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Societal Entrepreneurship for Sustainable Asian Rural Societies: A Multi-Sectoral Social Capital Approach in Thailand, Taiwan, and Japan

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Abstract: The agricultural sector in Thailand, Taiwan, and Japan is facing a number of interrelated crises, including aging producers, falling market prices, changing consumer preferences, and biodiversity degradation. Small-scale farmers in these three societies have engaged in diverse collaborative initiatives with actors from the public, private, and third sectors to overcome these challenges. We illustrate these initiatives by combining the concept of societal entrepreneurship with a complex understanding of social capital. Given that these initiatives are formed in distinct ways across these societies, the paper aims to answer the following research questions: What is the nature of the relationships (expressed as types of social capital) underlying the processes of societal entrepreneurship? How does social capital contribute to sustainable community development? How does it facilitate the scaling up of solutions through multi-sectoral collaboration? Using a case study approach, we aim to explore multi-sector initiatives in each context in depth, before identifying common patterns and key drivers for collaboration through thematic analysis. We have found that distinct drivers are involved in each context due to different types of social capital, including solutions, advocacy, and reconciliation.

Keywords: cooperative; societal entrepreneurship; social capital; aging; environmental degradation; multi-sectoral collaboration

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1. Introduction

Small-scale farmers in both developing and developed countries are facing a number of issues, including out-migration and aging, falling profits, extreme price volatility, changing consumer preferences, and environmental and biodiversity degradation [1–3]. These problems are threatening the sustainable livelihoods of many farmers. Given that their continued operation is essential for food security and rural economic activity (see [4], p. 588), the sustainability of the farming sector is a societal concern. For these reasons, the challenges faced by small-scale farmers require innovative solutions and effective collaboration among the public, private, and third sectors.

In this paper, we examine how actors in these three sectors work together to create sustainable solutions for the above challenges. These challenges are interrelated and complex, demanding innovative and, as we argue, entrepreneurial thinking. We therefore rely on the concept of "societal entrepreneurship" developed by Berglund and Johannisson [5] to illustrate how actors from different sectors jointly enroll in entrepreneurial practices for the creation of social value. According to these authors, each sector can contribute unique resources to the joint objective of empowering marginalized people. The challenge intrinsic to such cross-sectoral collaborations consists in bridging the cultural

and operational divides between them. The literature on societal entrepreneurship has mainly provided narrative descriptions of organizations and individuals overcoming these obstacles in the Swedish context (see [5] (pp. 3, 9)). In this paper, we illustrate the dynamics of multi-stakeholder collaborations in three East Asian societies: Japan, Taiwan, and Thailand. Given the different legal frameworks and viable strategies in the three countries, our cases include any legal form these organizations take as long as they serve a wider community, are motivated by a societal vision, and are integrated into societal collaborations (see [6]). Farmers meet these objectives and modes of operation through a multitude of organizations, including networks, cooperatives, associations, and for-profit enterprises. Moreover, through collaborations with different types of stakeholders, their reconciled missions transcend these entities to include government institutions, NGOs, and commercial businesses. Each policy context poses opportunities and challenges for the innovative agency of grassroots organizations as they engage with the public, not-for-profit, and private sectors. Therefore, this study provides important lessons for cooperatives and cooperative-like organizations elsewhere about different strategies in different contexts, and about how these contexts shape the roles of the public, private, and third sectors. In conjunction with societal entrepreneurship, we moreover involve Brunie's analytical framework on social capital [7,8]: We need to account for important socio-cultural differences across the cases presented in this paper, and a complex understanding of social capital is therefore needed to capture these differences and distinct drivers of cooperation in each case. This framework thus helps us to identify and analyze patterns of multi-stakeholder collaboration, which adds further depth to an examination of intersectoral relationships using Berglund and Johannisson's concept.

Since grassroots actors are usually the ones directly affected by the issues underlying these collaborations, effective solutions largely depend on their abilities in agenda-setting and implementation (see [9], p. 264, and [10], p. 220). This places a large amount of responsibility on grassroots actors in particular, as their capacity for innovation is crucial to improving rural livelihoods. This research aims to clarify how such initiatives in different social and cultural contexts can result in positive developments and even trend reversals, at regional (sub-national) levels. In summary, our research is motivated by the following questions: How do different types of social capital affect the capacity of farmers' organization to create and scale innovations? How do these capacities facilitate cooperation with other stakeholders? Finally, how do different types of social capital contribute to distinct processes and outcomes?

Collective innovation-driven efforts to solve the issue of sustainable small-holder agriculture have been the subject of a growing number of publications. For instance, studies from the perspective of governance or governance network theory focus on external stakeholders forming "policy networks" and on how formal partnership platforms help to promote such multi-sectoral collaborations (see [4,11–13]). Those that foreground the "collective entrepreneurship" of small-scale farmers themselves highlight collaborations within farming communities, thereby ignoring other stakeholders (see [14]). Like the aforementioned studies, we do not analyze such collaborations purely from a business perspective. We agree that sustainable solutions require that stakeholders work toward agreed-upon (or reconciled) economic, social, and ecological objectives. The added contribution of our study to these empirical works is that it explores the innovative capacity of small-scale farmers themselves within these multi-stakeholder collaborations.

The paper is structured as follows: We first outline the theoretical frameworks used, to understand the processes and mechanisms underlying multi-stakeholder collaborations. Specifically, we elaborate the concepts of (societal) entrepreneurship and social capital in the context of our study. Secondly, we present three cross-country case studies, starting with a short overview of the policy context and history in each society, followed by a specific multi-stakeholder initiative to improve rural livelihoods and solve specific social issues in the respective community. We then discuss the results in light of the conceptual framework used. In particular, we analyze the linkages between social capital and cross-sectoral

collaboration, the specific roles each sector takes in these collaborations, and possible policy implications. Finally, we provide a summary and the conclusions derived from the study.

2. Theoretical Frameworks: Societal Entrepreneurship and Social Capital

Whereas most social issues are complex in nature and their solutions require collaboration from multiple sectors, the drive and capacity to develop these solutions are generally attributed to individuals in the social entrepreneurship literature ([15,16], p. 43; see also [17], p. 14). This interpretation ignores the importance of social capital and support networks, which help to sustain the creation of social value. The very nature of complex societal issues, moreover, requires multi-stakeholder mobilization. Authors in the field of social entrepreneurship further elaborate on this point by noting that collaborations across the private, public, and third sector are required for scalable solutions with the potential to sustainably transform society. Montgomery et al. proposed the concept of "collective social entrepreneurship," understood "as collaboration amongst similar as well as diverse actors for the purpose of applying business principles to solving social problems" [18] (p. 376). Whereas these authors explore collaboration strategies used by diverse actors to effect social change, the concept of "societal entrepreneurship" elaborated by Berglund et al. [9,19] emphasizes sectoral logics, organizational cultures, and wider cultural contexts that shape the ways in which actors successfully collaborate by crossing sectoral boundaries.

Berglund and Johannisson [5] proposed the concept to help illustrate how actors from different sectors jointly enroll in entrepreneurial practices for the creation of social value. The term "societal" refers to the involvement of the private, public, and third sector, each with its own modes of operation and culture. Organizations and individuals find innovative ways to bridge these sectoral logics in order to mobilize resources for the empowerment of marginalized groups (see [5] (pp. 3, 9)). The renegotiation of sectoral logics is thus a core feature of societal entrepreneurship. The term also has another meaning, in that this type of entrepreneurship has "societal implications" and "changes society" [20]. We agree that having a broad impact is an underlying motivating factor in cross-sectoral collaboration, although such intentions do not always result in social change. In this paper, we therefore understand societal entrepreneurship as a process (understood as bridging sectors) and an intended outcome (understood as societal impact). We are thus interested in how organizations and individuals disrupt the specific cultural and institutional arrangements in which they are embedded in order to contribute to a sustainable society.

Farmers' organizations in different societies are faced with distinct challenges in pursuing this objective. Not only do they deal with diverse stakeholders, but they also operate within different cultural contexts, which in large part determine the rules for successful cross-sectoral interactions and long-term relationships. This cultural diversity makes it difficult to find universal solutions to the challenge of overcoming boundaries between organizations, sectors, and societal levels. As will be shown in the following section, various forms of collaboration are needed to account for these diverse realities. The analysis of specific multi-stakeholder relationships requires a "multi-level conceptualization of social capital," such as the framework proposed by Brunie [7,8]. She distinguishes between three modalities, or types of social capital, in order to sustain cooperation. Relational social capital is understood as an attribute of individuals with a capacity to establish social contacts and maintain these relationships for better access to resources. Brunie closely associates this type of social capital with inter-organizational networks. At the same time, it is a goal-directed and utilitarian perspective compared to other types. Collective social capital emerges through continuous interactions within a homogeneous group with shared norms. Here, mutual trust leads to collaboration, but at the same time may exclude actors outside the group. As such, this type of capital may hinder intersectoral collaboration, but can also lead to productive synergies between sectors when trust is extended to other actors [8] (p. 256). The third type, generalized social capital, likewise relies on trust, but takes the form of citizens' faith in shared norms within society. This type of social capital is

conducive to cross-sectoral collaboration as it indicates "a general readiness to cooperate" among individuals even without having formed pre-existing relationships [7].

What is particularly valuable about Brunie's framework, as compared to competing typologies of social capital (see [21,22], p. 156), is that it includes a clear qualitative distinction of each type, which helps us to capture important contextual differences across our study locations. Her framework, moreover, reflects the findings of a recent study by Saz-Gil et al. [23] about the relationship between agricultural cooperatives and social capital. Proceeding from Putnam's distinction [24] between bonding and bridging social capital, the authors find that generalized trust, specific trust, and institutional trust facilitate the emergence of cooperatives. In our study, generalized trust corresponds to generalized social capital, whereas specific trust aligns with collective social capital. Through the lens of Brunie's framework, the element of "institutional trust" lacks precision since trust in (public) institutions can be established through any of the three types (see Section 5). As will be shown in the empirical cases in the third section, each type of social capital influences the emergence of societal entrepreneurship in distinct ways, and holds potential to facilitate or inhibit the process of cross-sectoral collaboration. A conceptualization of these mechanisms underlying successful cross-sectoral collaboration is, in our view, crucial for learning effects to be implemented in other contexts. We therefore suggest a multi-sectoral social capital perspective in this paper to elucidate the analysis of societal entrepreneurship.

3. Methods and Data

A case study approach was used to explore country-specific drivers for multi-stakeholder collaboration. Thailand, Taiwan, and Japan have been chosen as they represent different developmental stages and cultural contexts. These characteristics consequently give rise to different expressions of social capital. Given the informal nature of aspects of cross-sectoral collaboration in these societies, there is little data for a quantitative assessment of the role of social capital. Case studies, on the other hand, enable in-depth exploration of multi-stakeholder relationships through the examination of complementary perspectives (see [25]).

The authors conducted a field trip to the Okayama prefecture in December 2019, where we discussed possible cases involving cross-sectoral collaboration to improve rural livelihoods. For each case, respondents were identified through purposive sampling and, in the course of interviews, referred us to their main working contacts within other sectors. Semi-structured interviews with representatives of farmers' organizations, community members, and government institutions (as well as NGOs and private businesses in the case of Taiwan) enabled the authors to clearly identify the processes of intersectoral collaboration. These stakeholder perspectives, combined with information from secondary sources (news, social media, statistics, and government reports), were used to triangulate our findings, thus establishing internal validity. The cases have been built and analyzed by different authors, which moreover helped to mitigate researcher bias. The author of the Thai case built on an earlier case study [26] and conducted follow-up interviews with six respondents in the Sakon Nakhon province, northwestern Thailand, and Bangkok. Eighteen stakeholders were interviewed in the Okayama prefecture in western Japan, including stakeholders from local government, civil society, and farmers' organizations. Three key stakeholders were interviewed in depth in Pingtung County in southern Taiwan, following a seminar in September 2018 that featured detailed reports from each stakeholder involved in the case.

Throughout the research process, the authors compared the data through peer discussions and decided to apply the conceptual framework elaborated by Brunie [8] as the point of departure for thematic analysis across the case studies. Thus, the codes for analysis were determined in advance (see [27]), consisting of "relational social capital", "collective social capital", and "generalized social capital". We have found that solutions, advocacy, and reconciliation are key drivers for collaboration in each context. As these collaborations rely on different types of social capital, these drivers are involved to different degrees, with different capacities for scalability and social impact (see Section 5 for detailed findings).

4. Case Studies

4.1. Thailand

4.1.1. Context

Since the early 1960s, Thailand's development strategy has been focused on industrialization at the expense of the agricultural sector, which has been dominated by small-scale farmers. Government policies have effectively extracted value from agriculture, which dominated Thai exports until the 1980s. For instance, through the so-called rice premium, the government taxed rice exports while keeping the domestic price of rice artificially low, which lowered food prices in general [28] (p. 36). Combined with a steady influx of unskilled workers from rural areas to Bangkok, this policy contributed to low wages, which provided the main competitive advantage for the domestic industrial sector. Moreover, farmers had to purchase fertilizer and other farm inputs at above global market prices from domestic producers due to import duties on comparable products. This overall strategy made farming unprofitable for most rural households in Thailand, driving agricultural producers into seasonal off-farm employment. The lack of government support for agriculture resulted in inefficient farming practices and a lack of agricultural diversification. Roughly 45% of all farmland in Thailand is used for rice cultivation [29] (p. 1), [30] (p. 9), much of it for household consumption; in the northeastern region, for instance, almost half of the rice output is consumed by the farming households themselves [31] (p. 42). The continuing importance of the subsistence sector for farmers explains why many of them are directly affected by deforestation: Non-timber forest products provide an additional source of food and income for five million people.

Due to government neglect of the agricultural sector, NGOs have campaigned for the cause of Thai farmers since the 1970s. Many activists pursued the seemingly contradictory strategy of maintaining a traditional community culture while demanding the inclusion of these communities in the mainstream economy through the appropriation of modern know-how (see [32,33]). NGO activists and academics have pursued this strategy in opposition to the state, yet, ironically, this very development approach has been adopted by government institutions under the term "sufficiency economy" since 1998. This development strategy still guides the programs and activities of administrative institutions at all levels in Thailand: The country's central planning institution, the National Economic and Social Development Council (NESDC, formerly National Economic and Social Development Board, renamed in 2018), issues consecutive five-year strategic plans, which are further specified in government policies and targets. Sufficiency economy principles have been inscribed in central government planning since the Ninth Economic and Social Development Plan issued in 2001 (see [29]).

The dual objectives of self-reliance and market integration also characterize the Thai cooperative sector [30]. Cooperatives as legal entities have existed since 1916 and are classified into seven groups by law: Agricultural, land settlement, fishery, thrift and credit, service, consumer, and credit union cooperatives. More than 7000 cooperatives are currently registered, about half of which are classified as agricultural [31]. These focus on a variety of market-related activities, such as purchasing rice from members and providing farm inputs and access to middlemen or markets. In addition, and sometimes alongside the market-related activities, some cooperatives promote the diversification of production for home consumption in line with the official self-sufficiency narrative. Today, cooperatives are one type among other cooperative-style entities aimed at supporting farmers (see Table 1).

Table 1. Types and numbers of agricultural organizations in Thailand.

Types of Agricultural Organizations	No. of Organizations	No. of Members	Characteristics
Agricultural cooperatives (farmland, fisheries, and settlements)	4455 (as of 2018)	6,677,500 (as of 2018)	A group of people (>10) with the same/similar occupation; members contribute capital, hold shares according to their contribution, and receive dividends.
Other cooperatives (stores, services, savings institutions, and credit unions)	3560 (as of 2018)	4,958,666 (as of 2018)	
Community enterprises	16,877 (as of 2018)	285,701 (as of 2018)	A business entity providing products or services, run by at least 7 members; it supports self-reliance and receives government certification.
Farmers' cooperative associations	4518 (as of 2017)	506,966 (as of 2017)	A self-reliance oriented group of farmers (>30) who support one another's business by sharing agricultural and household technical knowledge and providing financial assistance to members.
Associations (samakhom)	5	524	Organizations that support members (agricultural entrepreneurs) by negotiating with outside stakeholders in conducting business; they cooperate with public and private entities in research.

From various sources.

4.1.2. Case: Family Forestry Project in Thailand

The Inpaeng network is an association of small-scale farmers that has grown since the mid-1980s from a forest conservation group of 13 villagers in the Sakon Nakhon province into a network encompassing five provinces with the addition of Udon Thani, Mukdahan, Nakhon Phanom, and Bueng Kan [26] (p. 184, Interview with Inpaeng leader 3, 7 June 2020). A core concern uniting these farmers across the region is the gradual loss of biodiversity due to declining forest cover. Up until the 1980s, when public forest was not effectively protected by the state, this disappearance was largely due to falling market prices for cash crops, especially cassava; local farmers sought to increase the quantity of produce by clearing forest land. To members of the forestry group, this was a shortsighted strategy, since local people relied on non-timber products for their diets. With declining forest areas, local communities were depriving themselves of valuable resources they had been collecting, including ants' eggs, mushrooms, vegetables (such as phak waan, culantro, and chamuang), indigo (used for dyeing), and medicinal herbs such as Tako-Na (*Diospyros rhodocalyx* kurz) and Khonkhaen (*Dracaena angustifolia*). The forest conservation group therefore opposed the practice of producing cash crops as promoted by the government's agricultural extension staff, and instead promoted a strategy of self-reliance based on food crops and forest products. The group initially aimed to restore public forests, but was largely unsuccessful. The members therefore collected seeds and created seed banks at their homes. Those with large land holdings planted forest trees, effectively recreating small forest ecosystems on their farms ([34], p. 23).

The aim to protect local biodiversity resonated with farmers in other parts of the region, and Inpaeng slowly attracted members in all districts of Sakon Nakhon. Beyond the border of the province, the network linked up with existing rural groups in neighboring provinces (see [26], pp. 185–186). Most people joining the network have been elderly farmers, as many young people leave the agricultural sector for higher incomes in other parts of Thailand, especially Bangkok. Inpaeng leaders explicitly acknowledge "a crisis of aging within Inpaeng" (Interviews with Inpaeng leaders 1, 30 March 2020, and 3, 7 June 2020). There are thus only a few young farmers to follow in their footsteps. For this reason, Inpaeng members have sought to convince the young generation that local biodiversity is not only an important source of subsistence, but also has monetary value,

especially when niche products are sold in distant markets. The group has therefore been exploring outside food markets and, since the mid-1990s, has increasingly ventured into food processing. Up to that point, member farmers had relied on mutual support and exchange of know-how within the network. As they now needed to acquire processing techniques from outside actors, Inpaeng started to link up with public institutions. At first, these collaborations enabled member communities to operate community enterprises. With time, these collaborations extended beyond efforts to add value to local resources, and government units gradually integrated Inpaeng's agricultural practices into their policy designs on the regional and national level.

The first community enterprise operated by the group emerged as a joint effort with the Agricultural Land Reform Office (ALRO) and the regional branch of the Rajamangala University of Technology. They identified the Mao berry (*Antidesma bunius*) as a product unique to the Sakon Nakhon province [35]. The university conducted research on the properties of this little-known fruit outside of the province and shared processing and bottling techniques with Inpaeng. Local network members bought up some land, where they created the first community enterprise processing Mao berries into juice and wine in 1995. The area has since become the main network center where locals share processing and organic agricultural techniques with other farmers. Today, there are multiple Mao juice producers in Sakon Nakhon, only some of which are associated with the Inpaeng network, and the berry juice can today be purchased in different stores in Bangkok. Since the mid-1990s, Rajamangala University of Technology has explored additional uses of the berry and has since shared techniques to process Mao berries into diverse products, including sugarless juice, jam, and tea. To Inpaeng, these value-added activities are a means to attract other farmers to its philosophy, whereas public institutions have been interested in fostering entrepreneurial activity in rural areas (see [36]).

The missions of the farmers' network and public institutions became further aligned with the adoption of the sufficiency economy philosophy as the guiding principle for national development. From then on, public institutions would recognize not only the commercial aspects of the network's activities, but also its self-reliance philosophy. For instance, in its Ninth Economic and Social Development Plan, the NESDC called on public institutions to facilitate information and technology transfer to rural communities to enable the local development of "products that are compatible with local wisdom and culture" ([37], p. 52). With official sanction by the central government, Inpaeng and its existing partners extended their collaboration by identifying further products based on the utilization of local resources such as organic fertilizer and an organic MSG substitute ([36], p. 13). These products in turn resulted in the creation of community enterprises run by network members in different provinces. Since the Community Enterprise Promotion Act of 2005, these enterprises have been eligible for additional support; Mao berry processing enterprises run by Inpaeng, for instance, have received government assistance in the form of fixed capital. The prototype enterprise at the Inpaeng Learning Center also receives staff support (Interview with Inpaeng member, 17 January 2012).

Inpaeng community enterprises are run as cooperatives, meaning they are financed through a share system with members receiving dividends. Some, including a Mao berry processing cooperative in the Phuphan district and saving groups initiated by Inpaeng, are also registered as such (Interview with Inpaeng leader 3, 26 June 2020). The mission of these enterprises is to complement subsistence production with monetary income by processing local resources, usually surplus produce from farms. As community enterprises, they serve not only the shareholders, but also the wider community, e.g., by providing employment, guaranteeing stable purchasing prices for local farmers, or (if customers are from the local community) keeping sales prices low. Even beyond the operations of these enterprises, Inpaeng aims to collaborate with outside stakeholders in a way that benefits the community at large. For instance, together with two public sector institutions, the Biodiversity-Based Economy Development Organization (BEDO) and the Sakon Nakhon Chamber of Commerce, Inpaeng successfully applied for geographical indication (GI) of

the Mao berry in 2016. This form of area-based intellectual property right extends to all producers in the Sakon Nakhon province, thereby protecting them from competition from outside the province (see [38]).

According to an Inpaeng leader, ALRO, BEDO, and the Rajamangala University of Technology are now considered to be the main partners of the farmers' network (Interview with Inpaeng leader 3, 7 June 2020). ALRO (established in 1975) allocates land to landless farmers and develops basic infrastructure such as water sources and road access to new farms (Interview with ALRO representative, 8 June 2020). BEDO was established in 2007 with the mission of promoting rural employment through the utilization of local biodiversity, and it thereby "encourages sustainable conservation of biodiversity and local wisdom at community to national level" [39]. Both organizations are small government units with limited resources, relying on multi-stakeholder cooperation in order to implement their activities. A recent project illustrating the alignment between the farmers' mission and public institutions is the so-called family forestry project, which has been operating since 2016.

Inpaeng leaders brought their practice of extending the forest into the fields to the attention of Pracharat Rak Samakkhi, a new social enterprise created by retired government officials. The enterprise was created with the mission of promoting rural economies by connecting communities with the public and private sectors. Together with the Chamber of Commerce of Sakon Nakhon, these three actors created a carbon-trading scheme for farmers with landholdings of 1.6 ha or more to encourage them to devote part of their land to the cultivation of forest trees to preserve the ecosystem (Interview with Inpaeng leader 1, 30 March 2020). According to this scheme, Pracharat Rak Samakkhi would monitor the progress of participant farmers and relay the information to BEDO, which acts as an intermediary selling carbon credits to the private sector, resulting in monetary compensation for farmers. The first farmers to be involved in this scheme were Inpaeng farmers in the Wanorn Niwat district, who allocated 752 ha of land (Interview with BEDO official, 31 May 2020). In 2017, the family forestry project moved with the collaboration of BEDO and ALRO. Since the land reform office was allocating land to farmers throughout the country, this project became a national policy, with ALRO implementing it in land reform areas in five pilot provinces. In line with this policy, 15,000 trees were planted in June–July 2019 (Interview with Inpaeng leader 2, 30 March 2020).

Carbon sequestration involves high opportunity costs, which Inpaeng leaders became aware of through past experience: A decade earlier, the network was involved in a similar project with Michigan State University and Thai research institutions (see [40]). However, this time, network leaders are not the main operators, but instead act as consultants in a state-led project. Mr. Thawatchai, the leader of Inpaeng, seems optimistic about the allocation of responsibilities: "We are not necessarily playing the key role, but we help our network farmers set the agenda" (Interview with Inpaeng leader 1, 30 March 2020). In contrast to academic institutions, the public sector can incentivize farmers to become part of the project through favorable policies. One such policy that raised the attractiveness of planting forest trees rather than crops was created by the Ministry of Commerce in 2018. It issued a directive that forests with economic value can be used as collateral with government banks, such as the Bank of Agriculture and Agricultural Cooperatives.

BEDO has provided further incentives for farmers to join the family forestry project by aligning it with Thailand's policy to increase the forest cover to 55% of the country's area by 2037. The plan foresees that 35% will be classified as protected forest land and 15% will be allocated to the economic use of local communities, while the remaining 5% of Thailand's territory is meant for public parks and recreation (Interview with BEDO official, 31 May 2020). The family forestry project addresses the part of the national forest project that is devoted to sustainable community use (i.e., 15% of the country's area). Although the use rights for this aspect of the government scheme are intended for entire communities, BEDO has integrated the practice among Inpaeng members so that they can create forests on their own farms within this scheme. The farmers participating in this economic forestry scheme are sustaining the newly created forests through three means:

first, they are encouraged to plant commercial trees, such as rubber trees, within the mixed forest area; second, they can use vegetables and herbs for their own use and for income generation; and third, they are tasked with guaranteeing the protection of precious trees.

All three uses of the family forest present income opportunities for farmers. Commercial timber in mixed forests is a direct source of income. Since these trees are planted within a diverse ecosystem, they are not disrupting local biodiversity even if they are cleared due to falling market prices. As for the use of vegetables and herbs, ALRO invites its client farmers in the northeast to the Inpaeng Center in Sakon Nakhon for training in self-reliant agriculture. Farmers are introduced to integrated farming methods for subsistence production and the sale of surplus products [41]. BEDO is supporting farmers through marketing and sales, and links up with other development agencies to support the identification of new niche products. The protection of precious trees is a central objective of BEDO itself, and local farmers are invited to submit proposals for which tree species should be included in this category. Once a proposal is accepted, BEDO will compensate respective farmers under a payment for ecosystem services (PES) program (Interview with BEDO official, 31 May 2020).

Engaging in multi-stakeholder collaboration has expanded the ways in which income generation opportunities are pursued alongside local biodiversity conservation. Inpaeng members would like to see the young generation seize such opportunities, but this is not likely to happen in the short run, according to a young network member: "[The family forest project] has a strong focus on forest conservation. In terms of food security, yes, it provides food security. But will the young generation be content? . . . [The self-reliance mindset] is something that the young need to be brought up with" (Interview with Inpaeng respondent, 14 June 2020). According to this respondent, sufficiently high incomes will keep young people in rural areas, but this criterion is not yet being met.

In sum, public sector support has been a decisive factor in scaling the innovations of the Inpaeng network. Whereas government support in the past was limited to establishing contacts among northeastern farmers' groups and sharing technical know-how with them, the family forestry project has involved concerted efforts from public institutions on the provincial and national levels to disseminate the Inpaeng practice among a growing number of small-scale farmers. A graphic illustration of the contributions of each actor is provided in Figure 1 below.

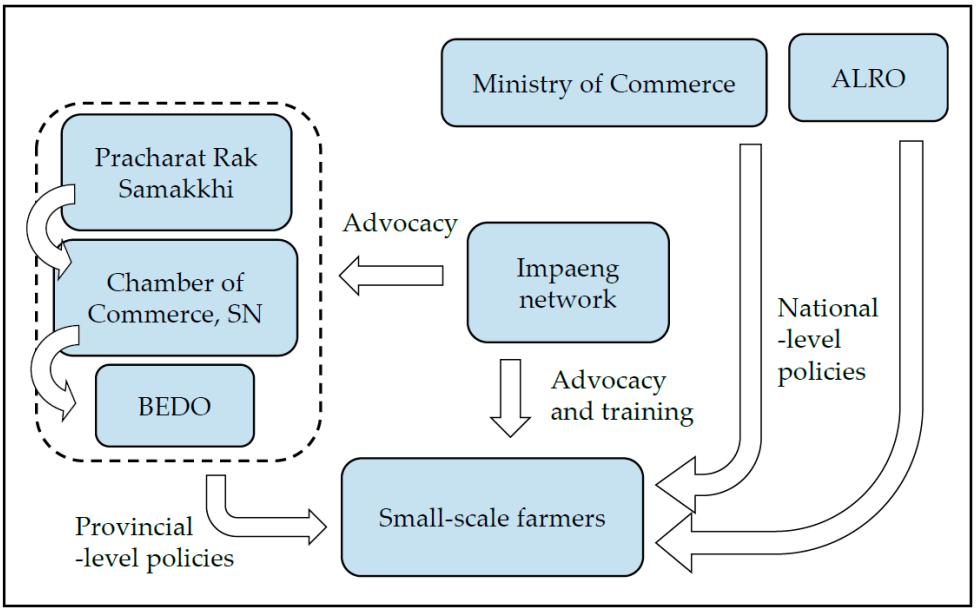

Figure 1. Stakeholders related to the Thai case study.

4.2. Taiwan

4.2.1. Context

As is the case globally, agricultural development involves multiple concerns and the conflicting interests of various stakeholders in Taiwan, such as livelihood and viability issues (with an average age of farmers of 62 and an average farmland size of 1.1 ha), food security, and environmental sustainability. The adverse effects on the environment caused by agricultural activities, such as water pollution, biodiversity loss, and pesticide pollution [42], are particularly pressing issues.

Responding to these challenges, the Council of Agriculture in Taiwan has promoted the New Agriculture Movement—Taiwan's Agriculture "Brighten Up" since 2006 to innovate agricultural governance, upgrade the know-how and practices of farmers, identify new sales channels, and change the perceptions of consumers. Specifically, the objectives have included a transition to safe and high-quality agricultural produce, the identification of marketing channels to ensure high agricultural prices and income for farmers, and measures to encourage consumers to purchase agricultural products with safety certifications and brands to support local agriculture. In 2017, the Council of Agriculture launched a similar four-year plan, the New Agriculture Innovation Promotion Program [43]. The main aim of the program is to enhance communication and collaboration among various stakeholders.

Different types of farmers' organizations (a total of 7457 in 2018) exist in Taiwan, supported by either the Council of Agriculture or local governments (see Table 2). The primary objectives of the 1329 agricultural cooperatives are to develop methods to reduce production costs, improve operating efficiency, and help solve the production and marketing problems of the majority of cooperative members in order to increase farmers' income, stimulate the rural economy, and stabilize rural communities. The stated objectives of 302 farmers associations are to protect farmers' rights, improve farmers' knowledge and skills, promote agricultural modernization, increase production income, improve farmers' livelihood, and develop the rural economy. In addition, more than 5000 farmer production and marketing groups have been established to encourage cooperation in rural communities.

Table 2. Types and numbers of agricultural organizations in Taiwan, 2018.

Types of Agricultural Organizations	No. of Organizations	No. of Members
Agricultural production cooperatives	760	62,980
Agricultural marketing cooperatives	369	87,362
Cooperative farms	200	15,762
Farmers associations	302	12,179
Production and marketing groups	5826	121,449

From [44,45].

In addition to the efforts of the Council of Agriculture, the Ministry of Labor in Taiwan also launched the Empowerment Employment Project in 2009 and the Multiple Employment Development Program in 2012 to assist civil society organizations with the mission of developing creative social projects to promote local employment and revitalize community development. The Taiwanese government implemented the Social Enterprise Action Plan in 2014 and the Social Innovation Action Plan in 2018. Both measures are meant to support organizations operating under the legal forms of farmers associations, cooperatives, community development associations, foundations, social enterprises, NGOs, or private companies, and offer innovative solutions for solving social problems and developing community industries [46]. Innovative organizations or enterprises working in the field of sustainable agriculture have been developed and promoted through the Social Innovation Platform [47]. The trend of promoting social innovation and entrepreneurship has triggered different levels of collaboration across organizations and sectors, including government institutions, academic institutions, community-based organizations, NGOs, and even private companies.

4.2.2. Case: Eagle Red Bean

In Taiwan, there is a strong civil society that is conscious of the adverse impacts on the environment caused by industrial development. Food safety, land degradation, and biodiversity are issues that have elevated sustainable farming to a societal concern. The case of Eagle Red Bean is illustrative of the interaction of multi-sectoral stakeholders in the dynamic process of societal entrepreneurship. It also serves to demonstrate the role of social capital in the societal entrepreneurial process, facilitating the involvement of diverse stakeholders fulfilling complementary roles.

According to the statistics of the Agriculture and Food Agency of the Council of Agriculture, the planting area of red beans (*Vigna angularis*) in Taiwan in 2018 was 6627 ha, of which 4809 ha were planted in Pingtung County and 1592 ha in Kaohsiung City. Combined, these two southern regions account for more than 96% of the red bean producing area in Taiwan [46]. Red beans are planted every year from late September to mid-October, after the harvest of rice. They are then harvested from the end of December to January. Most farmers sell red beans through farmers' associations or cooperatives. For example, one of the most famous red bean brands was developed by the Pingtung Wandan Township Farmers Association, which has a contract area of nearly 60 ha and included more than 80 farmers in 2019 [48].

The Jiayuan Production Cooperative in Pingtung County was established in June 2019 to take red bean farmers near Donggang Township under contract to plant for a special brand, Eagle Red Bean. By 2019, the number of farmers had increased to 100 producers of red bean, compared to three farmers in 2015. Within the same time frame, the land under cultivation grew from 30 to 220 ha. Jiayuan Production Cooperative is also cooperating with other local community development and community care associations to assist farmers in their respective communities. The cooperative is responsible for purchasing the seed and for providing farming machinery and equipment as well as fertilizers and safe pesticides. These services help reduce the work burden of contracted farmers to field inspecting, watering, and weeding. There are two sales channels for this traceable red bean product: in addition to Donggang Township Farmers' Association, sales and marketing of Eagle Red Bean are undertaken by one of the biggest supermarket chains in Taiwan, PX Mart.

This special brand was developed by a cross-sectoral joint effort. According to the blog of the Bird Ecological Research Laboratory (Bird Lab) at the National Pingtung University of Science and Technology, Eagle Red Bean "has become the ambassador of the local agricultural community, and the promotion of eco-friendly farming requires everyone to work together." The authors reconstructed the story of Eagle Red Bean through interviews with key individuals from the private, public and third sectors. These include C.Y. Lin, the founder of Jiayuan Production Cooperative, H.S. Lin, a senior wild bird researcher, and Z.W. Yao, the director of the Southern Regional Branch of the Agriculture and Food Agency, Council of Agriculture. Their information was complemented by various secondary sources, including news, the webpages of related organizations, magazines, a documentary film, and social media.

In the 1970s, black kites, locally referred to as "eagles", were common resident birds all over Taiwan. However, since 1980, the number of black kites has been greatly reduced. The Chinese Bird Society conducted its first census of black kites in 1991 and estimated that there were only about 175 left in Taiwan. Despite still being ubiquitous around the world, the bird is endangered on the island. In October 2012, Bird Lab confirmed that one of the major causes of the disappearance of black kites was the ingestion of smaller dead birds poisoned by pesticides in the red bean farmland [49]. Starting from October 2013, members of Bird Lab together with farmers, farmers' associations, and government departments embarked on a journey to rescue black kites and other species by developing a model of cross-sectoral collaboration in Taiwan.

Two black kites were found dead in a red bean field in Pingtung and taken to the office of Bird Lab in October 2012. One of them had been tagged and released to the wild by the lab in April 2011. The poison test revealed that both had died due to high concentrations of

the farming pesticide carbofuran (1.29 and 2.49 ppm, respectively). The Bird Lab staff did some research and learned that carbofuran is also used to kill wildlife in foreign countries. Accordingly, a concentration of the pesticide of 0.06–0.1 ppm appears to be high enough to kill the wild birds. Alarmed by this finding, in October 2013, Bird Lab visited the farmland where the two black kites had been found and discovered more than 3000 dead birds at local red bean farms. The crew, instead of directly addressing the local farmers and government, raised public attention through media outlets.

Following the release of newspaper and online news entitled "Wild Birds' Killing Fields in Pingtung", Z.W. Yao, the Director of the Southern Regional Branch of the Agriculture and Food Agency, Council of Agriculture, was shocked: "Frankly speaking, since I was born into a farming family, I was raised to hate birds in the farmland. We planted rice, so it seemed quite natural to kill the birds for good harvest.". Yet the news appeared to cause him and his colleagues discomfort. He felt that, as the deputy director of the Department of Agriculture in Pingtung then, he had to take charge of the issue.

C.Y. Lin, the farmer on whose land Bird Lab had found the 3000 dead birds, showed a willingness to change, too. He said, "I am not different from other farmers, yet I can change if conventional farming harms the land, lives, and environment. However, I will need help to find an alternative to conventional farming.". Z.W. Yao proposed to offer funding for machines and unconditional purchases of red beans by the Local Donggang Farmers' Association, and to help with sales and marketing. In 2014, C.Y. Lin devoted himself to alternative farming, pursuing a more eco-friendly approach, al-though he experienced lower yields and difficulties with farmland management as a consequence.

The members of Bird Lab have devoted themselves to continually examining the fields of local farmers since 2013. They run a Facebook fan page named "Fall of Silence—Bird Poison Report Taiwan" (https://www.facebook.com/groups/1490158747925040/, accessed on 16 December 2020) and ran a campaign targeted at the public and farmers against the poisoning of birds. "It is not only the red bean fields where we find dead birds and black kites, but also rice farms in the area," H.S. Lin said. "We found that rat poison has also caused death of wildlife. It is necessary to talk to the farmers, the local residents, the pesticide stores and companies, and the government, so that all these parties come together to find a solution and overcome conflicting interests.". Bird Lab received subsidies from the Pingtung government during 2013–2017 to promote "goodness to the earth, lives, food and human beings".

C.Y. Lin, H.S. Lin, and Z.W. Yao were all determined to take on the challenge and change the local agricultural system. "Continuing to promote 'No Poisoning of Birds' as a slogan is important, but is there anything more we can do for farmers? What about a brand-new red bean product? That might help!", said Z.W. Yao. The new product, under the brand name Eagle Red Bean and certified as a traceable agricultural product (TAP), was successfully planted. The Southern Regional Branch of the Agriculture and Food Agency continued to support the product with a series of activities in conjunction with other government offices, the farmers' association, other agricultural communities, and the various NGOs to promote Eagle Red Bean.

In November 2015, a 76-min long documentary titled *Fly, Kite, Fly* was released nationwide to tell the story of 20 years of black kite research conducted by a resigned junior high biology teacher, C.C. Shen, who is also a member of the Raptor Research Group of Taiwan. The film explains the issue around the disappearance of the bird species and promotes Eagle Red Bean at the end to convince consumers to buy environmentally friendly farming products. At the same time, new government regulations banned the use of carbofuran and rat poison. The use of other pesticides became more strictly regulated. PX Mart, a nationwide retailer, joined the cooperative alliance. PX Mart was attracted by the Eagle Red Bean story in the July 2015 issue of *Business Week* magazine and the documentary *Fly*, *Kite*, *Fly*. Its corporate social responsibility (CSR) project created a new product design, and the TAP certification helped to increase awareness among consumers. PX Mart promised to strategically explore the market for future product development

and help with marketing and sales. Offering refunds back to the farming community was enforced to better the lives of farmers and to improve local agricultural development. Lin, C.Y. said, "I only have farming skills, but don't know about marketing and sales". The black kite has become a symbol of the transition to eco-friendly agriculture and the sustainable coexistence of humans and the environment in Taiwan. Organizations from all sectors affect one another by their actions as they collaborate toward the success of Eagle Red Bean. Thereby, the activities of all participants become intertwined, forming a community and crossing organizational boundaries [50]. Table 3 provides a list of stakeholder activities contributing to different social and environmental impact areas.

In summary, the Taiwanese case features a wide range of actors, including stakeholders from the public, private, and third sectors. By fulfilling complementary missions, these stakeholders involve society as a whole in fostering sustainable agricultural practices. Their activities are illustrated in Figure 2 below.

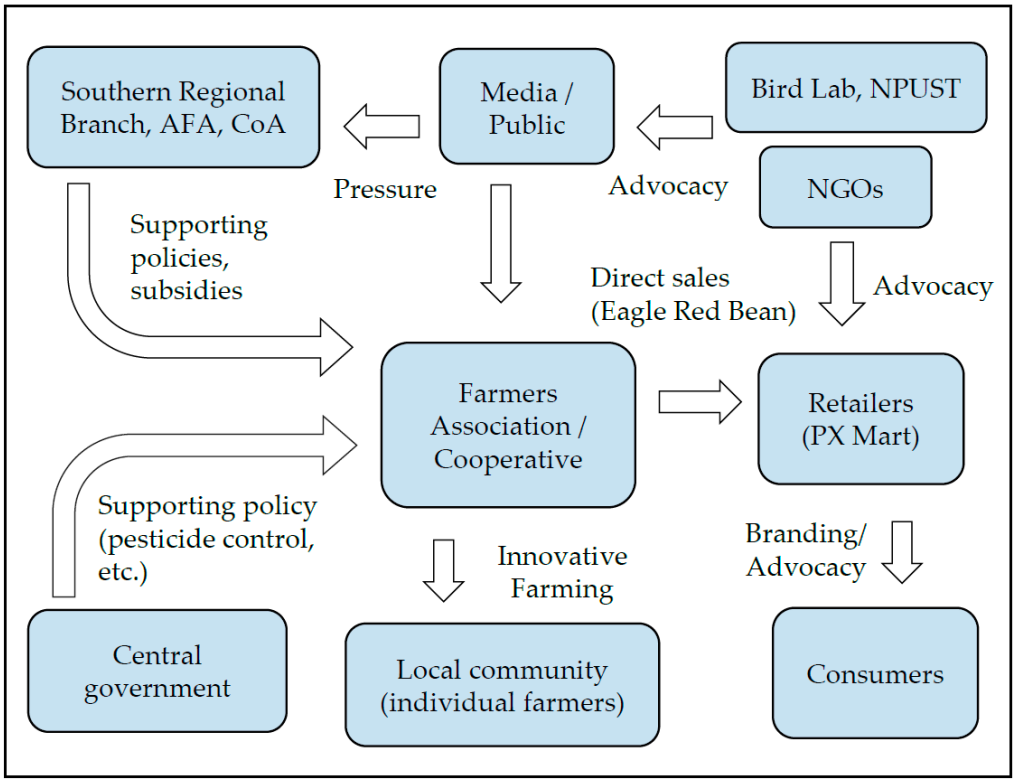

Figure 2. Stakeholders related to Taiwanese case study.

4.3. Japan

4.3.1. Context

One of the major challenges in Japan is its aging population. The situation is even more severe in rural and mountainous areas, where in 2015 39% of the population was over 65 years old, compared to only 25% in urban areas. Today, 79.8% of the population lives in urban areas, though these areas make up only 11.7% of the country. The impact of the changing demographic puts rural communities on the brink of disappearing ([51], p. 28).

Farming in Japan was mostly conducted by family-based smallholders, created by land reforms implemented during 1947–1950 under the direction of the US occupational forces [52]. However, the farmland given to each household was less than 3 ha (with the exception of Hokkaido). Thus, the majority of farmers had to hold another full-time job as their main source of income; these farmers were called "part-time farmers" (*kengyo nouka*), often doing farming only on weekends. These farmers are now in their seventies or eighties and are retiring, without a successor at home.

Table 3. Social impact activities created by Eagle Red Bean alliance.

Social Impact Created	Key Sector/Organization	Key Objectives and Milestones Accomplished
Agriculture development	Second sector	1. Traceability agricultural product (TAP) of Eagle Red Bean from contracted farming led by C.Y. Lin officially registered with the assistance of H.S. Lin in 2015. 2. More than 200 ha of contracted red bean farmland in 2019. 3. PX Mart promotes Eagle Red Bean and introduces desserts and sweets of eight additional products for more consumers to buy eco-friendly farm produce.
	First sector	1. Providing subsidies to outsourcing farming team for equipment/machinery by South Region Branch, Agriculture and Food Agency, Council of Agriculture. 2. Scaling by enlarging contract farming of red beans in Pingtung through South Region Branch, Agriculture and Food Agency, Council of Agriculture. 3. Assisting farmers and cooperatives in networking with major marketing channels.
	Third sector	1. Farmers' association and cooperatives offer technical production and marketing support to farmers. 2. NGOs conduct raptor research and promote nontoxic farming.
Community development	Third sector	Community development associations cooperate with C.Y. Lin and the cooperative to assist local farmers in growing Eagle Red Bean and engage in community welfare activities.
	Second sector	PX Mart contributes a certain percentage of income to community development.
	First sector	Assisting cooperatives in networking with other rural communities.
Bio-diversity	Third sector	1. "Fall of Silence—Bird Poison Report Taiwan" Facebook fan page set up to communicate findings to the public in 2014. 2. Official release of research findings (2018) of recent avian poisoning suggesting secondary poisoning crisis of black kites has occurred since the 1980s in Taiwan. 3. Number of black kites estimated to have increased from 359 in 2014 to 709 in 2019 island-wide through investigations of their natural habitat in Taiwan.
	Second sector	Farmers change from conventional farming to eco-friendly farming.
	First sector	Government departments provide subsidies to NGOs to conduct relevant research.
	Consumers	More consumers are aware of buying eco-friendly agricultural produce.

Table 3. *Cont.*

Social Impact Created	Key Sector/Organization	Key Objectives and Milestones Accomplished
Pesticide control	Third sector	Carbofuran identified as a poisonous substance following research on the adverse impact of pesticides.
	Second sector	Pesticide stores and companies develop eco-friendly substitutes to solve problems of farming.
	First sector	1. Announcement of cancellation of "rodent campaign week" by Bureau of Animal and Plant Health Inspection and Quarantine in 2015. 2. Announcement to stop subsidizing rat bait by the Bureau of Animal and Plant Health Inspection and Quarantine in 2016. 3. Announcement to cease production and import of carbofuran and four related pesticides by the Bureau of Animal and Plant Health Inspection and Quarantine in 2016. 4. Announcement to stop the sale and use of carbofuran and related pesticides in 2017.
Food safety	Second sector	Sale of Eagle Red Bean, a traceable agricultural product promoted by PX Mart.
	First sector	Stricter checks on agricultural produce by government.
	Consumers	More consumers are aware of food safety.
Promotion and marketing channel	Third sector	NT$1.7 million raised by documentary *Fly*, *Kite*, *Fly* through Flying V crowdfunding platform in 2015.
	Second sector	Eagle Red Bean product series on sale in PX Mart Taiwan since 2016.
	Third sector and First sector	Thousands of consumers planting red beans during promotional activity since 2018.

From various sources.

The strongly protected rights of smallholders and the farmers' attachment to farmland, especially paddy rice fields, made the transfer of ownership or even the operation of farmland difficult for outsiders. Historically in Japan, rice was the basis of the feudal system, and farmers were ranked within their community by the size of the paddy field that they owned ([53], p. 9). The first generation of these smallholder farmers in particular tend to persist in farming even when it is not economically profitable because they feel it is a sin to desert the paddies that their ancestors had maintained for generations.

Another country-specific context in Japan is the system of agricultural cooperatives (*Nogyo Kyodo Kumiai*, or JA). They were reorganized from the government-controlled Agricultural Society in 1947. However, the JA system inherited the wartime state-controlled system for the marketing of rice and other food products and the distribution of supplies, and over time developed into something more similar to a semi-governmental body than a grassroots mutual support organization [54]. Farmers were compelled to sell their crops to the local JA at low prices.

State control of rice and other markets finally ended in the 1990s, and agricultural cooperatives started facing difficulties in making a profit and sustaining agricultural extension services. In response, community-based JAs merged to increase their scale, and by March 2019, there were only 611 agricultural cooperatives [55], which was a major decrease from 11,586 in 1960 [56]. This happened concurrently with continuous mergers of local municipalities/governments. Together, these changes meant that the public institutions to support individual farmers and communities were now often located farther away, making it more difficult to provide detailed policies and services for agrarian communities.

4.3.2. Case: Agricultural Corporations in an Aging Society

Facing a serious shortage of labor in the agricultural sector, agricultural corporations (*Nogyo Houjin*) were granted the legal right to rent farmland from farming households and operate farms starting in the 1990s. The number of agricultural corporations with legal entity status reached 23,000 in 2018, a 4.1% increase from 2017 ([51], p. 147). Agricultural corporations have a variety of legal entities, backgrounds, and operations, as listed in Table 4. Some of them are set up by major businesses such as supermarkets, restaurants, and food industries that produce farm products for their parent companies, while others are started as small, community-based corporations supporting families who could not continue farming by themselves. Some others are membership-based entrepreneurial ventures. Such diversity creates difficulty in understanding their characteristics, especially when the legal entity does not necessarily correspond with their nature.

Table 4. Characteristics of agricultural corporations in Japan.

Legal Entity	Background	Operations
Agricultural cooperative corporation	Family-based	Paddy rice
Limited/unlimited partnership	Community-based	Vegetables
Limited liability corporation	Public corporation	Fruit
Joint stock company	Membership-based (including	Livestock
Foundation	newcomers)	Processing
Association	Set up by JA	Marketing
Nonprofit organization	Set up by business	Other social/public services

From [55,56].

The recent development of agricultural corporations in Japan is largely invisible in the international literature. Moreover, most of the research done in Japan focuses on certain successful cases on the business and/or entrepreneurial side that are in lowland areas [57–59]. This paper focuses on community-based agricultural corporations that are being formed as a response to the aging and decreasing farming population in the Northern Okayama prefecture, a mountainous and remote area in Western Japan.

For this study, five agricultural corporations from three municipalities were interviewed. The three municipalities (X town, Y city, and Z city) are all located in the Northern Okayama prefecture, which is covered by forests and mountains. The populations of the municipalities are around 12,000, 42,000, and 100,000, with 39.2%, 40.3%, and 31.2% of citizens over 65 years old, respectively, as of October 2020 (source: https://www.pref.okayama.jp/uploaded/life/698743_6231954_misc.pdf) (accessed on 3 March 2021). In addition to paddy rice, there are various kinds of produce in the area, including vegetables, fruits, horticulture, tea, pasture grass, and cattle. This sampling is only the tip of the iceberg, even in Northern Okayama, let alone all of Japan. However, it can provide some insight into the diverse characteristics and functions of agricultural corporations in rural communities in Japan, as summarized in Table 5.

Two of the corporations interviewed (A and B) were established by local governments (the former S and T villages, which were merged in 2006) to support agrarian communities by providing machinery, storage, and other equipment. Corporation B also provides public services, such as bus operation, garbage collection, and water meter inspection, and its director was dispatched from Y city. However, most of the agricultural corporations in this area are grassroots hamlet-based groups (typically consisting of 10 to 100 households).

The primary goal of the corporations, regardless of the legal entity they fall under, is to maintain the agricultural activities and farmland in the community, especially the paddy rice fields. In an interview, the director of Corporation A mentioned that they accept farmland that is not economically profitable, to maintain the farmland of S area (a former village now part of X town). A local farmer also mentioned that he consigns some of his farming activities that require machinery to Corporation A, and can sell rice at a higher price. He claimed the corporation is indispensable, and said, "Without the corporation, S area would be more devastated". The director of Corporation D also said he was doing this for the sake of the community: "As a farmer, it is very painful to see the land becoming abandoned". Although they are all trying to earn extra income by selling crops and receiving governmental subsidies, none stated that their objective was to maximize profit, and many made statements to the effect of "If we can also focus on pursuing benefit, we will . . . " during the interviews. They pay rent to farm owners, and the payment amount depends on the profitability of the corporation.

Most of the corporations are trying to diversify their crops, though the extent to which they do so varies. Corporation B produces rice, sticky rice cakes (mochi), and soy bean paste (miso) under their brand and sells directly to the market. It also works with local women's groups that process mochi and miso. This allows them to obtain a better price than selling produce to JA. Corporation E is a unique local organization focusing on fruit production, such as grapes, pears, and peaches, by converting paddy rice fields into orchards. They hire paid full-time staff, additionally produce wine (grape and pear) together with another local winery, and run a café selling sweets. Other corporations also try different vegetables and products, but the amount they can sell is limited, and since crops are mostly sold to JA, their profit margin is thin.

Agricultural corporations work with various stakeholders, as summarized in Figure 3. There are variations, such as whether a corporation sells its products directly to the market or through JA, or whether it hires full-time employees (some of whom come from other areas or urban areas). However, in all cases, the key stakeholders are the local government, JA, and the local community/hamlet. Access to the market (other than JA) is usually weak, though Corporations B and E sell their products directly to consumers. Furthermore, in these cases, we did not find much involvement of "external" organizations from other geographic areas, including businesses, civil society organizations, and academic institutions.

Table 5. Agricultural corporations interviewed.

Corporation	A	B	C	D	E
Municipality	X town	Y city	Y city	Y city	Z city
Legal entity	Joint stock company	Foundation	Agricultural cooperative corporation	Limited liability corporation	Agricultural cooperative corporation
Established	1997	1999	2003	1996	1993
Background	Created by the former local government/JA	Created by the former local government	Hamlet-based group	Hamlet-based group	Hamlet-based group (only a few households)
Employees	2 (full-time)	7 (full-time)	5 (full-time)	1 (full-time)	6 (full-time)
Operations	• Paddy rice (30 ha), sold to JA • Pasture grass (sold to local farmers)	• Paddy rice (12 ha), branded/sold directly • Public services (bus, garbage collection, water meter inspection, etc.)	• Paddy rice (24 ha), wheat (10 ha), vegetables (1.5 ha), and soy beans (0.5 ha) sold to JA	• Paddy rice (8 ha), wheat (4 ha), soy beans (0.3 ha), and vegetables (1 ha)	• Fruits (grapes 3.2 ha, pears 0.6 ha, peaches 0.2 ha) mostly sold directly to customers • Wine production • Café
Support from local government	• Initial investment • Lease of agricultural machines	• Initial investment • Payment for commissioned services	• Initial support for infrastructure • Subsidies for crops	• Subsidies for crops	• Initial support for infrastructure (25+ years ago)

Based on interview results.

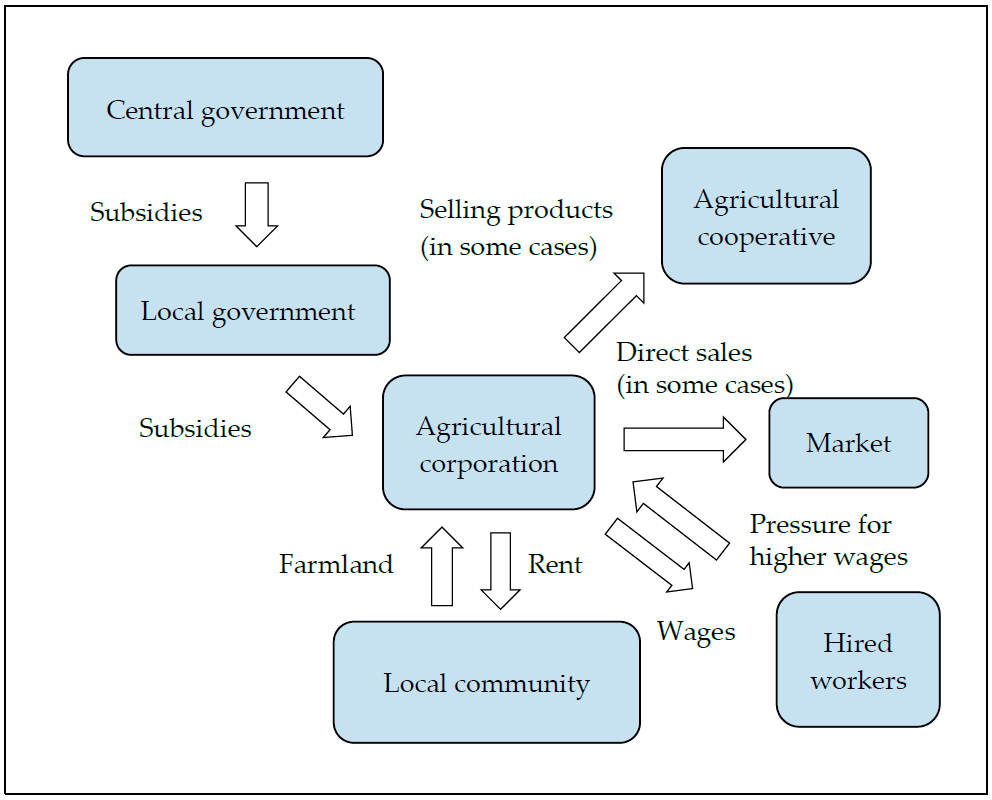

Figure 3. Stakeholders related to Japanese case studies.

Agricultural corporations are also requested to meet various needs of different stakeholders, as summarized in Table 6. The needs and demands of the local community and government can reduce the profitability of agricultural corporations, but nonetheless contribute to sustaining rural environmental systems and communities. Additionally, these stakeholders provide structures and assets that are crucial for agricultural corporations, such as policy frameworks, investments, subsidies, farmland, labor, and sales. However, responding to demands from the local community and government can cause potential conflict with other stakeholders, such as hired workers, who move from urban areas requiring more "profitable" operations and payment structures, or market demands for various sellable crops. Nevertheless, such multi-sectoral intertwinings show that this new form of agriculture in rural Japan is not formed by agricultural corporations alone, but more as a collective solution—or multi-sectoral societal entrepreneurship/innovation [5,17]—created by regional stakeholders to address the serious challenges of an aging society.

Table 6. Objectives and needs of different stakeholders related to agricultural corporation.

Stakeholder	Objective	Need of Agricultural Corporation (AC)
Local community	Hope to sustain farming without their own labor	Maintain (all) farmland (as paddy rice fields).
Local government	Desire to sustain rural community with decreasing number of staff	Expected to play a bigger role in maintaining communities (without a large amount of subsidies).
Agricultural cooperative (JA)	Increase trading volume and improve their own profitability	AC will sell their products to JA (at low prices).
Market	Have good quality products with low prices	A variety of products (not only rice) that are high-quality and low-priced.
Hired workers	Earn a living	Higher salaries (especially for those who are from other/urban areas).

Based on interview results.

By providing necessary services, agricultural corporations operate as intermediaries in rural areas that lack the workforce to sustain agricultural operations in the conventional way. With weak support from local governments and JAs, partly because of their mergers and expansions, such local-based organizations are becoming essential for the continuity of farming villages. Although their operations—collectively managing farmlands and production—may not look very innovative or progressive, it is in fact a major shift from the family-based smallholder agriculture of post-WW2 Japan.

Still, as some of the interviewees mentioned, these community-based corporations may only be a transitional step. The population in most rural areas is expected to shrink even further in the future, and there may not be enough workers for these hamlet-based corporations in the next five or ten years. As one of the directors said, "The younger generation does not have an attachment to the farmland like we did, and they don't care if they stop farming or sell the land." Moreover, the government may not continue to grant farming subsidies to rural areas with only a small number of voters.

But considering the low food self-sufficiency rate in Japan (38% on a calorie-based rate in 2017) ([51], p. 15) and increasing global food and water shortages, as well as the environmental and disaster-prevention roles these farmlands and rural communities have, there may be a need to consider what will be the more sustainable or desirable solution for Japanese society as a whole. For example, the Ministry of Agriculture, Forestry, and Fisheries provides direct payments to communities that sustain farmland in mountainous areas or other areas with unfavorable conditions. Other options may include the following: (a) Inviting younger people from urban areas who are interested in farming and providing the necessary training, education, and financial support for them to continue working, along with a living wage. Supporting salaries for such trainees at agricultural corporations is one method, as one trainee at Corporation C is currently receiving. The director of Corporation E was once a young outsider from an urban area who was supported and stationed through a governmental scheme. (b) Reallocating farmland to prioritize the manageable amount of farmland and allow capable operators (both individuals and corporations) to manage them. (c) Providing government subsidies based on the social consensus to maintain a certain level of agricultural operations and other functions, such as environmental protection, disaster prevention, and recreational usage of land in rural areas, also in consideration of global competition and rules. (d) Reforming the market structure of agricultural products so that consumers can track the food's origin, and the producers of high-quality produce can enjoy higher prices and support from the market. No matter what the final form will be, it will be a significant departure from traditional family-based farming protected by government restrictions. Hopefully it will be a further social innovation that will secure the sustainability and well-being of agricultural communities, and of society as a whole.

In these cases, we can find different kinds of social capital to support these agricultural corporations. The first and most dominant one is what Brunie defines as "collective" social capital [8]. Local community or hamlet-based social groups, as seen in all of the interviewed corporations (including Corporation E, which includes a few outsiders), form the foundation of their existence. Considering the pre-modern tradition of collective work and sharing, we may even see agricultural corporations as a modern revival of this communal tradition. According to interviews in one village in X town, villages had a tradition of working on paddy rice together, including transplanting the rice seedlings, until the 1970s–1990s. Moreover, the multi-sectoral relationships between the local community, government, JA, and other stakeholders at the municipality level should be depicted as collective social capital. This ecosystem is broader in scope than a hamlet/community but is still based on a largely homogeneous group of people (mostly men) from the same hometown. While it supports local/regional collaboration, it may also function to exclude outsiders and other groups of people within the community, such as women and youth. The other kind of social capital is what is described as "relational" by Brunie. As seen in Corporation E (and partly Corporation C), they are more open to outsiders and internally more membership- or association-based organizations. The operation of each corporation

is made possible because of the different types of social capital, but social capital can also restrict or limit the operation. For example, many corporations said it was difficult to "refuse" to take farmland from neighbors, which makes it difficult to earn a profit. Corporation E seems to enjoy more freedom of choice in terms of its operations than the others, though it also cares about the local community's needs and requests and distributes a considerable portion of its profit among the hamlet. Although corporations enjoy the benefits of national government policies, we could not find much evidence of the impacts caused by "generalized" social capital or trust as defined by Brunie.

5. Analysis and Discussion

The problems featured in our case studies, such as biodiversity degradation and aging farmers, are connected to other issues faced by agricultural producers worldwide. A key issue has been a long-term trend of deteriorating agricultural commodity prices in global markets [60,61]. Low profitability makes the farming profession unattractive to younger generations and leads to the use of pesticides and deforestation to increase yields. Within the contexts of Thailand, Taiwan, and Japan, these global developments are shaped by local characteristics. Biodiversity loss is connected to decreasing food security for rural households in Thailand, which is not the case in Taiwan; there, a strong civil society has voiced demands to protect endangered species. In Japan, concerns about the abandonment of farmland are far greater than ecological considerations. The need for young-generation farmers and more efficient agrarian management are the most urgent issues [62].

In each case study, farmers' groups engage in cross-sectoral alliances to scale solutions aimed at these specific issues. We have referred to these ventures as societal entrepreneurship, understood as a process of mobilizing initiatives, joint innovation, and subsequently the creation of social value ([5], p. 3). Common elements are involved in every case to drive these collaborations, including solutions (usually developed by the farmers' organizations themselves), advocacy, and the reconciliation of sectoral logics. These drivers (or inputs) are present in different forms and to different degrees in each context. What gives them their specific form is the culture of trust that holds cross-sectoral collaborations together. These cultures have evolved through unique histories in each case, but can be captured by the concepts of "collective social capital", "relational social capital", and "generalized social capital". Different forms of social capital are applied in the processes of building trust. In the following, we will outline the manifestation of each type of social capital in the cases featured in Section 4. The nature of these processes consequently determines the extent to which the inputs/drivers lead to social impact.

5.1. Types of Social Capital

5.1.1. Collective Social Capital

Collective social capital based on membership in a subgroup has played a role in all three case studies. For instance, in Taiwan, trust and the prospect of the long-term benefits of contract farming facilitated cooperation among farmers from the farmers' association, the producer cooperative, and the community development association in Pingtung County. In Thailand and Japan, this form of social capital has been most dominant in shaping the processes and outcomes of cross-sectoral collaboration. In the Thai context the nature of the solutions developed by farmers within the Inpaeng network is related to the lack of public investment in agriculture. Consequently, alternative farmers' groups, such as the Inpaeng network, have acted from necessity to pursue a strategy of self-reliance. Modern expertise was largely absent, and they had to rely on their own resources. At the same time, members of the network freely share know-how with one another, and multiple network meetings throughout the year ensure the steady dissemination of knowledge through personal interactions ([26], p. 194). Collective social capital is here put to the use of solving local livelihood issues, resulting in a number of innovative solutions, such as the family forestry initiative. Government institutions have recognized these solutions, and one could argue that by incorporating self-reliant agriculture in the state's development

strategy, the government is abdicating its responsibility to make investments to enhance agricultural productivity. Instead, it supports and builds on the farmers' own initiative. At the same time, government support has helped spur grassroots innovation to a degree that would have been difficult to achieve through Inpaeng's existing advocacy efforts: Although the network's initiatives appeal to some (especially elderly) farmers, these have always constituted a minority. Collaborations with state institutions have helped to enhance the attractiveness of the network's innovations, first through the combination of traditional knowledge and modern know-how. Compared to such earlier instances of government help, the extent of public support for the family forestry project is unprecedented, as indicated by the involvement of multiple government departments on both the provincial and national levels. Longstanding personal relationships have played a major role in expanding collaborations between the grassroots network and public institutions: Mr. Thawatchai Khunwong, the leader of the Inpaeng network, and Dr. Wirachai Nakwibulwong, the former secretary-general of ALRO, are the main personalities behind many cross-sectoral initiatives (see [36], p. 14, [63]). More than relational capital, these personal ties are the foundation for synergistic relations ([8], p. 256) between certain government institutions and the farmers' network. The reconciliation of sectoral logics is thus being achieved through the extension of collective social capital to "outsiders".

In contexts in which the extension of close, trustful relationships to outside stakeholders is less common, collective social capital poses limits on the capacities for advocacy, reconciliation of sectoral logics, and subsequently a scaling up of cooperative efforts. This pattern could be observed in the cases of Japanese agricultural corporations. Local community or hamlet-based social groups, as seen in all of the interviewed corporations (including Corporation E, which includes a few outsiders), form the foundation of the existence of these corporations. Considering the pre-modern tradition of collective work and sharing, we may even see agricultural corporations as a modern revival of this communal tradition. According to interviews in one village in X town, villages had a tradition of working on paddy rice together, including transplanting the rice seedlings, until the 1970s–1990s. Moreover, the multi-sectoral relationships between the local community, government, JA, and other stakeholders at the municipality level should be depicted as collective social capital. This ecosystem is broader in scope than a hamlet/community, but is still based on a largely homogeneous group of people (mostly men) from the same hometown. While it supports local/regional collaboration, it may also function to exclude outsiders and other groups of people within the community, such as women and youth.

Compared to the Thai and Taiwanese cases, Japanese agricultural corporations seem to enjoy solid collective social capital, but tend to lack other kinds of social capital. This serves as an advantage for smooth operation at the hamlet/municipality level, but it also seems to hinder them from collaborating with a more diverse range of stakeholders, such as external businesses, civil society organizations, and research institutions, and from adopting innovative solutions from them. In the absence of cultural mechanisms to bridge sectoral logics, networking individuals appear crucial to establish these cross-sectoral links.

5.1.2. Relational Social Capital

Whereas Brunie uses the term "trust" to describe the two other types of social capital, "relational social capital" appears to be based on rational/calculating considerations. Moreover, this type does not appear to be linked to particular cultural characteristics. In all three cases, certain individuals have the capacity to network with, and attract, resources from other sectors. This means that the efforts of entrepreneurial individuals can override or complement culturally embedded (i.e., collective and generalized) types of social capital to enable actors from across sectors to pursue joint social missions, as the case of Corporation E in Japan shows: Corporation E (and, partly, Corporation C) appear more open to outsiders, and internally they resemble membership- or association-based organizations. In this case, it is solely relational social capital, which facilitates processes of reconciliation of sectoral logics and scaling. Thus, whereas "institutional trust" [23]

is established through collective social capital in the Thai case, and "generalized social capital" in the Taiwanese case (see below), "relational social capital" enables Japanese farmers to establish cross-sectoral links.

5.1.3. Generalized Social Capital

The informal alliance that was established across various sectors in the Eagle Red Bean case in Taiwan illustrates how generalized social capital is instantiated through the values and attitudes that drive actors to gradually develop understanding, trust, and collaboration to contribute to the social good, saving black kites. Moreover, the model of Eagle Red Bean illustrates successful scaling processes in agricultural community development in the areas of social, environmental, and economic impact, and in terms of awareness in the wider society. Finally, the case highlights the challenges farmers face in responding to society's demand for environmentally sustainable agriculture. This response requires expertise from different sectoral players, in the form of public policy changes such as product certification and private sector initiatives such as the fund reward policy. This private CSR policy supports the autonomy of the local community through economic benefits and social welfare measures in education and healthcare for the children and elders of Eagle Red Bean farmers.

Whereas the private sector does not appear to play a significant role in the Japanese and Thai cases, it has been central in the Taiwanese case. Strong social norms and cohesion (i.e., generalized social capital) are a prerequisite for the effectiveness of advocacy through (social) media. Not only has the wider public been responsive to the concerns voiced by Bird Lab, but also farmers such as C.Y. Lin, for whom acting on these concerns involved fundamental changes in his line of work. Here, shared norms have proven to be stronger than conflicting interests, namely maintaining high agricultural yields versus conserving biodiversity. The sense of civic responsibility among affected farmers facilitated the reconciliation of their interests with those of NGOs and citizens. In Taiwan, Bird Lab has involved the media, and thus public awareness, from the very start. This publicity attracted the supermarket chain PX Mart to the Eagle Red Bean collaborative venture. The initiative has thereby achieved a reach and visibility within society unmatched by the other two case studies. The prominent roles of the media and the private sector are distinctive features in the Taiwanese case, but this is not to ignore the complementary roles of government and third-sector institutions in the innovation process: The local government helps to discover feasible farming solutions in addition to its regulatory support. The advocacy work of NGOs drives legislation and public awareness more than research findings through government subsidies.

Table 7 below summarizes the types of social capital and solutions to sustainability issues in each case study. Different types of social capital facilitate the reconciliation of sectoral boundaries and advocacy to varying degrees. This is due to different sectoral players being involved, depending on what type of social capital is dominant in establishing collaboration. In the following, we will draw lessons from the case studies regarding the distinct roles taken up by different stakeholders in the societal entrepreneurship process.

5.2. Sectoral Roles and Policy Implications

Taking all the data together, as summarized in Figure 4, we can identify a distribution of roles for the grassroots, public, private, and third sectors in scaling solutions to impact society. The grassroots sector in each case has innovative capacity, creating local prototypes (family forestry in Thailand) and value-added products (as in the examples from Japan and Taiwan). In all three cases, farmers work together in cooperatives and cooperative-like enterprises. Yet, their collective efforts are not contingent on certain forms of organization; they choose the legal forms of their enterprises according to pragmatic considerations such as access to government subsidies. Moreover, due to the involvement of different sectors in society, the social mission may transcend the operations of rural cooperatives. This applies to Eagle Red Bean, and certainly to the family forest project, which requires a

loose association among individual households, as is the case within Inpaeng's network structure. Government institutions establish linkages among different farmers' groups and provide a supportive legal and policy framework. The cases of the family forestry project also show that the involvement of the public sector is needed in order to scale successful grassroots initiatives. The private sector (media and businesses) plays an important role in raising awareness; in Taiwan, NGO-led advocacy and public pressure led farmers to question their farming methods. However, active farmers themselves joined together to develop the Eagle Red Bean initiative with the assistance of the local government and a not-for-profit organization.

Table 7. Sustainability issues, types of social capital (SC, by Brunie [8]) in rural agrarian communities, and innovations for sustainable development from the case studies.

Case	Sustainability Issue	Type of Social Capital (by Brunie 2009)	Innovations for Sustainable Development
Taiwan	• Biodiversity • Income generation • Food security	• Generalized SC • Relational SC • Collective SC	• National campaigning/advocacy • Value-added product sold at mainstream market • New farming method
Thailand	• Income generation • Inclusion of youth • Biodiversity	• Relational SC (multi-sectoral collaboration) • Collective/synergistic SC	• Regional farmers' network • Collaboration with national policies/projects • Integrated farming methods
Japan	• Aging and depopulation • Maintaining farming • Income generation	• Relational SC • Collective SC (including local stakeholders with homogenous background)	• Community-based corporations • Value-added products sold at marginal markets (for some cases)

As noted above, generalized social capital greatly facilitates the productive interplay of the public, private, and third sectors in a way that allows them to play complementary roles. In societies in which such general norms are lacking, alternative strategies can be employed to achieve multi-stakeholder collaboration. One such strategy, relying on individual capacities to network and attract resources from other sectors, has already been mentioned. Apart from individual capacities, appropriate policy frameworks can reconcile distinct sectoral logics by introducing a narrative that highlights common interests across organizations and sectors. In Thailand, adopting the sufficiency economy philosophy has led to shifts in how civil servants view self-reliant agricultural methods. This change has provided a foundation for a successful renegotiation of interests between Inpaeng and state institutions. Since the 1980s, national development planners have discussed the widening economic gaps between urban centers and rural areas. The government thus aims to distribute economic activity more evenly throughout Thailand's provinces. This aim has not changed, but with the new development paradigm, public organizations now interpret self-reliant agriculture as a secure foundation and prerequisite for farmers' integration into the market.

The cases in the Japanese context have not revealed similar mechanisms to overcome structural barriers between different types of stakeholders. However, Corporation E stands out among the groups researched in Japan, as it has diversified its activities by producing value-added products, including fruit and wine and operating a café. Both of these activities involve outside stakeholders, and further research may be necessary to explore key differences between this corporation and other enterprises in the Japanese case. In Japan, local governments and community-based enterprises engage in similar activities side by side, largely without making use of similar synergy effects, as in the Thai and Taiwanese cases. The enterprises are thus run by homogeneous groups, and until now this has limited their activities and impact to the local level. In this context, labor-saving technology solutions could be employed to increase the attractiveness of the farming sector for young people. This is already being done in lowland rural areas, and this strategy

could be extended to highland areas as well. Thus, the dissemination of technology could partially act as a substitute for multiple stakeholder involvement.

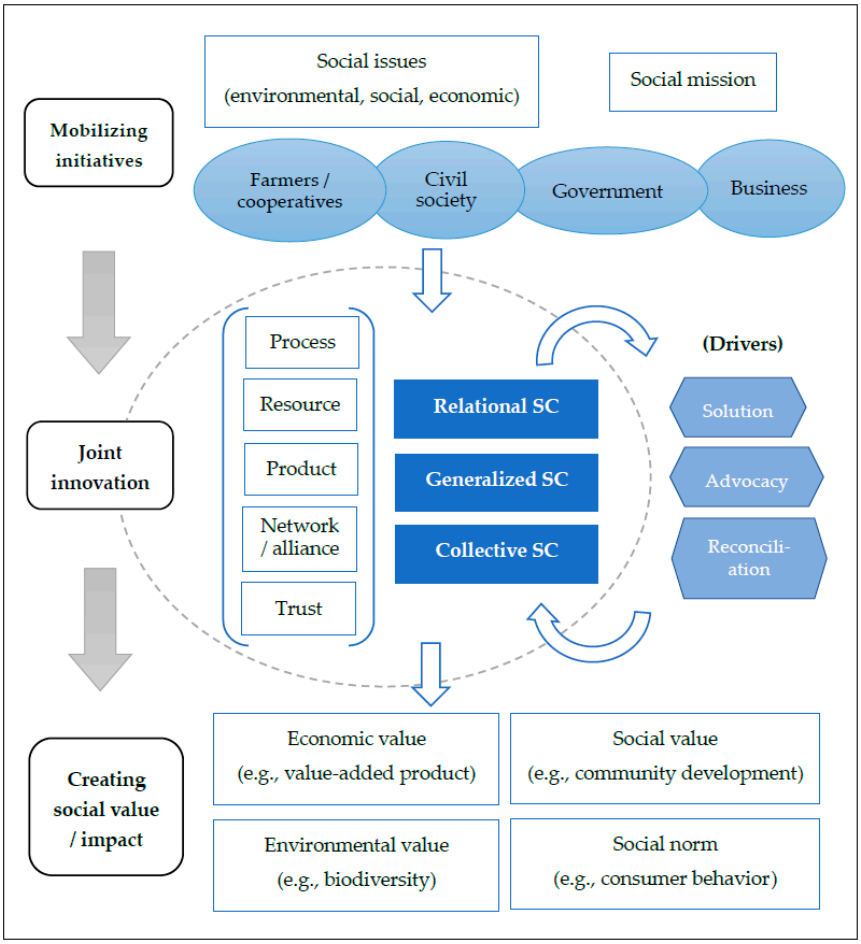

Figure 4. Societal entrepreneurship for sustainable Asian rural societies: a multi-sectoral social capital approach in rural agrarian communities from case studies.

6. Conclusions

In this paper, we aimed to understand the nature of cross-sectoral collaborations in response to challenges in the agricultural sector. In particular, we wanted to explore the types of social capital that farmers' organizations make use of to establish linkages with other social sectors, and how they use these linkages to scale social value. We moreover wanted to understand the relationships between types of social capital and social impact. By exploring three case studies from Eastern Asia illustrating societal entrepreneurship [5], we sought patterns to answer these research questions and identified three drivers for collaborations across the cases, namely, solutions, advocacy, and reconciliation of sectoral logics. With regard to the first, we found different cultures of establishing trust, namely, collective social capital and generalized social capital. In contexts such as Thailand, collective social capital can be extended to include actors from outside homogeneous groups. In the context of the Thai case study, frequent interactions with local farmers in the course of meetings have been repeatedly exposing government staff to the norms and values of villagers. Some officials are literally drawn into the network as civil servants join Inpaeng after retirement (Interview with Inpaeng leader 3, 7 June 2020). This strategy of drawing state power into local informal networks for better access to government resources is also documented elsewhere in Thailand [64]. This strategy does not appear to be common in Japan, and collective social capital is usually only characteristic of homogeneous groups. In the literature, this obstacle to inter-sectoral collaboration does not seem to be problematized

(see [65]). Generalized social capital facilitates trust building across societal boundaries in Taiwan. This type of social capital is conducive to advocacy campaigns, which prove effective in sensitizing civil society for social issues. This observation has been documented in other case studies related to organic farming as well (see [17]). Concerning the second and third questions, we have seen that generalized social capital can be used to draw the private sector (media and publicity-conscious businesses) into multi-sectoral collaborations, in addition to the public sector. This increases the societal impact of respective solutions. Effective advocacy could moreover be used to lower the cost and overcome limited market demand for expensive solutions, such as green technologies (see [66]).

Where solely the public sector is involved, innovations can be scaled to encompass a greater number of beneficiaries, as the Thai case has shown. Here, the extent of scaling opportunities is limited, however, due to an inability to reach the wider public through advocacy. Since generalized trust is missing, advocacy campaigns are less effective, and appealing to the sectoral logics of private sector entities proves more difficult. "Relational social capital" has been identified as a trust-building mechanism that compensates for the lack of cultural mechanisms for establishing trust. Other strategies identified include the promotion of policies/narratives that highlight common interests across sectoral boundaries, as well as technological solutions that lower the barriers for the introduction of social innovations.

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