Strategy for the development of local fisheries product processing in coastal areas North Konawe Regency

Fajriah¹, K T Isamu², A Mustafa³ and H Arami⁴

¹Department of Fisheries Resource Utilization, Faculty of Fisheries and Marine Sciences, University of Muhammadiyah Kendari, Indonesia
²Department of Fishery Technology Product, Faculty of Fisheries and Marine Sciences, Haluoleo University, Indonesia
³,⁴Department of Fisheries Capture, Faculty of Fisheries and Marine Sciences, Haluoleo University, Indonesia
*Corresponding author: fajriah@umkendari.ac.id

Abstract. This study examines the strategies offered to develop local fishery product processing activities in Molawe Village, North Konawe Regency. The research was conducted in Molawe sub-district, North Konawe district, from June to August 2020. The aim is to identify, identify and implement strategic steps that support the Minapolitan Area program in the coastal area which was proclaimed by the North Konawe Regency government. Data analysis using SWOT analysis. The results show that the appropriate development strategy is: (1) Capacity building for community empowerment through developing the quality of human resources, developing the quality of existing local processed products, diversifying healthy and hygienic processed products, developing markets, (2) increasing the capacity of government roles through infrastructure support and fostering protection of potential coastal areas, assistance to maintain the cleanliness and balance of the coastal environment (3) Establish partnerships and networks in developing fishery product processing businesses.

1. Introduction
The fisheries sector has a strategic role in national development. In terms of potential natural resources, Indonesia is known as a country maritime sector in the world because it has potential relatively large fishery resource wealth. The fisheries sector also absorbs a lot of energy work, starting from fishing, cultivation, processing, distribution and trading. Therefore that, fisheries sector development cannot be ignored by the Indonesian government [1]. This potential in the fisheries sector has a great opportunity to encourage the growth of businesses in the fisheries sector. Fishery business is all activities related to the effort to obtain salable products and is not limited to activities directly related to fishing activities. The increasing demand for fish consumption has spurred an increase in the fish processing industry. Capture fisheries industrialization is an integrated effort of all stakeholders to increase productivity, added value and competitiveness. The development of an area is followed by the development of a modern and integrated production system at the upstream level, which can supply raw materials for the production of processed fishery products to be marketed in the domestic and international markets [2].

Fish processing activities in Indonesia are still classified as traditional fish processing and are carried out on a home industry scale [3]. Fish processing business in Indonesia is a promising business. This is because it is supported by fishery production based on its fishery potential. However, the development of small or medium enterprises is currently a concern, because the economic crisis
that hit Indonesia has raised hopes that small or medium enterprises are currently becoming a concern, the economic crisis that hit Indonesia in 2007, raises hopes for micro-small businesses to become economic motor [4]. The high competition in the national economic environment in various sectors encourages the government to re-orientate the industrial sector development policy in the form of a national industrial development policy by determining priority industries that will be developed in the future [5]. The fishery sector is one of the priority industries in national development.

Fish as a source of animal protein has a unique composition which is rich in protein, an essential amino acid that is needed by the human body with little binding tissue so that it is easy to digest. Furthermore, according to [6] the most important thing about fish products is that the price is much cheaper than other sources of animal protein.

In areas with abundant catches, fish processing activities are mainly carried out so that fish can last a long time. This is because fish is a commodity that is rapidly damaged or decomposed, thus requiring further processing. Fish processing activities can be carried out in various ways, such as shredded fish, smoked fish, salted fish, canned fish, and so on. Therefore a fish processing industry is needed, to produce products that are ready for public consumption. In essence, marine fishery products are processed by modern or traditional processes apply the concept of efficiency and conservation in the use of living natural resources[7]. Marine fishery products which are traditional processed can be fish salted fish, pindang fish, smoked fish, and fermented products [8].

Southeast Sulawesi is one of the provinces that supplies fishery products both fresh and processed. These fishery products are distributed to several cities in the country such as Surabaya and Bali and there are fishery products for export to several countries [9]. One of the processed fish producing areas in Southeast Sulawesi is Molawe Village, North Konawe Regency. The fish processing industry that is run is still limited to traditional or local processing typical of North Konawe Regency which is small scale (home industry).

Smoking produces smoked fish as a form of marine fishery processing, which is a product which is commonly known as exotic indigenous food, which is a processed smoked fish product traditional from one area will be difficult to find in other areas and become a commodity superiority from the area of origin only ([10]; [11]). Smoked fish is one of the traditional processed fishery products which is very liked by the people of Indonesia. Various types of fish can be processed become smoked fish such as sea catfish (Arius thallasinus), tuna (Auxis thazard), stingray (Dasyatis bleekeri), milkfish (Chanos chanos Forsk), skipjack(Katsuwonus pelamis), sarden (sardinella sp) and tuna (Thunus albacares) ([12]; [13]). Smoked fish liked it because it had a smell distinctive, savory, flavor and odor specific and attractive colors golden yellow to brown shiny [14]. Typical local processed fish products in Kelurahan Molawe include smoked sarden fish and salted or dried mullet fish. In the Molawe area, the processing of smoked fish is carried out traditionally and from generation to generation by applying existing local wisdom.To produce smoke, business actors use wood from the surrounding forest, but if this is not available then coconut belts are used. As explained by [15], the best type of wood produces smoke quality will affect the quality of the smoked product. The type of wood that is good for smoking is wood. Hard (hard wood) that burns slowly, contains many flammable compounds, such as: cellulose, hemicellulose, lignin, and produce acids [16]. Like small-scale traditional businesses, local processed businesses typical of North Konawe also experience problems such as capital, technology and information, management and marketing, education level of processing Human Resources, poor handling, product hygienicity, inadequate equipment and packaging. The number of problems faced by small scale businesses or household businesses causes the processed products to be produced to have low competitiveness.

2. Materials and Methods

2.1 Time and place
The research was conducted in Molawe Village, North Konawe Regency from June to August 2020. The fishery potential of North Konawe Regency is one of the advantages that can be relied on to support the fish processing industry which is one of the goals of the Minapolitan program launched by the local government and community service activities by the University of Muhammadiyah Kendari.
However, on the other hand, the availability of raw materials and product marketing is an obstacle in the development of processed fishery products. In fact, the local processed products typical of Molawe Village in the form of smoked tembang fish and salted mullet are very popular with the audience.

2.2 Data Collection
This research is sourced from primary data through observation. Primary data collection is in the form of strengths, weaknesses, opportunities, and threats from smoked tembang fish processing. Collection of internal data and externally contained in the fumigation treatment unit is carried out by semi interviews structured (depth interview) to the key person (processor) guided by a questionnaire. Furthermore, the data obtained will be grouped based on the strength factor, weaknesses, opportunities and threats. Internal data that can be your strengths and weaknesses business, in the form of: business objectives (target), knowledge of processors, business income (profitability), sales (production), raw materials, product quality (flavor), and packaging. While data external which can become business opportunities and threats, in the form of processed fishery products other sea (substitution), product competition, marketing, innovation, and use of technology.

The analysis used to determine the strategy for the development of local fishery product processing in North Konawe Regency is a SWOT analysis. SWOT analysis is an analysis that is useful for obtaining the right strategy formulation, and adjusted to the conditions and potential of the region. SWOT analysis is used to identify and evaluate internal and external factors, which are based on logic to maximize strengths (Strengths) and opportunities (Opportunities), but simultaneously minimize weaknesses (Weaknesses) and threats (Threats) [17].

The weighting of values in SWOT is done by calculating the point factor which is carried out interdependently. That is, the assessment of one factor point is to compare the level of importance with other factors, so that the calculation is the value obtained (the value range is the same as the number of factor points divided by the number of factor points) [9].

The stages of the SWOT analysis in strategic planning are: the stages of data collection are divided into internal factors and external factors. Internal data is obtained from the environment in the fishery product processing business in the form of strengths and weaknesses and external data is obtained from the external environment in the form of opportunities and threats. This factor is made in the form of an EFAS (External Factor Analysis Summary) matrix and an IFAS (Internal Factor Analysis Summary) matrix.

2.3 Analysis stage
Analyzing IFAS and EFAS by weighting the values between 0-1, the method of determination based on field observations to determine the priority order, namely which factors are most important and not important. The determination of the weighting of these criteria uses the classical weighting method by giving a score of 1,3,5 and 7 [18]. Weighting using a simple formula will produce a weight between 0-1 and if the total factor weights are added together it will produce a value of one for each condition (internal and external). The assignment of a rating is inversely proportional to opportunities and threats and strengths and weaknesses. The closer to reality, the greater the value of opportunities and strengths so that the value of weaknesses and threats is getting smaller. After giving the score and the weight, then the score is determined by multiplying the weight and branches.

Decision making for the formulation of strategies for the development of fishery product processing using the IFAS and EFAS matrices, the matrix produces four possible alternative strategies, namely:
1) SO Strategy (Strengths - Opportunities)
   This strategy is a combination of strength and opportunity, namely by utilizing all strengths to seize and take advantage of opportunities. This strategy is also called an aggressive strategy.
2) ST Strategy (Strength - Threat)
   Strategies that use internal strengths optimally to deal with challenges or weaknesses. This strategy is called a diversification strategy.
3) WO Strategy (Weakness - Opportunity)
A combined strategy of weaknesses and opportunities that seeks to minimize internal weaknesses to take advantage of existing opportunities. This strategy is called a turn around strategy.

4) WT (Weakness-Threats) Strategy
A combination strategy of weaknesses and threats that are not profitable and tries to minimize existing internal weaknesses and avoid threats. This strategy is also called a defensive or defensive strategy [16]. The SWOT matrix diagram and its explanation are shown in Table 1 below:

### Table 1. SWOT Matrix Diagram

|                  | Internal Strength factor | Weakness (W)          |
|------------------|--------------------------|-----------------------|
| Internal Factor  |                          |                       |
| (IFAS)           |                          |                       |
| Eksternal Factor |                          |                       |
| (EFAS)           | SO Strategy              | WO Strategy            |
| Opportunities (O)| Creating strategies that use strengths to take advantage of opportunities | Creating strategies that minimize weaknesses to take advantage of opportunities |
| External opportunity factor | ST Strategy | WT Strategy |
| Treaths (T)      | Create strategies using strength to overcome threats | Creating strategies that minimize weaknesses that avoid threats |
| External threat factor |                        |                       |

Table 2 shows several alternative strategies that can be applied in the processing of fishery products in North Konawe Regency. This strategy provides an end result that will benefit all parties, especially fishery product processing actors.

3.2. Local Fisheries Processing Product Development Strategy in North Konawe Regency
There are alternative strategies that are offered and can be implemented in the fish processing business in Molawe Village, North Konawe Regency. The fish processing business is smoked tembang fish and salted mullet fish typical of North Konawe Regency. Through the alternative strategy obtained through the weighting and rating process, it is hoped that it will be able to develop fish processing businesses
in North Konawe Regency. The weighting and ratings for internal and external factors are presented in Table 3.

**Table 2.** Strategy Formulation of Local Fish Processing Business in North Konawe Regency

| Internal Factors | STRENGTHS (S) | WEAKNESSES (W) |
|------------------|---------------|----------------|
| 1. Availability of raw materials  
2. There is good cooperation between fishermen and processed fish producers  
3. There is knowledge and skills about traditional fish processing methods  
4. Local community acceptance | 1. Not yet optimal utilization of marine potential  
2. Low public capital  
3. Lack of facilities and infrastructure for processing fishery products  
4. The marketing reach is still limited |
| External Factors | SO Strategy | WO Strategy |
| 1. Labor absorption  
2. There is a good transportation rout  
3. Cooperation with other parties  
4. Development of fishery processing technology  
5. Support from government, private sector and universities | 1. Utilizing the potential of fisheries and technological developments, to produce quality and quality products  
2. Diversification of processed fishery products  
3. Building partnerships and business networks in the framework of fostering and developing fishery product processing businesses  
4. Increasing the human resources of fishery product processing businesses | 1. To develop infrastructure for processing and marketing fishery products  
2. Increasing the role of social institutions in socializing local products  
3. Increasing the role of local governments in helping to develop businesses and marketing local products  
4. Governments in helping to develop partnerships role with the private sector including universities facilitated by the local government |
| Opportunities (O) | 1. Pressure on resources and the environment due to unfriendly uses  
2. Inconsistent local government programs  
3. The existence of market monopoly by collectors  
4. Increasingly limited interest in local processed products | ST Strategy | WT Strategy |
| 1. Synergy of functions between related government institutions (fisheries, trade / industry, cooperatives) in an effort to increase the competitiveness of local small-scale businesses  
2. Community development to increase awareness in using resources wisely  
3. Optimizing the use of local resources | 1. Optimizing community empowerment activities through increasing human resources, diversifying innovative products  
2. Business management  
3. Creating a healthy market |
Table 3. Weighting and Ratings for Internal and External Factors

| Defining Factor                                                                 | Weight | Rating | Score |
|---------------------------------------------------------------------------------|--------|--------|-------|
| **INTERNAL FACTOR**                                                             |        |        |       |
| STRENGTHS (S)                                                                   |        |        |       |
| 1. Availability of raw materials                                                | 5      | 4      | 20    |
| 2. Potential of fish processing business on a scale Household                   | 4      | 3      | 12    |
| 3. Knowledge and skill about how to traditional fish processing                 | 4      | 4      | 16    |
| 4. There is public acceptance of the Business and local fishery product         | 3      | 3      | 9     |
| **TOTAL**                                                                       | 57     |        |       |
| WEAKNESSES (W)                                                                  |        |        |       |
| 1. Not optimal use resources sea                                                | 4      | 4      | 16    |
| 2. Low public capital                                                           | 3      | 3      | 9     |
| 3. Lack of processing facilities and infrastructure                             | 4      | 3      | 12    |
| 4. Limited Marketing reach                                                       | 4      | 4      | 16    |
| **TOTAL**                                                                       | 53     |        |       |
| **EXTERNAL FACTOR**                                                             |        |        |       |
| OPPORTUNITIES (O)                                                                |        |        |       |
| 1. Labor absorption                                                             | 4      | 4      | 16    |
| 2. The existence of transportation routes                                        | 3      | 3      | 9     |
| 3. Cooperation with other parties                                               | 4      | 3      | 12    |
| 4. Development of processing technology                                          | 4      | 2      | 8     |
| 5. Government, private and support college                                       | 5      | 4      | 20    |
| **TOTAL**                                                                       | 65     |        |       |
| THREATS (T)                                                                     |        |        |       |
| 1. Pressure on resources and the environment, the result of unfriendly use environment | 3  | 2  | 6 |
| 2. Lack of local government program consistent                                   | 3      | 3      | 9     |
| 3. The existence of a market monopoly by collector                              | 4      | 3      | 12    |
| 4. Increasing interest in local processed product limited                         | 4      | 3      | 12    |
| **TOTAL**                                                                       | 39     |        |       |

4. Conclusion
The first strategy that must be implemented is the synergy of functions between related government institutions, in this case the Bappeda of North Konawe Regency, the Marine and Fisheries Service, the Trade/Industry Service and the Cooperative Office. Through the synergy of the cross-agency program, it is hoped that it can produce fishery product processing businesses that are competitive and sustainable both in terms of production and marketing.

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References

[1] Triarso I 2012 Potency and Development Opportunity of Bussines Capture Fisheries in North Coastal of Central Java Jurnal Saintek Perikanan 8 65-73.

[2] Howara D 2013 Fishery Product Processing Development Strategy in Donggala District J. Agroland 17 75-81

[3] Kamil I and Hapsari I 2007 Development of a Cluster-Based Marine Industry Model in the City of Padang J. Optimization of Industrial Systems 2 37-49

[4] Rosalina D 2011 J Marine and Fisheries Socio-Economic Policy 1 63-77

[5] Glendoh S H 2001 J. Management and Entrepreneurship 3 1-13

[6] Marpaung R 2008 J. Scientific University of Batanghari Jambi 8 74-80

[7] Adawyah R 2007 Fish Processing and Preservation (Jakarta: Bumi Aksara)

[8] Herawati E S 2002 Traditional Fish Processing: Development Prospects and Opportunities J. Agricultural Research and Development 21 61-73

[9] Heruwati E S 2002 Jurnal Litbang Pertanian 21 92-99

[10] Haras A 2004 BSc Thesis (Bogor: Institut Pertanian Bogor) 17

[11] Wibowo 2002 Journal of Educational Social Studies 1 25-39

[12] Winarti S 2010 Food Functional (Yogyakarta: Graha Ilmu)

[13] Swastawati F, Titi S, Tri W A and Putut H R 2013b Journal of Food Technology Applications 2 126-132

[14] Swastawati F, Eko S, Bambang C and Wahyu A T 2012 International Journal of Bioscience, Biochemistry and Bioinformatics 2 212-21

[15] Budijanto S, Hasbullah R, Prabawati S, Setyadjit, Sukarno and Zuraida I 2008 Jornal of agricultural research and Development 5 32-40

[16] Rangkuti F 2009 SWOT Analysis of Dissecting Business Case Techniques (Jakarta: PT. Gramedia Pustaka Utama)

[17] Marimin 2004 Techniques and Applications of Multiple Criteria Decision Making (Jakarta: Grasindo)

[18] Rangkuti F 2009 SWOT Analysis of Dissecting Business Case Techniques (Jakarta: PT. Gramedia Pustaka Utama)