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Regenerative Supply Chains in Vietnamese Agriculture: Extending Natural Resource Theory Through Collective Waste Utilization and Social Benefit

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ABSTRACT

Our research explores how firms create sustainable competitive advantage when adopting regenerative practices in the Vietnamese agricultural sector. We define regenerative supply chains (RSCs) and extend natural resource-based theory through the lens of new revenue streams, ecosystem restoration and social innovation. A multiple-case research design inducts theory from business strategy and natural resource theory, utilizing data from three firms engaged in RSC to create theoretical constructs and propositions. We find that firms in Vietnam that engage in regenerative practices adopt collaborative activities involving waste utilization, leading to social benefits in local communities and international trade. The research also reveals that traditional and modern technological practices coexist in RSC, which has implications for resource transferability between firms. We propose a more nuanced approach to RSC development, which emphasizes the importance of adaptability and context-specific strategies for sustainable competitive advantage that connects the supply chain with community and natural ecosystems.

1 | Introduction

Literature on sustainable supply chains has expanded over the past few decades, increasingly recognizing that supply chains are not merely logistical systems but strategic networks that shape and are shaped by environmental and social systems (Lamming and Hampson 1996; Miemczyk et al. 2016). This body of work has evolved to examine how supply chain actors respond to sustainability pressures through innovations in design, sourcing, production and distribution. It explores synergies and trade-offs between economic, operational and ecological outcomes. Research by Klassen and McLaughlin (1996) and Chamanara et al. (2021), for example, has investigated financial returns and environmental management capabilities, uncovering strategic synergies and trade-offs between short-term profitability and long-term environmental sustainability in conventional linear supply chains. Although more innovative

supply chain arrangements such as closed-loop, industrial symbiosis and surplus supply networks have been studied for operational processes and structures that valorize end-of-life materials across supply chains (Mutha et al. 2022; Souza 2013; Lee and Tongarlak 2017; Dhanorkar et al. 2019), these studies offer limited insight into how regenerative supply chains (RSCs) develop and function. RSCs are defined by their active role in restoring ecosystems, generating new value from waste and uplifting local communities through inclusive and sustainable practices (Howard et al. 2019; Bag and Rahman 2024). Therefore, there is a need for deeper understanding of how regenerative organizing applies to supply chains and how regenerative processes in one part of the supply chain interact with and affect processes and relationships in others.

While recent studies on RSC emphasize elements such as firm reciprocity, proportionality and poly-rhythmicity without

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defining RSC (Gualandris et al. 2024), we define the phenomenon from an evidence-based supply chain perspective, exploring revenue stream generation from utilizing by-products to cocreate innovative products that protect and restore the ecosystem. This type of closed-loop material flow enables the uplift of local communities towards long-term prosperity and social well-being. RSC in this context therefore represents a departure from traditional linear supply chain design and reflects the regenerative dynamics of systems thinking (Elkington 2020). We suggest not only how these new emerging types of supply chain contribute to the triple bottom line in terms of economic, environmental and social dimensions but also benefit and sustain the community within which they are established.

Supply chains have historically been designed to optimize economic efficiency, responsiveness and adaptability (Chen and Paulraj 2004; Lee 2004; Queiroz et al. 2024). This traditional approach aligns with the resource-based view (RBV) which emphasizes unique combinations of internal resources and capabilities that contribute to competitive advantage (Wernerfelt 1984; Barney 1991). Yet the practical application of RBV encounters limitations, particularly when addressing ecological and sustainable aspects of supply chain design (Lamming and Hampson 1996). In response, the natural RBV (NRBV) has evolved to provide a more dynamic perspective that considers the interconnectedness of resources and their transferability (Hart 1995; Teece et al. 1997). While NRBV extends beyond isolated strategies of the firm and encompasses stakeholder collaboration for sustainable development through pollution prevention and product stewardship, many important aspects, such as social benefit and regenerative systems, remain unexplained (Hart 1995; Hart and Dowell 2011; Gualandris et al. 2024).

This paper explores the emergence of RSCs, using the lens of NRBV to build on the principles of resource-based theory (RBT). We argue strategic capabilities within RSC, such as pollution prevention, product innovation and social benefit reflect NRBV's emphasis on leveraging resources for competitive advantage and sustainable development (Hart 1995; Seuring and Müller 2008). Our approach is to apply the concept of RSCs as a distinctive phenomenon in Vietnam to study how sustainable competitive advantage is established by integrating regenerative practices through local initiatives that combine waste utilization with social benefit.

Vietnam's agricultural sector is a key driver of economic growth and rural livelihoods, contributing significantly to national GDP and global food supply chains. However, challenges such as environmental degradation and resource inefficiency necessitate a sustainable transformation. This context makes Vietnam an interesting setting for examining the phenomenon of RSCs, as firms adopt innovative waste utilization and socially responsible business models to enhance their sustainability and competitiveness (Dong 2021). Our research explores how firms in the Vietnamese agricultural sector cultivate sustainable competitive advantage through the adoption of regenerative practices. The exploration extends beyond the conventional understanding of supply chains, emphasizing collective activities involving waste reutilization and social benefit. Human prosperity is often overlooked in studies of management research (Hart 1995). Hence, our research explores the social dimension around how firms

transition to circular business models and collaborate with supply partners for long-term benefit. The study employs a multiple-case research design to induct theory from business strategy and natural resources, utilizing data from firms engaged in RSC to create theoretical constructs and propositions (Eisenhardt 1989; Eisenhardt and Graebner 2007). We ask: *How do RSCs emerge and function in Vietnamese agriculture, and what types of business models and practices support their development and socio-economic impact?*

Our paper is organized as follows: The literature reviews RBT and the NRBV and introduces the concept of RSCs. The methods outline research design, data collection and analysis. The findings are articulated through narrative-based cases to provide a contextualized understanding of regenerative practices. The analysis includes within-case and across-case analyses, revealing patterns and dynamics in the context of the study. The discussion section offers insights and propositions derived from our empirical observations. The conclusions present the theoretical contributions, practical implications, limitations and suggestions for further research.

2 | Literature Review

Theories of the firm are increasingly being adapted and extended to include the supply chain perspective, reflecting the needs of society for more sustainable and regenerative business systems (Chen and Paulraj 2004; Carter et al. 2015; Slawinski et al. 2021). Where once competitive advantage was considered core to defining firm boundaries, rising concerns over environmental and societal challenges mean extended strategies are being applied as a lens to explore complex interactions at business, supply chain and global scale (Gualandris and Klassen 2018; Bals and Tate 2018).

First, we review RBT and the NRBV to guide our examination of how firms integrate and coordinate resources across the supply chain (Lewis et al. 2010; Miemczyk et al. 2016). Resource allocation, combination and coordination strategies are explored to achieve synergies and maximize the impact of sustainable practices (Pagell and Shevchenko 2014; Patala et al. 2022). Then, we explore sustainable supply chain management from the perspective of regenerative systems and circular economy, including a definition of RSCs to explain how RSC are distinctive from other forms of circular activity.

2.1 | RBT and the NRBV

RBT focuses on unique bundles of resources and capabilities that contribute to a firm's competitive advantage (Wernerfelt 1984; Barney 1991). RBT specifies that it is difficult to copy tacit and socially complex resources, specific to the firm and not widely shared or distributed (Teece et al. 1997). Considerable interest has been focused on understanding the empirical implications of RBT and especially on how a firm's resources and capabilities can affect its performance (Barney 1991). A common focus for RBT is the knowledge-based view around how individuals cooperate in the organization within a firm compared to transactional opportunistic approaches

such as market contracting and involvement of suppliers (Conner and Prahalad 1996; Foss 1996). The argument is made in terms of choice of organizational mode, identifying firm organization over markets as resulting in more valuable knowledge being applied to business activity. In RBT, whether the effect being studied involves individual managerial knowledge or the response to emerging new technology, the unit of analysis is typically bounded by the skills and capabilities inherent to the firm (Teece et al. 1997).

In contrast, the NRBV focuses on natural resources. It proposes a more dynamic, interconnected view of resources where their transferability is not seen as problematic but an imperative (Hart 1995). NRBV goes beyond internal strategies deployed by firms, such as waste management and process optimization towards pollution prevention, product stewardship and ultimately sustainable development that shifts from 'exclusively internal to an external activity' through collaboration with other stakeholders (Hart 1995, 1000–1002). The implications are clear: Firms seeking to adapt to new ways of working towards sustainable development must include stakeholders in their strategy as part of a shared vision that extends beyond the firm and provides collaboration among public and private organizations. These boundary-spanning capabilities are crucial for successfully adopting clean technologies and regenerative practices to achieve superior sustainable performance.

In a second paper published 15 years later, Hart emphasizes the challenges facing firms seeking to adopt more inclusive sustainable development strategies, as how to 'create a form of commerce that uplifts the entire human community in a way that respects both natural systems and cultural diversity' (Hart and Dowell 2011, 1473). While the financial gains to individual businesses through pollution prevention and waste reduction have started to be realized with significant strides in product stewardship and clean technology strategies involving complex interactions with outlying stakeholders, involving slow payback schemes around social welfare have been more challenging to actualize (Hart and Dowell 2011). As the transition to sustainable working practices has increasingly become an imperative, firms who have grasped the low-hanging fruit of waste and cost reduction still struggle with the implications of a long-term strategy that benefits the environment, community and society together as part of a collective, cross-scale multistakeholder effort (Bansal 2005; Williams et al. 2021).

The role of technology in RBV is to adopt resources from the viewpoint of markets and organizational change, where firms must adapt quickly to changing market conditions and emerging new technologies (Teece et al. 1997; Helfat and Peteraf 2009). Therefore, the NRBV approach to technology adoption contrasts markedly with that of the traditional, strategic, firm-oriented view. For example, the uptake of technologies such as clean energy, naturally sourced material reuse and water purification systems is all used by firms and their partners to create more resilient supply chains that help minimize pollution and generate financial returns to the business and a local community using closed-loop thinking (Miemczyk et al. 2016). While at an earlier stage of development than RBT, NRBV advocates for capabilities that establish a shared vision of sustainable development, which goes beyond the notion of the individual firm. Instead of firms

striving for competitive advantage in isolation, NRBV views sustainable development as extending beyond firm-specific resources to becoming a collaborative stakeholder-oriented effort (Hart 1995; Hart and Dowell 2011). This approach requires a fundamental shift in business model logic from linear growth based on a throughput model of production and consumption towards a circular and restorative system capable of doing more with less (EMF 2013, 2015).

2.2 | RSCs

The term regenerative is derived from the Latin 'regenerare' meaning 'create again', characterizing regenerative thinking as the capability to exist and be created again through the transformational cocreation processes (Buckton et al. 2023). To be considered regenerative, a system should maximize the ability of Earth's biosphere to build, repair, maintain and reproduce itself, as well as adapt and evolve, such that it retains its integrity over time and this ability might be called the 'liveness' of life (Buckton et al. 2023; Gualandris et al. 2024). A regenerative system maintains positive reinforcing cycles of well-being within and beyond itself, especially between humans and the wider nature (Reed 2007; Bag and Rahman 2024). To maintain such a system, a place-based (i.e., immediate community) approach is required, advocating a shift from a fragmented to the whole system through understanding the living systems' interrelationships in an integrated way (Reed 2007; Konietzko et al. 2023). Regenerative development is a place-based development and design methodology that grows the capabilities of the living systems necessary to increase in complexity, diversity and capacity to support it for the lifetime and the potential to change to provide future options (Benyus 2009; Gibbons 2020).

Applying the concept of regenerative systems and regenerative development on the supply chains leads to RSC, an evolution of supply chains beyond the traditional sense, where the focus is on linearity, cost-efficiency and timely supply of products. RSCs inherit the regenerative dynamics (i.e., life creates conditions conducive to life) of regenerative systems and are active in all three dimensions of the triple bottom line (Elkington 2020; Muñoz and Branzei 2021) in the immediate community. On the economic side, RSC works for value cocreation through collaborative efforts to establish and sustain new business ventures in the local community (Hahn and Tampe 2021; Konietzko et al. 2023). New revenue streams are generated through the use of by-products that otherwise would be waste. In the environmental domain, RSC proactively restores and replenishes natural systems by deliberately repairing and rebuilding the depleted natural resources and rehabilitating the ecosystem by producing ecologically friendly and fully degradable products. In the social dimension, it creates job opportunities in the local communities that play an essential role in the financial health and poverty alleviation and social health and general well-being of human life that respects the surrounding ecosystem (Howard et al. 2022; Tseng et al. 2025). The distinguishing features of RSC are the generation of new revenue streams by fully utilizing all by-products, public-private collaboration, rebuilding and restoration of ecosystems through closed-loop material flows, an uplift of human communities that respect natural systems and

overall prosperity and well-being for all communities in the long term. As an emerging concept in contemporary sustainable business literature and for the purposes of grounding our research, we therefore define RSC:

Regenerative supply chains generate revenue streams from fully utilising byproducts to co-create innovative products that protect & restore ecosystems with closed-loop material flows and uplift long-term prosperity of communities through sustainable business practices and social well-being.

2.3 | RSCs and Natural RBT

The emergence of the RSC represents an evolution beyond traditional sustainable and circular supply chain paradigms. While all three concepts share the common goal of reducing environmental impacts and enhancing social well-being, they differ in their fundamental approaches and overarching objectives. The sustainable supply chain focuses on minimizing negative environmental and social impacts associated with business operations, often through practices like resource efficiency, waste reduction and ethical sourcing (Carter and Rogers 2008). While this approach contributes to mitigating harm, it may not necessarily encompass active restoration and regeneration of ecosystems. In contrast, the RSC takes a proactive stance by prioritizing the restoration and enhancement of natural systems through deliberate efforts to rebuild depleted resources and rehabilitate ecosystems. It strives not only to leave a smaller ecological footprint but also to actively replenish and restore ecological balance, embodying a more holistic and ecologically ambitious approach.

Circular or closed-loop supply chains, on the other hand, centre on reducing, reusing and recycling materials to minimize waste and closing material loops (Helfat and Peteraf 2009; EMF 2013, 2015). While the circular economy is valuable in promoting resource efficiency and reducing waste, it primarily addresses the technical aspects of maintaining the material cycle rather than comprehensively restoring the ecosystem. We argue RSCs transcend the closed-loop business model by embracing a broader ecological perspective, encompassing both material cycles and the revitalization of natural systems. In essence, the RSC goes beyond the incremental solutions of sustainability and circularity, embodying a more profound commitment to ecological restoration and the long-term well-being of business, community and the environment.

The RSC represents an emerging evolution in sustainable supply chain thinking, defined by its ambition not only to minimize harm but to actively restore ecosystems and enhance human well-being. RSCs draw upon and extend the principles of the circular economy by transforming waste into new value, restoring natural systems and uplifting local communities through inclusive and place-based practices (Buckton et al. 2023; Gibbons 2020; Howard et al. 2019). Unlike conventional sustainable or circular models that focus primarily on reducing environmental impact or maintaining resource loops (EMF 2013; Guide and Van Wassenhove 2009), RSCs emphasize ecological regeneration, social innovation and systemic value creation.

This positions them as a distinct and ambitious paradigm within the broader literature on sustainable and circular supply chains.

Current literature has begun to conceptualize the features and promise of RSCs, such as reciprocal stakeholder relationships, closed-loop flows that benefit ecosystems and business models rooted in community well-being (Gualandris et al. 2024; Hahn and Tampe 2021; Muñoz and Branzei 2021). However, what remains underexplored is how RSCs develop and function in practice—particularly how regenerative practices are embedded across firms, how interorganizational collaboration shapes supply chain transitions and how socio-economic outcomes emerge in specific industrial and regional contexts. Furthermore, while the NRBV (Hart 1995) offers a useful lens for understanding sustainability-driven capabilities, few studies have yet used it to interpret the regenerative advantage that arises from interfirm collaboration, waste valorization and community engagement. Despite these emerging insights, the existing literature remains limited in its empirical understanding of how RSCs develop and function across diverse organizational and socioecological settings (Hart 1995; Seuring and Müller 2008). There is a lack of detailed analysis on how regenerative practices are operationalized across supply chain actors, how collaborative resource utilization influences ecological and social outcomes and how business models evolve to support community prosperity in regenerative contexts. Moreover, while the NRBV provides a useful theoretical foundation for linking sustainability and strategic capability, it has rarely been applied to examine RSCs that emphasize collective resource generation, stakeholder cocreation and local ecosystem restoration (Barney 1991). These gaps underscore the need for further empirical investigation that captures the dynamic, place-based and interorganizational dimensions of RSCs—particularly in developing country contexts where such transitions hold significant ecological and societal potential.

The environmental component of the RSC mirrors NRBV's dynamic capability perspective. Minimizing emissions, life-cycle costs and the environmental burden of firm growth resonates with NRBV's focus on adaptability and innovation to capitalize on emerging opportunities (Teece et al. 1997). RSC emphasis on stakeholder integration and a shared vision for change reflects NRBV's leveraging of both tangible and intangible resources for competitive advantage (Miemczyk et al. 2016). By fostering collaboration, aligning goals and cultivating organizational sustainability (Hoffman 2019), firms can harness these resources to achieve enduring competitive ascendancy. The competitive advantage dimension of RSC, including lower costs, pre-emption of competitors and securing future positions, aligns with NRBV's principles of resource allocation, dynamic capabilities and long-term perspective (Barney 1991; Helfat and Peteraf 2009). Our RSC framework, therefore, is supported by the core constructs of new revenue streams, ecosystem restoration, social innovation and stakeholder collaboration.

3 | Method

This research explores RSCs in Vietnamese agricultural practice using multiple-case studies (Yin 1994; Eisenhardt 1989). RSC is an emerging phenomenon that has begun to be

distinguished from circular and sustainable business practices (Giller et al. 2021; Schreefel et al. 2020; Howard et al. 2019). Our research strategy, therefore, is to induct theory involving business strategy and natural resources using data from multiple firms involved in RSC to create theoretical constructs (Eisenhardt 1989; Eisenhardt and Graebner 2007). Our starting point towards building theory begins with posing questions about how Vietnamese agricultural practice reflects the idea of regeneration across the supply chain and what type of business models promote not just environmental but social welfare and economic concerns.

Three firms were selected by the investigators from the rice, coconut and sugarcane processing sectors because they were known to be engaged in sustainable activities with SC partners involving production waste reduction, business diversification and community initiatives. However, how they interacted with or contributed to RSC was not known. Drawing upon NRBV theory, the aim was to establish how studying these firms made sense of RSCs in terms of benefit to the environment, business and society and what firm behaviours, such as collaboration or technology adoption, enabled the shift from linear to RSC practice. Our approach was to explore and understand the RSC phenomenon through a process perspective of 'sensemaking' which acknowledges the world's complexity and existence of dualities rather than reducing it to variance-based generalizations (Weick 1995; Langley and Tsoukas 2010). Sensemaking refers to those processes by which people seek plausibly to understand ambiguous, equivocal or confusing issues or events (Brown et al. 2015, 266) and understands firms to be in a constant state of flux or change (Hernes 2007). We started the investigation by exploring the events that led to change in Vietnamese agriculture from the 1980s and the underlying mechanisms that may be driving RSC based on the literature. Through 'sensitizing' from a variety of primary and secondary sources, the investigators were able to begin the abductive process of connecting data with theory (Langley and Tsoukas 2010, 19).

Data from a total of 35 semistructured interviews and three onsite focus groups was collected and recorded from managers and senior managers across the cases (Appendix A). To

ensure a rigorous participant selection process, we focused on managers and senior managers directly involved in supply chain operations, sustainability initiatives and strategic decision-making within their respective firms. Participants were selected using purposive sampling, ensuring they possessed relevant expertise and first-hand experience with RSC practices. Additionally, we incorporated snowball sampling to identify key informants with deep knowledge of industry challenges and sustainability transitions. This approach allowed us to gather rich, context-specific insights while ensuring diversity across firms and roles, strengthening the reliability and depth of our findings. A questionnaire protocol was prepared and checked for principles of informed consent and stance towards the participant, such as assumptions over Western forms of knowledge (Denzin and Lincoln 2011). The data was examined using a process of pattern-matching in two parts: First, the interview transcripts from the firms were coded and compared within each case (Gioia et al. 2013; Mees-Buss et al. 2022). Then, an across-case tabular approach was used to compare agricultural practices and inform our framework of constructs (Miles and Huberman 1994). The findings were presented as three anonymized cases (i.e., RiceCo, SugarCo and CoconutCo) including a brief history of the firm and how it had developed to the present day in terms of assimilating regenerative, circular and sustainable practices. The analysis concludes with sensemaking of practice and theory through propositions that formalize our contribution to RSC (Figure 1), indicate the boundaries of our investigation and signpost further areas of research (Eisenhardt and Graebner 2007).

To further ensure the reliability of our findings, we employed data triangulation by integrating multiple data sources, including semistructured interviews, focus groups and archival records such as company reports and industry publications. This approach allowed us to validate key themes across different sources and reduce potential biases inherent in self-reported data. Additionally, we conducted member checking by sharing preliminary interpretations with selected participants to confirm the accuracy of our representations and interpretations (Guba and Lincoln 1994; Gioia et al. 2013). These

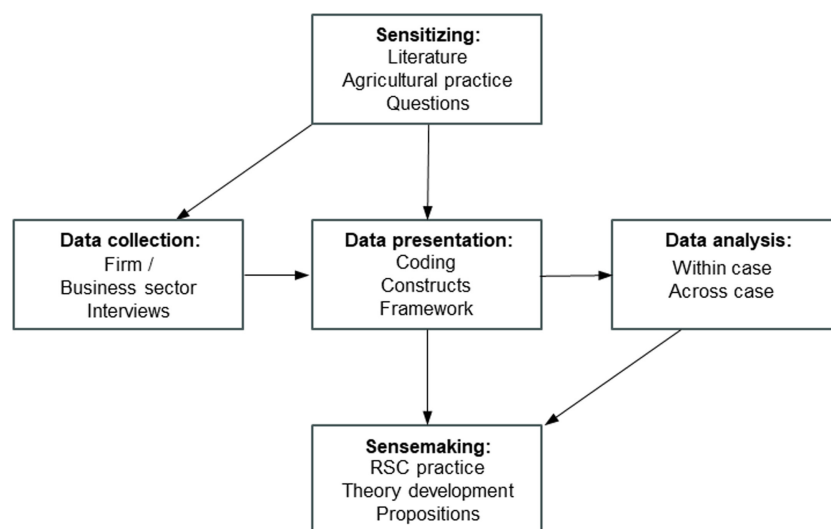


FIGURE 1 | Research strategy to explore RSC.

methodological rigour measures strengthen the credibility of our findings and reinforce the robustness of our theoretical contributions.

4 | Findings

The following cases represent RSCs that emerged in Vietnamese agriculture from the 1980s and 1990s and are developing into their present state. The descriptions show strategies that shift from cost-based efficiency towards sustainable business practice supported by a mix of clean technology, supplier collaboration and social factors such as labour reform and community engagement.

4.1 | Case A: RiceCo

RiceCo demonstrates a rich legacy as one of Vietnam's largest manufacturers, wholesalers and exporters of rice. Established in 1980, the company has had a significant impact on developing the agricultural business landscape through its ability to transform, adapt and innovate.

The company embarked on a quest for competitive advantage that was deeply rooted in the land, local culture and unique capabilities of the firm. Its approach revolved around the intricacies of Vietnamese rice farming: a craft-based approach that has evolved over centuries of practice. RiceCo's most distinctive capabilities are drawn from a profound understanding of the local rice industry. This includes traditional knowledge around weather patterns and crop management techniques passed down by generations of farmers. Success for the company is not just about rice production but the understanding of its origins

in the upkeep of paddy fields and the welfare of the people who tend them. Knowledge of the past is considered valuable, rare and core to the company's competitive position. RiceCo possesses a deep understanding of local agriculture that is difficult for outsider firms to replicate and is tightly bound to specific operations and dealings with local industry. In conjunction, it demonstrates the innovative use of agricultural by-products, which goes far beyond waste management (Figure 2). The rice straw and husk, which would otherwise be discarded, are transformed into valuable resources such as animal feed, construction materials and fertilizers. This approach contributes both to the company's economic bottom line and business philosophy: 'Our understanding of traditional rice farming practices, passed down through generations, forms the bedrock of our success. It's not just farming; it's a way of life that informs our decisions' (Operations Manager).

The combination of innovative use of resources and deployment of unique capabilities by RiceCo gives it an inherent advantage in the market, which primarily stems from the ability to transform waste into valuable products, a rarity in the industry. A key success factor is its inimitability, where farming knowledge and production process techniques are closely guarded secrets, deeply embedded in the company's culture of business collaboration: 'By providing opportunities for our rural community, the company has become a lifeline for many small businesses. They've not only brought economic benefits but also a sense of pride to our region' (Agricultural Consultant).

In the early years (i.e., 1980–1990), RiceCo pursued a model of linear growth, mirroring the industry's standard practices. It adhered to the notion of throughput, focusing on increasing rice production, which expanded its footprint. Recognizing the

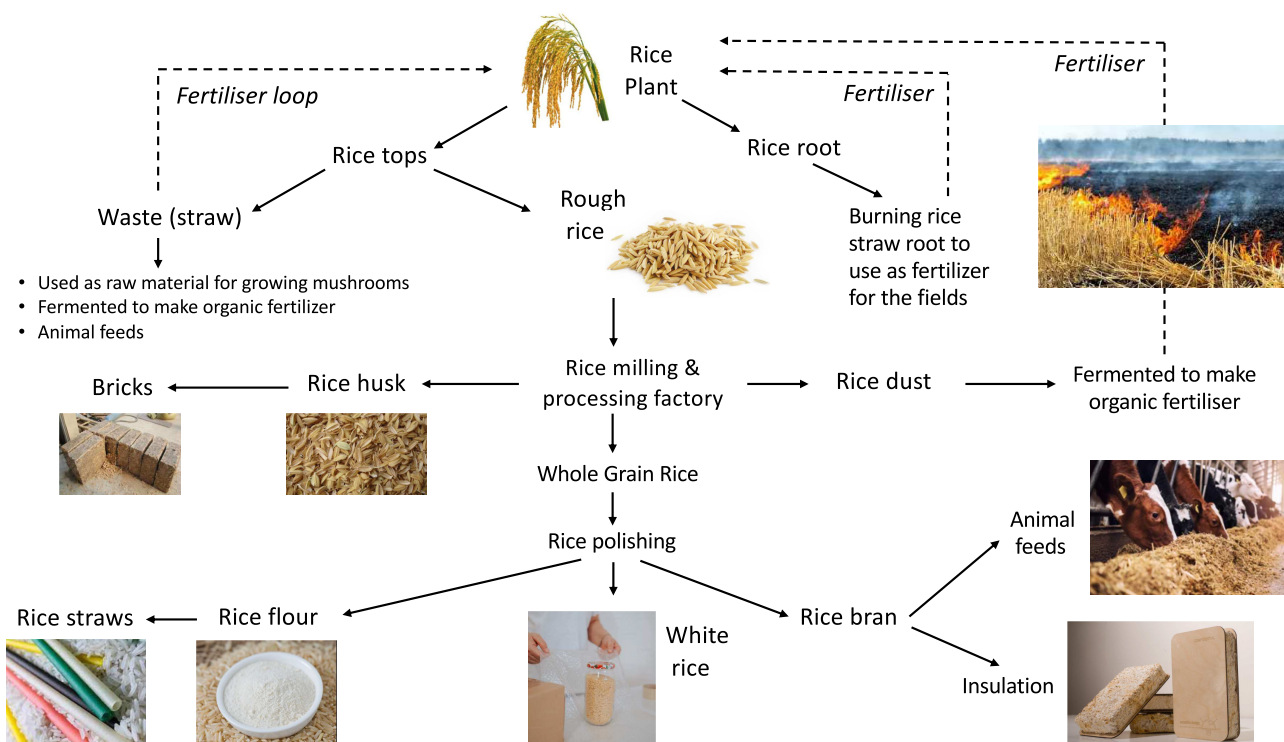


FIGURE 2 | Case A: RiceCo.

potential in global markets, the company began forming strategic alliances and networks with global partners and suppliers. This was not just a business transaction but a deliberate move where it connected with partners that offered the best fit. These relationships were about optimizing the distribution network, tapping into global markets and accessing a broad customer base. Global markets held the promise of growth, yet they also brought increased competition and requirements for a sustainable product. RiceCo embraced these opportunities and adjusted to market conditions and new technologies, making rice exports flourish globally, where both demand and competition are high.

From 2000 onward, the company consolidated its position as a market leader in relation to ideas around sustainability, innovation and broadening horizons. It demonstrated the power of transformation and adaptation within the agricultural sector of a developing nation, where the company's strategic compass was recalibrated towards emerging themes such as business sustainability. RiceCo's business mission and vision today have transcended economic pursuits, and it is moving towards embracing a more holistic commitment to the environment by forging closer relationships with the natural world and rural areas of Vietnam. For example, the company has gone beyond adherence to environmental regulations and now actively seeks profitable opportunities with new partners by redesigning parts of the production processes through preventing waste and pollution. The ripple effect of this strategy now extends beyond agriculture's traditional boundaries. What were once waste materials from rice manufacturing, that is, husk, bran and straw, have undergone a metamorphosis and are used as environmentally friendly building materials and house insulation. The waste that was once a hindrance to the business is now perceived as an opportunity for sustainable development and product innovation.

Business transformation has gone beyond conventional business acumen and represents a commitment to social responsibility in economically challenged rural areas in the country. By collaborating with other industries and providing employment opportunities, RiceCo not only contributes to poverty alleviation but also enhances the economic well-being of the workforce in local communities. By investing in cleaner technologies for recycling materials, the company enables farmers to transition from manual labour to more advanced and innovative methods. Through its pursuit of a competitive strategy, RiceCo has embraced a more circular and restorative business model that supports the local community. Waste materials that were once used for less environmentally friendly purposes, like fuel or fertilizers, are now processed with cleaner technologies, significantly reducing waste. A 'waste-to-wealth' philosophy has materialized, with husk, straw, bran and flour finding new life as inputs for other industries, leading to more sustainable products. RiceCo's partnerships extend to local firms and communities, where the roots of these connections run deep. The company continues to nurture relationships with local suppliers while adhering to leading global supermarket chains' stringent quality and sustainability requirements. It has also become a catalyst for new enterprises, fuelling new business startups inspired by rice's versatile characteristics at a national and international level. Clean technologies represent innovations which facilitate environmentally friendly production and product stewardship and serve as the driving force behind labour transformation in the agricultural

sector. By applying these concepts, RiceCo has reconnected nature, business and local communities, thus helping to reshape the nation's agricultural landscape.

4.2 | Case B: SugarCo

SugarCo has been a prominent player in the sugar cane milling and export business in Vietnam since the 1970s. In its early phase, the company embarked on a quest for sustained competitive advantage by drawing on traditional skills and capabilities in sugar cane cultivation, leveraging techniques that were rooted in traditional Vietnamese agricultural practice. Core knowledge included understanding the intricacies of the local sugar cane industry, cultivating relationships with domestic suppliers and establishing connections with foreign importers. Specific techniques such as harvesting by hand and burning the crop stubble had been passed down from generation to generation, ensuring that the craft of sugarcane cultivation is not only a matter of business but one of heritage.

SugarCo's advantage lies in a blend of resources and capabilities: 'the company's unique strength comes from seamlessly blending diverse resources and capabilities. Beyond conventional sugar cane expertise, the company understands local conditions, such as specific rainfall patterns and temperature ranges' (Plant Manager). This knowledge includes a deep understanding of local climate, crop yields and land management practices. Traditionally operating a linear growth model, the company was founded on the basis to maximize profit and growth. Labour-intensive manufacturing techniques were the norm, with an emphasis on cost-efficiency and minimal technology investment. The company found it had to adapt to market fluctuations in price and demand for sugar, eventually positioning itself as a key player in the domestic sugar cane industry. SugarCo was firmly entrenched at the 'base of the pyramid' relying on a labour-intensive approach by employing temporary, low-paid workers and other cost-reducing measures such as burning harvested sugarcane fields which removes unwanted stubble and returns nutrients to the soil. The agricultural sector in 1990s Vietnam was a source of employment for 60% of the total workforce, yet rural workers retained virtual poverty with an average annual wage of less than \$500 a year (World Bank 2021). Despite the company's reverence and respect for tradition, low-cost labour was the cornerstone of its operations.

After three decades of development, the business landscape has shifted, with worker income increasing threefold in the sector. The transformation in thinking and practice has proved instrumental in expanding its reach beyond the confines of conventional agriculture. Today SugarCo's strategies have matured, with the firm's vision extending beyond an emphasis solely on short-term economics to encompass a more holistic and sustainable perspective. The company has evolved from passive adherence to environmental regulations to active participation in pollution prevention, social inclusion and welfare. Most notably, the firm's impact has transcended agriculture's traditional domain and embraced other local industries, all through repurposed waste, specifically 'bagasse', the fibrous material that remains after crushing sugarcane stalks that can be used as bio-fuel or in the production of building materials. One of SugarCo's

strengths is the capability to share its vision of sustainable business practice among managers and entrepreneurs from various sectors, including food and beverages, retail and construction. The focus now is on developing new innovative and environmentally friendly products from bagasse (Figure 3). The firm's business model has evolved into a circular system where bagasse is now the source of its sustainable innovation. Clean technologies have replaced conventional waste handling, resulting in reduced waste and the creation of innovative products for other industries, such as food containers and construction materials, for example, bricks and insulation. A founder from one of the business partners of Case B shared her experiences of innovative and environmentally friendly products assisted by SugarCo: 'Working alongside [the company] has been a transformative experience for our start-up in the food container industry. Their commitment to sustainable business practices is more than a shared vision; it's a tangible partnership. For instance, their high-quality bagasse, a by-product we utilize in crafting eco-friendly food containers, has become a cornerstone of our success. The versatility of bagasse has not only inspired our business model but has sparked a new wave of start-ups within our community. Through their support, [the company] has truly become a catalyst for innovation, fostering a network of entrepreneurs dedicated to sustainable solutions'.

Local firms and communities are included in SugarCo's operations where the company maintains relationships with domestic suppliers, while adhering to the product quality and sustainability standards required of global markets. SugarCo has become a catalyst for new ventures, nurturing new business start-up operations inspired by the versatility of bagasse. These innovative concepts have transcended regional borders, establishing themselves in national and international markets. These innovations not only facilitate environment-aware production and product stewardship but, through a strategy of diversification, have transformed pay and conditions across the agricultural sector. SugarCo's story is one of a sustainable metamorphosis through

collaboration which illustrates the potential of synergizing people, business and technology.

4.3 | Case C: CoconutCo

The final case is a prominent coconut manufacturer in Vietnam with a diverse range of products encompassing coconut milk, coconut oil, coconut water and handicrafts. The company's journey commenced in the 1980s and has since created a distinctive niche in the coconut industry.

In its early phase, CoconutCo embarked on a quest for competitive advantage based on traditional farming techniques underpinned by efficient coconut manufacturing and processing. Central to this strategy was the cultivation of skills and capabilities entwined with the country's rich tradition of coconut palm growing. The value of the company lies in the tacit knowledge of nature, social complexity and the reverence for coconut cultivation and management of the land and water irrigation systems. The company's strategic foundation includes a deep understanding of the local coconut industry, fostering relationships with domestic suppliers and establishing connections with foreign importers. Moreover, it excels in recycling waste materials such as coconut *fibre* (the outer rough husk) and *copra* (inner white dried flesh) for a range of diverse purposes, including fertilizers, fuel, cosmetics and soap. The hard coconut shells are also used in the handicraft industry to make decorative bowls for the domestic and tourist markets.

The company's success is grounded in knowledge and techniques derived from centuries of coconut farming practices that have been passed down through the generations. It has developed both local and international relationships, technical expertise and a profound understanding of climatic conditions, crop yield and land management. However, operating on a model of steady growth, CoconutCo's production until recently

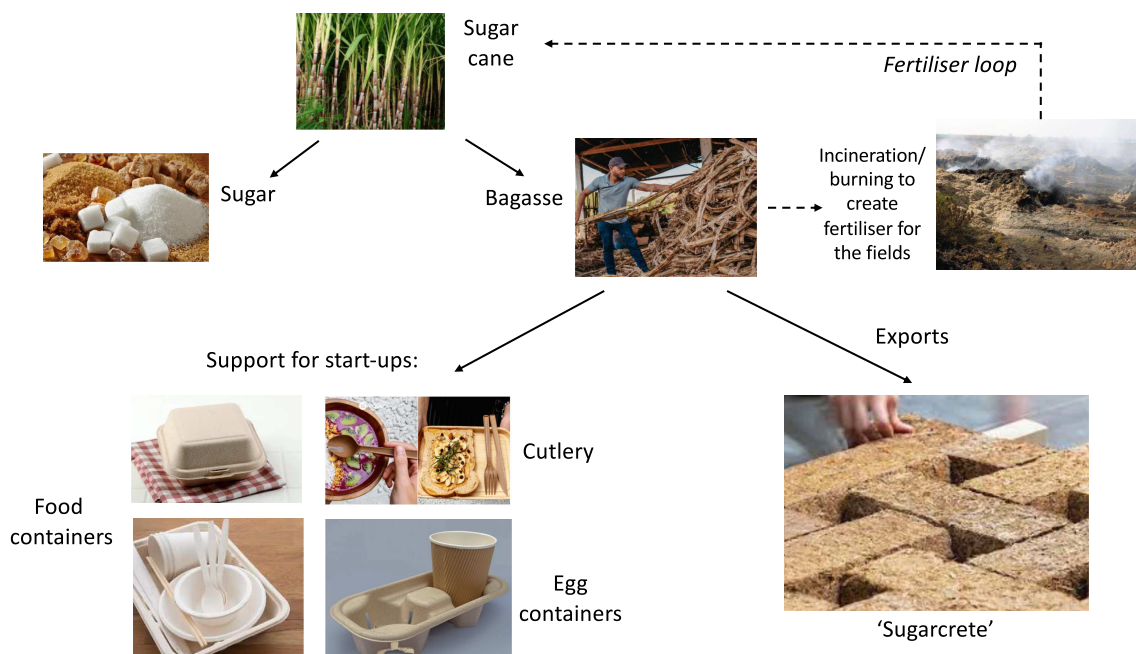


FIGURE 3 | Case B: SugarCo.

relied on traditional labour-intensive cultivation and harvesting techniques. The emphasis was on cost reduction and minimal technology investment. The company today has had to adapt to the dynamics of global market conditions, positioning itself as a leader in the domestic coconut industry: 'Local coconut producers and fresh international entrants became formidable adversaries, creating a palpable impact on our market share. The tried-and-tested approach of emphasizing cost efficiency and minimal technology investment was losing its efficacy. This shift was a wakeup call: a realization that to stay ahead, we needed to respond to the competition' (Product Development Manager).

In the past, CoconutCo operated a labour-orientated efficiency model to gain economic advantage. The agricultural sector in Vietnam provided a ready source of employment, particularly for those at the lower socio-economic strata. Hence, the 1980s coconut farming was a period marked by economic gains based primarily on short-term business practices. Three decades of development have transformed the coconut business, creating new pathways for the company to reach beyond traditional agriculture and embrace new concepts based on circularity and sustainability. Today, CoconutCo has evolved its strategy, no longer one of passive regulatory adherence but actively embracing a holistic approach towards pollution prevention, product stewardship and sustainable development. The company has not only focused on environmental sustainability within its agricultural practices but has extended its impact to other industries through the repurposing of fibre and copra materials. What was once considered waste in coconut manufacturing is now a highly valued by-product.

CoconutCo has a demonstrated ability in establishing shared vision among managers and entrepreneurs across other industries: '[the company] has reshaped the product lineup, particularly in

the construction sector. Their innovation in crafting eco-friendly building materials from natural coconut resources aligns perfectly with market trends and our commitment to sustainable construction practices' (Distributor, construction sector). The emphasis today is on innovation and crafting zero impact, environmentally sustainable products from natural coconut materials (see Figure 4). The company also plays a pivotal role in poverty alleviation in the region. It recognizes that the workforce is the bedrock of agricultural practices, where improved pay maintains the promise of higher incomes for local families in this and other sectors. Since the 1980s, the company's business model has become a restorative system that no longer deals with traditional waste management. Instead, it has embraced clean technologies, resulting in the effective use of coconut by-products and the creation of innovative products for other industries, particularly handicrafts and textiles. These include 'soft silk' coconut fabrics and coconut husk-polyester mix textiles for clothing and furniture production. Local firms and communities have been involved in the company's operations, who has maintained its relationships with domestic suppliers and the rising popularity of Vietnam as a tourist destination, as well as global market sales. CoconutCo is now a catalyst for new ventures, nurturing business startups inspired by the versatility of coconut by-product materials. The company has realized the benefits of clean technology innovation from facilitating environmentally aware production and product stewardship and by transforming labour conditions and reinvesting in the agricultural sector.

5 | Analysis

Here, we present the results of the within-case and across-case analyses of the three firms using the conceptual framework of new revenue streams, ecosystem restoration, social innovation and stakeholder collaboration (Table 1) based on regenerative system thinking.

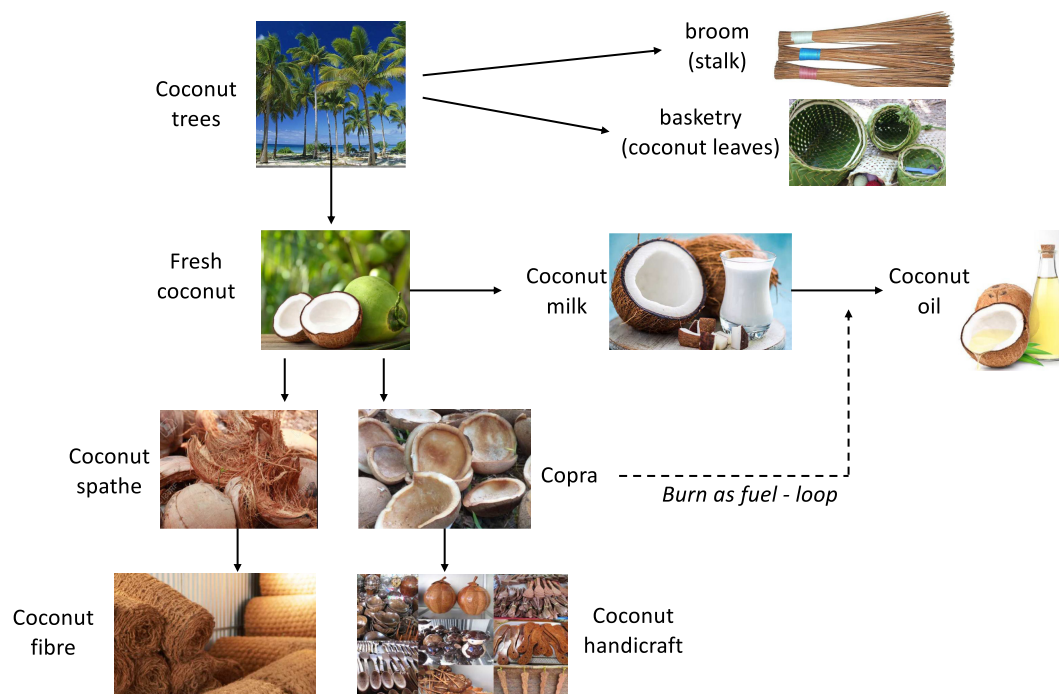


FIGURE 4 | Case C: CoconutCo.

TABLE 1 | Case comparison.

	RiceCo	SugarCo	CoconutCo	Cross-case analysis
New revenue streams	<ul style="list-style-type: none"> • Repurposing by-products (rice straw and husk) into new materials. • Creation of new revenue streams beyond traditional rice sales. • Tapping into eco-friendly markets and contributing to sustainability. 	<ul style="list-style-type: none"> • Development of innovative and environmentally friendly products from bagasse. • Expansion into national and international markets, nurturing new business startups. 	<ul style="list-style-type: none"> • Development of innovative and environmentally sustainable products from natural coconut materials. • Expansion into the construction sector with eco-friendly building materials. • Introduction of novel products like 'soft silk' coconut fabrics and textiles. • Diversification of income sources in handicrafts and textiles industries. 	<ul style="list-style-type: none"> • Strategic innovation • Holistic commitment to sustainability • Diverse strategies for growth • Beyond tradition into global markets • Catalysts for innovation beyond their industry
Ecosystem restoration	<ul style="list-style-type: none"> • Innovative use of agricultural by-products contributes to ecosystem restoration. • Transformation of waste materials into valuable resources. 	<ul style="list-style-type: none"> • Replacement of conventional waste handling with clean technologies. • Utilization of bagasse, a by-product, for sustainable innovation. 	<ul style="list-style-type: none"> • Effective use of coconut by-products, transforming waste into valued by-products. • Adoption of clean technologies reduces waste. 	<ul style="list-style-type: none"> • Strategic emphasis on ecosystem restoration • Commitment beyond compliance • Transition to clean technologies • Industry-wide collaboration for ecosystem health • Stewardship and industry-wide responsibility
Social innovation	<ul style="list-style-type: none"> • Collaboration with local communities and suppliers fosters social innovation. • Investment in cleaner technologies to transform labour conditions and roles in the agricultural sector. 	<ul style="list-style-type: none"> • Transition from short-term economic focus to a more holistic and sustainable perspective. • Transformation of labour pay and conditions in the agricultural sector. 	<ul style="list-style-type: none"> • Business model transformation into a restorative system. • Poverty alleviation through improved pay for the workforce. • Nurturing of business startups inspired by the versatility of coconut materials. 	<ul style="list-style-type: none"> • Holistic approach to social innovation • Beyond corporate boundaries • Collaborative transformation • Commitment to societal betterment • Industry's collective effort
Stakeholder collaboration	<ul style="list-style-type: none"> • Collaboration with local suppliers and communities reinforces relationships and quality standards. • Catalyst for new enterprises, fostering collaboration and innovation in the agricultural sector. 	<ul style="list-style-type: none"> • Inclusion of local firms and communities in operations. • Catalyst for new ventures, fostering a network of entrepreneurs dedicated to sustainable solutions. • Collaboration with various sectors, including food and beverages, retail and construction. 	<ul style="list-style-type: none"> • Collaboration with Coconut Co's distributor in the construction sector. • Maintenance of relationships with domestic suppliers. • Involvement of local firms and communities in the company's operations. 	<ul style="list-style-type: none"> • Strategic recognition of stakeholder importance • Grassroots engagement for mutual benefit • Catalysts for entrepreneurship • Industry-specific collaboration • Holistic approach to collaboration

5.1 | New Revenue Streams

RiceCo's approach to new revenue streams involves repurposing by-products, such as rice straw and husk, into valuable materials. This not only minimizes waste but also opens the opportunity for creating environmentally friendly products. The company has moved beyond traditional rice sales, demonstrating a commitment to sustainability by tapping into markets focused on environmentally conscious products. As the Operations Manager at RiceCo stated, 'What was once considered agricultural waste is now an essential part of our product line. By transforming rice husk into biodegradable packaging, we are reducing waste and creating new business opportunities'. SugarCo has actively developed new revenue streams by focusing on bagasse and turning it into innovative and environmentally friendly products. The company's expansion into national and international markets has not only broadened its reach but has also played a catalytic role in nurturing new business startups. This strategy aligns with the company's commitment to sustainability and innovation. CoconutCo's exploration of new revenue streams involves the development of innovative and environmentally sustainable products derived from natural coconut materials. The expansion into the construction sector with eco-friendly building materials showcases a strategic diversification of income sources. Additionally, the introduction of novel products in coconut fabrics and textiles further demonstrates the company's innovative approach to generating revenue.

Examining across the three cases, a common thread emerges: Each company has embraced the concept of new revenue streams by leveraging waste materials or by-products. All companies share a commitment to sustainability, demonstrating that generating income and growth can coexist with environmentally responsible practices. Despite differences in raw materials, all three companies have ventured beyond traditional sales, entering markets that prioritize environmentally friendly products. Moreover, the expansion into national and international markets is a shared theme, indicating that these companies are not merely local players but influential contributors to the global movement towards sustainable practices. The cultivation of new business startups, seen in all case companies, underscores their roles as catalysts for innovation within their respective industries.

SugarCo's innovative use of bagasse has not only created additional income for us in the food container industry but has sparked a wave of startups in our community. It's more than a new way to make money; it's a shared vision for sustainable solutions.

(CEO, SugarCo)

In each case, the emphasis on creating new revenue streams is evident through the innovative approach to waste reutilization. Across the cases, there is a commonality in a shared commitment to sustainability, expansion into broader markets and the fostering of innovation in related industries.

5.2 | Ecosystem Restoration

RiceCo contributes to ecosystem restoration through the innovative use of agricultural by-products which were once discarded such as rice straw and husk. By transforming waste materials into valuable resources like animal feed, construction materials and fertilizers, the company actively engages in sustainable practices that align with the restoration of the local ecosystem. As the Agriculture Expert at RiceCo noted, 'What used to be a waste problem is now a solution for soil regeneration—our organic fertilizers made from rice husk improve soil quality while reducing chemical inputs, ensuring long-term agricultural sustainability'. SugarCo adopts a proactive stance on ecosystem restoration by replacing conventional waste handling with clean technologies. The utilization of bagasse, a by-product from sugarcane processing, to create food containers and construction material for sustainable innovation not only minimizes environmental impact but also showcases the company's commitment to restoring and preserving the ecosystem. CoconutCo's effective use of coconut by-products, including coconut fibre and copra, demonstrates a commitment to transforming waste into valued by-products. Adopting clean technologies in coconut processing further contributes to reducing waste and aligns with the company's dedication to ecosystem restoration.

Examining the three cases collectively, a shared emphasis on ecosystem restoration emerges through innovative waste management practices. All three companies—RiceCo, SugarCo and CoconutCo—utilize by-products in a manner that goes beyond waste reduction; it actively contributes to the restoration of the local ecosystems. RiceCo, SugarCo and CoconutCo showcase a commitment to clean technologies, indicating a collective shift towards more environmentally friendly processing methods. This shared adoption of sustainable practices signifies a broader industry trend towards ecosystem restoration.

Our new established production line embraces clean technologies and repurposing waste materials like coconut fibre and copra has significantly contributed to ecosystem restoration. It's an operational approach rooted in sustainability.

(Environmental Specialist, CoconutCo)

Within each case, the focus on ecosystem restoration is evident through the strategic use of by-products and the implementation of clean technologies. Across the cases, the commonality lies in the shared commitment to restoring and preserving the local ecosystems, underscoring the industry's collective responsibility towards sustainable environmental practices.

5.3 | Social Innovation

RiceCo engages in social innovation through collaboration with local communities and suppliers. By involving these stakeholders, the company not only strengthens business relationships but fosters innovation at different levels of society. Further, the investment in clean technologies represents a commitment to transforming

labour conditions, moving away from traditional, manual methods towards more advanced approaches. SugarCo's shift from a short-term economic focus to a more holistic and sustainable perspective is a significant example of social innovation. The transformation of labour pay and conditions in the agricultural sector reflects the company's commitment to social responsibility. The emphasis on clean technologies benefits the environment and positively impacts the workforce through skills diversification and wealth distribution in local communities, showing a multifaceted approach to social innovation. As the CEO at SugarCo explained, 'with cleaner processing technologies, we no longer rely on seasonal, low-paid labour. Instead, we've introduced year-round skilled jobs that offer higher wages and career growth opportunities, transforming the economic stability of our workers and their families'. CoconutCo's transformation of its business model towards a restorative system also signifies a commitment to social innovation. The company actively engages in poverty alleviation by ensuring improved pay for the workforce. Its role as a catalyst for new ventures, nurturing startups inspired by coconut materials, showcases how the company contributes to social innovation by fostering entrepreneurship and job opportunities within the community.

Examining the three cases collectively, a common theme of social innovation emerges through a strategic shift in business model and practice. Each company takes a comprehensive approach to social innovation, impacting not only their internal operations but also the broader community. Collaboration with local communities and suppliers, transformation of labour conditions and initiatives for poverty alleviation are shared aspects of social innovation across the cases. The three companies showcase a commitment to going beyond traditional business practices, actively engaging in initiatives that contribute to the betterment of society.

Enhancing the pay rate for our workforce and embracing clean technology innovation are not just business strategies; they represent a commitment to social innovation, welfare, and sustainable development.

(Production Manager, CoconutCo)

Each case demonstrates social innovation through specific strategies tailored to the company's context. Across the cases, the shared commitment to collaborative, sustainable and socially responsible practices underscore the industry's collective effort towards meaningful social change in Vietnam through innovation.

5.4 | Stakeholder Collaboration

RiceCo prioritizes its collaboration with local suppliers and communities, emphasizing the importance of reinforcing relationships and maintaining quality standards. The company serves as a catalyst for new enterprises, fostering collaboration and innovation in the agricultural sector. This internal and externally focussed practice contributes to the overall success and sustainability of RiceCo. SugarCo actively includes local firms and communities in its operations, demonstrating a commitment to long-term collaboration. The company serves as a catalyst for new ventures, fostering a network of entrepreneurs dedicated to sustainable solutions. Furthermore, SugarCo collaborates with

multiple sectors, including food and beverages, retail and construction, showcasing a broad approach to stakeholder collaboration. CoconutCo engages in collaboration with its distributors in the construction and textile sectors, reflecting a focused effort to work closely with stakeholders in specific industries. The company also maintains relationships with domestic suppliers, fostering collaboration in the supply chain. The involvement of local firms and communities in CoconutCo's operations underscores a commitment to collaborative practices. As production manager at CoconutCo stated, 'our partnerships with local textile producers and eco-construction firms go beyond simple transactions. By co-developing sustainable products, we create long-term value for both our business and the wider community'.

Stakeholder collaboration, therefore, is a common thread across the three cases, with each company recognizing the importance of working closely with various partners for mutual benefit. Collaboration with local suppliers and communities is evident in RiceCo and SugarCo, emphasizing the significance of engaging with stakeholders at the grassroots level. Additionally, all three cases act as catalysts for new ventures, nurturing networks of entrepreneurs and innovators. Moreover, collaboration extends beyond traditional boundaries, as seen in SugarCo, which collaborates with diverse sectors like food and beverages, retail and construction. CoconutCo's engagement with its distributors in the construction and textile sector is another example of industry-specific collaboration.

Our collaboration with entrepreneurs and managers from various sectors, along with maintaining relationships with domestic suppliers, highlights our strong network and commitment for sustainable movement ... It's also about fostering a network of sustainable solutions.

(Local Supplier Relationship Manager, RiceCo)

In summary, while each case demonstrates unique aspects of stakeholder collaboration based on its context, the overarching theme is a commitment to inclusive, mutually beneficial partnerships that contribute to the success and sustainability of the companies and their stakeholders.

6 | Discussion

Our research reveals a shared commitment across the three cases to explore new revenue streams by repurposing waste materials, marking a departure from conventional sales in favour of prioritizing circular product strategies. Through waste utilization, market expansion and innovative practices involving new local businesses, the firms support human prosperity (Hart 1995). This commitment resonates with the conceptualization of regenerative systems and social development presented by Buckton et al. (2023). Regenerative thinking is characterized by the ability of firms to endure transformative cocreation processes, as reflected by the cases to generate revenue streams by transforming waste (Jain 2021; Alves et al. 2022): a distinct contribution to the economic dimension of RSCs. Regenerative systems are also actively involved in economic value cocreation and environmental restoration

while promoting social well-being (Hahn and Tampe 2021; Caldera et al. 2022). The cases underline this characterization of contributing economically through collaborative effort, mitigating environmental impact and participating in community initiatives and social innovation, where localized collaborations and catalytic activities align with community prosperity (Gibbons 2020). Hence, our first proposition:

Proposition 1. *Unlike traditional circular supply chains, RSCs integrate the dimensions of value cocreation, ecosystem restoration and social well-being.*

The first proposition stems from the synergy between the exploration of new revenue streams and regenerative principles. The collective commitment of the three cases to sustainable practices, the production of environmentally friendly products and active engagement with the community serve to illustrate how RSC integrate waste and by-products into their revenue processes while nurturing social well-being. Thus, it lays the groundwork for rethinking the concurrent emphasis on value cocreation through generating new revenue streams and social impact as indispensable components within RSCs.

The three cases underscore a recurrent theme of stakeholder collaboration in repurposing by-products for new revenue streams. These companies proactively involve different stakeholders such as local communities, local suppliers, local firms, entrepreneurs and businesses in other sectors, cultivating collaborative networks that contribute to their success. For instance, SugarCo's pivotal role in nurturing startups within the food container industry exemplifies this collaborative approach, indicative of an industry-wide shift towards sustainable practices and ecosystem restoration. The literature on regenerative systems underscores the role of stakeholder collaboration in value cocreation, environmental restoration and promotion of social well-being (Howard et al. 2022; Caldera et al. 2022; Jain 2021). It is suggested that RSC actively engage stakeholders to foster positive cycles within and beyond the immediate community (Howard et al. 2022). The collaborative practices seen in RiceCO, SugarCo and CoconutCo reflect this perspective, underscoring the role of stakeholders in attaining regenerative goals. Moreover, the collaborative efforts in by-product utilization resonate with insights from Hoffman et al. (2022), who argue that transforming the waste economy means integrating stakeholders into the supply chain to facilitate sustainability goals. Huang et al. (2015) posit that sustainable competitive advantage arises not only from internal endeavours such as culture change (e.g., Hoffman 2019) but also from the collaborative utilization of by-products with external partners that contribute to broader sustainability objectives. Hence, Proposition 2:

Proposition 2. *RSCs require stakeholders to collaborate for by-product utilization initiatives to achieve lasting sustainable competitive advantage.*

The second proposition is grounded in the observed connection between stakeholder collaboration, by-product utilization and the pursuit of new revenue streams. By actively involving stakeholders in the process, RSC can tap into diverse resources and expertise, fostering innovation and building a network of sustainable solutions. The collaboration is not merely an

operational strategy but a pathway towards achieving lasting sustainable competitive advantage.

Our cases underscore a commitment to prosperity in Vietnam, commencing at the grassroots level of local communities. These companies prioritize collaboration with local suppliers, communities and startups, underscoring the significance of reinforcing relationships and upholding quality standards. This localized, collective focus extends beyond immediate economic gains, contributing to social innovation, poverty alleviation and the overall well-being of the community. Regenerative development, as underscored in the studies by Gibbons (2020), Alves et al. (2022) and Mang and Reed (2020), is inherently a place-based approach aimed at enhancing living conditions in local communities. This aligns with the observed emphasis on local community engagement in the practices of RiceCO, SugarCo and CoconutCo. The dedication to fostering innovation, transforming labour conditions and alleviating poverty reflects regenerative development principles by connecting the prosperity of the local community with waste utilization. Other studies such as Reed (2007) and Gibbons et al. (2018) discuss the significance of the interrelationship of living systems at the local level of society for successful regenerative development. The collaborative practices within the local community, as reflected in the cases, resonate with Reed's (2007) emphasis on a shift from a fragmented to a whole-system approach for introducing sustainable environmental practices. Hence, Proposition 3:

Proposition 3. *Supply chains can only be considered regenerative when prosperity start with the local community and spreads outwards.*

The third proposition derives from the consistent theme of local community prosperity as observed in the cases. It posits that the regenerative quality of supply chains hinges on prioritizing and enhancing the well-being and prosperity of the local community first, followed by national and international benefits later. The commitment to social innovation, improved labour conditions and poverty alleviation within the local context establishes the foundation for supply chains to be considered regenerative.

Our examination of the cases underscores the significance of clean technology (the ability and ways of using natural materials that otherwise would be a waste) through developing closed-loop systems for their waste utilization. These companies actively repurpose by-products, contributing to the restoration of local ecosystems. Notably, the adoption of innovative and environmentally friendly processes, characterized as clean technologies, is a prominent feature in their operations, highlighting a steadfast commitment to waste reduction through closed-loop systems. In the realm of RSCs, clean technologies play a crucial role. Studies by Buckton et al. (2023) and Mang and Reed (2020) underscore the importance of technologies in regenerative systems, sustaining positive, sustainable reinforcing cycles of operational flows. The adoption of clean technologies, as evidenced in the cases, contributes to a positive impact on the environment, which aligns with the principle of a regenerative system. Literature also stresses the need for RSCs to actively contribute to environmental restoration (Elkington 2020; Jain 2021; Gibbons et al. 2018). The closed-loop systems implemented by

RiceCo, SugarCo and CoconutCo reflect this notion and illustrate the commitment to restoring and replenishing natural systems through (relatively) non-polluting technical innovations. Hence, Proposition 4:

Proposition 4. *Material flows within closed-loop circular systems are only regenerative when they incorporate clean technology or other non-polluting innovations.*

The fourth proposition is derived from the association between closed-loop systems and clean technologies as observed in the cases. It suggests that the regenerative quality of material flows within closed-loop systems relies on the use of clean technology or other non-polluting innovations. The commitment to environmental restoration through the adoption of clean technologies serves as the cornerstone for this proposition.

Our analysis of the three cases underscores a collective commitment to build a sustainable business model and combat poverty. Yet the approach towards reducing carbon emissions and climate change is more nuanced. Each company adopts its own distinctive approach to implement strategies towards minimizing waste. However, the traditional practice of burning stubble in Vietnam and Asia appears in contrast to the emphasis on clean technology, waste reduction and other sustainable practices that contribute to climate change mitigation. While stubble burning closes the material loop by locking nutrients into the soil, releasing carbon into the atmosphere means the practice contributes to air pollution and climate change. RSCs are generally recognized as playing a pivotal role in environmental restoration, including efforts to address climate change (Elkington 2020; Jain 2021; Caldera et al. 2022). Yet trade-offs remain in resolving economic, environmental and social challenges as a resilient and sustainable system (Howard et al. 2022; Hart 1995). Nevertheless, the commitment observed in our cases aligns with the broader concept of RSC that supports climate change mitigation. Notably, studies by Buckton et al. (2023) and Gibbons et al. (2018) highlight the need for regenerative systems to adapt, evolve and maintain their integrity over time, extending their adaptability to addressing contemporary challenges such as climate change. The steps taken by the cases to reduce carbon emissions reflect the importance of agility and the evolving nature of regenerative systems. Hence, our fifth proposition:

Proposition 5. *RSCs must address climate change by actively implementing measures that reduce or neutralise carbon emissions.*

The fifth proposition is grounded in the relationship between the actions of the three firms in the investigation and the broader objective of RSCs in addressing climate change. It posits that RSC, in addition to the commitments over collective waste utilization, actively contributes to climate change mitigation by implementing measures to reduce carbon emissions.

7 | Conclusions

This research explores regenerative practices in the Vietnamese agricultural sector and extends understanding of the NRBV. Here, we present our theoretical contributions, practical

implications and limitations while offering directions for future research.

7.1 | Theoretical Contributions

Our exploration of RSCs in the Vietnamese agricultural sector advances NRBV by exploring how firms create sustainable competitive advantage when adopting regenerative practices through collective activities involving waste utilization and social benefit (Hart 1995; Hart and Dowell 2011). The research challenges conventional RBT on the exploitation of resources by firms in isolation, towards interfirm collaboration and resource transferability (Barney 1991). This theoretical extension broadens our understanding of the NRBV by emphasizing that firms who engage together in regenerative practices not only develop sustainable competitive advantage through waste management but also foster social benefit within their local communities.

Second, we provide a definition of RSC encompassing value cocreation from the innovative utilization of waste, ecosystem restoration by getting away from some harmful traditional practices and prosperity within the local community through generating new revenue streams, all of which advance theoretical understanding of RSCs (Buckton et al. 2023; Howard et al. 2019; Hahn and Tampe 2021; Tseng et al. 2025). Our conceptual framing of RSC, drawn from literature, navigates the specifics of Vietnamese agricultural practices in the context of practical application. This includes introducing innovative use of waste materials, eliminating traditional practices such as crop stubble burning for pollution prevention and the importance of community well-being. This approach acknowledges the coexistence of traditional and modern practices within RSCs, emphasizing the importance of adaptability and context-specific strategies in shaping sustainable competitive advantage.

Third, our conceptual framing of RSC in relation to society reflects a more nuanced perspective of NRBV. Human prosperity at the community level is often overlooked by wider environmental or business interests in studies of sustainable supply chain management (Pagell and Shevchenko 2014; Hart 1995). Our interest is in how firms shift from linear to circular business models and work with supply partners to realize long-term strategic benefits from RSCs. In Vietnamese agricultural practice, we find that RSC develops when two key dimensions are involved between cooperating firms: innovative material use and social benefit. Applying RSC to the Vietnamese agricultural context provides a fresh lens for scholars to examine interactions between firms, waste materials and social dimensions. This expansion enables a more comprehensive analysis of the dynamic relationships that emerge when firms adopt regenerative practices.

7.2 | Practical Implications

Our research provides actionable insights for policymakers and practitioners involved in sustainable supply chain management, emphasizing the broader societal impact of RSCs. By prioritizing human prosperity at the community level, our findings reinforce the policy relevance of RSC strategies in addressing

socio-economic inequalities, particularly in rural economies. Circular business models, therefore, emerge not only as tools for environmental governance but also as policy instruments for fostering long-term economic resilience and social well-being (Homrich et al. 2018; Henrysson and Nuur 2021).

The policy implications extend to the role of strategic collaboration between firms, local communities and governing bodies in RSC development. The shift from waste reduction to innovative material repurposing and social value creation requires institutional support, regulatory incentives and investment in sustainable infrastructure. This symbiotic relationship between economic and social sustainability is particularly relevant for policy frameworks aimed at poverty alleviation, rural development and environmental stewardship within Vietnam's agricultural sector.

Furthermore, our study highlights the regulatory significance of closed-loop systems and clean technology integration. By demonstrating the impact of eliminating traditional waste practices (e.g., stubble burning) and promoting local by-product utilization initiatives, we advocate for policies that incentivize sustainable supply chain transformations. Strengthening multistakeholder collaboration, particularly between businesses, cooperatives and local governments, is essential for fostering resource-sharing networks, technological innovation and scalable sustainability solutions.

7.3 | Limitations and Future Research

While this research provides valuable insights into the regenerative practices of three agricultural organizations in Vietnam, we offer the following limitations and avenues for future research. The findings are derived from three agricultural firms and their supply chains in Vietnam, where caution is advised when applying our findings to a broader population of businesses, particularly Western or non-Asian settings, due to variations in environmental legislation, subsidies and government control.

Future research could enhance the generalizability of results by expanding the investigation to include a more diverse range of firms, sectors and geographical locations, thereby providing a deeper understanding of regenerative practices in different countries. Second, the qualitative research approach, primarily utilizing in-depth interviews and focus groups, offers rich insights into participant experiences and perceptions of the challenges presented by RSG. Future research could also complement qualitative findings with quantitative financial and production data, focusing on organizations across various industries in both developing and developed countries to increase the richness of research results.

This study concentrates on understanding the experiences of firms in practicing regenerative activities. Future research could extend its focus by examining the challenges firms may encounter during the development of regenerative practices. Such an approach would shed light on factors contributing to the successful implementation of regenerative practices, including variations in clean technology, policy and supply chain governance. While our study explores the perspective of the focal firm, future

research could explore the viewpoints of external stakeholders, including customers, business partners, local communities, NGOs and regulatory bodies, within the unique context of agricultural enterprises in developing countries. This approach would provide a more holistic understanding of the dynamics surrounding regenerative practices and the wider implications for ecosystems and society.

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Appendix A

Interview Details

No.	Cases	Interviewees' position	Gender	Experience (years)	Interview time (min)
1	A	Director	M	25	90
2		Product Development Manager	M	22	82
3		Local Supplier Relationship Manager	F	17	65
4		Agriculture Expert	F	22	75
5		Operations Manager	M	19	65
6		Sustainability Manager	F	15	70
7		Technology Integration Specialist	M	16	66
8		Community Relations Manager	F	19	72
9		Logistics Manager	M	21	65
10		Quality Assurance Manager	M	18	68
11		Purchasing Manager	M	15	76
12		Export Manager	F	15	82
13	B	Chief Executive Officer (CEO)	M	19	60
14		Plant Manager	M	25	65
15		Bagasse Recycling Specialist	M	25	75
16		Supply Chain Manager	F	17	90
17		Innovation Manager	M	16	73
18		Trade and Export Director	M	21	64
19		Compliance and Certification Manager	F	16	63
20		Production Manager	M	18	68
21		Packaging and Logistics Manager	M	15	64
22		Agricultural Operations Manager	F	17	85
23		Climate Resilience Specialist	F	10	75
24		Product Development Director	M	22	72
25	C	Chief Executive Officer (CEO)	M	20	85
26		Production Manager	M	18	90
27		Product Development Manager	F	17	75
28		Local Supplier Relationship Manager	F	22	65
29		Environmental Specialist	F	21	70
30		Packaging and Logistics Director	M	18	70
31		Farm Manager	F	17	64
32		Quality Control Director	M	20	68
33		Research and Development Manager	M	21	64
34		Community Relations Manager	F	19	66
35		Product Innovation Manager	M	17	76

Appendix B

Focus Groups

	No.	Gender	Position	Relationship with case firms
Focus Group 1 for Case A	1	F	Quality Control Manager	Facilities supplier
	2	F	Procurement Manager	Facilities supplier
	3	M	Distribution Manager	Distributor
	4	F	Supply Chain Manager	Distributor
	5	F	Sustainability Officer	Distributor
	6	M	Agricultural Specialist	Facilities supplier
	7	M	Sustainable Agriculture Expert	Distributor
	8	M	Regulatory Affairs Manager	Distributor
	9	M	Director	Business partner
	10	F	Founder	Business partner
	11	F	Owner	Supplier
	12	M	Director	Supplier
Focus Group 2 for Case B	1	F	Owner	Supplier
	2	M	Managing Director	Supplier
	3	F	Owner	Supplier
	4	M	Agriculture Expert	Supplier
	5	F	Quality Control Manager	Facilities supplier
	6	F	Procurement Manager	Facilities supplier
	7	M	Supply Chain Manager	Facilities supplier
	8	M	Sales and Marketing Manager	Distributor
	9	F	Sustainability Consultant	Distributor
	10	M	Founder	Business partner
	11	F	CEO	Business partner
Focus Group 3 for Case C	1	F	Owner	Supplier
	2	F	Transport and Logistics Manager	Supplier
	3	M	Food Safety Auditor	Distributor
	4	F	Regional Sales Manager	Distributor
	5	F	Compliance and Sustainability Analyst	Distributor
	6	M	Logistics Coordinator	Business partner
	7	M	Environmental Compliance Manager	Business partner
	8	F	Sustainable Packaging Manufacturer	Business partner
	9	F	Director	Business partner