

CONTRIBUTION OF SEAWEED CULTIVATION BUSINESS IN EXPANDING JOB OPPORTUNITY AND IMPROVING COMMUNITY WELFARE IN THE DISTRICT OF PANGKAJENE AND ISLANDS

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Abstract - This study entitled Business Contribution of Seaweed Cultivation in Expanding Employment and Improving Community Welfare in Pangkajene and Islands Districts. The formulation of the problem raised is how the contribution of seaweed cultivation in the Pangkajene and Islands Regency in order to expand employment and improve community welfare and what factors hinder seaweed cultivation in Pangkajene and Islands Districts. This research use descriptive qualitative approach. The results showed that the contribution of seaweed cultivation in Pangkajene and Islands Regency was based on the findings that seaweed farming could improve the welfare of the community in the Pangkajene and Islands regencies. So that the utilization of seaweed in Pangkajen district can then be developed towards the commercial sector to be exported and traded as raw material for the manufacture of agar-agar or carrageenan. Factors that hamper seaweed cultivation in Pangkajene and Kepulauan Regency are related to providing business financing and business capital and natural factors because seaweed cultivation depends on seasons and inadequate seeds, so that seeds and capital are needed so that seaweed cultivation can be developed.

Keywords: contribution, seaweed cultivation, community welfare.

Introduction

Seaweed or sometimes called macroalgae refers to a group of plant in algae family that contain chlorophyll. The diversity of seaweed in Indonesia is the largest compared to other countries in the world. The amount of seaweed in Indonesia is influenced by the vast area of the sea that exists in Indonesia from Sabang to Merauke. However, the usage of seaweed in Indonesia, especially for Industrial and Health sectors are still

not optimum; what needs to be considered is the location of cultivation so that it is right on target.

Popularly known that waters in Indonesia, in this case the waters in the Pangkajene Regency and Islands region are very well developed seaweed cultivation because the waters in Pangkaejen Regency and Islands region own salt content that are very suitable for seaweed cultivation.

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The common type that are possible to being cultivated right now belong to the Species of *Eucheuma cottonii* and *Gracilaria*. This type of seaweed is currently in great demand in various parts of the world because it has very good benefits for consumption. The development of seaweed should build partnerships between farmers and the local government in managing seaweed. With this cooperation, it is hoped that it can help farmers to develop seaweed so that it can become an export commodity and can be managed continuously in order to reduce unemployment.

In South Sulawesi, to be exact the Regency of Pangkajene and Islands has around 17.000 km² coastal waters with 45 km of coastline. The waters around Pangkajene and Islands regency have a huge potential of fishery sector with 11.063 people in the village that work as fisherman and seaweed farmer. The richness of water in this area become the main source of livelihood, not only for the residents of Pangkajene and Islands, but also the in large the residents of South Sulawesi Province.² The early location that could be used to develop Seaweed

Cultivation on South Sulawesi is in Pangkajene and Islands Regency.

According to Pangkajene and Islands Regency 2016 statistic data, fishery is still the main sector that to expand the employment and raising the locally-generated revenue for the regency. The development of seaweed is carried out in several coastal areas which are considered to have adequate wave conditions, this is done in order to accelerate the development of seaweed. The development of seaweed in the Pangkajene and Islands Regency is directed in order to reduce unemployment.

Regarding this problem, the business activity of seaweed cultivation in Pangkajene and Islands Regencies are hoped to reduce unemployment and increase community income, so that it is positive in the welfare of the people of Pangkajene and Islands Regency. Departing from this background, so that the research on "Business Contribution of Seaweed Cultivation in Expanding Employment and Improving Community Welfare in Pangkajene and Islands Districts" is very important to be

² Mito dan Johan, *Usaha Penetasan Telur Itik* (Indonesian), (Jakarta: PT Agro Media Pustaka, 2007), p. 19.

developed in order to improve community welfare.

Theoretical and Conceptual Basis

Seaweed

Seaweed are type of algae that are larger in size (hence called macroalgae) that are included in low level plants and are part of division called thallophyta. Seaweed is a member of the vegetation group known as algae (algae), including in Thallophyta (simple plants), rootless, not trunked, and chlorophyll. Seaweed has 2 kinds of types and sizes, some are very small single cells, and there are many celled cells.³

Seaweed grows in shallow water and in deep waters to a depth of 3 meters. There are several "types of seaweed that can live up to 43 meters. The algae grows attached to the seabed or to solid objects such as rocks or corals. They attach by using a structure such as roots that functions as a holding tool, not to absorb food essence such as other plants in general.⁴

Seaweed is one of the potential for PAD if it is developed and managed well. This looks so big the sea of the archipelago

so it is very positive for seaweed cultivation. Seaweed that is widely used is from the type of red algae because it can be used for gelatin and other types of food because seaweed is a reserve of foods that contain lots of carbohydrates. Seaweed contains carbohydrates, protein, a little fat, and meth which has a very good potential for health. Seaweed contains sodium, iron, iodine. some types of seaweed contain more vitamins and important minerals, such as potassium and iron which when compared to vegetables and fruits,⁵ it is clear that seaweed has many positive benefits to be obtained if it continues to be cultivated.

Some seaweeds developed in Indonesia are as follows: first seaweed or sea algae belonging to the Thallophyta division, second is green algae, third is brown algae, forth is red algae, and fifth is blue green algae.⁶

Fishery

In the daily life of management in the field of fisheries needed by people who work together to achieve mutual prosperity. This is done because in developing

³ Aslan, M.L., *Rumput Laut*, Cetakan VII (Indonesian), (Yogyakarta: Kanisius), p. 91.

⁴ Yuniasmara. C. Mucroji dan M. Bakrun, *Jamur Tiram* (Indonesan), (Jakarta: Penebar Swadaya, 1999), p. 56.

⁵ *Ibid*, hlm 57.

⁶ Kordi, M. G. H, *Kiat Sukses Budidaya Rumput Laut di laut dan Tambak* (Indonesian), (Yogyakarta: Andi Offset, 2011), p. 134.

fisheries resources will always run well if management is carried out properly.⁷ Management has functions that are universal. The nature of safat is the result of the fact that the functions of management are the same and everywhere, throughout the organization and at any time. The functions of management are so instrumental in the management of fisheries products, especially seaweed cultivation.

Law. No. 31 of 2004 Article (1) paragraph (1), fisheries are said to be all activities related to the management and utilization of fish resources and the environment, from pre-production, production, processing to marketing, which are carried out in a fisheries business system. The meaning is clear that all management of marine products is strongly related to fisheries. So that all the good fisheries resources are the most important resources, namely seaweed cultivation and other resources directed at improving the welfare of coastal communities.

In addition, what is related to seaweed cultivation is aquaculture which is an activity to produce aquatic organisms

in a controlled environment in order to gain profit. Aquaculture involves all marine aquaculture for the development of all types of marine biota, including fish, coral reefs and so on.⁸

Banking

The financial system is an important tool in the civilization of modern society. Its main task is to raise funds from the community and channel these funds to borrowers and then use them to buy goods and services so that economic activities can grow and develop and improve living standards. Therefore the financial system has a very basic role in the economy and life of the people.

The financial system can determine the credit interest rate and how much credit will be available to finance various types of goods and services production in economic activities. This system will have an impact on the smooth running of the economy. If the loan interest rate becomes higher and the available funds are low, the total expenditure will decrease, this will result in a decrease in production activities. So that in the development of production the Bank

⁷ Bannock, et.al, *A Dictinary Of Economics* (Indonesian), (London: Penguin Books LTD, 1999), p. 37.

⁸ Hendra Kusuma, *Manajemen Produksi, Perencanaan dan Pengendalian Produksi* (Indonesian), (Yogyakarta: ANDI Publisher, 2006), p. 46.

becomes one of the roads for the development of production.

The definition of the general bank could be shortly summarized as bank providing services through general payment traffics. General banks included Government general banks, Private foreign exchange general national bank, Private non-foreign exchange general national bank and another private foreign bank or compound bank. The main activity of general bank included gathering fund from the society in the forms of current account, time deposits and savings and channel it back towards society in the forms of credits.⁹

In addition, a bank is a body that aims to satisfy credit needs, either with its own payment instruments or with money obtained from other people, as well as by distributing new exchange instruments in the form of demand deposits.¹⁰

Research method

Research method in this writing will focused on using qualitative method with descriptive approach. Qualitative method are the methods that explore and try to understand the meanings from an individu

or a group of people that are related to social problems and humanities.¹¹ In this case, the researcher describes the situation of seaweed cultivation in fishery sectors that are being run by the Pangkajene and Islands Regency community to improve the community welfare.

This research uses the qualitative approach because this approach is deemed most suitable to observe the phenomenon of economic development in the seaweed cultivation sector of the Pangkajene and Islands district that are able to raise community welfare.

Result and Discussion

The Contribution of Seaweed Cultivation Business in Pangkajene and Island Regency in order to Expand Employment and Improving Community Welfare

Development of Seaweed in Pangkajene Regency and Islands has a very strategic role. In addition to opening employment opportunities, seaweed cultivation is also very important to increase the income of the people in Pangkajene Regency and the islands. At present, seaweed cultivation has contributed greatly to

⁹ Aulia Pohan, *Ekonomi Moneter* (Indonesian), Buku II, Edisi 1, Cetakan Kesepuluh, (BPFE UGM: Yogyakarta, 2008), p. 90.

¹⁰ *Ibid.*

¹¹ John W. Creswell, *Penelitian Kualitatif dan Desain Riset* (Indonesian), (Yogyakarta: Pustaka Pelajar), p. 33.

improving community welfare and expanding employment in the Pangkajene and Islands Districts.

The cultivation of seaweed is also form of the small business in the community that are initiated by individual. The Pangkajene and Islands Community regard that the cultivation of seaweed actually is beneficial for the seaweed farmer. We could see this in the roles of seaweed cultivation in reducing numbers of unemployment in Indonesia especially in Pangkajene and Islands Regencies. The cultivation of seaweed in Pangkajene could absorb huge amount of working forces that are unemployed. Beside of that, the cultivation of seaweed has contributed hugely on the improvement of welfare for coastal population.

The interview results with the Head of Head Division of Small Business Fisheries Empowerment in 2018, Ahmad SP on 28 September 2018 regarding the cultivation of seaweed, announced that the seaweed cultivation in Pangkep regency are keep being developed. One of the seaweeds that are being cultivated are Ctoni Seaweed. Every seaweed could be

a huge potential that are really beneficial for the population now.¹²

The cultivation of seaweed to improve community welfare and reduce unemployment through the utilization of income sources that are allocated for it, do not create negative effect or influence to the local community. This actually help the Pangkep community in developing seaweed cultivation. The government of Pangkep regency, South Sulawesi open the opportunity for seaweed cultivation for the community.

The strategy to empower the seaweed farmers are important to be done to improve the community living. One of the strategies to empower the seaweed farmers are being done to improve the livelihood of the community from the perspectives of community economic welfares. With these empowerment strategies could help and support the local economy of the community.

According to the managing district head Abdullah Umar, ST, in the interview that we done have emphasize this seaweed cultivation and emporment. One of the village strategies is: 1. The Forming

¹² Interview with Ahmad SP, Pangkajene and Kepulauan, 28 September 2019, at 2 p.m. local times.

of Seaweed farmers group. This group is being formed to help the farmers in acquiring needed facilities and infrastructures. The facilities and infrastructures are:¹³

1) Facilities

The facilities that are provided from the village for the seaweed farmer included here are:

- a) Peg
- b) Ries Rope

2) Infrastructure

The Infrastructures that are provided from the village for the seaweed farmer included here are:

- a) Small hut in coastal area
- b) Canoes and the Canoes machines
- c) Drying Spaces
- d) Tarpaulin

The interview results with Amal Sulaima as one of the seaweed farmers in Pangkajene and Islands regency have revealed the process in seaweed cultivation: The process started in seaweed cultivation from nursery of the seeds, followed by the preparations of the ropes to bind the seeds in 10-25 meters' ropes. The nursery could reach 50, 80 or even 100 seeds a day. After that, the

seaweed seeds have been binded in the ropes will be bought to the location where the cultivation have been prepared such as the peg. The last process is the seaweed harvest. In the harvest process they used the canoe if the location is far from the coast, those that are in coast could just be lifted directly from the sea. The dried seaweed tht have been harvested will be dried under the sun. Some are being stored for the next cultivation of the seeds.¹⁴

Beside of that, the seaweed farmer will also go and check the seaweed to choose or pick the seaweed that are drifted away if the ropes and the peg brokes. This happens because of the tidal movement in the sea.

The interview results with Ir. Muh. Jafar as the special staf in the fields of economic, finance and development say that the community in Pangkajene island are quite prosperous because the main potential of the seaweed cultivation have been done by the islands since long. All of the profit from the seaweed cultivation could fulfill the daily lives of the household in the islands, and some could even build houses, owning motorcycles and

¹³ Interview with H. Abdullah Umar, ST, Temporary Head of Village, Pankep, 28 September 2018, at 3 p.m. local times.

¹⁴ Interview with Amal Sulaiman, Seaweed Farmer, Pangkajene dan Kepulauan, 29 September 2018, at 10 a.m local times.

educating their children. This include the offspring of the seaweed farmer that could earn some money from their own effort in collecting, Ifiting the seaweed when the harvest season come.¹⁵”

Corresponding with the theory of Kartasasmita inside the Zubaedi work that say to improve the community potential and resources that community have. This included the empowerment that included the basic physical infrastructures and facilities from the government which in the forms of funding, training and marketing in the village, where the concentrated population in the rural area are low in these resources.¹⁶ In here, the strategy that have been done in this cases have been effective whereas the community employs and get the sufficient facilities and infrastructures through the group of seaweed farmer group and this seaweed farmer group get enough funding and support from the government for every group. But, the marketing of Pangkajene regency still cannot be done by the government. Without sufficient marketing, this actually affect the market prices of seaweed that are not stable, where the price goes up and down. This

happens because the buyers of the seaweed do not come from the outised of the village but they come from the villages itself as main distributor with this the government have some roles in the further cultivation of the seaweed to empower the community and improving their welfare.

Inhibing Factors of the Seaweed Cultivation Business in Pangkaene Islands Regency

The problem that is the main point in the development of seaweed is inadequate capital. Besides that, being a barrier to seaweed cultivation is a natural factor. For a long time the people living on the coast in Pangkajene Regency and the Islands knew and developed seaweed, especially to fulfill basic needs as well as direct food. Seaweed processing is always experiencing a changing climate. Besides that also for farmers who live in coastal areas where seaweed business is so profitable because of the natural conditions and vast sea. But natural factors also sometimes reduce the income of farmers.

¹⁵ Interview with Ir. H. Muh Jafar, Expert Staff for Economics, Pangakejene dan Kepulauan Regency, 29 September 2018, at 1 p.m. local times.

¹⁶ Zubaidi, *Desain Pendidikan Karakter* (Indonesian), (Jakarta: Kencana Prenada Media, 2013), hlm. 79.

The results of interview with Division head of Small Business Empowerment of Pangkep 2018 in order to understand the obstacles and barriers in the cultivation of seaweed, saw that nature factor is the largest inhibiting factors since the process of seaweed cultivation are highly depended on the weather and it's a pity that there is still no solution for that. Beside of this, there are no provision of superior seeds that impacted on no increase in the seaweed cultivation.¹⁷ Another biggest obstacle is there are no access to funding, no good seeds and the natural factor.¹⁸

From the interview result with Burhanudin as one of the farmers in Pangkajene says that: "There are price plays that are being done by the middlemen that also impacting the condition of seaweed farmer, because until now there are no others sources that could contain our harvest.¹⁹ Beside of that, the garbage factor also reducing the development of seaweed cultivation. Seaweed that are planted in the coastal are also contaminated with plastic that are

being thrown around the sea and this resulted in the destruction of seaweed and low quality of harvest that reduce the seaweed shelf life. If people are throwing their garbage in their own place, this will raise the quality of good seaweed. This is resulted from the clean sea water and clean location where the seaweed is planted.

In addition, based on interviews with Darwis seaweed farmers, 2018 confirmed final production for 45 days of planting. Low income is thought to be closely related to temperature and current, said Darwis, a strong current will affect the growth of seaweed and it is feared that it can have an impact on crop yields or even crop failure.²⁰

The cultivated Cotoni seaweed production depends on the cultivation system and planting season.²¹ This problem is because the seaweed planted also follows the development of the seasons and weather if the summer seaweed is also unsuccessful so if the rainfall season runs smoothly the results will also be good.

¹⁷ Ahmad SP, *Loc.cit.*

¹⁸ Interview with Anisa, Wawan and Amal Sulaiman, Seaweed Farmer, 29 September 2018, at 10 a.m. local times.

¹⁹ Interview with Burhanudin, Seaweed Farmer, 29 September 2018, at 12 a.m. local times.

²⁰ Interview with Darwis, Seaweed Farmer, 29 September 2018, at 2 p.m. local times.

²¹ Interview with Isral, Seaweed Farmer, 29 September 2018, at 1 p.m. local times.

The flow is important in seaweed cultivation, because the harder the current influences the yield so that further research is needed regarding the flow so that farmers' crops can be maximized and can increase the welfare of coastal communities.²²

Discussion

The analysis that researcher trying to do are the presence of finding over the data that are provided from informant of Pangkaene Island residence, therefore the analysis could prove the impact of seaweed cultivation for the prosperity of the community.

The income of the seaweed farmer in Pangkajene and Island district from the cultivation of seaweed shown that there are better livelihood in the community. Because in the cultivation and processing of the seaweed could bring a positive result that lower the number of unemployment and higher welfare for the community.

The economic burden of the Pangkajene and Islands Regency Community could be solved from the running of seaweed cultivation business.

Where the sale value are quite high, so it could lighten the economic burden of the community and reduce the number of unemployment. The economic burden is being helped by the value of seaweed cultivation through several elements, which:

- a. A properly processed seaweed could bring higher value of income for the family that lighten the economic burden of the family.
- b. A higher sale value from the seaweed harvest if could be managed well, then the economic difficulty that are hard will become more comfortable after this
- c. From the results of seaweed cultivation, could be managed in such a way to manage the finance of the community hence with this will not become an economic burden inside the community and creating a prosperous community with higher income and value from the seaweed business. This will make community feel more comfortable from cultivating the seaweed because of the high sales value from that that lighten the economic burden of the

²² Trono, G. C, *Field Guide and Atlas of the Seaweed Resources of the Philippines*, (Makati City, Philippines: Book Mark, 2004), p. 34.

seaweed farmer. Hence the farmer life could be more meaningful.

Contribution Analysis is one of the steps that needed to create a prosperous community in cultivation of seaweed that needed to have the support by the local government, in this case is the regency government of Pangkajene and islands, there are also need of financing and superior seeds development for the cultivation of seaweed. The cultivation of seaweed based on the research have shown a significant reducement on unemployment and positive contribution on the coastal community prosperity. For this reason, this needed a continuous support for the seaweed cultivation farmer to reduce unemployment and strengthen the national economic defense.

Conclusion

Based on the analysis and discussion mentioned above, there are several conclusions that we have found which included below:

1. The cultivation of seaweed in the Pangkajene and Islands regency have proven to have a significant contribution on improving the proseperity of the seaweed farmer

in the coastal community and community in the regency in general. This is shown from the number of seaweed farmer that rises everywhere in the Pangkajene and Islands regency. Therefore, the the utilization of seaweed in Pangkajene need a large support from the local government so that the seaweed in Pangkajene and Islands Regency can be developed in the commercial direction in order for it to be able to be exported and traded as raw resouces for the creation of agar-agar and carrageenan.

2. There are a lot of factors that inhibits the development of seaweed cultivation in Pangkajene and islands regencies but it could be summarized that the larges obstacles is the problem of funding and financing access. Natural factor barriers in seaweed cultivation are the huge dependency of the cultivation with the season and weather and also there are no superior seeds. These factors could be solved with appropriate technology access for the community that put so much enthusiasm in management and development of local seaweed cultivation. This problem should be our

main attention in order to raise the welfare of the coastal community.

Recommendation

1. To be expected for the local government for the provision and participation of the superior seeds development and cultivation in order to produce a larger quantity of seaweed.
2. There should be farther research that have to be done regarding the cultivation of seaweed and the function from the seaweed widely for the production development of seaweed to keep increasing and have positive impact for the community welfare.

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