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Concept Paper

Sustainable Farmer Development for Agri-Food Supply Chains in Developing Countries

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Abstract: Improving the supplier's capabilities and relationships with the buyer to improve triple-bottom-line outcomes for multiple actors in the supply chain (including the suppliers and buyers) is the very purpose of sustainable supplier development. We apply the concept of sustainable supplier development in an agri-food context in a developing economy. The study aims to create a theoretical framework that explains how initiatives by buyers (often processors in the agri-food industry) to develop farmers can result in sustainable farmer performance. Collectively, the propositions derived by us via a literature synthesis propose that farmer development leads to farmer capability development and improved relationships (with the buyer), enabling the farmer to achieve sustainable performance (i.e., performance in economic, social, and environmental domains). The importance of the study from a theory building perspective is that the study attempts to reconcile the supply chain management literature on supplier development in tangible goods manufacturing with the agribusiness literature in developing economies whether or not the farmer occupies the bottom of the income pyramid. The study is also important to academia and policymakers because it acts as a forerunner for the further development of the theoretical model and its testing with a large sample of data to interpret what the results imply from practical and theoretical standpoints.

Keywords: developing economies; farmer development; supply chain; sustainability

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1. Introduction

The competitive position of a focal firm is heavily dependent on its ability to manage the supply chain (SC) efficiently and effectively. A manufacturing firm in a SC depends on its suppliers to provide high-quality goods and services in a timely manner at competitive prices and to improve the SC performance [1]. In physical goods manufacturing, a manufacturing firm would focus mainly on its key competencies to gain competitive advantage and would outsource the rest due to strategic reasons. As a result, typically, a large number of suppliers are involved because many different components and services that are required for the production and assembly of finished goods need to be purchased from outside suppliers. Comparatively, in agri-food supply chains (AFSCs), a large number of farmers are involved as suppliers of commodities because each farmer has only a limited capacity to produce the commodity. Either way, managing the supplier base is of the utmost importance to a focal firm in a SC [2].

In this milieu, if a supplier is performing sub-optimally, the purchasing company may switch the supplier (move to another), make recourse to backward integration (acquire the supplier's business), or develop the supplier [3] to improve their performance. However, due to the inherent drawbacks of the first two alternatives, many firms attempt to develop their suppliers to perform optimally [4]. If correctly implemented, developing the suppliers to improve their capabilities results in generating benefits to both the supplier and buyer by strengthening the SC while preventing the deterioration of the supply links [5].

In the supply chain management (SCM) literature, the concept of supplier development (SD) refers to developing the capability and capacity of core suppliers through highly collaborative relationships with the aim of gaining mutually beneficial business outcomes [1,6–8]. The term SD was initially coined by Leenders in 1966 and thereafter gained interest in both academia and practice. Today, it has become an established concept that looks beyond short-term gains for the buyer and the supplier. Sustainable SD is a concept that receives significant attention in the contemporary SD literature [9–12]. Sustainable SD refers to the actions taken by the buyer to improve the capability of its suppliers that eventually improve the triple-bottom-line (TBL) performance—economic, social, and environmental—of multiple actors along the SC, including the supplier and the buyer [9].

Most of the studies covering SD concepts such as SD strategies, supplier performance measurement, and buyer–supplier relationship development have been conducted in relation to developed countries [13,14] and pioneered by the automobile industry [15]. However, more recently, there has been a rapid increase in studies that incorporate SD in developing countries with a sustainability focus [2]. High populations and large proportion of people living below the poverty line (bottom of the income pyramid) in developing countries mean that there is substantial scope for some firms such as multinational and large-scale local firms to do business with these bottom-of-the-income-pyramid communities to improve TBL outcomes for the bottom-of-the-income-pyramid communities (poor communities) as well as for firms that do business with these communities—a concept known as the bottom-(or base)-of-the-pyramid (BOP) approach of doing business with the poor [16,17]. In relation to agriculture in developing economies, this approach can be extended to developing farmers who supply commodities to firms that process these commodities to produce consumer goods, including food products [18]. This creates opportunities for a focal firm to develop a large number of farmers supplying a commodity (e.g., dairy farmers, cocoa farmers, fruit farmers) because, as mentioned earlier, each farmer has only a limited capacity to supply the commodity.

Compared to developed countries, agriculture continues to be the main source of employment, livelihood, and source of income for the masses in developing countries. Smallholder farmers make up the majority of the agricultural sector in developing countries and a key player in agriculture SCs [19,20]. However, apart from their limited capacity, they also face many challenges along the AFSC including limited access to resources, lack of infrastructure, inability to comply with quality requirements, heavy dependency on middlemen, and limited financial resources [21–23]. Therefore, they are considered the weakest [24] in the AFSC; thus, there is room for their development. Addressing these challenges through farmer development efforts requires a comprehensive approach that includes improved access to resources, better market linkages, capacity building, climate-resilient farming practices, and supportive policies that recognize the unique needs of smallholder farmers in the AFSC.

In physical goods manufacturing, the manufacturing firm that buys parts (e.g., automobiles) from the suppliers is focused on limiting the number of suppliers of the same part/component to fewer suppliers for cost-reduction and quality-assurance reasons [25]. Physical goods manufacturing firms can afford to optimize the supplier base (e.g., reduce the number of suppliers supplying the same part and divert resources to develop the selected few suppliers supplying critical components) in this way and develop closer relationships with their core suppliers for mutual gains because the suppliers will be granted the capacity to meet the demand required by the manufacturing firm. As such, in physical goods manufacturing, suppliers who supply critical components receive more direct forms of SD, such as training and implicit knowledge transfer, while suppliers who supply other components or services receive indirect forms of SD, such as supplier evaluation and feedback to improve capability and performance. However, this type of optimization through supplier relationship management in terms of selecting, segmenting, and developing the supplier is not possible in agri-food contexts in developing economies due to the aforementioned issues on capacity and challenges along the AFSC. However, developing farmers

in developing economies through a suitable business model (e.g., the BOP approach) is important for both the firm initiating farmer development (for company growth) and the farmers (for their TBL sustainability). Further, the choice of such a farmer development model should also consider the specific context, available resources, and goals of the region or country in question. Consequently, the approach to farmer development may vary from country to country, but there is nonetheless a need to develop a parsimonious theoretical model that can be generalized across many settings, which provides the motivation for this study, given that there is still little understanding of the causal mechanism between farmer devolvement initiated by the buying firm (the driver) and the TBL outcomes of the farmer (response) [26].

Accordingly, the main aim of this study is to develop a theoretical model that connects farmer development, farmer capability, the farmer–processor relationship, and farmers' TBL performance in developing economies. This research is leading to a development of a conceptual/theoretical framework that explains how farmer development results in improved TBL outcomes of a farmer is based on a narrative review [24]. The review employed a keyword search in SCM- and agribusinesses-related journals in the Google Scholar and Scopus article databases in search of suitable literature. The narrative-based literature review discussion starts with fundamentals of AFSC in developing countries and is followed by more in-depth discussion on the use of farmer development, sustainable farmer performance, farmer capability, and the farmer–processor relationship in AFSC in developing countries. We use SD theory (including the concepts related to sustainable SD) as a suitable platform on which to develop our propositions for agribusiness in a developing country context. The propositions developed by us collectively explain the causation of the TBL performance of a farmer through the farmer's capability development and improved relationships due to activities initiated by the buying firm. In our theory, farmer capability and the farmer–processor relationship play a mediating role in the relationship between farmer development and the farmer's TBL performance.

The importance of the study is twofold. First, the study aims to understand to what extent core concepts on SD found in SCM literature, such as strategic supplier selection, direct SD, and indirect SD [4,6,27,28], fit in an agribusiness context in a developing economy at a theoretical level. By exploring how these established SCM concepts can be adapted and integrated into the unique dynamics of agribusiness, the study aims to provide valuable insights. This is especially important because agribusiness involves distinct challenges, stakeholders, and SC characteristics when compared to other industries in a developing economy. Our findings, in this regard, are expected to contribute to academia by bridging the gap between SCM and agribusiness disciplines. Such interdisciplinary insights are considered highly valuable and are needed [29] for a more comprehensive understanding of farmer development in the agri-food sector. Second, since we propose an empirically testable theory of farmer capability development and farmer performance improvement—as opposed to a list of things to do in order to achieve said outcomes—our study will provide valuable guidance to researchers, practitioners, and policymakers in the agribusiness domain. By rigorously assessing the proposed model with a large sample of data, the study can shed light on which specific initiatives are most effective in fostering farmer capability development and improving farmer performance. This is particularly valuable in the context of developing economies, where sustainable practices and smallholder farmer empowerment are critical for economic development and poverty reduction.

The reminder of this paper is structured as follows. Section 2 discusses the possible theoretical lenses through which to study SD. Section 3 reviews the literature relating to the area of study and lays the ground for Section 4, which deals with the development of propositions and presents the theoretical model. Finally, Section 5 concludes the study, outlining key implications, study limitations, and suggestions for further research.

2. Possible Theoretical Lenses to Study Farmer Development

Several theoretical lenses can be applied to studies related to SD from the point of view of a buying firm. However, in agribusiness literature, the relational view and resource-based view have been used as theoretical lenses with which to operationalize buyer–supplier relationships as relationship quality [30–32].

The "resource-based view" is a prominent theoretical framework in strategic management and organizational theory that focuses on how a firm's unique and valuable resources contribute to its competitive advantage and overall performance. The theory was developed in the 1980s and 1990s by Jay Barney, Birger Wernerfelt, and Gary Hamel. The resource-based view emphasizes a firm creating inimitable (i.e., difficult to replicate) resources and its capabilities for gaining a competitive advantage. The resources of a firm that are valuable, rare, inimitable, and non-substitutable enable the firm to enter a market and earn a profit, whilst the firm's distinctive capabilities make better use of its resources.

The "relational view" is a perspective often used in management and organizational theory to understand how firms create value through relationships, partnerships, and interactions with various stakeholders [33]. It emphasizes the importance of relationships and network connections in shaping a firm's strategic decision, competitive advantage, and overall performance. The relational view also can be identified as is an important derivation of the resource-based view [34]. Therefore, these two complementary theories have been used in this study in proposition development. The relational view is the raison d'etre of the concept of the "farmer–processor relationship" (the processor being the buyer), while the resource-based view can be used to justify unique means of farmer development as a strategy with which the buying firm develops its competitive standing.

3. Literature Review

In this section, we explore the existing literature on several key topics related to sustainable farmer development in AFSC in developing countries. The literature review enabled us to adapt features of the SCM literature, such as supplier development, buyer–supplier relationship, supplier capability, and sustainable supplier performance, to an agribusiness context in developing countries. As mentioned earlier, the study employed a narrative review to build up the story line. The narrative review provides a broad overview of the literature, which is well suited for theoretical framework development and useful when studying a topic with limited prior research to gain preliminary understanding of a topic before conducting a more rigorous study [35,36] involving the full operationalization of the constructs, a large-sample data collection, and hypothesis testing (i.e., theory testing) (Table 1).

Table 1. Journals and search words used in the narrative review.

Key Journals Searched	Keywords Searched
- *International Food and Agribusiness Management Review;* - *International Journal of Physical and Distribution & Logistics Management;* - *Industrial Marketing Management;* - *Journal of Cleaner Production;* - *Journal of Purchasing and Supply Management;* - *Journal of Agribusiness in Developing and Emerging Economies;* - *Supply Chain Management: An International Journal;* - *Sustainability.*	- "Supplier development"; - "Farmer development"; - "Supplier capability"; - "Farmer capability"; - "Buyer–supplier relationship"; - "Farmer–processor relationship"; - "Relationship quality"; - Agri-food*; - Agri-food* AND ("developing countries" OR "emerging nations"); - "Sustainable supplier performance"; - "Sustainable farmer performance"; - "Triple bottom line performance" AND Farm *

3.1. Sustainable Agri-Food Supply Chains in Developing Countries

SCM as an academic discipline has evolved over the years from a highly goods-dominant logic (a logic based on making and shipping the goods with the expectation that revenue will somehow flow in a manner other that from economic transactions) to a more service-dominant logic that relies on resource-sharing, relationships, value networks, and so forth [37]. However, the SCM concepts and methodologies have been incorporated into agriculture development, but not much attention has been paid to industry-specific SCM concepts and theory building in the field of agriculture. The academic and commercial interest of SCM in agribusiness arose in the later part of the 20th century (during the 1990s), starting in Europe and the USA, and then moving to the developing countries by the 21st century [38]. During that time, Michael Porter, a leading figure in the study of strategic management, introduced the concept of the "value chain" as a strategic management concept to explain how a firm creates value through a sequential process, commencing from inbound logistics. Thereafter, he put forward his seminal article "What is strategy?" [39] and the concept of achieving sustainable competitive advantage through chain relationships. In the practice of SCM, the value chain concept manifests as a "value system" consisting of the supplier, the channel, and the buyer value chain; i.e., an SC has a wider perspective than simply the value chain. However, the term "value chain" is often viewed in discussions on agri-food. The reason for this may be the service-dominant perspective rather than the goods-dominant perspective in agri-food, where what flows through AFSC are commodities rather than tangible goods. For this study, we use the following working definition of SCM: "Supply chain management is the management of relationships in a network of organizations, from end customers through original suppliers, using key cross-functional business processes to create value for customers and other stakeholders" [40] (p. 2).

Then, we project the above working definition to AFSC as "a set of activities in a 'farm-to-fork' sequence including farming (i.e., land cultivation and production of crops), processing/production, testing, packaging, warehousing, transportation, distribution, and marketing" [41] (p. 48). Owing to its inherent characteristics—perishability, seasonality, short life cycle, variability in quality, variability in production, and specialized transportation required [22]—AFSCs vary from generic SCs in the flow of goods and information [21]. Consequently, AFSCs differ from traditional SCs in the areas of relationship and governance, coordination and integration, collaboration among stakeholders, SC agility, logistic management, traceability, packaging, and waste management [42].

The AFSCs carry a large array of commodities that have different levels of perishability, including items such as dairy products, grain, vegetables, meat/fish, flowers, and fruit [43]. An AFSC can be divided into two main sub streams: agricultural supply chain for fresh agricultural products and agricultural supply chain for processed food products [44]. The main processes of agri-SC for fresh agricultural products (such as vegetables, flowers, and fruits) are handling, conditioning storing, packing, transportation, and, especially, the trading of these goods. The agri-SC for processed food products (such as meats, snacks, juices, desserts, canned food products) involves the flow of agricultural products used as raw materials for producing consumer products with higher added value. In narrowing down the scope, this study will look at AFSC from the second perspective mentioned above in the developing economies context; hence, we will use the term processor to represent the buyer.

In the same manner as AFSCs involving farmers in developed countries, AFSCs involving smallholder farmers in developing countries also face the cost–price squeeze, but there are greater opportunities for farmers in developing countries due to the expansion of total population. In helping the farmers take advantage of this, domestic farmers' capacity should be developed to match the products that exporting countries will be aiming to put into the burgeoning Asian market [38]. In a developing economy, often, the agri-food market is characterized by a limited number of processors relying on a large number of suppliers, of whom the majority happen to be smallholder farmers [45,46]. Moreover, in such contexts, the informal market retains a larger portion compared to the formal

market. This is particularly pervasive in perishable goods SCs (such as dairy) in developing economies [45–47], but they need attention for development. These traditional AFSCs are also characterized by multiple levels, poor technology, lees support from government or related authorities, fragmentation, highly variable standards, poor infrastructure, and limited logistical support [24,38,48,49]. Tactically, this has been addressed by global chains entering developing economies with low-priced products. Further, studies on traditional AFSC in developing countries have pointed out that farmers in AFSC remain weak due to the involvement of intermediary parties; that is, middlemen along the chain. Such middlemen were usually identified as powerful parties who extracted the value at the expense of farmers. While alternative views exist with respect to their elimination or empowerment, this study holds the view that from the farmers' vantage point, the closer the farmer is to the buying firm (processor), the more benefits will be generated for farmers in developing countries [50–52]; however, the processors should be given more room to develop their farmers for better performance [51,53].

In addition, with the heavy reliance on SCs, firms are now held responsible for the strong economic, environmental, and social performance of their suppliers and partners [54,55]. In the sustainable SCM literature, the inclusion of sustainability is most often based on TBL, claiming equal consideration for all three dimensions of sustainability [56]. The first definition of sustainable SCM was found in 1996, and for this study, we focus the sustainable SCM definition as "The strategic, transparent integration and achievement of an organization's social, environmental, and economic goals in the systematic coordination of key inter-organizational business processes for improving the long-term economic performance of the individual company and its supply chains" [57] (p. 368).

Similarly, the growing attention on sustainable development in the agri-food industry [58] made the sustainability concept critical for AFSCs [22]. One of the widely accepted definitions of sustainability is that which was provided by the United Nations: sustainability is "meeting the needs and aspirations of the present generation without compromising the ability of future generations to meet their need" [59]. A sustainable AFSC refers to a system that is designed, managed, and operated in a way that minimizes its negative impacts on the environment, society, and economy [60]. This approach to SCM integrates environmental, social, and economic considerations to create a more responsible and resilient system for producing, processing, distributing, and consuming food. Drawing insights from the literature, a sustainable AFSC can be identified as a "network that focuses on closely cooperating enterprises of a value chain with executive coordination provided to coordinate material flow and to foster close working relationships" [61] (p. 381). Such TBL-focused sustainable SC (i.e., sustainable SD) will eventually use SC partner selection, SC partner development, and long-term relationships for the better continuation of sustainability [62]. However, there is a need to develop a theoretical model in order to examine the fitness of these concepts in an AFSC setting in developing economies. Accordingly, this study focuses on achieving SC sustainability from the supplier's perspective (i.e., the farmer's perspective), proposing a conceptual framework. As argued earlier, there is a business case for developing farmers in developing countries (e.g., via the BOP approach) via farmer development activities initiated by buying firms who have the capacity to do so within a sustainable supplier development paradigm [17,18], thus justifying the conceptual framework. Figure 1 depicts the use of SCM theory in AFSC, further narrowing down to smallholder farmer TBL performance in developing economies. The AFSC in developing countries and developed countries can vary significantly due to differences in infrastructure, technology, agricultural practices, government support, and sustainable practices [23,63]. This means that the specific farmer development initiatives initiated by the buyer in a developed country can be very different to those initiated by a buyer in a developing country. This means that the meaning of the concept "farmer development" can differ between developed and developing countries. Our focus is on farmer development in a developing economy in contexts where there is a motivation for the buyer (the party who processes the agriculture produce supplied by the farmers) to develop the farmers.

With this in mind, we cover the concepts of supplier development, supplier capability, supplier relationship, and supplier performance (TBL outcomes for the farmer, to be more specific) with suitable modifications where relevant.

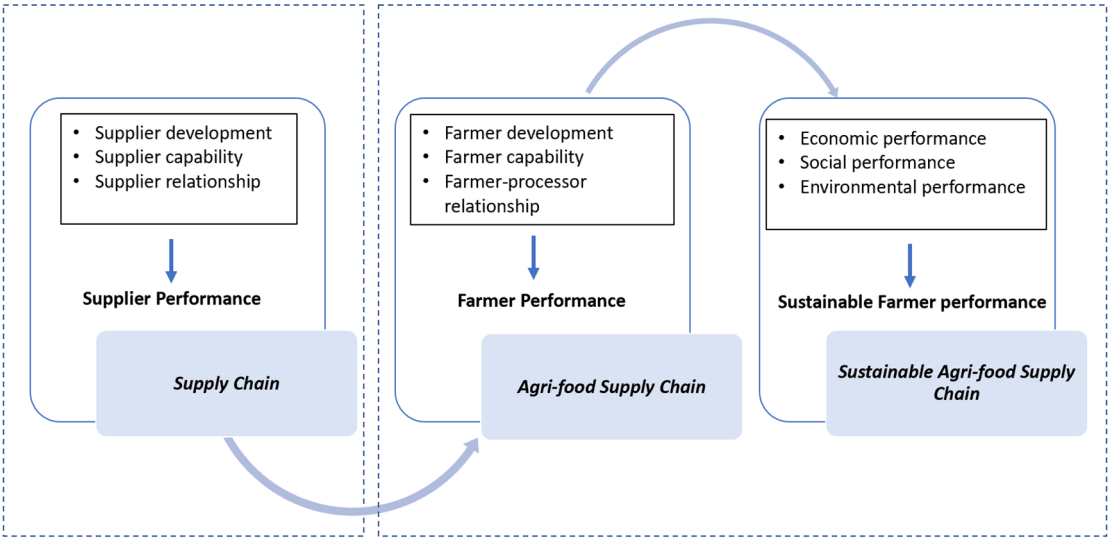

Figure 1. Structure of the literature review used for proposition development.

3.2. AFSC Farmer Development

The concept of SD is defined as all initiatives undertaken by the buyer to improve the performance of the supplier [3,8,64]. After the term initially proposed by Leenders [65], the "first wave" of SD research was started by quality management researchers during 1989–1991, and the "second wave" started in 1995 when researchers started working on relationship issues [66]. Since the start of the "second wave", few key authors have contributed significantly over the years in the evolution of SD theory and practice. One of the significant contributors to the topic of SD is Krause, followed by Wagner, Carr, Forker, Hahn, and Humphreys. All of these researchers have emphasized the importance of SD and contributed to the body of knowledge on this subject over the years. Furthermore, all of them have recommended further research to advance the knowledge for both the academic community and the industry so as to improve SC competency. Until now, SD can be considered as an emerging concept in many of the article databases. For this study, the definition of SD as "Any effort of a firm to increase performance and/or capabilities to meet the firm's short- and/or long-term supply needs" [67] (p. 12) will be considered. To achieve long-term strategic development goals, there is an incentive for buying firms to manage and develop their supply base instead of abandoning poor-performing suppliers altogether, and as a result, an increasing number of firms have started to implement SD initiatives, expecting such performance improvements in a sustainable way [2]. SD initiatives have been classified in the literature based on different criteria, and as a result, various types of SD activities exist and are mentioned by many researchers. For the study purpose, the classification of direct and indirect involvement will be considered.

Direct involvement is also named "internalized SD" or "broad perspective of SD" in the literature, wherein a buying firm commits relationship-specific resources to a supplier, plays an active role, and dedicates its human and/or capital resources to a specific supplier. It covers a provision of capital resources (e.g., the financing of machines, tools, or castings used by the supplier) and activities that transfer knowledge and qualifications into the supplier's firm, e.g., onsite consultation, education and training programs, temporary personnel transfer, and inviting the supplier's personnel [27]. A buyer's indirect involvement in SD activity is often limited to setting targets/goals and monitoring the supplier with some feedback to suppliers on their performance. Both types are likely to have a direct effect on the performance of the supplier and buying firms in terms of SC

competitive advantage and supplier performance improvement [13,64]. It should be noted that although the direct and indirect SDs look to be distinctively different approaches to improving SD performance, and they can be classified as mutually exclusive, they can also be used alongside one another [3].

The literature suggests that SD has been prevalent in the agri-food sector in developing economies [60,68], but mostly under the umbrella term of "contract farming". The concept of contract farming was prevalent in both developed and developing countries including Greece, China, and the United States, and in the 20th century, European colonial powers established formal farmer–corporate agreements in some of their colonies. Contract farming is an arrangement between the farmer and the buyer in the AFSC to mitigate the issues faced by smallholder farmers in developing countries; contract farming facilitates smallholder market participation, improves household welfare, and promotes rural development [50]. Contract farming may include as a formal agreement between the parties, providing the following: crop or livestock specifications to meet, training and education, inputs and support, price and payment specification, risk sharing, quality and quantity assurance, market access, technology adoption, and economic benefits. We also found that although SD is used as a theme in the agribusiness literature, the theorizations used in SD to cover phenomena such as joint value creation in formal food value chains are founded upon the same theoretical lenses used in the SD literature in SCM research. For example, based on data collected from red meat suppliers to New Zealand supermarkets, it was empirically demonstrated that the buyer–supplier relationship has a positive effect on supplier's performance [31]. The article covers only information sharing as an SD initiative, but this is understood because supermarkets do not have the technical knowhow on farming to become directly involved in activities such as training and education. In terms of the practical application of agribusiness studies, the farmer happens to be the supplier and the buyer happens to be the processor who can often exercise control in the SC. Consequently, in relation to our study, the buyer happens to be the processor while the supplier happens to be the farmer who supplies the commodity to the buyer. The review of the SCM literature in conjunction with the agribusiness literature revealed that processors' direct and indirect involvement in developing farmers cover several initiatives, as listed in Table 2. These initiatives will become useful (although context specific scoping is needed) when farmer development operationalize as a theoretical construct(s) for theory testing.

Table 2. Farmer development initiatives found in the literature.

Development Effort	Working Definition	Initiatives	Sources
Direct involvement	Direct involvement means a scenario in which a processor plays an active role and dedicates its human and/or capital resources to a farmer	Training	[2,9,13,15,18,69,70]
		Education	[2,15,18,69–71]
		Transfer of implicit knowledge	[2,9,13,69,70]
		Provide advice	[18]
		Inviting supplier personnel	[2,15,18,70]
		Financial assistance	[9,13,15,18,69,70]
		Providing materials and support services	[15,18]
Indirect involvement	Indirect involvement means a scenario in which a processor commits no or very limited resources to a farmer by offering incentives or asking the farmer to improve the performance for continuation of the contract.	Supplier rewards	[9,15,18,69,70]
		Incentives/Bonus	[2,9,13,18,69,70]
		Supplier evaluation and feedback	[2,9,13,15,18,69,70]
		Auditing	[18,69]
		Supplier visits	[2,18,69,70]
		Management involvement	[2,9,18]
		Transfer of employees to supplier	[2,18]
		Supplier certification	[9,18,69]
		Instilling competition using multiple suppliers	[9,18]

3.3. Farmer Capability

Buying manufacturers need to ensure that their suppliers are capable of performing their required tasks and supplying the raw material to the manufacturer in the right quantity at the right time in good quality [72]. Several authors (e.g., [30,73–77]) have described different capability bases of a supplier in different contexts. In the SCM literature, supplier capability is defined as "the supplier's potential that can be leveraged to the buyer's advantage in the long term" [78] (p. 152). In relation to the agribusiness sector, Agada [73] identifies learning, investment, process and technical competency, and strategic marketing as the capability bases of a supplier. However, it is worth noting that smallholder businesses often possess fewer [75] and narrower [78] capability bases compared to large-scale firms and could be industry-specific [79]. Accordingly, in this study, we view improvement in the farmer's potential as a result of famer development initiatives initiated by processors. By harmonizing the general SCM literature on SD with the agribusiness literature on farmer development, we identified three types of farmer capabilities: relationship, quality, and farmer's process management capabilities. These three capability bases can be viewed as the three different manifestations of farmer capability. However, it is not within the scope of our study to examine whether famer capability is a unidimensional construct of not.

Relationship capability is considered as a critical capability base for superior performance because the human relational capability with external parties (e.g., processors, extension service providers such as banks, training firms, relevant government authorities, non-government authorities, etc.) helps to develop knowledge and skills and obtain support and business know-how in the agriculture industry.

Quality capability is a concept widely used in quality management which revolves around designing a product/service correctly on the first attempt (quality of design) and ensuring that the product/service conforms to standards and specifications (quality of conformance) and that the product performs well when it is put into use under various use conditions (quality of performance) [80,81]. However, such quality capability in the food processing AFSC will take the form of providing year-round supply, meeting quality standards, and implementing environmentally friendly practices, thus ensuring sustainability and enhancing quality.

Farm process management capability, in relation to our study, refers to the ability of the farmer to practice and implement the knowledge gained through training programs and implement new practices or innovations to further improve the farm operations. Table 3 depicts the working definitions of the three facets (dimensions) of farmer capability.

Table 3. Farmer capability bases found in the literature.

Capability Base	Working Definition	Sources
Relationship	The ability of the farmer to share information, communicate, and develop long-term relationships with the processor and other stakeholders.	[30,73–75,77]
Quality	The ability of the farmer to design, develop, and produce products to fulfill processor requirements,	[30,74,82]
Farm process management capability	Integration of a set of tasks performed by a farm (supplier's production system) to enhance its output through the use of technology and flow of materials.	[74,79]

3.4. Farmer–Processor Relationship

In the SCM literature, supplier relationship management usually consists of three stages: selecting, segmenting, and developing the suppliers. The literature on the buyer–supplier relationship has been either descriptive (describing the relationship as a process) or focused on operationalizing the buyer–supplier relationship as a construct for measurement or hypothesis testing [6]. The buyer–supplier relationship as a theoretical concept was initially applied in relation to physical goods and service suppliers, but later, it became an

integral aspect of the agribusiness literature [83,84]. The buyer–supplier relationship, in the context of our study, relates to the farmer–processor relationship.

Agribusinesses processors such as dairy processors obtain their raw material (milk) from thousands of farmers, whereas milk is their critical-to-quality raw material (production input). To meet the demand, processors need to manage a large supplier base to provide the raw material; however, manufacturers in other industries tend to limit the number of suppliers for critical-to-quality production inputs [6,7,15,85]. Thus, relational exchanges in any agri-food sector are not simple because they always necessitate truly collaborative relationships for sustainable performance [84]. In maintaining such truly collaborative relationships, trust, satisfaction, and commitment were identified as the widely used dimensions of the processor-farmer relationship; hence, they were considered in this study and are discussed below.

Trust can be defined as "the belief that a party's word or promise is reliable and that a party will fulfill his/her obligations in an exchange relationship" [86]. Honesty, goodwill/benevolence, integrity, and trust/competence are useful measures that could be used in agribusiness contexts [31,87].

Commitment can be defined as a "desire to continue the relationship in the future and a willingness to make short-term sacrifices to maintain the relationship" [88]; commitment represents the desire for the relationship to continue and one's willingness to make an effort on the other party's behalf. Expectations of continuity, identification, and willingness to invest are useful measures that could be used in the agribusiness context [31].

Satisfaction, the third facet of the relationship, refers to a comparison between a buyer's performance and a supplier's expectations [83]. Satisfaction can be defined as the "overall assessment of the characteristics of the relationship" [89]. Satisfaction with price, with the firm, and with communication are useful measures that could be used in the agribusiness context [31]. Table 4 depicts the working definitions of the three facets (dimensions).

Table 4. Farmer–processor relationship dimensions found in the literature.

Dimension	Working Definition	Sources
Trust	The belief of the farmers that the processor's word or promise is reliable and will fulfill the obligations of the relationship.	[31,32,69,83,84,87,90–95]
Commitment	The farmer's desire to continue the relationship for a long time and willingness to make short-term commitments to maintain the relationship.	[31,32,69,83,84,90–93]
Satisfaction	The overall assessment of the characteristics of the relationship between the farmer and the processor.	[31,32,69,83,84,90,91,95]

3.5. Sustainable Farmer Performance—TBL Performance

In 1994, John Elkington presented the TBL performance measurement framework for a business to emphasize the need for a firm to look beyond the economic dimension to cover social and environmental aspects in business accounting [96]. Today, the TBL concept is intertwined with the concept of sustainability. While recognizing the fact that sustainability has its roots in different cultures, disciplines, and fields of study, this attempt was intended to investigate the roots of sustainability in terms of TBL in the field of agriculture, paying special attention to agri-food, despite the surrounding critiques [56].

The Agenda 2030 declared by the United Nations is intended to strike a balance between the three dimensions of the TBL (economic, social, and environmental) for sustainability. The Agenda explains 17 Sustainable Development Goals (SDGs), of which the 12th SDG goal is dedicated to sustainable consumption and production patterns, emphasizing the need for SCs to be more sustainable. This is understandable because an SC is a bridge that links suppliers and consumers in bringing the transformed inputs to outputs to satisfy customer needs and wants. Traditionally, supplier management has focused on four operational measures of supplier performance: cost, quality, flexibility, and delivery;

but now, firms are paying more attention to a fifth dimension, which is sustainability [2], and this study also pays attention to this fifth dimension. In our study, the scope of agricultural sustainability can be resolved into the TBL performance of the farmer. Further, in a developing country context, family farming is very important because it represents a significant amount of labor, the production practices used, and less harmful liabilities to the environment [97] hence considered relevant for our study. We maintain that the economic, social, and environmental aspects of farmer's sustainable performance are three different concepts, rather than three different manifestations of the same concept, because, in practice, the three facets may not move in the same direction (i.e., they covary).

The economic dimension is fundamentally reflected in financial results. The performance of a farmer can be measured through production capacity and gross income, the profitability of farming, and the projected increase in production, through which one can assess whether the income from farming is sufficient to meet all financial needs [97].

The environmental dimension reflects eco-efficiency. The dimensions refer to actions that prevent damage to the environment, can be measured in multiple ways, and could depend on the type of business. However, aspects such as concern about land use, disposal of liquid waste, concern about solid waste, and air pollution are considered to be the main aspects [97] related to this study.

The social dimension is related to the fair income distribution in a way that favors social inclusion, decent life, and generalized access to social resources and services. Social performance (a highly concerned area) can be measured through aspects such as quality of life, social well-being, and level of personal satisfaction [97]. Table 5 depicts the working definitions of each aspect of TBL performance.

Table 5. Sustainable farmer performance concepts found in the literature.

TBL Concepts	Working Definition	Dimension	Sources
Economic	A farmer's economic performance reflects the financial results of their farm business.	- Production capacity; - Projected increase in production; - Gross income; - Net income; - Profitability of farming.	[62,97–101]
Environmental	A farmer's environmental performance reflects environmentally friendly farming practices that are being used to reduce harm to the planet.	- Concern on land use; - Disposal of liquid waste; - Concern on solid waste; - Concern on air pollution.	[24,62,97–99]
Social	A farmer's social performance reflects receipt of a fair income, decent lifestyle, and access to social resources and services.	- Quality of life; - Occupational health; - Personal socialization; - Personal housing condition; - Personal satisfaction.	[62,97–99]

4. Development of Propositions and Theoretical Model

This proposition-based concept paper is centered around a set of logical propositions that suggest cause and effect relationships between the constructs. In this section, we develop propositions based on the literature review to propose how farmer development leads to sustainable farmer performance. Finally, we introduce the theoretical model of the study.

4.1. Farmer Development as a Causal Antecedent of Farmer Capability

Whether a buying firm plays an active role (direct SD) or otherwise (indirect SD), the purpose of SD is to increase the capability of their suppliers so that those suppliers would be able to achieve the desired outcomes for the firm and the supplier [6,18,27,102]. The agribusiness context is no exception, although the business model used by the buyer to achieve the desired outcomes may be different.

Using the dichotomy of buyer's direct involvement in SD and buyer's indirect involvement in SD, we can support the notion that direct farmer development initiatives implemented by the buying firm leads to supplier capability improvement [6,27,103]. Buyer's investment in knowledge-specific transactions in the form of training and education—that is, asset specificity [104,105]—can occur through a contractual agreement (e.g., via a formal farmer development program). Farmer development initiatives in the form of financial support to increase farmer capability can be considered as capital-specific transactions (e.g., investing in machinery, tools, etc. for the supplier) that are of specific value to the two parties only [103].

As mentioned earlier, goal-setting theory can be used to explain (in relation to farmers) and to justify the processor's indirect involvement in farmer development [6,27]. Indirect farmer development initiatives such as performance evaluation and feedback enable the farmer to improve their operational performance (a proxy for farmer capability). Signals such as incentives (rewards) and monitoring (with the possibility of punishment) are sufficient for a farmer to adapt to the required behaviour (i.e., improved operational performance) [6]. Similarly, goal-setting in the form of setting performance targets and monitoring progress is an effective way to motivate the farmer's performance improvement [27]. We acknowledge that both direct and indirect farmer development initiatives play a role in enhancing farmer capability. Direct initiatives, such as training and financial assistance, directly build farmers' skills and resources. Indirect initiatives, such as supplier evaluation and feedback, indirectly influence capability by providing insights and guidance. It can be argued that this performance improvement comes about as a result of farmers becoming more capable of performing farming operations. Thus, our first proposition is as follows:

P1: *Farmer development initiatives enhance farmer capability.*

4.2. Farmer Development as a Causal Antecedent of the Farmer–Processor Relationship

When the processor invests in increasing a specific knowledge resource targeting the farmer (e.g., farmer training), a high level of cooperation between the processor and the farmer becomes necessary in order to sustain such a farmer development initiative since continuing such a relationship is based on the trust and goodwill between the two parties; the same can be said about providing financial support to the farmer [4,6,15]. Further, the processors need to monitor the performance of their farmers, and when the farmer is not meeting the expected level of performance, it becomes necessary for the processor to communicate this to the farmer. The literature supports the notion that such communication results in strengthening the bond between the two parties [66,69,102,106]. Thus, our second proposition is as follows:

P2: *Farmer development initiatives enhance the farmer–processor relationship.*

An antithesis to P1 and P2 is that farmers who are capable and have better relationships with the processor will be identified by the processor, and these farmers will be provided with more training and development to achieve mutually beneficial outcomes (from a farmer's perspective, sustainable farmer performance). In this antithesis, farmer capability and the farmer–processor relationship become drivers (i.e., the causes), farmer development becomes a mediator, and sustainable farmer performance becomes the effect. This antithesis can be negated in multiple ways: one way to negate the antithesis is to argue that farmer development must occur first, and capability improvement must come after (i.e., the causal asymmetry), in keeping with the rationale of the concept "supplier development";

another way to negate the antithesis is to argue that farmer capability has a more dominant effect on sustainable farmer performance than supplier development because everything a farmer does to improve their sustainable performance is a direct result of their capability, much the same way as how more able people can achieve better work-related outcomes (e.g., earnings) for themselves, ceteris paribus. Although the synthesis in reaction to the antithesis did not warrant a model modification, it highlighted that farmers who show more potential (i.e., capability, as perceived by the processor) and have a closer relationship with the processor could receive more farmer development (e.g., training and farming capital) from the processor. Since the unit of measurement/analysis of our model is individual farmers, the model accepts the reality that different farmers obtain different intensities of development.

4.3. Farmer Capability as a Causal Antecedent of the Farmer–Processor Relationship

A more capable farmer will be more cognizant of the actions they need to take to improve their business in order to meet customer expectations (i.e., processor's expectations), which is necessary for sustaining improved performance. In the operational excellence literature, this is known as creating a customer focus. Maintaining a closer relationship with the processor will enable the farmer to respond to any operational issue (e.g., nonconformity) more swiftly, but the farmer must have the necessary capability to know what to do in order to meet the buyer's expectations, which often results in a closer relationship with the buyer [74,107]. Stated alternatively, more capable farmers are likely to engage in more productive and collaborative interactions with processors, leading to stronger and more positive relationships [71]. Thus, our third proposition is as follows:

P3: *Enhanced farmer capability leads to improved farmer–processor relationship*.

4.4. Farmer Capability as a Causal Antecedent of a Farmer's Sustainable Performance

In keeping with the sustainable SD notion, the farmer's sustainable performance refers to the farmer's TBL performance outcomes, consisting of economic, social, and environmental outcomes. The farmer's economic outcome can be represented as the farmer's income from agriculture-related activities against expenditure on both farm-related activities and household expenditure. The farmer's social outcomes can include feeling empowered and valued, being able to make social connections through family activities, and being able to improve the standard of living through farming activities [108]. Such social benefits may reach the individual farmer, their family members, or the workers in the farm. The farmer's environmental outcomes can be represented by achievements in mitigating the environmental impact of farming activity in terms of land use, liquid and solid waste disposal, and air pollution as a result of farming activities. However, to achieve these TBL performance outcomes, a farmer must possess the requisite capability (e.g., efficiency, new methods of farming, ability to implement knowledge gained, and ability to innovate). Finally, it is argued that the more capable the farmer (a farmer who can practice the knowledge gained from training, maintain close relationships with farm extension service providers and stakeholders, use environmentally friendly farming practices, provide around year supply in the required quantity, meet supplier's quality standards, and implement new practices to improve farm operations), the more they can return a revenue over costs, make more social connections, and achieve the environmental outcomes from farming. Thus, our fourth proposition and its sub-propositions are as follows:

P4: *Improved farmer capability results in sustainable farmer performance*;

P4a: *Improved farmer capability results in farmer economic performance*;

P4b: *Improved farmer capability results in farmer social performance*;

P4c: *Improved farmer capability results in farmer environmental performance*.

4.5. Farmer–Processor Relationship as a Causal Antecedent of Farmer's Sustainable Performance

In the literature, the resource-based view and relational view have been used to explain why the buyer–supplier relationship has a positive effect on supplier's performance [6,31,66]. When there is a strong relationship between the buyer and the supplier, the supplier is likely to understand the buyer's requirements more closely and make a consorted effort to meet the customer's expectations [31,71]. In relation to agriculture, the farmer–processor relationship acts as social capital, i.e., a capital that the farmer can leverage to co-create value with the buyer [94,109]. Sustainable farmer performance is a multi-dimensional outcome encompassing economic, social, and environmental dimensions. It emphasizes that true sustainability in agriculture should consider not only economic profitability but also social well-being and environmentally responsible practices. Positive relationships are expected to lead to improved access to markets, better pricing, and more stable demand, ultimately contributing to sustainable performance. Finally, it is argued that the stronger the farmer–processor relationship, the more likely the farmer to become more loyal to the buyer and stick around [15,31,91,92], rather than switching to a different buyer (who does not provide farmer development) for very short-term financial gains, thus foregoing the opportunity of gaining long-term economic, social, and environmental benefits [93]. Thus, our fifth proposition and its sub-propositions are as follows:

P5: *Improved farmer–processor relationship results in sustainable farmer performance*;

P5a: *Improved farmer–processor relationship results in farmer economic performance*;

P5b: *Improved farmer–processor relationship results in farmer social performance*;

P5c: *Improved farmer–processor relationship results in farmer environmental performance*.

4.6. Theoretical Model

Serving the main aim of the study, this paper used a model-building research design [110] to build the theoretical model that attempts to predict and explain the relationships between the concepts under consideration. We employ the term "concept" instead of the term "construct" because providing operational definitions (i.e., measures for theory testing) for some concepts, most notably that of farmer development, is beyond the scope of this study. This (along with hypothesis testing involving a large sample of data from farmers) will be part of our next study, which will involve engagement with farmers and processors to operationalize farmer development and to scope the operational definitions of the remaining concepts/constructs. As mentioned earlier, the model developed in our present study is based on a narrative literature review relating to concepts understudy taking in to account the developing country context. In this study, it elaborates the relationship among the independent variables, the dependent variables, and the mediating variables. Figure 2 depict the theoretical framework, with farmer development as the exogenous variable and farmer sustainability performance as the endogenous variable. The farmer–buyer relationship and farmer capability will be considered as mediators. The mediating variables are supposed to mediate the link between farmer development and farmer sustainable performance, as shown by the linking arrows.

The theoretical model accommodates the above five main propositions and sub propositions to explain how sustainable farmer performance (i.e., farmer's TBL performance) arises as a result of farmer development initiatives implemented by the processor. Note that as argued earlier, we are treating economic performance, social performance, and environmental performance as three distinct concepts rather than a single concept labeled sustainable farmer performance. Our theoretical model suggests that when processors invest in initiatives that enhance farmer capability, it strengthens farmer–processor relationships, which, in turn, positively impacts sustainable farmer performance across economic, social, and environmental domains. These propositions and the theoretical model provide a structured framework for understanding how sustainable farmer performance can be achieved through the active involvement of processors' farmer development initiatives. The

model forms the basis for empirical testing and further research in the field of sustainable AFSC in developing economies, contributing to a deeper understanding of the dynamics involved in this context.

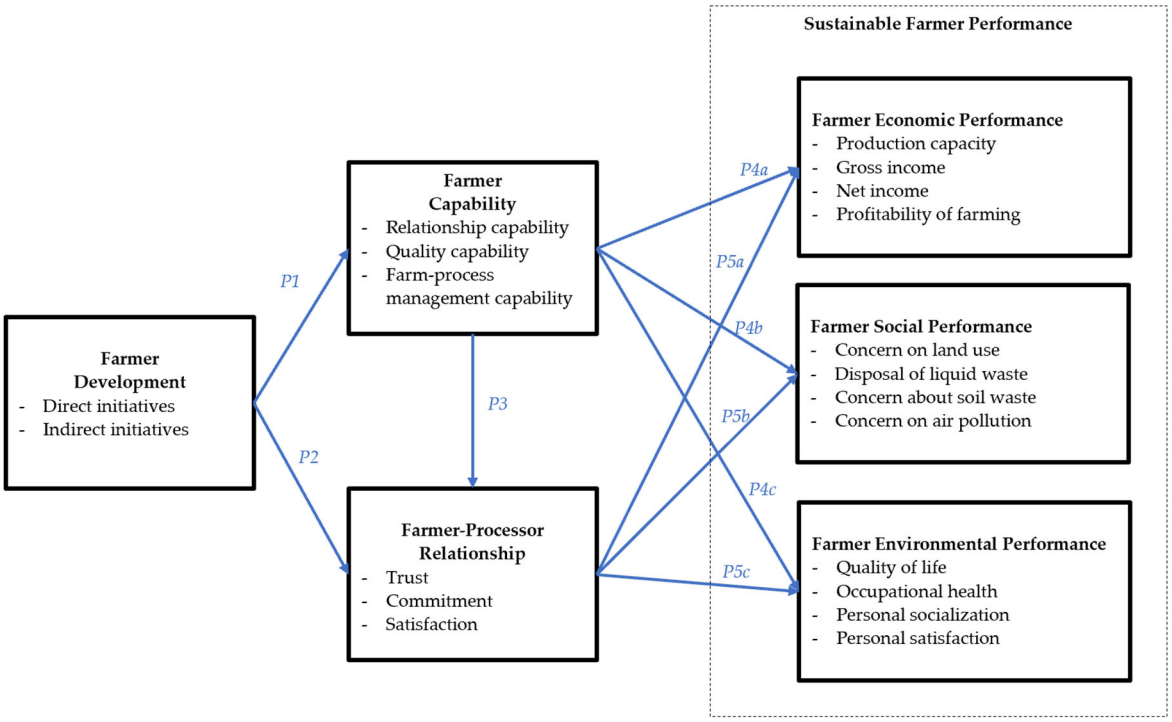

Figure 2. The proposed theoretical model of the study.

5. Conclusions

The study advised that an adequate theoretical framework be constructed to reflect the setting in which the review was performed, and be operationalized and extended. We used a multidisciplinary approach by drawing on various sources of literature to construct a theoretical model (Figure 2 that explains how farmer development initiatives implemented by the buyer (in many instances the processor) result in sustainable farmer performance (TBL outcomes for the farmer), satisfying the main aim of the study.

Our framework helps researchers to develop a comprehensive understanding of sustainable farmer development in the agri-food context. The propositions that constitute the framework suggests that farmer development initiatives result in farmer capability development [18] and improved relationships with the buyer [102], which, in turn, enable farmers to achieve sustainable performance in economic, social, and environmental domains. The literature suggests that farmer development initiatives implemented by the processor may take place as direct farmer development initiatives and/or indirect farmer development initiatives [27], depending on the farmer. Further, the literature proposes that direct farmer development initiatives may come in the form of training and education, transferring implicit knowledge, providing advice for farming, inviting supplier farmer personnel to the buyer's factory, and providing financial assistance [2,18,70]. Providing material and support services [18] is not widely cited in the SCM literature; however, in certain agriculture contexts, or at least for some farmers in many agriculture contexts, this initiative may become highly relevant. The literature also refers to supplier evaluations and feedback (and, in an agri-food context, farmer evaluation and feedback), supplier rewards and incentives, supplier certification, and supplier visits as indirect initiatives [2,9,18,70], and these may also become relevant in certain agriculture contexts. Further, the use of such farmer development initiatives may vary depending on the context, most notably with respect to developing and developed country contexts. These speculations, as well as the tenability of the propositions themselves as a generalizable theory, can only be tested

with a large sample of data collected from the farmers. Hence, we acknowledge that the propositions outlined in this theoretical framework need empirical validation, which is the next stage of our research. We suggest that our present study provides a good foundation for testing the propositions (as hypotheses) and determining which types of direct and indirect farmer development initiatives apply in a given agriculture context (e.g., dairy farming in a chosen developing economy).

We accept that the rationale behind sustainable SD is not only about improving outcomes of the supplier (in our study, the farmer); the motive behind sustainable SD is to cause TBL outcomes for multiple actors along the SC [9–12], including the buyer. For example, there is no incentive for a processor to develop their farmers unless this results in the growth of the processor, the gaining of a competitive advantage, and an elevation of the processor's profile as a corporate citizen. Although we propose that farmer development leads to improved farmer capability and farmer–processor relationships, we have not proposed that these two outcomes have a positive effect on the buyer's TBL performance or the buyer's value proposition. This is because this proposition cannot be empirically tested using hypothetic–deductive methods (statistical hypothesis testing) because, although there exist many farmers (each having their own capability base and relationship with their buyer), there would be only one buyer. We suggest that future research explore the supplier benefits of farmer development using alternative methodologies such as case studies. We also suggest that future research consider the dyadic relationship between the processor (buyer) and the farmers to gain a more comprehensive understanding of the dynamics involved, as our present study primarily focuses on the supplier's perspective of farmer development. Another attractive research agenda would be the empirical validation of our theoretical framework in a developing country context in different AFSCs.

Finally, our study underscores the importance of a suitable business model, such as the BOP approach, for buyers such as processors in viewing farmer development as a strategic opportunity. Testing our theoretical framework should be conducted in such an environment.

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References

1. Paybarjay, H.; Fallah Lajimi, H.; Hashemkhani Zolfani, S. An investigation of supplier development through segmentation in sustainability dimensions. *Environ. Dev. Sustain.* **2023**. [CrossRef]
2. Jia, M.; Stevenson, M.; Hendry, L. A systematic literature review on sustainability-oriented supplier development. *Prod. Plan. Control* **2021**, *34*, 727–747. [CrossRef]
3. Krause, D.R.; Handfield, R.B.; Scannell, T.V. An empirical investigation of supplier development: Reactive and strategic processes. *J. Oper. Manag.* **1998**, *17*, 39–58. [CrossRef]
4. Krause, D.R.; Ellram, L.M. Success factors in supplier development. *Int. J. Phys. Distrib. Logist. Manag.* **1997**, *27*, 39–52. [CrossRef]
5. Lee, A.B.S.; Chan, F.T.S.; Pu, X. Impact of supplier development on supplier's performance. *Ind. Manag. Data Syst.* **2018**, *118*, 1192–1208. [CrossRef]
6. Benton, W.C.; Prahinski, C.; Fan, Y. The influence of supplier development programs on supplier performance. *Int. J. Prod. Econ.* **2020**, *230*, 107793. [CrossRef]
7. Chavhan, R.; Mahajan, D.S.K.; Joshi Sarang, P. Supplier Development Success Factors in Iindian Manufacturing Practices. *Mater. Today Proc.* **2018**, *5*, 4078–4096. [CrossRef]
8. Krause, D.R.; Handfield, R.B.; Tyler, B.B. The relationships between supplier development, commitment, social capital accumulation and performance improvement. *J. Oper. Manag.* **2007**, *25*, 528–545. [CrossRef]

9. Bai, C.; Satir, A. A critical content-analysis of sustainable supplier development literature and future research directions. *J. Clean. Prod.* **2022**, *365*, 132443. [CrossRef]
10. Sancha, C.; Longoni, A.; Giménez, C. Sustainable supplier development practices: Drivers and enablers in a global context. *J. Purch. Supply Manag.* **2015**, *21*, 95–102. [CrossRef]
11. Zimmer, K.; Fröhling, M.; Schultmann, F. Sustainable supplier management—A review of models supporting sustainable supplier selection, monitoring and development. *Int. J. Prod. Res.* **2016**, *54*, 1412–1442. [CrossRef]
12. Busse, C.; Schleper, M.C.; Niu, M.; Wagner, S.M. Supplier development for sustainability: Contextual barriers in global supply chains. *Int. J. Phys. Distrib. Logist. Manag.* **2016**, *46*, 442–468. [CrossRef]
13. Pedroso, C.B.; Tate, W.L.; da Silva, A.L.; Carpinetti, L.C.R. Supplier development adoption: A conceptual model for triple bottom line (TBL) outcomes. *J. Clean. Prod.* **2021**, *314*, 127886.
14. Silva, H.; Jayarathne, P.G. Measurement Scales for the Supplier Development, Buyer-Supplier Relationship, and Supplier Performance in the Perspective of Suppliers of the Asian Countries. *Int. J. Phys. Soc. Sci.* **2018**, *8*, 1–19.
15. Glavee-Geo, R. Does supplier development lead to supplier satisfaction and relationship continuation? *J. Purch. Supply Manag.* **2019**, *25*, 100537. [CrossRef]
16. Verwaal, E.; Klein, M.; La Falce, J. Business Model Involvement, Adaptive Capacity, and the Triple Bottom Line at the Base of the Pyramid. *J. Bus. Ethics* **2022**, *181*, 607–621. [CrossRef]
17. Dembek, K.; Sivasubramaniam, N.; Chmielewski, D.A. A Systematic Review of the Bottom/Base of the Pyramid Literature: Cumulative Evidence and Future Directions. *J. Bus. Ethics* **2020**, *165*, 365–382. [CrossRef]
18. Brix-Asala, C.; Seuring, S.; Sauer, P.C.; Zehendner, A.; Schilling, L. Resolving the base of the pyramid inclusion paradox through supplier development. *Bus. Strategy Environ.* **2021**, *30*, 3208–3227. [CrossRef]
19. Hidayati, D.R.; Garnevska, E.; Ramilan, T. Assessing smallholders' heterogeneity towards sustainable agrifood value chain in developing countries. *Br. Food J.* **2023**. [CrossRef]
20. Hidayati, D.R.; Garnevska, E.; Childerhouse, P. Enabling sustainable agrifood value chain transformation in developing countries. *J. Clean. Prod.* **2023**, *395*, 136300. [CrossRef]
21. Yadav, V.S.; Singh, A.R.; Gunasekaran, A.; Raut, R.D.; Narkhede, B.E. A systematic literature review of the agro-food supply chain: Challenges, network design, and performance measurement perspectives. *Sustain. Prod. Consum.* **2022**, *29*, 685–704. [CrossRef]
22. Joshi, S.; Singh, R.K.; Sharma, M. Sustainable Agri-food Supply Chain Practices: Few Empirical Evidences from a Developing Economy. *Glob. Bus. Rev.* **2023**, *24*, 451–474. [CrossRef]
23. Akamp, M.; Müller, M. Supplier management in developing countries. *J. Clean. Prod.* **2013**, *56*, 54–62. [CrossRef]
24. Hidayati, D.R.; Garnevska, E.; Childerhouse, P. Sustainable Agrifood Value Chain—Transformation in Developing Countries. *Sustainability* **2021**, *13*, 12358. [CrossRef]
25. Taherdoost, H.; Brard, A. Analyzing the Process of Supplier Selection Criteria and Methods. *Procedia Manuf.* **2019**, *32*, 1024–1034. [CrossRef]
26. Yawar, S.A.; Seuring, S. The role of supplier development in managing social and societal issues in supply chains. *J. Clean. Prod.* **2018**, *182*, 227–237. [CrossRef]
27. Wagner, S.M. Indirect and Direct Supplier Development: Performance Implications of Individual and Combined Effects. *IEEE Trans. Eng. Manag.* **2010**, *57*, 536–546. [CrossRef]
28. Saghiri, S.; Wilding, R. On the effectiveness of supplier development programs: The role of supply-side moderators. *Technovation* **2021**, *103*, 102234. [CrossRef]
29. Agnusdei, G.P.; Coluccia, B. Sustainable agrifood supply chains: Bibliometric, network and content analyses. *Sci. Total Environ.* **2022**, *824*, 153704. [CrossRef] [PubMed]
30. Lages, L.F.; Silva, G.; Styles, C. Relationship Capabilities, Quality, and Innovation as Determinants of Export Performance. *J. Int. Mark.* **2009**, *17*, 47–70. [CrossRef]
31. Lees; Nuthall, P.; Wilson, M.M. Relationship quality and supplier performance in food supply chains. *Int. Food Agribus. Manag. Rev.* **2020**, *23*, 425–445. [CrossRef]
32. Schulze, B.; Lees, N.J. Supplier relationship quality and performance in (agribusiness) supply chains: A literature review. Presented at the 11th Wageningen International Conference on Chain and Network Management: Sustainability and Innovation in Chains and Networks, Naples, Italy, 4–6 June 2014.
33. Dyer, J.; Singh, H. The Relational View: Cooperative Strategy and Sources of Interorganizational Competitive Advantage. *Acad. Manag. Rev.* **1998**, *23*, 660–679. [CrossRef]
34. Tescari, F.; Brito, L. The Relational View: Future challenges for a non-confirmed expectation. *Rev. Bus. Manag.* **2018**, *20*, 461–487. [CrossRef]
35. Green, B.N.; Johnson, C.D.; Adams, A. Writing narrative literature reviews for peer-reviewed journals: Secrets of the trade. *J. Chiropr. Med.* **2006**, *5*, 101–117. [CrossRef]
36. Neuman, W.L. *Social Research Methods: Qualitative and Quantitative Approaches*; Pearson Education: London, UK, 2013.
37. Altuntas Vural, C. Service-dominant logic and supply chain management: A systematic literature review. *J. Bus. Ind. Mark.* **2017**, *32*, 1109–1124. [CrossRef]

38. Woods, E.J. Supply-chain management: Understanding the concept and its implications in developing countries. In *Agriproduct Supply-Chain Management in Developing Countries, Proceedings of a Workshop Held in Bali, Indonesia, 19–22 August 2003*; Australian Centre for International Agricultural Research: Canberra, Australia, 2004.
39. Porter, M.E. What Is Strategy? Harvard Business Publishing: Brighton, MA, USA, 1996.
40. Lambert, D. *Supply Chain Management: Processes, Partnerships, Performance, Chapter 1 Supply Chain Management*; Supply Chain Management Institute: Lewes, DE, USA, 2014.
41. Tsolakis, N.K.; Keramydas, C.A.; Toka, A.K.; Aidonis, D.A.; Iakovou, E.T. Agrifood supply chain management: A comprehensive hierarchical decision-making framework and a critical taxonomy. *Biosyst. Eng.* **2014**, *120*, 47–64. [CrossRef]
42. Sufiyan, M.; Haleem, A.; Khan, S.; Khan, M.I. Evaluating food supply chain performance using hybrid fuzzy MCDM technique. *Sustain. Prod. Consum.* **2019**, *20*, 40–57. [CrossRef]
43. Routroy, S.; Behera, A. Agriculture supply chain: A systematic review of literature and implications for future research. *J. Agribus. Dev. Emerg. Econ.* **2017**, *7*, 275–302. [CrossRef]
44. Van der Vorst, J.; Silva, C.; Trienekens, J. *Agroindustrial Supply Chain Management: Concepts and Applications*; FAO Agricultural management, Marketing and Finance: Rome, Italy, 2007.
45. Blackmore, E.; Guarin, A.; Vorley, W.; Alonso, S.; Grace, D. Kenya's informal milk markets and the regulation–reality gap. *Dev. Policy Rev.* **2022**, *40*, e12581. [CrossRef]
46. Shingh, S.; Kalwar, C.; Paudyal, S.; Tiwari, P.; Jha, S. A Study on Growth and Performance of Dairy Sector in Nepal. *Int. J. Environ. Agric. Biotechnol.* **2020**, *5*, 1154–1166. [CrossRef]
47. Hemme, T.; Garcia, O.; Khan, A.R. *A Review of Milk Production in Bangladesh with Particular Emphasis on Small-Scale Producers*; Pro-Poor Livestock Policy Initiative, PPLPI Working Papers; Food and Agriculture Organization of the United Nations: Rome, Italy, 2004.
48. Trienekens, J.H. Agricultural value chains in developing countries a framework for analysis. *Int. Food Agribus. Manag. Rev.* **2011**, *14*, 51–82.
49. Kilelu, C.; Klerkx, L.; Omore, A.; Baltenweck, I.; Leeuwis, C.; Githinji, J. Value Chain Upgrading and the Inclusion of Smallholders in Markets: Reflections on Contributions of Multi-Stakeholder Processes in Dairy Development in Tanzania. *Eur. J. Dev. Res.* **2017**, *29*, 1102–1121. [CrossRef]
50. Meemken, E.M.; Bellemare, M.F. Smallholder farmers and contract farming in developing countries. *Proc. Natl. Acad. Sci. USA* **2020**, *117*, 259–264. [CrossRef]
51. Akram, H.W.; Akhtar, S.; Ahmad, A.; Anwar, I.; Sulaiman, M.A.B.A. Developing a Conceptual Framework Model for Effective Perishable Food Cold-Supply-Chain Management Based on Structured Literature Review. *Sustainability* **2023**, *15*, 4907. [CrossRef]
52. Mazhar, R.; Xuehao, B.; Viira, A.-H.; Stamenkovska, I.J.; Nacka, M.; Azadi, H.; Wei, Z. Farmers' Participation in Modern Supply Chains: The Case of Mandarin Profitability in Punjab-Pakistan. *Horticulturae* **2022**, *8*, 1041. [CrossRef]
53. Stringer, L.C.; Fraser, E.D.G.; Harris, D.; Lyon, C.; Pereira, L.; Ward, C.F.M.; Simelton, E. Adaptation and development pathways for different types of farmers. *Environ. Sci. Policy* **2020**, *104*, 174–189. [CrossRef]
54. Seuring, S.; Sarkis, J.; Müller, M.; Rao, P. Sustainability and supply chain management—An introduction to the special issue. *J. Clean. Prod.* **2008**, *16*, 1545–1551. [CrossRef]
55. Mani, V.; Gunasekaran, A.; Papadopoulos, T.; Hazen, B.; Dubey, R. Supply chain social sustainability for developing nations: Evidence from India. *Resour. Conserv. Recycl.* **2016**, *111*, 42–52. [CrossRef]
56. Beske, P.; Seuring, S. Putting sustainability into supply chain management. *Supply Chain Manag. Int. J.* **2014**, *19*, 322–331. [CrossRef]
57. Carter, C.R.; Rogers, D.S. A framework of sustainable supply chain management: Moving toward new theory. *Int. J. Phys. Distrib. Logist. Manag.* **2008**, *35*, 360–387. [CrossRef]
58. Sharifi, E.; Fang, L.; Amin, S.H. A novel two-stage multi-objective optimization model for sustainable soybean supply chain design under uncertainty. *Sustain. Prod. Consum.* **2023**, *40*, 297–317. [CrossRef]
59. Brundtland, G.H. Our Common Future—Call for Action. *Environ. Conserv.* **1987**, *14*, 291–294. [CrossRef]
60. Chari, F.; Mukonyo, J.; Novukela, C.; Sibanda, L.; Chabata, T. Sustainability of maize supply chains: The role of supplier development in the form of command farming in Mazowe district, Zimbabwe. *J. Future Sustain.* **2023**, *3*, 97–106. [CrossRef]
61. Mangla, S.K.; Luthra, S.; Rich, N.; Kumar, D.; Rana, N.P.; Dwivedi, Y.K. Enablers to implement sustainable initiatives in agri-food supply chains. *Int. J. Prod. Econ.* **2018**, *203*, 379–393. [CrossRef]
62. Beske, P.; Land, A.; Seuring, S. Sustainable supply chain management practices and dynamic capabilities in the food industry: A critical analysis of the literature. *Int. J. Prod. Econ.* **2014**, *152*, 131–143. [CrossRef]
63. Galal, N.; Moneim, A. Developing Sustainable Supply Chains in Developing Countries. *Procedia CIRP* **2016**, *48*, 419–424. [CrossRef]
64. Humphreys, P.K.; Li, W.L.; Chan, L.Y. The impact of supplier development on buyer–supplier performance. *Omega* **2004**, *32*, 131–143. [CrossRef]
65. Leenders, M.R. Supplier Development. *J. Purch.* **1966**, *2*, 47–62. [CrossRef]
66. Wagner, S.M. Supplier development practices: An exploratory study. *Eur. J. Mark.* **2006**, *40*, 554–571. [CrossRef]
67. Krause, D.R. Supplier Development: Current Practices and Outcomes. *Int. J. Purch. Mater. Manag.* **1997**, *33*, 12–19. [CrossRef]

68. Mukucha, P.; Chari, F. The influence of supplier development, in the form of contract farming, on performance in Zimbabwean tobacco industry. *Cogent Bus. Manag.* **2021**, *8*, 1968732. [CrossRef]
69. Yawar, S.A.; Seuring, S. Reviewing and conceptualizing supplier development. *Benchmarking Int. J.* **2020**, *27*, 2565–2598. [CrossRef]
70. Yawar, S.A.; Kauppi, K. Understanding the adoption of socially responsible supplier development practices using institutional theory: Dairy supply chains in India. *J. Purch. Supply Manag.* **2018**, *24*, 164–176. [CrossRef]
71. Shukla, S.; Kapoor, R.; Gupta, N.; Arunachalam, D. Knowledge transfer, buyer-supplier relationship and supplier performance in agricultural supply chain: An agency theory perspective. *J. Knowl. Manag.* **2023**, *27*, 738–761. [CrossRef]
72. Yu, V.F.; Qiu, M.; Gupta, J.N.D. Improving supplier capability through training: Evidence from the Chinese Automobile Industry. *Comput. Ind. Eng.* **2022**, *163*, 107825. [CrossRef]
73. Agada, M.O. Technological Capabilities among Soybean Producers in Benue State, Nigeria. *J. Biol. Agric. Healthc.* **2014**, *4*, 104–112.
74. Sachitra, V.; Chong, S.-C. Resources, capabilities and competitive advantage of minor export crops farms in Sri Lanka. *Compet. Rev. Int. Bus. J.* **2018**, *28*, 478–502. [CrossRef]
75. Ngugi, I.; Johnsen, R.; Erdélyi, P. Relational capabilities for value co-creation and innovation in SMEs. *J. Small Bus. Enterp. Dev.* **2010**, *17*, 260–278. [CrossRef]
76. Möller, K.E.K.; Törrönen, P. Business suppliers' value creation potential: A capability-based analysis. *Ind. Mark. Manag.* **2003**, *32*, 109–118. [CrossRef]
77. Johnsen, R.E.; Ford, D. Interaction capability development of smaller suppliers in relationships with larger customers. *Ind. Mark. Manag.* **2006**, *35*, 1002–1015. [CrossRef]
78. Sarkar, A.; Mohapatra, P.K.J. Evaluation of supplier capability and performance: A method for supply base reduction. *J. Purch. Supply Manag.* **2006**, *12*, 148–163. [CrossRef]
79. Nath, P.; Nachiappan, S.; Ramanathan, R. The impact of marketing capability, operations capability and diversification strategy on performance: A resource-based view. *Ind. Mark. Manag.* **2010**, *39*, 317–329. [CrossRef]
80. Forker, L.B. Factors affecting supplier quality performance. *J. Oper. Manag.* **1997**, *15*, 243–269. [CrossRef]
81. Sony, M.; Antony, J.; Douglas, J.A. Essential ingredients for the implementation of Quality 4.0. *TQM J.* **2020**, *32*, 779–793. [CrossRef]
82. Lakhal, L. Impact of quality on competitive advantage and organizational performance. *J. Oper. Res. Soc.* **2009**, *60*, 637–645. [CrossRef]
83. Schulze, B.; Goettingen, G.-A.-U.; Sieben, G.; Spiller, A. Supplier Relationship Quality in the German Pork and Dairy Sector: Theoretical Considerations and Empirical Evidence. *J. Chain Netw. Sci.* **2006**, *6*, 55–68. [CrossRef]
84. Pappa, I.; Iliopoulos, C.; Massouras, T. On sustainability of a dairy sector in crisis. *Int. J. Food Syst. Dyn.* **2019**, *10*, 130–150. [CrossRef]
85. Wouters, M.; van Jarwaarde, E.; Groen, B. Supplier development and cost management in Southeast Asia—Results from a field study. *J. Purch. Supply Manag.* **2007**, *13*, 228–244. [CrossRef]
86. Balu, P. *Exchange and Power in Social Life*, 2nd ed.; Routledge: London, UK, 1986.
87. Moses, G.; Okello, D.; Olido, K.; Odongo, W. Trust, but what trust? Investigating the influence of trust dimensions on supply chain performance in smallholder agribusinesses in Uganda. *J. Agribus. Dev. Emerg. Econ.* **2023**. [CrossRef]
88. Geyskens, I.; Steenkamp, J.-B.E.M.; Kumar, N. A Meta-Analysis of Satisfaction in Marketing Channel Relationships. *J. Mark. Res.* **1999**, *36*, 223–238. [CrossRef]
89. Ruekert, R.W.; Churchill, G.A. Reliability and Validity of Alternative Measures of Channel Member Satisfaction. *J. Mark. Res.* **1984**, *21*, 226–233. [CrossRef]
90. Kangogo, D.; Dentoni, D.; Bijman, J. Determinants of Farm Resilience to Climate Change: The Role of Farmer Entrepreneurship and Value Chain Collaborations. *Sustainability* **2020**, *12*, 868. [CrossRef]
91. Dlamini-Mazibuko, B.P.; Ferrer, S.; Ortmann, G. Examining the farmer-buyer relationships in vegetable marketing channels in Eswatini. *Agrekon* **2019**, *58*, 369–386. [CrossRef]
92. Werff, S.; Trienekens, J.; Hagelaar, G.; Pascucci, S. Patterns in sustainable relationships between buyers and suppliers: Evidence from the food and beverage industry. *Int. Food Agribus. Manag. Rev.* **2018**, *21*, 1–22. [CrossRef]
93. Dania, W.A.P.; Xing, K.; Amer, Y. Collaboration behavioural factors for sustainable agri-food supply chains: A systematic review. *J. Clean. Prod.* **2018**, *186*, 851–864. [CrossRef]
94. de Vreis, J.; Turner, J.; Finlay-Smits, S.; Ryan, A.; Klerkx, L. Trust in agri-food value chains: A systematic review. *Int. Food Agribus. Manag. Assoc.* **2022**, *26*, 175–197. [CrossRef]
95. Benitez-Altuna, F.; Materia, V.C.; Bijman, J.; Trienekens, J.; Gaitán-Cremaschi, D. Farmer–buyer relationships and sustainable agricultural practices in the food supply chain: The case of vegetables in Chile. *Agribusiness* **2023**. [CrossRef]
96. Elkington, J. Towards the Sustainable Corporation: Win-Win-Win Business Strategies for Sustainable Development. *Calif. Manag. Rev.* **1994**, *36*, 90–100. [CrossRef]
97. Zanin, A.; Dal Magro, C.B.; Bugalho, D.K.; Morlin, F.; Afonso, P.; Sztando, A. Driving sustainability in dairy farming from a TBL perspective: Insights from a case study in the West Region of Santa Catarina, Brazil. *Sustainability* **2020**, *12*, 6038. [CrossRef]
98. Bánkuti, F.I.; Prizon, R.C.; Damasceno, J.C.; De Brito, M.M.; Pozza, M.S.S.; Lima, P.G.L. Farmers' actions toward sustainability: A typology of dairy farms according to sustainability indicators. *Animal* **2020**, *14*, s417–s423. [CrossRef]

99. Meul, M.; Passel, S.; Nevens, F.; Dessein, J.; Rogge, E.; Mulier, A.; Hauwermeiren, A. MOTIFS: A monitoring tool for integrated farm sustainability. *Agron. Sustain. Dev.* **2008**, *28*, 321–332. [CrossRef]
100. De-Pablos-Heredero, C.; Montes-Botella, J.; García-Martínez, A. Sustainability in Smart Farms: Its Impact on Performance. *Sustainability* **2018**, *10*, 1713. [CrossRef]
101. Rao, J.; Omondi, I.; Karimov, A.; Baltenweck, I. Dairy farm households, processor linkages and household income: The case of dairy hub linkages in East Africa. *Int. Food Agribus. Manag. Rev.* **2016**, *19*, 95–108. [CrossRef]
102. Yang, F.; Zhang, X. The impact of sustainable supplier management practices on buyer-supplier performance. *Rev. Int. Bus. Strategy* **2017**, *27*, 112–132. [CrossRef]
103. Grover, V.; Malhotra, M.K. Transaction cost framework in operations and supply chain management research: Theory and measurement. *J. Oper. Manag.* **2003**, *21*, 457–473. [CrossRef]
104. De Vita, G.; Tekaya, A.; Wang, C.L. The Many Faces of Asset Specificity: A Critical Review of Key Theoretical Perspectives. *Int. J. Manag. Rev.* **2011**, *13*, 329–348. [CrossRef]
105. Williamson, O.E. Transaction-Cost Economics: The Governance of Contractual Relations. *J. Law Econ.* **1979**, *22*, 233–261. [CrossRef]
106. Tungjitjarurn, W.; Suthiwartnarueput, K.; Pornchaiwiseskul, P. The Impact of supplier development on supplier performance: The role of buyer-supplier commitment, Thailand. *Eur. J. Bus. Manag.* **2012**, *4*, 183–193.
107. Chen, J.; Chen, Y.-J. The Impact of Contract Farming on Agricultural Product Supply in Developing Economies. *Prod. Oper. Manag.* **2021**, *30*, 2395–2419. [CrossRef]
108. Christiansen, N. *Business Initiatives That Overcome Rural Poverty and Marginality through Creating Shared Value in Marginality: Addressing the Nexus of Poverty, Exclusion and Ecology*; Braun, J.v., Gatzweiler, F.W., Eds.; Springer: Berlin/Heidelberg, Germany, 2014; pp. 353–364.
109. Lowitt, K.; Hickey, G.M.; Ganpat, W.; Phillip, L. Linking Communities of Practice with Value Chain Development in Smallholder Farming Systems. *World Dev.* **2015**, *74*, 363–373. [CrossRef]
110. Jaakkola, E. Designing conceptual articles: Four approaches. *AMS Rev.* **2020**, *10*, 18–26. [CrossRef]