



# Vegetable Farmers and Social Innovations in Food Estate Development Areas Collaborative Arrangements in Humbang Hasundutan, North Sumatera, Indonesia

Idha Widi Arsanti<sup>1</sup>(✉) and Acep Hariri<sup>2</sup>

<sup>1</sup> Indonesian Center for Agriculture Education, Bogor, Indonesia  
arsantiiw@gmail.com

<sup>2</sup> Malang Agricultural Development Polytechnic, Malang, Indonesia

**Abstract.** Vegetable farmers in food estate areas of Humbang Hasundutan are seeking new types of collaborations and economic opportunities in the new adaptation era. Market opportunities, however, have incurred demanding environmental, financial and labour requirements, and created trade-offs between expanding cash crops and maintaining livelihood security. There are different collaborative models between vegetable farmers and other social agents (suppliers, industries, markets, government, non-governmental organizations) have emerged. Local farmers are engaging in collective actions and pursuing different types of partnerships, which facilitate knowledge exchange and access to market niches, also helping them overcome the lack of infrastructure and logistic that have historically limited rural development in these areas. We examine the challenges and opportunities these partnerships and social innovations that have created for local farmers, who are part of heterogeneous groups with distinct roles, assets and contexts. The state, food estate program faces challenges to small-scale vegetable farmers who experienced asymmetrical relationships within their partnership with private sectors. Farmers should be pushed to be more flexibility in deciding their production arrangements, developing new farming techniques, and pursuing commercialization pathways. Despite their limited power, small-scale vegetable farmers have been able to overcome some structural barriers through innovations, entrepreneurship, and renegotiation of contract farming. Thus, their ability to engage in food estate programs provides concrete examples of the potential of governance based on collaborative arrangements to support sustainable vegetable farming systems.

**Keywords:** Extensification · Horticulture · Food security

## 1 Introduction

Covid 19 pandemic which has spread throughout Indonesia has had a negative impact on general economic conditions. Moreover, it is affect to the agricultural sector that could be the food bearing of the countries, particularly Indonesia as an agrarian country. Some countries including Indonesia, try to force some agricultural programs in order to produce food to meet the demand. Agricultural policies in Indonesia are focused not

© The Author(s) 2023

A. G. Abdullah et al. (Eds.): SEAVEG 2021, ABSR 23, pp. 3–9, 2023.

[https://doi.org/10.2991/978-94-6463-028-2\\_2](https://doi.org/10.2991/978-94-6463-028-2_2)

only on realizing food security to meet domestic demand, but also for increasing export. The agricultural sector has shown a positive growth during the COVID-19 pandemic providing an evidence that this sector still has potential for accelerating the economic growth.

Indonesian government has launched a specific program called Food Estate (FE) program that aimed at consolidating and integrating farm activities to reach economic scale. Upstream and downstream farming activities are integrated and professionally managed in accordance with the principles of sustainable agriculture. This program is highly expected to contribute significantly to the regional-based agricultural development [1]. One of the targeted areas is Humbang Hasundutan, North Sumatra that is designed as horticultural (particularly vegetables) based FE. The FE program in Humbang Hasundutan is formulated to optimize the production levels by emphasizing changes to existing technologies, traditions and farm institutions. Before the implementation of FE program, farmers relied more on collecting forest products, such as incense and *andaliman* that give them small family income. The FE program will drive some changes in farm management and farm institutional setting that may strengthen farmers' access to capital, business and marketing. The program will also introduce and apply good agricultural practices (GAP) approach aimed at improving farmers' knowledge to address environmental, economic and social sustainability dimensions, resulting in safe high quality food [2].

Co-operation and collaboration within the farming sector have received increasing interest in recent years, given a range of environmental, social and economic potential benefits [3]. The form of cooperation could be established as a legal entity in the management. Cooperation with off-takers so that it is mutually beneficial even though the results are obtained in large quantities. The involvement of various farmer institutions, government and stakeholders in business implementation can ease the facilitation of improving farmers' welfare [4]. The collaboration and partnership among farmers, government, private sector and other stakeholders are needed. It is important to strengthen the sustainability of the developing of horticulture in FE areas.

## **2 Collaborations as Social Innovation Rural Development of Horticulture**

Farmers, at the areas of Humbang Hasundutan Food Estate (FE), are implementing the farming management in the form of farmer groups. Mueller and Smith stated that working in group will provide benefits in facilitating achieving goals [5]. There are 7 farmer groups and one big group of farmer groups, developed at the FE location. Each group conducts business according to the characteristics of the location and market needs. Generally, they are planting shallot, potato and garlic considering soil and bio physic conditions and market needs. Armer groups are very important to manage farming system in term of information, business needs and marketing. This group is also used as a media for counseling, adoption the technologies and gather the information related to agribusiness in FE. The adoption of the technologies is very important, for instance the adoption rates of nursery technology vary by the commodities and are determined by the appropriateness of the dissemination [6].

In order to improve the capacity of the farmers, extension is carried out at least once a week in a farmers group. These methods are very important to understand problems faced by the farmers and the innovation on agribusiness. The extension workers held this group meeting with the farmers for learning, collaborating and doing business in agriculture. Learning process is built to communicate and share information as well as solving problems. The learning process has been carried out not only directly through meetings, but also through communication among farmer groups. Collaboration is still developed by utilizing infrastructure and irrigation of agricultural land. Collaboration is carried out to form the farming system more efficient and effective. In advanced, farmers in group will always discuss and produce agricultural products related to the market needs.

To establish the sustainable agriculture areas, particularly the extensification's not only optimizing the role of farmer groups but also requiring collaboration and synergy with many stakeholders. Ranjabar states that development agriculture areas is a process establishing conditions of biophysics, economic and social in a certain areas [7]. The collaboration should contribute to the economic, social and environment changes in the FE areas. Collaboration with the Agricultural Research Institutes provide information of innovation related to land conditions, suitable plants in term of environmental conditions, cropping patterns and agricultural technologies. These are more for increase the production and productivity. The Agricultural Research Institutes conducted demo farms at the FE areas to become learning fields for farmers. In this demo farms, related new technologies have been introduced. Farmers learned and saw directly how the application of agricultural technologies to increase production. Collaboration with Agricultural Research Institutes also provides relevant information related to pest and disease, so farmers could protect their plants and environment.

Other collaborations are with government agencies. It provides many benefits for farmers, particularly supporting technologies, facilities and infrastructures. Governments also support market access as well as extension and assistances. The roles of private sectors, as off takers are also important. The financial institutions is also needed to improve the capacity of funding. The more developed the business, the more problems faced. In this direction collaboration between the parties will strengthen the farmer groups in implementing the business in agriculture.

### **3 Creating Social Capital Through Collaboration**

Agricultural development cannot be distinguished from the development of human capital in agricultural. The process of social engineering in FE areas Humbang Hasundutan is expected to be able to change the behaviour of farmers, starting from conducting farming system conventionally and relying on forest products to become farmers who are oriented to the agribusiness. Social changes of Humbang Hasundutan farmers cannot be carried out by farmers or governments themselves but requires collaboration among stakeholders. Collaboration is built through changes in knowledge and skills at the beginning, then at the end there is changes in attitude of farmers to do the modern farming systems in the FE areas. Initial collaboration must be strengthened through farmer groups and groups of farmers groups, we call it Gapoktan. This is the basic foundation of farmers institutions

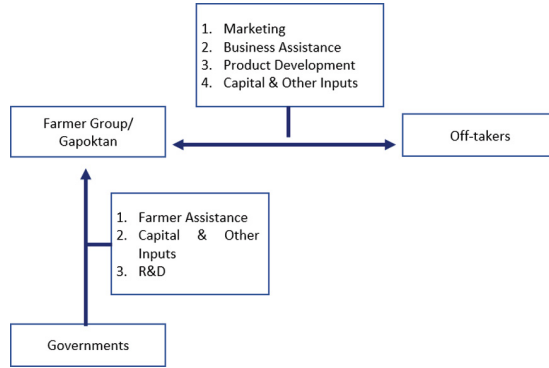
so the farmers could increase the bargaining position in doing agribusiness and receive benefits from their business. Farmer groups could strengthen the farming system in terms of developing the sustainable agriculture. Hariadi states that the farmer groups will be able to solve all problems if the learning process, collaboration and business are running very well [8].

Collaborations in these areas of FE in Humbang Hasundutan are developed to facilitate the agribusiness activities and make the process more effective and efficient. Collaborations can be carried out in business of many fields, such as input, capital, and fertilization, business activities, processing and marketing of agricultural products. Farmers in the areas of FE in Humbang Hasundutan at the beginning are rarely collaborated with off-takers because they used to do farming conventionally and collecting forest products. How they were working in forest are individually or in groups consist of 4–5 people. Business process in the FE area is quite different. It changes the paradigm of farmers to collaborate in business development with other stakeholders. Initial collaborations in agribusiness development is done through group meetings in planning a farming their business. Furthermore, collaborations should be done in the implementation of cultivation starting from the fulfilment of seeds, fertilization, pest control and irrigation. Every step of farming process is done in collaboration ways, including sharing the information on the cultivation horticulture products. Many farmers in these areas are quite newcomers in cultivating potatoes, onions and garlics, as the recommended products. Collaborations is also developed to facilitate marketing through farmers groups and Gapoktan. These farmers institutions build networks with off-takers in determining the quantity and quality of products that will be sold to the market. Collaborations should be done because give more benefits to the farmers, not only the profit, but also capacity building from the off-takers.

#### **4 Building New Opportunities Through Collaboration**

The main problems faced by the farmers in FE areas in Humbang Hasundutan are receiving the information technologies in business implementation and marketing. So far, farmers have mostly done their own business because of their traditional farming. If farmers do the farming collectively, they do based on the with their relatives and friends who live in the same villages. In this traditional farming, farmers do all of the activities independently. They are facing many obstacles on that, such as difficulty in implementing the good agricultural practices and negotiating prices in the markets. Farmers do not have bargaining power with buyers in selling their horticultural products. Moreover, the horticultural product, such as potatoes, onions and garlics are relatively fluctuating in terms of prices. In this way of thinking, it is necessary for farmers doing the agribusiness together and having collaboration with many stakeholders.

The partnership pattern which is developed is very fit with farmers' conditions, particularly in providing the stable selling prices. Partnership will guide farmers in the implementation of good agricultural practices in cultivating horticultural plants as well as the processing and marketing of the products. The partnerships are mutually beneficial for both sides, farmers and stakeholders, with agreements that engage both parties involved. Partnerships of farmers groups could be done with governments, state-owned companies, BUMD companies, private companies, banks or financial institutions,



**Fig. 1.** Scheme of collaboration in food estate areas in Humbang Hasundutan.

universities and research centers. Synergy among the governments, farmers groups, and the private sectors has a very important role in supporting the successful implementation of partnership and empowerment programs [9].

As already mentioned before collaborations among farmers and governments should be done with the research institutes, state universities, central and local governments. State-owned companies collaborate in financial sector, particularly for gaining the benefit from credits (KUR – Kredit Usaha Rakyat). The private companies are more in the assisting and marketing aspects. The companies or off-takers will collaborate more intensively in buying or absorb the farmers' products. Off-takers are not only absorbing the agricultural products but also provide assistances in implementing good agricultural practices. Several private companies which have been ready for collaborating in the FE areas in Humbang Hasundutan are PT. Indofood, PT. Calbe Wings, PT. Champ, PT. Panah Merah and PT Ewindo. The Memorandum of Understanding (MoU) which had been signed both of the parties can be used as collateral to obtain credit in banks.

This scheme of partnerships in this FE areas provide many benefits not only to the farmers but also to the parties involved (Fig. 1). In addition, trust of the farmers is very important to make this partnership strengthen and sustainable. There are many cases in the past that farmers tended to cheat, whereas the market price was much higher than the price agreed, farmers sold product in the market. The mutual trust and honesty must be developed in this collaboration so it will provide a sense of security and benefits for parties involved. A successful partnership will attract more beneficial partnership opportunities with other stakeholders in the future.

## 5 Collaboration for Sustainable Agricultural Development

Agricultural development in the FE areas involve many stakeholders and empower the resources which are focused on increase productivity in these areas. In this direction, the agricultural development contribute to the improving welfare of the societies. Implementation of FE should consider several supporting factors that support the sustainability. If do so, this areas of FE could be the model in the agricultural development. In 2020 the areas for developing the FE in Humbang Hasundutan reached 215 hectares. It will

extend year by year by the target more than 30,000 hectares in 2024. Considering the wide areas of extensification, it is not only covering one district of Humbang Hasundutan, but also covering other three districts of Central Tapanuli, North Tapanuli and West Pakpak. In this case, the responsibilities to run the activities successfully should bring together among farmers, governments, academicians and private institutions.

Governments facilitated land clearing for 215 hectares of land, because the investment in this new areas are quite high. For the next step of expansion, government could work hand in hand with the private sectors, because sources for the government is limited. In this case we can see that collaboration is needed agriculture sustainability and also given motivation for stakeholders to have responsibilities in the development of FE areas. Through collaborations, activities, risks, regulations and implementation of farming system, will improve welfares of farmers as the subject of agricultural development in FE areas.

One of challenges for the agricultural development is capitals. Farmers could propose the credit and also any other resources, such as funding in BUMDES (Village Privatizations). In farmer group, farmers could use funding in BUMDES for productive purposes, such as agricultural extensification in FE areas. By using this funding and having collaboration with off-takers, the farming system in FE areas will give benefit to the farmers and off-takers. Adopting the innovations and technologies in the economic scale are also necessary. It will give more profitability to the farmers. Several off-takers that have already piloted a potato crops are PT. Champs, PT. Indofood and PT. Wings Food. This mechanism gives win-win profits for both parties. Off-takers are also ready to help farmers, particularly in funding or providing production facilities that will be paid by the farmers at the harvest time. This scheme of collaborations for sure, will give solutions for farmers that experienced having limitation in capital. In addition, off-takers also provide assistance in cultivation by implementing the good agricultural practices, so the quality of the products meet the requirements of off-takers. This schemes of collaboration among farmers, governments, academicians and private sectors provides many benefits for farmers, not only for having more profits but also in capacity building. Moreover it will give motivation to the farmers and young generations to remain working in agriculture, so the agricultural development in FE areas will be sustainable. If do so, the target of food security and exports could be achieved in the near future.

## 6 Conclusion

The development of the FE areas in Humbang Hasundutan has brought many changes and challenges to the farmers, who originally done the farming conventionally and collected some products from forest. This finding in line with observation conducted by Riley et al., that changes to agriculture have served to irrevocably change the nature of trust, and hence social capital and the nature of cooperation between farmers [10]. These insights highlight the importance of recognising the antecedents of current farming relations and warn against the assumption that successful collective conservation in one area. They have to do intensive farming system and manage farming as businesses. Collaborations between farmers and other stakeholders farmers has changed the paradigm, especially in solving farming problems. Collaboration among farmers, the governments, academicians

and the private sectors (other stakeholders) are pivotal and could facilitate the transfer of technologies and innovations as well as infrastructure, finance, marketing and assisting. Collaboration between farmers and other stakeholders will make farming system in the areas of FE in Humbang Hasundutan more effective, efficient and profitable and for sure will create the sustainable farming system.

## References

1. Ministry of Agriculture Decree. Permentan Nomor 67 /Permentan/SM050/12/2016 Tentang Pedoman Pembinaan Kelembagaan Petani. Jakarta, 2016
2. I. W. Arsanti and M. H. Boehme, Ensuring quality and safety of horticultural products through the implementation of good agricultural practices (GAP) in Indonesia. *ActaHortic*, 2019, pp 1258.5
3. S. W. Jones. Understanding farmer co-operation: Exploring practices of social relatedness and emergent affects. *Journal of Rural Studies* vol. 53, 2017, pp 259–268
4. A. Hariri, Sugiyanto and Ismadi. Model Kelembagaan Penyuluhan Pertanian dalam Upaya Peningkatan Kinerja Penyuluh. *Agriekstensi Journal* Vol. 12 No.1, Juni 2013
5. C. Mueller and Smith. Attitudinal and Behavioral Effect Of Autonomous Group Working: A Longitudinal Field Study. *Academy Of Management Journal* 1991. Vol 34 No. 2, pp 464–475, 1991
6. R. Nugrahapsari, I. W. Arsanti et al. Factors Affecting Farmers' Decision in Adopting of Chilli Seedling Nursery Technology in West Java Province. *Agro Ekonomi Journal*, Vol. 38 No. 2, 2021, pp 143–154
7. J. Ranjabar. Perubahan Sosial Teori-teori dan Proses Perubahan Sosial Serta Teori Pembangunan. Bandung: Alfabeta, 2015
8. S. S. Hariadi. *Dinamika Kelompok: Teori dan Aplikasi untuk Analisis Keberhasilan Kelompok Tani Sebagai Unit Belajar, Kerjasama, Produksi, dan Bisnis*. Yogyakarta: Sekolah Pasca Sarjana UGM, 2011
9. Asiati and Nawawi. Kemitraan Di Sektor Perikanan Tangkap: Strategi Untuk Kelangsungan Usaha Dan Pekerjaan. *Jurnal Kependudukan Indonesia* Volume 11 No 2, 2016, pp 103–118
10. M. Riley, H. Sangster, H. Smith, R. Chiverrell, J. Boyle. Will farmers work together for conservation? The potential limits of farmers' cooperation in agri-environment measures. *Land Use Policy* Vol. 70, 2018, pp 635–646

**Open Access** This chapter is licensed under the terms of the Creative Commons Attribution-NonCommercial 4.0 International License (<http://creativecommons.org/licenses/by-nc/4.0/>), which permits any noncommercial use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons license and indicate if changes were made.

The images or other third party material in this chapter are included in the chapter's Creative Commons license, unless indicated otherwise in a credit line to the material. If material is not included in the chapter's Creative Commons license and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder.

