Quest Journals
Journal of Research in Business and Management
Volume 7 ~ Issue 1 (2019) pp: 01-05
ISSN(Online):2347-3002
www.questjournals.org

Research Paper

Analysis of Benefits and Feasibility of Seaweeds (Study in Kota Tual Maluku Tenggara)

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***ABSTRACT**: Seaweed is one of the world's leading profitable trade commodities. To find out how much profit will be obtained, the farmers make an analysis effort. This study aims to analyze how much the level of profit and the level of efficiency of seaweed farming in Tual City, Southeast Maluku Province. The method used in this study is business analysis. The business analysis method consists of business income analysis, revenue cost ratio (R/C) analysis, Break Event Point Analysis, Return on investment (ROI). The results showed that seaweed farming in the city of Tual was very profitable, where the average profit obtained from the sale of seaweed for one year, for small farmers Rp. 15,134,275 and for large farmers, amounting to Rp. 29,927,120. The revenue cost ratio analysis in Tual City is very efficient where the average R / C value for small-scale seaweed farming is 3.3 and for large-scale average R / C values 3.4. In terms of the break even point where the break-even point for small-scale businesses will occur when the price per Kg of seaweed is in the range of Rp. 3,987 with the average production of dried seaweed 1163 Kg. For large-scale seaweed farming where the break-even point will occur when the price per Kg of seaweed is in the range of Rp. 3,847 with an average production of 2275 Kg. From the results of analysis of return on investment, an average of 326% was obtained for smallholders, and for large farmers it was 342%.*
***KEYWORDS**: Seaweed Cultivation, Business Profit Analysis, and Business Feasibility Analysis.*

Received 21 December, 2018; Accepted 05 January, 2019 © the Author(S) 2018.
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I. INTRODUCTION

One of the natural resources in the marine sector, especially in coastal areas, namely seaweed. The development of seaweed farming is one of the development of coastal areas in the framework of increasing the people's economy, especially for people who live in coastal areas. Seaweed is a marine biological resource that has high economic value and has great potential to be developed. The reason seaweed has a high economic value is because the hydrocolloid content of seaweed (carrageenan, agar and alginate) is very necessary given its function as a gelling agent, stabilizer, emulsifier agent, suspending agent, dispersing which is useful in various industries (Zatnika, 2009).

Seaweeds or seaweeds are very popular in the world of commerce, in science known as algae / algae. Algae or algae consists of four classes namely Rhodophyceae (red algae), Phaeophyceae (brown algae), Cholorophyceae (green algae), and Cyanophyceae (blue-green algae). Seaweed was first known in China around 2,700 BC. At that time, seaweed was used for medicines and vegetables. In 65 BC the Romans used seaweed as a cosmetic raw material, but from time to time knowledge of seaweed was growing. Spain, France and England make seaweed as a raw material for making glass (Anonim, 2007).

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The efforts by the CTF to provide added value for seaweed farmers include meeting with the Association of Indonesian Seaweed Cultivators (ASPERLI). ASPERLI collects seaweed raw material needs in all members of each association to purchase seaweed stock owned by Indonesian seaweed farmers. ASPERLI will help absorb the excess production of both Gracilaria and Cottonii seaweed with a benchmark price of Rp. 6,000 / kg for Gracilaria with 16 - 18 percent moisture content and Rp. 8,000 / kg for Cottonii with a moisture content of 35 - 36 percent. Based on the results of identification, seaweed whose price has decreased is the type of gracilaria caused by the supply of cultivators which is more than the market needs, (KKP 2017).

The total national seaweed production has increased significantly. According to KKP temporary data, national seaweed production in 2014 reached 10.2 million tons or more than tripled. Where previously, seaweed production in 2010 was only around 3.9 million tons. This proves that seaweed is very reliable as a source of livelihood for coastal communities. In addition to the cultivation method which is quite easy and inexpensive, besides that the market is still wide open. In line with the policies of the President of the Republic of Indonesia, KKP will continue to provide continuous guidance to the community in terms of cultivating seaweed.

The potential for seaweed cultivation in the Eastern Region of Indonesia, especially in Maluku Province with a vast ocean which reaches 92.4% has a large potential of fisheries and marine resources. Based on data from the Regional Investment Coordinating Board, the potential land for seaweed cultivation in Maluku is 23,613 hectares. The land that has been used is only 8,258 hectares. This shows that the opportunities for developing seaweed farming are still very large and potential.

Tual City itself has a land area of 40,213.6 Km², potential land for seaweed cultivation is 5,103 Ha, land that has been utilized is 2,374 Ha (42.39%), which has not been utilized 2,729.38 Ha or 57.61% , then the opportunity to develop seaweed farming by the community is still very open. The growth of Southeast Maluku district seaweed production continues to increase, namely the total seaweed production in 2015 in several sub-districts in Tual City which makes seaweed cultivation a livelihood, namely PP Kur, southern Kur, Tayando Tam, P. Dullah Utara and P. Dullah Selatan.

Southeast Maluku Regency itself, almost all seaweed farming farmers are small farmers who live on the coastal coast who make the coastal area of the sea as a land for seaweed cultivation. The cultivation method used by almost all seaweed farmers in Southeast Maluku is the Long Line method, namely the method of farming using rope length of cultivation. This cultivation method is much in demand by the community because the tools and materials used are more durable and young.

The technique of cultivating seaweed with the Long Line method is to use a 50-100 meter long rope which at both ends is given a large anchor and buoy or styrofom. To hold the rope so that it stays floating on the sea surface when planting seaweed every distance of 4-5 meters is given a float in the form of a rubber slipper piece or a 500 ml used aqua bottle. With this method, of course, it will use vast land and can disturb other marine users who make the sea lane a center of transportation or as a livelihood such as fishermen and sea transportation.

The management system for seaweed cultivation, especially the coastal area for seaweed cultivation in Southeast Maluku Regency is a complex problem because it is related to the problem of land ownership / control. Usually people who want to use the coastal sea for cultivation must report to the landowners or related clan heads who have authority over that area.

II. RESEARCH METHODS

2.1 Location and Type of Research

This research will be conducted in Tual city, Southeast Maluku district, the reason researchers chose Tual city as a research location is because Tual city has many seaweed farming farmers and until now many people in Tual city work as seaweed farmers, especially people who live on the beach.

2.2 Data Types and Analysis Methods

The types of data to be analyzed in this research are primary data collected and obtained directly from seaweed farmers, in the form of interview methods and questionnaires in the form of a tool prepared beforehand. The secondary data was obtained from literature studies sourced from the Central Bureau of Statistics, the Department of Marine and Fisheries, Books, Journals, and other information media related to research.

The method used in this study is business analysis. The business analysis method consists of business income analysis, revenue cost ratio (R / C) analysis, Break Event Point Analysis, Return on investment (ROI).

To find out the level of income obtained from production activities it must first be known the level of total revenue and total expenditure for a certain period. To find out the size of farming income mathematically can be formulated as follows (Kasim, 2004). Acceptance of Total TR (Total Revenue) = (P x Q).
Formula :
π = TR - TC
Information :
π = Income
TR = Total revenue
TC = Total Cost
With criteria:
TR> TC: A profitable business
TR = TC: Effort at the point of balance
TR <TC: The Business Has Losses
This analysis aims to determine the extent to which the benefits obtained from business activities during certain periods are profitable and worthy of continuing or not.
R / C = TR / TC
Description:
TR: total revenue (total revenue)
TC: Total cost (Total Cost)
With the decision making criteria as follows:
RCR> 1, the business is feasible. RCR = 1, then the business is profitable but does not suffer losses. RCR <1, the business is lost or inefficient. (Soekartawi 1995).
the situation where capital has returned all or expenses equal to income, or break even point is a condition where company revenue (TR) equals costs incurred (TC) TR = TC break even point or break-even point can be formulated as follows: (chord , 2001).
BEP (Kg) = Total Cost / Price of the Unit
BEP (Rp) = Total Cost / Total Production
For the development of a business can not be separated from economic considerations including large profits and the length of time of return on investment. Return on investment (ROI) is a profit value obtained from a number of capital issued in a production business, with the following formula Indriani and Suminarsih 2003):
ROI = Profit / Production Capital

III. RESEARCH RESULT

The average income of seaweed farmers in Tual City in 1 year (4 harvest seasons), for small farmers with 10x25 m containers which is Rp. 15,134,275 with the amount of dried seaweed production which is as much as 1163 Kg with the selling price per Kg which is Rp. 17,000. Whereas for large farmers with cultivation containers of 10x50 m with the amount of production which is equal to 2275 kg dry with the same selling price of Rp. 17,000 per Kg with an average income for large farmers which is Rp. 29,927,120.

the average R / C value for small-scale seaweed farming is 3.3 and the average value for large-scale seaweed farming is obtained by an R / C value of 3.4, based on the above criteria if TR / TC> 1 then the business profitable and efficient, so it can be concluded that the seaweed business in Tual city for small and large scale is very efficient and profitable and feasible to be implemented.

the results of the break even point analysis for small-scale seaweed farming where BEP (Kg) will occur when the average production of seaweed farmers is 273 Kg at a price of Rp. 17,000 where there will be a break even point where farming is at break-even point TR = TC or receipt equals the capital issued. While for BEP (Rp) where seaweed farming will be at break even when the price per Kg of seaweed is in the range of Rp. 3.987 with the average production of dried seaweed 1163 Kg per four harvests (1 year). Whereas for large-scale seaweed farming where BEP (Kg) will occur when the average production of seaweed farmers is 515 Kg at a price of Rp. 17,000 where there will be a break even point where farming is at break-even point TR = TC or receipt equals the capital issued. While for BEP (Rp) where seaweed farming will be at break even when the price per Kg of seaweed is in the range of Rp. 3,847 with an average production of 2275 Kg.

The results of the return on investment (ROI) analysis of grass farming were obtained based on the ratio of profit and capital where the value obtained was 326% for small farmers. This means that farmers get a profit of 326%. meaning that where every investment or capital that comes out by farmers is Rp.100 for seaweed cultivation, farmers will reap a profit of Rp.326. while for seaweed farming with a large scale where the results of the comparison of revenues with issued capital is equal to 342% this shows that every Rp.100 capital issued by farmers in the business will provide a profit of Rp. 342.

Based on the results of the study conclusions: In terms of the benefits of seaweed farming in the city of Tual is very profitable where the average profit obtained from the sale of seaweed for 4 harvest seasons (1 year),

for small farmers Rp 15,134,275 and for large farmers that is equal to Rp. 29,927,120, this certainly helps the community, especially to fulfill the economic needs of the community, especially the coastal communities.

Based on the R / C revenue cost ratio analysis where the seaweed business in Tual City is very efficient where based on the analysis of the average value of R / C for small-scale seaweed farming, that is equal to 3.3 and for large-scale average R / C values 3.4 This shows that the seaweed business in Tual City is very feasible to develop and has a fairly high level of efficiency.

In terms of the break even point where the break-even point for small-scale businesses will occur when the average production of BEP (Kg) produced by seaweed farmers is 273 Kg, at a price of Rp. 17,000. While for BEP (Rp) where seaweed farming will be at break even when the price per Kg of seaweed is in the range of Rp. 3.987 with the average production of dried seaweed 1163 Kg per four harvests (1 year). For large-scale seaweed farming where BEP (Kg) will occur when the average production of seaweed farmers is 515 Kg at a price of Rp. 17,000. While for BEP (Rp) where seaweed farming will be at break even when the price per Kg of seaweed is in the range of Rp. 3,847 with an average production of 2275 Kg.

From the results of the analysis of return on investment (ROI) an average of 326% is obtained for small farmers, this means that farmers get a profit of 326%. From the capital of Rp.100 the farmers will reap a profit of Rp.326. For large farmers where the results of the comparison of revenues with issued capital is equal to 342% this shows that every Rp.100 of capital spent will provide a profit of Rp. 342.

The problem of giving authority to seaweed cultivation in Tual City has been through a mutual agreement between the village community and the head of Ohoi (village) and the Tual City government also strongly supports the community in seaweed farming, besides that the location used by the community does not interfere with other community activities or sea transportation lane.

From the discussion and conclusions above, it is suggested that the community especially for seaweed farmers so that in the future they can further increase their yields by adding cultivation containers so that the resulting production increases and will certainly have an impact on income received, in addition to village heads and communities and the city government Tual in selecting the location for seaweed cultivation must keep the surrounding environment and see which points can be used as the location for seaweed cultivation so that the portion distribution is appropriate.

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ATTACHMENT

Table 1. Average revenue cost ratio R / C for farming large and small scale

Revenue cost ratio petani skala besar		
TR	**Rp**	**29,738,603**
TC	**Rp**	**8,754,000**
R/C (TR/TC)	**3.4**	
Revenue cost ratio petani skala kecil		
TR	**Rp**	**15,134,275**
TC	**Rp**	**4,637,500**
R/C (TR/TC)	**3.3**	

Table 2. Break even point seaweed farming for small and large scale

Analisis break even point (BEP) Usahatani skala Kecil	
BEP (Kg) TC/P	**BEP (Rp) TC/Q**
273	**Rp 3,987**

Analisis Break Event Point (BEP) Usahatani skala Besar	
BEP (Kg) TC/P	**BEP (Rp) TC/Q**
515	**Rp 3,847**

Muhammad Abdullah Tawakkal" Analysis of Benefits and Feasibility of Seaweeds (Study in Kota Tual Maluku Tenggara)" Quest Journals Journal of Research in Business and Management, vol. 07, no. 01, 2019, pp 01-05