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Enhancement of Market Opportunities for Seaweed Farmers: East Java in Indonesia

*Mejoramiento de las oportunidades de mercado para los productores de algas marinas:
Java Oriental en Indonesia*

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RESUMEN

Este estudio tiene como objetivo analizar los factores que causan los problemas de los agricultores de algas. La investigación es descriptiva. Los sujetos del estudio fueron productores de algas de varios países en Sidoarjo, Java Oriental. Los resultados indicaron que aumentar la sensibilidad de los agricultores en la captura de oportunidades de mercado podría aumentar a través del emprendimiento. Se puede llevar a cabo mediante el desarrollo de innovaciones de productos, como la producción de palos, fideos y galletas de algas. Además, al involucrar tecnología, puede aumentar la calidad y los productos competitivos.

Palabras clave: Emprendimiento, Innovación de producto, Oportunidad de mercado, Producto de algas marinas.

ABSTRACT

This study aims to analyze factors causing seaweed farmers' problems and examine the role of entrepreneurship in developing business. The research is descriptive. The subjects of the study were seaweed farmers from several countrysides in Sidoarjo, East Java. The findings indicated that increasing the sensitivity of farmers in capturing market opportunities could be boost through entrepreneurship. It can be conducted through the development of product innovations such as producing sticks, noodles, and crackers from seaweed. Furthermore, by involving technology, it can increase quality and competitive products.

Keywords: Product innovation, Entrepreneurship, Seaweed product, Market opportunity.

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INTRODUCTION

Indonesia has the potential to become a world seaweed manufacturer. It is supported by endowment and abundant factor in Indonesia. Seaweed is one of the superior products that have the opportunity to enhance welfare and poverty alleviation. In general, the production of seaweed in Indonesia showed an upward trend. The output rises annually with an average increase of 22.25 percent per year, while the average production value rises 11.80 percent per year. In 2013 seaweed production was about 9.31 million tons worth IDR 11.59 trillion and it rose to approximately 10.1 million tons in 2014. In 2015, it reached 11.3 million tones with a value of Rp13.20 trillion and continued to incline to the level of 11.1 million tons in 2016. However, the production in 2017 of the seaweed' production declined by 8.2 million tones.

The export of Indonesian seaweed is intended for various countries in the world. Major Indonesian seaweed importing countries include China, Japan, the United States, Denmark, Germany, the Philippines, and Vietnam. The export Volume of seaweed in 2015 reached 211.871 thousand tons worth USD 205.32 million, and in 2016 amounted to 188.298 thousand tons worth USD161.801 million. The volume and export value of seaweed still occupy the second order of the cultivation of fishery after shrimp. The Indonesia government will continue to encourage the development of seaweed cultivation through various policies such as the use of seaweed seedlings of tissue culture. Results including the implementation of a blue economy concept that has innovative and creative principles, efficient in resource utilization, the existence of value-added, Nir-waste (zero waste) also able to create jobs and entrepreneurial opportunities in fairness. In Indonesia, the largest seaweed producing areas include Bali, Papua, Maluku, Central Sulawesi, East Kalimantan, East Java, North Sumatera, and so forth.

East Java is the ten largest seaweed producer area in Indonesia. With the potential of marine waters that are very suitable for the development of seaweed cultivation. It is not surprising if East Java transformed into one of the national seaweed production barns. The area of seaweed in East Java reaches more than 166 thousand hectares from the previous 158 thousand hectares. Demand for the high export market to seaweed also spurs business actors in the seaweed production center. The seaweed cultivation is scattered in some areas.

Sidoarjo is one of the coastal areas in East Java that has the most abundant seaweed. Sidoarjo Regency consists of land area and ocean area with a land area of 714,245 km² consisting of 18 sub-districts. In supporting the development of the fisheries sector has been defined Minapolitan area, composed of six sub-districts, namely Candi, Sidoarjo, Sedati, Waru, Buduran, and Jabon. From the topography, Sidoarjo is at an altitude between 23-32 above sea level. It shows that Sidoarjo has a maritime potential that can be utilized in economic development so that it needs to be developed optimally as a source of genuine income in the region. Potential fisheries cultivation and capture in district Jabon Sub District which is the center of the Minapolitan area has an area of 1031.7 Ha or 6.64 percent of the area of Sidoarjo District Fisheries (Zamroni: 2018).

The problems that exist during this time there has been shifting commodity of seaweed farmers Sidoarjo, especially those who settle in the area of Kupang and Kedungpandan village that has an area of 1,723.02 hectares, nowadays began to develop a lot of cultivation business to the seaweed cultivation business. Seaweed gracillia that grows in ponds can improve the quality of pond environment that allows shrimp and milkfish can live better because the availability of raw materials is relatively much water. Seaweed also has an economic value, creating many job fields, as well as export requests to China and can increase the productivity of shrimp and milkfish. The pond area located in Kupang and Kedungpandan Village almost everything grows seaweed. In 2016 seaweed production can reach 10,233.5 tons per year (wet condition), and when converted to dry reaches 1460.5 tons per year.

The pond area in the Kupang and Kedungpandan village almost grows seaweed, which is done by seaweed farmers. To harvest seaweed, it depends on the weather, if the weather is hot, then the production of seaweed is increasing because helped by sunlight to dry seaweed. During the rainy season, seaweed farmers have difficulty in drying their lawns because of the slight heat of the sun, and it has an impact on his

family's economic revenues. To overcome this problem, the seaweed farmers turned the profession as crab seekers and baited used derived from small Mujaer fish taken from the pond. Small mujaer fish is a pest for shrimp and banding. For 1-kilogram male crabs can be appreciated 80,000 IDR. Generally, seaweed farmers also have problems in debt to money holders, seaweed processing technology is still simple, economic institutional of seaweed farming and no capital, access to the market is not adequate.

Another problem is that seaweed farmers sell only in the form of dried salted to the middleman so that the price depends on middling and only partially made dry fresh to use as an ice mixture especially when approaching during Ramadhan season. These conditions cause seaweed to be sold in the form of raw materials at a relatively low price. It does not give a significant change to the economic level of seaweed farmers because the benefits are middling. Another problem facing the people of Kupang and Kedungpandan village is that most of the farmer's wives do not work solely on the finances of husbands. Sometimes they are weak in the managerial family finances and have no skills that can sustain a decent life. It is necessary to coaching and mentoring the people of Kupang and Kedungpandan village to increase the value-added for seaweed through the diversification of the processing of seaweed products through innovation Entrepreneurship.

Hadiyati (Hadiyati: 2011, pp. 8-16) mentioned that creativity and innovation are simultaneously influential towards entrepreneurship, and innovation has an impact on entrepreneurship. Therefore, it is necessary to develop a community of practice in informal education to make a group of learning activities in a joint effort. Joint learning activities will be able to improve knowledge, learning behaviour that motivating and building cooperation between individuals. Similarly, Zamroni (Zamroni: 2018) explained that the primary key of the company reaches the foreign market is to continue to adapt with Market, innovating the products and innovations in the investment, as well as the inclusion of technology, funding, and human resources, become a factor in the success of Indonesian traditional culinary business.

Meanwhile, Strauss (Strauss: 2016) showed that informal knowledge and learning are crucial to adapting to creating new pathways in agriculture. Informal networks are used to acquire skills, allowing farmers to engage in cooperation and to facilitate group processes. However, the current formal farming knowledge system does not adequately meet the needs of this emerging knowledge. Thus, encouraging the social learning process in informal learning settings and facilitating exchanges between different groups can strengthen agricultural resilience. Based on the existing problems and differences in the previous research, this study examines the problem analysis and needs of seaweed farmers in increasing the sensitivity of capturing market opportunities based on entrepreneurial innovation.

LITERATURE REVIEW

Entrepreneurship is a milestone in the journey towards economic advancement and makes a great contribution to the quality and future expectations of a sector, economy, or even a country. Entrepreneurship is equally vital in small and medium enterprises and local markets as well as in large corporations. It is a major consideration for public companies as well as for private organizations. Entrepreneurship drives competition in today's environment that leads to globalization. The role of entrepreneurs is crucial in creating new economic activities that help generate wealth, work, and growth as well as ensure the welfare of the community.

Companies should provide different creativity to be able to sustain a competitive advantage in the global era (Yusnita & Wahyudin: 2017; Ramírez et al.: 2018). In other words, seaweed farmers will be more connected to the world of industry, supply chains, and more active in expanding their business network (Fang et al.: 2018). As an entrepreneur, this new type of farmer is always looking for new opportunities to grow, improve, and expand their business. The update of a product through a new idea so that it differs from other products intending to provide added value to the product called innovation. Innovativeness is a fundamental

desire to change from an operational process to change for the better. Innovations can be seen as an informal learning process where social networking plays an important role. Workers learn by sharing knowledge in teamwork, and entrepreneurs learn by creating a network of colleagues and advisors (Srinivasan & Venkatraman: 2018, pp. 54-71).

An entrepreneur will dare to manage its production activities independently. Entrepreneurship orientation is regarded as a valuable predictor of business success. Because of its impact on business performance and its capacity to create value. From a macro-economic perspective, entrepreneurial orientation can improve the economy through the creation of wealth and work and encourages competition in an increasingly global business environment. Entrepreneurial orientation is crucial, so it can be considered a priority for many Governments (Mas-tur & Soriano: 2014, pp. 51-63). Entrepreneurship education should be a type that helps individuals develop the ability or tendency to become an innovative and original entrepreneur. However, economic education in farmer families should be repositioned to train family members in developing creative entrepreneurship innovations. The competitiveness of farmer families in rural areas is based on merging innovation of business practices (Ratten & Dana: 2017, pp. 114-129).

METHODS

This study applied a qualitative method using a case study approach. This is intended to explore the existing phenomena, which focus on seaweed farmers. Also, it is addressed highlights a variety of processed seaweed diversification that can add value to the product so that it can solve socio-economic problems. The subject of the study is about 60 farmers in Kupang and Kedungpandan village in Sidoarjo. Snowball techniques are used to identify and extract data to obtain information. The data is gathered from Focus Group Discussion engaging the Fisheries and Marine Service of Jabon Sidoarjo subdistrict. Moreover, this study conducted in-depth interviews and several observations. Through in-depth interviews, researchers could check for further explanations about the responses given by the participants. The interview session takes approximately 60 minutes for each respondent. Interviews are recorded and then transcribed verbatim. Content and thematic are used to analyze the data collected, including seaweed farmers, market opportunities, smart technology, and e-commerce, financial literacy, highlighted based on the analysis.

RESULTS

The economic potential owned by both villages in the production of seaweed that is abundant to reach 11,250 tons per year for wet seaweed when it is dried to reach about 15,905 tons per year. Dried seaweed prices are about IDR 7000-10,000 per kg with a harvest period of 60-90 days. Many seaweed farmers are already running their business businesses for almost ten years on average, with their average age of 40-55 years. That age can illustrate that they have a lot of experience in running a business. However, most of the education level is only until junior high school and high school, and there is even that only elementary school. In managing their business is assisted by family members and others already have some employees to dry seaweed. Seaweed products that have been made by family members are sticks, crackers, and noodles from seaweed. For marketing, processed seaweed products are still around the area of Sidoarjo, through friends and assistance from the fisheries and marine Services Sidoarjo to follow the exhibition in the title. The average income of seaweed farmers is still less than IDR 3 million, only a few farmers who are earning IDR 3.000.000 -7.000.000 per month. In the production aspects of the seaweed, the processing is still very simple.

Based on the interviews with seaweed farmers, it is known that several seaweed farmers' problems can be identified, namely from the aspects of production, marketing, and business management. The initial effort made by seaweed farmers in capturing market opportunities is through the development of seaweed products

in the form of ice cream, noodles, and crackers from seaweed that is much in demand by consumers in the Sidoarjo. To develop broader market opportunities, most of the seaweed farmers participate in industry exhibition activities organized by the marine and fisheries service and the Sidoarjo regency industry and trade department. In attending industry exhibitions besides exhibiting seaweed products, they also distribute business cards and brochures to visitors and buyers with the aim that if at any time they are interested or want to return the grass products can contact the seller. Other marketing constraints faced to date are many seaweed farmers who do not yet have social media or e-commerce, due to lack of technological knowledge in using social media as a regional or international marketing tool. However, there are several seaweed farmers already have social media such as Facebook, Instagram, websites, or online shops to market their products.

In the process of processing seaweed, most of them still use conventional rather than using advanced technology. For example, to sort out the dirt in the seaweed in the form of small shells. Then to support the process of making ice cream, noodles and seaweed flour crackers must be bought at the factory. They should be able to produce their own if they have a seaweed grinding machine that is processed into seaweed flour. Therefore the cost of raw materials becomes cheaper. Other technological needed in increasing market opportunities are label design and packaging of seaweed products that are still simple, causing buyers to be less interested in buying products. To expand product competition, farmers have also collaborated with the Technical Implementation Unit of the Food, Beverage, and Packaging Industry in designing labels and packaging of seaweed products. It is expected that they will be able to become the superior products of the Sidoarjo region and be able to compete with imported products. With wider market opportunities, it will increase employment, especially human resources of productive age, which will have an impact on the number of successful young entrepreneurs, particularly from the family of the seaweed farmers. They also want to make a breakthrough product innovation to meet the tastes of domestic and foreign consumers. Moreover, the implementation of Industry 4.0, with the use of technology, will be able to produce quality and competitive products.

Also, most of the seaweed farmers in Kupang and Kedungpandan village have problems in financial management. Some farmers have made simple records every month in the financial ledger, but there are still many who do not do financial records. That underlies their difficulties in obtaining capital from banks. Another impact is they cannot fulfil orders of processed products such as noodles and crackers in large quantities without any down payment from the buyer. Sometimes they use family finances to meet orders. Therefore, they need capital in managing their business management. The lack of capital, because they are not able to make financial reports that form the basis of loan funding provided by banks. The inability to get a capital loan is due to weak business management, so they cannot calculate the financial capability of their business. According to Bonelli (Bonelli: 2018), four things must be permitted to ensure the continuity of SME credit development are: first, expanding marketing networks around the business centre, second, utilizing technological advancements to increase value for selling credit products. Further, providing incentives to all marketing staff who can achieve loan objectives in the business centre, and develop a simple credit analysis model with standard provisions and accommodate the safeguards of collateral in the business center. This explanation is supported by the results of research by Harahap (Harahap: 2014) which mentioned that the ability to compile financial reports owned by micro and medium enterprises influences the performance of micro and medium small businesses.

DISCUSSION

Efforts in increasing the sensitivity of seaweed farmers in capturing market opportunities can be made through capacity building. It can be provided for seaweed farmers through empowering seaweed farmers utilizing training and mentoring entrepreneurial innovation for example by developing seaweed products in the form of ice cream, noodles, and crackers from grass sea by using a touch of technology so that products are in great demand by consumers. All efforts that have been made by seaweed farmers are inseparable from the hard work of extension workers in the field as a teacher. Educators or learning facilitators must have competency or andragogy skills, namely making a learning concept as material and evaluating learning. Competence is the top priority in completing work responsibilities. Educators must realize that adult students have switched from subject-centred to problem-solving (Narmaditya et al.: 2018, pp. 264-267). The instructor can accomplish student interests by engaging students in planning learning goals and activities and solving real-world business problems. Andragogy improves communication between students and instructors; they work together as partners to design content and learning methods that fit the needs of students. Instructors can create case scenarios in class and encourage students to utilize their experiences to solve problems. Andragogy informality encourages students' involvement in their learning experiences and sets the parameters of these experiences. Some of the advantages of andragogy: independent learners, extensive adult experience adds to knowledge, learners are at a stage of life where they are ready to learn, adult learning is problem-centred, and adults are internally motivated.

The finding shows that the entrepreneurship education model that takes place in informal institutions prioritizes techniques for doing business and improving skills, which appear in the curriculum and syllabus of entrepreneurship education which has more production techniques and business management. The informal learning process is a promising way to address the farmers' knowledge needs (Strauss: 2016). By having the knowledge and ability to innovate in entrepreneurship, farmers can create new and different products, observe the door of opportunity, in-depth product analysis and production processes, estimate initial costs, calculate potential risks, analyze weaknesses, strengths, opportunities, and threats. However, the statement differs from the results of the study Eijdenber and which explains that continued performance is positively influenced by experience and age; other factors, such as gender, entrepreneurial subsystem, education, and support from the family, do not affect. Entrepreneurs are influenced by and manage their institutional contexts in various informal economic settings. It is influencing the transition of entrepreneurs from the informal economy to the formal economy (Eijdenberg: 2017, pp. 175-177).

The market is the main factor that is always a consideration in doing business. Therefore, efforts to introduce products and attract consumers to buy are important things that must be done. Promotion of promotion can be done by choosing the right communication media so as not to waste the budget without producing maximum results as expected. This is supported by a statement stating that the use of media as a marketing strategy to promote products is increasingly in demand by micro and small businesses. The most popular media are Instagram, YouTube, and blogs. Various promotion of seaweed products can be done by selecting offline media and online media. For offline media in the form of textbooks containing entrepreneurship innovation material for seaweed farmers. YouTube online media, Instagram to help promote seaweed products. Besides being cheap, they can describe the product description to the public, and at any time can update information whether it is a discount or a new product that will increase the income of business people or marketers. Technology is needed to improve the quality and quantity of seaweed products. Although the average seaweed product in the manufacturing process is still done handmade, the technology introduction is still needed to accelerate the process and to improve the optimal quality. For example, the process of preparing the raw material of seaweed flour that requires seaweed cleaning machine technology and the smoothest machine so that farmers can produce seaweed flour without having to buy from a factory with good quality and in a faster time. Traditionally, seaweed cleaning is approximately three to four days,

then with the presence of technology only takes one day and the second day to the transmission process. The statement is supported by which explained that the highest score in the perspective of the machine technology used is adequate and guarantees the quality of eggplant flour. The drying machine in the form of an oven as a sunlight alternative has helped farmers shorten the time of drying eggplant. While the smoothest machine used can produce three kg of flour every time milling dry eggplant. The lack of knowledge about business management is also a problem. They have not separated the business finances with the family finances and the absence of logging on the finances of their businesses. It is therefore important that training and mentoring do simple bookkeeping for their efforts so that they can calculate the business finances in a certain way and can make their investment plans and development. Also, it must add other indicators to measure the level of financial literacy, such as cash finance management, accounting, receivables, and supplies (Nugraha et al.: 2019, pp. 1-8).

CONCLUSION

Based on the previous analysis, it can be concluded that increasing the sensitivity of seaweed farmers in capturing market opportunities is done through product development innovations in the form of making sticks, noodles, and crackers from seaweed by adding technology. It covers the production aspect and labels the design of seaweed product packaging to produce quality and competitive products. Efforts to expand the marketing of seaweed products through promotion on social media can be through Facebook, Instagram, websites, or online shops in marketing seaweed products. Seaweed farmers can increase financial literacy in making long-term oriented business decisions and conceptualize sustainable business activities so that business sustainability can be maintained through training and mentoring activities. For further research, it is suggested to involve a model of empowering seaweed farmers based on entrepreneurship innovation to improve the family economy.

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