

FACTORS AFFECTING CIRCULAR ECONOMY PROMOTION IN INDONESIA: THE REVIVAL OF AGRIBUSINESS PARTNERSHIP¹

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ABSTRAK

Konsep ekonomi sirkuler sebenarnya telah dilakukan sejak lama di Indonesia, khususnya pada industri besar dan menengah, namun belakangan ini perencanaan pembangunan ekonomi kurang memperhatikannya. Perusahaan-perusahaan pabrik kertas dan perkebunan besar termasuk diantara usaha ekonomi yang melaksanakan konsep ini. Pada skala ekonomi yang lebih kecil dalam bidang pertanian, kerjasama antara perusahaan besar dengan pertanian rakyat sudah berlangsung dengan baik, memberikan keuntungan ekonomi, memperbaiki kualitas lingkungan dan menjanjikan persaingan yang kompetitif. Masyarakat sebenarnya sudah menerapkan konsep ekonomi sirkuler pada sistem usahatani terintegrasi yang mereka lakukan, namun perkembangannya masih kurang memuaskan. Faktor-faktor yang terkait dengan kelembagaan sangat berperan dalam mempromosikan konsep ekonomi sirkuler ini di pedesaan dan menjadi penentu keberhasilan program kemitraan hingga mencapai level tertentu. Melalui kerjasama model kemitraan sebagai perwujudan konsep ekonomi sirkuler, ketiga pilar ekonomi, yakni lembaga pemerintah, sektor swasta, dan masyarakat harus saling mendukung dan berpartisipasi menurut kapasitasnya masing-masing memberikan sumbangan pada pembangunan ekonomi regional. Pemerintah sebagai fasilitator dan regulator, perusahaan swasta sebagai pengelola usaha, dan masyarakat sebagai pemasok bahan baku atau pelaku usaha kecil harus saling berinteraksi, bekerjasama dan berpartisipasi dalam program pembangunan ekonomi. Makalah ini menjelaskan faktor-faktor yang mempengaruhi konsep ekonomi sirkuler untuk mempercepat bangkitnya ekonomi rakyat melalui kemitraan agribisnis.

Kata kunci: *kelestarian lingkungan, pembangunan regional, peran kelembagaan pertanian, pertanian organik, sistem usahatani terintegrasi*

ABSTRACT

Circular economy concept has been less considered in the global framework of economic development in Indonesia during the past decade, although the concept has been continually applied in many medium and large industries. Pulp and paper enterprises and estate crops agro-industries are among the companies included in this economic trend. To a smaller economic development, the implementation of circular economy movement in especially agricultural fields has been benefiting rural people, enhancing quality of environment, and promising competitive advantage. Small-scale integrated farming systems have been widely adopted this concept but lack of improvement. Institutional factors have played significant role in promoting circular economy in rural areas. Institutional role, in this context, is very instrumental to gear regional development towards certain level of improvement. Through circular economy partnership, the three pillars of development: government, private sector, and rural people are each in the right position to lead in every steps of regional economic development program. These institutions are expected to function as regulator agency to facilitate related activities, as enterprise organization to give hand to initiate and develop certain production, and as supporting society to participate in any programs/activities to achieve certain goals. This paper addresses influencing factors to promote circular economy to accelerate the revival of people's regional economy through agribusiness partnership.

Key words: *Role of institutions, integrated farming systems, regional development, organic agriculture, environmentally sustainable*

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INTRODUCTION

Indonesia is well known as an agricultural country with some 51.6 million ha of agricultural land that constitutes 70% of the total area. As per 2004 (BPS-Statistics Indonesia, 2005), land area for estates was the largest with about 18.3 million ha (25.56% of the total area), followed by arable dry land, garden, barren land, and shifting cultivation land at around 15.6 million ha (21.73%), woods 10.4 million ha (14.46%) and wetland amounted to about 8.4 million ha (11.71%). The smallest area was land used for brackish and fresh water pond that occupied 0.4 million ha (0.70%) and 0.3 million ha (0.35%), respectively. The rest 18.3 million ha consisted of fallow land, house compound and surrounding, and grassland.

Major food crops cultivated by the farmers consist of paddy, corn, cassava, sweet potato, peanut, and soybean. Except the main crop paddy, the other major food crops are known as *palawija* (secondary crops). Subject to the availability of water for irrigation, paddy is cultivated both in wet land and dry land. In an official report published by BPS-Statistics Indonesia (2005), the harvested area of paddy in 2004 was 11.91 million ha, an increased by 3.66% compared to the area in 2003. This harvested area was increased by 3.81% of wet land and by 2.23% of dry land area. The total production in 2004 was 54.06 million tons of dry unhusked paddy, an increased by 3.69% compared to 2003 production (52.14 million tons). In 2003, the yield rate of dry unhusked paddy was 4.538 ton/ha which a year later increased by 0.04% to 4.540 ton/ha (2004). The harvested area of corn in 2004 was reported 3.35 million ha, a decrease by 0.36% compared to that in 2003 (decreased by 10 thousand ha). The harvested area of soybean and peanut increased in 2004 (6.87% and 5.99%, respectively). However, the harvested area of cassava and sweet potato were decreased by around 0.38 and 7.29, respectively compared to that in 2003. The production of corn, soybean, peanut, and sweet potato in 2004 was increased by 2.54%, 7.40%, 6.83%, and 4.00%, respectively, whereas sweet potato decreased by 5.13% compared to production in 2003.

Horticulture crops have also fluctuated in terms of harvested area and production. The harvested area of vegetables, such as spring onion, shallot, potato, cabbage, mustard green, and carrot in 2004 was 318.3 thousand ha, a decreased by 1.20% compared to that in 2003 (322.1 thousand ha). However, the harvested area of shallot and spring onion in 2003 were increased by 7.6% and 0.45%, respectively. Production of vegetables in 2003 were 4.3 million tons of which the highest production was enjoyed from cabbage (about 1.2 million tons) and shallot (around 1.0 million ton). The productivity of cabbage was 19.6 tons/ha while shallot was 8.5 tons/ha (in 2004). Main fruit crops in Indonesia are banana, orange and mango. In 2004, production of banana was 4.2 million tons or 35.29% of the total national fruit production. Orange and mango production were about the same amount (1.5 million tons each or about 12.93% and 12.90%, respectively). Java is the main producer of fruits in Indonesia with the largest contribution come from West Java Province (25.59%). Lampung and North Sumatera provinces are among the main production centers outside Java.

Estate crops consist of large-scale estate (private or state-owned plantations) and smallholding estates. The most popular estate crops are palm oil, rubber, coffee, tea, cocoa, coconut and sugarcane. The planted area of large-scale estates for several commodities remained unchanged from 2003 to 2004. Several commodities experiencing increases in area planted were palm oil (1.0%) and tea (1.37%) and in production were rubber (1.01%), coconut (1.03%), palm oil (2.19%), coffee (0.89%) and tea (0.67%). However, production of cocoa was slightly decreased by 1.05%. The planted area of sugarcane increased by 0.80% (from 364.4 thousand ha in 2003 to 367.3 thousand ha in 2004) and its production was also increased by 11.85% during the same period. The planted area of smallholding estates for almost all commodities remained unchanged from 2003 to 2004. Significant increase of planted area occurred on coffee, from 1.328 million ha in 2003 to 1.344 ha in 2004 (about 1.2%) and its production, from 0.658 million tons to 0.671 million tons during the same period (increased by around 2.0%). In contrary, planted area of rubber decreased by 0.98% (2003 to 2004)

although its production increased by about 3.95% (from 1.387 million tons in 2003 to 1.442 million tons in 2004). With similar trend, planted area of tea was decreased by 0.50% while its production increased by 11.5%. The planted area of other annual crops was slightly increased as well as their productions.

The population of livestock, in general, showed an increasing trend. In 2004, the population of big ruminant, such as milk cows, cattle, water buffalo, and horse increased by 2.11%, 1.90%, 4.00%, and 4.62%, respectively compared to situation in 2003. Small ruminants, such as goat, sheep, and swine are reported increasing in 2004 by 5.65%, 5.56%, and 6.80%, respectively compared to those in 2003. Similarly, the population of poultry, such as layer, broiler, and duck was also increased as many as 1.8%, 5.59%, and 4.92%, respectively in 2004 compared to population in 2003. Population of domestic chicken, unfortunately, was decreased by 1.98% during the same period, particularly due to the endemic development of avian influenza in Indonesia.

Fishery sub-sector is also reflecting promising trend. In 2002, the marine fishery production was recorded to reach 4.1 million tons whereas inland fishery produced 1.6 million tons. In 2003, the production of marine fishery was increased to 5.6 million tons and with improvement of fishery techniques along with other supporting policy instruments; the trend of production is expected to increase in the following years.

These fact figures present recent development of selected crops, including high economic value commodities of estate crops, livestock and fishery sub-sectors and they are reflecting the importance of agricultural sector in the overall economy in Indonesia. The annual growth rate of this sector is 3% in average over 25 years and has always been very important in supporting Indonesia's economic development. Five strategies to improve farmers' empowerment are listed in agricultural policy mission (Solahuddin, 1999): improve farm management, develop farmer's group/cooperation, develop marketing efficiency with market oriented, promote mutual business partnership, and provide input production and policy instruments to encourage better farm performance. This mission, to

some extent, has been certainly achieved its target, although the magnitude of the achievements could always be debatable. Such achievements would heavily depend on how close various local institutions manage their respective mandate and how intensive their coordination in program implementation.

Food security is one of the most important goals to achieve. Food, for majority of rural dwellers, is identical with rice. Its availability implies three different aspects as mentioned by Thomson and Metz (1997): availability, stability and accessibility. Available in the sense that food is equally distributed, stable in the context that food is available and reliable at all times, and accessible at the stipulated but achievable prices. Wirakartakusumah (1999) indicates that based on the availability of potential resources, the policy agenda for food security in Indonesia include: (a) improve food availability and security, (b) diversify food consumption, (c) improve food safety, (d) institutionalize development, and (e) improve nutritional status. To our concern, farming systems enhancement is considered as a way to approach part of the agenda and agribusiness partnership is one of a number of operational modes to achieve certain level of food security.

The objective of this paper is to discuss institutional factors affecting mutual partnerships between small-scale farmers, private sector, and the government to promote circular economy. More specifically, this paper is intended to: (a) to elaborate existing agricultural situation and its promotion through circular economy and (b) to provide outstanding suggestions for agri-business partnership promotion in Indonesia.

FARMING SYSTEMS IN INDONESIA

Basic problem in farming systems in Indonesia should not far from the size of landholding or land employed. In Java, the most populous and yet most fertile island in Indonesia, the optimistic average landholding size is 0.41 ha per household and 0.83 ha outside Java (Widodo, 2002). Other research mentioned that the current average size of landholding size in Java is 0.25 ha per

household (Undang, 2003). This small farm size is practically not providing sufficient income to provide basic needs for the whole family members. The pressure of land conversion to non-agricultural purposes also threatens this farm size, particularly in Java. Sumaryanto, et al. (1996) reports that the average magnitude of such conversion in Java during 1990 to 2000 was 22,500 ha/year. Somehow, efforts to maintain land productivity in Java and area expansion outside Java could have resulted in an increasing production of several crops, particularly food crops. Since food crops demand is also increasing following the population growth and change in meals pattern by people in urban area, it is obvious that production breakthrough has to be redesigned. This also means that dependency on import duty would be reduced.

Farmer's long time experienced in integrated farming system has been proven to give synergy effect between crops, i.e., between food and horticultural crops and raising cattle (Ilham and Saktyanu, 1999). In this regard, circular economy has been mutually providing benefit to the farmers. However, the improved performance of integrated farming system as a recycle economic activity has not been adequately enhanced even with the new farming systems approach to promote significant production methods for small farmers. In this regard, factors stimulated farming systems research include inability of small farmers with limited resources to adopt improved technology, the need to reduce risk, to increase productivity, to promote employment and to strengthen on-farm income, and the need for sustainable resources (Adnyana, 2000). In this context, given a small landholding, when cattle, small ruminants or poultry are included in the system, the carrying capacity of the land could be easily determined and accordingly the magnitude of agricultural waste to be utilized as feed or green manure as sources of organic fertilizer.

The introduction of improved farming systems at farm household level may lead the farmers to a certain level of achievement, when it optimally applied. FAO farming system development model presented in Figure 1 could be considered as a model development of integrated farming system, and hence

circular economy, to anticipate business partnership activities. Given a number of constraints and challenges in the development of agriculture in Indonesia, the focus aspect of agricultural development should be directed to achieve optimal utilization synergistic relationships among the subsystems, to develop less external inputs of sustainable farming system, prioritize and develop long lasting participation of farm households, and improve organic farming, biological farming, ecological agriculture, low external input agriculture, biodynamic agriculture, and regenerative agriculture (Adnyana, *Ibid.*). This direction would certainly promote circular economy to the higher level of achievement. However, farming systems research and development is very important to recommend certain commodities to be developed.

Selection of target areas, for farming systems research and development, according to Shaner *et al.* (1981) is very critical following the possibility of further farm improvement in the selected areas and its technologies diffusion into other areas. Crosson (1994), in fact, has delivered a warning statement about inadequate of agricultural knowledge, and hence, limited capability in expanding the supply of knowledge about agricultural production. With the increasing demand for food by 2050, demand could increase by 2.5 to 3.0 times the present level. To strengthen human resources at all levels through the supply of agricultural knowledge would be one of the responses to such insight. The role of stakeholders in this situation is highly respected to take appropriate policy actions.

INFLUENCING FACTORS

In respect to farming systems direction, the government policy in agricultural development is particularly to steadily increase food crops production to meet domestic demand. Its role is instrumental in encouraging, regulating, and enforcing laws to achieve certain level of advantage in favor of the farmers. The private sectors, on the other hand, are economic oriented but very flexible in determining the enterprises' future development. The government and the private sectors are two symbiotic institutions which could

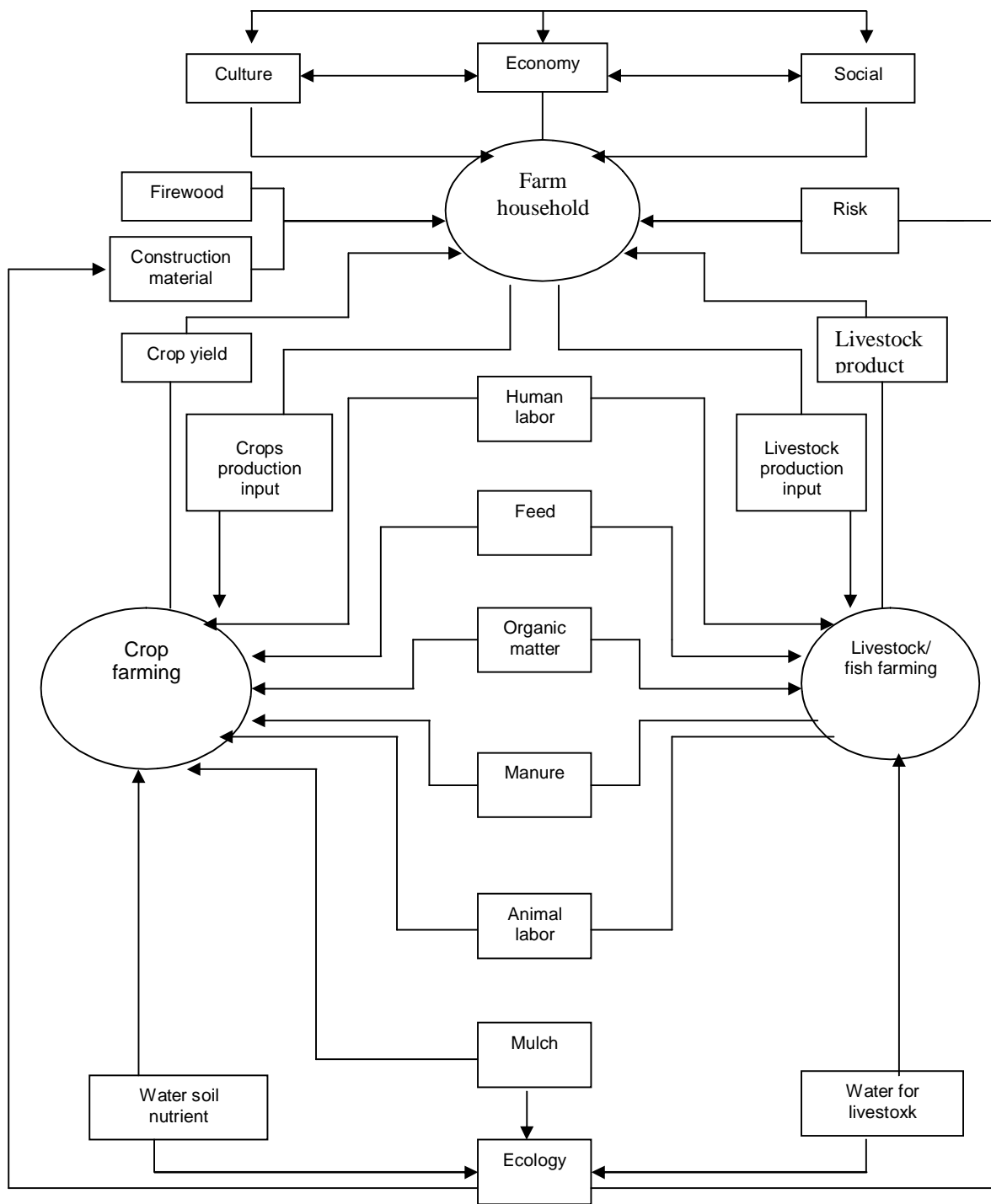


Figure1. Farming Systems Model at Farm Household Level

Source: Adnyana (2000)

collaborate to enhance the performance of farming systems (farmers and farmer's group), hence encouraging good governance, pro-

moting sustainable and friendly environment, and improving farmer's income.

Uphoff (1999) elaborates local institutions as part of the public sector and the private sector (Table 1). The public sector operates with authority behind its decisions. It can mobilize considerable resources through their ability to tax. The private sector operates according to individual desires and individual's accountability will control private resources. The participatory institution is outside the public sector and is differ from the private sector. Perhaps, to this participatory institution include farmer's group as an informal organization or local-level institutions. The "three group sectors" have its individual roles but form a synergy performance when they become collaborative institutions for certain goals. More detail about the people participation in program development, Messer and Townsley (2003) indicate the community, the households within the community and their livelihood strategies, and institutions found at all levels are the core elements in the development process. The relationships between these elements are very important for which various development programs could be introduced.

An institution normally has its structure to distribute tasks and accountability and to coordinate institution's functions. With planning and goals at hand, the process of implementation would create such interaction to produce certain output. The existing environment would be externality factor, beyond the institution to control. However, friendly environment can be experienced with harmonious interaction among the components within the functions to create specific output. This description reflects the three pillars' roles, the government, the private sector and the farmers whom are in a strategic position to build partnership activities adjusted to their respective role.

Theoretically, factors embedded in institutions include cooperation and coordination, rules and regulations, rights, penalty/punishment, negotiation, and communication/management procedures. Meanwhile, related institutional attributes bounded to these factors are rules of representation, jurisdiction boundary, and level of institutions. These factors along with its attributes are sufficiently covering the role of institutions in farm activities. In the implementation stage, however, the creation of policy instruments issued by the government (national or local level), willingness of private sectors to tie good relation with surroundings, and farmers' proactive participation for development are the most influencing factors to achieve partnership revival in respect to circular economy promotion.

AGRICULTURAL BUSINESS PARTNERSHIP

Large-scale enterprises have been experiencing circular economy applications for their own benefit. The pulp and paper industries have been using their waste product (bark) to generate energy for processing activities. Some of the companies have even experienced over production that they have to sell to other parties, meaning additional income for the companies. In Indonesia, the local electricity company has been using bark-generated energy to produce electricity. This is the real example of how circular economy is promoted among the large industries. Another example is the use of palm shells/fibers/empty fruit bunches as fuels which provide an effective avenue to dispose the processing residues from palm oil milling activities. Such disposal also means generating additional income for the company. The use of these

Table 1. A Continuum of Rural Local Institutions

Public sector		Middle sector		Private sector	
Local administration	Local government	Membership organization	Cooperatives	Service organization	Private business
Nature of institutions/organizations:					
Bureaucratic	Political	Voluntary (all purposes)	Voluntary (economic)	Philanthropic	Commercial
Individuals relate to institutions/organizations:					
Citizens	Constituents	Members	Members	Clients	Customers
Tax payers	Voters			Beneficiaries	Employees

Source: Uphoff, 1999

waste materials have been helped reduce environmental pollution and at the same time, due to excess of energy production, other companies may reduce the use of fossil fuel to achieve more benefit from using biomass energy.

Since large-scale companies also interact with local community, caring local people would not be a problem. In fact, the company should give their hands to help the rural poor, when the company located in rural areas. Building partnerships between the company and the local people could create harmonious and sustainable relations. With flexibility, skill, and capital the company has, the rural people who are mostly engaged in agricultural sector could gain benefit from a partnership/collaborative type of activity between the company and the farmers. When the company takes initiative to build partnership with the local people, the local government would take initiative to support such effort with guidance and other related activities, including necessary paper works (legal documents, activity approval, rules, training, etc.). Any companies are welcome for such collaboration as long as the initiative is to bring the farmers to a more advantageous level or a more competitive farming system.

Capital is essential in launching programs. The financial institutions as sources of budget to promote off-farm and on-farm activities (agribusiness and farming systems) and its infrastructures are considered in backward and linkage programs to achieve food security and to improve farmers' income. Switching mindset from resource-based to knowledge-based development is taken as an appropriate direction in agribusiness revival. Mastur (2005) indicates the central role of financial institutions to support off-farm, on-farm, and infrastructure facilities to develop agricultural-based industries in Indonesia. Large-scale industries could place necessary investment in agribusiness partnership programs from financial institutions (banks) with intervention of related institutions through operational policy instruments.

Based on the earlier description on farming system's goals, this partnership revival should increasingly aware the environment condition. Organic farming could be one option, quite attractive in terms of crop cultivation,

and should be most interested taking into account the expected higher price of such product in the market. On this organic agriculture, the UN-ESCAP (2002) reports that organic agriculture can help raise the productivity of low-input agricultural systems. New market economies have its prospect to discover something new through a combination of indigenous knowledge and modern science, create innovation in rural areas, and contribute environmentally sustainable. However, Sumarno (2006) warns that organic farming trend would not change the agricultural economic structure, except that such program could only provide significant margin for large-scale entrepreneurs. Following this advice, collaboration between large-scale industries as patron instead of large-scale agricultural companies with small-scale farmers as clients would be encouraged. Further idea about the organic farming, findings presented in Table 2 could be reviewed for further actions. Two cases briefly elaborated below are provided as examples of how to revive agribusiness partnership. Large industry is encouraged to embrace local people and with local participation their activities are expected to end up with profit-oriented agricultural program.

Case 1: Thailand

In an investigation to obtain more information about partnership pattern between large-scale company (large cement producer) and smallholding farmers surrounding the company factory, a visit to a project site had been arranged in October 2004. The project name is Green Community (GC) and is located in Saraburi Province, about 120 km from Bangkok to the north. A large cement factory and a farmer's group that consists of 26 members (farmers) from four villages nearby the factory tied in a partnership farming activities since 2003. Within one year of operation, the food crops previously cultivated by the farmers have been shifted to grow organic vegetables under the supervision of the designated personnel of the company. Led by a geologist and an engineer, the project, so far, has been successfully worked with harvesting and cultivating new different kind of vegetables. The farmers have also been enjoying the profit and the expansion of cultivation area has been initiated to include

Table 2. Summary of findings regarding organic farming in several Asian countries

Country	Description
China	<ul style="list-style-type: none"> • Considerable potential • Increasing demand for high-quality product • Positive effect on environment • High conversion at poor and remote areas
India	<ul style="list-style-type: none"> • Potential to alleviate poverty • Potential to expand in rain-fed areas • Yields could be enhanced • Reduced input costs
Malaysia	<ul style="list-style-type: none"> • Has strong market • Government support to environmental and social benefit beyond market gains
The Philippines	<ul style="list-style-type: none"> • Driven by farmers' organization and NGOs • Support from the government lately • Build partnership for participatory development
Republic of Korea	<ul style="list-style-type: none"> • Consumer and farmers realize the benefits in terms of environmental protection and food quality • The government implement direct payment program for farmers to promote organic agriculture • Issuance of strict certificate program
Sri Lanka	<ul style="list-style-type: none"> • Organized into community-based organizations to tap the potential for export • Non-certified organic farming remained one of the predominant farming systems • Demand for safe food or chemical-free was gradually growing • Research institute involve in research related to organic agriculture
Thailand	<ul style="list-style-type: none"> • Government strong commitment to develop organic agriculture • Farm input costs reduced in organic farming but increasing farm labor costs • Organic farming increase gross and net farm income • Generate higher employment opportunities compared to conventional farming • The key challenge was how to sustain organic farming expansion
Indonesia	<ul style="list-style-type: none"> • Developing a major organic agriculture program • Agriculture sector was second largest economic engine after manufacturing • Organic farming was seen as one option to regain momentum for agricultural sector

Source: UN-ESCAP (2002)

other farmers. The company provides guidance in coordination with local government, including on-farm techniques and marketing activities.

The GC program is the example of a successful partnership relation. The company cares the surrounding and introduces new technology to the farmers. The company initiates the partnership, provides seed capital (non-repayment but revolving), looking for fresh vegetables (hotels, restaurants, supermarkets) to market the vegetables and negotiates the price in favor of the farmers. The farmers were interested because of the increasing cost of crop production in a less fertile land. They are proactively participating

in related activities with collective decisions and always maintain togetherness. The government was invited to participate and, of course, welcome such a sympathetic approach from a private company. Training and knowledge were delivered to the farmers to improve vegetable quality they produce.

Case 2: Indonesia

Indonesia has been experiencing an agricultural partnership pattern during the past three decades. The nation-wide program named Nucleus Estate Smallholders (NES) is participated by the government (national or local levels), large-scale estate plantations

(state-owned companies or private companies), and smallholder farmers to form a patron-client relation in estate farming systems. The objective is very clear, to improve smallholder farmers' performance while maintaining environment friendly.

Although the project last for about 30 years, however, the smallholder farmers (clients) have been confronted with various difficulties. Perhaps, supervision functions (from the government side) are not optimally worked, the large-scale estates (patron) are reluctant to support smallholders because of different orientation, and the smallholder farmers are left behind with lack of knowledge and improvement. It is sad to say that the project is not well performed even with their constant partnership. Future development, in fact, has been recently initiated for enhancing the performance of this NES program. Evaluation and redesigning of NES program is expected to find an improved outcome for better business partnership among the stakeholders.

CONCLUSIONS AND OUTSTANDING SUGGESTIONS

The concept of circular economy has been considered as integrated farming systems activities in the context of recycling economy; one facility's waste is another facility's input. Farming systems are directed to develop less external inputs for sustainable farming system, prioritize and develop long lasting participation of farm households, and improve organic farming, biological farming, ecological agriculture, low external input agriculture, biodynamic agriculture, and regenerative agriculture.

Organic farming has been widely practiced by farmers (individuals or groups), however, less support from the government and private sector to enhance organic farming. Private sectors are in the strategic position to take initiative to help small-scale farmers with government support and facilities for a better living standard and encourage friendly environment. The three development pillars, i.e., government, private sectors, and farmers/rural community are considered as key factors (with their respective roles) to accelerate

business partnership for sustainable regional development.

Government's strong promotion to accelerate regional economy through enhanced farming systems is encouraged. Agricultural development in the context of circular economy will promote good food quality, health safety, and environment friendly. Farming systems research and market oriented approach are suggested to improve farming technique and associated economic activities. Private enterprise's initiative to revive mutual synergic partnership in concern of farmer's standard of living is appreciated for culture, social, and economy mutual benefit.

In the implementation stage, the private sector is expected to take a leading role (planning, capital, marketing, direction, guidance, etc.), whereas the government at local level will facilitate the initiative with necessary actions (farming technique, extension, administrative matters, rules, rights, promotion, etc.). The farmers will play an important role to make the success of the program (proactive, participation, collective decisions, learning by doing, etc.). The success of the current farmers is a demonstration effect for the others and this snowball pattern will enhance farming systems performance, hence the success of circular economy not only at regional level but perhaps nationwide.

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