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Analysis of seaweed marketing in warbal village, Southeast Maluku Regency, Indonesia

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Abstract. Seaweed in Warbal Village, West Kei Kecil Subdistrict, Southeast Maluku Regency has prospects and business opportunities are adequate to give hope to farmers in improving welfare. The fact that seaweed farming has not yet provided better and maximum results as desired by the farmers. This study aims to evaluation the marketing channels, marketing margins and profit share of marketing agencies. The research is located in Warbal Village, West Kei Kecil Subdistrict, Southeast Maluku Regency which is determined purposively. The number of sample is 30 farmers taken by simple random sampling, 2 wholesaler traders and 2 collector traders taken by using snowball method. The data collection methods is interview and questionnaire directly to farmers and marketing agencies, literary method or data collector from institutions related to the research’s aims. The research results show that there is two marketing channel, as follows: Channel I: farmers, wholesaler traders, collector traders, PAP; Channel II: farmers, collector traders, PAP. The magnitude of marketing margins is different between the marketing channels, and so it is with profit share of a marketing agency. On channel I, magnitude margin is IDR 3,250 and profit share is 71.11% on farmers, 17.76% on wholesaler traders and 11.09% on collector traders. On channel II, the magnitude of marketing margin is IDR 1,250 and profit share is 88.88% on farmers and 11.09% to collector traders.

1. Introduction
Indonesia has two-thirds of the region comprised of the ocean, with a rich coast of biological variety is one of the potentials that can support success in the fishery sector. Currently, efforts to manage natural resources and the environment continue to be done. This effort has shown significant progress in improving the welfare of mankind as well as achieving a harmonious and balanced environmental order. Indonesia's waters area is quite extensive, with the length of the beach more or less 81,000 km, is a fertile coastal area and can be used for fishery purposes.

Efforts to increase the production of fisheries can be pursued through cultivation, both on land and at sea. Seaweed cultivation is one type of aquaculture in the field of fisheries that have the opportunity to be developed in the territorial waters.

Seaweed is one of the potential export commodities to developing. Currently, Indonesia is still one of the important exporting countries in Asia because seaweed grows and spread almost in all Indonesian waters. Seaweed is still widely exported in the form of raw materials in the form of dried seaweed. According to the [1] as much as 70% of the production of dried seaweed raw materials are exported to China, the European Union and the Philippines. The domestic market still absorbs 30% of dried seaweed raw material.
Seaweeds are very diverse living around 900 species. For more details, the type of seaweed is 100 green algae, 200 brown algae and 600 red algae. Of the several types of seaweed that are widely cultivated in Southeast Maluku Regency is the type of seaweed *Eucheuma* scattered in some coastal areas of Warbal Island.

Seaweed cultivation business is one of the right alternatives to be developed in this region, considering Southeast Maluku Regency is a very low area of rainfall. Therefore, a new breakthrough by exploiting coastal area to develop this seaweed cultivation business. One of the areas that develop a lot of seaweed cultivation is in the Warbal Village Subdistrict West Kei Kecil.

Seaweed cultivation has long been carried out by the community, but the marketing of seaweed products is still faced with various problems that include weak bargaining position of farmers so that the price of seaweed is determined more by traders without much-involving farmers as producers.

Problems often faced by seaweed farmers in Warbal Village Subdistrict West Kei Kecil in the development of the economy associated with the marketing of the results. Efficient marketing of seaweed products is certainly a major factor determining whether or not productivity increases. Information on seaweed marketing conducted by field extension officers is felt not optimal because until now the farmers still have not get clear marketing information about everything related to seaweed product marketing. As a result, farmers can not take part in seaweed price determination. Farmers only as price recipients are not price determinants. Thus the bargaining position of the farmers (Bargaining position) is weak. This is often a force for traders, on the other hand, farmers depend on seaweed livelihoods. For that, we need to research marketing analysis of seaweed in Warbal Village Subdistrict West Kei Kecil Southeast Maluku Regency. Because the success of farming activities depends not only on the efforts and work of the farmers of other things themselves but also supported by many of them is a clear marketing institution so that people know more where the results of their farming brought to market.

[6] states that the market as a place to sell goods and services so that consumers can meet their needs and desires. As for marketing institutions, the market is a place to conduct business activities by implementing certain marketing functions so that marketing institutions can gain profit. According to [5], Marketing is a system of business activities aimed at planning, pricing, promoting and distributing goods and services that satisfy the needs of existing buyers and potential buyers, nor does it end at the time of sale or transaction. All decisions taken in the field of marketing must be demonstrated to determine the product, market, price, promotion, and distribution system. Agricultural marketing is a process of the flow of a commodity in which the transfer of property and creation takes place, to place and use the forms undertaken by marketing institutions by executing one or more marketing functions [6]. Marketing is any business activity related to the current delivery of goods or services from producers to consumers. Marketing encompasses all activities of the company in adapting to the environment creatively and profitably [3].

Marketing is an important management function needed to create demand for products sold. According to [2], marketing functions are grouped into 3 (three) functions, among others:

1. Exchange function.
   It is an activity related to the transfer of property rights of goods and services marketed. This function consists of storage functions, processing functions, and sales functions.

2. Physical function.
   It is all actions related to the goods that give rise to the use of place, shape and time. Physical functions include storage functions, processing functions, and transport functions.

3. The function of the facility.
   It is all action related to the exchange that occurs between producers and consumers. The function of this facility consists of standardization functions, payment functions, and market information functions.
In marketing a farm product definitely, requires a marketing agency. A marketing agency is a business entity or an individual conducting marketing, distributing services and commodities from producer to final consumer and having a relationship with a business entity or other. Marketing institutions arise because of the desire of consumers to obtain commodities by the time, place and shape that consumers want. The task of the marketing agency is to carry out marketing functions in the form of marketing margins. Agricultural production marketing institutions are well known by [4] are sellers traders, wholesalers traders, collectors traders, wholesalers, exporters/importers, brokers, auctions, and retailers.

On the other hand, one of the dominant factors affecting a marketing system regarding efficiency is by looking at the conditions of channels, marketing institutions, and market structures. Some of the advantages gained by knowing the marketing channel of a commodity include knowing which paths more than one channel will be made and will also make it easier to find the margins received by every marketing agency involved in the marketing system [3]

High-level marketing channels can be found, when the marketing runs smoothly, especially in countries or developed regions, from products to obtaining information on end customers and controlling production can be said to increase if the number of levels of marketing channels increases.

According to [2], marketing channels are the bodies that organize the activities or functions of marketing by which goods move from the producer to the consumer. The purpose of this research is to analyze the marketing of seaweed, especially the marketing chain, studying the efficiency level of seaweed marketing in Southeast Maluku Regency.

2. Methodology

This research was conducted in the Warbal Village Subdistrict West Kei Kecil Southeast Maluku Regency, which is determined purposively with the consideration that Warbal Village is one of the villages producing seaweed in Southeast Maluku Regency. The study period starts from January to March 2016.

2.1 Method

The population in this study consists of seaweed farmers and traders involved in marketing seaweed. In this research, sampling method using snowball sampling method, that is first level sampling, in this case, is simple random sampling farmer (simple random sampling) that is selected 30 peasants from seaweed farmer population number as much 130 people are considered to represent farmers who seize seaweed. While the next sample, in this case, is the trader is determined by the farmer where the selected farmer is identified (Excavated data), then these respondents are asked to identify another responder (traders) who are part of the target population. This process will cease when the sample size is considered adequate. Based on information from farmers: wholesaler trader amounted to 2 people and collector traders amounted to 2 people. For more details can be seen in Table (1) below:

| Kind of marketing agency | Population | Sample |
|--------------------------|------------|--------|
| Farmers                  | 130        | 30     |
| Wholesaler trader        | 2          | 2      |
| Collector trader         | 2          | 2      |

Observation and data collection in this research consist of:
1. Primary data is data directly taken from farmers and marketing institutions through interviews and questionnaires covering the land area, production, the price of sales and purchases, and marketing costs.
2. Secondary data is data obtained from relevant agencies and literature-literature that is still associated with this research.
2.2 Data analysis

The data obtained in this study are analyzed and calculated based on the following formula:

a. Calculation of marketing margins

\[ MP = KP + BP \]  or  \[ MP = Pr - Pf \]

Description:

- **MP** = Marketing margin
- **KP** = Benefits of marketing
- **BP** = Cost of marketing
- **Pr** = Price at consumer level (PAP)
- **Pf** = Price at producer farmer level

b. The calculation of the profit share of i^{th} marketing agency

\[ \frac{Ki}{Ski} = \frac{Pr - Pf}{Pr} \times 100\% \]

Description:

- **Ski** = Section (Share) profit marketing agency \( i^{th} \)
- **Ki** = Profit marketing agency \( i^{th} \)
- **Pr** = Price at consumer level
- **Pf** = Price at producer level

c. Calculation of share (share) price of farmers

\[ Pf = \frac{Pr}{Sf} \times 100\% \]

Description:

- **Sf** = The price of farmers
- **Pf** = Farmer level price (manufacturer)
- **Pr** = Prices at consumer level (inter island traders)

d. Calculation Share marketing agency costs of \( i^{th} \)

\[ \frac{Sbi}{bi} = \frac{Pr - Pf}{Pr} \times 100\% \]

Description:

- **Sbi** = Share cost of \( i^{th} \) marketing agency (\( i1 = \) Wholesaler Trader, \( i2 = \) Collector Trader)
- **bi** = Marketing cost of \( i^{th} \) marketing agency
- **Pji** = The selling price of \( i^{th} \) marketing agency
- **Pbi** = The purchase price of \( i^{th} \) marketing agency
- **Pf** = Farmer level price (producer)
- **Pr** = Prices at end consumer level (inter-island traders)

Marketing margin is also called total marketing margin (total \( M \)) where \( M \) total

\[ = M1 + M2 + M3 + \ldots \ldots \ldots \ \text{Mn} \]

which is the marketing margin of each marketing agency, so the distribution of margin can be explained as follows:

\[ \frac{Mi}{Dmi} = \frac{M \ \text{total}}{M} \times 100\% \]

Description:

- **Dmi** = Distribution margin group marketing agency ke - \( i \)
- **Mi** = Marketing margin of \( i^{th} \) marketing agency (\( i1 = \) middleman, \( i2 = \) collector).
- **M total** = \( Pr-Pf \)
3. Results and Discussions
The marketing agencies involved in marketing *Eucheuma* seaweed species in Warbal village are:

1. Producers are farmers who do seaweed farming business around the coast (coast). The land used to cultivate seaweed is a loose sea that is controlled by the state, so farmers only have the right to use. The limits of land used by the number of stretch straps owned by each farmer and the control of the land are not permanently owned but only controlled as long as they do cultivation activities. Seed production is partially harvested used as seeds back and partially dried for sale to traders. Seaweed drying is carried out on stilts or tarps. Drying is done for approximately four days if the weather conditions are sunny.

2. Traders of middlemen are traders who buy directly to the farmers in the village. Generally, seaweed purchased is seaweed that has been dried by producers or seaweed farmers who have been packed with sacks that contain an average of 60-80 kg of seaweed. Collector traders buy dried seaweed at farmers for Rp 8,000.

3. Collector traders are traders who buy seaweed from middlemen traders and also farmers who are located in the capital Regency of southeast Maluku. Collectors traders have a large capital so that they can accommodate while seaweed to wait for a suitable price or higher price.

3.1 Marketing Channel
In general, the marketing chain of dried seaweed in the research location is relatively simple through several marketing institutions such as middlemen and merchant traders. Based on the results of interviews and field observations, farmers in Warbal village sell their products to middlemen traders in the village, because they are no longer laboriously bringing the proceeds to the local traders and do not incur substantial expenses and time and effort. The process of bargaining occurs between farmers and traders, but in general, farmers are always in a difficult position because in the end traders middlemen and collectors that determine the selling price. This is not disputed by the farmers because the farmers and traders already know each other. Also, farmers tend to immediately sell the results because of the economic needs of the family.

![Figure 1. The marketing channel of seaweed farmers in Warbal Village.](image-url)

From Figure 1 shows that the marketing of seaweed from farmers to exported through two channels:

1. The farmer sells to the wholesaler trader then through the collector trader and finally distributed to the inter-island trader (PAP).

2. Farmers sell to collector trader and then distributed to inter-island traders (PAP).

The number of farmers as many as 30 people, who sell on the model of marketing channel I as many as 17 people or 56.67% of the number of products marketed is as much as 7920 kg (7.92 t), with the distance from the farmhouse to wholesaler trader are ± 10 km. Respondent farmers choose marketing channel I because of the urgency of household needs, distance from farmer's house to inter-island trader is too far, and limited transportation cost. In the marketing channel II model, the number of farmers as many as 13 people or 43.33%, with the number of products marketed is 9775 kg (9.77 t)
with the distance from the farmer’s house to the collector merchant is ± 23 km. Farmers choose channel II because the selling price is bigger, have capital or transportation cost, and some have own vehicle/transportation.

3.2 Marketing Margin
Marketing margin is one of the indicators in determining marketing efficiency which is formulated as marketing cost plus profit or difference of price paid by the final consumer (PAP) and price received by producer farmer. If marketing margins are high, then marketing is said to be inefficient marketing system. In this case the intermediary trader as the cause of the high margin of marketing. Margin marketing includes two elements, namely: (1) marketing costs are costs that are issued by intermediary traders in carrying out marketing functions that include transportation costs, packaging, storage risk and other costs. (2) the benefits to the marketing agencies involved.

In Table (2), it is seen that the share of prices received by farmers is 71.11 from the price paid by consumers, or 28.88% (3250/11250 x 100%) is the farmer’s marketing margin. Of the total margin of 28.88%, it turns out 19.55% (2200/11250 x 100%) is the marketing costs incurred by the two marketing agencies involved. The distribution of marketing margin of 3250 is seen from the ratio between cost and profit ($\pi / c$) unevenly. It turns out that from Rp.100 the cost incurred by farmers can earn a profit of Rp.1042, the middleman earns a profit of Rp.81, the collector trader earns a profit of Rp.13. Farmer profits are bigger because the marketing costs of the farmers are smaller than marketing costs incurred by middlemen and collector trader.

**Table 2** Marketing channels of margin distribution, share price and marketing benefits of seaweed in WarbaL Village (Channel I).

| No | Marketing agency | Value (Rp / kg) | Margin distribution (%) | Share price (%) | $\pi / c$ |
|----|------------------|-----------------|-------------------------|----------------|----------|
| 1  | Farmers (Pf)     |                 |                         |                |          |
|    | Selling price    | 8000            |                         | 71.11          | 10.42    |
|    | Cost             | 700             |                         |                |          |
|    | Advantages       | 7300            |                         |                |          |
| 2  | Wholesaler trader|                 |                         |                | 0.81     |
|    | Purchase price   | 8000            |                         |                |          |
|    | Cost:            |                 |                         |                |          |
|    | Transport        | 100             | 3.07                    | 0.88           |          |
|    | Sack             | 500             | 15.38                   | 4.44           |          |
|    | Rafia rope       | 500             | 15.38                   | 4.44           |          |
|    | Selling price    | 10000           |                         |                |          |
|    | Marketing margins| 2000            |                         |                |          |
|    | Advantages       | 900             | 27.69                   | 8.00           |          |
| 3  | Collector trader |                 |                         |                | 0.13     |
|    | Purchase price   | 10000           |                         |                |          |
|    | Cost:            |                 |                         |                |          |
|    | Transport        | 100             | 3.07                    | 0.88           |          |
|    | Sack             | 500             | 15.38                   | 4.44           |          |
|    | Rafia rope       | 500             | 15.38                   | 4.44           |          |
|    | Selling price    | 11250           |                         |                |          |
|    | Marketing margins| 1250            |                         |                |          |
|    | Advantages       | 150             | 4.61                    | 1.33           |          |
| 4  | PAP/Final Consumer (Pr) |       |                         |                |          |
|    | Purchase price   | 11250           |                         |                |          |

Total marketing margin 3250 100.00 100.00
Information:
Margin Distribution = cost ratio Profitability with margin marketing x 100%
Share price = Price ratio, cost, and profit with price paid by consumer x 100%
\( \pi / c \) = Profit ratio with cost

In Table (3), it is seen that the share of the price received by the farmer is 88.88 from the price paid by the consumer, or 11.11\% (1250/11250 x 100\%) is the farmer's marketing margin. From the total margin of 11.11\%, it turns out that 9.77\% (1100/11250 x 100\%) is the marketing cost incurred by the two marketing agencies involved. The marketing margin distribution of 1250 is seen from the ratio between cost and profit \( \pi / c \) uneven. It turns out that from Rp.100 the cost incurred by the farmers can earn a profit of Rp.1328 and the collector trader earns a profit of Rp.13. Profits of farmers are greater because marketing costs incurred by farmers is smaller than the marketing costs incurred by collector trader.

**Table 3** Marketing channels of margin distribution, share price and marketing benefits of seaweed in WarbaL Village (Channel II).

| No | Marketing agency | Value (Rp / kg) | Margin distribution (%) | Share price (%) | \( \pi / c \) |
|----|------------------|----------------|-------------------------|----------------|-------------|
| 1  | Farmers (Pf)     |                |                         |                |             |
|    | Selling price    | 10000          | -                       | 88.88          | 13.28       |
|    | Cost             | 700            |                         |                |             |
|    | Advantages       | 9300           |                         |                |             |
| 2  | Collector trader |                |                         |                |             |
|    | Purchase price is| 10000          | -                       | -              | 0.13        |
|    | Cost:            |                |                         |                |             |
|    | Transport        | 100            | 8                       | 0.88           |             |
|    | Sack             | 500            | 40                      | 4.44           |             |
|    | Rafia rope       | 500            | 40                      | 4.44           |             |
|    | Selling price    | 11250          | -                       | -              |             |
|    | Marketing margins| 1250           | -                       | -              |             |
|    | Advantages       | 150            | 12                      | 1.33           |             |
| 3  | PAP / Final Consumer (Pr) | | | | |
|    | Purchase price   | 11250          |                         |                |             |

Total marketing margin = 1250 100.00 100.00

**Table 4** Recapture of purchase price level, selling price, marketing cost, profit, marketing margin and share of selling price on each marketing channel.

| No | Marketing agency | Marketing channel I (Rp/kg) | Marketing channel I (Rp/kg) |
|----|------------------|----------------------------|-----------------------------|
| 1  | Farmers :        |                            |                             |
|    | Selling price    | 8000                       | 10000                       |
|    | Cost             | 700                        | 700                         |
|    | Advantages       | 7300                       | 9300                        |
| 2  | Wholesaler trader|                            |                             |
|    | Purchase price   | 8000                       | 10000                       |
|    | Marketing cost   | 1100                       | 10000                       |
|    | Selling price    | 10000                      | 10000                       |
|    | Advantages       | 900                        |                             |
| 3  | Collector trader |                            |                             |
|    | Purchase price   | 10000                      | 10000                       |
| Marketing cost  | 1100 | 1100 |
|----------------|------|------|
| Selling price  | 11250| 11250|
| Advantages     | 150  | 150  |

| Total marketing margin | 3250 | 1250 |

| Share the selling price of the farmer | 71.11 | 88.88 |

### 4. Conclusion
Marketing of seaweed in Warbal Village, West Kei Kecil Subdistrict, Southeast Maluku Regency, through two (2) marketing channels: Channel I: farmers, wholesaler traders, collector traders, PAP; Channel II: farmers, collector traders, PAP. Based on the margin and price share analysis, it can be seen that marketing margin on a channel I is Rp. 3250 and on channel II of Rp. 1250, while the share of farmer's price on channel I is 71.11%, Wholesaler Trader 17.76%, Collector Trader 11.09% and at channel II, the share of farmer price is 88.88%, Collector Trader 11.09%. This happens because the marketing costs and selling price of each packaging agency on each marketing channel are different.

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