

# Social Policy for the Strengthening of Local Economy

## *Study on Tengger Potato Farmers*

1<sup>st</sup> Sugeng Harianto

*Sociology Department*

*Faculty of Social Sciences and Law*

*Universitas Negeri Surabaya*

Surabaya, Indonesia

sugengharianto@unesa.ac.id

2<sup>nd</sup> Martinus Legowo

*Sociology Department*

*Faculty of Social Sciences and Law*

*Universitas Negeri Surabaya*

Surabaya, Indonesia

fsadewo@unesa.ac.id

3<sup>rd</sup> Ali Imron

*Sociology Department*

*Faculty of Social Sciences and Law*

*Universitas Negeri Surabaya*

Surabaya, Indonesia

aliimron@unesa.ac.id

**Abstract – A study of the strengthening of farmers' economy at the local level has been widely conducted. However, the strengthening of farmers' economy through the social policy is interesting to be conducted. By using a qualitative approach, this research aimed to identify the problems faced by farmers and to analyze the social policies that have been formulated and implemented to solve the problems. Small-scale farmers develop subsistence ethics by choosing safety than maximizing profits. For instance, rejecting the innovation of the new potato seeds. Meanwhile, field extension officers (PPL) are facing legitimacy. Farmers have a weak bargaining position in determining the price of potatoes. While traders are more dominant to control the price of potatoes in the market. Therefore, an appropriate social policy is needed to empower farmers.**

**Keywords– local economy; subsistence ethics; social policy**

### I. INTRODUCTION

Studies related to local economic empowerment, especially farmers' economy, have been conducted by several researchers. The study of farmers' economic empowerment at the local level is related to the role of the farming community and innovation through simulation games. Dolinski and Aquino, examine the role of the community of practices (CoPs) of farmers in farmer empowerment. The study found that farmers belonging to CoPs more empowered for innovation than those working individually with expert support. But collectively farmers need to support each other for the success of the innovation process.[1] Dolinski also examined farmer empowerment through the involvement of farmers in building knowledge to develop innovation. This study found the involvement of farmers in building knowledge through the simulation game called *Laitconomie*. The game is designed by farmers themselves to creates conditions for farmers to mobilize their knowledge and knowledge of others to respond to their local innovation needs.[2] For the innovation of agricultural sector, Kunda, at.al,[3] examined 11 cases revealing the importance of various sources of knowledge, the learning forms and the particular role of farmers' experience-based knowledge to build sustainable agriculture. Farmers highly value the local experiential knowledge because it has practical, personal, and local relevance.

The similar study is conducted by Tahir Abbas, at.al, [4] in

Pakistan. Abbas studied the strengthening of local farmers' economies through the adoption of biogas technology. The study showed that farmers, especially of small-scale farmers, gain the economic benefits from adopting biogas technology. Biogas adoption is not only financially feasible but also environment- friendly. To maintain the environmental quality, farmers in China have a desire to reduce the use of pesticides. Ligu Zhang, at.al,[5] indicated that farmers have environmental concerns, pesticides residues cognition, agro-products quality concern and input control. It positively and significantly influences farmers' willingness to reduce pesticides, while non-agricultural income negatively affect.

Yang and Liu on survey data of 2,445 Chinese villages, found that raising the level of agricultural specialization can improve rural income significantly, and the development of farmer economic organization is an effective way to raise the level of agricultural specialization. Therefore, the government should take measures to promote the development of farmer economic organization.[6] Ragkos, at.al, examined the consequences of the economic crisis on the dairy cattle sector and the strategies undertaken by farmers to cope with it. Strategies undertaken by dairy farmers in order to face the crisis is adopting active strategies by undertaking investments and augmenting their farm sizes. They deem that the crisis does not have catastrophic results on the profitability of their farms.[7]

Baloch and Thapa in his study in Pakistan found that the government has adopted a policy of providing agricultural extension services to promote agricultural production by disseminating appropriate knowledge and technologies to farmers. Consistent with this policy, farmers have been provided extension services by the provincial Department of Agriculture through their officers working with the District Agricultural Extension Department. Then contrary to this policy, the extension is provided through a top-down approach with a certain field extension officials who lack knowledge in handling the production of specific dates-palm. Only half of the farmers, who have access to the extension services, used the knowledge/technology provided by the officers. On the whole, small-scale farmers who are using extension services can produce better outcomes than large- and medium-scale farmers.[8]

The strengthening of the local economy of farmers is also highly climate dependent which is difficult to predict and change. The study that conducted by Bouttes, at.al. showed that the fragility of organic dairy farms can be reduced by adapting to the agricultural diversity and the use of land and the intensity of agricultural management over time, along with the contextual changing (both climate and economic).[9]

In addition, Mudege, at.al,[10] Benjamin, at.al,[11] Lecoutere,[12] and Akter, at.al, [13] connect the strengthening of the local economy with women's empowerment. Mudege, at.al, found that gender and cultural norms can affect women's ability to participate actively in groups and take advantages of the potential group empowerment. Benjamin, at.al, said that in the empowerment of poor women, it is often to face socio-economic constraints that limit their participation in agroforestry. Besides that, Lecoutere found that empowering women and closing gender gaps can be done by exploiting the potential of agricultural cooperatives. The membership in agricultural cooperatives has a significant positive impact on economic welfare, knowledge, and the adoption of agronomic practices. Agricultural cooperatives can make a significant difference for women's empowerment if they can actively and consistently overcome the congestion to achieve gender equality. While, Akter, at.al, suggested that women's empowerment is not only important for strengthening the local economy, but also as a 'prerequisite' to achieve global food security. This study revealed a tendency that contradicts with conventional narrative of gender inequality in agriculture. In Indonesia, Thailand, Philippines, and Myanmar, women have equal access to the productive resources and greater control over household income rather than men. However, a country-specific gender intervention framework is needed to overcome the gender gaps in Indonesia.

Puspitasari conducted a study using an Islamic perspective. The result showed that prosperity at the local level is not only related to the economic benefits but also related to the spiritual benefits (immaterial benefits). However, the strong bargain power is needed to achieve the prosperity of farmers.[14]

While Heryanto examined the empowerment of farmers from the aspect of learning the independence of farmers through empowering group roles. This study found that empowerment with the dynamics of learning, business dynamics, and dynamic teamwork proved to have a strong correlation and a significant influence on the learning of the development of independent farmers in agricultural business partially and simultaneously.[15] Sofiyudin (at.al) found that the program of Independent Business Credit Tobacco Growers by providing capital assistance for the development of agribusiness failed to improve the welfare of farmers. The research found that Self Help Group (SHG) became an alternative solution for the community of tobacco farmers in Temanggung District. Development of SHG model, first through empowering tobacco farmers to provide access and information on human resource management, consulting and facilitating tobacco farmers, and second is economic empowerment through the provision of capital support to

Capital Tobacco Money Single, preparation of agribusiness plans, and farm-preneurship assistance in developing agricultural business activities.[16]

From those previous study that mentioned above, they have not been specifically focused on social policies for strengthening the economy at the local level. Therefore, this study focus on the government social policy issues as an effort to improve the economy of the local people, especially the potato farmers who live on the slopes of Mount Bromo, East Java, Indonesia.

## II. RESEARCH METHODS

This study employed a qualitative approach and conducted in the agricultural area on the slopes of Mount Bromo. This location was chosen because the slopes of Mount Bromo has a vast farmland planted with vegetables such as potatoes, carrots, and cabbage. This study chose potato farmers and field extension officers (PPL) as the research subjects. Furthermore, this study used in-depth interview and observation to collect the data. The collected data were processed and analyzed qualitatively.

## III. RESULT AND DISCUSSION

### A. *The Problem of Tengger Farmers*

Tengger people are living on the slopes of Mount Bromo that stretches across four districts, namely Pasuruan, Probolinggo, Lumajang, and Malang. Tengger society, like other people in Java, are mostly farmers. However, the agriculture that has been developed by them is such a field without technical irrigation like rice field. They develop those field because it is geographically located in a hilly area. Moreover, the field can only be planted with certain types of crops, such as potatoes, cabbage, carrots, onions and spring onions, wheat, and other vegetable crops. Because the field does not use a technical irrigation, it cannot be planted with various kind of food crops such as rice, soybeans, and corn. These types of crops need enough water during its growth period.

Although the farm fields in Tengger are widespread over the four districts, the field in the area is not evenly distributed. Most of the farmers still have a narrow field. Sayogjo called these peasants a small-scale farmer. Then, James C. Scott[17] called it a subsistence farmer, a farmer whose life is close to the poverty line. In life, subsistence farmers are like someone standing in a deep water and easily drown by a small wave. According to Scott, those subsistence farmers develop some subsistence ethics that called safety first. Farmers prefer to minimalize the risks than maximize the yields. The subsistence farmers do not brave enough to take the risks because it is a threat to their life.

Tengger farmers develop subsistence economies due to the small average field holdings. In addition, their family are not only being a production unit but also as the consumption unit. The yields crops are mostly used as their daily needs rather than for sale. However, some of the crops are directly sold to

the market by farmers to get the income that used for their consumption.

Farmers are not easy to accept the innovation that introduced by the government through the field extension officers (PPL). They reject the innovation of new potato seeds offered by the PPL. It is because the potato seeds have never been cultivated, so farmers do not know how the result is. Farmers need a type of potato seed that has been proven as the good one. This condition caused PPL experienced delegitimacy. Farmers have no longer trust the PPL for the innovation of potato seeds. Moreover, the condition of Tengger farmers is not as theorized by Samuel Popkin[18] that farmers are rational. According to Popkin, farmers will be rational in taking action to consider profit and loss.

There is a strong image that Tengger farmers are being very careful in accepting the innovations offered by the government. This attitude is called a subsistence ethic. In addition, Tengger farmers had an unpleasant experience with the innovations offered by PPL. The yield of the innovation potato seeds was not as better as their own seeds. Mandik and Mulyorejo, the two farmers of Ngadisari village-Probolinggo, said that the farmers have been cheated by the officers. They said that the potato seeds have not been cultivated before so they did not know how the result of it. Moreover, farmers need some evidence of the yields of the innovation potato seeds, but they cannot prove it.

According to the farmers, they had a lot of experience in cultivating potatoes than the field extension officers. They have been cultivating the potatoes for decades. Mulyorejo said "Do not lie to the farmers because they will not believe it anymore. Most of the farmers do not trust and follow the field extension officers. Tengger farmers chose to put the trust in Leko. They buy potato seeds from Leko which have better results than the seeds offered by PPL. Leko is usually doing a trial test before giving it to the farmers. If it is only about cultivating the potatoes, I have a lot of experiences for many years. The field extension officers are not experienced yet. Let's say that they are well educated, but I knew better than them."

Mandik has the same opinion as Mulyorejo. According to Mandik, the type of potato seeds that offered by the field extension officers is always rejected by the farmers. It is because the seeds are not much better than the potato seeds owned by the farmers. Farmers are often invited by the Department of Agriculture for the extension services at the village hall. However, the farmers did not apply the result of the discussion. They prefer to plant the potatoes which developed by local elites. "Potato seeds from Leko are better than the potato seeds that are being taught by the field extension officers," said Mandik.

Mariadi, a farmer who came from Tosari Village-Pasuruan, also did not trust the field extension officers. He prefers to plant Atlantic potatoes seeds developed by Yuli. As a farmer with a small field, he was never invited by the Department of Agriculture to join the extension activities. Based on Mariadi, a farmer who was invited to join the extension activities are

the rich one. He knows about the superior potato seeds from Yuli. "Not all of the farmers in this area were invited by the officers. Farmers prefer to use the potatoes seeds from Yuli than the innovation seeds from the officers. And so do I," he said.

Nevertheless, the potato farmers are still depending on the field extension officers of the Department of Agriculture for the supply of pesticides. Mulyorejo, Mandik, and Mariadi agreed that the farmers obey to the field extension officers for the use of pesticides. The farmer has no choice except following the instruction from the officers. "Yes. Because of that, farmers obey their instructions. I have no understanding about the pesticides except the officers. Farmers in this area are still needed more information of pesticides from the field extension officers," said Mulyorejo.

Yuli, an agricultural expert in *UPT* (Technical Implementation Unit) Department of Agriculture Tosari-Pasuruan, justify the farmers' attitudes. According to Yuli, the farmers in the slopes of Mount Bromo is not easy believing in the innovation before it is being tested. Moreover, Tengger farmers did not brave enough to plant those potato seeds. They are afraid of taking risks that cannot be paid. In addition, the farmers in the slopes of Mount Bromo is a kind of obedient farmer. They always follow and obey their leader's command. Yuli also said that the officers should not lie to Tengger farmers because they will be no longer trust the officers. What Tengger farmers need is the real action not only the words."The farmers are actually obedient. They will do what the officer offered. But, do not ever lie to them. If they did that once, the farmers will not believe them anymore. While, if the farmers know the results were good, they will put the trust in the officers. What I have done is actually utilizing the existing seed development unit. I did the trial test of the seeds on my field. Unexpectedly, the seeds show a good result. Then, the farmers start to plant the seeds." said Yuli.

According to Yuli, the introduction of new potato seeds should be done in several stages, at least through the testing phase. If it is done without some trial test, the farmers are reluctant to accept the new potato seeds. After that, either through the diffusion or observation by the farmers, the types of potato seeds can be disseminated. "Before seeing how the result is, the farmers did not brave enough to try the new potato seeds themselves," said Yuli.

The trial test of the new potato seeds in Tengger was conducted by the local elites, both religious, traditional, and the village formal elites. Based on the local wisdom, this local elite is obeyed by Tengger people. The introduction of new potato seeds will be more effective if it is done by the local elites.

Besides the delegitimation problems of the field extension officers, Tengger farmers also face the problem of disempowerment when dealing with the price fluctuations of potato commodities. The price policy of vegetables handed over to the market mechanism that caused farmers to have a weak bargaining position. In the market, traders who own and control the capital, have a strong power of bargaining so

they can determine and control the price of potatoes. By the reason of the lowering price of vegetables in the city, traders bought the potatoes at a low price. Potatoes are a type of vegetable that is not durable and easily rotten. Because of that, farmers have no choice except to sell it at a low price.

Farmers in the slopes of Mount Bromo did not have difficulty in selling the yields. They are selling it in the fields, not at home. In addition, there are several farmers who directly sell their yields to the market, but most traders are coming to the farmers. They came to the field for purchasing the potatoes when the harvest season coming. According to Mulyorejo and Mariadi, sometimes traders also come to the field, even it is not the harvest time, to bid the planted potatoes.

However, Mulyorejo, Mandik, and Mariadi agree that the price of the potato is determined by traders. They said that have not the strong power of bargain when dealing with traders. According to Mulyorejo "I cannot do anything when traders said that the price of vegetables in the city was dropped. At the time, they have been purchased my cabbage only one hundred rupiahs per kilogram. While my potatoes were two thousand rupiahs per kilogram. There is nothing I can do. I cannot save my cabbage any longer or postpone the harvest. It will lose a lot of my income if my yields have rotten."

That is what has been faced by Mandik and Mariadi. Both are helpless when dealing with traders. Although they do not face difficulties in selling potatoes, they got a very low price for their yields. Farmers usually lack information about current market prices. They obtain the information only from traders.

#### B. Review of the Social Policy

- Strength

Tengger people live concentrated in hilly areas spread over four districts, namely Pasuruan, Probolinggo, Lumajang and Malang. Tengger people is known as a society that has a unique culture, one of them is they have a local wisdom that is not owned by other society. The local wisdom is *bekti marang guru papat* (devote to the four kinds of teachers). The four kinds of teachers are: 1) *Guru Sing Kuwasa*, the Almighty God who created the heavens, the earth, and all its contents; 2) *guru wong tuwo*, both parents who are nurtured and raised and believed to have a power that can be harmful if they are not respected; 3) *guru pemerintah*, rulers who provide legal protection to the citizens; and 4) *guru ngaji guru pasinaon*, a scholar who gives knowledge. If a person is obedient to the four kinds of teachers, their live will safe and prosperous. Meanwhile, if they did not adhere and obedient, they will get calamity and misery in life.

In addition, Tengger people live in the hilly area around Mount Bromo. As the natural conditions of the region, the daily livelihoods of the Tengger

people are as farmers, renting cars and horses for tourists, traders, civil servants and the private sector. As a part of the active Mountain, the hills along Mount Bromo become a very fertile farming field. The loose soil makes farmers easy to cultivate it. In addition, the area also has a fairly high rainfall, so farmers had enough water for the plants. On the slopes of the rolling hills, farmers are cultivating the vegetables. The types of vegetables are potatoes, cabbage, carrots, onions, garlic, tomatoes, and others. They were cultivating vegetables throughout the year. It can be said that communities around Bromo are a vegetable producer in East Java. Then, the needs of vegetables in Surabaya or even Jakarta are supplied from this region.

- Weakness

The potato seeds offered by the government through field extension officers were rejected by farmers. The field extension officers facing a delegitimation. The reason of the rejecting is the potato seeds from the government are not as good as the potato seeds developed by the local elite themselves. As a result, the farmers refuse to use potato seeds offered by the government. Farmers also no longer put the trust on the field extension officers.

The rejection shows that farmers are reluctant to take a risk of the failure to something new. Based on Scott,[17] the characteristics of farmers in Southeast Asia whose live was subsistence, are choosing the safety first then taking them to the risks. Safety first concepts that shown by farmers are through a caring attitude in accepting new potato seed innovations offered by field extension officers. Farmers are reluctant or even reject new potato seeds offered by the government. New potato seeds which the results are not yet known by subsistence farmers are a threat (risk) for their survival. Farmers prefer to use the old potato seeds which are already known rather than trying the new one which has not yet been identified. Besides, the power of the farmer's bargain is weaker than traders. The prices of the potatoes do not fully follow the market mechanisms based on the law of demand and supply. The prices are determined and controlled by traders. As a result, the potatoes are bought cheaply. The cooperation with national food companies and one of the companies in Singapore brings some benefits for large-scale farmers. While the small-scale farmers did not get the benefit of the cooperation.

Potato is a kind of vegetable that is not durable and easily rotten. Traders take an advantage of this condition to bargain potatoes at a low price. Unfortunately, farmers have no choice except to sell their yields to the traders. In addition, farmers also have not direct access to the market. Geographically, the villages are in a remote area so it is far from the

city. The winding road requires adequate transportation. While small-scale farmers do not have such of that transportation. In other words, traders cut off farmers' access to the market. Farmers do not have direct access to the market and lack of information about current market prices. The market price information distorted by the direct presence of traders to the fields.

- **Opportunity**

Potatoes are people's basic daily needs. The society, both rural and urban, need these foodstuffs for their daily consumption. In other words, the potato market is a fairly wide open. There are many companies produce instant food that require some raw materials like potatoes. Based on Yuli, an agriculture expert of UPT (Technical Implementation Unit) of the Department of Agriculture in Tosari-Pasuruan, they have made a cooperation with food companies both local and foreign company.

The Department of Agriculture was cooperating with a national food company and one of Singapore's company. In cooperation with national food companies, farmers asked to supply 1,000 tons of potatoes. But, there are about 850 tons that can be fulfilled by farmers, and the rest of it was not. While the Singapore company gave 20% capital assistance to farmers for growing the potatoes. The yields are exported to Singapore through those company. The cooperation of farmers and Singapore's company has a very good prospect. Besides, Singapore is a transit country for the world of commerce. "This opportunity should be captured and responded quickly. At this time, farmers have not been able to meet the supply demanded by the national food company. They can fulfill for about 850 or 1000 tons. The company in Singapore also asked for the supply in large quantities," said Yuli.

According to Yuli, they had co-operated with two companies and there still have wide opportunities to establish the cooperation with other companies both domestic and foreign companies. In addition, farmers with appropriate technology can process their own potatoes into any kind of food.

- **Threat**

Indonesia which has ratified the WTO (World Trade Organization) are forced to accept globalization, especially the entry of products from the overseas. The globalization that invaded the entire community, without exception Tengger society, had an impact on the flood of the overseas products that entering Indonesia. The vegetable products from the other countries can shift the existence of Tengger's product.

### *C. Formulation of the Social Policy*

The problems solving can be done through the formulation of targeted social policies. Inadequate formulation of social

policy is not only ineffective in solving the problems, but also caused new problems. The government, both central and regional, should be able to formulate the social policies. Besides the social policy used for solving the problems, it can also empower Tengger farmers.

The social policies which are expected to solve and empower Tengger farmers are:

- **Policy of Development Superior Potato Seedlings**

Farmers do not believe the information submitted by PPL. This condition caused PPL experiences deligitimacy. The potato seeds offered by PPL are not as good as the potato seeds found by farmers. In order to solve the deligitimacy problem of the field extension officers and institutions, the government optimizing the existing research and development institutions, also did a collaboration with universities and research institutes to regularly conducts a series of research and experiments to find superior seed potatoes. The development of superior potato seedlings is expected to raise farmers' confidence in the field extension officers and the Department of Agriculture.

- **PPL Revitalization Policy**

The field extension officers have an important role in empowering Tengger farmers. PPL should be the agent of change for the peasant community. As an agent of change, PPL must have competence in their field, it is not only science competence but also social competence and having a lot of experiences. In addition, PPL is also required to do a persuasion to the society. To be successful, PPL should be accepted as a part of the community and able to give concrete examples. Therefore, it is necessary to formulate the policy of revitalizing PPL and its institutions.

- **Policy of Strengthening Local Economic Institution**

The problem of farmers' disempowerment when dealing with traders is one of the reasons for the weaknesses of the role of local economic institutions such as KUD (Village Unit Cooperative). KUD is expected to take an important role for empowering farmers. The role of KUD is not only to provide seeds, fertilizers, and pesticides, but also to help farmers market their products. KUD should have to break the chain between traders and farmers. Therefore, it is needed to formulate a policy of strengthening KUD as a local economic institution.

- **Policy of Opening Market Access**

Disempowerment problems of farmers when dealing with traders can also be solved by opening the farmers' access to the market. It is expected to break the chain between traders and farmers. Farmers should obtain direct information about the prices without going through traders.

- **Price Intervention Policy**

The price of Tengger farmers' potatoes does not fully follow the market mechanisms as in the capitalist

economic system, nor it determined by the government as in the socialist economic system. The interesting thing is the price of potatoes is determined unilaterally by the traders. Although they are as the owner of the potatoes commodity, farmers do not have the power and ability to determine the price of potatoes in the market. Farmers are powerless when dealing with traders to bargain the price of potatoes in the market due to an unbalanced exchange in social and economic relations between farmers and traders. The farmer has a strong dependence on the trader, because they ever have received a debt from the traders. The result is farmers have a weak bargaining position than the traders. Traders bidding on the potatoes with very low prices. Therefore farmers cannot refuse this condition. In the other hand, farmers also have no choice of selling to other traders. In this social and economic relationship, the trader is not only decisive but also controlling the price. So it is required a policy of the price intervention to solve the problem.

#### D. The Arrangement of the Action Plans

This following action plans should be developed to implement the social policies:

- To implement the policy of development superior potatoes seedlings, it needs to conduct several research and trials by the R&D institutions. To conduct the research and trial test, the government can cooperate with universities and other research institutions.
- To implement PPL revitalization policy, it needs to do continuous education and training, whether conducted by Government Training Institution and universities.
- To implement the policy on strengthening local economic institution, it needs to improve the role of KUD. KUD is not just providing the seeds, fertilizers, and pesticides, but also take an active role to market farmers' crops.
- To implement the policy of opening farmers' market access, it needs to develop a market in the center of the city that provides a space for farmers to become traders. Then, non-farmers are not given access to this market.
- To implement the price intervention policy, the government should determine the lowest and the higher retail price for potato commodities.

kan dalam gambar 4.

#### IV. CONCLUSION

Tengger potato farmers who lived on the slopes of Mount Bromo are mostly a small scale farmer. As a small scale farmer, they were developed subsistence ethics. It is shown by the rejection of new potato seeds that offered by the

government through the field extension officers (PPL). Farmers rejected the seeds because it has not been tested yet and the results are not yet known. They prefer to grow the old potato seeds which the results has been known. Those condition showed that they choose to be safe rather than maximize their profits. PPL are failed to persuade farmers to use new potato seeds. As a result, PPL are experiencing delegitimacy. The bargaining position of farmers are weaker than the traders. The traders are dominating to determine the price of potatoes in the market. Moreover, farmers also have poor communication with market places.

To solve the problems, social policies are needed to be formulated and implemented to empower farmers. Those social policies that should be implemented by the government are: involving the government research and development institutions and universities to sustainably expand the superior new potato seeds. In order to convince the farmers, PPL continuously improves their professional and social competence by following education and training. Farmers' empowerment also required to strengthen the local economic institutions such as KUD and open market access by building vegetables market in the city, as well as intervention the price through the lowest and highest retail prices.

#### Acknowledgment

The researcher would like to thank the Directorate General of Higher Education of the Department of National Education and the Faculty of Agriculture Universitas Brawijaya which has provided an opportunity to conduct this research.

#### REFERENCES

- [1] A. Dolinska, "Farmers as agents in innovation systems . Empowering farmers for innovation through communities of practice," *AGSY*, vol. 142, pp. 122–130, 2016.
- [2] A. Dolinska, "Bringing farmers into the game . Strengthening farmers' role in the innovation process through a simulation game , a case from Tunisia," *Agric. Syst.*, vol. 157, no. July, pp. 129–139, 2017.
- [3] I. Kunda, K. Knickel, A. Strauss, T. Tisenkopfs, I. Rios, M. Rivera, T. Chebach, and A. Ashkenazy, "Local and farmers' knowledge matters ! How integrating informal and formal knowledge enhances sustainable and resilient agriculture u," 2017.
- [4] T. Abbas, G. Ali, S. Ali, M. Khalid, and M. Asif, "Economic analysis of biogas adoption technology by rural farmers : The case of Faisalabad district in Pakistan," *Renew. Energy*, vol. 107, pp. 431–439, 2017.
- [5] L. Zhang, X. Li, J. Yu, and X. Yao, "Toward cleaner production : What drives farmers to adopt eco-friendly agricultural production ?," *J. Clean. Prod.*, vol. 184, pp. 550–558, 2018.
- [6] D. Yang and Z. Liu, "Does farmer economic organization and agricultural specialization improve rural income? Evidence from China," *Econ. Model.*, vol. 29, no. 3, pp. 990–993, 2012.
- [7] A. Ragkos, A. Theodoridis, A. Fachouridis, and C. Batzios, "Dairy farmers' strategies against the crisis and the economic performance of farms," vol. 33, no. 15, pp. 518–527, 2015.
- [8] M. Ali and G. Bahadur, "The effect of agricultural extension services : Date farmers' case in Balochistan , Pakistan," *J. Saudi*

- Soc. Agric. Sci.*, vol. 17, no. 3, pp. 282–289, 2018.
- [9] M. Bouttes, M. San, and G. Martin, “Vulnerability to climatic and economic variability is mainly driven by farmers’ practices on French organic dairy farms,” *Eur. J. Agron.*, vol. 94, no. February, pp. 89–97, 2018.
- [10] N. N. Mudege, T. Nyekanyeka, E. Kapalasa, T. Chevo, and P. Demo, “Understanding collective action and women’s empowerment in potato farmer groups in Ntcheu and Dedza in Malawi,” *J. Rural Stud.*, vol. 42, pp. 91–101, 2015.
- [11] E. O. Benjamin, O. Ola, and G. Buchenrieder, “Does an agroforestry scheme with payment for ecosystem services ( PES ) economically empower women in sub-Saharan Africa?,” *Ecosyst. Serv.*, vol. 31, pp. 1–11, 2018.
- [12] E. Lecoutere, “The impact of agricultural co-operatives on women’s empowerment: Evidence from Uganda,” *J. Co-op. Organ. Manag.*, vol. 2002, no. 193, 2017.
- [13] S. Akter, P. Rutsaert, J. Luis, N. Me, S. Su, B. Raharjo, and A. Pustika, “Women’s empowerment and gender equity in agriculture: A different perspective from Southeast Asia,” *Food Policy*, vol. 69, pp. 270–279, 2017.
- [14] A. W. Puspitasari, “Farmer’s Prosperity: How to Increase Farmer’s Bargain Power ( In Islamic Perspective ),” vol. 211, no. September, pp. 455–460, 2015.
- [15] N. Heryanto, “Empowerment of Group Role to Develop Learning Independency of Farmers in Farming Business ( Lifelong Learning Case of Farmers Group in Pagerwangi Village Lembang Subregency West Bandung Regency ),” vol. 88, no. Nfe 2016, pp. 59–63, 2017.
- [16] A. Sofiyudin, A. Zulfatindayu, A. E. Mawarni, and N. Audina, “Prosperity for Tobacco Farmers in Temanggung Regency , Indonesia,” no. Icpm, pp. 35–36, 2016.
- [17] “James C. Scott-The Moral Economy of the Peasant\_ Rebellion and Subsistence in Southeast Asia-Yale University Press (1977).pdf” .
- [18] S. L. Popkin, *The Rational Peasant The Political Economy of Rural Society in Vietnam*No Title, First Edit. Lon: Californio of University Press.