DOI <https://doi.org/10.18551/rjoas.2018-12.33>

FOREST COMMUNITY EMPOWERMENT THROUGH THE INCREASING ROLE OF PRODUCTIVE CROP-BASED SMIS AROUND FORESTS: A STUDY ON PORANG PLANTS IN EAST JAVA, INDONESIA

Santosa Dwi Budi*, Susilo Bambang, Munawar

Faculty of Economics and Business, University of Brawijaya, Indonesia

*E-mail: dwibudisantosa@gmail.com

ABSTRACT

Various empirical cases prove that forestry development policies have not been able to improve the welfare of forest community. In fact, the forest has a very large potential including the availability of productive plants which have high market potential. Many researchers propose the importance of increasing the role of forest resource-based SMIs or Small and Medium Industries (in Indonesian terms: *Industri Kecil Menengah* or *IKM*) as a way to increase the income of forest community. However, much of the SMIs formation in forest community often fails due to the inappropriate identification of problems and design policies. Based on that issue, this study has two objectives, namely: (i) identifying the driving and inhibiting factors of the development of SMIs managed by forest community; and (ii) arranging the design of forest community empowerment by increasing the role of SMIs. Implemented with case study method, this study found that the challenge of forming SMIs in the forest community to produce productive crops in the form of Porang (*Amorphophallus Oncophyllus*) is caused by the conservative character of the community characterized by a low entrepreneurial spirit due to the cultivation of unproductive values. However, the forest community is basically the typical open society who highly upholds the conservation of forest resources and has strong social capital. Therefore, they need an intervention in changing their mindset of life orientation and mediation from external parties (e.g the government) that is related to capital, marketing, and knowledge about cultivation. The presence of external parties is very necessary considering that the increasing role of SMIs requires a variety of variables that cannot be provided by forest community such as innovation, creativity, as well as mature, opportunistic, and ambitious business calculations. It can be said that the effort to increase the role of SMIs in forest community is very relevant and requires external parties as well as collective institutional governance. This finding can be a proliferation in constructing the stages of empowering forest community through the increasing role of SMIs.

KEY WORDS

Forest community, conservative, Porang, SMIs role.

To date, it is estimated that more than three-quarters of Indonesia's population depend on forest products where more than 50 million of them live in forest areas (Walhi, 2016). Hafizianor et al. (2013) revealed that the human resources of the forest community still very low in addition to the minimum empowerment efforts. This means that there are approximately 50 million Indonesian people who have non-optimal human resources because they live in a forest area. According to Hani, Mustapit & Hotimah (2014), the poor welfare of forest community is caused by many forestry development policies which are considered not able to improve the economy and welfare of the communities around the forest area. Many of the cases are caused by the distrust between the government and the community regarding the management of forest areas. There is still an assumption that the forest community destroys the forest. Such conditions make the efforts to empower forest community have not been able to alienate the lack of economic, social, and individual cultural abilities.

The lack of forest community empowerment has caused two problems. *First*, forest community still cannot afford to exploit the potential of the forest in a sustainable manner so that it impacts on poverty. The results of the CIFOR study (2015) found that of the total

population of forest community in Indonesia, around 11 million of them are classified as poor. Based on that number, around 6 million people have direct livelihoods from the forest and around 5 million works in the private forestry sector. *Secondly*, it is suspected that the forest community is not the recipient of forest cultivation (products) that the process is assumed to be exploitative. The findings from Constantino et al. (2012), Soepijanto et al. (2013), and Wiratno (2014) concluded that the high exploitation of external groups on forest product commodities is not enjoyed by forest community. This high exploitation has an impact on forest destruction while at the same time making forest community remains to be poor. These two problems have reduced the two functions of the forest area which are: (i) to provide benefits to improve the welfare of the community, especially the forest community; and (ii) an area of environmental preservation for sustainable development resources.

East Java is a province with a vast forest area. The area of East Java's forest area is the largest in Java Island reaching 1,35 million hectares. This area is far wider than West Java which only covers 816 thousand hectares or Central Java which has an area of 647 thousand hectares (BPS, 2018). Moreover, East Java has a wider forest area than Lampung (1,04 Million Ha) which incidentally is one of the Provinces in Sumatra Island that have abundant forest resources. Even so, the destruction of forests in East Java is also very high reaching 608 thousand hectares to deforestation each year to reach 3,3 thousand ha (Walhi, 2016). As a result, the rehabilitation of forest area that must be done reaches 49%. Forest destruction in East Java coincides with a relatively high level of poverty in several central areas of the forest community. The problem lies in their inability to optimize the potential of forest products. This statement is strengthened by the findings of Abdurrahim (2013) and the World Agroforestry Annual Report (2016) that the majority of forests potential in East Java is processed out of the forest area. In this matter, forest community only has the role of farmers with very low incomes. Nitiwijaya & Andrianantenaina (2016) explained that the lack of power of the forest community is caused by limited knowledge, level of education, accessibility, low entrepreneurial spirit, and a conservative mindset.

Some researchers (Hafizianor et al., 2013; Soepijanto et al., 2013; and Abdurrahim, 2013) proposed the importance of diagnosing the opportunities and challenges in the development of SMLs that is managed by forest community where the processed commodities must be based on the productive plants around the forest. This diagnosis is very important to be done to create a model of forest community empowerment by increasing the role of local commodity-based SMLs. The importance of SMLs in forest community is reinforced by the findings from the International Institute for Environment and Development (2014) and Tint et al. (2014) that the development of SMLs has a significant role in improving the welfare (income) of forest community and forest sustainability. An empowerment through the role of SMLs is absolutely necessary due to the continued expansion of forest degradation, a decline of crops productivity in the surrounding forest area, high levels of poverty in the community, as well as various exploitation conflicts. If it continues to happen, this variety of issue will strengthen the failure of the policy model in achieving the goals of sustainable forestry development.

Referring to the issues above, this research is intended to implement the proposal of the importance of SMLs development managed by the forest community that is based on productive plants in the forest. To realize this proposal, this study has two objectives, namely: (i) identifying the driving and inhibiting factors of the development of SMLs managed by forest community; and (ii) arranging the design of forest community empowerment through the development of productive plant-based SMLs. This study focuses on four central forest areas in East Java (Madiun, Bojonegoro, Nganjuk, and Ngawi) which have productive plants in the form of Porang or *Amorphophallus Oncophyllus*. The researchers chose the four regions based on the results of Santoso's research (2015) saying that the four regions have large Porang plant potential. Nevertheless, the poverty level of the forest community (Porang producers) in there is still very high even though Porang have high potential as technology-intensive industrial raw materials which usually used in the food and beverage industry, chemical industry, and pharmaceutical industry.

Porang is a plant that produces tubers and can be utilized especially for the interests of high-tech industries (Faridah, 2012). These tubers contain many beneficial compounds, one of which is Glucomannan that is a *hydrocolloid polysaccharide* consisting of *D-glucose* and *D-mannose* residues. Hidayat & Kelvin (2013) mentioned that Glucomannan is a substance of gelling agents which have high soluble fiber content, low calories, and typical hydrocolloid. This indicates that Porang with its Glucomannan content has a very high usability. The value of Porang plants in a processed form is higher than the value in the raw form. By that, SMLs is needed to form a chain of economic activities for Porang processing in the forest community. Based on this explanation, this research is essential to be done.

CONCEPTUAL FRAMEWORK

This research is intended to develop the design of the forest community empowerment through the increased productive plant-based SMLs. The design carried out was based on the identification of the driving and inhibiting factors of SMLs development managed by forest community. Theoretically, the synergy between the development of SMLs and forest conservation efforts is a strategic step to improve the welfare of the forest community. This is done by utilizing productive plants which in this case is Porang (*Amorphophallus Oncophyllus*) as a superior commodity with high economic value.

Figure 01 illustrates the framework of the forest community empowerment by identifying the driving and inhibiting factors of SMLs development. To perform this effort, an identification of forest community interests is needed to develop SMLs for Porang. This interest is divided into two things, namely the market potential of Porang and the difficulty level of business management. Both of those things and the respective components will be analyzed in this research so that the framework for empowering the Porang-producing forest community is expected to accelerate the development of this community. At least, this effort is expected to be able to meet several requirements, including (i) integrated SMLs activities from upstream to downstream; (ii) active participation from the local community; (iii) intensive labor; (iv) abundant raw materials; and (v) mastering the SMLs-scale cultivation technology.

Figure 1 – Conceptual Framework

METHODS OF RESEARCH

Methodological Approach. To find out how the design of forest community empowerment through the development of productive plant-based (Porang) SMLs, this study uses a qualitative descriptive method. The method was chosen because it is very relevant to

the research objectives and conceptual framework which really needs field research to find and explore the design of forest community empowerment through the increasing role of SMIs. The qualitative approach used in this study is adopted from Starman (2013) where qualitative research is indispensable if the research concerned requires depth to find, describe, and explore research cases to look at the implementation model of a case. For these two reasons, the qualitative descriptive method in this study was carried out through the construction of empirical investigations (field research) with a case study approach. The case study approach is considered suitable for this study because the aim is to explore the objects that are going to be learned which in this study are (i) identifying the driving and inhibiting factors of SMIs development managed by forest community; and (ii) arranging the design of forest community empowerment through the development of productive plant-based SMIs. An analysis of interactions or perspective of human behavior is needed for the two things above by which it could involve one or two individuals, one group, one community, or one activity. According to Hsieh & Shannon (2005), the qualitative approach applied from the perspective of human behavior must be done through interview and observation.

Research Sites and Data Collection. This research is focused on the area of forest community in East Java that has a high potential for Porang cultivation. There are four selected regencies, namely: (i) Madiun; (ii) Bojonegoro; (iii) Nganjuk; and (iv) Ngawi. Although it is the highest producer of Porang in East Java, the four regions still have a high level of poverty (except Madiun), especially in the surrounding forest area. To explore the case studies in the four regions, the data collection techniques are divided into four stages, namely:

- Observation. This is the process of observing and recording objects of research carefully, thoroughly, and systematically (Hadari, 2005). In this study, direct observations were made on the object of research to obtain information that was relevant to the formulation of the problems. The expected results of this method are: (i) the identification of local values for the empowerment of SMIs used by the local community; (ii) mapping the opportunities and challenges of developing SMIs; and (iii) obtaining the key components to encourage forest community empowerment.
- Secondly, the in-depth interview that is to explore information in detail and in a systematic manner in accordance with the objectives of the study. In conducting in-depth interviews, informants were determined *purposively* on groups that were the object of the research. In the sampling, *snowball sampling* was used as the basis to determine the flow of interviews from one informant to another informant. The grouping of informants is based on their understanding and competence to answer the research objectives.
- Number three is documentation that is a secondary data collection from various verified publications of research institutions and universities. The information generated from documentation studies is in the form of text, journals, memos, invoices, and program reports. The results of this documentation are expected to ease in the primary data analysis.
- Last but not least, Focus Group Discussion (FGD). This is one of the techniques of data collection that is performed through discussion with several groups related to the research objectives. The parties are directly involved in the discussion which in this case were Porang farmers, entrepreneurs or SMIs actors, government officials, academics, and observers of forest community empowerment.

Data Analysis. The purpose of data analysis is to obtain accurate and valid information from the data obtained. In analyzing qualitative data, this study adopts the techniques proposed by Miles & Huberman (2014) as follows:

- Data Reduction. This is the selection process which focuses on simplifying and transforming "raw" data from written records in the field. The reduction technique is intended to process crude data into information that is in accordance with the theme of the research.

- **Data Presentation.** This means that the results of data reduction are displayed in the form of diagrams to be easily understood. In this study, researchers used two forms of data presentation, such as:

Fish Bone Diagram (Figure 2), that is the presentation of data to find the main components that can be mapped as the driving and inhibiting factors of SMIs empowerment in the research location. Fish Bone is intended to answer the first research objective. Therefore, there are two important aspects that are carried out, namely: (i) identifying and formulating the problems of SMIs development; and (ii) arranging the relationship between the problems faced by SMIs actors along with the responses given.

Tree diagram. This form is intended to illustrate the trade chain path with the benefits that will be obtained by Porang farmers and SMIs actors. A tree diagram can provide choices for farmers and businessmen to determine which path is more profitable.

- **Drawing Conclusions.** In this stage, the relationship patterns are organized into information that is logical and easily understood by the reader. The results obtained from data reduction and data presentation are continuously analyzed to obtain accurate understanding as a sum up.

After the three techniques above are done, the next thing to do is pouring them in a series of writings. To strengthen the validity of data from the qualitative (primary) research, the analysis in each paragraph will include several sources of informants such as Farmers, Traders, and Village Stakeholders. The identity of the informants is indicated by the symbol: Informant #1, Informant #2, Informant #3, and so on. This is intended to maintain the identity of the informant that on the one hand, still shows strong data validity.

Figure 2 – Fish Bone Diagram (Source: Researchers' Illustration, 2018)

RESULTS OF STUDY

This study refers to the Fish Bone Diagram (Figure 2) to identify the driving and inhibiting factors of SMIs development managed by Porang-producing forest community. The exploration presented in the Fish Bone Diagram aims to diagnose both driving and inhibiting factors which will later be used as input in developing forest community empowerment designs through the development of productive plant-based (Porang) SMIs. The empowerment design refers to the conceptual framework (Figure 01) and the Fish Bone Diagram (Figure 02) as a constructive footing in analyzing the driving and inhibiting factors. Based on this explanation, the field findings related to the identification of the driving and inhibiting factors of SMIs development is the initial analysis that is used before analyzing the appropriate empowerment design.

Driving Factors of Porang SMIs Development. The driving factors identification of the development of strategic commodity-based SMIs refers to two approaches which are (i)

demand approach and (ii) supply approach. These two approaches are in accordance with the explanation of Chin et al. (2012) that the exploration of business drivers, especially for SMLs, is based on the potential demand and supply.

The demand approach emphasizes two aspects as follows: (i) the development of Porang demand; and (ii) the tendency to increase the prices. If the increase in demand is not matched by the demand for production, the prices will tend to increase. This condition indicates that the market is experiencing a scarcity of production or on the other hand, creating a greater business opportunity.

Supply approach consists of three aspects, such as (i) the tendency of increasing production; (ii) increasing investment, and (iii) increasing sales. If farmers feel an increase in sales, then farmers will increase the production and investment. It can be said that this affects the size of market opportunities for farmers.

From the demand approach, the first aspect seen was the development of Porang demand. Field results show that the development of Porang demand is increased in every year. This is supported by one of the informants (Farmer #4) that during 2007-2017, there were three large-scale export-oriented industries as Porang's main consumers which are: (i) PT. Ambico from Sidoarjo; (ii) PT. Algalindo from Surabaya; and (iii) PT. Giat from Surabaya. Most informants (Merchant #1, Merchant #3, Merchant #4) said that Porang supply in the production center (especially in Madiun and Nganjuk) is not sufficient to fulfill the demand from those companies.

The high demand for Porang is inseparable from its important function in high-tech industries. Industries that require Porang raw materials are divided into three groups including (i) food and beverage industry; (ii) pharmaceutical industry; and (iii) chemical industry. Of those three industries, the industries who have a high demand for Porang are the food and pharmaceutical industries (including cosmetics). In the food industry, the Glucomannan market is very open, where Porang international flour prices (in 2013) with Glucomannan levels above 80% reached US\$ 2,650,00 (26,5 million/kg). The market potential for Glucomannan is the United States, Latin America, Europe, Asia Pacific, and Russia.

Because the demand tends to increase, more farmers try to become traders. According to the informants (Farmer #2, Farmer #3, and Farmer #6), in 1984, there was only one trader in Klangon Village, Saradan Subdistrict, Madiun Regency whereas now, there are 5-7 traders. This phenomenon points out the high prospect of Porang demand. This finding reinforces the results of a study by Pasaribu et.al (2015) that the market demand for Porang plants every year is increasingly high due to its many uses, especially for high-tech industries.

From this trend, the field results found that the price will always increase. Madiun and Nganjuk are the two regions that are always consistent and significant in terms of price escalation. The data compilation from the field found that the increase in Porang prices in the two districts reached an average of 11% to 38% annually. Whereas, one-third of the informants stated that the price averagely rises in the range of 0% - 10%. The calculation based on the notebooks of three Porang collectors in Nganjuk indicates that in 2015, Porang harvest price was still IDR 500/Kg and then in 2016, it changed to IDR 2,000/Kg and IDR 3,500/Kg in 2017. Based on the results of observations and in-depth interviews, Porang's potential is still very profitable when viewed from the development of prices and production values. The informants (Merchant #2 and Trader #3) believed that Porang prices in the coming years will continue to increase considering that the demand also continues to rise.

From the supply approach, the first aspect to be seen is the tendency to increase the production. The field results show that Porang production in four research areas continues to increase as seen from the area of the land and the value of production. It can be seen in Madiun where the total area of Porang cultivation is annually increasing. In 2013 and 2014, the area of Porang plantation was 1,400 ha and then in 2015, it increased to 1,471 ha. Respectively, it was continued to expand by 1,512 ha in 2016 and 1,536 ha in 2017. The increase in land area is in line with the amount of production wherein 2013 and 2014, it amounted to 8,100 Kg, 8,344 Kg in 2015, 8,538 Kg in 2016, and 9,100 Kg in 2017. Based on

the results of observations and in-depth interviews, Porang's potential is still very high when viewed from the trend of product development. This result can also be an important finding that the availability of raw materials, technology, and human resources is basically not an obstacle for the forest community to become business actors. This strengthens the research from Maryudi & Krott (2012) that, basically, the forest community is good enough in the cultivation aspect but not quite in the processing aspect.

Besides that, the results from the field also found that there is always an increase in investment. This can be seen from the frequency of the company to visit and offer the farmers a partnership with a capital investment loan system. Some of the informants (Farmer #1, Farmer #2, and Farmer #3) revealed that the industry had provided incentives to farmers either in the form of advance payments or loans to increase the production. This condition reflects that the offering of Porang's business investment in the four research areas is very large. Based on the results of observations and in-depth interviews, the potential of Porang is still very high when viewed from the trend of investment development (capital). With the increasing size of industrial loans to farmers, it is proven that industry players desperately need Porang raw materials.

Seen from the increase in sales, it is found that the sales are always improving. The field data compilation shows that the increase of Porang sales in the four research areas averagely reaches 56 percent annually. Most of the cases can be found in Madiun where many of the forest community seek to obtain a license to use the forest land for Porang cultivation. As expressed by Farmer #2 and Farmer #5, the submission of some licenses is very sought by the farmers to increase the area of their cultivation. Most Porang farmers experienced an increase in market share of around 10.93% to 37.92%. Only 8% of the farmers claimed to have high sales increase that is by 55.56%. These types of farmers usually become traders. In contrast, all Porang traders in East Java also work as farmers. Therefore, it is a common thing that the profits of Porang farmers are higher than the regular farmers.

Inhibiting Factors of Porang SMLs Development. The frequency of the most common problems in the field of forest community is the reluctance to sell Porang in the processed form. They used to sell Porang in raw form that was just taken at the time of harvest in the field. Consciously, they already learned that the processed Porang in the form of dried chips slices has a much higher profit rate. It is different from farmers who want to process Porang in the form of sliced chips (rarely found) where they have the efforts to work on the equipment needed.

Table 1 – Profit Level Simulation for Raw and Processed Porang Sales

Farmers who sell Porang in wet (raw) form to collectors	Farmers who sell Porang in chips (processed) form to collectors
Turnover: IDR 5,250,000	Turnover: IDR 25,200,000
Cost: IDR 850,000	Cost: IDR 10,500,000
Profit: IDR 4,400,000	Profit: IDR 14,700,000

Source: Results from Field Observation, 2018.

Based on the results of field observations, there are significant differences between farmers who want to process Porang and those who only sell Porang in a wet or raw form as follows:

- In the in-depth observations and interviews, it is found that farmers who want to process Porang in the form of chips are those who: (i) have relatively higher levels of production; (ii) extensive knowledge, especially from the aspects of cultivation, processing, and marketing; and (iii) extensive marketing network. *First*, the scale of production is large because these typical farmers usually have a vast area of land and the ability to lease the land is also very large. They have this advantage because it is supported by strong capital. *Secondly*, their extensive knowledge is obtained from higher levels of education or networks that enable these farmers to have the potential to develop their knowledge. *Number three*, extensive marketing networks which are

caused by many factors. One of which is a network of friends among farmers or traders. All of those three factors enable the farmers to have better access to the markets, knowledge about the processing stage, high entrepreneurial power, and knowledge about the intricacies of the market.

- All farmers who sell Porang in the raw or wet form are small-scale farmers who have limited market information and low competitive capacity. Based on field findings, these farmers typically have narrow land, few networks, limited knowledge due to low education level and friendship in which they also struggle with their lives in the forest area. They admit that they do not want to be bothered and are very conservative because processing Porang into chips requires equipment that might burden the expenses as well as energy. These farmers feel that buying from collectors makes their work easier because there is no need to bring yields (Farmer #3, Farmer #4, Farmer #5, Trader #2). This fact raises an important finding that conservative Porang farmers are basically very sensitive to additional post-harvest costs where these costs are an absolute requirement if they have to process Porang. They thought that post-harvest additional costs are activities that are carried out in the post-harvest stage in fields such as loading or storing. For farmers, porang processing is a process that requires extra costs not only in terms of loading thus making the farmers do not want to take risks or get out of their comfort zones.

The highlight of the two characters of the farmers above is proof that there are differences in fighting power besides capital and knowledge. The observation shows that the majority of Porang farmers in the four research areas still do not have an active role in farmer groups. Whereas, the existence of farmer groups is expected to be able to mediate the yields by processing Porang. For farmers, farmer groups (Porang and Non-Porang) are institutions that are only considered as a group¹, who provides agricultural equipment and as an institution to channel government aid. Farmers still do not realize that farmer groups can be used as mediators to increase communal knowledge. The majority of farmer groups in four research areas also still cannot realize the optimal institutional governance including in mediating the interests of farmers, especially in terms of Porang trade chain and processing. Such conditions make these farmers remain conservative that is low in creativity and innovation. This statement supports the findings of Soepijanto et al. (2013) that the typical farming communities (including forest community) still have communal-structuralist characteristics; mindsets that are largely determined by the environment and communal characters who are usually less able to adopt productive values.

DISCUSSION OF RESULTS

Why Do Forest Community Attach to Conservative Characters? According to Bohene, Sheridan & Kotey (2008), strong entrepreneurial characteristics cover four aspects, namely: (i) creative and innovative; (ii) business calculations, used as the basis of decision making; (iii) opportunistic; and (iv) ambitious. Unfortunately, the findings in the four study areas show that the average forest community does not have those four criteria. The criteria of strong and mature entrepreneurial calculations are only found in farmers who want to process Porang even though very few in number. As mentioned earlier, the characteristics of the Porang producing forest community are communal-structuralists that the local culture is very much determined by the environment and the surrounding community which tends to be structuralist. Structuralism is a hereditary character based on a hierarchy of values. Unfortunately, the communal characteristics of the forest community make them difficult to adopt productive values. This can be seen from the facts on the field showing that the average Porang farmers do not have a target in farming in which they also have a weak willpower to engage in post-harvest activities.

¹ In Javanese language, farmer group is a place for gathering, meeting, hang out, and etc so that it is only a media for typical rural social interaction and not as an organization that can help farmers to sell the crops and process Porang.

The findings above support the research of Manyamsari & Mujiburrahmad (2014) that the competency of farmers in farming is a manifestation of behavior to plan a series of activities to achieve the target. According to Margarian (2009), the weakness of the farmers (especially the ones who live remote areas) is found in the mentality or mindset that is less influenced by exogenous knowledge thus making it less outward looking. On the other hand, Cullen et al. (2017) argued that the lack of innovation power from the farmers is due to the absence of a household economic growth mindset which is more due to the avoidance of risks caused by transaction costs. In the case of Porang farmers, risk aversion can be seen from their unwillingness to incur additional post-harvest costs. Even though in entrepreneurship, additional costs in the early stages are capital to process the products that can bring a better level of profit. This finding is reinforced by Burton (2014) that the fundamental weakness of farmers lies in the lack of effort to process the value-added crops making them a difficult group to develop due to the lack of entrepreneurial spirit.

Based on observations and in-depth interviews, the communal-structuralist characteristics in Porang farmers are caused by spatial location, level of knowledge, and mindset. Burton (2014) said that the demographic characteristics attached to rural communities greatly affect their behavior in managing the environment including the way to cultivate the land and to handle the post-harvest. In spatial terms, the location that is very far from urban centers and government make the forest community excluded from information and knowledge. Various empirical studies as explained by Southiseng (2012) have proven that limited access to infrastructure and space have made the transfer of knowledge and innovation very exclusive. Even though historically saying, rural communities including forest community have a better level of openness. The observations on Porang farmers prove that they are very open to the flow of information related to farming, processing, and marketing. However, the transfer of knowledge from outside (exogenous) is very rare to date so that this problem is more likely due to the lack of empowerment carried out by external parties. If it only relies on the indigenous empowerment from the forest community, it will be difficult to do. According to Arifudin, Nasrul & Maswadi (2013), forest community is lack of pioneers or role models, not supported by adequate human resources, and have fewer production values that are difficult to eliminate.

Less productive local values are increasingly rooted in the forest community considering that their family sense is basically very strong. This finding may tend to be paradoxical, but a strong sense of family (social capital) can basically be an economic trap. Social capital can be very beneficial if it delivers the value of productive and upholds the value of progress. Choupkova, Haase & Svendsen (2003) wrote that the value of productive social capital will spread rapidly and become social cohesion so as to stimulate the members to contribute their resources to new things and generate new values. A similar statement was expressed by Sabatini, Modena & Tortia (2011) that optimal economic activity is not separated from the goals in the relationship of social capital-based interactions as basic social strength. However, social capital can also be a trap if the social cohesion that occurs is based on the infiltration of conservative values. As previously mentioned, this value is embedded on the forest community so that they do not have a strong entrepreneurial spirit including (i) low creativity and innovation; (ii) no business calculations; (iii) less opportunistic; and (iv) less ambitious.

Can SMIs Empowerment be carried out in Forest Community? Previously, it has been explained that Porang farmers have a communal-structuralist style with values conflicting the entrepreneurial spirit. Porang farmers also have a strong spirit of togetherness (social capital) that has not been managed properly. Poor social capital is evidenced by the application of conservative values (inherently) so that the social capital created is not positive for the economic performance of Porang farmer households. However, Porang farmers also have good local values which are very concerned about the sustainability of environmental resources. Publications from the International Institute for Environment and Development (2014) found that forest community are basically not the destroyer of forest resources but are the guardians of forest ecosystem sustainability. That is, they have positive local values and can still be relied upon for economic improvement. A research from Carr, Tenywa, &

Balasubramanian (2017) revealed that the strength of forest community lies in the effort in protecting forest resources and in preserving the conservation biodiversity even though there is a commercial interest in the products that come from forests. Some researchers have proven that forest community has no intention to exploit forests excessively given that the forest is their source of income. This is in line with the facts in the field that Porang farmers are very concerned about the cultivation patterns that are synergized with the sustainability of the forest. Therefore, although it is conservative, the forest community also has a good orientation in maintaining the sustainability of economic resources.

On the other hand, Porang farmers also have a fairly permissive nature of openness. They basically want to receive information or knowledge that is positive only that it has not been delivered to them. The empowerment of the government is still minimum because the forest community already has a negative label with all its limitations. Soepijanto et al. (2013) believed that besides the factor of internal capacity, the limitation of forest community is dominated by the lack of empowerment efforts carried out by external parties. Forest community have not had the capacity to erode their weaknesses so that it will be impossible if they want to initiate empowerment efforts for themselves. This is supported by Maryudi & Krott (2012) that forest community needs skills and competencies that must be intervened by external parties such as knowledge upgrading, group discussion involvement, direct them for independent ideas, as well as self-confidence improvement. Besides that, Maryudi & Krott (2012) who examined poor farmers in Uganda (Africa) showed that the lack of power of the farmers can be reduced through the intensity of informal learning promoted by agricultural extension systems where the knowledge is transferred through horizontal channels (between farmers and communities) and vertical channels (between experts and farmers). From this learning, the nature of openness of Porang farmers is basically a door to empower the interventions so that they can leave their conservative nature.

Increasing the role of SMLs is very much needed by Porang farmers so that the added value can be better and the income levels can be increased (Table 01). There are several characteristics of local values that benefit Porang farmers such as paying attention to the sustainability of resources and the openness to external knowledge. Allegedly, the conservative nature of Porang farmers is due to the lack of empowerment and development efforts initiated by external parties. Porang farmers' social capital is already strong but the intervention of production values is needed. Some of these explanations can become a base to construct social simulation, especially for the intervention of SMLs introduction and development. Jiang (2009) in his research proved that social capital is able to provide accessibility to the integration of various resources ranging from inputs, processes, outputs, and impacts to innovative environments. If the role of the SMLs is increased, social capital will greatly help the efficiency of production and exchange costs that can stimulate more productive changes in the environment. A productive institutional environment can stimulate ideas, beliefs, and actions used by the organization (Hafizianor; et.al, 2013). Therefore, in this case, the thing that is needed to increase the role of SMLs is the importance of creating appropriate institutions so that they can serve as economic incentives for Porang farmers.

The Design of Forest Community Empowerment through the Development of Porang SMLs. This research found that the market potential of Porang is very high but not followed with the character of the people who tend to be conservative. However, there are other values from the farmers such as governance, natural resources conservation, openness, and social capital. This case is similar to the findings of Kozak (2007) that the problem was resolved through the importance of fully handing over the commercial rights of managing the forest to forest community in addition to continuing the intensity of empowerment. This effort is operationalized through the SMLs-based empowerment. This is the principle of empowerment in the agricultural sector which is based on independence, participatory, collaborative, and self-help where SMLs has a role as a media development. According to Suryahadi, Suryadarma & Sumarto (2011), the empowerment model based on the independence of forest community has an impact on rural agricultural growth and poverty reduction. Trommlerova, Klasen & Lemann (2015) also added that there is a strong relationship between entrepreneurship development and poverty reduction in rural areas.

This is supported by Haggblade (2011) who observed the poverty of farmers in Sub-Saharan Africa in which he found that the agro-industry has a significant impact on poverty reduction. Market mediation and various facilitation (including training) combined with the orientation of community independence are considered the most appropriate empowerment collaborations, especially in the agricultural sector.

Some of the patterns above are references that are assumed to be the most suitable model to be applied to the forest community. In this case, such patterns can be done by empowering the concept of facilitation, mediation, and intervention on production values while keeping the management on forest community. The main capital to build an institution for these Porang farmers is the strength of social capital that the values within just need to be revised and developed. This concept adopts the research from Tin et al. (2014) that building individual self-confidence and social capital from non-indigenous people is a crucial aspect in the concept of communal empowerment in the long term. The facilitation and mediation to increase the role of SMIs for Porang farmers are based on a number of needs that they have not been able to fulfill independently. Based on the identification of SMIs development inhibitors, several things which are needed for the development are capital, marketing, and knowledge about entrepreneurship. For some of these needs, the design of empowering Porang farmers through the increasing role of SMIs can be seen as follows:

Figure 3 – The Design of Porang Farmers Empowerment through the Increasing Role of SMIs
(Source: Analysis Result, 2018)

There are three aspects that must be done in this matter. *First*, increasing the role of SMIs must pay attention to Porang raw material supplies without damaging the function of the forest. The sustainability of raw materials is already owned by Porang farmers in which they apply the principles of sustainable resources and forest functions. The findings from the field have proven that the availability of raw materials, technology, and human resources is not an obstacle for Porang farmers to become entrepreneurs (SMIs). *Secondly*, the facilitation in the form of capital partners is needed to answer the capital needs of the farmers which have been the main problem for them. External trade partners are needed, both in the form of formal and non-formal financial institutions. *Last but not least*, trade partners are

needed in ensuring market certainty after Porang is processed. For this reason, businesses actors outside the region are needed, both in the form of secondary industry or trade services. These three aspects will certainly affect the operation of the SMIs Porang in the activities of purchasing raw materials, sorting, processing, storing, and marketing. The development of SMIs also requires several government policies such as infrastructure development and forest conservation. The series of this design is expected to be able to build a sustainable forest community which is characterized by (i) increased income; and (ii) good forest preservation.

The design above works not as a basis for SMIs development individually but communally. This happens because Porang farmers have strong social capital which can be used as an important input for the empowerment. According to Lang & Roessi (2012), social capital in rural businesses is a distinguishing factor for one particular SMIs with other SMIs. Social capital in the agricultural sector has a strong variable of trust and norms. The strength of the social capital in rural communities able to expand the ability of the groups to participate in negotiation, control, work, and learning process in which they can be independent to act collectively (Minani, Rurema & Lebailly, 2017). This concept is almost similar to a cooperative where social capital becomes a force that needs to be developed. Institutional cooperatives are in line with the empowerment that uses the concept of independence where the institutional arrangements are handed over to the community. Therefore, it is proposed in this study that SMIs should work with the concept of cooperatives. The concept of cooperatives in the management of SMIs in the agricultural sector is believed to be able to develop the organizations, human resources, products, supply chain management, and competition levels so as to have a significant effect on the strength of business competitiveness (Munasib & Jordan, 2011). This idea is more oriented to the ability to adapt as quickly as possible with changes in the business climate to survive in the market and to maintain long-term sustainability.

CONCLUSION

Porang (*Amorphophallus Oncophyllus*) is a type of productive tubers which have high market demand and can be found around forests area. The prices of Porang are known to always increase annually where the demand comes from the high-tech industry that is mostly used for export needs. This type of industry has a tendency to be able to maintain the price trends at several levels of trade chain. However, the high demand for Porang is still not able to lift the forest community standard of living. The majority of forest community sell Porang in wet or raw form even though the prices will be much higher if it is sold in processed form (slices or chips). There are obstacles in the form of a conservative mindset so that they are difficult to be more advanced and productive. This problem is a challenge when the empowerment design requires an increase in the role of SMIs as the main way to increase the income of forest community through the processing of Porang.

The conservative character of forest community is influenced by local values that tend to be communal-structuralists. This means that their mindset is largely determined by the environment and communal characters who usually cannot adopt productive values. A strong spirit of togetherness (social capital) further accelerates the dissemination of these characters to become a value that is inherently applied by the generations in there. However, the forest community is basically a typical open society who has strong social capital that is not managed appropriately. Therefore, the intervention of SMIs is still very relevant considering that local values already existed. So far, they have been managed the values counter-productively. Increasing the role of SMIs is focused on the needs of the forest community especially in terms of knowledge, entrepreneurial spirit, processing, and marketing. The design made in this study refers to an intermediation which at least includes three things, namely: (i) partners to provide raw materials; (ii) partners for trading affairs; and (iii) partners for capital. The collaboration of those three things is mediated by external empowerment actors which then the governance of SMIs will be fully handed over to the

forest community. Institutional arrangements are designed to capture the potential of social capital that is the communal-oriented governance (cooperatives).

This research is very important to answer the debate about the best interventions for the development of forest community. The forest community faced skepticism from the outside community that they are considered as a forest destroyer and unable to develop due to isolation. Theoretically, the concept of empowerment is difficult to be implemented considering that the forest community has a spatial pattern that is lack of infrastructure and networks in which they also hold conservative values that are difficult to change. This research also has an important contribution to the doubts of many parties whether it is possible to increase the role of SMLs in the forest community. Theoretically saying, increasing the role of SMLs requires a variety of variables that cannot be provided by forest community such as innovation, creativity, as well as mature, opportunistic, and ambitious business calculations. However, this research proposes a proposition that increasing the role of SMLs in forest community is very feasible and requires external parties as well as collective (cooperative) institutional management. If it is drawn to the context of a cooperative economy, the increased role of SMLs is significant as a cornerstone in realizing empowerment to reduce poverty.

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