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Marketing Subsystems in Agriculture, Fisheries, and Forestry: A Systematic Literature Review

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Abstract **Review Article**

This literature review provides a comprehensive synthesis of the marketing subsystems in the Agriculture, Fisheries, and Forestry (AFF) sectors, emphasizing their vital contributions to national and global economic sustainability. Employing an integrative and systematic approach, the study draws from peer-reviewed articles, institutional reports, and policy papers published between 2016 and 2025, indexed in Scopus, ScienceDirect, and Google Scholar. The findings reveal that efficient and inclusive marketing systems serve as critical linkages between production and consumption, determining value distribution, profitability, and sectoral competitiveness. In agriculture, cooperatives, supply chain coordination, and digital platforms facilitate market access for smallholders, yet infrastructure and financing gaps persist. Although fisheries marketing networks are socially embedded, they continue to experience gender inequities and post-harvest losses despite technological innovations such as blockchain and IoT-enabled logistics. In forestry, a dichotomy exists between capital-intensive timber trade and community-based non-timber forest product (NTFP) enterprises, with certification and governance shaping market equity and sustainability. The comparative analysis of these sectors underscores that digital transformation, cooperative empowerment, and policy integration are the key strategic levers for enhancing efficiency, inclusivity, and resilience. The study advocates for an integrated, technology-driven, and policy-supported marketing subsystem across the AFF sectors as a prerequisite for achieving food security, poverty alleviation, and sustainable economic growth aligned with the Sustainable Development Goals (SDGs).

Keywords: Agriculture, Fisheries, Forestry, Marketing Subsystem, Value Chain, Digital Transformation, Policy Integration, Sustainable Development.

INTRODUCTION

Agriculture, Fisheries, and Forestry (AFF) play a vital role in the economies of all nations, particularly in the Philippines, where they serve as primary sources of raw materials for production and significantly contribute to the country's Gross Domestic Product (GDP). Assessing the different marketing subsystems within these sectors is essential to identifying opportunities for enhancing their capacities as major contributors to national and global demands for raw products. This review highlights the current status of the marketing subsystems in the AFF sectors, including their prevailing issues, challenges, and policy dimensions.

In agribusiness, the marketing system is a complex mechanism that addresses the needs of people and society for agricultural products. It reflects the various stages of need manifestation, formation, and satisfaction throughout the processes of production, distribution, exchange, and consumption (Babyna, 2022). According to Babyna (2022), marketing theory posits that an organization's objectives can be achieved by identifying the needs of its target markets and delivering desired satisfaction more

efficiently and effectively than competitors. In other words, the accumulation of economic infrastructure and human capital relies on the efficient use of natural resources (Idumah & Awe, 2017, as cited in Rotowa, 2019).

However, over the years, the contribution of the agricultural sector to the Philippine economy has shown a steady decline (Brown et al., 2018; DOST-PCARRD, as cited in Ebora et al., 2018). According to Noi (2018), agriculture and forestry account for 30.08% and 48.82%, respectively, of Southeast Asia's total land area of 434,070,000 hectares—equivalent to 78.89% or 342,454,000 hectares combined. Given this extensive coverage, these sectors are undoubtedly crucial in promoting regional food and nutrition security and in achieving the Sustainable Development Goals (SDGs).

Despite their significance, marketing subsystems function as essential bridges linking production and consumption. As Singh (2016, as cited in Išoraitė, 2016) explains, businesses employ a complex mix of marketing variables and human interactions when selling products and services. This marketing subsystem serves as a critical component in ensuring commercial success (Traxler et al., 2020). Without effective marketing mechanisms, the abundant output of the AFF sectors yields limited economic value. Fundamentally, producers often lack the knowledge and systems to convert production into profitable market outcomes without compromising financial viability (Lacovidou et al., 2020; Schandl et al., 2015).

Thus, marketing subsystems play an indispensable role as a foundational element in producing marketable outputs that drive national growth and strengthen participation in global trade.

This literature review focuses on examining the marketing subsystems of Agriculture, Fisheries, and Forestry in the national (Philippine) context, as well as their comparative dimensions in the international setting. The marketing subsystem encompasses the network of actors involved in the trade of both raw and processed goods—such as importers, exporters, wholesalers, retailers, and assemblers. It also includes the participation of government agencies, private enterprises, financial institutions, and academic and research organizations that provide vital support through information, technology, finance, human resources, policies, programs, and incentives.

Specifically, this literature review aims to: Assess the different marketing subsystems of the Agriculture, Fisheries, and Forestry (AFF) sectors; Identify the issues and challenges affecting their efficiency and effectiveness; and Evaluate the role of government policies in enhancing the overall performance of the AFF marketing subsystems.

LITERATURE REVIEW

The Marketing Subsystem in Agriculture

Research consistently demonstrates that the agricultural marketing subsystem exerts a profound influence on firm success and sectoral competitiveness. Riptanti et al. (2020) highlight that marketing groups and farmer alliances mitigate price risks, expand market access, and boost sales volumes. Similarly, Ganesh Kumar et al. (2017) describe agricultural supply chain management as a series of value-adding activities that transform commodities from production to consumption. However, Madhya Pradesh's experience (McCullough et al., 2010, as cited in Ganesh Kumar et al., 2017) underscores persistent challenges—limited cold storage facilities, weak infrastructure, poor bargaining power, and an inequitable share of consumer prices—all of which hinder producers from maximizing profit.

Cooperatives emerge as pivotal institutions in reducing transaction costs and empowering smallholders by pooling their products, thereby improving negotiation leverage. Martínez-López et al. (2023) observe that cooperatives now function as hybrid entities balancing social and economic objectives, ultimately contributing to sustainable

livelihoods. Their performance depends largely on member participation, governance quality, and integration into broader agribusiness networks (Bijman et al., 2014, as cited in Martínez-López et al., 2023).

Moreover, intermediaries—such as dealers, processors, and producer associations—facilitate the smooth flow of goods, capital, and information along the value chain. Ramírez et al. (2018) identify these intermediaries as "knowledge brokers" who foster innovation and trust networks. Nonetheless, Jablonski et al. (2016) and Dimitri et al. (2019) reveal that small producers tend to have less reliable market access in direct or wholesale markets compared with intermediated channels such as food hubs and farm-to-institution programs. Therefore, ensuring transparency and equitable benefit distribution across intermediaries is essential to maintaining producer engagement and market integrity.

The Marketing Subsystem in Fisheries

The fisheries marketing subsystem plays a critical role in shaping livelihoods, nutrition, and income distribution across coastal and inland communities. It comprises institutions, infrastructures, and processes that link fishers to consumers. Recent studies reveal that small-scale fisheries (SSF) account for a significant proportion of global fish catch, serving as vital sources of food security and employment. Yet, these fishers remain marginalized by market and policy structures that prioritize industrial or export-oriented operations (Basurto et al., 2025).

Ethnographic and network-based research (Moreau & Garaway, 2021; González-Mon, Bodin, & Schlüter, 2023) illustrates how fisheries marketing systems are characterized by informal yet tightly interwoven trade relationships among sellers, processors, and intermediaries. These relationships regulate sales timing, access to capital, and risk distribution. The coexistence of multiple marketing pathways—such as fresh-fish versus smoked or dried chains—supports market diversification and gendered livelihood strategies.

Kruijssen et al. (2020) identify three persistent challenges in fisheries marketing: limited access to higher-value markets; post-harvest losses due to inadequate cold-chain systems; and weak institutional coordination. They note that purely technological solutions, such as ice and cold storage, cannot succeed without supportive institutional arrangements and financing mechanisms.

Collective action and institutional governance also shape market outcomes. Cooperatives enhance price stability and strengthen bargaining power, yet their success depends on trust and internal transparency. Socially embedded market structures—often involving informal credit, labor exchange, and community reciprocity—should be considered in policy design to avoid reinforcing inequalities (González-Mon et al., 2023).

Gender dynamics remain central to the fisheries marketing debate. Women dominate fish processing and retailing but face systemic barriers in access to capital, mobility, and contracts. Policies that overlook these gendered realities risk amplifying existing inequities (Basurto et al., 2025; Moreau & Garaway, 2021). Furthermore, critical knowledge gaps persist in understanding how market reforms interact with ecological outcomes, digitalization, and social equity. Scholars thus call for interdisciplinary, multi-scalar approaches to fisheries market development (Kruijssen et al., 2020).

The Marketing Subsystem in Forestry

The forestry marketing subsystem encompasses networks of actors and operations that move both timber and non-timber forest products (NTFPs) from producers to consumers. This subsystem determines not only economic returns but also ecological sustainability and equity outcomes.

In developing economies, local NTFP markets—trading goods like honey, resins, and medicinal plants—are dominated by small-scale collectors and

intermediaries (Mahonya et al., 2019). Conversely, timber markets are capital-intensive and vertically integrated, controlled largely by large corporations and concessionaires (Mensah et al., 2025). Such disparities influence benefit distribution and resource management.

Integrating smallholders into formal markets is critical for equitable growth (Hintz et al., 2021). Yet, small-scale producers often face constraints such as inadequate institutional support, limited credit access, and market information asymmetry (Roos et al., 2023). Cooperative organization, policy engagement, and better logistics can help address these barriers (Mensah et al., 2025).

Certification programs like the Forest Stewardship Council (FSC) and Programme for the Endorsement of Forest Certification (PEFC) promote sustainable forestry practices and expand market opportunities (Wolff et al., 2022). However, compliance costs limit participation to large firms. The marketing of NTFPs offers an alternative pathway, contributing to both rural livelihoods and biodiversity conservation (Mahonya et al., 2019; Frey, 2019).

Emerging technologies—such as digital traceability, blockchain verification, and e-commerce platforms—enhance transparency and market access (Hoeben et al., 2023). Yet, institutional and infrastructural gaps in the Global South constrain their widespread adoption.

Comparative and Integrated Analysis

Despite structural differences, the AFF marketing subsystems share the overarching goal of bridging producers with markets. Agricultural systems engage both local and export markets, fisheries rely on relational trade networks, and forestry markets are shaped by certification and logistics constraints. Across all three, common issues—weak infrastructure, limited market information, and fragmented institutional support—persist (Liverpool-Tasie et al., 2020; UNECE & FAO, 2023).

Integrating digital platforms, cooperative mechanisms, and certification systems can enhance efficiency, equity, and sustainability. Such integration would foster resilient value chains capable of withstanding market and environmental shocks while aligning with sustainability standards.

Technological and Policy Dimensions

Digital Marketplaces and E-Agriculture Platforms

Digital technologies are transforming AFF marketing subsystems by connecting producers directly to consumers and reducing transaction costs. Platforms offering bundled services—such as input supply, logistics, and price information—help farmers access urban and export markets (Gumbi et al., 2023; Charlebois, 2024). However, digital inclusion remains uneven, limited by poor connectivity, low digital literacy, and data governance challenges.

Blockchain and distributed-ledger technologies improve traceability and authenticity in supply chains but face barriers related to high implementation costs and interoperability (George, 2023; Bharathi et al., 2025). Similarly, IoT-based logistics enhance inventory control, cold-chain integrity, and real-time monitoring but require institutional coordination and financing to scale effectively (Navarro et al., 2020; Plakantara et al., 2025).

Three critical considerations recur in the literature: inclusion; integration; and evidence.

Policy Dimensions

Government institutions play a pivotal role in shaping marketing subsystems through infrastructure, regulation, and coordination. In the Philippines, the Department of Agriculture's Agribusiness and Marketing Assistance Service (AMAS) facilitates market linkages, value chain development, and agribusiness promotion. The Bureau of Fisheries and Aquatic Resources (BFAR), under the Comprehensive National Fisheries

Industry Development Plan (CNFIDP 2021–2025), integrates marketing and value-chain approaches to enhance fisher incomes and sustainability. Meanwhile, the Department of Environment and Natural Resources (DENR) supports community-based forest enterprises (CBFEs) and certification programs that promote equitable and sustainable forest product marketing.

FAO analyses emphasize three essential government functions for successful market systems: provision of market infrastructure (transport, cold chains, wholesale markets); establishment of information and quality standards; and facilitation of public–private partnerships and producer cooperatives. Weaknesses in any of these areas leave smallholders vulnerable as price-takers in global markets.

METHODS

This study employed a Systematic Literature Review (SLR) methodology to synthesize scholarly and institutional findings on the AFF marketing subsystems from 2016–2025. Data were collected from Scopus, ScienceDirect, and Google Scholar, alongside reports from FAO, UNECE, DA, BFAR, and DENR. Using content analysis, recurring themes and cross-sectoral linkages were identified to extract comparative insights. Only peer-reviewed and officially published materials were included, ensuring reliability and validity. All sources were cited following APA 7th edition guidelines.

RESULTS AND DISCUSSION

Findings indicate that the AFF marketing subsystems are interdependent frameworks driving economic sustainability. Efficiency across these systems dictates profitability, competitiveness, and equity. In agriculture, cooperatives and digital marketplaces have expanded access but remain constrained by infrastructure gaps. In fisheries, informal networks provide resilience but perpetuate gender inequality and post-harvest inefficiencies. In forestry, certification and community-based enterprises balance economic and ecological objectives but face capital and governance challenges.

Collectively, the literature affirms that digital transformation, cooperative empowerment, and integrated policy frameworks are fundamental to achieving sustainable, inclusive, and resilient marketing subsystems.

CONCLUSION

The marketing subsystems of Agriculture, Fisheries, and Forestry (AFF) are essential pillars of sustainable economic growth, linking producers to consumers while shaping national and global market dynamics. Despite their diversity, these systems face shared constraints—weak infrastructure, limited financing, and fragmented governance.

The evidence underscores that technological innovation, institutional collaboration, and inclusive policy integration are the pathways toward resilient and equitable market systems. Cooperatives, digital platforms, and government support programs must work synergistically to ensure that value creation and distribution are fair and sustainable.

Ultimately, a unified, technology-driven, and policy-supported AFF marketing framework is indispensable for achieving food security, poverty reduction, and the Sustainable Development Goals (SDGs). Future research should focus on cross-sectoral integration, gender equity, and digital transformation while upholding cooperative governance and environmental accountability.

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