

Journal of Rural and Community Development

Upgrading Smallholders Through “Farmer-to-Consumer” Entrepreneurial Model? Implications of Rice Value Chain Interventions in Indonesia and Malaysia

Authors: Yeong Sheng Tey, Mark Brindal, & Poppy Arsil

Citation:

Tey, Y. S., Brindal, M., & Arsil, P. (2023). Upgrading smallholders through “farmer-to-consumer” entrepreneurial model? Implications of rice value chain interventions in Indonesia and Malaysia. *The Journal of Rural and Community Development*, 18(2), 152–167.

Publisher:

Rural Development Institute, Brandon University.

Editor:

Dr. Doug Ramsey

Open Access Policy:

This journal provides open access to all of its content on the principle that making research freely available to the public supports a greater global exchange of knowledge. Such access is associated with increased readership and increased citation of an author's work.



Upgrading Smallholders Through “Farmer-to-Consumer” Entrepreneurial Model? Implications of Rice Value Chain Interventions In Indonesia and Malaysia

Yeong Sheng Tey

Universiti Putra Malaysia
Serdang, Selangor, Malaysia
tyeong.sheng@gmail.com

Mark Brindal

The University of Adelaide
Adelaide, Australia
markbrin@chariot.net.au

Poppy Arsil

Universitas Jenderal Soedirman
Purwokerto, Indonesia
poppy74arsil@gmail.com

Abstract

Rice smallholders continue to seek opportunities to upgrade their value chains through rural entrepreneurship. This study investigates the development claims of a ‘farmer-to-consumer’ model, which facilitates direct participation through the system of rice intensification, in Central Java (Indonesia) and Selangor (Malaysia). Through farmer organizations, the model was revealed to provide opportunities for improving members’ production processes, products, and functions. However, one type of rent-seeking behavior was replaced by another in both cases. Distrust among members prevented either farmer organizations from achieving scale upgrading, denying the aggregation function and, in a broader sense, economic roles for both farmer organizations. It is recommended that collective governance should account for socially oriented factors in addition to economic considerations so facilitating more effective value chain intervention.

Keywords: rural entrepreneurship, value chain development, upgrading, direct marketing, rice, smallholder

Améliorer les petits exploitants grâce à un modèle entrepreneurial « agriculteur à consommateur » ? Implications des interventions sur la chaîne de valeur du rizen Indonésie et en Malaisie

Yeong Sheng Tey

Universiti Putra Malaysia
Serdang, Selangor, Malaysia
tyeong.sheng@gmail.com

Mark Bridal

The University of Adelaide
Adelaide, Australia
markbrin@chariot.net.au

Poppy Arsil

Universitas Jenderal Soedirman
Purwokerto, Indonesia
poppy74arsil@gmail.com

Résumé

Les petits exploitants de riz continuent à chercher des opportunités pour améliorer leurs chaînes de valeur grâce à l'entrepreneuriat rural. Cette étude examine les revendications de développement d'un modèle « agriculteur à consommateur », qui facilite la participation directe via le système d'intensification du riz, dans le centre de Java (Indonésie) et le Selangor (Malaisie). À travers des organisations agricoles, le modèle s'est révélé offrir des opportunités d'amélioration des processus de production, des produits et des fonctions des membres. Cependant, un type de comportement de recherche de rente a été remplacé par un autre dans les deux cas. La méfiance entre les membres a empêché les deux organisations d'agriculteurs de réaliser une mise à l'échelle, niant la fonction d'agrégation et, dans un sens plus large, les rôles économiques des deux organisations d'agriculteurs. Il est recommandé que la gouvernance collective tienne compte des facteurs à vocation sociale en plus des considérations économiques, ce qui facilite une intervention plus efficace dans la chaîne de valeur.

Mots-clés: entrepreneuriat rural, développement de la chaîne de valeur, modernisation, marketing direct, riz, petits exploitants

1.0 Introduction

Enabling inclusive value chain upgrading for smallholders remains a critical task. Development agencies (e.g., Yumkella, et al., 2011) have promoted the concept of connecting smallholders to off-farm chains. This involves rural entrepreneurship, which has been proposed as a complementary approach to reducing poverty among smallholders (Petrin & Gannon, 1997). Both strategies highlight the need for advancement beyond simple market linkages. According to Kilelu et al. (2017), “although such processes may catalyze smallholder

inclusion, their effects are largely bounded by existing value chain structures (e.g., production systems, fragmented markets) (p. 1102)." The beneficial backward linkages to smallholders are far from obvious, especially in an age of retail market consolidation and rivalry. To the extent that there is a favorable viewpoint, buyer and producer-driven chains provide opportunities for smallholders through safety and quality standards, respectively (Lee et al., 2012). Conversely, such opportunities also result in constant pressure for close monitoring and control over production systems, economies of scale, and compliance with sometimes mediocre agricultural portfolios assigned by lead firms (Fold & Larsen, 2011). A relationship model that benefits only key individuals creates inequality in an otherwise efficient value chain that only includes retailers and smallholders (Vicol et al., 2018). The search continues for alternative models which present opportunities for inclusive value chain upgrading.

In this paper, we investigate the development impact of a ‘farmer-to-consumer’ rice value chain, which is built on the system of rice intensification (SRI), using Indonesian and Malaysian smallholders. The SRI approaches paddy cultivation in an agroecological manner, adapting agronomic practices to local agroecological conditions within an existing cropping system (Thakur et al., 2022). This creates a differentiation attribute, giving paddy farmers the opportunity to gain higher returns than ordinary rice. As a result, the SRI system has been shown to provide environmental benefits through reduced inputs and economic benefits through improved productivity and quality (Thakur & Uphoff 2017). The positive effects of such a niche value chain are hypothesized to be contingent on long-term collective smallholder participation, which is influenced by adopters' prior experience with conventional methods as well as their initial experience with the SRI (Barrett et al., 2022).

Previous research has also identified ‘value’ as a critical determinant of smallholder upgrading. Regardless of quality or transaction costs, modern supermarket procurement pays higher prices for vegetables than traditional markets (Nuthalapati et al., 2020). Certified sustainable products are more likely to increase smallholder incomes (e.g., Arnould et al., 2009; Dragusanu et al., 2014; Méndez et al., 2010). As a result, supermarket contracts help to reduce poverty (Ogutu et al., 2020). Such outcomes are the result of product specialization and certification (Van Rijsbergen et al., 2016). These process and credential enhancements allow farmers to achieve the best price from a wider range of market outlets. Despite the various economic advantages of alternatives, smallholders frequently revert to traditional structures. Smallholders continue to sell their staple crop to village traders, who pay lower prices than mills, even in places where intermediaries have disappeared (Reardon et al., 2014). Smallholders struggle, however, to maintain income when resorting to traditional markets (Andersson et al., 2015).

A parallel trend in the development of the global staple food value chain has been the growing engagement of consumers with farming communities. Research concerning this possibly more efficient supply chain approach is scant. Corsi et al. (2018) investigate the factors that influence the territorial distribution of direct sales. Detre et al. (2011) and Uematsu and Mishra (2011) examine the economic impact of such participation. This study examines rice value chain models where higher value is obtained through the system of rice intensification. As a result, it differs from the direct commodity marketing models investigated in previous research.

Value chain structures determine how retail prices are distributed. In a niche value chain, smallholders benefit because they directly capture a larger market

margin. This alternative entrepreneurial model envisions smallholder empowerment through direct sales of niche rice products. As a result of the uniqueness of each model, this hypothesis can only be tested in a specific context. Rural development and livelihood experiences are distinctly local issues.

2.0 Rice Value Chain Upgrading

The rice industry is beset by structural problems. Traditional rice value chains are characterized by high postharvest losses, food safety concerns, a lack of incentives for quality and product differentiation, and a lack of coordination among actors. Much of the supply base is made up of smallholders, who have little bargaining power and limited access to resources. Increased input costs, unsustainable production methods, and climate change all increase the risks for smallholder farmers (Segal & Minh, 2019). Upgrades can improve efficiency and product quality while increasing smallholder returns. It is possible to achieve upgrading through value chain modernization, which has become an important agenda item in developing countries—especially in Asia—for domestic food security and rural development.

The concept of value chain upgrading can be traced back to the concept of ‘industrial upgrading.’ Gereffi (1999) describes industrial upgrading as the

“process of improving the ability of a firm or an economy to move to more profitable and/or technologically sophisticated capital- and skill-intensive economic niches... participation in global (value) chains is a necessary step for industrial upgrading because it puts firms and economies on dynamic learning curves (p. 51).”

There is a causal relationship between buyers' (knowledge and skill) support role and firm-level upgrading.

Thus, domestic rice value chain development borrows the concept of industrial upgrading. Lead firms and their organizational capabilities aid in determining the local rice industry's upgrading potential. Reardon et al. (2012) found that in Asia, midstream firms led the way in using better milling technologies for branding and packaging outputs, as well as purchasing feedstock directly from informed farmers. Such modifications have resulted in a more efficient chain, generating more value through quality, differentiation, and traceability. Soullier and Moustier (2021) noted a similar development pattern in several African countries. Furthermore, Soullier et al. (2020) discovered that contract farming and vertical integration contributed to African upgrading. Demont and Ndour (2015) demonstrated that enhancing the quality of African rice through improved market information and incentives is a viable countermeasure to imported rice competition.

Based on those recent applications, the concept has evolved into an action framework for at least three types of upgrading in rice value chains. Initially, both process upgrading and the elimination of intermediaries improve market efficiency in terms of supply chain, information, and pricing. Secondly, product upgrading occurs when farm and processing outputs respond to market information and incentives effectively. Finally, functional upgrading occurs when farming communities take on new functions to meet the previously mentioned upgrading requirements. This sequence of events allows us to conclude that rice value chain modernization has thus far been focused on economic upgrading.

It is unclear whether economic development improves farmer and community welfare. Gereffi and Lee (2016), for example, have warned that social downgrading may occur instead. In the promotion of rice value chain development, social upgrading, such as inclusion and equality, remains an issue. Hinnou et al. (2018) provided encouraging evidence that innovation platforms can be used to strengthen interactions and rebalance the power of stakeholders in rice value chains. The political aspect of smallholder inclusion in value chain upgrading is still being worked on. We meet this task through two cases of farmer-to-consumer upgrading models that are built on the SRI.

3.0 The Emergence of Farmer-to-Consumer Models Through the SRI

The farmer-to-consumer model has recently emerged as a transformative opportunity for the rice industry. This alternative model is driven by paddy growers through—formal or informal—farmer organizations. They share a common interest in pursuing rural development by participating in processing and marketing initiatives following the implementation of an alternative production system.

SRI agronomic principles include (a) transplanting seedlings (8–15 days old) with wider spacing (up to 50x50cm), (b) intermittent irrigation during the vegetative growth phase, (c) preference for organic inputs, and (d) herbicide-free weed control. Intermittent irrigation increases the supply of oxygen to paddy roots, reducing aerenchyma formation and strengthening the root system for efficient nutrient uptake (Stoop et al., 2002).

Farmer organizations are the lead firms in charge of rice value chain governance and in terms of ensuring SRI production and postharvest activities. This concept assumes that farmer organizations can set codes of conduct, quality standards, process or facilitate milling, and coordinate specialty rice value chains. Furthermore, farmer organizations can encourage peer-to-peer monitoring of farming methods in accordance with SRI principles.

As a result, the farmer-to-consumer model relies heavily on collective governance. In contrast to traditional rice production and marketing systems, the model is based on the production merits of the SRI system. Because SRI is still a relatively new concept, collective adoption can help to ensure an adequate and consistent supply of SRI rice. Collective action is also required to ensure shared responsibility for adhering to SRI principles in production. Scale, in both adoption and compliance, is critical for establishing the credibility of SRI rice. With imperfect market information and poor traceability, the importance of collective supply chain governance grows.

Aggregation enables economies of scale and direct marketing allows rice growers to diverge from various conventional market constraints, particularly local price benchmarking. Under this regime, product attributes can be differentiated in terms of production and processing methods, environmental impacts, and ethical considerations. Because rice quality protocols and classification ranges are still being developed, a differentiation strategy can shape the perceived value for diverse consumers (Custodio et al., 2019). Farmers and their organizations can benefit from their rural status when combined with differentiated attributes. These advantages may be lost if the integrity of collective supply chain governance is not monitored, or they may be jeopardized if rent seekers are not barred from reaping the benefits of others' collective commitment.

4.0 A Case of Upgrading Through SRI System in Indonesia and Malaysia

Initial trials of SRI were conducted in 1999 at the rice research center of Indonesia's Agency for Agricultural Research and Development. By 2012, the trials had expanded to 29 provinces on approximately 207,000 ha. Diverse farmer trainings were supported by Indonesian public policies, particularly the Small-Scale Irrigation Management Projects I, II, and III as well as the Decentralized Irrigation System Improvement Project in the Eastern Region.

In Malaysia, formal trials began with an evaluation on a farmer's land in the state of Selangor. The subsequent dissemination of the acquired knowledge was mostly informal. Non-governmental organizations and corporate social responsibility projects helped to fund group plantings.

Both countries use organic SRI methods in a group setting. At various levels, government agencies and NGOs have assisted in the formation of farmer organizations to promote collective production, harvesting, processing, and marketing capacity to achieve some economies of scale. In some cases, capital was provided as equity for start-ups. Capital was then invested to acquire small-scale drying, milling, and packaging machines, as well as the associated facilities. Such expenditures are required to enable farmer organizations to conduct off-farm activities. Because SRI projects are small in scale and require little capital investment in logistics, alternative value chains are limited to local communities.

These interventions offer the chance to shape a niche value chain. In contrast, traditional off-farm activities in broad value chains necessitate large minimum supply quantities. In Malaysia, for example, a standard milling line is 3,000 tons. Capital investments in the SRI system allow for a distinct preserved supply chain, ensuring that organic SRI rice can be traced back to its mill. Another popular approach is to outsource milling and packaging services, particularly among informal farmer groups whose members seek personal visibility.

In our case studies, every smallholder previously participated in a traditional rice value chain. They used intensive methods for planting, weed control, water management, nutrient management, and pest and disease management. Local millers purchase inorganic paddy directly from farmers or through local intermediaries who help with aggregation and delivery. While millers may provide credit to farmers, they also perform other social functions such as distributing government subsidies and incentives for farm outputs and committing to buy all farm outputs. Farmers would struggle logistically to sell their paddy in the absence of such buyers. This power imbalance is nevertheless criticized for causing depressed paddy prices (i.e., at or slightly above the reference price and vulnerable to deduction rate manipulation and resulting in depressed paddy prices) while providing little in-kind assistance. (e.g., advisory services).

In this study, each site is examined in terms of its upgrading experiences and trajectories in relation to previous rural livelihood opportunities. We conducted key informant interviews in the villages of Piasa Kulon in the Banyumas regency (Central Java) and Simpang Lima in the Sabah Bernam district (Selangor). Through a farmer organization, both sites have adopted the farmer-to-consumer model. The farmers had previously formed a group to facilitate extension assistance. The village in Indonesia is in the highlands, whereas the village in Malaysia is in the lowlands.

4.1 Disintermediation Through an Informal Farmer Organization in Indonesia

In 2019, the Banyumas regency in Central Java produced approximately 152,309 tons of rice. (Badan Pusat Statistics, 2020). A sample was drawn in the Piasa Kulon (case study) village, which is situated 54 meters above sea level. Our sample included paddy farmers who started using organic SRI methods in 2014, the year Indonesia's rural development policy began to reinforce village autonomy through the Villages Law No. 6 of 2014. Under that policy, a 'Village Fund' uses a participatory approach to improve the quality of the village's public services, rural development, and community empowerment. The latter is related to the growing number of village-owned businesses (Arifin et al., 2020).

Since 2011, the Piasa Kulon village had participated in the National Community Empowerment Program through the 'Ngudi Mratani' farmer group. That farmer group's success was the primary reason it was given priority under the Village Fund. Members who are accepted into such a program are eligible for government assistance—including training—and funding. As a result, the group's membership grew to 25 people from a starting point of 18. Executives are elected for five-year terms.

The concept of organic rice was introduced to and implemented by some farmers under the auspices of the poverty reduction program. Various training programs on organic SRI methods followed during the 2014–2015 period. Members were shown how to reduce their reliance on middlemen while conventional farming remained popular. Given that paddy sales were the primary source of household income, increased market margins should result in improved livelihood.

The intervention to establish a farmer-to-consumer value chain model for the Ngudi Mratani farmer group began in 2011 with the introduction of organic farming. Its scope grew as organic SRI methods became more widely adopted. This type of farm–market integration presents a relatively efficient value chain. Because the output is organic and of high value, this alternative farming system is regarded as a means of upgrading. As one group leader put it:

The aims of organic farming (including SRI methods) are to (1) use land efficiently, (2) conserve land, (3) restore soil nutrients, (4) diversify agricultural activities, (5) develop market links and build farmer trust, and (6) increase farmer income. Our farmer group's vision is based on organic methods.

Local universities played an instrumental facilitation role in the group's new value chain model. They aided group members in terms of price negotiation (with intermediaries), pilot marketing, and market penetration. Advice on how to outsource milling services was also provided as part of the intervention. All members had access to a sealer for packaging. The product was initially labeled 'Organic Rice' (*Beras Organik*) under the farmer group's name. According to interviewees, the farmer group's name represents an endorsement of domestic production, which aligns with Indonesia's pro-local food policy.

Specifically, according to group members, outsourcing the milling services involved a strategic consideration. It relieved the farmer group of aggregation and maintenance responsibilities. With a relatively small miller, it also enabled personal initiative for product differentiation. This diversification strategy appeared to be working when the National Agency for Drug and Food Control rejected the farmer groups' bid for a legal permit to label their product 'organic.'

Obtaining an organic certificate issued by an Indonesian or a foreign organic certifier and accredited by the National Accreditation Committee remains a challenge at the time of the interview.

The label was replaced by ‘Healthy Rice’ (*‘Beras Sehat’*) as a food value proposition on health. While members of the group thought the change was novel, it was a label also used by other rice farmer groups in Indonesia. Examples included Bogowonto by those in Ngombol district and the Tegalluar village in Bandung regency.

Members of the group shared similar productivity growth when using organic SRI methods in initial seasons. Average SRI yields of annual seasons ranged from 6.2 to 6.7 tons/acre, compared to 4.6 tons/acre nationally. Comparatively, they also had lower paddy production costs. Customers who interacted via an instant messaging platform provided significant price premiums to their SRI product. As a result, rural households reported a more than 35% increase in rice income over those who used traditional methods.

The ‘Healthy Rice’ claim was cited as the primary appeal supporting the willingness-to-pay for higher prices in comparison to a local benchmark. Members widely regarded this credence attribute as the central value proposition, achieving a higher stage in a value hierarchy. Certain members saw it as a profitable opportunity because the claim over the credence attribute did not appear to necessitate compliance with any standard or certification system. They realized that making that healthy claim about SRI rice was already profitable. Furthermore, there was a lack of a local validation framework for farms’ SRI compliance. Consequently, some active members ‘simplified’ their production towards applying selective organic production methods.

Participants in this study noticed an increase in misleading, false, or deceptive claims, as well as rice adulteration over time. To be fair, they suggested that this troubling outcome was caused by the lack of a control system. In 2015, a university’s extension services attempted to assist the farmer group in meeting the National Standard ISO 1009: 2015. The requirements proved to be beyond the capacity of the group and its members. Members did not pursue other certification standards due to the same constraint. Executives struggled to maintain credibility while maintaining local relationships, despite the desire for peer pressure. As a result, the number of members leaving the group increased.

4.2 Disintermediation Through a Cooperative in Malaysia

In the Tenth Malaysia Plan (2011–2015), the Malaysian federal government backed the farmer-to-consumer model. This model is based on the concept of eliminating intermediaries through rural cooperatives. According to a government official interviewed for this study, the model would be replicated nationwide and supported by the Malaysian Good Agricultural Practices (MyGAP) standard. Proponents of intervention (e.g., Suhaimie et al., 2015) lauded its ability to ‘return more value to farmers’ and ‘create jobs (posts)’. To enable these development benefits, the government(s) provided share capital and incorporated farmer groups into cooperatives. The startup fund is intended for capital expenditures on processing equipment such as a dryer, mill, and vacuum packer.

The rural cooperative founded in Simpang Lima village in 2012 is one of the first to experience a farmer-to-consumer value chain model. This intervention included 300 existing and prospective local SRI farmers with a total holding of 540 ha. Their farmlands are located within the Integrated Agricultural Development Area Barat Laut Selangor, which is a gazetted paddy irrigation area. Irrigation facilities enable paddy farms here to have two planting seasons

of approximately 100–140 days each—depending on rice variety. Harvested land is frequently left fallow. As a result, these farmers pursue a relatively concentrated livelihood strategy.

These local leaders aided less experienced farmers in adhering to SRI principles, which were perceived as more stringent than the MyGAP standard. As a result, the MyGAP standard proved more attainable. Certified areas' rice production was labeled as 'sustainable' with the MyGAP logo. At the time of the interview, the rice product was valued at RM3.80/kg, which was higher than the RM1.20/kg reference ex-farm paddy price—the guaranteed minimum price. Such a value chain configuration was deemed appealing to expedite compliance with the MyGAP certification while also providing a means to meet the stated intervention objectives.

In contrast, key informants agreed that meeting the initial expectation for the pace of MyGAP adoption was difficult. In 2016, less than 10% of the members' farmland was accredited. Awareness remained a problem, and input management was identified as a common gap.

Training was regarded as a critical enabler. With the assistance of the Department of Agriculture, the cooperative organized targeted training programs. Furthermore, an international agrochemical company sponsored the cooperative's construction of a training center. This was followed by the establishment of additional rice technology demonstration plots under the National Economic Area's Entry Point Project 11 on paddy productivity growth.

The cooperative also established the Youth Vision Club, which employs young local graduates to assist members in modernizing their farms. Land preparation, transplanting, drone pesticide spraying, harvesting, and straw cutting and bundling were among their 'for hire' mechanization services. According to the cooperative's executives, these modern agricultural services should boost farm efficiency and profit.

However, interviewees stated otherwise. One key theme emerging from that service venture is that, as one member put it, "members felt obligated to support the cooperative, but the cooperative now appears to own a monopoly at the village level." Many study participants observed the cooperative's service arm crowding out other direct service providers in the village. Worse, the cooperative occasionally awarded subcontracts to service providers. As a result, it was reported that certain farming services have become more expensive: "the cooperative behaves more like a profit-seeking private firm rather than genuinely serving its members."

In 2019, according to the cooperative's record book, the total certified production area remained unchanged. The stagnation continued despite a general observation of a higher annual yield of 6.5 tons/acre than the national average of 4 tons/acre. As a result, the cooperative's milling machine was underutilized, processing less than 300 tons of paddy per year. Drying and packaging machines were only used when necessary. There was no information on the rice recovery rate, and key informants suggested a conservative milling efficiency of 50%, which is lower than the national average of 58%–63%. SRI rice should generate an annual income of about RM1.5 million for the cooperative on that basis.

However, the domestic high-value market was plagued by erratic sales. It was hampered by other competitive 'fine' rice sold through agrotourism channels. Most cooperative members continued to operate conventionally to eliminate such market risk and, more importantly, to maintain their land use rights. Government policies, such as output subsidies and incentives, guaranteed minimum

paddy prices, and 'buyer of last resort' mechanisms, also reinforced that choice. This study's participants ranked income insecurity as their top concern.

Key informants cited the cooperative's unpredictable dividend as an example of income insecurity, but they also proposed an explanation for members' vested interest in maintaining their membership. It was anticipated that the cooperative's dissolution would result in a capital repayment. This was viewed as a lucrative proposition since the equity capital was 'gifted' and the cooperative has been enterprising. Furthermore, cooperative executives received numerous benefits, including networking, access to public funding, wages, and opportunities to hone leadership and business skills. They saw these skills as critical to their 'upgrading' as individual entrepreneurs in the future.

5.0 Discussion

Direct marketing has been advocated as a lever for the shift to smallholder value chain upgrading. A farmer-to-consumer value chain has been built to empower Indonesian and Malaysian paddy farmers. Because it bypasses intermediaries, this is considered the most sophisticated type of rural entrepreneurship for smallholders. Direct customer access enables the maximum market margin to be achieved.

Both cases in this study began with a small number of participants. The farmer associations' main activities concentrated on the processing and marketing of high-value rice products. Local government helped with capital and knowledge transfer. Smallholder adoption of SRI principles involved process upgrading, which, in turn, facilitated product upgrading. Direct market access supported functional upgrading, with participants in both cases promoting local rice as a quality feature. Those were the initial favorable effects.

However, subsequent rent seeking hampered scale upgrading, which is essential to fulfill the processing capacity of niche value chains. In Indonesia, dishonorable behavior by some participants discredited other participants, culminating in membership withdrawal. In Malaysia, increasing input control by the cooperative resulted in members disconnecting their harvest sales from the cooperative. These findings lend support to Gelo et al. (2020), who suggest that opportunistic behavior erodes members' trust in their farmer organizations. As a result, members' commitment to their farmer organizations is weakened (Biggeri et al., 2018). It manifests itself in the form of at least some members selling their produce outside of farmer organizations (Lutz & Tadesse, 2017). The inability of farmer organizations to upscale limits their economic role in meeting members' social goals.

Such similar consequences, arising from opposite causes, highlight an implicit dilemma. On the one hand, to avoid the Indonesian problem, the organization must maintain standards and control. However, where those standards and controls are considered excessive or too onerous—considering the anticipated economic benefit—result in abandonment. Being a voluntarily formed group whose joint action seeks improvement for its members, our findings clearly demonstrate the importance of collective governance, as well as cognitive of and sympathetic to the social needs of its members.

Our findings in this study suggest that scale aggregation, rather than individual capacity, shapes smallholder value chain upgrading potential. Aggregation can address issues of scale by providing access to factors for market technology for farming, such as credit, fertilizers, pesticides, seeds, and, as well as creating market niches for commercialization in domestic, national and international marketplaces (Pingali et al., 2019). Despite such potential, farmer aggregation models often fail due to excessive state interference and/or their inability to

adjust to market developments (Abraham et al., 2022). Additionally, and importantly, as shown in this study, poor collective governance hampers farmer organizations' ability to aggregate.

One clear implication is that collective governance should be prioritized to facilitate smallholder value chain upgrading. Rural value chain transformations that are relatively successful typically achieve collective governance through a form of command and control, in which members must adhere to the specified production methods and sell to the farmer organization in exchange for joint access to factor and product markets (e.g., Nguyen et al., 2020). Farmers who lack education, land access, and market access can be provided with additional capacity building before they can reap the economic benefits of farmer organization membership (Bizikova et al., 2020). Participatory and social learning may be beneficial in alleviating the constraints that typically impede actions on shared interests (LeGrand et al., 2018). Collective governance becomes more feasible when it is founded on social and hierarchical relationships to direct efficient input-output flows via market access, market power, and value distribution (Gereffi & Korzeniewicz, 1994).

It is recommended that socially oriented aspects be considered and included in smallholder governance upgrading. Rural interventions in smallholder development have been, typically, proposed as an economic consideration. In reality, local politics and a value upgrading preposition are implicit in (in)formal farmer organizations. Member participation may be driven by social relations initially, but the influence of perceived welfare rises over time. The commitment of members can thus vary as marginal costs and benefits become asymmetric across individuals. Issues that may arise include deviation from the desired trajectory (e.g., Warren & Visser 2016). For example, the removal of 'middlemen' may be replaced by another type of intermediary. Under a rent-seeking regime, upgrading will become exclusive (Coles & Mitchell, 2011). Under a free-riding regime, upgrading effects will be diluted.

Consequently, in the promulgation and evolution of any farmer organizations, their governance and communication structures—including its capacity for in-service education—are pre-determinates of its success (or failure). Governance structures are unlikely to succeed unless they are inclusive, empathetic, and aspirational, providing tangible benefits for an enthusiastic membership.

6.0 Conclusion

Upgrading the value chain for smallholders through market integration has long been recognized as a priority development issue. One of the key mechanisms for accomplishing this would be to organize smallholders into farmer organizations and consolidate their purchasing, production, processing, and marketing capacity. Farmers' bargaining power, economies of scale, and market access could all benefit from aggregation. An intervention of this nature could provide an opportunity to achieve economic and social upgrading for smallholders.

Against this backdrop, a recent intervention in Indonesia and Malaysia that relied on SRI paddy production methods to meet responsible consumption was assessed in relation to the development claims. In both cases, the government invested in farmer organizations' capacity to aggregate staple outputs and process them into a specialty rice product. The direct marketing strategy and capacity building provided members with a differentiated value chain that linked process (production) upgrading to both functional and product upgrading. These findings indicate that the farmer-to-consumer value chain initially achieved the desired economic upgrading. However, the subsequent rent-seeking behavior of

members hampered the farmer organizations' aggregation role and prevented scale upgrading. These occurrences resulted in a collective action problem.

Our study highlights the need for future initiatives to be built on the foundation of good governance structures, rather than simply improving economic returns. With economies of scale, economic and thus social upgrading is more likely to be sustainable. The benefits of development would be more accessible with collective governance that considers localized political economics. One option is to help farmer organizations adopt an appropriate value chain governance model, which includes a bulk sourcing policy to increase members' bargaining power, the implementation of a production supervisory policy to ensure compliance, and enforceable member commitment mechanisms to create economic and social incentives to sell through the farmer institution. There is also a clear need for effective communication about the importance of retaining personal property rights while participating in farmer organizations' activities.

References

- Abraham, M., Chiu, L. V., Joshi, E., Ilahi, M. A., & Pingali, P. (2022). Aggregation models and small farm commercialization—A scoping review of the global literature. *Food Policy*, 110, Article 102299. <https://doi.org/10.1016/j.foodpol.2022.102299>
- Andersson, C. I. M., Chege, C. G. K., Rao, E. J. O., & Qaim, M. (2015). Following up on smallholder farmers and supermarkets in Kenya. *American Journal of Agricultural Economics*, 97(4), 1247–1266. <https://doi.org/10.1093/ajae/aav006>
- Arifin, B., Wicaksono, E., Tenrini, R. H., Wardhana, I. W., Setiawan, H., Damayanty, S. A., Solikin, A., Suhendra, M., Saputra, A. H., Ariutama, G. A., Djuned, P., Tahman, A. B., & Handoko, R. (2020). Village fund, village-owned-enterprises, and employment: Evidence from Indonesia. *Journal of Rural Studies*, 79, 382–394. <https://doi.org/10.1016/j.jrurstud.2020.08.052>
- Arnould, E. J., Plastina, A., & Ball, D. (2009). Does fair trade deliver on its core value proposition? Effects on income, educational attainment, and health in three countries. *Journal of Public Policy & Marketing*, 28(2), 186–201. <https://doi.org/10.1509/jppm.28.2.186>
- Badan Pusat Statistics. (2020). *Paddy and rice production by regency/municipality in Central Java Province, 2018 and 2019*. Retrieved August 21, 2022, from <https://banjarnegarakab.bps.go.id/statictable/2020/07/07/195/produksi-padi-dan-beras-menurut-kabupaten-kota-di-provinsi-jawa-tengah-2018-dan-2019.html>
- Barrett, C. B., Islam, A., Mohammad Malek, A., Pakrashi, D., & Ruthbah, U. (2022). Experimental evidence on adoption and impact of the system of rice intensification. *American Journal of Agricultural Economics*, 104(1), 4–32. <https://doi.org/10.1111/ajae.12245>
- Biggeri, M., Burchi, F., Ciani, F., & Herrmann, R. (2018). Linking small-scale farmers to the durum wheat value chain in Ethiopia: Assessing the effects on production and wellbeing. *Food Policy*, 79, 77–91. <https://doi.org/10.1016/j.foodpol.2018.06.001>

- Bizikova, L., Nkonya, E., Minah, M., Hanisch, M., Turaga, R. M. R., Speranza, C. I., Karthikeyan, M., Tang, L., Ghezzi-Kopel, K., Kelly, J., Celestin, A. C., & Timmers, B. (2020). A scoping review of the contributions of farmers' organizations to smallholder agriculture. *Nature Food*, 1, 620–630. <https://doi.org/10.1038/s43016-020-00164-x>
- Coles, C., & Mitchell, J. (2011). Working together—Horizontal coordination as an upgrading strategy. In J. Mitchell & C. Coles (Eds.), *Markets and rural poverty: upgrading in value chains* (pp. 143–162). Earthscan.
- Corsi, A., Novelli, S., & Pettenati, G. (2018). Producer and farm characteristics, type of product, location: Determinants of on-farm and off-farm direct sales by farmers. *Agribusiness*, 34(3), 631–649. <https://doi.org/10.1002/agr.21548>
- Custodio, M. C., Cuevas, R. P., Ynion, J., Laborde, A. G., Velasco, M. L., & Demont, M. (2019). Rice quality: How is it defined by consumers, industry, food scientists, and geneticists? *Trends in Food Science & Technology*, 92, 122–137. <https://doi.org/10.1016/j.tifs.2019.07.039>
- Demont, M., & Ndour, M. (2015). Upgrading rice value chains: Experimental evidence from 11 African markets. *Global Food Security*, 5, 70–76. <https://doi.org/10.1016/j.gfs.2014.10.001>
- Detre, J. D., Mark, T. B., Mishra, A. K., & Adhikari, A. (2011). Linkage between direct marketing and farm income: A double-hurdle approach. *Agribusiness*, 27(1), 19–33. <https://doi.org/10.1002/agr.20248>
- Dragusanu, R., Giovannucci, D., & Nunn, N. (2014). The economics of Fair Trade. *Journal of Economic Perspectives*, 28(3), 217–236. <http://doi.org/10.1257/jep.28.3.217>
- Fold, N., & Larsen, M. N. (2011). Upgrading of smallholder agro-food production in Africa: The role of lead firm strategies and new markets. *International Journal of Technological Learning, Innovation and Development*, 4(1–3), 39–66. <https://doi.org/10.1504/IJTLID.2011.041899>
- Gelo, D., Muchapondwa, E., Shimeles, A., & Dikgang, J. (2020). Aid, collective action and benefits to smallholders: Evaluating the World Food Program's purchase for progress pilot. *Food Policy*, 97, Article 101911. <https://doi.org/10.1016/j.foodpol.2020.101911>
- Gereffi, G. (1999). International trade and industrial upgrading in the apparel commodity chain. *Journal of International Economics*, 48(1), 37–70. [https://doi.org/10.1016/S0022-1996\(98\)00075-0](https://doi.org/10.1016/S0022-1996(98)00075-0)
- Gereffi, G., & Korzeniewicz, M. (1994). *Commodity chains and global capitalism*. Praeger.
- Gereffi, G., & Lee, J. (2016). Economic and social upgrading in global value chains and industrial clusters: Why governance matters. *Journal of Business Ethics*, 133, 25–38. <https://doi.org/10.1007/s10551-014-2373-7>
- Hinnou, L. C., Mongbo, R. L., Kamanda, J., & Sanyang, S. (2018). Innovation platform and governance of local rice value chains in Benin: Between game of power and internal democracy? *Cogent Food & Agriculture*, 4(1), Article 1433346. <https://doi.org/10.1080/23311932.2018.1433346>

- Kilelu, C., Klerkx, L., Omore, A., Baltenweck, I., Leeuwis, C., & Githinji, J. (2017). Value chain upgrading and the inclusion of smallholders in markets: Reflections on contributions of multi-stakeholder processes in dairy development in Tanzania. *The European Journal of Development Research*, 29, 1102–1121. <https://doi.org/10.1057/s41287-016-0074-z>
- LeGrand, K., Buntong, B., Chuong, T., Kong T., Miller, G. D., Trexler, C., & Young, G. M. (2018). Leveraging shared interests to advance sustainable food safety systems in Cambodia. *The Journal of Rural and Community Development*, 13(3), 167–191.
- Lee, J., Gereffi, G., & Beauvais, J. (2012). Global value chains and agrifood standards: Challenges and possibilities for smallholders in developing countries. *Proceedings of the National Academy of Sciences*, 109(31), 12326–12331. <https://doi.org/10.1073/pnas.0913714108>
- Lutz, C., & Tadesse, G. (2017). African farmers' market organizations and global value chains: Competitiveness versus inclusiveness. *Review of Social Economy*, 75(3), 318–338. <https://doi.org/10.1080/00346764.2017.1300317>
- Méndez, V. E., Bacon, C. M., Olson, M., Petchers, S., Herrador, D., Carranza, C., Trujillo, L., Guadarrama-Zugasti, C., Cordon, A., & Mendoza, A. (2010). Effects of Fair Trade and organic certifications on small-scale coffee farmer households in Central America and Mexico. *Renewable Agriculture and Food Systems*, 25(3), 236–251. <https://doi.org/10.1017/S1742170510000268>
- Nguyen, T. A. T., Nguyen, K. A. T., Truong, H. C., & Jolly, C. M. (2020). Collective action governance and benefits distribution in the sturgeon value chain in Lâm Đồng province, Vietnam. *Aquaculture*, 519, Article 734765. <https://doi.org/10.1016/j.aquaculture.2019.734765>
- Nuthalapati, C. S. R., Sutradhar, R., Reardon, T., & Qaim, M. (2020). Supermarket procurement and farmgate prices in India. *World Development*, 134, Article 105034. <https://doi.org/10.1016/j.worlddev.2020.105034>
- Ogotu, S. O., Ochieng, D. O., & Qaim, M. (2020). Supermarket contracts and smallholder farmers: Implications for income and multidimensional poverty. *Food Policy*, 95, Article 101940. <https://doi.org/10.1016/j.foodpol.2020.101940>
- Petrin, T., & Gannon, A. (Eds.) (1997). *Rural development through entrepreneurship*. Food and Agriculture Organization of the United Nations. <https://www.fao.org/3/w6882e/w6882e02.htm>
- Pingali, P., Aiyar, A., Abraham, M. & Rahman, A. (2019). Linking farms to markets: reducing transaction costs and enhancing bargaining power. In *Transforming food systems for a rising India. Palgrave studies in agricultural economics and food policy* (pp. 193–214). Palgrave Macmillan. https://doi.org/10.1007/978-3-030-14409-8_8
- Reardon, T., Chen, K. Z., Minten, B., Adriano, L., Dao, T. A., Wang, J., & Gupta, S. D. (2014). The quiet revolution in Asia's rice value chains. *Annals of the New York Academy of Sciences*, 1331(1), 106–118. <https://doi.org/10.1111/nyas.12391>
- Reardon, T. A., Chen, K. Z., Minten, B., & Adriano, L. (2012). *The quiet revolution in staple food value chains: Enter the dragon, the elephant, and the tiger*. Manila: Asian Development Bank.

- Segal, R., & Minh, L. N. (2019). Unfair harvest: The state of rice in Asia. Oxfam. <https://oxfamlibrary.openrepository.com/bitstream/handle/10546/620646/bp-unfair-harvest-rice-asia-200319-en.pdf>
- Soullier, G., Demont, M., Arouna, A., Lançon, F., & del Villar, P. M. (2020). The state of rice value chain upgrading in West Africa. *Global Food Security*, 25, Article 100365. <https://doi.org/10.1016/j.gfs.2020.100365>
- Soullier, G., & Moustier, P. (2021). The modernization of the rice value chain in Senegal: A move towards the Asian Quiet Revolution? *Development Policy Review*, 39(S1), 81–101. <https://doi.org/10.1111/dpr.12459>
- Stoop, W. A., Uphoff, N., & Kassam, A. (2002). A review of agricultural research issues raised by the system of rice intensification (SRI) from Madagascar: Opportunities for improving farming systems for resource-poor farmers. *Agricultural Systems*, 71(3), 249–274. [https://doi.org/10.1016/S0308-521X\(01\)00070-1](https://doi.org/10.1016/S0308-521X(01)00070-1)
- Suhaimee, S., Halim, N. A., Zakaria, M. H., Nazmi, M. S., Rusli, R., & Dardak, R. A. (2015, September 14–18). *Roles of cooperative movement as middlemen to increase the efficiency of agricultural marketing in Malaysia*. The FFTC–NACF International Seminar on Improving Food Marketing Efficiency—the Role of Agricultural Cooperatives, NACF, Seoul. <https://ap.fttc.org.tw/article/950>
- Thakur, A. K., Mandal, K. G., Mohanty, R. K., & Uphoff, N. (2022). How agroecological rice intensification can assist in reaching the Sustainable Development Goals. *International Journal of Agricultural Sustainability*, 20(2), 216–230. <https://doi.org/10.1080/14735903.2021.1925462>
- Thakur, A. K., & Uphoff, N. T. (2017). How the system of rice intensification can contribute to climate-smart agriculture. *Agronomy Journal*, 109(4), 1163–1182. <https://doi.org/10.2134/agronj2016.03.0162>
- Uematsu, H., & Mishra, A. K. (2011). Use of direct marketing strategies by farmers and their impact on farm business income. *Agricultural and Resource Economics Review*, 40(1), 1–19. <https://doi.org/10.1017/S1068280500004482>
- van Rijsbergen, B., Elbers, W., Ruben, R., & Njuguna, S. N. (2016). The ambivalent impact of coffee certification on farmers' welfare: A matched panel approach for cooperatives in Central Kenya. *World Development*, 77, 277–292. <https://doi.org/10.1016/j.worlddev.2015.08.021>
- Vicol, M., Neilson, J., Hartatri, D. F. S., & Cooper, P. (2018). Upgrading for whom? Relationship coffee, value chain interventions and rural development in Indonesia. *World Development*, 110, 26–37. <https://doi.org/10.1016/j.worlddev.2018.05.020>
- Warren, C., & Visser, L. (2016). The local turn: An introductory essay revisiting leadership, elite capture and good governance in Indonesian conservation and development programs. *Human Ecology*, 44, 277–286. <https://doi.org/10.1007/s10745-016-9831-z>
- Yumkella, K. K., Kormawa P. M., Roepstorff, T. M., & Hawkins, A.M. (Eds.) (2011). *Agribusiness for Africa's prosperity*. United Nations Industrial Development Organization.