse receipt (*quedan*) systems allow farmers to store rice and corn and use the receipts as collateral, facilitating access to finance from private buyers and/or banks (Aspilan et al., 2020). Partnerships with associations, such as the Agricultural Machinery Manufacturers and Distributors Association (AMMDA), support maintenance and repairs of government-funded machinery (DA, 2022). There are also cases where private retailers (e.g., mall operators) source agricultural products from farmers through a supply contract facilitated by NGAs (Aspilan et al., 2020).

As private entities, NGOs play a pivotal role by serving as Partner Lending Conduits (PLCs) under the ACPC programs (Aspilan et al., 2020), initiating producer organizations in remote areas (Annor et al., 2025), provide capacity building, coordinate strategic partnerships (Briones, 2023b), and implement government-funded livelihood programs (Bureau of Fisheries and Aquatic Resources (Philippines), 2022). Many NGOs advocate for participatory governance and smallholder interests facilitating partnership with government agents (Baviera et al., 2020).

From this perspective, private sector and NGO partnerships matter because often engage with collective action organizations, facilitating financing, trainings, and market access. Despite policies focusing on sectoral growth, prioritizing collective organizations, including ABCs and cooperatives, are embedded in the laws as implementation partners, reinforcing the need to study these organizations.

2.6 Emerging role of Cacao in Philippine agriculture

2.6.1 Production

The cacao sector is an emerging high value crop in the Philippines. Despite a low share of production across all crops, the cacao sector has experienced the strongest growth in volume produced, area planted, and yield over the last decade (Philippine Statistics Authority, 2024a, 2024e). Figure 9 shows that area planted and production has been increasing over the last decade largely driven by the massive planting programs of the government (Garcia et al., 2022). However, despite the investment, average yield across the country has not reached the recommended production rate of 2.0 kg per tree (Muyco, 2016). Garcia et al. (2022) reported that low productivity is still one of the main challenges of the cacao industry driven by climate factors, high incidence of pest and diseases, low quality planting materials, and small-scale

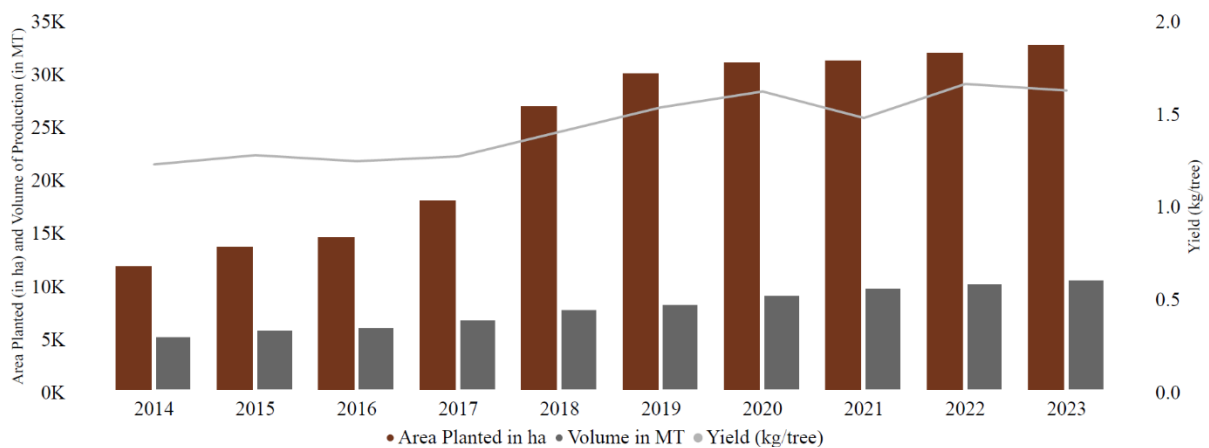


Figure 7. National cacao production, area planted, and yield from 2010 to 2023.

Source: Philippine Statistics Authority (2024c)

production.

2.6.2 Export

Figure 10 shows that cacao exports declined from 2014 to 2017 but had grown since 2018. The main export products are raw cacao beans and chocolates. Increasing international demand and the dwindling supply of the traditional supply bases in Africa are also driving this positive growth (Department of Agriculture and Department of Trade and Industry (Philippines), 2018). Over time, composition of cacao export products has shifted: cacao beans has overtaken chocolates, reflecting the government's strategy of positioning the industry as a supplier of fine flavored beans (DTI-RAPID, 2019).

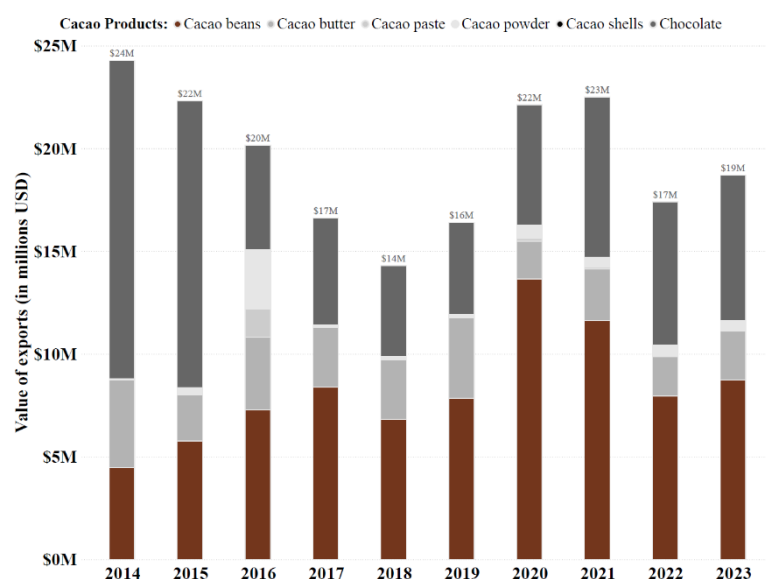


Figure 8, Total value of cacao exports, by product
Source: PSA (2022)

Table 2 shows that five destinations account for two-thirds of the cacao exports. Four are in Asia, where large toll grinders import cacao beans for processing (Banquerigo, 2017). The Netherlands is also a major player, especially for cacao butter, used mainly in pharmaceutical and cosmetic products (Garcia et al., 2022). The concentration of exports in certain countries highlights the global regions linked to Philippine cacao.

Table 2. Top five export destinations for Philippine cacao products

Country	Share in 2023 (%)	Ave. share from 2014 to 2023 (%)	Main product
Malaysia	42.49	38.19	cacao beans
China	17.54	6.13	Chocolate
Netherlands	12.05	4.09	cacao butter
Vietnam	3.76	4.14	chocolate, cacao beans
Indonesia	3.06	7.02	chocolate, cacao beans

Source: Philippine Statistics Authority (2024c)

2.6.3 Imports

Despite the strong growth in the cacao sector, the country remains a net importer because the largest chocolate manufacturers in the country don't purchase local beans for their processing (Garcia et al., 2022). Figure 11 shows that imports have consistently exceeded exports in the last decade. This difference shows strong domestic demand for raw materials in cacao manufacturing. Experts cited low yields and strong local and international demand push prices

up forcing local processors to import cacao products (Arrion, 2022, November 24-25; Gueco et al., 2022; Muyco, 2016).

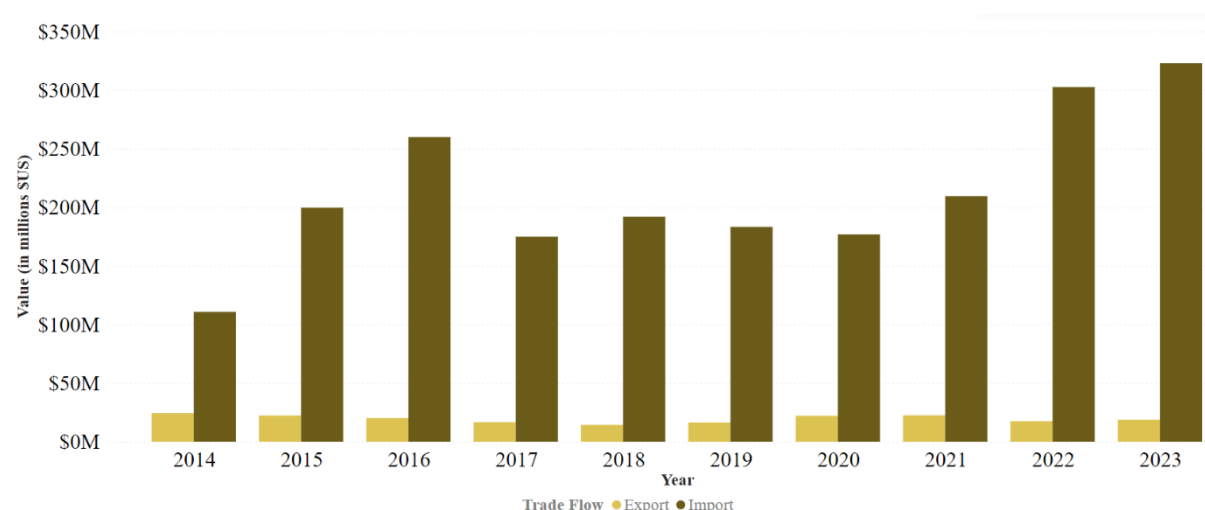


Figure 9. Imports versus exports in the cacao sector of the Philippines
Source: (Garcia et al., 2022; Muyco, 2016); Philippine Statistics Authority (2024b)

Table 3 lists the main sources of imported cacao products. Malaysia, Indonesia, and Singapore, are major sources for chocolate and cacao powder, while the United States and Switzerland are the source for chocolates. Large toll grinders in neighboring countries process cacao beans and become the source for semi-processed products back to the Philippines, which is imported by local manufacturers (Garcia et al., 2022). The long-standing supply gap in the cacao industry has fueled expanded cultivation and the industry's push to improve domestic processing capacity to enhance competitiveness (Department of Agriculture and Department of Trade and Industry (Philippines), 2018).

Table 3. Top sources of imported cacao products from 2014 to 2023, by country

Country	Value of imports in 2023 (in millions \$US)	Ave. share from 2014 to 2023 (%)	Main products imported
Malaysia	80.14	23	chocolate, cacao powder
Indonesia	66.33	18	cacao powder
USA	22.14	10	Chocolate
Singapore	31.24	9	cacao powder, chocolate
Switzerland	23.41	8	Chocolate
Australia	15.98	6	Chocolate
China	15.25	6	Chocolate
India	12.97	3	Chocolate
Germany	10.26	2	Chocolate

Source: Philippine Statistics Authority (2024c)

2.7 Overview of the Davao Region

The Davao region is the focus region of this study because it has an important role in Philippine agriculture, especially in the cacao subsector. Figure 12 shows the Davao region, one of the 18 administrative regions of the Philippines, located in the southeastern part of the country. It is composed of five provinces: Davao Del Norte, Davao del Sur, Davao de Oro, Davao Oriental, and Davao Occidental, and one highly urbanized city, Davao City (Regional Development Council XI (Philippines), 2025). It has a land area of 20,357.48 km² which encloses the Davao gulf, and bordered by the Philippine Sea and Celebes Sea (PhilAtlas, 2025).

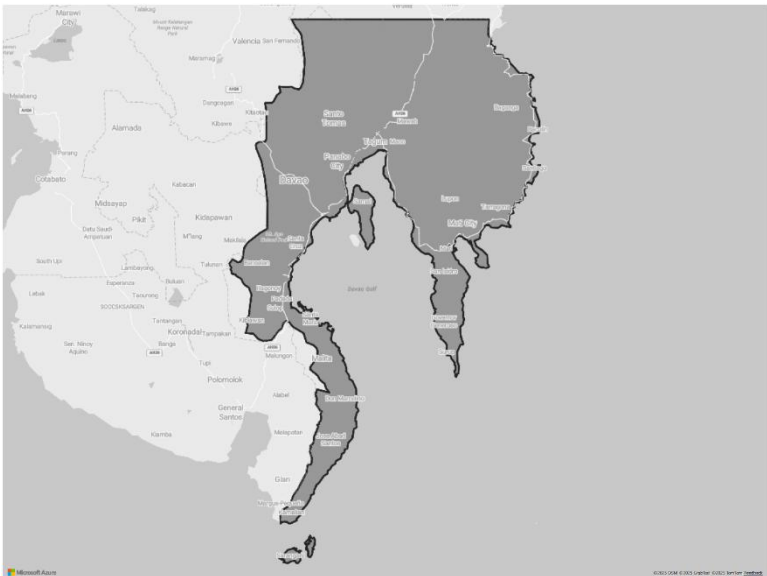


Figure 10. Map of the Davao Region
Source: National Mapping and Resource Information Authority (Philippines) (2025)

In 2024, the region recorded a population of 5.39 million people making it the 7th most populous region in the country (Philippine Statistics Authority, 2025a). The long coastlines, relatively developed infrastructure, and agro-ecological systems make it the centre for export-oriented agricultural production in southern Philippines (Regional Development Council - Region XI (Philippines), 2020)

Table 4 shows the total GDP of the region at 1.08 trillion pesos in 2024, ranking fifth in the country. The services industry contributed the largest share and fastest growth, followed by

Industry. Despite the AFF sector contributing only 14 percent, the region's output in the AFF sector is the third largest in the country (Philippine Statistics Authority, 2025b), justifying its importance as an agriculture production hub.

Table 4. Gross Regional Domestic Product of the Davao Region, by sector

Sector	2022	2023	2024	% share	Average growth rate
Services	₱571	₱620	₱662	61%	8.1%
Industry	₱237	₱251	₱274	25%	7.3%
Agriculture, forestry, and fishing	₱146	₱147	₱147	14%	0.4%
Total	₱954	₱1,018	₱1,082	100%	6.7%

Source: Philippine Statistics Authority (2025a)

Table 5 shows that Cavendish banana remains the dominant crop in the Davao region, accounting for around half of the total value (Regional Development Council - Region XI (Philippines), 2020). Next to banana, palay and coconut remain important crops. Notably, Table 5 also revealed that cacao is the fastest growing crop in the AFF subsector. This shows that the high value cacao crop has an increasing role the Davao region's agricultural development.

Table 5. Gross Value of Major Agricultural Crops in the Davao Region

Major crops	2022	2023	2024	Share	Average 10-year growth
Banana, Cavendish	47.6	47.4	46.2	50.8%	-2.59%
Palay	10.4	10.7	10.8	11.9%	6.03%
Coconut	10.9	10.8	10.7	11.7%	-11.81%
Banana, Others*	8.7	8.6	8.4	9.2%	-0.01%
Other Crops	5.7	5.5	5.5	6.1%	1.66%
Corn	3.8	4.1	4.1	4.5%	16.15%
Durian	2.4	2.5	2.6	2.9%	-12.23%
Mango	1.6	1.6	1.6	1.7%	-10.86%
Cacao	0.7	0.7	0.6	0.7%	37.79%
Abaca	0.5	0.5	0.5	0.6%	6.95%
Total	92.4	92.3	91.0	100.0%	-2.05%

Source: Philippine Statistics Authority (2025b)

2.7.1 Importance of cacao in the Davao region

The growing significance of the cacao crop in the Davao region is driven by government and private investment, highly suitable areas, and a strong demand (Bakker, 2022, November 24-25; Briones, Navarro, et al., 2023; Sales et al., 2024). Figure 13 shows that cacao production is concentrated in the Davao region, a trend that has earned it the title “Cacao Capital of the Philippines” (Garcia et al., 2022). Another driver of production is the growing international demand for chocolate and other cacao-based products (DTI, 2017). Despite the growing production and high demand, Garcia et al. (2022) reported 90 percent of cacao production is done by smallholders. This combination of strong external demand and predominantly small-scale production highlights the need for organizational models such as ABCs and cooperatives to support smallholders in getting more benefits from capturing more value from cacao value chains.

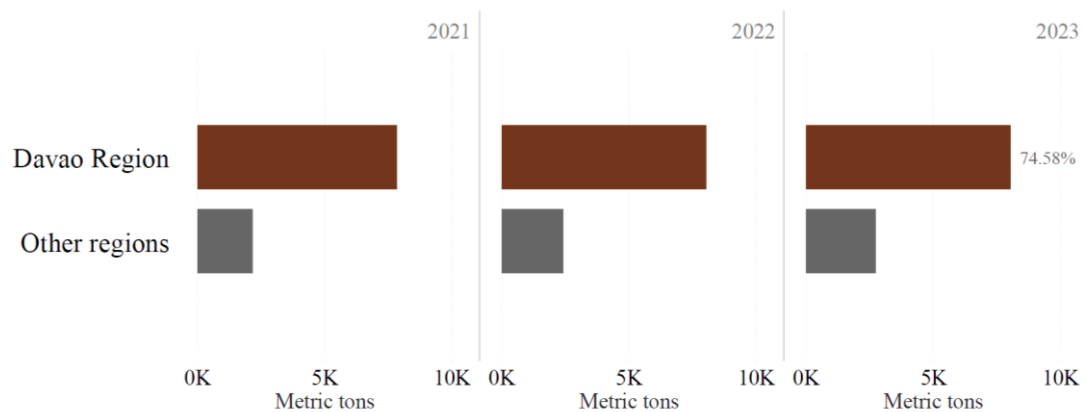


Figure 11. Volume and share of cacao production of the Davao region

Source: Philippine Statistics Authority (2024c)

Chapter 3: Literature Review

This chapter critically analyzed theory and literature that formed the basis for this study. The chapter analyzed agro-based clusters and cooperatives, defining these organizational innovations, outlined important theories, compared their structures, assessed mechanisms to deliver benefits to members, and reviewed available evidence of both successes and failures. Then, the discussions are synthesized into a theoretical framework forming the basis for our comparison.

3.1 Key Concepts

3.1.1 Collective Action Theory

Olson (1971) first explained the theory of collective action as the *voluntary action of individuals to form organizations that serves the common interests of its members*. Ostrom (2007) supported this idea by stating that organizational models are driven by the long-term benefits of collaboration over operating separately. Despite individual differences, shared interests highlight the interdependence among individuals who enter into organizations where norms are shaped and rules are agreed upon and followed (Ostrom, 2010). Thus, for collective action to happen, shared norms and collaboration are essential in achieving common goals.

Conditions for collaboration and cooperation are explained by several authors in their early works. In Olson's seminal work, he explains that persons are inherently self-interested, and for effective group cooperation, the group must remain a manageable size. For larger groups, mechanisms such as incentives become necessary to ensure cooperation (Olson, 1971). Ajzen (1991) added that cooperation requires individuals to have a positive attitude towards a behavior and perceive social pressure to perform it. Furthermore, Rabbie (1991) stated that individuals must feel they have control over the behavior, including the ability, resources, and opportunities to show it. These theories highlight conditions from the point of view of the individual such as, attitudes, social pressures, and resource access.

Other authors who have observed groups identified other conditions for collective action. Ostrom (2007) provided counterexamples to Olson (1971) where she observed group behavior through effective institutions and found that regular face-to-face interactions and good communication resulted in cooperation. These concepts are linked to bonding and bridging in social networks (Ramirez et al., 2018). Bonding refers to internal activities that create cohesive social relationships within a network (Coleman, 2000; Schmitz, 1995), while bridging involves

seeking connections outside the group to introduce new knowledge (Burt, 1992). These concepts established that for organizations to achieve collective action, they must be able to build social capital and create external linkages (Ramirez et al., 2018). Altogether, studies on this theory have shown that collective action depends on individual motivations, strong social ties, and good institutions.

3.1.1.1 Rationale for collective action

In many cases, the impetus for collective action initiatives is to overcome market barriers within value chains. Several authors have shown that smallholders through collective action can build economies of scale that reduce their transaction costs and information asymmetries (Bernard et al., 2010; Rao & Qaim, 2011). Achieving scale also builds the countervailing market power for a group of smallholders, especially in markets where power is concentrated in a few firms (Datta, 2004; Reardon et al., 2009). This power uplifts their bargaining position in the value chain helping them overcome high costs (Kilelu et al., 2016; Poulton et al., 2010). Thus, collective action helps smallholders avoid market failures and empowers them to assert greater influence in a competitive environment, fostering more equitable and efficient market participation.

Collective action also enhances the ability of an individual through the group. Risk sharing is a characteristic of collectives because they exhibit easier sharing of innovation to fight production challenges (e.g., pest and diseases), manage natural resources as a community, and providing a support system during difficult situation (Oakeshott, 2016; World Bank, 2014). Studies on the collective action in peasant groups have shown that communication with external actors have improved and allowed them to coordinate with markets through contract farming (Assouma, 2025; Issahou & Soudjinou, 2024). Thus, collective action helps smallholders more easily adapt to risk and access broader economic systems.

Furthermore, the promise of individual benefits is a major reason why smallholders participate in collective action. Increasing farm profits is a major driver of collective action achieved through lower costs, production efficiency, and access to high value markets (Habito-Cadiz, 1994; Rola-Rubzen et al., 2012). Many studies have also pointed to improved access resources as a benefit such as, credit, technology, and extension services (Abraham et al., 2022; Markelova & Mwangi, 2010). Group activities also empower smallholders because they can gain experience and learn new skills to make them more self-sufficient (Oakeshott, 2016). J. Oakeshott (2020) also added that non-tangible social benefits are also found in collective action

because it provides individuals with a sense of belongingness, recognition, and validation. Ultimately, collective action benefits individuals economically and socially, fostering self-sufficiency and a sense of community.

3.1.1.2 Challenges in collective action

Member commitment is a prevalent issue in organizations trying to achieve collective action. This stems from individuals acting on their own interests which hinders collective processes (Maurer & Silva, 2014). Self-interest is also what drives the free rider problem where members take benefits from the collective without contributing their fair share (Felzensztein et al., 2009; Olson, 1971). Lopez-Bayon et al. (2018) added that the free rider problem can also emerge because membership already entitles an individual to resource pooling, sharing the risks and the benefits. The lack of commitment also manifests itself in side-selling, not delivering committed volume and/or quality of product, and overall neglect of their responsibility as a member (Bijman et al., 2013; Liu et al., 2019). According to Cechin et al. (2013), incentives and hierarchical control improved the member's commitment to market collectively. Patias et al. (2016) reported that regular meetings help overcome individualism by building trust because actors continue to be involved making it easier to collaborate. Therefore, organizations need to take actions that foster involvement and build trust to ensure a group commits to working together.

Increasing conflict within collective organizations can keep members from working together. Several authors have cited member heterogeneity as a source of conflict which may stem from the growing differences between individual members, diverging interests, and misaligned objectives (Apparao et al., 2020; Hansmann, 1996; Jia et al., 2016). Iliopoulos and Valentinov (2018) also highlighted the bargaining that happens between factions within organizations to influence outcomes that might result in conflict. This is also related to the agency problem that stem from conflicts of interest within the principal-agent relationship where individual agenda can diverge from group interest (Chaddad & Iliopoulos, 2012; Cook, 2018; Cook & Grashuis, 2019). Therefore, the challenge of intraorganizational conflict also needs to be addressed before collaboration can happen and collective goals can be achieved.

Other challenges in collective action resulted from external pressures. Outside pressure happens with the presence of a dominant actor in the group that coerces smallholders to agree to

outcomes that don't benefit them (Ramirez et al., 2018). Gillinson (2004) reported that many development projects have had limited success because they practice coercion in the formation and management of the group. Fehr and Gächter (2002) also found that incentive contracts were not as successful voluntary collective action. According to Grootaert (2001), the effectiveness in voluntary collective action lies leveraging local knowledge, promoting sense of ownership, and trust. In the end, collective action works best as a voluntary action built on consultations, trust, and ownership—not coercion.

After commitment, competitiveness had become a big challenge faced by many collective organizations. Coordination is a challenge for many farmer groups, particularly logistics, farm inputs, and financial services (Gálvez-Nogales, 2010). Often, geographical dispersion is a major reason for difficulties in coordinating producers resulting in losses and delays in the adoption of innovations (Otsuka & Ali, 2020). In some cases, the active role of government in providing research and extension is key to driving innovations that solve coordination challenges (Gálvez-Nogales, 2010; Otsuka & Ali, 2020). After commitment come competitiveness, a challenge faced by many collective organizations. Coordination is a challenge for many farmer groups, particularly logistics, farm inputs, and financial services (Gálvez-Nogales, 2010). Often, geographical dispersion is a major reason for difficulties in coordinating producers resulting in losses and delays in the adoption of innovations (Otsuka & Ali, 2020). In some cases, the active role of government in providing research and extension is key to driving innovations that solve coordination challenges (Gálvez-Nogales, 2010; Otsuka & Ali, 2020). This makes strategic support, and innovation as essential to enhancing the competitiveness of organizations to maintain collective action.

For donor organizations, there is the challenge of operating within the local context and establishing an organizational structure for collective action. Developing a strong understanding of the local context such as, culture, farming systems, infrastructure, and social norms help in building relationships in government-funded collective action initiatives (Baxter, 2014). Uy et al. (2014) also explained that organizations must have clear objectives and accountability mechanisms set in place to maintain the group. Through the integration of local knowledge in an organizational framework, initiatives will be able to build trust, encourage participation, and work towards sustained outcomes.

3.1.2 Defining Agro-based Clusters

Various authors have given a formal definition of Agro-based Clusters (ABCs) in the literature. First, the concept of an ABC stemmed from the concept of Industry Clusters defined by Porter (1998) as a geographic concentration of firms and institutions that have interconnected operations. Gálvez-Nogales (2010) proposed a formal definition of ABCs as “the concentration of producers, agribusiness, and institutions engaged in the same agricultural or agro-industrial subsector, which interconnect and build value networks when addressing common challenges and pursuing common opportunities”. The spatial aspect of ABCs was expanded to “geographically proximate and interlinked group” to include additional producer concentrations and markets at a proximal distance that bring value to their network (Otsuka & Ali, 2020). Furthermore, the group created in these spatial concentrations was described by Li et al. (2022) as an “industrialized network” composed of enterprises and institutions who perform input, production, processing, and support functions working closely with one another. Collectively, these perspectives can be synthesized into a working definition of ABC as networks of interconnected enterprises and institutions, anchored within a territory and working collaboratively to generate value for the group and its members.

Expounding on the working definition, territory in the context of ABCs refers to the concept of proximity (Geldes et al., 2015). This expands the idea of geography/location to include other dimensions like knowledge, social, institutional, and organizational (Geldes et al., 2017). The closeness within a territory facilitates social ties between enterprises through repeated transactions (Geldes et al., 2015), building social capital and exchanging of tacit knowledge (Ayakwah et al., 2017). In sum, territory in ABCs is best understood as both spatial and relational proximities that facilitates cohesion and underpin the cluster’s value to its members.

Furthermore, Gálvez-Nogales (2010) described three pillars of interactions in the network of enterprises in ABCs: horizontal, vertical, and support. Horizontal interaction was described as the reciprocal relationships between actors at the same value chain level, to reduce internal competition, improve bargaining position, forming groups, and exchange knowledge for technology upgrading (Dureti & Tabe-Ojong, 2022; Joffre et al., 2019). Meanwhile, vertical interaction refers to the value chain connections that define upstream and downstream roles in product flow and value addition, and the incentive structure (Gálvez-Nogales, 2010; Ha et al., 2013). The support linkage defines the connection with external actors, support organizations

who can strengthen the capacities of members and coordination within the network to sustain member cohesion and competitive advantage (De Marchi et al., 2018; J. Oakeshott, 2020). These dimensions are foundational features in ABCs that enable internal efficiency and cohesion, to sustain performance.

3.1.3 Defining Cooperatives

Cooperatives, as an organizational innovation, has had international significance in rural development, especially for small-scale farmers. The ICA-AP (2020) officially defined cooperative as “an autonomous associations of person united voluntarily to meet their common economic and social goals and aspirations through a jointly-owned and democratically-controlled enterprise”. It’s fundamental purpose is to generate benefits for its members through cooperation (An et al., 2015). In sum, a cooperative can be understood as a democratically governed organization that promotes collective action to achieve shared value.

In the literature, cooperatives operate based on seven principles that guide it as an organization to gain advantages. According to Cook and Chaddad (2004), these principles are: (1) voluntary and open membership, (2) democratic control, (3) member economic participation, (4) cooperation, (5) autonomy, (6) education, and (7) community. These principles are key to the cooperative being an effective organizational innovation in helping small family farms achieve scale in their operations (Valentinov, 2007). Additionally, the cooperative helps members reduce their transaction costs (Theesfeld et al., 2021) and the organization develops a countervailing power against market forces (Meador et al., 2016). However, Draheim (1952) cautioned against the dual nature of the cooperative as it tries to pursue the objectives of the organization and its individual members. Later on, Bijman et al. (2012) described ways where this dual nature played a role in reinforcing cooperative values or caused of internal conflict. Collectively, these insights describe cooperatives as principle-driven enterprises that must reconcile individual and group objectives to achieve collective benefits.

Furthermore, the organizational features of the cooperative has changed over time to be more effective. Dunn (1998) earlier described the traditional cooperative model as user-owned, user-controlled, and user-benefiting which means governance of the organization is solely the responsibility of the user. These principles refer to the ownership of cooperative assets, decision-making authority, and recipients of profits and residual claims (Chaddad & Cook, 2004;

Liang et al., 2022). In his review, Grashuis and Su (2019) reported inefficiencies in the traditional principles related to agency and influence problem, free riding, horizon and portfolio problems that triggered organizational innovations. First, the increasingly more complex markets in Europe and North America revealed inefficiencies pushing cooperatives to delegate more control and transfer accountability to the professional, skilled managers they hired, focusing solely on the cooperative's enterprises (Bijman et al., 2014). There are also hybrid models that introduced innovations in capital formation, external investments, and risk sharing to address financial constraints and strike a balance between patronage and investment (Chaddad & Cook, 2004; Grashuis & Su, 2019). Lastly, there's the federation model where cooperatives formed a coalition, effectively creating a second-level management that oversees all member co-ops and has been proven to protect the interests of less influential members (Wedig, 2016). These developments showcased the transformation of the cooperative from a user-driven enterprise to having more diverse organizational features that helped address the pressures of modern times.

3.1.4 Transaction Cost Economics

Transaction Cost Economics (TCE) has been used to gain an understanding of the firm by analyzing motivations behind its behavior and the effect of external forces (Hobbs & Young, 2000). In his analysis of supply chain management, Hobbs (1996) defined transaction costs as the cost of carrying out vertical and horizontal exchanges through negotiations within vertically integrated firms or between firms in the open market. Transaction cost analysis had been extended to analyze value chains by determining the effectiveness of organizational mechanisms to reduce risks for firms through negotiated contracts, monitoring systems, and the investments (e.g., assets) they make maintaining their relationship (Trienekens, 2011).

TCE provides the rationale for the existence of different organizational forms. Ménard (2018) group cooperatives and agro-based clusters as hybrid organizational forms defined by agreements where parties share some decision rights and assets while retaining exclusive control over their most strategic assets. Williamson (1985) described the alignment principle in TCE which influences the choice, not only to organize, but also choosing the right type of organization that has the attributes to reduce the costs associated with transactions in a competitive environment. Thus, studying organizational forms should look at how it minimizes the transactions associated with *frequency of transactions*, *uncertainty*, and *information asymmetry* which are key elements in TCE (Hobbs, 1996). Accordingly, TCE reframes

cooperativeness and ABCs as hybrid organizations designed to minimize transaction costs for smallholders operating in complex market environments.

As organizations, ABCs and cooperativeness, increase the frequency of transactions through aggregation and operational efficiency. Effective organizations reduce the cost of doing business (Uy et al., 2014) when they help farmers share costs through bulk input purchases, group training, disseminate information, collective handling and transport (Wardhana, 2018), pooled labor and machinery (Valentinov, 2007) thereby strengthening their reliance on the group. Similarly, farmers who require more frequent transactions (e.g. eggs) would rely on their organization for market coordination to enable these routine transactions (Jia et al., 2016; Ménard, 2018). For buyers, they prefer organizations who can reliably consolidate volume because it avoids transacting with many individuals (J. Oakeshott, 2020) and even facilitate repeat transactions through group contracts (Montiflor et al., 2009). Support organizations also prefer to interact with organized groups to deliver market information and business services because through group learning technical expertise can be dispersed fast via the collective (Uy et al., 2014). Aggregation and operational efficiency create reliable organizations that build strong in their networks which enables more future transactions (Carey et al., 2011). Overall, economies of scale and efficiency are foundations of strong cooperativeness and ABCs that can ensure repeat transactions.

Furthermore, cooperatives and ABCs had been identified as effective solutions to transaction uncertainties. Through patronage refunds, co-ops effectively created an insurance to production failures mitigating the risks of marketing perishable products (Valentinov, 2007). Fischer and Qaim (2012) also highlighted that frequent knowledge exchange between member farmers reduce the uncertainty caused by information asymmetry and improve risk perception (Joffre et al., 2018). Additionally, members are protected in cooperatives and ABCs during price and market volatility through guaranteed markets and/or pricing schemes (An et al., 2015; Mulyana et al., 2024). Amoako and Lyon (2014) also described how organizations within a cluster in Ghana protected one another from disputes stemming from a deficiency in their business regulations. Availability of crop insurance and weather information to members offered by the organization or their partners were also cited as mechanisms to address uncertainties in production (Baruah et al., 2021). The structure of cooperatives and ABCs facilitate the creation or adoption of institutional mechanisms such as pooled resources, risk mitigation, and collective intelligence to protect against the inherent uncertainties in transactions.

Furthermore, transaction costs related to asset specificity refer to assets investments made by cooperatives and ABCs for specific uses and has limited alternatives (Williamson, 1985). Important assets acquisitions like farm machinery are a major challenge for nations like India with fragmented, small-scale farms, making machinery investments via organizations an important solution to more country-wide mechanization (Mehta et al., 2019; Singh et al., 2014). Ménard (2018) describes the assets with high strategic value can determine the degree of control firms push for in their contracts with other firms to manage transactions costs. In cooperatives, farmer members exercise control over specific assets such as land, processing equipment to retain capabilities via the group and protect against the opportunistic behaviour of much larger entities (Staatz, 1987; Valentinov, 2007). Chaddad and Cook (2004) also described how New Generation Cooperatives (NGC) allowed capital generation for assets through proportional investment or external investors tied to incentives and control over those assets. In sum, the literature suggests that asset specificity determines organizational innovations as they try to balance investment, control, and protection against opportunistic behaviour.

3.2 Structure of collective action organizations

3.2.1 Agro-based Clusters

3.2.1.1 Ownership

Ownership is an important element that defines the organizational structure of an ABC. In ABCs, various ownership forms can exist. Formal, legally owned enterprises are often part of clusters where they are established and regulated by their own government through enacted laws (Abraham et al., 2022). Examples of these are the investor-owned firms (IOF) and Farmer Producer Companies (FPC), both are private companies owned by shareholders (Abraham et al., 2022), with the latter diverging from the standard corporation by limiting ownership to actual farmers (Trebbin & Hassler, 2012). There are also Farmer Group (FG) in Indonesia and *Ejidors* in Mexico which are also registered farmer-owned organizations, smaller in size but have the same goal of aggregating farmers to enhance economic gains (Abraham et al., 2022; Ibnu et al., 2018). Similarly, there are also informal, non-legal collectives composed of farmers like Ethiopia's cluster farming (CF) which is a government strategy to pool adjacent farms in geographic clusters (Ogeto et al., 2024). These diverse ownership forms illustrate the potential ownership structures in ABCs that determine collective action.

Different ownership forms have a profound impact on the operation and goals of an ABC. Farmer-owned organizations retain ownership of their land, giving farmers control over production, while corporate-led ABCs impose hierarchies that divert control from them (Giuliani et al., 2005; Trebbin & Hassler, 2012). Ownership also shapes capital formation: the smaller farmer-owned groups struggle to raise funds, while IOFs and FPCs have no limit to capital infusion and provide limited liabilities, encouraging entrepreneurial behaviour (Baruah et al., 2021; Trebbin & Hassler, 2012). There are also differences in mandates between IOFs and farmer-owned groups in ABCs where the former's mission is profit maximization, while the latter operates to increase the benefits of farmers through a collective (Sahan et al., 2016). Furthermore, a cluster led by farmer-owned organizations will emphasize more horizontal cooperation, while the IOF-led will form a more hierarchical structure (Abraham et al., 2022; De Marchi et al., 2018). In summary, ownership forms within ABCs shapes governance, capital dynamics, and even the strategic orientation of the group towards either collective benefit or profit maximization. Stick to explaining about ABCs

3.2.1.2 Control

Control within ABCs can be either centralized or decentralized. Centralized control in ABCs is seen in Agro-Industrial Clusters (AICs), where legally independent firms follow the rules and protocols set by dominant actors such as a Global Lead Firms (GLF) or supermarkets (Giuliani et al., 2005; Otsuka & Ali, 2020). Lead firms emerge through market power, technological capability, or control of logistics and branding (Gereffi, 1994), and enforce quality standards, production protocols and planning, through mechanisms like contract farming (De Marchi et al., 2018). Eidt et al. (2020) cautioned against the power asymmetry when a lead firm is present often marginalizing smallholder groups because they don't have channels to communicate their objectives or influence innovation. Top-down control don't just emanate from large corporations; in Ethiopian cluster farming, the government and its support organizations act as lead firms by promoting commercialization while integrating farmers (Eidt et al., 2020). Williams (2004) noted a contradiction in government-led top-down approaches, where policies pursued commercialization, not community-driven goals. The dominance of lead firms or government in ABCs have led to centralized control, often prioritizing commercialization while farmers get marginalized. good

In contrast, ABCs with a decentralized nature of control distribute it to other members. In Colombia's oil cluster, the hub-and-spoke model led by CENIPALMA, an industry organization, links farmers to a refinery through a strategic alliance, where the latter acts as an intermediary enabling knowledge transfer while coordinating production (Ramirez et al., 2017). Farmer Producer Organizations (FPO) is another type of intermediary, where strategic control is democratically shared among elected board members and operational control is given to hired managers (Trebbin & Hassler, 2012). Decentralized control is also found in informal clusters in Ghana and India, where trust and reciprocity manage disputes, enable joint ventures, mobilize members, and support collective activities while members preserve production decisions (Amoako & Lyon, 2014; Baruah et al., 2021). In the Philippines, similar informal clusters face challenges like land tenure and dynasties in local politics that exposes them to external influence and undermining the groups goals (J. A. Oakeshott, 2020). Taken together, decentralized control in clusters distribute decision-making through intermediaries and farmer members, forming the link between ownership and control within ABCs.

3.2.1.3 Membership

Another important component of organizational structure is membership which define the participants in the cluster's joint activities. Mindlin et al. (2022) describes ABC membership as informal and open. Basis for participation requires two conditions: prospective members must be located within regional area of operations and have existing organizational partnerships and production ties with other members (Mindlin et al., 2022). As an aggregation model, ABC membership is defined by smallholder farmers integrating into a collective that enables access to resources and markets and soften common constraints to improve their welfare and pursue commercialization (Abraham et al., 2022). At its core, ABC membership embodies a collective, where organizations and smallholders jointly pool resources and establish relationships to overcome constraints and advance towards high value markets.

Based on this definition, it implies that ABCs have a heterogenous composition. The diverse composition accommodates formal organizations, informal groups, and in Indonesia, farmers with dual membership in both registered farmer groups, and joint business group called, KUBE (*Kelompok Usaha Bersama*) (Abraham et al., 2022; Ibnu et al., 2018). Mindlin et al. (2022) enumerated a wide range of participants which include, individual producers, private companies, non-commercial organizations, government institutions, and all types of business organizations. The diverse range of members suggest an inclusive organizational structure of ABCs.

The inherent diversity in the composition of ABCs lead to various forms of participation and interaction between members. Mindlin et al. (2022) conceptualized the superposition of partnerships within clusters where members establish partial partnerships with other members forming the whole. In his view, the diversity of organizations within a geographic area allows for non-linear interactions where competition and cooperation coexist so not one large company can dominate, and there is shared access to assets between members (Mindlin et al., 2022). Meanwhile, quantitative studies have identified a few determinants for smallholder participation in ABCs which include: higher education, larger farm size, male household heads, access to extension services (Ogeto et al., 2024), membership to a farmer group, and distance from urban areas (Assouma, 2025). However, it should be noted that Assouma (2025) found higher education level had a negative effect farmer participation in clusters with contract farming, citing autonomy and flexibility in transactions. Altogether, the literature highlights how ABC membership fosters complex patterns of interaction, where an inclusive structure and individual characteristics play a role in the extent and nature of smallholder participation.

3.2.1.4 Investment

Investment in ABCs come in different forms, where each type is critical to develop competitiveness and sustainability, The formation of clusters are driven by public and private partnerships (PPP) to promote innovations, achieve higher productivity, create value added products and processes, and build market linkages (Gálvez-Nogales, 2010; Geldes et al., 2017). In developing AICs, PPPs, where government partners with local or foreign investors, are the main vehicle to invest in rural infrastructure, processing plants, pack houses, certified nurseries, and cold storage because of its high impact (Gálvez-Nogales, 2010). Mindlin et al. (2022) also highlights that individual members can attract investments separately that can benefit their organization and the cluster. Mulyana et al. (2024) coined the term *off takers* for private entities that contract to buy produce, invest in required capital assets and funding to ensure farmers have access to inputs. Farmer clusters also make internal investments to improve their activities or open lending to members, if they accumulate enough finances (J. A. Oakeshott, 2020). Together, these insights highlight the varied investment channels in ABCs, where external investment can come from PPPs or separate member initiatives, while internal investment comes from partnerships geared towards supporting smallholders.

Aside from investment channels, investment strategies also vary in ABCs. Ownership models influence the source of capital, investment time horizon, and risk assessment of organizations (Thomsen & Pedersen, 2000). Member-owned organizations are less inclined to enter risky partnerships, initiate new projects, or recommend large investments because their capital pool is smaller (Soboh et al., 2012). Gega et al. (2024) also highlights the risk-averse nature of family farms, in contrast with the willingness to invest of IOFs due to a larger capital pool. These authors highlighted the impact ownership structures have on the investment horizons of individual members of ABCs driven mainly by available capital and extent of risk aversion.

3.2.1.5 Stakeholder involvement

ABCs rely on multiple stakeholder groups to coordinate their value chain activities. At its core, are the farmer groups (e.g., cooperatives, informal clusters), who collaborate in production, training, and marketing (Dureti & Tabe-Ojong, 2022). They also monitors the resource flow, manages internal disputes, builds the groups identity, and determines their role along the chain (Hoang et al., 2006; Morse & Manamara, 2020). J. A. Oakeshott (2020) highlighted that trust and social capital enable strong horizontal coordination, making farmer-led organizations as the foundational for successful ABCs.

Aside from horizontal ties, vertical links connect producers to *off-takers* and markets. *Off-takers* are the markets while facilitating access to capital, credit, and technology (Mulyana et al., 2024). Technological innovations often emerge from vertical relationships, especially in clusters with ties to global players (De Marchi et al., 2018). Vertical integration also involve input suppliers, agro-processors, traders, exporters, and retailers (Gálvez-Nogales, 2010). However, power asymmetries can emerge, with dominant actors overlooking farmers' interest (Eidt et al., 2020). To address this, Eidt et al. (2020) proposed a platform that empowers smallholder voices and increase awareness of power imbalance along the chain.

Aside from market actors, stakeholders acting as enablers can strengthen the vertical and horizontal coordination. Governments and public institutions invest in infrastructure and build an enabling regulatory environment (Gálvez-Nogales, 2010). Meanwhile, Ibnu et al. (2018) identified research centres, universities, and extension staff as keys to access information, knowledge dissemination, and technology adoption. Intermediaries such as business development service (BDS) providers, NGOs, and industry organizations play a vital role in

coordination by linking farmers to government initiatives, provide technical assistance, and mobilize farmer communities (Eidt et al., 2020; Ramirez et al., 2017; Uy et al., 2014). Overall, the effectiveness of the ABCs depends on how well farmers, market actors, public institutions, and intermediaries coordinate horizontal, vertical, and support activities to drive collective action.

3.2.2 Cooperative

3.2.2.1 Ownership

As a firm, cooperatives are unique in its user-orientation, where it directly serves its patrons. Dunn (1998) identified three principles distinguishing co-ops from other firms which are: user-owned, user-control, and user-benefit. In his seminal work, he defined user-owned as the primary users being the owners and financiers of the firm (Dunn, 1998). To be part of co-op ownership, the traditional practice in most countries is for prospective members to contribute capital in the form of member equity (Benos et al., 2016; Grashuis & Su, 2019; International Cooperative Alliance (ICA), 2015). Villavicencio and Solares (2019) identified key characteristics of member equity, members make equal contribution, and a portion of each contribution becomes common property of the co-op. Traditionally, the user-owner principle is connected to equity, particularly member equity, and defines how a cooperative is built by its users.

The user-owner principle has had significant deviations in modern times. Several authors reported that the limited ability of the traditional model to raise capital is the driving force for the deviation in the user-owner principle. First, there are proportional investment cooperatives where member equity had to be proportional to their patronage of its services, but equity is still restricted to member-patrons (Chaddad & Cook, 2004). There are also co-ops who seek capital externally by selling equity to external non-member investors (Bijman et al., 2014), while some co-ops had created separate entities responsible for seeking outside capital (Cook & Chaddad, 2004). Chaddad and Cook (2004) also reported co-ops fully departing from the user-owner principle by fully transforming to an investor-owned firm, as an exit strategy or through demutualization. These examples illustrate the effect of capital constraint on cooperatives forcing them to adapt by modifying elements of their ownership structure and even completely transforming to IOFs.

3.2.2.2 Control

Another foundational principle is user-control which is directly tied to the ownership structure of cooperatives. Similar to user-owned, traditional cooperatives are also controlled by the members (Dunn, 1998). User-control manifests itself through the one-member, one-vote principle (International Cooperative Alliance (ICA), 2015) where decision-making and firm policy is voted on equally by members through an assembly (Fairbairn, 1994). From the assembly, the members of the Board of Directors (BoD) is also elected who are tasked to initiate and implement the decisions of the assembly (Bijman et al., 2014), guide policy and strategy, identify potential organizational risks, and preserve its identity (Villavicencio & Solares, 2019). Within the BoD, a Chairman is chosen and vested with authority to be the deciding vote in the decision-making processes of the board (Bijman et al., 2014). Another important body is the Supervisory Board (SB), tasked with overseeing and auditing activities, the BoD, and members to ensure compliance with external regulations and internal rules and norms (Villavicencio & Solares, 2019). In the structure, the SB is composed of members vested with the unique role of exercising control over management, yet still be subordinated to the assembly (da Silva et al., 2022). Bijman et al. (2014) emphasized the role of each body to strengthen the internal control of the firm because it is critical to ensuring the enterprise continues to act in the best interests of their members. The governance bodies operationalize the user-control principle in cooperatives, ensuring accountability within the institution to safeguard member interests.

The growth of cooperatives and growing complexity of markets and their external environment have led to the erosion of user-control principle. Bijman (2010) several cases where BoDs delegated management responsibilities by hiring high quality, professional managers to navigate markets, ensure efficient and responsive operations. These managers are hired or appointed by the BoDs as part of a cooperative restructuring relinquishing some control rights, but keeping monitoring and ratification functions (Bijman et al., 2014). Valentinov and Iliopoulos (2022) noted issues related to delegating control such as manager self-interest and introducing peripheral activities to generate capital, both diverging from member interest. Aside from delegating responsibility, studies on cooperatives in the Netherlands and Greece described proportional voting where co-ops allocate voting power based on member patronage or investment (Kalogeras et al., 2013; Kyriakopoulos et al., 2004). Within the assembly, Mwambi et al. (2020) reported exclusionary practices in Kenya where women and poorer members had less involvement in the decision-making process of their co-operative. These developments

demonstrate how market pressures, organizational restructuring, and internal practices can erode the user-control principle within a cooperative.

3.2.2.3 Membership

Voluntary and open membership is a core principle of the traditional cooperative model (International Cooperative Alliance (ICA), 2015). Villavicencio and Solares (2019) described voluntary as the willingness to accept the obligations and responsibilities of a member and the expectation to use its services. In addition, open membership refers to the absence of discrimination in accepting prospective members (Fairbairn, 1994). This rule is tied to the co-op principles of user-owner and democratic control which determines the internal control structure of the organization (International Cooperative Alliance (ICA), 2015; Liu et al., 2024). Thus, cooperative membership institutionalizes inclusivity and responsibility which reinforces ownership and control structures.

There are inherent challenges in the voluntary and open membership principle that opened cooperative to several problems. Open membership can cause the horizon and free rider problem, where unequal benefit distribution to new members or non-patrons, discourages investment from entrepreneurial members and creates financial constraints (Cook & Chaddad, 2000; Nilsson & Kihlén, 2009). Openness also introduces organizational costs related to the managing influence within a larger group and difficulties in achieving a collective decision because of diverging interest (Katz, 2002; Wander & de Paula de Oliveira Júnior, 2022). These problems have led to financial constraints and organizational difficulties that revealed inefficiencies in the traditional cooperative models.

To manage these problems, many cooperatives introduced innovations within their structure. Grashuis (2018) described restricted membership as an innovation where larger coops would only accept members that could supply pre-determined quality and quantity and invest higher equity capital to the co-op. Valentinov and Iliopoulos (2022) also described the method of cutting down on peripheral activities and focus on core activities reduce heterogeneity in membership. In Africa, some cooperatives simply practiced strict enforcement of rules on side-selling to reduce member opportunism and uphold member commitment (Mangnus & Schoonhoven-Speijer, 2020). These innovations reflect structural changes in modern cooperatives to mitigate opportunism, reduce heterogeneity, and strengthen member commitment.

3.2.2.4 Investment

Investment within the structure of the cooperative is mostly generated by its members. Internal sources of capital for investment come from member equity contribution, generated and retained earnings, and entrance fees and dues (Altman, 2014; Chaddad & Cook, 2004). Successful cooperatives in the European Union (EU) were able to use share capital for investments because they managed member claims (e.g., payments and dividends) with timely investment to strengthen the co-op (van Bekkum & van Dijk, 1997). However, several authors noted the ill-defined property rights of member equity, referring to its non-transferability and redeemability, have constrained the co-ops' ability to raise capital (Cook & Iliopoulos, 2000; Royer, 1992). To overcome this problem, co-ops instituted strategies such as, proportional investment based on patronage (Chaddad & Cook, 2004) and the retention of surplus earnings and patronage refunds to raise more capital (Altman, 2014). Altman (2014) described situations where members would decide to reinvest in the cooperative either through reallocating surplus funds through a vote or a member voluntarily waiving their right to their patronage claims. These insights show that member contribution remains a central source of capital for co-ops, but limited capital generation have introduced strategies such as proportional investment, surplus, and reinvestment to generate more funds internally.

Aside from member capital, co-ops have also turned to external sources for investments. In developing countries, co-ops have received grants, donations, and soft loans from start-up capital to saving them from failure (Cooperative Development Authority (Philippines), 2015; Magingxa & Kamara, 2003). In Africa, soft loans often come in the form of agricultural credit for the co-op or subsidising a credit facility for their smallholder members (Onyilo & Adong, 2019). New Generation Cooperatives (NGCs) opened capital contributions from non-members, external investors who could infuse capital into the enterprise in exchange for financial benefits (Chaddad & Cook, 2004). These co-ops had a hybrid structure wherein they created a separate legal entity and/or created a separate class of equity from member shares to differentiate their ownership rights while generating capital (Bijman et al., 2014). Cooperatives have evolved to create hybrid structures to leverage external funding to be more resilient and sustain growth.

3.2.2.5 Stakeholder involvement

The primary stakeholders in cooperatives are its members/users. As a core stakeholder, members are the owners and financiers, exercise democratic control, and mutually benefit from

the enterprise (Sahan et al., 2016). Members can also be considered the internal stakeholder where they form the General Assembly (GA), elected into the Bo, or appointed into the SB playing an active role in oversight and management of the co-op (Bijman et al., 2014; Villavicencio & Solares, 2019). Several authors identified member heterogeneity (Iliopoulos & Valentinov, 2018), lack of commitment (Valentinov & Iliopoulos, 2022), and exclusionary practices (Mwambi et al., 2020) as the primary challenges in keeping members involved. In sum, the cornerstone of cooperatives are its members and creating a structure that sustains their continued engagement remains its biggest challenge.

External stakeholders can also get involved with a co-op affecting their operations and social performance. Professional managers and co-op employees are non-members, but important stakeholders in the co-op because they manage and compose the day-to-day operations of the enterprise (Bijman et al., 2013; Villavicencio & Solares, 2019). Bijman et al. (2014) reported that professional managers can gain considerable influence within the co-op and it is up to the body to institute rules, monitor their performance, and have the competence to exercise its oversight function. For many countries, co-ops are also heavily influenced by government institutions who can exercise oversight function, provide financial and technical support, and institutionalize the national role of the cooperative through laws and policies (Adjahoung, 2021; Dhakal et al., 2021). Government involvement is often channelled through an umbrella institution tasked to promote and develop co-ops, but in some cases the institution or their agents cause political interference undermining the autonomy of cooperatives (Dary & Grashuis, 2020; Matangaidze et al., 2023). Aside from government, buyers and suppliers are also essential in vertically integrating the co-op, with some of them preferring to deal with co-ops rather than individual farmers (Imami et al., 2021). Lastly, co-ops also play a role in the broader community making the latter also an important stakeholder that benefits from the former's success (Villavicencio & Solares, 2019). Overall, the level of involvement of external stakeholders in co-ops can shape their operational dynamics and their broader impact to society.

3.3 Mechanisms for Delivering Benefits

Active smallholders captured benefits through collective action organizations that reduced transaction cost, achieved scale, reduced market imperfections, improved information flow, managed risks, mobilized assets, and improved capacity by facilitating the adoption of new agricultural technologies and practices within the group (Fischer & Qaim, 2012; Gyau et al.,

2014; Markelova & Mwangi, 2010; Mutonyi, 2019; Wardhana et al., 2020). Similarly, collective business enterprises such as cooperatives were recognized for enhanced market access, improved competitiveness, overcoming barriers to high-value market entry, facilitating information sharing, and promoting farm innovations to members (Blekking et al., 2021; Missiame et al., 2023; Mojo et al., 2017).

Relevant studies have used different terms such as, effect, benefit, or impact to describe smallholder gains (Assouma, 2025; Zhu & Wang, 2024). For the remainder of this document, the term *benefits* will be used direct the focus on the mechanisms used by collective action organizations to improve farmer well-being. Studies discussed a long list of benefits that can be classified within financial and economic, social, farm, and environmental benefits dimensions. Some research focused on increased income, market entry, and reduced costs; others highlighted improved productivity, technology uptake, and better access to farm inputs and services; while other authors featured environmental stewardship, community cohesion, and inclusivity.

The next subsections synthesized the literature under on benefits. While evidence comes from different modes of collective action, the review will feature the mechanisms used by collective action organizations to enable smallholders to advance their well-being. At this point, the goal is to define the range of benefits collective business enterprises can provide which will also serve as the basis for the succeeding analysis on how organizational structures drive farmer benefits.

3.3.1 Income enhancement and poverty reduction

Collective action organizations are widely recognized for their role in enhancing smallholder incomes and reducing poverty (Abraham et al., 2022). The literature consistently reports improvements in financial indicators: higher incomes, better prices, greater profits, and reduced costs, facilitated through collective bargaining power and resource consolidation (Agricultural Transformation Agency (Ethiopia), 2021; Gálvez-Nogales, 2010; Goni et al., 2023; Karuppannan, 2012; Ortmann & King, 2007). The benefits resulted from joint procurement of inputs, pooling capital for shared facilities, and coordinated production and marketing. Evidence from India showed that collective marketing through clustering doubled farmer incomes (Baruah et al., 2021), while vegetable clusters in the Philippines reported higher earnings due to improved access to inputs and marketing support (Montiflor et al., 2009).

Beyond profitability, collective action organizations use knowledge exchange, price information dissemination, and the integration into higher-value. African coffee cooperatives improved yields via farmer-to-farmer communication (An et al., 2015), while cooperatives in Sri Lanka and the Philippines captured higher sales and profits by engaging in value-adding activities (Fernando et al., 2023; Sumalde & Quilloy, 2015). Similarly, in Ecuador, cacao cooperatives leveraged ecological certifications and direct trade relationships to secure price premiums (Puerto et al., 2023).

Another group of research emphasized productivity enhancement and risk reduction. Collective organizations promote in Africa promote efficient input use and adoption of productivity-enhancing technologies, such as high quality fertilizer and seeds (Blekking et al., 2021; Matsumoto & Yamano, 2010). The Zambian government used input subsidies delivered through cooperatives to support farmer access (Mason et al., 2013). Meanwhile, in China, cooperatives increased farm incomes by improving labour efficiency and enabling farmers to reallocate time to other income-generating activities (Qiu et al., 2024).

Taken together, the previous discussion suggests that collective action organizations contribute to higher smallholder income via three interrelated pathways: (1) cost reduction by sharing resources to procure inputs; (2) market access and value chain upgrading through building bargaining power and certifications; and (3) improved productivity through technology adoption, input access, and labour efficiency. These mechanisms underscore the multifaceted role collective organizations play in improving smallholder welfare across diverse contexts.

Aside from increasing income, many studies have shown that collective action organizations reduced poverty in smallholder communities. Studies about Ethiopia and Serbia indicated that membership in collective organizations are positively associated to household income, per capita income, and reduced incidence of income poverty (Cvijanović et al., 2023; Dureti & Tabe-Ojong, 2022). In Ethiopia, cluster farming initiatives integrating processing and value addition encouraged adoption of improved seeds and better agronomic techniques, resulting in significantly higher net benefits for members relative to non-members (Ogeto et al., 2024; Owusu-Sekyere et al., 2023). In contrast, a few studies found that welfare gains can be uneven: richer or better-resourced farmers often benefit more, particularly when limited resources

become a barrier to adoption of innovations among poorer members (Dureti & Tabe-Ojong, 2022; Owusu-Sekyere et al., 2023).

Similarly, cooperatives have contributed to the significant reduction of poverty by enhancing the technical and entrepreneurial skills of their members. In Uganda, investments in training and advisory services increased member participation, especially among poorer farmers, and helped them become better decision-makers (Wedig, 2016). While, in Albania, cooperatives employed agribusiness agents and built social capital and facilitated compliance with food safety standards, which was instrumental in accessing the European market (Imami et al., 2021). Fairtrade-certified cacao cooperatives in South Africa emphasized the delivery of better services and promotion of sustainable agricultural practices (Sellare et al., 2020). Despite cases of uneven distribution of benefits, the literature demonstrates that collective action organizations improve farmer welfare through higher incomes and poverty reduction.

3.3.3 Market access and value chain integration

A key mechanism through which collective action organizations deliver benefits is by improving farmer access to markets and helping them participate more effectively. Collective organizations often initiate vertical linkages with buyers and retailers, opening direct marketing channels that bypass middlemen and secure guaranteed prices (An et al., 2015). However, Gálvez-Nogales (2010) cautions that a narrow product base makes them vulnerable to price and market volatilities. To sustain access, formal contracts and informal relationships that facilitate frequent interactions between farmers and buyers, transparent pricing agreements, and access to market intelligence that reduces transaction costs were keys to increased farmer participation (Assouma, 2025; Mubarik, 2025). Nonetheless, competition for raw materials within palm clusters in Ghana required intensive coordination from processors with their suppliers to secure supply (Ayakwah et al., 2017). Trust is critical: side-selling and perceived imbalances in buyer-supplier relationships have led to cancelled contracts and hampered cluster development in developing countries (Abbad et al., 2012; Andriushchenko et al., 2020; Uy et al., 2014). Taken together, the findings affirmed that trust-driven coordination and transparent contracts underpin the organization's ability to sustain farmer participation through benefits.

Collective organizations also improve market access by shortening supply chains. Acting as intermediaries, they consolidate production, negotiate with buyers, and increase

commercialization (An et al., 2015; Markelova & Mwangi, 2010). In Ecuador, structures supported formalized contracts with buyers, enabling access to financing and developing organizational capacity (Elder, 2019; Puerto et al., 2023). Nevertheless, contracts can also expose farmers to risk: changing buyer protocols have led to member defection in Nicaragua because their farmers couldn't meet the new requirements (Elder, 2019). In sum, collective organizations have used contracts and coordination to shorten supply chains, but it can jeopardize members when compliance becomes difficult.

Gaining bargaining power is another mechanism for market access. Through group marketing and resource pooling, collective organizations can influence higher selling prices and lower input prices (An et al., 2015; Baruah et al., 2021; Montiflor et al., 2009). In Vietnam, shrimp clusters negotiated with buyers to keep prices during disease outbreaks and shoulder transport costs (Ha et al., 2013). Other clusters also use it for strategic branding, as seen in Indian grape clusters where regional branding helped them gain international market access (Docherty, 2012; Gálvez-Nogales, 2010). Yet maintaining bargaining power can be difficult side selling and bad-performing business managers can erode buyer's trust, undermine consolidation efforts, and lead to operational inefficiencies (Mulyana et al., 2024; Oakeshott, 2016; Uy et al., 2014). These cases show that while collective organizations can improve market position, the benefits rely on effective governance and member commitment.

The lack of working capital is a long-standing constraint in cooperatives, keeping them from paying their members upfront and driving farmers to local traders, even though they offer lower prices (Mojo et al., 2017). Ethiopian coffee cooperatives influenced local prices by monitoring world markets (Mojo et al., 2017), while Chinese apple cooperatives introduced members to wholesalers who provided price information to support informed decision-making (Hao et al., 2018). In contrast, Elder (2019) reported a case of an opportunistic buyer in Nicaragua where the large retailer avoided contracts by claiming full storage capacity, eroding trust in collective marketing arrangements. Together, these studies illustrate that access to information can offset limited capital, but only when members trust both the organization and the market.

Market access also depended on improving product quality and the reliability of farmers as suppliers. Collective organizations helped smallholders consolidate supply and meet quality requirements, becoming dependable business partners (Otsuka & Ali, 2020; Uy et al., 2014). Support mechanisms included addressing logistics challenges, improving post-harvest handling, and generating a surplus (J. A. Oakeshott, 2020; Owusu-Sekyere et al., 2023; Uy et al., 2014).

Proximity also facilitated the transfer of specialized knowledge from buyer to farmer through financing and extension, enabling farmers to learn skills, adopt processing standards, and meet market needs (Ogeto et al., 2024; Ramirez et al., 2017; Shouten, 2011). In India, research institutions often supported compliance in collective organizations through shared infrastructure, testing services, and access to export information and facilities (Gálvez-Nogales, 2010). However, J. A. Oakeshott (2020) reported that the lack of professional management, poor financial discipline, and overdependence on external services can undermine pursuits for value chain integration. Together, the examples suggest that while collective structures support farmer reliability and compliance, it hinges strong internal governance and prudent engagement with external stakeholders.

Vertical integration is another path for collective organizations to capture more value. Examples are cooperatives that process, trade, and sell their own products - such as, livestock and rice cooperatives in the Philippines and Sri Lanka – who improved member commitment through this strategy (Fernando et al., 2023; Quilloy, 2015). However, quality management remains a challenges due to free-riding and failure to incentivize compliance (Mérel et al., 2009), but mechanisms such as certification, integrated extension services, internal audits, and traceability systems have assisted in enforcement (Puerto et al., 2023). External organizations had also played a role by providing equipment, upgrading facilities, and injecting managerial support (Imami et al., 2021). Nevertheless, government subsidies can cause depended and has led to inactive organizations and the proliferation of fake cooperatives in China who ceased to function effectively after support ended (Deng et al., 2010; Wilmsen et al., 2023). Thus, vertical integration works best when internal accountability is paired with external support that strengthens autonomy of collective organizations.

3.3.3 Input and service provision

Collective actions organizations also support smallholders by giving them access to inputs, financing, services, and infrastructure. The mechanisms of support often come through resource pooling, shared investment in facilities, and access to capital. Studies in India and Indonesia reported that bulk input procurement of inputs reduced costs, while shared farm equipment and storage facilities reduced overhead cost (An et al., 2015; Gálvez-Nogales, 2010; Ihle et al., 2020). Proximity within clusters also gave access to specialized technical services, such as in Vietnam's root crop clusters where local engineers developed and provided repair services for machineries tailored to small-scale processors (Gálvez-Nogales, 2010). Informal financial

support, such as procuring scarce raw materials, strengthened commitment among small-scale processors in Ghana (Ayakwah et al., 2017). Taken together, these mechanisms reflect what Schmitz (1995) called ‘collective efficiency’, though governance failures, weak cohesion, and internal rivalry often eroded these benefits (Gálvez-Nogales, 2010; Hoppen et al., 2017; Ihle et al., 2020; Oakeshott, 2016; Porter, 1998; Wardhana et al., 2017).

Cooperatives delivered similar benefits through member-driven initiatives, including bulk procurement financed by mandated investments, credit and savings scheme, and collateral arrangements like member guarantees or asset-based trust (R. A. R. Lima, 2021; Meador et al., 2016; Ortmann & King, 2007; Wedig, 2016; Zhong et al., 2022). They’ve also provided specialized training on food safety and sustainable technologies (Imami et al., 2021; Liu et al., 2022) and tailored services to farmers’ needs to reduce transaction cost and risks (Liu et al., 2022; Zhong et al., 2022). However, effectiveness is often hampered by heterogeneous membership structures, where wealthier and influential members dominate decision-making resulting in uneven benefit distribution and equity concerns (Ahmed & Mesfin, 2017; Blekking et al., 2021; Wedig, 2016).

Meanwhile, external organizations often support service provision. In the Philippines, vegetable clusters received soft loans and financial support for input access (Montiflor et al., 2009), while in Ethiopia, collective organizations enabled government to deliver support services more efficiently (Agricultural Transformation Agency (Ethiopia), 2021).

3.3.4 Environment and Social Sustainability

Beyond economic and farm improvements, collective action organizations delivered benefits to smallholders environmental and social dimensions. Environmental benefits are driven by the coordinated adoption of sustainable practices, investment in systems for environmental compliance, and partnerships with external organizations (Andriushchenko et al., 2020; Kramer, 2011; Martinidis et al., 2021; Patias et al., 2016). Clusters have contributed to environmental stewardship by entering into clean production agreements, implementation of green transformation policy, and coordinated waste management activities (Gálvez-Nogales, 2010; Li et al., 2024; Li et al., 2022; Raziq, 2023). However, externally led sustainability initiatives struggled when farmers lacked incentive to self-regulate, resulting in low compliance (Ha et al., 2013).

Cooperatives also promoted environmental sustainability, but mechanisms used differed depending on organizational structures and external environment (Theesfeld et al., 2021). Many cooperatives promote environmental practices through training on integrated pest management (IPM), organic farming, and responsible agrochemical use (Candemir et al., 2021; Liu et al., 2022). Meanwhile, in Albania, external support strengthened compliance with environmental protocols because it subsidized certification costs and hiring of compliance officers and certification costs (Imami et al., 2021). Similarly, cacao cooperatives in Ecuador incentivized conservation requiring the preservation of rare cultivars in obtaining sustainability certifications (Puerto et al., 2023). Cooperatives in the Netherlands and Mexico enforced strict internal rules to ensure adoption of eco-friendly farming, promote biodiversity, and protect fish populations (Elsler et al., 2022; Swagemakers et al., 2019). However, the tension between intensification and environmental protection remains: some cooperatives increased agrochemical use and shifted toward investor-owned behaviour to improve competitiveness at the expense of environmental outcomes (Abebaw & Haile, 2013; Nilsson & Kihlén, 2009). Puerto et al. (2023) also pointed out that the high cost of compliance to obtain certifications can also lead to lower yields, making it more difficult to find the nexus between environmental stewardship and economic viability.

Studies discussing social benefits in collective action organizations are equally important. Collective action organizations create strong networks through trust that enables coordinated action. Clusters have relied on external facilitators and institutional innovations to foster collective action and create a shared identity between members (Gálvez-Nogales, 2010). Increased interactions with local experts, government personnel, and peers facilitate information sharing which accelerates technology adoption (Joffre et al., 2019; Joffre et al., 2020; Oakeshott, 2016). Strong group ties also facilitated coordination of production schedules, disease monitoring, and effective resource allocation (Ramirez et al., 2018; Sharma, 2020). Digital platforms were used by several clusters to reduce information asymmetry, promote peer-led learning and technology validation, and build business alliances (Ha et al., 2013; Hoppen et al., 2017; Joffre et al., 2020; Li et al., 2024). In India, social inclusion initiatives such as, vocational training for women, helped strengthen gender participation (An et al., 2015). However, unequal benefit distribution, bad governance, and low trust weaken internal cohesion in collective action organizations (Dureti & Tabe-Ojong, 2022; Gidelew et al., 2025a, 2025b; Hoppen et al., 2017; Oakeshott, 2016).

Cooperatives also promote social cohesion but through genuine, member-led initiatives reflecting a distinct pathway using democratic governance. Within its structure, member voice and participation encourages collective action, knowledge sharing, and community building (Cechin et al., 2013; Christian et al., 2024; Marcos-Matás et al., 2021; Nilsson & Kihlén, 2009; Wedig, 2016; Wollni & Zeller, 2007). External stakeholders also contribute by strengthening member capacity and organizational development (Meador et al., 2016). Gender inclusion has also advanced: all-female cooperatives and subgroups created safe spaces for learning that also built solidarity and improved income (Baden & Pionetti, 2011; Onyilo & Adong, 2019; Wedig, 2016). Cooperatives also generate social capital by investing in local infrastructure (e.g., schools), school feeding programs, clean water projects, in their communities (Imami et al., 2021; Mojo et al., 2017; Nyawo & Olorunfemi, 2023; Onyilo & Adong, 2019).

However, challenges to social sustainability remain. Strong state involvement using excessive regulations and interventions can hinder member-created networks, reinforce paternalistic views, and a lack of appreciation for cooperative values (Theesfeld et al., 2021; Wilmsen et al., 2023). Elite capture in membership structures by instituting ‘core members’ and resource disparity between members resulted in disproportionate benefit distribution (Blekking et al., 2021; Puerto et al., 2023; Zhong et al., 2023). Additionally, leadership failures and corruption have caused many cooperatives to fail (Chibanda et al., 2009; Katwesigye et al., 2022). Ultimately, the literature expounds on complexities within collective action organizations, emphasizing the need for inclusion mechanisms to achieve and safeguard social gains.

3.4 Empirical and case studies

3.4.1 Impact of ABCs

Studies on ABCs in Africa reported that they were primarily established to drive rural industrialization and improve access to international markets for smallholders (Ayakwah et al., 2017; Dureti & Tabe-Ojong, 2022; Gálvez-Nogales, 2010; Goni et al., 2023). In Ethiopia, government-led clusters have increased wheat yields among smallholder farmers and enhanced commercialization among teff producers. Similarly, dairy clusters in Ethiopia and Kenya assisted the shift from traditional grazing to zero-grazing systems supported by planted forage (An et al., 2015; Endalew et al., 2024; Van der Lee et al., 2018; Zegeye et al., 2025). In Ghana, a comparative study revealed that corporate-led clusters created strong vertical cooperation and

minimal horizontal competition, while SME-led cluster built on trust exhibited strong cooperation and low competition across their business networks (Ayakwah et al., 2017). In Nigeria, rice clusters enabled higher farm investment through better access to inputs such as fertilizers, resulting in higher efficiency and profits (Goni et al., 2023). Conversely, the development of an export-oriented fish cluster in Lake Victoria, Kenya contributed to the exclusion of local fishermen and resulted to food insecurity and protein deficiency in their local community. Similarly, intensification in the Kenyan flower clusters reportedly caused the decline in the water levels of Lake Naivasha, their main source of irrigation (Gálvez-Nogales, 2010) ABCs in Africa boosted productivity, commercialization, and cooperation, but the export-driven fish cluster is an example where prioritizing market access over smallholder benefits, led to marginalization and food insecurity.

ABC models in Asia have also strongly influenced small-scale farming. In China, vegetable clusters standardized production and integrated global innovations in production systems, while grain and potato clusters enabled smallholders to leverage local comparative advantages to overcome production issues which stimulated local enterprise activity (Li et al., 2024; Li et al., 2022; Zhang et al., 2025). In Vietnam, shrimp clusters promoted the adoption of sustainable aquaculture practices by fostering peer-to-peer trust and improving access to extension agents. Similarly, root crop clusters facilitated the use of specialized equipment among small-scale processors, enhancing productivity and market access (Gálvez-Nogales, 2010; Joffre et al., 2019; Joffre et al., 2020). In India and Thailand, cluster membership helped small-scale grape and vegetable farmers overcome barriers to meet international production and food safety standards (Gálvez-Nogales, 2010; Roy & Thorat, 2008). Similarly, vegetable clusters in the Philippines reported improved incomes and household welfare due to stable markets and technical support (Montiflor et al., 2009). However, in Indonesia, high density clusters engendered negative competition, as some farmers withheld information on technologies and subsidies (Ihle et al., 2020). While clusters in Asian countries advanced innovation, promoted sustainability and market access for small-scale farmers, challenges such as competition and distrust emerged from larger clusters.

Meanwhile, in the developing West, Latin American regional clusters have played a role in improving the competitiveness of smallholders to participate in high value markets. In Chile, strong government support established associations in their salmon cluster aiding their development to a global supplier, while wine clusters used shared learning and the injection of

foreign direct investments to move from the bulk to premium market segment (Gálvez-Nogales, 2010). Brazil's fruit cluster stood out as government support allocated irrigated land to achieve a critical mass of small-scale farmers, and its apple cluster offered accessible extension services to attract smallholders (Gálvez-Nogales, 2010; Gomes, 2000). Peruvian mango clusters separated networks for exporters and small-scale farmers to gain success, though power imbalances caused unequal benefits, while oregano producers viewed their clusters as the key to their expanded production and strong business network (Medina-Sánchez et al., 2025; Ramirez et al., 2018). In Latin America, ABCs have enabled international market access and improved household welfare using strong government support and collective action, but fragmentation and market power mirrored challenges in Asia and Africa, underscoring the need for organizational mechanisms to achieve equitable success across the developing region.

Meanwhile, ABCs in developed countries have integrated sustainability, research, and technology into advanced farming systems. In Europe, Scandinavian clusters promoted *industrial symbiosis* which used circular economy principles to reduce waste and costs that aided farmers in achieving environmental goals (Bjurulf & Vedung, 2009; Martinidis et al., 2021). Meanwhile, Italy's crops cluster strengthened farmers competitiveness by integrating them into research and technology development, while Poland's carp cluster upgraded to cater to sustainable tourism and create a local brand to capture a higher value market (Martinidis et al., 2021). Similarly, high-tech ABCs used AI and automated systems to optimize their yields and resource use among farmers in the United States of America (USA) (Sadenova et al., 2025). Unlike the inclusion-driven clusters in developing countries, cases in developed countries showed innovation-driven ABCs focused on circular economy, integrated research, and advanced technologies.

3.4.2 Impact of cooperatives

The impact of cooperatives had been studied developing regions, including Sub-Saharan Africa. Multiple studies linked cooperative membership to increased household consumption in Eastern Ethiopia, and improved milk production and productivity in the Addis Ababa region (Ahmed & Mesfin, 2017; Francesconi & Ruben, 2012). However, research in Ethiopia, Rwanda, and Zambia indicated that poorer farmers benefitted less compared to wealthier farmers who can afford to pay higher fees, owned more land, were better educated, and had better social connections (Bizikova et al., 2020; Blekking et al., 2021; Mojo et al., 2017). Similarly, smallholder farmers in South Africa had limited economic benefits due to low equity and capital

leading to low participation, while Ugandan cooperatives faced the challenge of centralized control due to elite capture (Chibanda et al., 2009; Wedig, 2016). Nyawo and Olorunfemi (2023) further reported that South African cooperatives were ineffective in providing essential services to smallholders such as access to farm machinery, extension services, processing equipment, finance, and affordable transport. In contrast, positive effect of cooperative initiatives were reported in other African cases: Ethiopian coffee farmers gained access to international markets, and cacao farmers in Côte d'Ivoire increased their yields and selling prices by securing Fairtrade and organic certifications (Mojo et al., 2017; Qaim et al., 2020). In Zambia, government-supported corn cooperatives led to higher fertilizer use and yields for their members (Blekking et al., 2021). Additionally, a federation of coffee cooperatives in Zambia pursued women empowerment through a gender-specific marketing strategy, which enabled women members to control their cash and income from farming (Wedig, 2016). While cooperatives in Sub-Saharan Africa demonstrated the potential to enhance income and welfare, grant market access, and social inclusion for smallholders, their benefits are negatively affected by ineffective organizations and the “middle class effect”, referring to uneven gains for poorer farmers (Bizikova et al., 2020).

In terms of impact, parallels can be drawn between African and Asian cooperatives, particularly in smallholder income generation and risk reduction. In the Philippines and Sri Lanka, vertical integration adopted by hog and rice cooperatives increased farmer revenue and profit margins (Fernando et al., 2023; Sumalde & Quilloy, 2015). In Cambodia, membership in vegetable cooperatives reduced smallholder risks by granting access to credit and irrigation technology supported by coordinated trainings. While, short-run farm income was not associated with membership, household income rose because of agricultural diversification initiatives (Ofori et al., 2019). In China, however, the impact of the “cooperative boom” on smallholders was tempered by misallocated subsidy funds to shell cooperatives (Zhong et al., 2023) and cooperatives that shifted away from the core principles becoming a tool for politics and elite benefit (Wilmsen et al., 2023). In summary, cooperatives in Asia exhibited the potential to improve and diversify income, and enhance resilience for smallholders, though their potency remains anchored on adhering to core principles and good governance.

Developing countries in Latin America and Europe showed mixed experiences with the impact of cooperatives on smallholders. In Ecuador and Bolivia, cacao cooperatives increased smallholder income through premium contract prices and value-added processing, while

supporting biodiversity conservation through sustainability certifications (R. A. E. Lima, 2021; Puerto et al., 2023). Similarly, a long-term study on lobster cooperatives in Mexico discovered that high-performing cooperatives had farmers who complied with precautionary regulations resulting in higher incomes and sustained catch volumes (Elsler et al., 2022). Similarly, in Albania, strong adherence to food safety standards was aided by private agribusiness agents who integrated cooperatives in their value chain (Imami et al., 2021). In contrast, in Uzbekistan, strong government regulations lowered smallholder participation and commitment, because it discouraged genuine volunteerism and created paternalistic views of cooperatives (Theesfeld et al., 2021). Overall, the evidence showed cooperatives enhanced income, sustainability, and compliance, but achieving success still depends on empowering smallholders and supportive institutions, not imposing regulations.

3.4.3 Challenges and Limitations

The organisational structure of ABCs is built to spur collective action among smallholders to overcome common failures, however, these organizations often face challenges related to competitive pressure, social and environmental sustainability. A core challenge for ABCs is managing co-opetition (Felzensztein, 2001; Felzensztein et al., 2009), where competitive pressure created rivalry instead of cooperation (Gálvez-Nogales, 2010; Ihle et al., 2020), fostered selfishness between members (Hoppen et al., 2017; Wardhana, 2018), and bred mistrust and conflict which undermined social ties in the cluster (Ihle et al., 2020; Wardhana, 2018). On social inclusivity, the structure of an ABC can promote bias and create resource-related barriers (Dureti & Tabe-Ojong, 2022; Zegeye et al., 2025) that marginalized smallholders, enabled elite dominance (Gálvez-Nogales, 2010; Van der Lee et al., 2018), and perpetuate inequalities based on gender and socio-economic status (Dureti & Tabe-Ojong, 2024; Gidelew et al., 2024, 2025a, 2025b). Furthermore, ABCs often have to deal with conflicting goals of achieving commercialization and environmental sustainability (Martinidis et al., 2021), which resulted in environmental degradation (Joffre et al., 2020; Mounter et al., 2016); fragile organizations dependent on parallel institutions (Ayakwah et al., 2017) or external stakeholders (Ha et al., 2013; Patias et al., 2016); and increased vulnerability to production failure, climate and market shocks (Gálvez-Nogales, 2010; Gidelew et al., 2024; Zeleke & Wordofa, 2024). Although ABCs are designed to spur collective action among smallholders, their organizational structure often deal with internal and external tensions: collaboration mechanisms can breed rivalries, inclusivity initiatives may enhance hierarchies, and commercialization goals risk

undercutting ecological sustainability. These dynamics reveal fragile areas in the organizational structure that must be supported to achieve equitable rural transformation.

Agricultural cooperatives, as an organization that balances economic and social goals for smallholders, confront inherent contradictions that pose a challenge to governance, member commitment, and growth (Cechin et al., 2013; Imami et al., 2021). Ill-defined property rights are often related to classic governance problems such as free-rider, horizon, and portfolio (Chibanda et al., 2009; R. A. E. Lima, 2021; Olthaara & Noseleit, 2017), while elite dominance (Bizikova et al., 2020; Katwesigye et al., 2022; Liang et al., 2022; Zhong et al., 2022) undermine democratic governance, creating inefficiencies and inequality in decision-making and benefit distribution (Cechin et al., 2013; Gega et al., 2024; Zhong et al., 2023). Initiatives to ensure member commitment are often constrained by opportunistic side-selling for short-term liquidity (Marcos-Matás et al., 2021; Mojo et al., 2017; Wedig, 2016), mistrust in government and external organizations (Ahmed & Mesfin, 2017; Imami et al., 2021; Theesfeld et al., 2021), and misaligned incentives that don't evoke internal motivation (Cechin et al., 2013). Large cooperatives often encounter scale-related tensions, where growing group size (Olson, 1971; Poteete et al., 2010) leads to higher transaction, monitoring and influence costs (Huo et al., 2022; Liang et al., 2022; Olthaara & Noseleit, 2017), and heterogenous membership (Cook & Grashuis, 2019; R. A. E. Lima, 2021), where poorer farmers are marginalized (Bizikova et al., 2020; Blekking et al., 2021; Meador et al., 2016; Wedig, 2016) and membership benefits diminish (An et al., 2015). Collectively, the inherent limitations of the cooperative organizational structure are related to its core principles and mechanisms to deliver benefits which suggests that organizational innovations and reinventing the traditional model (Cook, 2018) are keys to long-term viability.

3.5 Summary and Research Framework

This chapter analysed the organizational structures of collective action organizations, focusing on how those structures drove the benefits captured by smallholder farmers. This chapter is organized into four sub-sections: theoretical frameworks grounding collective action models; definitions of ABCs and cooperatives; structural features and organizational mechanisms used to deliver benefits; and the available evidence on benefits delivered to smallholders.

The first section discussed the collective action theory and transaction cost economics as the main theoretical frameworks underpinning organizational models. It framed these groups as economic and social structures that help farmers overcome market failures and reduce transaction costs. Also, through the literature review, a definition of agro-based clusters and cooperatives was adopted.

The next section introduced the structural features of collective action organization models which are: ownership, control, membership, investment, and stakeholder involvement. Each element specifically discussed forms of ownership and control, membership eligibility and process, initiators of organizations, sources of investment, and the involvement of external organizations.

The third section discussed the specific mechanisms used by collective action organizations to deliver benefits to their members. Examples include the use of credit services, bulk procurement, and marketing agreements to reduce producer risk and enhance income. The subsection also touched on the use of contracts, sustainable certification, and trainings for value chain integration, upgrading, and sustainability.

The fourth section adds a review of empirical and case studies on the impact of organizational structures on agricultural development. It should be noted that collective action organizations have facilitated economic improvement for their smallholder farmer members, delivered social and environmental progress through shared learning, and smallholder empowerment. The literature also identified internal and external challenges within these types of groups.

From the literature, Table 6 identified the perceived benefits of smallholder farmers linked to their participation in collective action organizations, which were further grouped into four categories: economic and financial performance, social performance, farm performance, and environmental performance.

Table 6. Summary of benefits captured by farmers from collective action organizations

Benefit category	Sub-components (from the literature)	Authors
Economic & Financial benefits	higher incomes; reduced costs; price premium; access to high value markets; reduced risk; access to credit; employment generation	(Gálvez-Nogales, 2010), (An et al., 2015), (Bizikova et al., 2020a), (Imami et al., 2021), (Blekking et al., 2021), (Dureti & Tabe-Ojong, 2022), (Elsler et al., 2022), (Fernando et al., 2023), (Owusu-Sekyere et al., 2023), (Qiu et al., 2024), (Saidov & Ochilov, 2023), (Zelege & Wordofa, 2024), (Gidelew et al., 2025a)
Social benefits	improved well-being; knowledge sharing; stronger networks; gender, youth, and IP inclusion; compliance with labour standards; member participation; community development	(Cechin et al., 2013), (Ahmed & Mesfin, 2017), (Patias et al., 2016), (Hao et al., 2018), (Joffre et al., 2019), (Bizikova et al., 2020a), (J. Oakeshott, 2020), (Sellare et al., 2020), (R. A. E. Lima, 2021), (Katwesigye et al., 2022)
Farm benefits	Improved productivity; access to inputs; technology adoption; improved quality	(An et al., 2015), (Ahmed & Mesfin, 2017), (Hao et al., 2018), (Joffre et al., 2020), (Manda et al., 2020), (Dureti & Tabe-Ojong, 2022), (Daniel, 2024)
Environmental benefits	adoption of sustainable practices; improved soil and water management	(Joffre et al., 2019), (Manda et al., 2020), (Joffre et al., 2020), (Bizikova et al., 2020a), (Li et al., 2022), (Liu et al., 2022)

3.5.1 Theoretical Framework

Key learnings from the literature on collective action organizations informed the theoretical framework for this study. As seen in Figure 12, the structural features are the following:

1. Ownership – asset ownership structure, how ownership is allocated, and how it influences incentives.
2. Control – roles of members in decision making, key leaders, and the balance between centralized and decentralized control.

3. Membership – eligibility for membership, membership process, and the extent of inclusion.
4. Investment – equity generation, rules on financing services, and future investments.
5. Stakeholder Involvement – potential role of external initiators and the diversity stakeholders involved

At this stage, the framework does not assume one organizational form is better than the other. To maintain consistency with Collective Action Theory (Olson, 1971),(Ostrom, 2010), this study recognizes the following:

- differences in structural features entail different incentives.
- benefits emerge from the mechanisms implemented by the organization.
- smallholder outcomes hinge on control, member characteristics, and stakeholder participation

Based on this, the theoretical framework addressed objective 1 by establishing the basis for comparison by identifying the key organizational structure elements and mechanisms that explain the differences between financial and economic, social, farm, and environmental benefits among cacao farmers participating in A BCs and cooperatives.

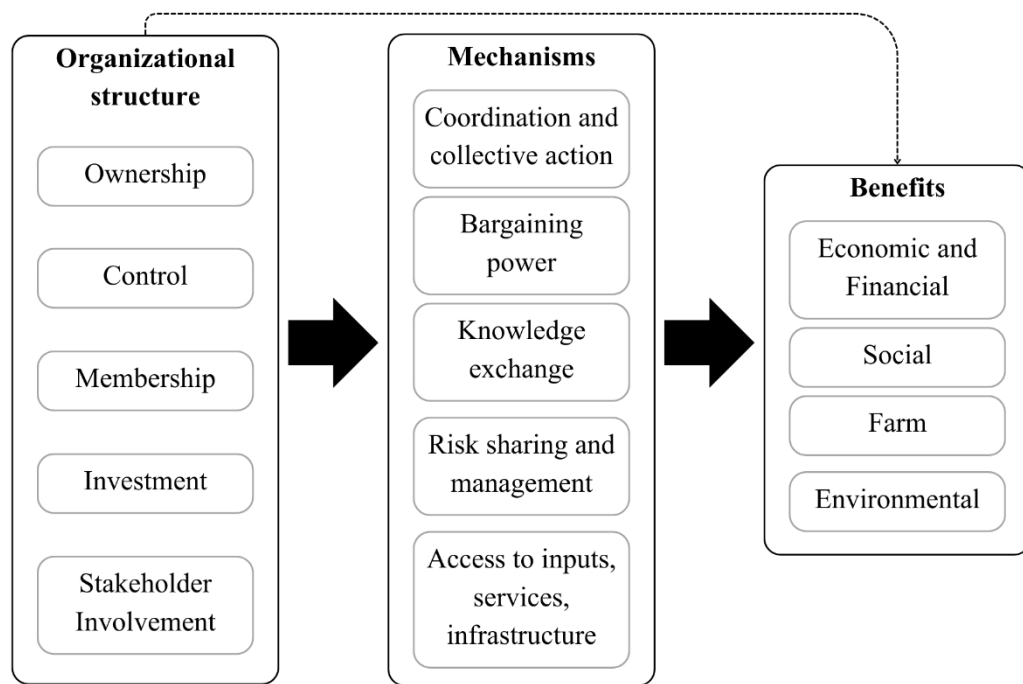


Figure 12. Theoretical Framework on organizational structures link to benefits

3.5.2. Empirical Framework

Building on the theoretical framework, this study adopted an empirical framework that operationalizes the analytical process. Figure 13 distinguishes organizational structure and mechanisms between the organizational forms in focus: ABC and cooperatives, and the perceived benefits of smallholder cacao farmers.

The first step of the analysis establishes the conceptual distinction between ABCs and cooperatives by grouping farmers based on where they belong. Within each collective action organization, the dimensions of organizational structure (ownership, control, membership, investment, and stakeholder involvement) are examined separately using qualitative analysis.

The information gathered during interviews was used to describe each element using real world cases.

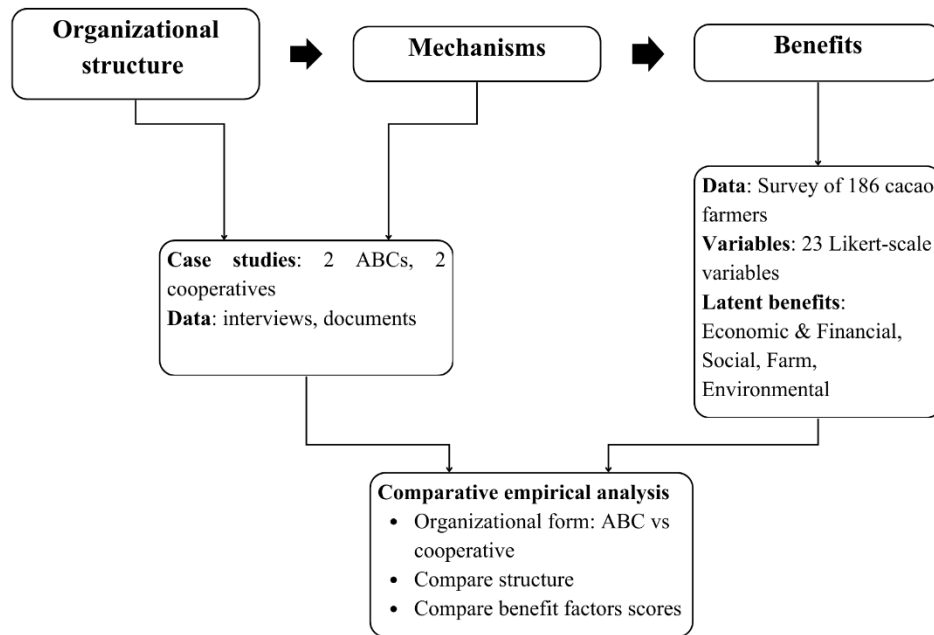


Figure 13. Empirical framework for comparing ABCs and cooperatives

At the same time, the benefit categories are operationalized as perceived benefits at the farmer level. Using the benefit items derived from the literature, quantitative analysis (factor analysis) was used to generate the latent benefit constructs. Through this process, factors scores were generated per farmer. These scores were treated as measurements for each benefit category associated with being a member of an ABC or cooperative.

Finally, the last step on the framework highlights that the case study analysis and EFA are integrated. The qualitative analysis addressed objective 2 by determining how the organizational structures of ABCs and cooperatives differed across the five structural features. Meanwhile, the quantitative analysis directly compared the four latent variables – economic and financial, social, farm, and environmental - between the groups which served as the mechanism to address objective 3 by providing evidence for the differences in benefits captured between members of ABCs and cooperatives.

Chapter 4: Methods

This chapter describes the methods used in comparative case study of agro-based clusters (ABC) and cooperatives using mixed methods. It describes the research approach and design, study area, step-by-step data collection, qualitative and quantitative methods, ethical considerations, and limitations.

4.1 Research approach

The research approach dictates the methods and how they're utilized to answer the research problem and objectives (Fernando, 2021; Hidayati, 2023; Tray et al., 2021). According to Sarantakos (2013), approaches in the social sciences are broadly categorized under qualitative, quantitative, and mixed methods. The researchers choice of approach is based on the theoretical framework, research problem, limitations, practical constraints, and study context (Neuman, 2014).

Qualitative research is observing a social phenomenon in a real world setting, focusing on how participating actors create meaning, interpret, and manifest them, while documenting their experiences within its specific context (Neuman, 2014; Sarantakos, 2013). Based on this, it's appropriate for research problems that are difficult to fully quantify, undergo changes over time, or require in-depth understanding, such as organizations, groups of people, and relationships in a real-world settings (Babbie, 2021).

In contrast, quantitative research deals with numerical data using statistical/mathematical analysis, defining variables, measuring relationships between them, test and compare patterns between groups (Babbie, 2021; Sarantakos, 2013). It is well-suited for research with multiple, complex dimensions in large samples because the approach is systematic and replicable (Neuman, 2014).

Meanwhile, mixed methods research combines both qualitative and quantitative methods to understand a social phenomenon (Sarantakos, 2013). The process is often referred to as triangulation where the proponent looks at a research problem across multiple perspectives to come up with a comprehensive understanding (Neuman, 2014; Punch, 1998). In the literature, mixed methods studies structure qualitative and quantitative methods in one of five designs: (1) sequential, (2) parallel, (3) dominant/less dominant, (4) integrated, and (5) step-wise (Punch, 1998; Sarantakos, 2013). Since this approach capitalizes on strengths and compensates for

weaknesses, it is well-suited for analyzing institutional aspects alongside its effect across a large group of people (Onwuegbuzie & Johnson, 2021; Punch, 1998).

4.1.1 Research problem aims and objectives

The study addressed a broader research area on how different collective action organization models support smallholders in the cacao value chain. Specifically, the focused on two important organizational forms, ABCs and cooperatives, which structured farmer participation and shaped the benefits they received Revisiting the specific objectives of this study:

1. To analyze and compare the organizational structures of both ABCs and cooperatives in the cacao sector.
2. To analyze and compare the benefits captured by smallholder cacao farmers for participating in ABCs and cooperatives in the cacao sector.

4.1.2 Rationale for the research approach

Due to the nature of the research problem, its aims and objectives, this study adopted a mixed methods approach, due to the following:

- The qualitative approach helped generate an in-depth understanding (Punch, 1998) of the organizational structures of ABCs and cooperatives by studying their structural features and how they operate in practice.
- The quantitative approach enabled gathering data from a large sample of cacao farmers and perform a statistical analysis of their perceived benefits, facilitating the comparison of benefits received between members of ABCs and cooperatives.

In summary, the qualitative methods produced insights on collective action organizations in practice, while the quantitative methods produced an empirically backed comparison between ABC and cooperative members. The study takes advantage of the mixed methods approach, to utilize complementary evidence for stronger conclusions (Sarantakos, 2013).

4.2 Study Area

Figure 13 shows the Davao region which contributed 78 percent to the national output of cacao (Garcia et al., 2022) with an estimated 31,193 cacao farmers (City Government of Davao, 2022; Delos Reyes, 2024; Philippine Rural Development Program, 2014; Provincial government of Davao del Norte, 2018; Provincial government of Davao Oriental, 2019) in its four cacao producing provinces and one highly-urbanized city: Davao del Sur, Davao Oriental, Davao del Norte, Davao de Oro, and Davao City (PhilAtlas, 2025). The region also houses the largest number of organizations engaged in cacao-related activities (Garcia et al., 2022) which made it suitable for a comparative study on cacao ABCs and cooperatives.



Figure 14. Map of the Davao region

4.3 Research Design

This section describes how the mixed methods approach was implemented by the proponent. This study adopted an integrated mixed method design (Punch, 1998; Sarantakos, 2013) which combined:

- Multiple case studies of two ABCs and two cooperatives, and
- A cross-section survey of smallholder cacao farmers who were members of these organizations.

The qualitative and quantitative parts were purposely paired to complement their strengths and compensate for their weaknesses (Babbie, 2021). Specifically, the qualitative part provided insights (Punch, 1998) on organizational structures, governance, and cacao-related activities

and services of the four collective action organizations. Meanwhile, the quantitative part measured farmers perceived benefits across multiple dimensions (Kidoido & Child, 2014) and performed a statistical test to compare benefits between ABC and cooperative members. It is also aligned with multiple authors that studied benefits captured by farmers through collective action (Ahmad, 2017; Fischer & Qaim, 2012; Oakeshott, 2016; Van der Lee et al., 2018; Wardhana et al., 2020).

4.3.1 Case Study Design

The case study design was adopted to examine complex organizational structures and compare across cases (Liu et al., 2024; Punch, 1998). (Hidayati, 2023). In addition, this is also an exploratory case study because it applies existing concepts in a different context to generate new knowledge (Lyford et al., 2000).

Two ABCs and two cooperatives engaged in the cacao sector of the Davao region were the subject of the case studies. They represent collection action enterprises that had been operating for at least three years and a significant volume of cacao bean production. For each case, interviews were conducted with key officials and relevant documents were reviewed to generate an in-depth understanding of:

- History and Organizational Structure
- Governance and Management
- Services to members, and
- Cacao-related business activities.

This design addressed the second objective by delivering a comprehensive understanding of ABCs and cooperatives in the cacao sector, while building a basis for meaningful comparison between cases.

4.3.2 Survey Design

The survey was designed to collect cross-sectional data from farmer members of the selected cases from December 2024 to March 2025. The survey captured information about a single reference point, consistent with various studies related to farmers participating in collective action enterprises (Wang et al., 2021; Xu et al., 2023). The survey focused on the following information:

- Socio-demographic characteristics,
- Membership information,

- Farming information, and
- Perceived benefits from participating in ABCs or cooperatives

The survey addressed the third objective by measuring the benefits received by farmers from ABCs and cooperatives, forming the basis for a statistical comparison.

4.3.3 Sampling approach

In any research, sampling is a critical step because it starts the process of selection of individuals or groups from a population to generate insights that can be generalized to the larger whole (Babbie, 2021). To be effective, sampling must be grounded on actual knowledge of the population by using probability theory or exploring the representatives of the social processes under examination (Babbie, 2021; Neuman, 2014). When done properly, sampling makes research more efficient and economical without sacrificing the quality of the findings (Sarantakos, 2013).

There are various techniques used in sampling, but they can be easily classified under two broad categories: probability and non-probability (Neuman, 2014). Often used in quantitative studies, probability sampling is the scientific process of randomly selecting samples that's representative of the population, subject to the calculated sampling error (Babbie, 2021). Despite its robustness, probability sampling has many practical concerns such as drawing from an accurate sampling frame, cost of implementation, and willingness of randomly selected respondents to participate (Neuman, 2014). Meanwhile, non-probability sampling is less concerned about representativeness and more interested in gaining a deeper knowledge about a social phenomenon (Sarantakos, 2013). Aside from a lack of representativeness, non-probability sampling could potentially be affected by researcher bias either consciously or subconsciously (Babbie, 2021).

The study utilized a comparative case study of ABCs and cooperatives, making purposive sampling appropriate because it allowed the selection of cases that could best inform the research questions (Neuman, 2014). The selection was based on a set of criteria which had proven to be successful in understanding multi-dimensional issues influencing smallholder performance (Ranshuysen, 2013).

As for the sample size, a sample-to-variable ratio of 5:1 or more and not less than 100 was recommended to ensure reliable correlation coefficients, high factor loadings, and clear interpretable factors (Fabrigar et al., 1999; Hair et al., 2019; Reio & Shuck, 2015; Tabachnick & Fidell, 2018) The criteria for selection of respondents were discussed in the qualitative and quantitative phase of this section.

4.4. Data collection

The study collected both primary and secondary data. Secondary data provided information and background on the collective action organizations, while primary data were collected through the face-to-face interviews and farmer survey.

4.4.1 Secondary data collection

The secondary data were sourced from available databases of government, industry associations, and international organizations. Other secondary sources include: (a) published journal articles, (b) reports from government, non-governmental organizations, and private associations, (c) online databases which contain information relating to the thesis topic. For data on cooperatives, the information was gathered from the offices of the CDA in the Davao region. In gathering information, the proponent focused on the locations of cooperatives engaged in cacao-related activities in the Davao region, their cooperative registration and by-laws. Similarly, information on the ABCs location, members, and lead firms were collected from the Philippine Cacao Industry Association (PCIA), DAs Farm and Fisheries Clustering and Consolidation Program (F2C2), the Department of Trade and Industry (DTI), Resilience and Inclusion through Investment for Sustainable Agrikultura (RIISA) Project (Bitong, 2023; Briones, Navarro, et al., 2023; Department of Agriculture (Philippines), 2022; Philippine Cacao Industry Association Inc., 2023).

4.4.2 Primary data collection

Primary data collection involved two phases (1) qualitative phase – interviews with key officials and enablers, and (2) quantitative phase – survey of cacao farmer members.

4.4.2.1 Qualitative phase

4.4.2.1.1 Selection of cooperatives

The records of cooperatives in the Davao region was secured from the Regional Office of the Cooperative Development Authority in Davao City (Cooperative Development Authority (Philippines), 2024). The information collected included a list of cooperatives engaged in cacao-related activities and pertinent information on their cooperative by-laws, production

volume, and activities (Cooperative Development Authority (Philippines), 1993). For this study, the cooperatives were selected based on the following criteria: (a) engaged in activities in the cacao sector for at least three years, and (b) had a consolidated volume of cacao beans comparable to those of the selected ABCs.

4.4.2.1.2 Selection of interviewee from cooperatives

Cooperatives in the Philippines are mandated to have a Board of Directors (BoD) and select a Chairperson and Vice Chairperson (Cooperative Development Authority (Philippines), 2015). Therefore, the interviews targeted key leaders and staff involved in the cooperative's operations, such as: (a) chairpersons and vice-chairperson responsible for setting the strategies for the cooperative and agenda during the General Assembly (GA) (Cooperative Development Authority (Philippines), 2015), (b) cooperative managers handling the cacao operations, contracts and agreements, capacity building and marketing, and agricultural technicians involved in cacao farming support services. A total of seven key cooperative actors were interviewed: two chairpersons, one vice-chairperson, one BoD secretary, two cooperative managers, and one cooperative technician.

4.4.2.1.3 Selection of agro-based clusters and interviewees

The information for the managers of the clusters was gathered from the PCIA, the DA Regional Field Offices (DA-RFO), and the Resilience and Inclusion through Investment for Sustainable Agrikultura (RIISA) Project. Using a directory of regional and provincial council Chairpersons, they were contacted to collect information on relevant activities of the association for ABCs in cacao (Garcia et al., 2022; Philippine Cacao Industry Association Inc., 2023). The DA-RFOs and RIISA project shared information on cacao-related ABCs related to the location of the agro-based clusters, members, partner organizations, development plans and activities of the cluster (Department of Agriculture (Philippines), 2022). For this study, ABCs were selected based on the following criteria: (a) engaged in activities in the cacao sector for at least 3 years, and (b) had consolidated volumes of cacao beans comparable to the selected cooperatives.

ABCs in the Philippines consists of individually registered companies registered with either the Security and Exchange Commission (SEC), Department of Labor and Employment (DOLE), and LGU (Department of Agriculture (Philippines), 2022). ABCs organized by government, private corporations, or NGOs through development programs have cluster managers that

manage activities of the entire cluster and were targeted for the interviews (Briones, Galang, et al., 2023).

A total of seven people involving cluster managers and enablers associated with two ABCs were interviewed, namely: one operations manager, one community development supervisor, one NGO executive director, two presidents of farmers association, one vice-president of farmer's association, one PCIA regional chairperson, one DA division chief, one DA staff.

4.4.2.1.4 Interview Procedures

The in-person interviews were conducted from December 2024 to March 2025. Primary data was collected through interviews with the selected heads of ABCs and cooperatives to gather qualitative information on organizational structures of these selected collective enterprises. Information letters were sent to their organizations which informed them of the purpose of the interview. These were confirmed through phone interview to ensure their consent to participating in the study. The proponent also followed approval protocols of the interested organizations where necessary.

Appendix 1 shows the semi-structured questionnaire containing open-ended questions. It was designed to guide the interviewer to collect the necessary information, while maintaining flexibility to explore understanding of topics discussed by the interviewee to improve the reliability of the research (Sarantakos, 2013; Yin, 2018). The interview protocol covered the following: (1) general information, (2) manager's information, (3) generic information about the cooperative or agro-based cluster, (4) organizational structure and management, (5) services to members, and (6) cacao business activities. All interviews were audio-recorded with consent from the interviewees.

4.4.2.2 Quantitative phase

The quantitative phase described the design of the survey on farmer respondents that was used in the analysis and comparison of benefits captured by farmer members of agro-based clusters or cooperatives in the cacao sector of the Philippines.

4.2.2.2.1 Development of questionnaire and pilot testing

A questionnaire is an element of the study design used to gather information about the research questions guiding a project (Neuman, 2014; Punch, 1998). For this study, the questionnaire was deemed the appropriate tool because the survey gathered data on the background and opinions

of a substantial portion of cacao farmers who are members of ABCs and cooperatives (Neuman, 2014).

In terms of structure, there are three different types of questionnaires commonly used field research. Standardized questionnaires are highly rigid with a fixed set of responses and best used for statistical analysis of many cases (Babbie, 2021). In contrast, the unstandardized questionnaire uses only open-ended questions allowing the researcher to gain a deeper understanding of an interviewees specific opinions or beliefs relevant to the study (Sarantakos, 2013). Then, there's the semi-standardized questionnaire which utilizes both open- and close-ended questions in each section and best used for mixed methods research (Neuman, 2014). In Appendix 1, the qualitative interviews followed an unstandardized questionnaire to gain a deeper understanding of the organizational structure of each case. Meanwhile, Appendix 3 showed a semi-standardized questionnaire to gather information on sociodemographic characteristics, membership, cacao farming, and perceived benefits.

The pre-testing of questionnaires was done to ensure that the data collection instrument is consistent with the methods used and capture valid data for the study (Sarantakos, 2013). The drafting of the questionnaire involved self-critique and was scrutinized by the proponent's research supervisor to ensure questions are relevant, clear, and had a symmetrical structure (Neuman, 2014; Sarantakos, 2013). With the semi-standardized questionnaire, the proponent conducted qualitative exploration through a phone interview with two cacao farmers in the Davao region to align the questions with the current context of the cacao industry (Babbie, 2021). These farmers were previous contacts of the proponent and not involved with the subject ABC and cooperative. The first field work in December 2024 involved pilot testing the questionnaire through a small group of five farmers members of the first ABC and cooperative to test the questionnaire's structure and discuss the administration of the questionnaire to the larger group (Punch, 1998; Sarantakos, 2013). Based on the pilot test, minor adjustments to the draft questionnaire were made related to farm information, membership, and perceived benefits to gain a consistent understanding between interviewer and interviewees (Sarantakos, 2013). It also uncovered the need to translate the questions to *Cebuano* which eliminated the language barrier, presented the questions more clearly, and built trust with marginalized groups (Neuman, 2014) The data collected from the respondents during the pilot testing remained relevant to the analysis and were used in the total sample. The final survey questionnaire included sections on socio-economic characteristics, membership information, reasons for joining, farm area and

ownership, farming practices and facilities, product price and quality, market preferences, other income sources, and perceived benefits.

4.4.2.2.2 Selection of survey respondents

For this study, the purposive sampling was done by getting samples from two ABCs and cooperatives. The cooperatives and agro-based clusters were identified based on the criteria discussed in the qualitative phase. For the selected cooperatives, the farmer members were selected from their roster of farmer members. On the other hand, the selected agro-based cluster have farmers in their supplier network formed into clusters or organized into farmer's associations (Department of Agriculture (Philippines), 2022).

The sample size was determined using the GPower Software (Faul et al., 2007) because it had an option for determining sample sizes for a Wilcoxon-Mann-Whitney test. The Wilcoxon-Mann-Whitney test is a non-parametric t-test which derives the sample size from the standard t-test based on the Asymptotic Relative Efficiency (ARE) (Prajapati et al., 2009), as shown in the formula below:

$$n_{np} = \frac{n_p}{ARE}$$

n_p : The sample size for a standard t-test.

ARE: The standard number is 0.955 which is the relative efficiency when sampling from non-normal distribution (Salkind, 2007)

Using GPower, the calculated size of the sample was calculated at 134 samples. To account for missing data and dropouts, the targeted sample size was 200 farmers distributed evenly between cooperative and agro-based cluster (Diez et al., 2019). The final count of respondents was 186 respondents: 86 ABC members and 100 cooperative members, exceeding recommended sample size for EFA (Fabrigar & Wegener, 2012; Tabachnick & Fidell, 2018).

4.4.2.2.3 Survey administration

Appendices 4, 5, 6 show the pilot, final, and translated questionnaire used for the survey of smallholder cacao farmers participating in ABCs and cooperatives. The semi-structured questionnaire asked the respondents to respond to questions related to the ff: (a) socio-demographic characteristics, (b) farm information, (c) perceived benefits captured by smallholder farmers. The benefits section used a five-point Likert scale (1 = Strongly disagree

to 5 = Strongly Agree), an appropriate choice because individual Likert items are ordinal, providing ranked responses while not assuming equal intervals between items (Baglin, 2014). Allali et al. (2024) stated that a semi-structured questionnaire provides flexibility for the interviewer to discuss dimensions with respondents recording their self-reported benefits to gain a deeper understanding of the role of organizations.

Furthermore, the data collection survey instruments were translated to the local language of *Cebuano* to ensure the farmer's understanding of the questions. The survey was administered in digital form and paper format. The proponents hired enumerators and used the KoboToolbox Application (KoboToolbox, n.d.) to collect data from the respondents. In the event of technical issues, the paper and pen tool was used. There was also a self-administered phase where all consenting and able respondents answered the questions on perceived benefits on their own.

4.5 Data analysis

4.5.1 Qualitative Data Analysis

Qualitative data collected from relevant documents and face-to-face interviews were analyzed using comparative case analysis (Yin, 2018). During the interviews, field notes and recording were taken, transcribed, and analyzed forming the information for the analysis of each case (two ABCs and two cooperatives).

The analysis then proceeded using two main methods: within-case and cross-case analysis. The within-case analysis organized the information gathered from each case (Punch, 1998; Velten et al., 2021) under each organizational structure concept, namely: ownership, control, membership, investment, stakeholder involvement, benefits. The cross-case analysis compared the structural elements across the four cases to determine the differences between ABCs and cooperatives (Neuman, 2014; Velten et al., 2021). The patterns that emerged from the within-case analysis and cross-case comparison were interpreted using the conceptual framework drawn from the literature on collective action organizations, providing strong evidence for the second objective. This comparative case study produced a comprehensive understanding of real-world organizational structures, which also informed the discussion on the underlying reasons behind the observed differences between ABCs and cooperatives.

4.5.2 Quantitative Data Analysis

This section described the methods and tools used in the analysis of quantitative data. Descriptive and statistical inference techniques are often used on quantitative data collected from social science research (Neuman, 2014; Sarantakos, 2013). The R statistical software (R Core Team, 2025) was used to do the descriptive statistics, exploratory factor analysis (EFA), and Wilcoxon-Mann-Whitney (WMN) test because of its an accessible software that is a common software used in data analysis, statistical computing, and visualization in scientific research (Loftus, 2022; Peng, 2016).

4.4.3.1 Data entry and cleaning

KoboToolbox has a data extraction feature which allowed the export of recorded survey data on a Microsoft Excel compatible spreadsheet (United Nations (UN), 2023). The extracted spreadsheet was checked for complete and valid entries from the respondents. Standardization techniques were also followed to maintain consistency across the dataset. Units of measure for several variables such as years, volume of production, and farm area were made consistent. There was a small number of missing data and outliers, and mean standardization was used to fill-in or replace the values for the analysis (Loftus, 2022). Several continuous variables (e.g., age, farm experience) were transformed into categorical variables for easier comparison between groups. After these steps, the dataset used for the statistical analysis totaled 189 cases, 87 ABC members and 89 cooperative members.

4.4.3.2 Descriptive analysis

Both exploratory and descriptive analysis of the variables was done using the R programming language. Exploratory data analysis was used to check data quality, determine probability distributions of continuous variables and proportion of categorical variables (Loftus, 2022). This was followed by a descriptive analysis of the data using mean, standard deviation, count, and proportion to summarize relevant variables to this study (Peng, 2016) including demographic and socioeconomic characteristics, membership information, reasons for joining, farm area and ownership, borrowing and post-harvest practices, shared facilities, product type and quality information, price of cacao productions, other income sources, and perceived benefits.

4.4.3.3 Exploratory Factor Analysis of benefits

After descriptive analysis, the quantitative data on perceived benefits was further analyzed using multivariate statistics technique called, Exploratory Factor Analysis (EFA) (Mapanga, 2021). This method is based on the Common Factor Model, a theory that posited the underlying

constructs influencing observed variables (DeCoster, 1998; Fabrigar et al., 1999; Yong & Pearce, 2013). In this model, influence was characterized as a decomposition of variance in each variable, extracting the common variance between them based on correlation and loading them onto a latent variable (Fabrigar & Wegener, 2012; Floyd & Widaman, 1995). This model helped in grouping 23 variables of perceived benefits into latent variables that uncovered a structure in the data connected to farmer performance under their organizations (Reio & Shuck, 2015). This helped make the comparison of between groups easier for the proponent.

The benefits data was collected using a Likert scale and is often a subject of debate in EFA because the linear assumption is applicable only to interval or ratio scale data, not ordinal data. (Fabrigar & Wegener, 2012). However, Thompson (2004) argued that a five-point Likert scale measuring the agreement of a respondent to a question approximates an interval scale. Several authors also agreed that the Pearson correlation in an EFA involving ordinal data is reliable when it has five or more categories (Kline, 2023; Watkins, 2021). Lastly, multiple studies have already utilized this method for Likert scale data (Fernando, 2021; Mapanga, 2021) making it an appropriate tool in this context.

Multiple authors have outlined a protocol for EFA from research design to interpretation and reporting (DeCoster, 1998; Fabrigar et al., 1999; Watkins, 2021). Research design involved variable selection, adequate sampling, and data cleaning (Fabrigar & Wegener, 2012). The next step assessed the variables for suitability of EFA using correlation matrix and statistical tests such as, Bartlett's test of sphericity and Kaiser-Meyer-Olkin (KMO) (Fabrigar et al., 1999; Thompson, 2004). Third step involves factor extraction and model selection where the extraction methods (e.g., Maximum Likelihood, Principal Axis Factoring) is used to determine the number of factors to be retained in the model (Watkins, 2021). The retained factors are then interpreted according to factor loadings and named for a conceptual theme consistent with the theoretical framework of the study (Fabrigar & Wegener, 2012; Yong & Pearce, 2013). Finally, multiple authors utilize the factor scores as a latent variable for subsequent analysis such as linear regression and statistical testing to compare groups (DeCoster, 1998; Fabrigar & Wegener, 2012; Fernando et al., 2021a; Watkins, 2021). The standard EFA protocol is summarized below:

1. Research design and data preparation
2. Suitability assessment for EFA
3. Factor extraction and model selection

4. Interpretation of factors
5. Reporting and utilization

Following the five-step protocol, the EFA report for this study including the decision at each stage is described for transparency. The first iteration of the EFA generated four meaningful factors but required refining due to three variables having weak factor loadings across the factors. The three variables were observed variables under the economic and environmental benefits categories. The economic benefits statement that was excluded was: *high price*. The environmental benefits that were excluded were: (1) better utilization of cacao by-products, (2) improved farm cleanliness. The reason for exclusion was due to three variables having factor scores of below 0.40 across all the four factors which is interpreted as a weak factor loading in the literature (Costello & Osborne, 2005).

Table 2 shows the results of running the Kaiser-Meyer-Olkin (KMO) test and Bartlett's Test of Sphericity on the remaining 20 variables for analysis. Both tests are used to determine if the variables can be used for EFA based on their intercorrelations (Fabrigar et al., 1999). The KMO test generated an Overall Measure of Sampling Adequacy (MSA) score of above 0.8 which suggest that the sample is adequate for EFA (Costello & Osborne, 2005). The correlation between factors is significant based on the p-value and the large Chi-squared value generated from the Bartlett's Test which suggests the variables are suitable for EFA. Based on the two tests, the 20 variables can be used for EFA.

Table 7. Statistical tests for sample adequacy for EFA

Statistical tests		Parameters of interest
Measure of Sampling Adequacy (MSA)		0.823 ^a
Bartlett's Test of Sphericity	Chi-squared	1318
	df	190
	p-value	0.000***

^a MSA > 0.6

* p < 0.1, ** p < 0.05, *** p < 0.01

Figure 1 shows a scree plot that graphs the eigenvalues on the number of factors to determine the recommended factor solution. The parallel analysis recommended to find a four-factor solution on the data for the EFA. However, Figure 1 shows that the eigenvalues dropped below

1 and starts to level off after factor 2 suggesting the strength of the first two factors. Fabrigar et al. (1999) stated that a parallel analysis can offer more practical decisions on the number of factors to retain if it is consistent with the literature. Thus, the four-factor solution was retained for the EFA model that was used for the analysis. The result and utilization for this EFA is presented in Chapter 6.

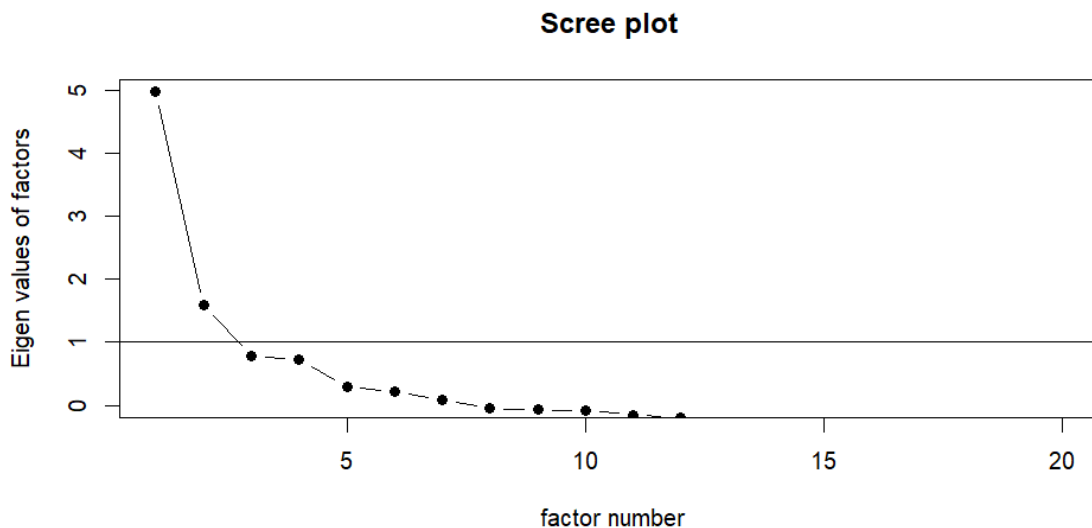


Figure 15. Parallel analysis scree plot of benefits variables

4.4.3.4 Wilcoxon-Mann-Whitney Test (WMN)

Consistent with several studies, the use of the WMN test is to compare the latent performance variable between two groups (Fernando et al., 2023). Comparing factors scores is a common secondary analyses to determine if the average standing of latent variables is different between groups defined by the researchers (Fabrigar & Wegener, 2012; Kline, 2023). Furthermore, Thompson (2004) argues the estimated factors scores can generate a mean between subgroups of a larger sample and be compared by an appropriate statistical test making the inference valid. The use of EFA relaxed the normality assumption (Hair et al., 2019). The non-parametric WMN test was used because the factor scores generated were ordinal and had a non-normal distribution (Fernando, 2021; Mann & Whitney, 1947; Wilcoxon, 1945).

4.6 Ethical considerations

The study was conducted in the Philippines and involved cacao farmers, leaders of producer associations and cooperatives, private cacao corporations, non-government organizations, and government representatives. Throughout the research activities, the proponent complied with

the Massey University Human Ethics Committee (MUHEC) guidelines. Prior to interviews, all participants were sent communication letters which provided information on research objectives, purpose of the interview, use of information obtained, and reciprocal benefits. To show fair treatment, the proponent also signed a Release and Waiver of Liability, Assumption of Risk, and Indemnity Agreement required by the private company during one of the field visits. During the survey, all participants were aware of the same information and were read an informed consent at the start to state that participation was voluntary, they retained the right to decline and were assured of the privacy of their information shared to the proponent. As shown in Appendix 4, each participant gave their consent by affixing their signature on the form or by selecting *yes* on the Kobo Toolbox form.

4.7 Limitations of the study

It is important to note several limitations of the study. In scope, the study targeted only two ABCs and cooperatives from the list provided by government agencies. Funding constraints and geographic scope restricted the number of cases to four and the findings produced should be treated whole cacao industry, its organizations, and farmer population.

Meanwhile, the data collected and the statistical methods have limitations on their accuracy and broader application. The proponent judiciously checked for inconsistencies and inaccuracies in the data, but it is still subject to the recollection of the respondents and not based on documentary records.

For the EFA, Fabrigar and Wegener (2012) highlights that all findings generated is driven by the data gathered and cautions against attributing causality in the statistical inference. Also, the names of the factors were subject to the understanding of the author informed by study's literature review and conceptual framework. Similarly, the WMN tests compared the latent constructs between ABCs and cooperatives generated by the EFA in a specific regional and organizational context. Readers should not assume the latent variables uncovered provide a universal understanding beyond similar settings (Reio & Shuck, 2015; Watkins, 2021).

Chapter 5: Results

5.1 Introduction

This chapter presents the results of the study. It starts with case descriptions of two agro-based clusters (ABCs) and two cooperatives, highlighting their current operations and key elements of their organizational structure. The members of the Auro group of companies in Cluster 1 are henceforth identified as Company A-C. These cases provide context for the subsequent cross-case synthesis of ownership, control, membership, investment, and stakeholder involvement.

The chapter then proceeds to present descriptive statistics from the farmer survey, covering demographic characteristics, organizational participation, farming information, marketing activities, and self-reported benefits across the four organizations. These descriptive results form the basis for the Exploratory Factor Analysis (EFA) and the Wilcoxon-Mann-Whitney (WMN) test that identified and compared latent benefit constructs across groups.

5.2 Cluster 1: Export-oriented cacao cluster

5.2.1 Brief history of the cluster

Figure 1 presents a brief history of a private group of companies and the ABC it created to become one of the Philippines top chocolate makers. Company A's history started in 2015 with their founders having a strong interest in chocolate-making. Armed with newfound knowledge in chocolate-making from the Zentralfachschule der Deutsche Süßwarenwirtschaft (ZDS) Institute in Germany, the two founders started Company B, a chocolate manufacturing company and began scoping for sources of cacao beans in the Davao region. In their early years, Company A procured raw materials from referrals given by the Cacao Industry Development Association of Mindanao (CIDAMI), a non-profit organization, and walk-in farmers in their compound.

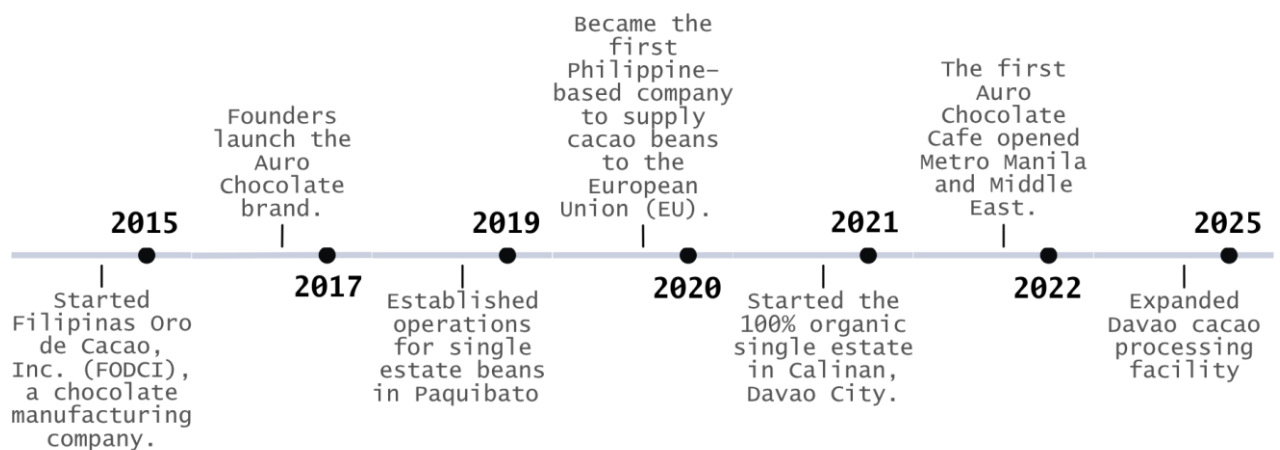


Figure 16. Timeline of important events in the Cluster 1

Using their business savvy, Company A developed a single-estate origin product line that was paired with innovative ABC development strategies. In 2017, they launched their chocolate entering the fine flavour chocolate segment while gradually building steady suppliers of cacao beans. In the same year, Company A expanded operations in the Paquibato district via the Paquibato Tree Developers Cooperative, facilitating the development of their first single-estate origin product.

In 2020, Company A made its first shipment of cacao beans to Europe through Silva Cacao, gaining access to a wide distribution network across the continent through a partnership brokered by the Department of Trade and Industry (DTI). That same year, Company C was established, marking their entry into the local and international food & beverage industry.

In 2021, the company expanded its procurement in Paquibato to include the Purok Pag-asa Farmer's Association (PPFA), which has since become the main supplier for the Paquibato single-estate product line. Parallel to this, they began developing a brand from organically grown cacao by working with the NGO, Magsasaka at Siyentipiko para sa Pag-unlad ng Agrikultura (MASIPAG), to build the capacities of cacao farmers in organic farming. This initiative created the Saloy Organic Farmers Association (SOFA) in Saloy, Calinan, Davao City who received their organic certification in 2023.

Today, the private group has become one of the Philippines top fine chocolate-makers by sustainably sourcing from 600 cacao farmers in the Davao region, shipping cacao beans to 80

international chocolate makers, distributing products to 50 countries in Europe, and operating six chocolate cafés in the Philippines and the Middle East. These combined efforts earned multiple national and international awards, most notably in the International Cocoa Awards.

5.2.2 Structure of the cluster

Figure 2 shows the structure of Cluster 1, which bring together decision-makers from several organizations. Within the private group, each company has a Board of Governors (BoG), composed of majority shareholders responsible for strategic direction. Company A serves as the group's marketing arm, where the founders serve as managing directors overseeing Davao operations. Company B handles food manufacturing, while Company C handles their food and beverage retail business. The private group are closely linked through shared ownership and familial ties.

Company A formalizes engagement with producer organizations through exclusive or non-exclusive purchase agreements that specify price, volume, and quality requirements. PPFA have their own leadership structures, with officers making decisions based on contract obligations and member needs.

Government and non-government stakeholders also play important supporting roles in in Cluster 1. Agencies such as the DTI and Department of Environment and Natural Resources (DENR) assisted in expanding value-chain activities and ensured access to quality planting materials. Development partners, including representatives from the Swiss government and the Mennonite Economic Development Associates (MEDA), provided livelihood support, promoted environmentally sustainable agricultural practices, and refined the governance practices within the cluster.

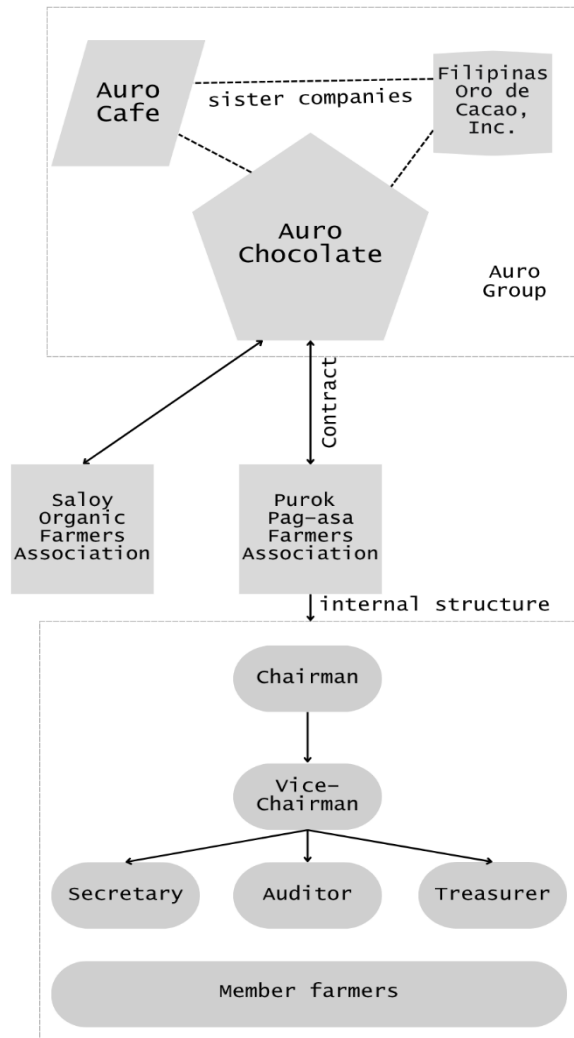


Figure 17. Structure of the export-oriented cacao cluster

5.2.3 Membership in the cluster

Company A engages farmer groups through the Cacao Farmer Program, an accreditation process that begins with community meetings to introduce the company and communicate production standards. Groups that expressed interest proceed by undergoing profiling, validation, evaluation, and contract signing, with options for exclusive or non-exclusive contracts.

Smallholder farmers participate in the cluster through producer organization like PPFA, either by becoming members or selling cacao beans to them, as these groups also act as consolidators. These producer organizations are recognized as cacao champions receiving quarterly farm assessments, community programs, productivity assistance, and full incentive packages from Company A. Today, they main source of beans are in Davao City and Davao del Sur. More

importantly, their membership arrangements underscore the cluster’s coordination and delivery mechanisms.

5.2.4 Activities of the cluster

Table 8 summarizes the activities performed by each member organization in Cluster 1. These activities span key stages of the cacao value chain, from production, post-harvest, manufacturing, retail, and community-level support.

Table 8. Organizations and their activities

Member organizations	Activities
Auro Chocolate	• Funding support for procurement, nursery establishment, and other community activities • Provision of agricultural inputs • Regular technical assistance on cacao production and post-harvest practices • Field monitoring of cacao farms • Drying and fermentation • Procurement of cacao beans, totaling collected 168 metric tons in 2024 • Exporting of raw cacao beans and chocolate products to over 80 international chocolate makers
FODCI	• Manufacturing of premium tree-to-bar chocolate products, including bars, nibs, powder, and <i>tableya</i>.
Auro Café	• Retail of cacao-based food and beverage products through Auro Café and partner outlets in the Philippines, Bahrain, Europe, Japan, Singapore, Taiwan and the USA.
PPFA and SOFA	• Establishment of cacao nurseries • Production of cacao beans • Provision of agricultural tools and inputs (PPFA) • Provision of organic inputs (SOFA)

5.2.5 Services of the cluster

Table 9 outlines the services provided by the lead firm producer groups to both members and non-members. The private group provides production support, incentives, compliance training, organizational development, social and environmental services. These services help ensure that

farmers and their producer group meet quality standards and remain active participants in the cluster.

A unique service of this cluster is the rewards system, where farmers can accumulate points (1 kilo = 1 point). Points can be exchanged for farm inputs or tools, complementing existing price incentives. Cluster members also facilitate external partnerships through the farm tours and adopt-a-tree program, which have supported women's livelihood projects and induced more capital into the farmer groups.

Table 9. Description of the services provided in Cluster 1

Category of services	Description
Cacao production support	• Free farm consultations • Monthly and quarterly monitoring • Financial assistance for inputs and farm development • Rewards system for producer groups • Supply of farm inputs (seedlings, fertilizer) • Rewards system for tools and inputs • Knowledge sharing between members
Incentives	• Additional P3/kg for cacao beans • Additional P10/kg for organic cacao beans
Compliance with product standards	• Trainings on production and post-harvest practices • Extended Producer Responsibility (EPR) compliance training
Organizational development	• Support for financial reporting and training for accounting officers
Social services	• Recognition ceremonies • Women's livelihood projects (e.g., fossilized cacao leaves) • Farm tours for visitors
Environmental services	• Adopt-a tree program • Organic Cacao Program
Community-based services (non-members)	• Local feeding program • Medical missions
Incentives (non-members)	• Access to rewards system for farm inputs and tools

Table 9 also reveals that non-members benefit from cluster's activities. Company A's feeding programs and medical mission are implemented in the communities where partner farmers operate, and the empowered PPFA extends the rewards system to non-member farmers in Paquibato.

5.2.6 Challenges of the cluster

Company A faces several challenges including delays in government partner projects. Procurement bottlenecks pushed them to secure loans to finance the planned expansion of their drying and fermentation facility in Subasta, Calinan.

Procurement challenges are driven by steep price increases, low productivity, operational inefficiencies, and uncertainty in the supply base. High prices have affected Company A's cash flow, pushing them to purchase cacao beans on credit from suppliers such as PPFA. High prices have also resulted in some farmers to engage in *side-selling*.

Low productivity persists due to limited input application and lack of knowledge. Pest and diseases such as pod rot and vascular streak continue to affect production, while heavy rains disrupt the flowering stage of cacao further reducing yields.

Operational inefficiencies stem from the separation of their drying and fermentation facilities, which result in multiple handling of beans costing them time, fuel, and product losses. The community development officer also noted concerns about an aging farmer population and the absence of a succession plan, which will eventually weaken their supply base.

5.2.7 Future plans

Company A plans to expand its cacao nursery and post-harvest facilities and to open a distribution channel in Mindanao. The expansion facility in Subasta, Calinan will enable them to process up to 25 tons of wet beans per week and cultivate thousands of cacao seedlings. Company C is also preparing to expand operations in Mindanao, starting with a food and beverage outlet in Davao City.

Within the cluster, PPFA aims to increase production and expand their operations in the coming years. According to Company A's operations manager, members are motivated by high cacao prices and the access to a stable market through the cluster. PPFA plans to use their funds to

purchase land and partner with the local government to construct a facility for storing farm inputs and cacao beans, and housing their nursery operations.

5.3 Cluster 2: Unorka-organized clusters

5.3.1 History of the cluster

Figure 18 presents the timeline that led to the formation of four cacao agricultural clusters in the Calinan and Tugbok districts of Davao City. These clusters were established to develop an organic cacao-durian production protocol grounded in evidence-based research. The initiative was borne out of the convergence of government agencies, non-government organizations (NGOs), academe, and international partners through research and development (R&D) projects funded by the Korean government.

The clustering strategy grounded on action research and supported by partner NGOs experienced in community development. In 2023, the clusters were created to facilitate the R&D activities of the University of Southern Mindanao (USM), Kahugpungan sa Gawasnong mga Organisasyon sa Kabanikanhan Mindanao (Unorka-Mindanao), and the Center for Asian Mission for the Poor (CAMP) Asia for the development of cacao-durian production systems in the pilot areas.

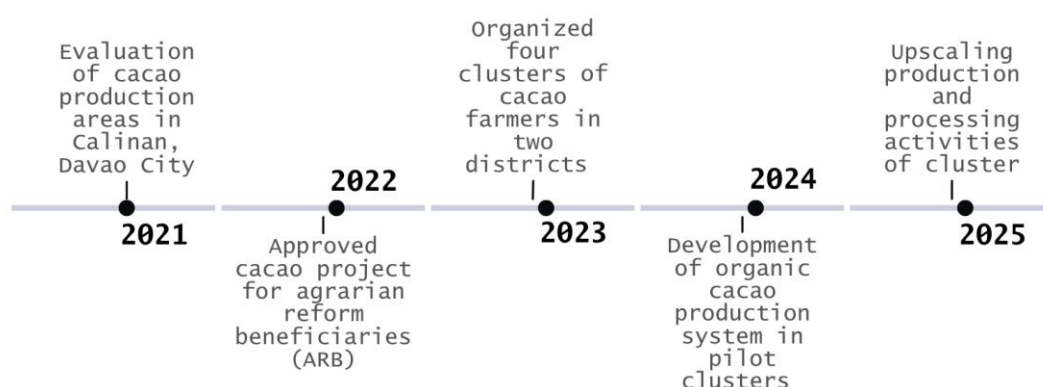


Figure 18. Timeline of events for the four cacao clusters organized by Unorka Mindanao

Unorka Mindanao organized the clusters starting with courtesy meetings with barangay officials and by mobilizing existing groups of agrarian reform beneficiaries (ARB). With support from the BIMP-EAGA-Republic of Korea Cooperative Fund (BKCF), USM trained the clusters on soil and water conservation to improve cacao production. During this time, Unorka facilitated

the creation of governance and management structures, while providing organizational development support to build group cohesion.

Additional funding secured from the Korea International Cooperation Agency (KOICA) supported the development of the organic diversified cacao production system. These R&D initiatives aimed to upscale cacao production for potential entry into the Korean market.

5.3.2 Structure of the cluster

Figure 19 illustrates the structure of the four cacao clusters, coordinated by Unorka Mindanao and its support network. Unorka partnered with USM and CAMP Asia to implement R&D activities, community organizing, and organizational development training. Funding for R&D and social preparation was provided by the Global Green Growth Institute (GGGI), the financial depository of the Korean government.

Each of the four clusters has a cluster leader who collectively form the Cluster Board. The Board coordinates with Unorka and its partners on projects activities. Cluster leaders participate in strategic meetings, selects the cluster manager, and oversee planning and coordination. Each cluster also has officers, including a secretary and treasurer, assisting the board with communication and resource management. Cluster managers monitor production, handle production problems, and coordinate with other managers and leaders.

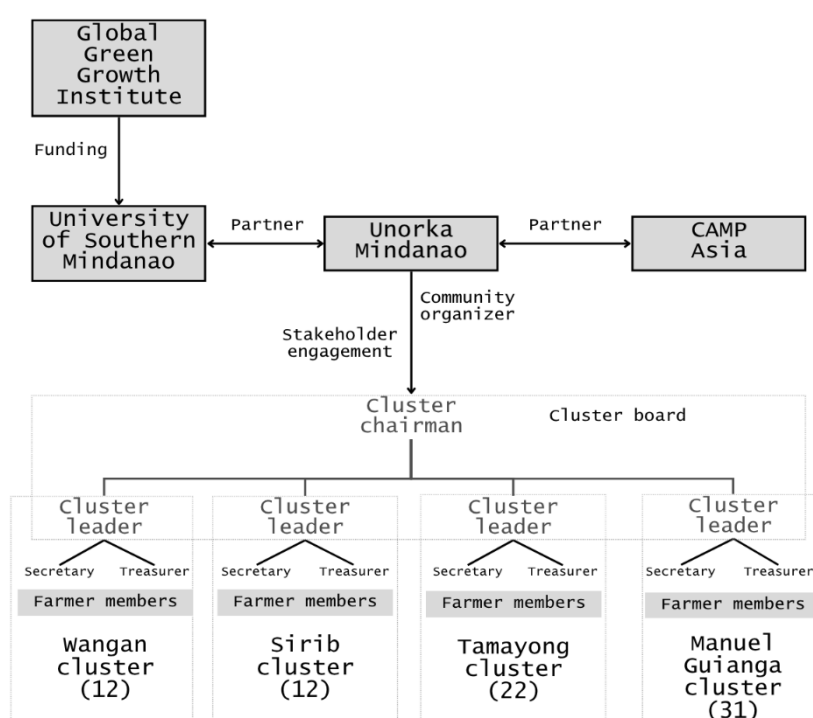


Figure 19. Structure of the Unorka-organized cacao farmer clusters in Davao City

The leadership selection process follows a democratic process. Members elect their cluster leaders and officers, while the Cluster Board is elected by the leaders of each cluster.

5.3.3 Membership into the clusters

Membership was facilitated through social networks. Unorka Mindanao used its ARB network to identify farmer leaders who could gather farmers within their villages. Interested farmers could freely join the training sessions and project activities. According to the Cluster Board Chair, “*Membership into the cluster requires farmer orientation which emphasizes the by-laws of the cluster and the importance of participating in cluster activities*”.

With support from CAMP Asia, Unorka conducted trainings to inculcate collective values, developing internal control systems, strengthened negotiation skills, and organized cluster activities.

5.3.4 Activities of the cluster

The cluster engage in cacao-related activities, including organic farm input production, cacao growing following recommended protocols, and disseminating good practices from training sessions. Members follow an organic protocol developed through research with USM, used as a teaching tool during cluster activities to ensure productivity and quality standards. The cluster also support cacao-durian intercropping and provide training on soil management, pruning, and organic farming.

The four clusters, with 80 farmers, received support from agricultural technicians of the City Agriculture Office. Evidence-based protocols and strong institutional support have strengthened their cacao production activities.

Farmers participate in scheduled knowledge sharing sessions and hands-on demonstrations. The clusters use a *bayanihan* strategy, where members collectively perform labour-intensive tasks that also doubles as a learning session. The activities are scheduled weekly and on a rotational basis among members. A demonstration farm in Sirib, Calinan serves as the main training site for cacao production and natural farming solutions.

While cluster coordinate production tasks, farmers market their products individually to traders located in the Calinan district. According to Unorka’s Executive Director, the 77 members of

the four clusters produce an estimated 700 grams of dried, cacao beans per tree, totalling to roughly 18 tons combined. Farmers deliver mainly to local traders located in an industrial zone designated for cacao processing and trading.

5.3.5 Services to its members

Table 10 summarizes the support services provided to cluster members, including technical assistance for cacao production, land rights, and organizational development. The R&D projects build farmers' capacity for good practices and organic production systems. Cluster activities focus on applying the cacao production protocol and implementing the *bayanihan* strategy. Unorka's facilitation and community organizing forms the core part of its role in the cluster. As stated by their Executive Director: *"There is strong volunteerism in Unorka's activities because we played a role in our members struggles in securing their land rights."*

Table 10. Description of the services provided by the Unorka-organized cluster

Category	Description
Support for economic development of cacao farmers	• Philippine Good Agricultural Practices (PhilGAP) aligned training modules • Financing for farm development
Market identification	• Knowledge sharing on buyers with highest price • Market scoping
Crop development	• Model and demonstration farm for cacao production system training (organic and PhilGAP) • Soil analysis • Cacao production protocol on farming, post-harvest, climate-resilient agriculture, and recordkeeping • Grants for farm inputs and materials • <i>Bayanihan</i> strategy to support labour-intensive activities and facilitate knowledge sharing
Securing land rights (Unorka)	• Legal assistance for ARBs to secure land titles
Organizational development (Unorka)	• Capacity building on leadership, member roles, collective values promoted by Unorka • Accreditation of clusters to local agricultural and cacao industry councils

5.3.6 Challenges and Opportunities

The four clusters face several challenges in the current industry climate, including buyers purchasing cacao beans on credit, delays land-rights processing, limited capital for farm establishment, and misinformation about pest and diseases outbreaks. Farmers are discouraged by delayed payments from buyers who operate on credit terms. Some members also reported some government officials taking control of common drying and storage facilities in their communities.

Despite these concerns, cluster leaders see opportunities in rising cacao prices, improved road networks, and the on-going development projects from government and NGOs. High prices incentivize farmers to increase production and support the clusters' effort to pursue value-added products. Better road networks is also expected to reduce transport costs, attract development partners, and open more market opportunities for cluster members.

5.3.7 Future plans

The four cacao clusters plan to registers with the Cooperative Development Authority (CDA) as the Davao Mt. Apo Farmers Agriculture Cooperative (DAMAFACO). The cluster chairman sees this as a logical step for future growth, as cooperatives serve as vehicles for government support in the Philippines agriculture sector. They aim to become a consolidator and undertake value-adding activities for cacao and durian.

Future plans also include securing organic and PhilGAP certifications, entering the Korean market, and developing strong business models for their activities. They also intent to expand member services to include health insurance products and support member pensions, build an organic facility and nursery to supply inputs such as vermicompost, and venture into supply agreements and chocolate manufacturing. They envision establishing a mechanized organic fertilizer facility and a waste shredder to processing organic materials.

The clusters' current structure will be retained to guide interventions and maintain group cohesion. Each cluster will manage a 1,000-square-metre nursery as a source of income and inputs for members. The group is also preparing proposals for chocolate processing projects with government agencies and exploring export opportunities.

5.4 Co-op 1: Fardeco Agricultural Multipurpose Cooperative (Fardeco)

5.4.1 Brief history of the cooperative

Figure 21 highlights the major milestones in Fardeco's growth. They began as a farmer's association in 1995 formed through a reforestation and livelihood project for the *Bagobo Klata* indigenous tribe from Cadalian, Calinan district. In 1998, they registered as the Farmers Development Cooperative (Fardeco). In the early years, members managed a nursery to support the tree planting activities and attended trainings to establish agricultural livelihoods.

In 2000, the entry of agrarian reform beneficiaries (ARB) prompted a reorganization into a multipurpose cooperative supported by the Department of Agrarian Reform (DAR). Through their project, they operated feed mill and a convenience store supplying feeds for swine and poultry farms, and retail goods for the *barangay* (village).

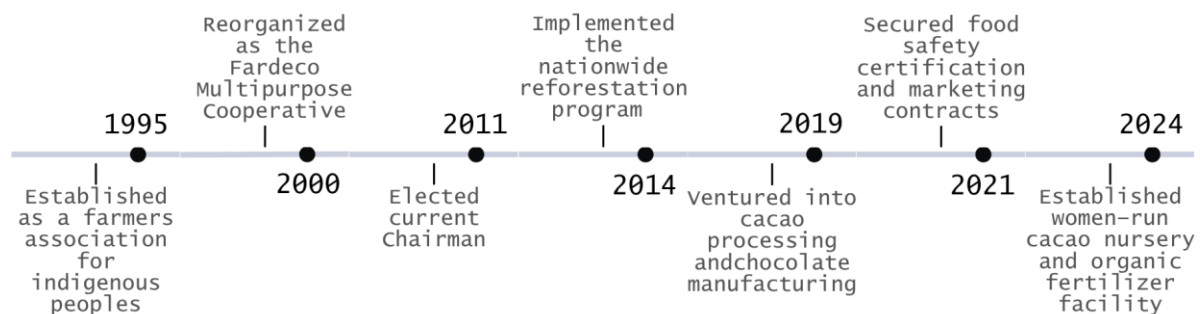


Figure 20. Historical timeline and significant events for the Fardeco Agricultural Multipurpose Cooperative

Fardeco faced management challenges in its early years but was revitalized in 2011 under its current Chairman. As he stated: “*Prior to me assuming as Chairman, Fardeco assets was at 1.5 million pesos (~45,000 NZD) because of poor leadership and management of the businesses*”. His initial efforts focused on organizational development, encouraging board members to attend cooperative trainings and writing proposals for government projects.

Since then, Fardeco has implemented various projects funded by government agencies and development partners. These include a cooperative-led nursery record breaking tree planting activity under the National Greening Program of the Department of Natural Resources (DENR); tramline services from the Department of Agriculture (DA); and a cacao processing facility, women-led nursery, organic facility, and demonstration farm fund by Deutsche Gesellschaft für

Internationale Zusammenarbeit (GIZ) and European Union. They also had engagements with the Mennonite Economic Development Associates (MEDA) and local universities on gender governance and student internships. The Chairman emphasized, “*We have grown the asset size of Fardeco to 33 million pesos (~1 million NZD) because of all our efforts.*” The cooperative is now recognized locally as a leading producer organization committed to sustaining its enterprises.

5.4.2 Structure of the cooperative

Figure 22 shows Fardeco’s structure, which follows the Philippine Cooperative Development Code of 2008. The General Assembly (GA) includes all members, while the Board of Directors (BoD) oversees strategic decision-making. Meanwhile, managers supervise their different enterprises. BoD members, including the chairman, serve two-year terms, with elections held annually.

In an interview, Fardeco’s BoD secretary emphasized: “*The strong leadership of our chairman and his emphasis on educating members of the BoD and cooperative members have facilitated our success and is also the reason why he remains the Chairman to this day.*”

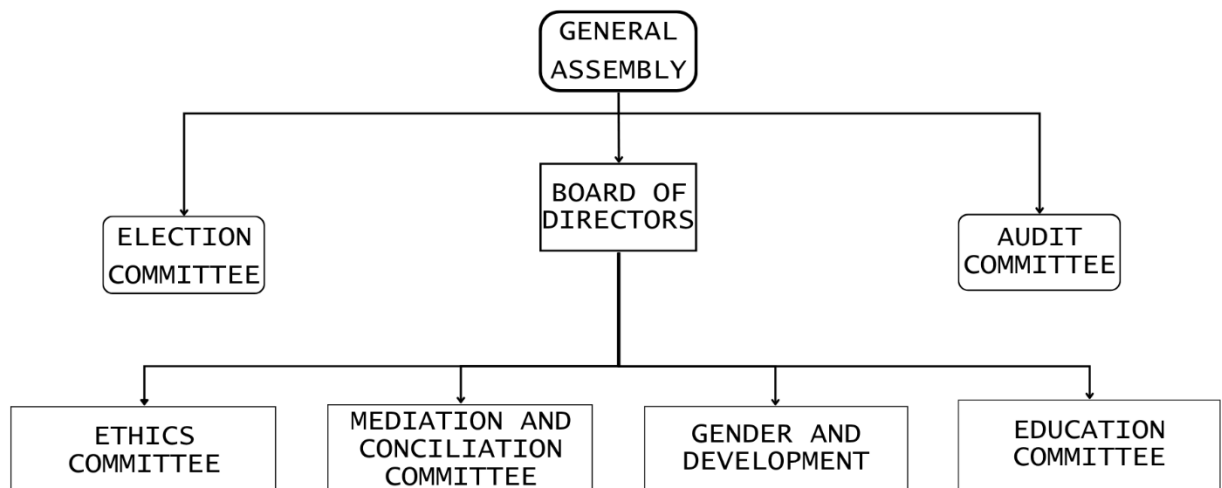


Figure 21. Organizational structure of Fardeco

Fardeco has instituted management positions aligned with their growing number of businesses. The BoD leads the selection process for managers based on qualifications such as education, experience, and computer literacy. Managers are supported by bookkeepers, auditors, compliance officers, quality control officers, and other staff trained by the cooperative.

5.4.3 Fardeco's membership requirements

Fardeco has over 500 members across the Davao region, mostly ARBs and indigenous peoples (IP). Membership requires paying a fee of P200 (6 NZD) and a minimum share capital of P6,000 (182 NZD). Members participate in the decision-making processes through the GA under a one member, one vote policy and receive dividends based on their capital contributions.

To expand their capital base, Fardeco instituted a special investors scheme for members and non-members willing to invest at least P500,000 (~15,000 NZ) in their strong enterprises such as cacao, durian, and coffee.

5.4.4 Activities of the Cooperative

Table 11 presents Fardeco's major activities, which revolve around their agribusiness enterprises and community activities. Cacao continues to be the flagship business, followed by swine production supported by ongoing programs. The Chairman stated that: *"Fardeco's registration as a Civil Society Organization (CSO) has facilitated the implementation of various agribusiness projects and community development programs"*.

Table 11. Fardeco's major activities

Category	Description
Cacao value chain activities	• Women-led cacao nursery and organic input facility • Cacao production in the Calinan district and Davao del Norte • Provide technical assistance through regular lectures at their demonstration farm and during farm visits • Cacao beans procurement collecting 80 tons of dried beans annually • Drying, fermentation, and storage following Philippine National Standards (PNS) • Manufacturing of chocolate and other cacao products such as <i>tableya</i>, cacao nibs, and briquettes. • Bulk selling dried cacao beans to Godel, Casuga farms, and other large chocolate manufacturers • Selling cacao products to walk-in customers • Marketing of cacao products under their own <i>Alpas</i> brand.
Other agribusiness ventures	• Swine operations including farming, procurement, and marketing of live swine to local restaurants • Vegetable cultivation with local communities in partnership with Hope for the Nations Philippines.
Social activities	• Registered as a Civil Society Organization (CSO) to implement government-funded projects • Conducts regular activities in the community such as tree planting, dialogues with women and IPs

5.4.5 Services of the cooperative

Table 12 outlines the services Fardeco provides to its members, including input supply, production support, financing, market access, incentives, and social development. These services enhance member productivity through knowledge transfer, stable supply of farm inputs, and the use of digital tools for pest and disease monitoring. Regular trainings are conducted by their agricultural technician, while the digital app, developed by the University of the Philippines Los Baños, supports field monitoring and capacitating local farmers.

Fardeco's financial services, funded by DA and DAR, allow members planting cacao to access low-interest loans ranging from P50,000 (1,500 NZD) to P73,000 (2,212 NZD).

Table 12. Description of Fardeco's services

Category	Description
<i>Members</i>	
Cacao input supply and production support	• Monthly lectures and workshops for members • Training on natural farming systems and organic production • Free supply of cacao seedlings and organic inputs • Smart monitoring of pest and diseases using mobile app
Financial services	• Financial loans for farm establishment and improvement
Bargaining power and member incentives	• Offer higher buying prices to members • Patronage refund
Social development	• Women-led association for input supply • Promotion of gender sensitive cooperative policies
<i>Non-members</i>	
Community welfare	• Environmental programs such tree planting, watershed conservation, and biodiversity monitoring • Local feeding programs • Managing community food terminal • Tramline services for hauling of agricultural products

Collective marketing has enabled them to provide incentives such as an additional peso per kilo on top of the patronage refund. Through its partnership with MEDA, Fardeco established a

women-led nursery and organic fertilizer production facility, contributing to biodiversity conservation and environmentally sustainable agriculture production (ESAP).

They also deliver community services, including school feeding programs, management of the community's food terminal, and tramline services for farmers in the remote areas of Barangay Tabak. These services benefit both members and non-members.

5.4.6 Challenges and Opportunities

Fardeco faces challenges related to financial management, inconsistent bean supply, labour shortages, competition, and leadership succession. Financial issues come from rising cacao prices, low loan repayment from members, and weaknesses in financial reporting. Bean procurement is affected by members avoiding transactions because of overdue accounts and farmers shifting to other crops such as durian. Labor shortages have affected farm maintenance and bean quality. Leadership succession has become an issue because the older Chairman is retiring, and managing multiple external partners and funding adds complexity.

Despite these challenges, Fardeco has opportunities to expand its market reach, improve financial stability, and implement new projects. They offer a stable market by paying price premiums and avoiding *pay later* common among their competitors. Its chocolate and *tableya* products have food safety certification, enabling them to pursue export markets in Japan and Switzerland. Planned expansion of cacao production, from 200 hectares to 500 hectares, will support this goal with funding from DA and DTI.

5.4.7 Future plans

Fardeco aims to expand to more agribusiness enterprises and continue its sustainability initiatives. Existing ventures such as coffee, coconut, durian, root crops and vegetables will be scaled up once they assume their role as lead cooperative under the DAs Farm and Fisheries Clustering and Consolidation program.

They also plan to engage in farm tourism in partnership with the local government, using their highland farm area. Strengthening cooperative leadership is a priority, with plans to hire and train managers and future BoD members ensure continuity even after the Chairman's retirement.

5.5 Co-op 2: Laak Multipurpose Cooperative (LAMPCO)

5.5.1 Brief history of the cooperative

Figure 23 presents key events in LAMPCO's 39-year history. Founded in 1986 as a laboratory cooperative with only 15 members, it began as a community initiative in Barangay Mangloy, Laak, Davao de Oro, formed to compete with high retail prices charged by a local shop to residents. After six years, they registered as the Mangloy Multipurpose Cooperative (MAMPCO), and in 2009 adopted the name Laak Multipurpose Cooperative through a GA resolution.

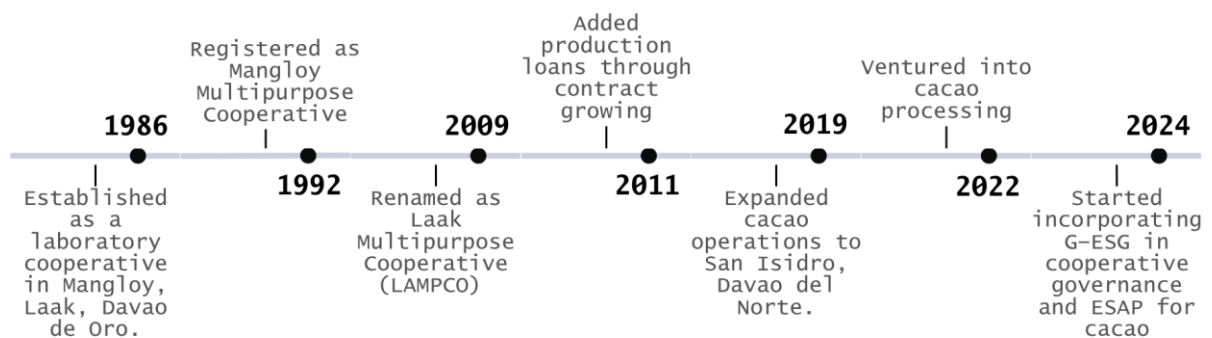


Figure 22. Historical timeline and significant events of LAMPCO and their cacao operations

LAMPCO, now a large cooperative with 4,000 members, began its cacao operations in 2011 by encouraging members to start planting and providing production training and loans. Entry into the cacao industry was supported by Kennemer Foods International's (Kennemer) Contract Growing Program, in partnership with Landbank of the Philippines, Inc. (LANDBANK), and DAR which provided funding for loans, technical assistance, and a stable market (Sunnexdesk, 2013).

They expanded their cacao operations through more partnerships. In 2019, LAMPCO partnered with Peace and Equity Foundation (PEF) to expand their supply base to the neighbouring municipality of San Isidro. Three years later, they upgraded their operations by processing beans into *tableya*, a traditional Filipino cocoa product, with support from the DTI. Today, LAMPCO is transitioning towards becoming a more sustainable cacao enterprise by adopting Environmental, Social, and Governance (ESG) principles and promoting environmentally sustainable agricultural practices (ESAP) to their cacao farmers.

5.5.2 Structure of the cooperative

LAMPCO's governance structure follows the Philippine Cooperative Code of 2008 (Cooperative Development Authority (Philippines), 2011). Figure 24 shows the structure, which include a GA, BoD, audit and election committee. The BoD is responsible for the strategic direction of the organization and overall management of its affairs. The Cooperative Code also mandates the creation of an ethics and mediation-conciliation committee (Cooperative Development Authority (Philippines), 2011). As a multipurpose cooperative, LAMPCO expanded its structure to handle credit services, member accounts and education programs.

The management structure consists of a General Manager, Treasurer, and Internal Auditor, with the manager being hired and appointed by the BoD. LAMPCO has six branches across the provinces of Davao de Oro and Davao del Norte in Region 11, each with a branch manager and staff responsible for delivering services.

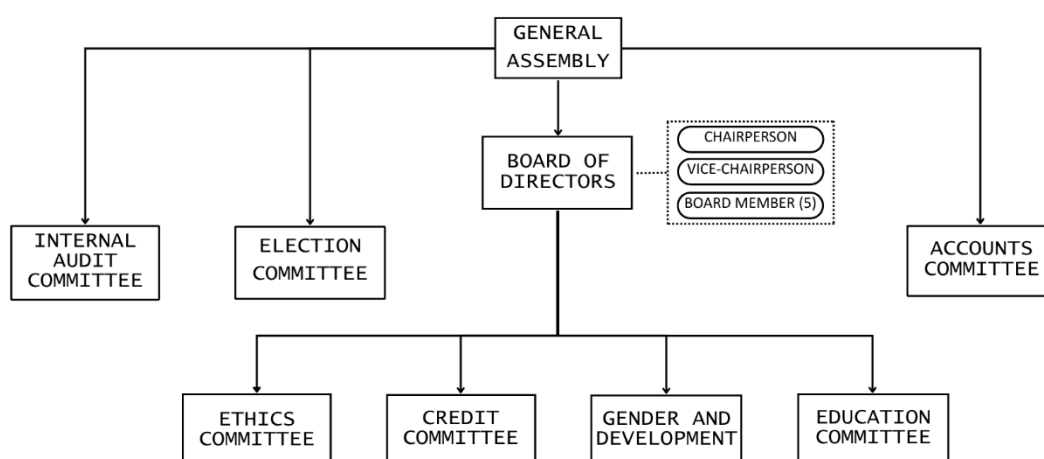


Figure 23. Organizational structure of LAMPCO

Positions in LAMPCOs governance and management structure follow different selection processes. BoD officials must meet the following eligibility requirements: a minimum share capital contribution of P40,000 (~1200 NZD), completion of CDA-mandated trainings for aspiring BoD members, and at least two years of cooperative membership. Prospective managers undergo a hiring process before being appointed by the BoD and introduced during the GA.

5.5.3 Membership process

Membership into LAMPCO involves the submission of member information, initial contributions, and a validation period. Requirements include: (1) paying share capital, (2) paying the membership fee, (3) completion of the membership application form, and (4) attendance at mandatory member orientation. Applicants also need to submit proof of identification (ID), ID picture, and a civil registration certificate from their local barangay. Members are then subject to a 60-day contestability period for monitoring before their membership is approved by the BoD.

LAMPCO has two types of members: regular and associate. Regular members pay a share capital of P4,000 (~120 NZD) and have voting rights, while associate members pay a share capital of P1,000 (~30 NZD) and don't have voting rights. As part of their contribution, members receive insurance cover (accident, family, and health), mortuary benefits, and a savings account under their name.

5.5.4 Activities of the cooperative

As a multipurpose cooperative, LAMPCO engages in various activities related to agricultural production and marketing, consumer and retail goods, business services, and social services. They also carry out several cacao value chain activities from input provision to processing. They also operate other agribusiness ventures and non-agricultural business, alongside their social services. Table 13 summarizes these activities.

Table 13. LAMPCOs major activities

Activity	Description
Cacao value chain activities	• Provision of seedlings and farm financing for members • Cacao doctors at each branch conducting regular farm visits for lectures and demonstrations of good cacao practices • Procurement of wet and dry beans • Facilities for storage, drying, and fermentation of cacao beans • Processing facilities for cacao products (e.g. <i>tableya</i>) • Promote Philippine National Standards (PNS) for their fermentation and drying processes • Markets cacao beans to Kennemer and other large traders • • Markets <i>tableya</i> in LAMPCO branches for walk-in customers
Other agribusiness activities	• Agrofarm inputs supply (cacao and coconut seedlings, vermicast, biofertilizers) • Agricultural services (shelling and milling services (corn and rice), hauling) • Carabao and cattle dispersal

Activity	Description
Business and social services	• Other businesses (consumer wholesale & retail, hardware and construction store) • Social services (savings, life and non-life insurance, and motorcycle registration and insurance)

5.5.5 Services of the cooperative

LAMPCO provides a range of services for member and non-members. Member services focus on enhancing cacao production and delivering essential social services while non-member services support local farmers and government initiatives. Table 14 lists LAMPCOs services.

Table 14. Member and non-member services of LAMPCO

Category of services	Description
<i>Members</i>	
Cacao production support	• Expansion of cacao farms through the provision of 600 seedlings, 12 vermicast sacks, and 2 sacks of complete fertilizer (14-14-14) per hectare • Technical assistance on cacao production • Production loans for farm establishment and agricultural chemicals
ESAP for cacao production	• Training and provisions of biofertilizers to promote sustainable farming systems (organic and regenerative agriculture)
Delivery of social services to members	• Various insurance options (accident, group, family, and health) • Commercial and agricultural loan products • Personal loan products (consumption, housing, quick, and salary) • Pension for senior members
<i>Non-members</i>	
Community-based services	• Solar-powered rice miller for local rice farmers • Advocacy on local single-use plastics ordinance • Feeding programs, local community education, tree planting activities

5.5.6 Challenges and opportunities

LAMPCO faces several challenges, including the need to maintain competitive prices, limited capital to buy beans, constrained product development and marketing capacity, and insufficient

storage for cacao beans. The existing supply agreement with Kennemer does not offer highly competitive prices to farmers, prompting LAMPCO to link with another buyer from Davao City who offers approximately 10 percent higher prices. Capital restrictions stem from the sudden increase in cacao bean prices; LAMPCO addressed this by sharing capital between branches to sustain procurement. They are also running out of storage space due to the growing volume of beans being sold by members and non-members. The growing demand forces them to balance member benefits and operational efficiency.

The cooperative also struggles with underutilized *tableya* processing facilities and fund constraints. LAMPCO currently limits its processing to 20 kilograms per day because it has a limited market for *tableya* and no dedicated marketing staff to promote value-added products. Funding constraints are exacerbated by loan defaults, with 30 out of 70 farmers not repaying their loans, and by the recent construction of a new building in Laak. Staff responsible for procurement and collection also work in processing, stretching human capital.

Another key challenge is engaging their members. Although LAMPCOs membership has grown to more than 4,000 since 1986, only 30 to 40 percent are considered active, meaning those who patronize services, pay loans, and regularly attend GA meetings. This raises concerns about member commitment and the organization's sustainability.

Despite the challenges, there are opportunities for growth. Farmers are shifting back to cacao production because of higher prices, creating potential for a larger supply base. The high price offered by LAMPCOs Mangloy branch is attracting more supplies, a portion can then be utilized to expand their processing activities. This can motivate the cooperative to expand their market for *tableya* locally and internationally through their international partners. LAMPCO also aims to introduce innovations in procurement strategies to make bean procurement more efficient and to increase storage capacity. These measures would help the cooperative offer prices that remain competitive with local traders and further increase supply from members.

5.5.7 Future plans

LAMPCOs future plans include projects to improve operations and member support, focusing on capacity building for sustainable agricultural practices, financial management, product development, and marketing. The cooperative aims to benchmark with successful cooperatives within the province to improve processing capacity. They also aim to engage in long-term

purchasing agreements with buyers in Davao City to maintain competitive pricing for their members.

Under the Resilience and Inclusion through Investment for Sustainable Agrikultura (RIISA) project, capacity building focused on environmental sustainability, improving operations, product development, needs assessment through farmer consultation, and promoting equal representation in leadership roles. To improve efficiency and commitment, they plan to implement scheduled pick-up times with groups of farmers and providing incentives for members who follow the schedule. Continued support and improvements in the cooperative's governance and operations will be critical in sustaining member benefits.

5.6 Key structural features of ABCs and cooperatives

This section discusses the specific elements of the organizational structures of the two ABCs and two cooperatives along the five features from the theoretical framework: ownership, control, membership, investment, and stakeholder involvement. It will also summarize how these attributes relate to the benefits farmers received.

5.6.1 Ownership

In Cluster 1, ownership is shared between the Cluster 1 group of companies and the producer organisation. Company A owns the brand, manufacturing facilities, and cafes, while associations such as PPFA retain ownership of their local assets (e.g., small storage facilities). Cluster 2 is largely externally funded, with projects channelling support through newly organized cacao farmer clusters. In their case, ownership of physical assets and demonstration farms are retained by the individual farmers, but they're embedded within the collective and farmer education system.

In both clusters, farmers own their land and trees, but their relative position within the value chain is determined by the contract, project norms, and partnership agreements with lead firms and development organizations. This created the hybrid ownership structures present wherein farmers retain control over the production assets, while post-production assets, such as processing, branding, and export market channels are under the control of the lead firm (Cluster 1) or the international donors and project partners (Cluster 2).

In contrast, ownership in both cooperatives is referred to as member-owned in the Philippine Cooperative Code. Members collectively own the cooperative enterprise, contribute share

capital, and exercise ownership rights through the structure, the GA and election of BoD members. In Fardeco and LAMPCO, members equity, retained earnings, and grants were reinvested into plant nurseries, storage facilities, processing equipment, vehicles, and shared infrastructure. These assets are common property and managed on behalf of all members, and ownership rights are directly tied to a member's equity contribution and patronage.

5.6.2 Control

Control in Cluster 1 is coordinated through contracts (exclusive or purchase orders) and operational practices defined by Company A but negotiated with the farmers. Company A defines product standards and delivery schedules, while producer organisations coordinate their members to be able to enforce the agreement. In Cluster 2, the approach is grassroots governance. Cluster leaders are elected from the 10-15 member clusters who also form the Cluster Board that influences decisions on project plans, demonstration farms, and labour-sharing schedules. While external stakeholders influence priorities depending on project conditions, day-to-day decision-making is entrusted to the farmer leaders and cluster officers. For both clusters, the practice is shared control: external actors provide resources and help shape strategic priorities, while community leaders are responsible for implementation and promoting collective action within their groups.

Control in both cooperatives were anchored on a democratic structure. The GA, made up of ordinary members, is the lead policymaker within the organization. The BoD, elected by the GA, define organizational strategy, approve budgets, and exercise oversight over management. Meanwhile, internal control is associated with the audit and election committees, as well as the managers for the cooperative's businesses. In both cooperatives, their internal governance has been strengthened by emphasizing gender and youth participation and creating specialised committees to manage risks and enterprises. Thus, cooperative control is defined by a codified governance structure and member involvement in decisions.

5.6.3 Membership

Membership in Cluster 1 is organised through PPFA which is Company A's partner. Individual cacao farmers joined PPFA, participated in the cluster accreditation process which included farm profiling, orientation, and contract signing. Some suppliers who weren't part of the producer organization still accessed benefits (e.g., rewards system) albeit in a reduced form. For Cluster 2, membership was more open but project-based: farmers became members of the clusters by attending community organizing activities, training, *bayanihan* group work.

Membership was anchored on shared value becoming an effective alternative to formal contracts.

In the two ABCs, membership was inclusive given that farmers were keen on adopting the protocols and commit to cluster activities. But member obligations and rights are not as clearly defined, and processes for joining and leaving were largely informal. In sum, ABC membership can be viewed as more informal and flexible.

For the cooperatives, they followed a formal membership process. Prospective members had to meet eligibility criteria (e.g., equity, member fees, proof of identity), commit to member training, and gain BoD approval. Voting rights and full access to services were reserved for regular members, while associate members participated with limited benefits. Fardeco and LAMPCO also differentiated members based on how they participated such as loan history, patronage, and level of involvement, which was also tied to access to their facilities and some opportunities. Thus, cooperative membership followed a formal structure that links it to both ownership and control of the organization.

5.6.4 Investment

Cluster 1's investments came mainly from the lead firm. Aside from infusing private capital, the lead firm also reinvested profits from chocolate revenue and facilitated funding grants from government and international donors. These investments went to nurseries, post-harvest facilities, and funding community activities. Cluster 2 mainly used external funds from GGGI and BKCF development projects, which supported production activities, developed demonstration farms, training, and internal control systems. Cluster member's financial contributions were modest, their investment came in-kind through their time commitment and labour. In sum, ABCs relied on funding from private entities and/or development projects.

In contrast, cooperatives, mobilised resources through capital generation (equity, retained earnings), external grants, and credit. Fardeco's and LAMPCO's expansion to include financial services, processing, and retail received external funding from partners such as, DA, DTI, DAR, MEDA while keeping accumulated member capital as leverage. Investment decisions were decided during the GA and enacted by the BoD, with profits reinvested into more enterprise, building facilities, and continuing community initiatives. Overall, cooperatives accumulated capital from contribution made by their member-owners and earnings reallocation. These two

investment pathways shaped operational scale, stability, and investment horizon for each collective action organization.

5.6.5 Stakeholder involvement

Both ABCs and cooperatives had a wide network of external stakeholders, but their roles were different. In Cluster 1, Company A was central to the partnerships, they linked the farmer associations with government agencies (e.g., DA, DENR, DTI), foreign partners (e.g., MEDA, Swiss Embassy), and private consultants (e.g., Zoto Cocoa Consultancy). The partnerships yielded infrastructure, planting materials, technical assistance, sustainability initiatives, and community programs such as women's livelihood and school feedings. Meanwhile, Cluster 2 was part of a strong stakeholder network involving NGOs, academe, and international donors that supported research projects, organic farming systems, and organizational development for farmer clusters. Thus, ABCs often coordinated stakeholder involvements through the lead firm or project initiators.

For both cooperatives, government agencies and banks (DA, DAR, NIA, CDA, Landbank), NGOs, church-based organisations, and private buyers were their stakeholders. Fardeco and LAMPCO acted as co-implementors of government projects, received facilities grants and technical assistance which they funnelled to their members. They also secure markets for their cacao products by maintaining strong ties with private companies and exporters. Because they are member-owned organisations, cooperatives represent members in negotiations and stakeholder partnerships.

5.7 Survey results

The collectives are hereafter referred to as Cluster 1, Cluster 2, Co-op 1, and Co-op 2. Table 8 shows there were a total of 186 respondents for the survey. In terms of farm location, 73 percent respondents had farms located in Davao City, while only Co-op 2 had farms in Laak, a municipality in Davao de Oro. Farms owned by Cluster 1 respondents were largely concentrated in Barangay Paquibato proper, while Cluster 2 farms were distributed across five different *barangays*. Geographically, Cluster 1 has a larger concentration of producers in one area compared to Cluster 2. Farms owned by Co-op 1 were located across seven barangays in Davao City, while farms owned by members of Co-op 2 were distributed across eight barangays in Laak. This suggests that farms owned by members of the cooperatives were spread across more *barangays*.

Table 15. Breakdown of the number of respondents

Type	Location	# of respondents
Cluster 1		36
Cluster 2	Davao City	51
Co-op 1		49
Co-op 2	Laak	50

5.7.1 Demographic and socioeconomic characteristics

Table 9 presents the demographic and socioeconomic information on the respondents. Majority of the respondents across the four groups would either be classified as *middle aged* (40-60 years old) or as *senior citizen* (60 & above). It is important to note that Cluster 1 has a significant number of members who fall below the age of 40 which suggests that more of their members are in their early adulthood.

Majority of the respondents for the survey were females across the four groups. Between the clusters and cooperatives, Cluster 2 and Co-op 2 had a higher percentage of male respondents. In addition, more than 73 percent of the respondents were married across the four groups.

Moving to educational attainment, most of the respondents completed their high school education. However, it is important to note that 36 percent of the respondents from Cluster 1 only finished elementary level education or less, while Cluster 2 had 42 percent of its respondents moving on to the tertiary level. By comparison, 69 percent of the respondents from Co-op 1 completed high school education or more, while 42 percent of respondents from Co-op 2 either completed elementary or less.

Farming experience across the clusters showed that majority of their members have less than 10 years of experience in cacao farming. In contrast, majority of the cooperative members reported that they have more than 10 years of experience. This suggests that the cooperative members are more experienced cacao farmers.

Across the groupings, most of the respondents from Cluster 1, Cluster 2, and Co-op 1 reported that the number of adults in their household were four or less. In contrast, majority of Co-op 2 respondents reported that they had five or more adults in their household.

Table 16. Demographic and socioeconomic characteristics of the respondents

Variables		Cluster 1		Cluster 2		Co-op 1		Co-op 2	
		Obs	%	Obs	%	Obs	%	Obs	%
Age (years)	< 40	16	44	7	14	05	10	03	06
	40-60	11	31	29	58	27	56	25	50
	60 & above	09	25	14	28	16	33	22	44
Gender	Female	23	64	28	56	31	65	27	54
	Male	13	36	22	44	17	35	23	46
Marital status	Married	30	83	37	73	37	76	47	94
	Unmarried	06	17	14	27	12	24	03	06
Education level	No formal education	-	-	01	02	-	-	-	-
	Elementary level	08	22	01	02	01	02	07	14
	Elementary graduate	05	14	01	02	07	15	14	28
	Highschool level	05	14	05	10	00	15	10	20
	Highschool graduate	15	42	21	42	21	44	7	14
	College level	02	06	18	36	03	06	03	06
	College graduate	01	03	03	06	09	19	09	18
Farming experience (years)	< 10	21	60	26	52	20	43	23	48
	10-20	04	11	14	28	08	17	08	17
	20 & above	10	29	10	20	19	40	17	35
Number of adults	2 or less	04	12	14	28	11	23	17	35
	3 to 4	15	44	18	36	14	29	03	06
	5 or more	15	44	18	36	23	48	28	58

5.7.3 Membership information

Table 17 shows clear differences in member tenure. Cluster 1 is composed of mainly of members with over 10 years in the organisation, while 90 percent of Cluster 2 has been members

for less than 3 years, indicating long-term versus a largely new group. In contrast, Co-op 1 dominated by members with 3 to 10 years tenure, while 66 percent of Co-op 2 have been members for over 10 years. Across both cooperatives, the sample included few new members.

Table 17 also reported the farmers intent to remain with their current cluster or cooperative. More than 88 percent across all groups intend to continue participating in their organization.

Table 17. Membership duration and willingness to participate

Variables		Cluster 1		Cluster 2		Co-op 1		Co-op 2	
		Obs	%	Obs	%	Obs	%	Obs	%
Membership duration (in years)	< 3	06	17	46	90	3	06	--	--
	3 – 10	09	25	05	10	29	59	17	34
	10 – 20	11	31	--	--	13	27	16	32
	20 & above	10	28	--	--	04	08	17	34
Continue with membership	Yes	36	100	48	94	43	88	46	96
	No	--	--	03	06	06	12	04	04

5.7.4 Reasons for joining

Table 18 shows that cluster members differed in their primary reasons for joining. Members from both clusters reported technical assistance and knowledge transfer, but Cluster 1 members joined to empower themselves and their communities, while Cluster 2 members joined to gain market access. This suggested that beyond access to resources and services, cluster members also seek to mitigate risks and access markets through an organisation.

Table 18. Top reasons for joining their organisation

Organizations	Reasons
Cluster 1	Technical assistance and knowledge transfer; Develop self-reliance; Collective action
Cluster 2	Technical assistance and knowledge transfer, Market access
Co-op 1	Organizational support; Technical assistance and knowledge transfer
Co-op 2	Financial support and credit access; Organizational support

Members of the two cooperatives also reported different motivations. While organizational support was commonly cited, Co-op 1 members primarily sought technical assistance and

knowledge transfer, while Co-op 2 members joined for financial support and credit access. This suggested that cooperative members joined mainly to obtain resources and support services.

5.7.5 Farm area and ownership

Table 19 indicates that respondents can be classified as smallholder farmers because they own less three hectares of land. Cluster 1 has more farmers with one to three hectares of cacao, while Cluster 2 has a higher proportion planting on less than 1 hectare. A similar pattern was found across cooperatives: Co-op 2 had more farmers with one to three hectares of cacao, while Co-op 1 had a higher proportion planting on less than 1 hectare.

Table 19. Farm area and ownership status

Variables		Cluster 1		Cluster 2		Co-op 1		Co-op 2	
		n	%	n	%	n	%	n	%
Area (in hectares)	Less than 1	8	22	33	65	20	41	4	8
	1 – 3	26	72	16	31	28	57	44	88
	More than 3	02	06	02	04	01	02	02	04
Ownership status	Owner	35	97	47	92	48	98	48	96
	Non-owner	01	03	04	08	01	02	02	04

5.7.6 Borrowing practices

Table 20 showed that borrowing for capital is not a common practice among cluster respondents. However, in Co-op 1 members borrowed from informal sources like traders, moneylenders, and relatives, while Co-op 2, who had fewer borrowers, relied mainly on their co-op for funds.

Table 20. Borrowing practices

Variables		Cluster 1		Cluster 2		Co-op 1		Co-op 2	
		Obs	%	Obs	%	Obs	%	Obs	%
Borrows capital	Yes	02	06	05	10	25	51	19	38
	No	34	94	46	90	24	49	31	62
<i>Respondents who answered 'Yes'</i>									
Source of capital	Bank	--	--	--	--	02	06	--	--
	Co-op	01	50	02	40	10	39	18	95
	Trader	--	--	--	--	02	06	--	--
	Moneylender	01	50	01	20	07	28	--	--
	Relatives	--	--	02	40	03	11	--	--
	Others	--	--	--	--	03	11	--	--

5.7.7 Postharvest practices

Table 21 revealed that majority of respondents performed post-harvest activities, with Cluster 2 had 56 percent more participation than Cluster 1. Cluster 1 had more members engaged sorting and transport/hauling, while Cluster 2 members practiced fermentation, storage, sorting, and transport/hauling. Co-op 1 had 12 percent more respondents engaged in post-harvest activities than Co-op 2. Co-op 1 members engaged in all five activities, while Co-op 2 members focused on drying and fermentation, and transport/hauling.

Table 21. Postharvest practices of the respondents

Variables		Cluster 1		Cluster 2		Co-op 1		Co-op 2	
		Obs	%	Obs	%	Obs	%	Obs	%
Performed postharvest	Yes	18	55	44	86	47	98	42	84
	No	15	45	07	07	01	02	08	16
<i>Respondents who answered 'Yes'</i>									
Postharvest practices	Drying	15	83	44	100	45	96	42	100
	Fermentation	01	06	10	23	31	66	17	40
	Sorting	05	28	12	27	42	89	--	--
	Storage	--	--	08	18	29	62	--	--
	Transport/hauling	13	72	18	41	43	91	21	50

5.7.8 Shared facilities

Table 22 shows differences in access to shared facilities. More Cluster 1 members reported access to shared facilities than Cluster 2. Cluster 1 members reported using fermentation facilities and solar dryers, while Cluster 2 members reported access to grading kits, fermentation facilities, solar dryers, and mechanical dryers. Among cooperatives, Co-op 2 members reported access to shared facilities than Co-op 1. Co-op 2 members cited solar dryers, while Co-op 1 members reported access to all four facilities.

Table 22. Shared equipment or facilities in the community

Variables		Cluster 1		Cluster 2		Co-op 1		Co-op 2	
		Obs	%	Obs	%	Obs	%	Obs	%
Awareness of shared facilities	Yes	28	78	24	48	28	57	30	59
	No	08	22	27	53	21	43	20	41
<i>Respondents who answered 'Yes'</i>									
Shared equipment / facilities	Bean grading kit	--	--	01	02	14	49	--	--
	Fermentation	10	36	03	14	13	47	--	--
	Solar dryer	17	61	01	02	06	20	28	96
	Mechanical dryer	--	--	10	39	13	45	--	--

5.7.9 Product type and quality information

Tables 23-25 presents marketing practices by product type and quality. Both clusters preferred selling wet cacao beans over dried cacao beans, though a larger proportion Cluster 2 members sold dried beans. In both clusters, most members sold their cacao beans as good-quality beans, indicating that they sell cacao beans at a higher quality grade.

Table 23. Number of respondents who sold wet cacao beans and corresponding quality grade

Variables		Cluster 1		Cluster 2		Co-op 1		Co-op 2	
		(n = 36)		(n = 51)		(n = 49)		(n = 50)	
		Obs	%	Obs	%	Obs	%	Obs	%
Type of bean sold	Wet	36	100	34	67	09	18	16	32
Quality grade	All-in	01	03	12	35	02	22	06	37
	Good*	35	97	22	65	07	78	10	63

* Refers to cacao beans that were pre-selected before sold to the buyer to meet quality standards, combining the *semi-selected* and *selected* choices in the questionnaire into one category

Table 24. Number of respondents who sold dried, unfermented cacao beans and corresponding quality grade

Variables		Cluster 1		Cluster 2		Co-op 1		Co-op 2	
		(n = 36)		(n = 51)		(n = 49)		(n = 50)	
		Obs	%	Obs	%	Obs	%	Obs	%
Type of bean sold	Dried, unfermented	09	25	20	39	20	41	46	92
Quality grade	All-in	00	--	09	45	04	20	32	70
	Good*	09	100	11	55	16	80	14	30

* Refers to cacao beans that were pre-selected before sold to the buyer to meet quality standards, combining the *semi-selected* and *selected* choices in the questionnaire into one category

Table 25. Number of respondents who sold dried, fermented cacao beans and corresponding quality grade

Variables		Cluster 1 (n = 36)		Cluster 2 (n = 51)		Co-op 1 (n = 49)		Co-op 2 (n = 50)	
		Obs	%	Obs	%	Obs	%	Obs	%
Type of bean sold	Dried, fermented	01	03	15	29	28	57	01	02
Quality grade	All-in	00	--	04	27	09	32	00	00
	Good*	01	100	11	73	19	68	01	100

* Refers to cacao beans that were pre-selected before sold to the buyer to meet quality standards,
combining the *semi-selected* and *selected* choices in the questionnaire into one category

In cooperatives, members preferred selling dried cacao beans. Most Co-op 1 members sold fermented beans, while Co-op 2 members sold more unfermented beans, suggesting greater engagement in fermentation among Co-op 1 than Co-op 2. In terms of quality, Co-op 1 members sold both unfermented and fermented cacao beans at a higher grade, while Co-op 2 members sold unfermented beans at a lower grade.

5.7.10 Price of cacao products

Table 26 presents the prices received for cacao products. Both clusters preferred to sell wet beans, with Cluster 1 members obtaining prices three percent higher than Cluster 2 members. Meanwhile, both cooperatives sold more dried than wet cacao beans, and Co-op 1 got a five percent higher price than Co-op 2 for dried beans. This indicates that price could potentially determine the product sold by cooperative members.

Table 26. Price information on cacao products sold by the respondents

Group	Wet beans sold	Dried beans sold
	Average price (P/kg)	Average price (P/kg)
Cluster 1	109	300
Cluster 2	106	282
Co-op 1	104	309
Co-op 2	122	295

5.7.11 Buyer preference

Table 27 presents information on the preferred buyer of the respondents. Cluster 1 members primarily sold their beans to their cluster, while Cluster 2 members sold to traders. On the other hand, Co-op 1 primarily sold to traders, while Co-op 2 preferred the Co-op.

Table 27. Preferred buyer of the respondents

Type of buyer	Cluster 1 (n = 36)	Cluster 2 (n = 51)	Co-op 1 (n = 49)	Co-op 2 (n = 50)
	%	%	%	%
Cluster	81	-	-	-
Co-op	-	08	23	54
Trader	19	78	75	13
Exporter	-	04	-	33
Processor	-	10	02	-

Table 28 reveals the top reasons respondents gave for choosing their buyer. Members of both clusters cited high price and proximity to the farm as two of their top considerations. Their motivations differed on the third factor: more Cluster 1 members emphasized cluster membership, while Cluster 2 members highlighted financial support from the buyer. These patterns suggest that price and buyer location are the strongest determinants of buyer choice among cluster members.

Table 28. Main reasons for choosing their buyer

Organizations	Stated reasons
Cluster 1	High price, membership to the cluster, near the farm
Cluster 2	High price, near the farm, provided financial support
Co-op 1	High price, membership to the cooperative, patronage
Co-op 2	Membership to the cooperative, high price, near the farm

Members of both cooperatives cited high price and membership to the cooperative as two of their top reasons for choosing buyers. Their third motivation differed: more Co-op 1 members emphasized patronage, while Co-op 2 members highlighted proximity to the farm. These suggest that cooperative membership and price are strong determinants for buyer choice among cooperative members.

5.7.12 Summary of other income sources

Table 29 showed that more than 95 percent of the respondents had income sources outside of cacao. These sources were broken down into on-farm, off-farm, and non-farm. Twenty-one percent of Cluster 1 members had on-farm sources, mostly planting fruit trees, poultry, and swine, while 49 percent of Cluster 2 members had on-farm sources, mostly planting durian, coconut, and banana. Among cooperatives, 94 percent of Co-op 1 members had on-farm sources,

mainly banana, vegetables, and poultry, while 18 percent of Co-op 2 members had banana and rubber. Outside of cacao, perennial crops such as banana and poultry were the most common on-farm sources of income for the respondents outside of cacao across all groups.

Table 29. Other income sources of the respondents

Sources		Cluster 1		Cluster 2		Co-op 1		Co-op 2	
		n	%	n	%	n	%	n	%
Other income source?	Yes	29	81	49	96	49	100	50	100
	No	07	19	02	04	00	--	00	--
<i>Respondents who answered 'Yes'</i>									
Type	On-farm	06	21	24	49	46	94	09	18
	Off-farm	02	07	05	10	01	02	01	02
	Non-farm	06	21	11	22	13	27	04	08
	No answer	15	52	09	19	--	--	36	--

Off-farm sources are agriculture-related income outside of their own farm. For off-farm sources, respondents from Cluster 1, Cluster 2, and Co-op 1 said they worked as skilled farm labourers. This suggests that the respondents used their farm skills as extra income.

Non-farm sources are non-agriculture income received by the respondents. Twenty-one percent of Cluster 1 respondents have non-farm sources, mainly daily wage earnings, while 22 percent of Cluster 2 respondents rely on neighbourhood convenience stores. This suggests that daily wage and small businesses are the preferred non-farm income source of cluster members. Twenty-seven percent of Co-op 1 respondents have non-farm sources, mainly daily wages, convenience stores, and pensions, while 8 percent of Co-op 2 respondents rely on employment salary, pensions, and convenience stores. This suggests that the Co-op members who have non-farm sources of income source it either from daily or monthly wages, social services, or a small business.

5.7.13 Financial and Economic benefits

Table 30 shows clear differences in perceived financial and economic benefits across groups. Cluster 1 members reported stronger scores across all seven variables. On the other hand, Cluster 2 members reported consistently lower scores in loan access and input cost. The largest gap between clusters were in market stability, loan access, and certification support.

Table 30. Perceived financial and economic benefits of the respondents per group

Economic benefits	Cluster 1 ^{ab}			Cluster 2 ^{ab}			Co-op 1 ^{ab}			Co-op 2 ^{ab}		
	low (%)	neutral (%)	high (%)	low (%)	neutral (%)	high (%)	low (%)	neutral (%)	high (%)	low (%)	neutral (%)	high (%)
More stable market	--	08	92	20	10	71	--	42	58	--	13	88
Easier access to loans	11	14	75	67	10	24	29	08	63	02	04	94
Lower input cost	11	25	64	27	18	55	42	13	46	04	19	77
Higher community employment	06	19	75	14	33	53	--	17	83	--	38	63
Financial assistance during hardship	11	22	67	53	08	39	21	29	50	02	27	71
Reduce use of fuel	11	31	58	27	31	41	08	15	77	--	42	58
Assist in securing farm certification	25	11	64	49	08	43	25	19	56	--	17	83

^a Scores are based on a 5-point Likert scale: 1 – Strongly disagree, 2 – Disagree, 3 – Neutral, 4 – Agree, 5 – Strongly agree

^b Low = Strongly disagree, Disagree; Neutral = Neutral; High = Agree, Strongly agree

Across cooperatives, Co-op 1 had more respondents reporting benefits in community employment, reduced fuel use, and certification support. However, Co-op 2 had members reporting stronger benefits in loan access, market stability, and lower input cost. These indicate that Co-op 2 member perceived better benefits in access to financing and markets, while Co-op 1 members perceived better gains in employment, reduced cost, and certification support.

5.7.14 Social benefits

Table 31 revealed that both clusters gave high scores for quality of life, information sharing, training access, and women's participation. Cluster 1 had more members reporting high scores in four categories, such as, better quality of life, information sharing, training access, and IP participation, while Cluster 2 had more respondents reporting high scores in the use of protective equipment and women's participation.

Table 31. Perceived social benefits of the respondents per group

Social Benefits	Cluster 1 ^{ab}			Cluster 2 ^{ab}			Co-op 1 ^{ab}			Co-op 2 ^{ab}		
	low (%)	Neutral (%)	high (%)	low (%)	neutral (%)	high (%)	low (%)	neutral (%)	high (%)	low (%)	neutral (%)	high (%)
Better quality of life	--	11	89	08	16	76	--	06	94	--	27	73
Easier information sharing	--	06	94	04	06	90	02	02	96	--	13	88
Access to training	--	03	97	02	04	94	--	04	96	--	04	96
Use of protective equipment	08	28	64	10	14	76	04	21	75	65	15	21
Higher women participation	06	17	78	04	10	86	04	13	83	19	63	19
Higher indigenous people (IP) participation	11	28	61	22	20	59	06	15	79	04	79	17

^a Scores are based on a 5-point Likert scale: 1 – Strongly disagree, 2 – Disagree, 3 – Neutral, 4 – Agree, 5 – Strongly agree

^b Low = Strongly disagree, Disagree; Neutral = Neutral; High = Agree, Strongly agree

Table 31 also revealed that both Co-ops gave high scores for quality of life, information sharing, and training access. Co-op 1 had more respondents reporting high scores in six categories, especially in women's and IP participation, use of protective equipment, better quality of life, and information sharing. Co-op 2 only tied Co-op 1 in training access. The largest differences were recorded in women and IP participation, and use of protective equipment.

5.6.15 Farm benefits

Table 32 showed high perceptions of farm benefits across four cases with Cluster 1 reporting the highest scores among the four indicators. In this scenario, Cluster 1 members perceived higher profit, production, farm practices, and quality, with almost no low scores. Similarly, Cluster 2 reported high scores in the same areas, but with more neutral and low responses for profit and quality.

Table 32. Perceived farm benefits of the respondents per group

Farm benefits	Cluster 1 ^{ab}			Cluster 2 ^{ab}			Co-op 1 ^{ab}			Co-op 2 ^{ab}		
	low (%)	neutral (%)	high (%)	low (%)	neutral (%)	high (%)	low (%)	neutral (%)	high (%)	low (%)	neutral (%)	high (%)
Higher farm profit	--	06	94	02	20	78	--	02	98	02	21	77
Higher farm production	--	11	89	--	18	82	02	13	85	--	19	81
Better farm practices	--	08	92	04	04	92	--	06	94	--	23	77
Better product quality	--	03	97	04	10	86	--	02	98	--	19	81

^a Scores are based on a 5-point Likert scale: 1 – Strongly disagree, 2 – Disagree, 3 – Neutral, 4 – Agree, 5 – Strongly agree

^b Low = Strongly disagree, Disagree; Neutral = Neutral; High = Agree, Strongly agree

Among cooperatives, Co-op 1 members reported strong perceptions on benefits across the four indicators. Co-op 2 also reported strong perceptions but had more neutral and low scores in farm practices and product quality. Taken together, the perceived farm benefits was highest in product quality and farm profit across groups.

5.7.16 Environmental benefits

Table 33 presents the perceived environmental benefits of the respondents of the survey. Cluster 2 members reported higher scores in two categories: reduced chemical use and soil degradation. Cluster 1 members rated reduced water contamination as the highest environmental benefit indicator.

Differences in perceived environmental benefits were also higher in Co-op 1 members than Co-op 2. Co-op 1 had more respondents reporting high scores reducing agricultural chemicals and water contamination. Meanwhile, Co-op 2 excelled in reducing soil degradation according to farmers.

Table 33. Perceived environmental benefits of respondents per group

Environmental benefits	Cluster 1 ^{ab}			Cluster 2 ^{ab}			Co-op 1 ^{ab}			Co-op 2 ^{ab}		
	low (%)	neutral (%)	high (%)	low (%)	neutral (%)	high (%)	low (%)	neutral (%)	high (%)	low (%)	neutral (%)	high (%)
Reduce soil degradation	--	22	78	02	10	88	02	38	60	--	27	73
Reduce water contamination	03	25	72	14	18	69	02	33	65	06	42	52
Reduce use of agricultural chemicals	08	22	69	04	04	92	10	13	77	02	48	50

^a Scores are based on a 5-point Likert scale: 1 – Strongly disagree, 2 – Disagree, 3 – Neutral, 4 – Agree, 5 – Strongly agree

^b Low = Strongly disagree, Disagree; Neutral = Neutral; High = Agree, Strongly agree

5.8 Results of Exploratory Factor Analysis (EFA)

The previous sections summarised and compared the perceived benefits of the respondents. In this section, we presented the results of the EFA on the 23 perceived benefits variables goal of summarizing the correlations between the benefits variables. Refer to the methodology section on the procedures to implement EFA.

Table 34 showed the EFA defined a four-factor solution for analysis: Financial and Economic Benefits (FEB), Social Performance (SB), Farm Performance (FB), and Environmental Performance (EB). Naming these dimensions were based on the variables that were loaded for each factor and matching them based on the understanding of the literature.

Table 34. Factor loadings of the four factors for the EFA

Variables/Dimensions	Financial & Economic Benefits	Social Benefits	Farm Benefits	Environmental Benefits
Higher farm income			0.52	
Higher cacao production			0.64	
Better farm practices			0.66	
Better product quality			0.72	
More stable market	0.48			
Easier access to loans	0.81			
Lower input cost	0.45			
Better quality of life		0.44		
Easier information sharing		0.53		
Access to training		0.44		

Variables/Dimensions	Financial & Economic Benefits	Social Benefits	Farm Benefits	Environmental Benefits
Use of protective equipment		0.69		
Higher employment in the community	0.44			
Financial assistance during hardship	0.76			
Increased participation of women		0.56		
Increased participation of indigenous people (IP)		0.52		
Reduced soil degradation				0.64
Reduced water contamination				0.48
Reduced use of chemicals				0.67
Reduce use of fuel	0.43			
Assist in securing farm certification	0.63			
Eigenvalues	2.82	2.31	2.20	1.64
% variance	0.14	0.12	0.11	0.08
Cronbach's Alpha	0.80	0.75	0.78	0.71

Table 34 also showed the four-factor solution explained 45 percent of the total variance, falling into the acceptable 40 to 60 percent range in the social sciences, where precision in latent constructs is less emphasized (Costello & Osborne, 2005; Hair et al., 2019). Thus, the refined factor solution is acceptable after removing the variables with weak loadings.

A varimax rotation was used to generate the latent dimensions (Tabachnick & Fidell, 2018). It is a popular choice for simplifying factors based on variable communalities (Hair et al., 2019). Several variables such as, use of protective equipment, higher employment, larger IP participation, and reduced soil degradation that loaded on multiple factors at acceptable levels (>0.32), but all four loaded more strongly (>0.50) in their main factor. This suggests raising to a 0.4 will improve interpretability of the latent constructs (Tabachnick & Fidell, 2018).

Cronbach's alpha coefficient for the four factors ranged from 0.71 to 0.80, indicating acceptable to good reliability (Hair et al., 2019). Costello and Osborne (2005) also stated that coefficients

above 0.80 have good reliability. FEB showed good reliability, while SB, FB, and EB had acceptable reliability.

The first factor, financial and economic benefits, accounted for 14 percent of the variance and captured benefits that improve a member's financial and economic standing. These included reduced input and fuel costs, easier access to loans, and financial assistance during hardship, stronger market linkages that stabilized price received and improved profitability, support for securing farm certification, and higher employment in the community. All refer to the outcomes of the mechanisms of ABCs and cooperatives.

The second factor, social benefits, reflected improved welfare, knowledge sharing, farm occupational safety, and inclusiveness. Better quality of life, easier information sharing, increased participation of indigents and women, access to trainings and protective equipment, and support services helped foster social cohesion within groups.

The third factor, farm benefits, captured gains in productivity, farm practices, product quality, and income. Higher farm income reflected better returns and higher prices; higher cacao production referred to the improved efficiency; better farm practices comes from training access and peer learning; and better product quality referred to the ability to comply with quality standards from markets which are also reinforced by ABCs and cooperatives.

The last factor, environmental benefits, reflects positive environmental impact. Reduced soil degradation and water contamination are linked to conservation practices and improved environmental consciousness. Meanwhile, reduced use of chemicals referred to the adoption of good practices and adopting organic and/or natural farming systems.

Chapter 6: Analysis and Discussion

6.1 Introduction

Building on the case descriptions from the results chapters, this chapter synthesized the findings and proceeded with the comparative analysis of ABCs and cooperatives. This chapter is organized as follows: Section 6.2 compares organisational structures and 6.3 compares benefit outcomes between ABCs and cooperative members

6.2 Organizational structure

Table 35 summarized the key elements of organisational structures. The succeeding subsections interpreted the key findings on organisational structures using the theoretical framework introduced in Chapter 3. Examining these features reveals how ABCs and cooperatives are designed, and how their structures create different benefit outcomes for smallholder farmers.

Table 35. Key characteristics of the organizational structures of ABCs and cooperatives

Characteristics	Agro-based cluster	Cooperative
Ownership	Private-owned	Member-owned
Control	Shared decision-making through strong coordination	Democratic
Membership	Informal	Formal
Investment	Participation of external investors	Member equity with limited external investors
Stakeholder involvement	Initiated by private firms; Diverse stakeholders providing support to farmers	Primarily farmer members with support from government and NGOs
Benefits	price premiums, rewards system, lower cost, stable markets, access to credit and inputs, sustainable farming practices, organizational development, welfare, social cohesion and inclusion, farmer and community education	interest on share capital, patronage refund, preferential pricing, stable market, access to credit and inputs. sustainable farm practices, farmer education, social services, social inclusion, information sharing, community welfare

6.2.1. Ownership

Ownership arrangements clearly distinguish ABCs from cooperatives. In the ABCs private entities and farmer organisations shared access to assets. The members of the ABCs retain

individual ownership of their assets while allowing shared use to facilitate joint activities. In Cluster 1, for example the farmer's association retains ownership of the nursery investment made by Company A to ensure supply of quality seedlings and preserves the flavour profile of harvested cacao beans. Mindlin et al. (2022) describe this as a "partial" partnership, where one firm invests in assets used by another member to generate benefits for the cluster. Similarly, in Cluster 2, hub farms were funded by the research project to create common training areas and house agricultural technicians, while ownership remained with the individual farmers. Mindlin et al. (2022) described this as a common pool of assets, where ownership is retained but access is shared. Access to common assets is key to cluster success because it provides a platform for sharing technical practices and market information that facilitates horizontal coordination, as demonstrated by a Vietnamese shrimp cluster (Ha et al., 2013).

In contrast, the cooperatives are formally registered member-owned enterprises that emphasise joint ownership and control to meet members' needs and aspirations (Gega et al., 2024). They contribute equity through shared capital, membership fees, and retained patronage. Gega et al. (2024) and Mindlin et al. (2022) note that members are expected to invest equity to acquire property and control rights. Both cooperatives in this study are registered under the Philippines' CDA. As Abraham et al. (2022) reported, state-regulated cooperatives is a common practice in South Asia and sub-Saharan Africa, governments channel support to drive agricultural development. The contrast in ownership arrangements reflect broader organisational differences: ABCs emphasize flexible collaboration through retained ownership and shared access to assets, while the cooperatives institutionalise member ownership and equity investment under the supervision of the state.

6.2.2. Membership

Membership is another key structural feature that differentiates ABCs from cooperatives. In both clusters, membership processes are informal, since they're not sanctioned by law. Authors have similarly classified ABCs as informal groups, non-legal collectives governed by informal norms and sanctions (Abraham et al., 2022), where cooperation forms an informal value network (Gálvez-Nogales, 2010). Initial collaboration in the clusters emerged through consultations and dialogues, which eventually led to contracts or the formation of small working clusters. Mindlin et al. (2022) emphasise that such cooperation remains implicit and distinct from formal organisations due to its flexible membership. This informality enables value

creation (Gálvez-Nogales, 2010) through mechanisms such as knowledge transfer (Ayakwah et al., 2017), resource sharing, joint selling (Awad & Thwaib, 2024), and the cultivation of social capital and trust (J. Oakeshott, 2020). In sum, the informal nature of membership in ABCs fosters adaptive collaboration, enabling value creation through flexible trust-based networks.

Membership in the two cooperatives, by contrast, is formal and bounded by rules. In the two cooperatives, membership processes are defined by the Philippine Cooperative Code of 2008. Several authors highlighted that formalisation in developing countries is driven by national laws or charters mandating rules such as, registration under a state-run body, adhering to International Cooperative Alliance (ICA) principles (Liang et al., 2022), minimum membership thresholds (Liu et al., 2024), and membership fees (Adjahoung, 2021). For example, Co-op 2 has a contestability period and BoD approval before applicants become members. Special requirements are common in cooperatives, including minimum production or land, BoD approval (R. A. R. Lima, 2021), minimum educational attainment, and ability to supply high-quality products (Wilmsen et al., 2023). These additional layers of membership reflect both the mandate of state regulations and organizational discretion, underscoring the formal, structured membership process that distinguishes them from ABCs.

6.2.3 Control

Control further reveals structural contrasts between ABCs and cooperatives. In Cluster 1, Company A enforces accountability with partner farmers through contracts and building ability of the organization for internal control. Ha et al. (2013) highlighted strong self-regulation in shrimp clusters as the reason for improvements in production and post-harvest activities that helped farmers meet contract requirements. In Cluster 2, activities are coordinated by the farmers themselves, consistent with the view that ABCs can be grassroots movements using trust (Abraham et al., 2022; Uy et al., 2014), to make it easier to coordinate operations and achieve their goals (Baruah et al., 2021). Similarly, signs of autonomy were observed in both clusters: participation in activities remained voluntary, and farmers retained control over production decisions. These observations aligned with the findings by Baruah et al. (2021) and J. Oakeshott (2020), who argue that cluster participation does not compromise farmer's control over their land, but rather enables them to market products and access resources as a collective. Farmer control in both clusters extends beyond farm-level decisions, as internal governance structure promotes leaders as representatives in negotiations and local governance bodies.

Representation in these arenas enables them to challenge unequal practices and shape local administrative policies (Baruah et al., 2021; Lin et al., 2021; J. Oakeshott, 2020). These mechanisms reflect unique characteristics in ABCs: they balance farmer autonomy with collective governance to achieve efficiency and maintain accountability.

Control in cooperatives follows democratic principles, but in practice it can be either an enabling or restrictive mechanism. Voting in the two cooperatives follows the “one member, one vote principle” during GA’s, where policies and strategies are determined and BoD members are elected. In traditional cooperative governance, decision control is exercised at the GA (Bijman et al., 2014) where members exercise voting rights, set agendas, and share opinions on organisational matters (Villavicencio & Solares, 2019). However, voting rights are reserved for members who have met conditions such as paid-up capital, training, and BoD approval. Several authors noted that such practices can compromise democratic principles (Bijman et al., 2014), leading to the exclusion of resource poor members (Mwambi et al., 2020) and potentially discourage future investment and participation (Liu et al., 2024). These restrictions challenge the social of cooperativism and may negatively affect member engagement and sustainability.

Leadership tenure also significantly influences control in cooperatives. In Co-op 1, the BoD has been led by the chairman for 14 years; his corporate expertise and CDA training have made him a key driver of the cooperative’s revival, and a strong advocate for member interests. Long-term leadership offers maturity, deep institutional knowledge, and continuity in governance training (Dary & Grashuis, 2020; Lima, 2021), fostering member trust, attracting new members, and supporting market linkages (Lima, 2021; Matangaidze et al., 2023; Wilmsen et al., 2023). Leadership changes can also improve financial performance and member engagement (Meador et al., 2016). However, the literature also warns that extended leadership can hinder emergent ideas and limit opportunities for potential leaders (da Silva et al., 2022). Thus, while long-term leadership is a sign of stability, mechanisms must be set in place to encourage innovative members to take on leadership positions that will lead the organisation into the future.

As cooperatives engage with external markets, the role of managers become more critical. Both cooperatives have diversified enterprises and formed market connections with agricultural exporters, increasing the responsibility place on managers. The delegation of control to managers was also observed in other contexts (Bijman et al., 2014; Wander & de Paula de Oliveira Júnior, 2022) and is often attributed organisational size and market-oriented strategies,

such as diversification and globalisation. However, Valentinov and Iliopoulos (2022) and Fernando et al. (2021a, 2021b) warned that engaging in more enterprises can negatively impact performance when attention is taken away from core activities that provide clear benefits. As managers take on more tasks, to meet demand, the BoD must evolve in tandem to ensure strategic coherence and member interest alignment. The BoD plays a central role in governance and strategy by approving members, appointing managers, proposing strategic directions, and forming partnerships with external stakeholders. Relegating member approval to the BoD will help enforce training and education requirements that are positively correlated with member participation (da Silva et al., 2022; Garnevska et al., 2011). Parallel to this, BoDs can be risk-averse, leading to slow decision-making resulting in missed market opportunities (Gega et al., 2024). To offset this, cooperatives often pursue external partnership to access capital and attract investment (Altman, 2014; Chaddad & Cook, 2004; da Silva et al., 2022). Thus, while the BoD is crucial for governance and strategic alignment, the effectiveness of their function depends on balancing oversight, market agility, and fostering partnerships that contribute to cooperative development.

Both co-ops fall under the oversight of the CDA, which is mandated to provide training for member and BoDs, monitor cooperative performance, intervene in internal conflicts, and supervise ailing cooperatives (Republic Act No. 11364, 2019). Evidence from several developing countries indicated that legal frameworks can support cooperative development by mandating governance attributes that combat cooperative failures (Kale et al., 2025; Liang et al., 2022; R. A. R. Lima, 2021; Onyilo & Adong, 2019). Dary and Grashuis (2020) and Pandey (2024) also argued that institutionalising cooperatives allow governments to advocate for them and streamline support through a government body. Despite its benefits, direct government involvement had sometimes led to impractical regulations and dependency on public funding, undermining autonomy (Adjahoung, 2021; Zhong et al., 2023). Ultimately, while cooperative control is grounded on legal and institutional frameworks geared to support its development, success still hinges on balancing external support with maintaining autonomy.

Beyond legal frameworks, ABCs and cooperatives differ in how they organise and coordinate support for smallholder farmers. In ABCs, lead firms and intermediaries use specific institutional arrangements to streamline coordination and service delivery. Lead firms in both clusters linked farmers to support organizations through collaborative projects and coordinated training activities. Within clusters, farmer representatives facilitate regular meetings, articulate

member needs, negotiate better prices, and organise group activities. This structure reflects the "hub concept" in the literature, where lead firms act as brokers linking collaborators (Ramirez et al., 2018), and producer groups function as one-stop shops integrating collective marketing with input services, training, and financial support (Kilelu et al., 2016). In contrast, the cooperatives offered price incentives to members as a market mechanism to encourage continued patronage (Cechin et al., 2013; R. A. R. Lima, 2021; Liu et al., 2024). These contrasting coordination mechanisms highlight the diverse institutional strategies used by ABCs and cooperatives to support smallholder farmers.

Building on institutional arrangements, ABCs reinforce coordination with participatory decision-making processes. The marketing contract in Cluster 1 and the cacao production protocol and standards produced by Cluster 2 are mechanisms to ensure the quality of cacao beans. These mechanisms orchestrate and coordinate farmers' decisions on technologies and practices they adopt (Kilelu et al., 2016; Ramirez et al., 2018). They are grounded in participatory processes which signal more influence from the farmers (Ramirez et al., 2018; Uy et al., 2014). For Cluster 1, the farmer's association articulates the farmers needs, which has led to innovations such as the rewards system for farm inputs and adjustments to procurement protocols that reduced costs. Meanwhile, Cluster 2 created a Cluster Board to share leadership and coordination responsibilities with the lead firm (Uy et al., 2014) which include organising members for activities, monitoring production, articulating needs, and handling group finances. These arrangements highlight how participatory control structures enhance coordination and responsiveness in cacao value chain activities.

Lastly, financial and social factors further complicate decision-making in cooperatives. In Co-op 2, only 30-40 percent of members are considered active, a situation attributed partly to members avoiding loan repayment. In the literature, this is described as free riding: some members benefit from cooperative services, such as credit, without fulfilling their obligations to the cooperative (Badraoui et al., 2025). Rural poverty and limited financial services force farmers to borrow money for immediate cash needs, even when they are unable to repay the loans (Mangnus & Schoonhoven-Speijer, 2020; Wedig, 2016). Because cooperatives have limited capacity to generate capital, loan repayments are critical (Onyilo & Adong, 2019), and measures such as, credit guarantees and collaterals have, in some cases, resulted to losing members (R. A. E. Lima, 2021). Co-op 2's special investment scheme, which allowed some members to exceed their maximum paid-up capital contribution, introduce another governance

challenge. Differentiated member investments can increase member heterogeneity, grant unequal residual claims, departing from the *golden rule of proportionality* (Valentinov & Iliopoulos, 2022), and raising collective decision-making costs (Apparao et al., 2020; Liang et al., 2022) hindering the identification of shared goals (Iliopoulos & Valentinov, 2018). These issues highlight the need to balance financial management with inclusive engagement to ensure future viability.

6.2.4 Investment

ABCs in this study mobilise capital through different mechanisms such as, price premiums and strategic investments by lead firms and external stakeholders. In Cluster 1, farmers' associations receive one peso from the three pesos price premium paid by Company A for each kilogram of cacao beans forming the bulk of their savings. Similar internal financing systems, where clusters create common funds for future asset purchases or credit provision (Ha et al., 2013; J. Oakeshott, 2020). In both clusters, lead firms invested on important assets such as, a nurseries and demonstration farms to assist farmers. Dureti and Tabe-Ojong (2022) and Tsikada (2025) also showed that investments in farm assets and hub farms add value to agricultural products and improve market access. These demonstration farms also affirms the critical role of lead firms in the diffusion and adoption of innovative practices in farmers groups (Dureti & Tabe-Ojong, 2022; Gálvez-Nogales, 2010; Joffre et al., 2019; Li et al., 2022). Additionally, both clusters have received grants or subsidies from government, academia, and international organisations to support extension services and input provision. Bundling support towards cluster makes implementation easier, focused, and more effective. (J. Oakeshott, 2020),(Gálvez-Nogales, 2010). These strategies highlight a clusters' ability to mobilize internal and external resources to strengthen organisational resilience.

The cooperatives rely on self-financing and external support. Internal investments began with member contributions, and continued through retained earnings, making them autonomous organizations that make investments that align with member interests (Wander & de Paula de Oliveira Júnior, 2022; Zhong et al., 2023). However, traditional cooperatives often deal with free riders, where members benefit from services without contributing their fair share (Chaddad & Cook, 2004; Gega et al., 2024), and smallholders may be reluctant to pursue investments in cooperatives because they prioritize short-term gains (Kale et al., 2025). Co-op 1's special investment scheme, which allows members to exceed the maximum equity contributions, is an

to attract additional equity (Bijman et al., 2014) and alleviate the horizon and portfolio problem (Chaddad & Cook, 2004; R. A. R. Lima, 2021). Such schemes are devised to increase economic capacity and generate a stronger sense of ownership (Badraoui et al., 2025), but they also raise concern about member heterogeneity and unequal residual claims, increasing the risk of internal conflict (Apparao et al., 2020), favouring more resource-rich members (Ahmed & Mesfin, 2017), and weaken commitment from non-investing members (Liu et al., 2024).

Both cooperatives also received grants and subsidies that enabled them to acquire storage and processing facilities, logistics equipment, and training for sustainable farming practices. Government grants and donor funding have historically played a key role in supporting cooperative formation and expansion in rural areas (Chibanda et al., 2009; Dary & Grashuis, 2020; Imami et al., 2021; Mangnus & Schoonhoven-Speijer, 2020). However, dependence on such funding carries risk. Studies from China and Ghana report that withdrawing subsidies have led to member demotivation and inactivity, and slow degradation of cooperatives (Chibanda et al., 2009; Dary & Grashuis, 2020; Zhong et al., 2023). External grants can also introduce peripheral activities that distract from the core function of the cooperative (Valentinov & Iliopoulos, 2022). These instances highlight the need for cooperatives to balance external support with self-reliance to maintain organisational focus and ensure long-term sustainability.

6.2.5 Stakeholder involvement

Both ABCs were initiated by external stakeholders. Company A built Cluster 1 through formal partnerships with selected supplier groups, using the Farmer Contract Program to profile, validate, and evaluate before engaging in the agreement. Abraham et al. (2022) described such arrangements as top-down: initiators select farmer groups that can meet contract requirements, implicitly excluding others. Exclusion in Cluster 1 is reflected in differentiated access to services such as, focused technical assistance, financial assistance, more incentives, assurance to buy all procured beans, long-term agreements (3 – 5 years), and prioritisation for externally-funded programs (Manaig, 2024; Manaig & Mendez, 2023). Cluster 2 was initiated by Unorka who used funding from an international funding agency. Similar cases described by Ha et al. (2013) and Abraham et al. (2022) characterized cluster formation was supported by projects spearheaded by non-profits and parastatal funding. These funds were used to develop cacao production protocols and organise four clusters of farmers, illustrating how international donors can support agricultural innovation in farmer clustering (Eidt et al., 2020; J. A. Oakeshott, 2020).

In both cases, the type of initiator – corporate or non-profit – fundamentally influenced cluster structure and resource allocation.

The Philippine government played a big role in the formation of both cooperatives. Co-op 1 was initially organized through a livelihood project for the indigenous community, while Co-op 2 emerged to respond the unfair practices of a local retailer, leading the small group to register as a cooperative. Similar to other developing countries, cooperatives were promoted to assist disadvantaged populations (Chibanda et al., 2009), combat dominant traders (Onyilo & Adong, 2019), and leverage economies of scale (Theesfeld et al., 2021). Both cooperatives were established under the Philippine Cooperative Code of 2008 (Cooperative Development Authority (Philippines), 2015), which promotes cooperative values and development, provides templates for by-laws and organisational structures (Cooperative Development Authority (Philippines), 2011), and guide dividend calculations. This reflects broader international strategies where state policies grant legal status (Zhong et al., 2023), define structures (Liu et al., 2024), and institutionalise government support for cooperatives (R. A. R. Lima, 2021). Unlike ABCs, cooperatives are embedded in the state's institutional framework which legitimises them but introduces state oversight in their structure, day-to-day operations, which can impact their long-term sustainability.

Beyond their initiators, ABCs and cooperatives have a diverse range of stakeholders. In the ABCs, farmer groups such as the PPFA and small clusters organised by Unorka are foundational because they supply cacao beans and maintain cluster activities. Cluster leaders facilitate regular meetings, represent group interest in negotiations with lead firms, and coordinating activities (Li et al., 2024; Uy et al., 2014). Unorka plays a critical intermediary role in Cluster 2 by organising the four farmer clusters, trained them in collective values, and linked them to government and international projects. Their embeddedness in the communities allowed the farmers to thrive by supporting knowledge transfer and broker relations with other stakeholders (J. A. Oakeshott, 2020; Ramirez et al., 2018; Ramirez et al., 2017). Company A, as the lead firm in Cluster 1, formed their cluster to build its brand. Literature showed that lead firms can assist product upgrading by setting quality standards and providing stable markets, technical assistance, access to capital, and incentivized adoption of good practices through various initiatives (Mulyana et al., 2024; Ramirez et al., 2017). The University of Southern Mindanao (USM) contributed through research and development of an organic cacao protocol, demonstrating their role in knowledge transfer, through on-site agricultural technicians, and

promoting sustainable agriculture (Andriushchenko et al., 2020; Barmuta et al., 2024; Ilhom, 2024; Li et al., 2024). Ultimately, the support network around clusters, which include non-profits, local government agencies, and international organizations, provide critical resources and services that enabled producers to participate and benefit from their clusters (Oakeshott, 2016). Participatory processes encourage strong participation, while lead firms and intermediaries connect them to the wider support network.

Cooperatives also involve a range of stakeholders, but their roles differ. Internally, members are the primary stakeholders holding ownership, control, and benefit rights (Liang et al., 2022; Liu et al., 2024). The cooperative structure gives shared ownership, control over leadership and direction, and opportunities to participate in elections, committees, and leadership roles (Cechin et al., 2013). These services, combined with stronger bargaining power, enabled the two cooperatives to negotiate price incentives with buyers, reduce market risk, reduce production failures, and provide inputs, loan, and insurance products (Ahmed & Mesfin, 2017; Christian et al., 2024; Cvijanović et al., 2023; R. A. R. Lima, 2021). Cooperatives also important roles in community development by providing employment and starting local community projects (Chibanda et al., 2009). In essence, both cooperatives empowered members through ownership and service provision, but their success depends on how effectively these roles support participation, bargaining power, and community impact.

External stakeholders play a pivotal role in agricultural cooperatives. Government agencies such as the CDA set the regulatory framework and organizational development training for leaders and members. The two cooperatives have loan facilities for cacao producers, provided by a government bank. The literature cites the important role of government in cooperative development (Christian et al., 2024; Jia et al., 2016; Liang et al., 2022; Onyilo & Adong, 2019; Theesfeld et al., 2021) and in providing inputs, agricultural extension, grants, and loans (Chibanda et al., 2009). Both cooperatives maintain supply contracts and market relations with private entities, but face increasing competition with traders, processors, and exporters as cacao prices rise, which resulted in the loss of member participation (Wilmsen et al., 2023). There are international organizations such as the Mennonite Economic Development Associates have contributed to governance improvements in both cooperatives and broadened their stakeholder network. Lubell et al. (2019) cited that such organisations assist in network coordination and learning in cooperatives. Taken together, while members ensure day-to-day operations, strategic

partnerships with external stakeholders play a role in its growth prospects, resilience, and long-term viability.

6.3 Comparison of performance benefits between ABCs and cooperatives

Table 35 presented the comparison of the four benefits across ABCs and co-ops: financial and economic, social, farm, and environmental benefits. This was based on the mean values of the factors scores between ABCs and cooperatives. This followed the previous work of several authors who also compared factor scores generated by EFA to make comparisons between groups (Bánkuti et al., 2020; De Brito et al., 2015; Fernando et al., 2023).

The resulting factor scores from the whole sample are standardized scores which indicates that the mean scores between groups per dimension were either lower or higher than the sample mean. On average, the ABC members perceived higher benefit in the social, farm, environmental dimensions while they perceived a lower benefit from financial and economic dimension. Conversely, cooperatives members perceived a higher benefit from the financial and economic performance, while a lower benefit on the other factors, on average.

Table 36. Comparison of performance benefits across groups

Benefits	Mean scores		WMN test	
	Cluster	Cooperative	χ^2	p
Financial and Economic performance	-0.38	0.33	27.12	0.000***
Social Performance	0.15	-0.13	4.81	0.03**
Farm Performance	0.25	-0.22	14.83	0.0001***
Environmental Performance	0.18	-0.16	8.15	0.004***

* p < 0.1, ** p < 0.05, *** p < 0.01

Financial and economic benefits accounted for the largest variance between the four latent benefit areas. In this factor, financial benefits constituted easier access to loans, lower input cost, financial assistance during hardship, and reduce use of fuel, while economic benefits related to stable markets, higher employment in the community, and support for farm certification. Cooperatives reduce marginal and transaction costs through shared facilities and services such as, transport, bulk input procurement, harvest pick-up schedules lowering fuel cost and improving terms of trade (Blekking et al., 2021; Fernando et al., 2023; Hao et al., 2018;

Manda et al., 2020; Meador et al., 2016; Tray et al., 2021; Zhong et al., 2022). Access to credit and input subsidies often through government grants has been tagged as keys to reducing production constraints and improving farming household welfare (R. A. R. Lima, 2021; Mojo et al., 2017; Nyawo & Olorunfemi, 2023). External grants funding cooperative extension services including the internal production of organic inputs and teaching farm practices, further reduce production costs and add value to their products (Zhong et al., 2023).

Cooperative leadership has been key in brokering marketing agreements with exporters, which has enabled access to stable market for its members. Vertical relationships and collective bargaining have enabled cooperatives to secure better prices, deliver consistent supply of quality of products, and attract diverse stakeholders who invest in processing facilities and local infrastructure (Fernando et al., 2023; Gega et al., 2024; Imami et al., 2021; Sumalde & Quilloy, 2015). In some studies, active cooperatives in rural areas have generated employment and stimulated the local economy because of the labour opportunities they provided for their neighbours (Christian et al., 2024; Onyilo & Adong, 2019; Qiu et al., 2024). In summary, cooperative structure play a vital role in reducing marginal costs, improving market access, ensuring member welfare, and driving rural economic growth.

Social benefits were the next key factor in the results. It captured better quality of life, easier information sharing, access to training, use of protective equipment, and increase in participation of women and IP. In the ABCs, representation through farmer leaders, and participatory processes have improved farmers bargaining power during contract negotiations contributing to higher household incomes and better quality of life (Dureti & Tabe-Ojong, 2022; Untari & Vellema, 2022). Collective governance through multiple monthly meetings and joint activities facilitate easier sharing of information and the exchange of formal and tacit knowledge between geographically proximate farmers (An et al., 2015; Ayakwah et al., 2017; Giuliani et al., 2005; Wardhana, 2018). Support from multiple stakeholders improve trainings and knowledge transfer via extension services, specialized technical advice, and organizational development (Daniel, 2024; Gallego-Bono & Chaves-Avila, 2019; Mubarik, 2025; Ogeto et al., 2024). Social innovations, such as internal policies that promote the use of protective equipment and women's livelihood projects, had improved worker well-being and social inclusion (Patias et al., 2016; Sitnicki et al., 2024). Studies documenting women's leadership and ethnic diversity in clusters reinforce the role of ABCs in building the social networks and promoting inclusion

(Ihle et al., 2020; Wardhana, 2018). Taken together, these findings underscore how socially driven innovations and inclusive governance within ABCs not only enhance farmer welfare but also foster resilient, equitable agricultural communities

Farm benefits was the third factor where ABC members gained more than average. This factor was composed of higher farming income, higher cacao production, better farm practices, and better product quality. Lead firms, linked to high-value export markets through marketing contracts and supported by extension services, enabled farmers to adopt better practices that boosted productivity and earn higher prices. Evidence from other clusters showed that farmers linked to a strong brand can get price premiums, while also benefiting from reduction in input costs and achieving economies of scale through shared services (An et al., 2015; Gálvez-Nogales, 2010; J. A. Oakeshott, 2020; Wardhana, 2018). Farm-level gains is further reinforce by faster diffusion of innovations and transfer of knowledge, as ABCs improve competitiveness of farm products and create an enabling environments for cooperation and learning (Gálvez-Nogales, 2010; Wardhana, 2018). Ogeto et al. (2024) also linked cluster farming with an overall increase in net benefit through collective arrangement, technology adoption, and quality improvements. Collectively, the relationship between organizational characteristics and farm benefit outcomes underscores the role of ABCs in helping farmers become more cost-efficient, profitable, and globally competitive.

Environmental benefit was the final latent construct, where ABCs again showed higher average scores. Indicators in this factor included reduced soil degradation, water contamination, and chemical use. Adoption of environmentally sustainable practices in clusters are influenced by a combination of lead firm control policies, funding and promotion of intermediary organizations, and the technical assistance of external stakeholders. This aligns with the findings of Li et al. (2024) where agricultural clusters drove the enforcement of environmental regulations, soil and water conservation during production, and promote sustainable agricultural technologies. Studies of GlobalGAP adoption in horticulture and Better Management Practices (BMP) in aquaculture also linked reduced chemical use and water contamination to alignment globally-accepted standards (Gálvez-Nogales, 2010; Ha et al., 2013). In conclusion, integrating sustainable practices coordinated through cluster activities improves adoption and helped more smallholders can comply with international sustainability standards.

The differences between organisations should move beyond the factor scores and further analyse their relationship with organisational history. In terms of maturity, the ABCs examined in this study are relatively new. Cluster 1 was formed as part of its lead firm's expansion strategy, while Cluster 2 emerged from donor-funded research and development projects. As young organisations, both clusters relied on external investments, unique coordination strategies, and innovation systems assisted by external partners. This accelerated their development of production and post-harvest skills, positioned them in specialty markets, and led them to focus more on providing social and environmental benefits for smallholders. In both ABCs, this is reflected in initiative such as, organic production protocols, the practice of *bayanihan*, women-led projects, and sustainability initiatives, which help explain the higher factor scores in social, farm, and environmental benefits among ABC members.

Conversely, the two co-ops have multiple decades organisational history, as evidenced by their multiple branches, diversified enterprises, and formal partnerships with exporters, government institutions, and financial service providers. Over time, they have accumulated substantial capital, built organisational experience, and institutionalised member services such as, loan and insurance products. These mechanisms aimed to reduce production and income risks, while supporting the well-being of their members' families. The impact of these services was reflected in the higher economic and financial factor scores among cooperative members. Overall, these findings indicate that the stage of organizational development can influence which benefit dimension are strongest for smallholder members.

Chapter 7: Conclusion

7.1 Overview

This study investigated how the organizational structures of agro-based clusters (ABC) and cooperatives differ in driving the benefits captured by smallholder cacao farmers in the Davao region. Using a mixed methods approach, a comparative analysis that integrated four case studies (two ABCs and two co-ops) and multivariate analysis (EFA and WMN test) of a farmer survey. The thesis was guided by three research objectives: (1) developed and applied a theoretical framework linking organizational structure to perceived farmer benefits; (2) analysed and compared ABC and cooperative structures; and (3) analysed and compared the benefits farmers perceived from participating in these organizations. The next part of this chapter summarized the findings, their implications, and provided detailed recommendations and options for future studies.

7.2 Summary of Findings

7.2.1 Objective 1: Theoretical framework linking organizational structure to perceived benefits

The study utilized a four-dimensional framework that connected structural features of organizations, ownership, control, benefits, membership, investment, and stakeholder involvement, to four latent constructs derived from a EFA: Financial and Economic Benefits (FEB), Social Benefits (SB), Farm Benefits (FB), and Environmental Benefits (EP). The data samples were found suitable for EFA (KMO = 82.3%; Bartlett's test $\chi^2 = 1318$; $p < 0.001$), explained 45 percent of the cumulative variance, and with each factor demonstrating adequate to strong reliability (Cronbach alpha = 0.71 – 0.80). This framework also assisted in our understanding of the impact pathways by which organizational structures shaped farmer benefits. Thus, the four reliable latent constructs (FEB, SB, FB, EB) were linked to the structural features of ABCs and co-ops, enabling cross-organization comparative analysis in the cacao context.

7.2.2 Objective 2: Comparative analysis of organizational structures

ABCs (private-led and NGO-mediated) were observed to have informal, network membership with shared access to assets (nurseries, learning sites), contracted coordination (logistics, price, and quality), and a diverse network of stakeholder partnerships (lead firms, NGOs, academic institutions, local government, international donors). Control was exhibited through negotiated

contracts paired with farmer participation, while investment combined shareholder-funded grants, in-kind support (farm inputs), innovative incentives (rewards system), and extension services (peer-to-peer training, agricultural technicians).

Meanwhile, cooperatives demonstrated a traditional structure, formal, member-owned and controlled enterprise, codified in the Philippine Cooperative Code (GA, BoD, committees), capitalization via member equity and retained earnings, and targeted external investments (post-harvest and processing facilities, logistics equipment). Managers were BoD appointed, while membership had eligibility criteria and voting followed the one-member, one-vote rule. Ties with external stakeholders included the mandated CDA oversight, banks, cacao exporters, NGOs, and LGUs.

In comparison, ABC structure prioritized flexible membership, formal vertical linkage, and brokered innovation systems, while co-op structure prioritized social inclusion, democratic governance, member-targeted patronage systems, and holistic member support services. Both organizations built a support ecosystem for their members, but mobilization differs based on membership rules, capitalization, and internal control mechanisms. The network-based contracts of ABCs and member-driven structure of co-ops represented divergent institutional logics which dictated their coordinate activities and investment horizon ultimately the benefits generated and distributed to their cacao farmers.

7.2.3 Objective 3: Comparative analysis of perceived benefits

Based on the generated factor scores and WMN test, the difference between mean factor scores of ABCs and co-ops were statistically significant across the four latent constructs. Cooperatives had higher FEB scores which reflected their ability to reduce cost and risk, enhanced bargaining power and collective marketing, and drove growth within the community. Meanwhile, the ABCs scored higher in SB, FB, and EB. For SB, ABCs were able to foster stronger community ties and social capital, improved peer-to-peer learning, and provided innovative extension services led by NGOs and academia. Moreover, FB of ABC farmers drove farm process upgrading through technical training, increased prices through market access, and improved competitiveness by building internal capabilities and access to high value branding. Furthermore, the higher EB scores underscored the role of ABCs in driving economic gains

with ecological sustainability through sustainable supplier coordination and research-based organic production systems.

The patterns in performance scores were also reflected in the descriptive findings. ABCs paired price premiums with rewards systems, strict technical monitoring, and inclusive community activities, while the co-ops delivered dividends, patronage refund, preferential pricing, multiple loan and insurance products, and assumed processing and marketing functions. Meanwhile, ABCs emphasized cacao wet bean production with quality control, while co-ops sold dried cacao beans which reflected the buyer-supplier relationship the organization is involved in

The findings also suggested that organizational maturity can determine how ABCs and co-ops influence the strength of the benefit dimensions. Relatively young ABCs often supported by private donors, NGOs and academic partners, are open to novel approaches, comprehensive capacity building approaches, and green programs, which manifested as strong social, farm, and environmental benefits. Meanwhile, the older co-ops were able to accumulate more financial services, member equity, and end market partnerships, which resulted in financial and economic benefits.

In conclusion, co-ops are comparatively better in delivering cost and financial risk reduction benefits, while ABCs outperformed their counterpart in social cohesion, farm product and process upgrading, and environmental stewardship, since they were driven by lead firms and intermediaries that orchestrated the infusion of standards and services that facilitated member participation.

7.3 Implications of findings

A major insight from this study is organizational structures determine the internal capabilities of the enterprises and member benefit bundles. A better approach is to match a portfolio of support strategies with a collective action organization rather than impose a single design to producers in all contexts. This will create multiple pathways to enhancing competitiveness and is key for policy- and sector-level enablers to be effective in the cacao sector.

Strategies should also consider the control-benefit alignment to spur performance. In ABCs, it was clear that contract-driven coordination and proximate peer-to-peer learning accelerated

improvement, reflected in higher FB and EB. Meanwhile, the cooperative's member-driven control reduced common risks and financing bottlenecks, reflected in better FEB.

Meanwhile, control mechanisms to drive of social inclusion also differed between organizations. For ABCs, it was driven by intermediaries (lead firm and NGOs) that emphasized inclusion initiatives such as tailored products and shared labour practices, driving higher SB scores. The analysis also uncovered a case that ran counter to edict that cooperatives are both an economic enterprise with social foundations. Thus, cooperatives should be deliberate in introducing governance safeguards to prevent dominant members and identify core activities to build a fair and beneficial structure.

Aside from social inclusion, ABCs and co-ops also have differing investment horizons. ABCs leveraged funding from lead firms and donors to build a specialized assets and a knowledge base, while cooperative funding came from members' equity, retained earnings, and external grants. Taken together, local organizations should pursue hybrid sources of investment to develop enterprise resilience.

Organizational resilience also resulted from value chain integration. ABC quality protocols and certification assistance raised product quality and environmental sustainability. Meanwhile, the working capital facility incorporated in cooperatives ensured stability in product procurement and reduced opportunistic behaviour among members during price fluctuations. In the cacao sector, value chain integration measures are critical to stronger, more resilient producer groups.

Organizational maturity also played a role in the benefits received by members of ABCs and cooperatives. As a newer model, ABCs prioritized social, farm, and environmental upgrading, using innovation, intensive training, and strong stakeholder participation. Meanwhile, the higher financial and economic benefits of cooperative members reflected the decades of experience their organization had with financial services, government partnerships, and market links. This difference suggests distinct pathways of organizational development and justifies more targeted support initiatives.

On a system level, service layering can be a key strategy for implementors. The ABCs technical training hubs (demo farms, specialized nursery) when paired with cooperative financial and insurance services can be an effective strategy to lower transactions costs and risks and sustain

adoption of technologies. There's also the ABCs geographic origin branding that can be paired with cooperative's wholesale dried beans and retail *tableya* products to capture more market segments.

In the Davao region, ABCs and cooperatives are organizational instruments to promote smallholder commercialization. As collectives, cooperatives outperform ABCs in financial products, risk reduction, and market stability, while the latter excels in rapid knowledge transfer, product and process upgrading, environmental stewardship, and inclusive policies. The available evidence supports learning from benefit delivery mechanisms where each model excelled. Taking these lessons, stronger organizations can be developed. Strategic alignment in control, investment, and firm networks around support can boost initiatives in the cacao sector, helping smallholders capture sustainable benefits in an increasingly globalized market.

7.4 Recommendations

For government agencies, support can be targeted at the local and national program level. When promoting institutional models, joint programs should be designed to cover ABC technical compliance and cooperative financing services and marketing. For government grants, technology adoption, protocol compliance, environmental indicators, and inclusive organizations should be key outcomes. Meanwhile, cooperative credit support should be timed during high-price windows to incentivize procurement scheduling strategies because farmers have a stable capital source. Lastly, local government extension systems must follow a convergence strategy, building learning networks where soil diagnostic technology, smart pest and disease detection, and quality assurance are integrated with existing activities to maximize impact.

Policymakers should also consider differentiated approaches between ABCs and cooperatives. ABCs require more facilitation, capacity building, and network building to further consolidate their structures and embed a comprehensive benefits system. On the other hand, cooperative development should target to modernize their governance structures, financial products, and value chain integration. Taken together, this recommendation should lead to well-designed programs where the individual strengths of ABC and cooperative models are leveraged to achieve benefits outcomes for smallholder cacao farmers.

For lead firms and intermediaries, focus support on building sustainable supplier relationships. Develop a codified supply chain policy based on sustainability standards, implementing a rewards system and transparent contracts for smallholders. These measures make supply coordination more inclusive, builds trust and encourages long-term participation. When investing in shared assets, collocated facilities will significantly reduce losses and lower transport costs. Moreover, granting access to quality assurance laboratories and a full traceability system will ease compliance costs for certifications and support commercialization.

From ABCs to cooperative leadership, their focus should be on addressing long-standing internal issues and support for value addition. To maintain strong social, farm, and environmental benefits, ABCs should focus on mechanisms that ensure inclusive participation. For example, the buyer-supplier agreements must have inclusive policies such as, transparency clauses, feedback channels for farmers, and fair pricing schemes.

In cooperatives, governance and member accountability should be prioritized by revising rules on representation, stronger supervisory boards, promoting patronage and communication. Cooperative should connect with the CDA and NGOs to implement a loan recovery program with clear rules on collaterals and guarantees, incentivize timely repayments, ensure transparent financial reporting, and expand member education. To address shortcomings in social inclusion, cooperatives should review core activities and refine patronage incentives to boost participation from resource-limited and younger members. Inclusion should also extend to cooperative leadership by reviewing eligibility thresholds and voting procedures, and the adoption of policies that promote gender/IP representation, aligned with G-ESG principles. Along with internal policies, parallel initiatives on product and market development will help members realize more economic gains. To encourage long-term marketing agreements, the cooperative scaling up production, hire and train quality assurance professionals and skilled workers, and strengthening their extension services. Jointly, branding of their value-added products should be attached with origin/community stories.

Lastly, NGOs and academic institutions can enhance their enabling role with collective action organizations by being a knowledge broker and facilitating scaling up. Bundled services initiated by NGO-academia networks such as innovative shared labour schemes, building farmer toolkits, and on-site technicians can be put together. These measures can also be paired with novel financing schemes that mitigate more smallholder constraints.

7.5 Directions for future research

This study has limitations. Future studies could pursue a quasi-experimental design to estimate the causal impact of participating in ABCs versus a cooperative on income, productivity, household welfare, health, and the environment. Long-term resilience should also be assessed by tracking financial performance and continued adoption of practices under uncertainty (price fluctuation, drought) and across multiple production cycles. Future studies on organizational mechanisms that promote inclusion can uncover hidden barriers for marginalized groups and identify pathways to overcoming them. In addition, a cost-benefit analysis could model effects of product quality and sustainable certifications to cacao farmers, adopting innovations such as collocated post-harvest facilities and traceability systems. Researchers can also investigate hybrid organization models, including federations of cooperatives and consortiums. Other studies might explore organizational innovations that use novel approaches to strike a balance between autonomy versus growth and commercialization versus sustainability. Comparative research on collective action organizations in a different context can deepen our understanding of their long-term impact, structures, and organizational innovations.

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Appendices

Appendix 1: Guide questions for interviews

Interview guide for cooperative/agro-based cluster leadership

General information	
Name of respondent	
Address	
Telephone number	
Email address	

Respondent information	
What is your position in the cooperative/cluster?	
How long have you been working in this position?	
Can you briefly describe the professional training you have completed?	

General information about the cooperative/cluster	
When was the cooperative/cluster initiated?	
Can you provide a brief history of the cooperative/cluster? How it was established? Significant changes over the years and/or milestones?	
What are the various business divisions that are part of the cooperative/cluster? What are their roles/functions? What is their contribution to the cooperative or cluster?	

Governance and management	
How many farmers/members started the cooperative/cluster? How many farmers/members are there currently?	
How does an individual farmer or business entity become part of the cooperative/cluster? Can you explain the procedure? Are there membership fees? Do they have to purchase shares?	
How is leadership in the cooperative/cluster determined? Kindly explain the procedure.	
What is the organizational hierarchy of the cooperative/cluster? Kindly explain.	
How does the cooperative/cluster arrive at key business decisions (e.g., products, processes, partnerships)? Kindly explain the procedure.	
How does the cooperative/cluster determine allocation of resources (e.g., assets, supply)? Kindly explain the procedure.	
What are the accountability procedures (e.g., contract enforcement, rules & regulations) established by the cooperative/cluster? Kindly explain the procedure.	
What is the degree of involvement of key external stakeholders in the cooperative/cluster? Kindly explain the relationship.	
What are the major challenges faced by the cooperative/cluster? Kindly elaborate.	

Services to members of the cooperative/cluster	
How does the cooperative/cluster enhance access to financial capital for members?	
How does the cooperative/cluster enhance access to market information? supplier information? demand information?	
How does the cooperative/cluster facilitate investment in farm assets for members?	
What types of training does the cooperative/cluster provide the farmers?	
How does the cooperative/cluster enhance sharing of information between its members?	
How does the cooperative/cluster facilitate information shared by buyers to its members?	
How does the cooperative/cluster enhance social relationships between farmer members?	
What are the community programs being implemented by the cooperative/cluster?	
What are the environmental programs being implemented by the cooperative/cluster?	

Cooperative/cluster cacao business	
How many cacao farmers are supplying to the cooperative/cluster?	
How much volume of cacao beans is supplied to the cooperative/cluster annually?	
What are the quality standards/protocols followed by the cooperative/cluster? Kindly explain.	

Appendix 2: Research communication letter (redacted)



January 13, 2025

SUBJECT: Request for collaboration for master's thesis of Massey University

Dear

Kia Ora!

My name is Marvin Orbeta, a student of the Master of Agribusiness program at Massey University in New Zealand. I am currently in Davao City to conduct a case study on the governance structures of agro-based clusters in the cacao sector of the Philippines. The case study is part of my master's thesis entitled: "*Do initiatives for collective action drive benefits for smallholders?*". This thesis aims to investigate how the governance structures of agro-based clusters in the cacao sector influence benefits captured by its farmer members.

As part of this study, I would like to request an in-person interview with an official representative in the Davao region from . The interview will cover the following topics: (1) general information on the organization, (2) history, (3) governance and management, (4) services to farmers, and (5) cacao-related business activities. I have also attached a sample of the interview questions for your information.

The information collected will only be used for this research study. A copy of the thesis will be sent to your office once completed if you request a copy. All information gathered will respect the privacy and confidentiality of key informants, according to Massey University Ethics Policy and Regulations.

Looking forward to hearing from you. Please contact me or my supervisor if you have any questions.

Kind regards,


Marvin Louie G. Orbeta
Master of Agribusiness
Massey University, New Zealand

Email: Marvin.Orbeta.1@uni.massey.ac.nz
Mobile #: +63 [REDACTED]; +64 [REDACTED]

Dr. Elena Garnevska
Main supervisor
Massey University, New Zealand

Email: e.v.garnevska@massey.ac.nz
Tel: +64 6 9517794

Te Kūnenga
ki Pūrehuroa

School of Agriculture and Environment

Private Bag 11222, Palmerston North 4442, New Zealand, T +64 6 356 9099, contact@massey.ac.nz | massey.ac.nz/ag

Appendix 3: Survey Questionnaire

Questionnaire No. _____
Date of interview _____

9

CACAO FARMER SURVEY QUESTIONNAIRE

I. General Information

--

	Ec8	cost of farm inputs has reduced?						
9. Social	Do you think membership in a cooperative or cluster has enabled...							
	So9	a better quality of life for your family?						
	So10	easier sharing of information between farmers in your community?						
	So11	access to cacao training programs for members?						
	So12	the use of protective equipment for hired farm laborers in your community?						
	So13	higher employment in farming within your community?						
	So14	members to receive assistance for financial hardships (e.g., sickness or death in the family)?						
	So15	larger participation among women in cacao farming?						
	So16	larger participation of indigenous peoples in cacao farming?						
10. Environment	Do you believe your cooperative or cluster membership has...							
	Env17	reduced soil degradation in your farm?						
	Env18	reduced water contamination in your farm?						
	Env19	reduced the use of agricultural chemicals in your farm?						
	Env20	reduced the use of fuel in your farm?						
	Env21	improved the way you utilize cacao by-products?						
	Env22	improved the overall cleanliness and sanitation of your farm?						
	Env23	assisted in securing a certification (e.g., GAP, Rainforest Alliance) for your farm?						

III. Farm information

A. Cost of production, harvest, post-harvest

11. Status of landholding	
11.1 What is the total area of the farm used in cacao production? _____ hectares	
11.2 What is the ownership status? ☐ Owner ☐ Leased/Rent ☐ Tenant ☐ Others (specify): _____	
12. Could you provide an <i>estimate</i> of your annual expenses in cacao production?	
Type of expense	Average expense per year
11.1 Land preparation labor and materials	
11.2 Cacao seedlings	
11.3 Agricultural chemicals (e.g., fertilizer, pesticide, herbicides)	
11.4 Farming tools (e.g., pruning shears) and materials (e.g., plastic bags)	
11.5 Labor for farm maintenance, harvesting, post-harvest	
13. Do you borrow capital? ☐ Yes ☐ No	
13.1 Who is your source of capital for production? ☐ bank ☐ traders ☐ moneylenders ☐ relatives ☐ others (specify): _____	

IV. Cacao harvest, post-harvest, marketing

A. Harvest and post-harvest information

14. How many kilograms of <i>wet</i> cacao beans do you <i>harvest</i> per year?	
15. Do you <i>dry</i> your cacao beans? ☐ Yes ☐ No	
15.1 If <i>no</i> , please proceed to question #16.	
15.2 If <i>yes</i> , how many kilograms of dried cacao beans do you process annually? _____	
16. Do you perform other activities after harvesting? ☐ Yes ☐ No	

Questionnaire No. _____
Date of interview _____

16.1 If yes, what are these activities? Check all that apply.

☐ Fermenting ☐ Sorting ☐ Storage ☐ Transport/Hauling ☐ Others (pls specify): _____

17. Are there postharvest facilities in your farming area/community? ☐ Yes ☐ No

17.1 What are the available postharvest facilities? Check all that apply.

☐ Bean grading kit ☐ Fermentation facility ☐ Solar dryer ☐ Mechanical dryer ☐ Others (specify) _____

B. Marketing (Cacao sold annually)

18. Selling cacao beans to buyers

Type of Buyer*	Type of Bean Sold**	No. of kgs. sold	Price per kg.	Quality***	Reasons for choosing the buyer****	Location of the buyer (address)

* Type of buyer: 1 – Cooperative/Cluster 2 – Trader 3 – Processor 4 – Others (specify) _____

** Type of Beans Sold: W – Wet cacao Beans D – Unfermented, dried beans F – Dried, fermented beans

***Quality Grade: 1 – Good 2 – All in 3 – Semi-selected 4 – Selected

****Reasons for choosing the buyer: 1 - Member of cooperative/cluster; 2 - Near to farm; 3 - High price; 4 – Buys in bulk; 5 - Provides financial services; 6 - With debt to buyer; 7 - others(specify)

19. Have any of the batches of cacao beans you sold to your preferred buyer ever been rejected? ☐ Yes ☐ No

19.1 If yes, please estimate the percentage of the volume that was rejected: _____

V. Other sources of income

20. Do you have other sources of income aside from cacao production? ☐ Yes ☐ No

On-farm* source of income		Off-farm** source of income	Non-farm*** source of income
Percentage share to total income (%)		Percentage share to total income (%)	Percentage share to total income (%)
Coconut		Farm labor	Salary from employment
Falcata		Harvester	Sari-sari store
Banana			Driver
Coffee			Carpentry/skilled labor
Piggery			Labor (hurnal)
Poultry		Others:	Pension
			Remittance from relatives
Others:			Others:

*On-farm (Income within your farm) **Off-farm (Income from working in other farms aside from the respondent's farm) ***Non-farm (Income from non-farm related work)

Thank you.

Interviewer: _____

Date _____

Appendix 4: Informed Consent Form

Questionnaire No. _____
Date of interview _____

INTRODUCTION

Good day! We are conducting a survey of cacao farmers for a master's thesis entitled: "*Do initiatives for collective action drive benefits for smallholders?*" The survey aims to understand the role of agro-based clusters or cooperatives on driving benefits for their members. It will take around 30 minutes to complete the survey.

We would deeply appreciate your participation in this research and would like to seek your permission. Rest assured that the information you will provide will be treated with utmost care and confidentiality and no individual name will reflect in report.

If at any point you feel uncomfortable answering some questions, you are free to discontinue the interview.

Thank you very much.

INFORMED CONSENT

I voluntarily consent to participate in this study. I authorize the use of any information I provide in this survey to be included in the research, writing, and publication of its findings.

Name and Signature

Appendix 5: Human Ethics Approval Letter



4/11/2024

Dear: Marvin Orbeta

Re: Low Risk Notification - 4000029896 - Do initiatives for collective action drive benefits for smallholder farmers? Comparing agro-based clusters and cooperatives in the Philippines cacao sector

Thank you for submitting a low risk notification for your research/teaching/evaluation.

This email is to acknowledge receipt of the low risk notification and to inform you that the details of your project have been recorded in our database for inclusion in the annual reports to the Health Research Council Ethics Committee (HREC) and the Massey University Research Committee (URC).

You may proceed with your research, though it is advisable to provide a couple of weeks before commencing, as all low risk notifications are checked for completeness and clarity by a Research Ethics Advisor. You may be contacted if your application is incomplete and/or further clarification is required.

The low risk notification for this project is valid for a maximum of three years.

Please notify me if situations subsequently occur which cause you to reconsider your initial ethical analysis.

If a sponsoring organisation, funding authority (e.g., the Health Research Council) or a journal require evidence of ethical approval from a Human Ethics Committee (with an approval number), you need to complete a full Massey University Human Ethics application to be reviewed and approved by one of our Human Ethics Committees. Applications must be submitted and approved prior to the commencement of the research.

Please note that travel undertaken by students must be approved by the supervisor and the relevant Pro Vice-Chancellor and be in accordance with the Policy and Procedures for Course-Related Student Travel Overseas. In addition, the supervisor must advise the University's Insurance Officer.

If you have any concerns about the conduct of this research that you want to raise with someone other than the researcher(s), please contact the Research Ethics Office, email humanethics@massey.ac.nz. "

Please include the following statement on all public documents (e.g., information sheet, consent form) related to your project:

This project has been evaluated by peer review and judged to be low risk. Consequently, it has not been reviewed by one of the University's Human Ethics Committees. The researcher(s) named above are responsible for the ethical conduct of this research.

If you have any concerns about the ethical conduct of this research that you want to raise with someone other than the researcher(s), please contact Massey University Human Ethics by email: humanethics@massey.ac.nz.

I wish you all the best in your research, teaching or evaluation activities and appreciate your thoughtful consideration of ethics principles and practices.

Ngā mihi nui,

A handwritten signature in blue ink, appearing to read "Tracy Riley".

Professor Tracy Riley
Acting Chair, Research Ethics Chair's Committee

Research Ethics, Graduate Research School and Ethics
Massey University, Private Bag 11 222, Palmerston North, 4442, New Zealand
E humanethics@massey.ac.nz; animalethics@massey.ac.nz
www.massey.ac.nz/research/ethics