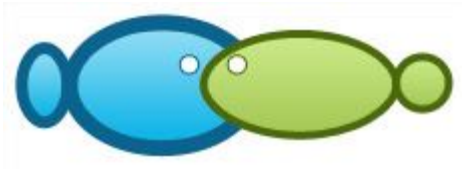

Sustainability study of household scale fisheries management using RAPFISH modified method: a case study in Sungsang 1, Banyuasin II District

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Abstract. Development in the fisheries processing sector, in particular the manufacture of shrimp crackers (*kemplang*), is not always sustainable and viable. This study aimed to assess the sustainability status of fisheries processing to produce shrimp *kemplang* using a multi-dimensional approach and to develop a management system for the improved development of shrimp cracker (*kemplang*) production. The sustainability analysis used the RAPFISH (Rapid Appraisal for Fisheries) method with some modifications, and a SWOT (Strengths, Weaknesses, Opportunities and Threats) analysis. This research was conducted in Sungsang 1, Banyuasin II District, South Sumatra, Indonesia. Data collection was carried out from May to June 2020 using a survey method and direct interviews. The data were presented in tabulations and graphs and analysed descriptively. The results showed that the sustainability status of shrimp *kemplang* processing was categorized as adequately sustainable, with an index value of 2.58. The raw materials dimension with a value of 3.27 had the highest sustainability rating. The economic dimension was categorized as less sustainable with an index value of 2.02. In the SWOT analysis, the shrimp *kemplang* processing was in Quadrant I, indicating that an SO (Strength-Opportunity) strategy would be appropriate. This means that the shrimp *kemplang* processors need to use their strengths to be able to take full advantage of the opportunities available.
Key Words: fisheries management, shrimp products, SWOT analysis, development strategy, Sumatra.

Introduction. Marine resources are vital for many coastal communities, including people living in Banyuasin II District, South Sumatra, Indonesia (Wolters 1979). In the coastal villages of this district, the dominant livelihoods are fishing and fisheries-based entrepreneurship, in particular the production and marketing of food products based on shrimp. The Sungsang 1 village in Banyuasin II is one such village with shrimp resources, including *Metapenaeus* sp. and *Penaeus* sp (Wolters 1979; Prianto & Aprianti 2016). The villagers process the shrimp to make a kind of shrimp cracker known as *kemplang*, although similar crackers made from fish can also be called *kemplang*. These crackers are classified as dry food products. However, the production and marketing are often not well developed (Prianto & Aprianti 2016).

Currently, *kemplang* producers are mostly household scale private fisheries food processing businesses in the Sungsang villages, Banyuasin II District. Because *kemplang* crackers are commonly served as a snack for weddings or other family gatherings, the Sungsang people should pay attention to the quality of the product. A simple feasibility study showed that price did not significantly affect purchasing interest, because *kemplang* consumers were more concerned about and prioritized the quality of the product. Santipolvut (2015) emphasized the need for participation by non-government businesses in order to contribute to sustainable development.

It was considered necessary to conduct a sustainability assessment for planning the development of *kemplang* production as a sustainable business. One method for such analyses which has been applied to small scale fisheries and fisheries-related businesses is the RAPFISH (Rapid Appraisal for Fisheries) sustainability assessment method based on a multidimensional scaling approach (Pitcher & Preikshot 2000; Kavanagh & Pitcher 2004). This method was developed by the Fisheries Center, University of British Columbia

in 1999 and has been validated and applied in several countries including India (Adiga et al 2015, 2016), Brazil (Jimenez et al 2021) and Indonesia (Ali 2015; Teteleptal et al 2017; Natan et al 2016; Vatria et al 2019). In addition to capture fisheries, Rapfish has been applied in ecotourism (Nurhayati et al 2019), ecosystem status (Haya & Fujii 2020), aquaculture (Achmad et al 2020), and fisheries processing (Bayu et al 2019; Dewinta & Ma'ruf 2020).

Alder et al (2000) explained that the assessment of fisheries conditions in an integrated manner includes 4 aspects, namely ecological, economic, social, and technological aspects. Furthermore, one type of analysis that can be used to assess fisheries in an integrated manner is the multidimensional scaling approach. The multidimensional scaling approach aims to provide an overview of the performance of fisheries in terms of ecological, economic, social, and technological aspects which can then be used as guidelines for evaluating the sustainability of fishing businesses.

Development in the fisheries processing sector, including the manufacture of shrimp *kemplang* in the Banyuasin II area, should aim to be sustainable and appropriate. This study aimed to assess the sustainability status of the shrimp *kemplang* fisheries processing in Sungsang 1 village, Banyuasin II District, using the RAPFISH (Rapid Appraisal for Fisheries) a multi-dimensional approach (Pitcher & Preikshot 2000) with some modifications, as well as a SWOT (Strengths, Weaknesses, Opportunities and Threats) analysis, in order to support the development of an improved shrimp *kemplang* management system and identify the strategic steps for improving sustainability in the shrimp *kemplang* business.

Material and Method

Description of the study area. This research was conducted in Sungsang 1 village, Banyuasin II District, Musi Banyuasin Regency, South Sumatra, Indonesia. Based on a survey report by Wolters (1979), Banyuasin II is located at the mouth of the Musi River, and the topography is dominated by lowlands. Administratively, the Sungsang 1 area is in Banyuasin II District, Musi Banyuasin Regency, South Sumatra Province, Indonesia. Part of the District is a coastal area, facing Bangka Strait or the South China Sea, and bordered by Jambi Province to the north. The northern and eastern areas are dominated by wetlands and the western are is mostly peat swamp forest. Several areas in Banyuasin II are transmigration areas.

Sungsang village is well known as a fishing village in South Sumatra. Because most of the residents of Sungsang work as fishermen, the people who live in this area are known as *wong laut* in the local Palembang language. In addition to fishing, this village is also a shrimp processing community. Various fishery products are the dominant economic activity in the region, especially shrimp product-based home industry scale enterprises. In the dry season, the daily shrimp catch can reach around 500 kg, including the greasyback shrimp, locally known as *udang pepe* (*Metapenaeus ensis*), and the speckled shrimp, locally known as *udang dogol* (*Metapenaeus monocerus*) (Prianto & Aprianti 2016); this research also found that the Sungsang community produce processed shrimp-based products known as traditional South Sumatra foods, with *kemplang* considered as a superior product.

Research methods. Data were collected from May to June 2020 using a field survey method with site visits and direct interviews. The data obtained were tabulated and analysed descriptively, including the use of graphics. The sample in this research comprised 50 respondents selected using purposive sampling from the households making *kemplang* in Sungsang 1 village.

This study applied the RAPFISH fisheries sustainability assessment method based on a multidimensional scaling approach (Pitcher & Preikshot 2000; Kavanagh & Pitcher 2004) to *kemplang* processing in Sungsang 1 village. The data that were collected comprised data relevant to the five RAPFISH dimensions: the raw materials, economic, social, marketing, and technology dimensions. The sustainability status of each attribute of each dimension of fisheries management was calculated. After the five dimension

scores were determined using the RAPFISH method, the sustainability index value was determined, based on the scale shown in Table 1.

Table 1

The RAPFISH sustainability Index scale used in this study

Sustainability index	*Sustainability status*
1	Not sustainable
2	Less sustainable
3	Adequately sustainable
4	Very sustainable

Data analysis. Data obtained were analysed descriptively. All the data collected from 50 respondents were tabulated and analysed using Visual Basic in Excel (RAPFISH 2.0) PC with some modifications. The RAPFISH results were presented graphically as a Spider Chart. A SWOT (Strengths, Weaknesses, Opportunities and Threats) analysis was also carried out.

Results

Social dimension. The social dimension data cover attributes related to the social relations in fisheries processing. This dimension is a reflection of the social systems present in the fishery processing community, and indicates whether or not these systems could support the development of fisheries processing in the long term and sustainably. This dimension has five attributes that represented the social life of shrimp *kemplang* processing, these attributes were: the presence of a shrimp *kemplang* processing group, government attention, government aid or assistance, experience with shrimp *kemplang* processing, and the availability of labour.

Based on the results of the sustainability analysis ordination in Sungsang 1, the social attributes of the shrimp *kemplang* processing community were in the less sustainable category, with values between 2 and 3. The social group attribute value was 2.44, as 52% of processors were not involved in groups. The government attention and aid attributes had index values of 2.56 and 2.08 respectively, with 52% of processors that had received government attention (e.g. counselling, provision of tools and grants to *kemplang* processors), while 64% people in this business had not received any assistance (Figure 1).

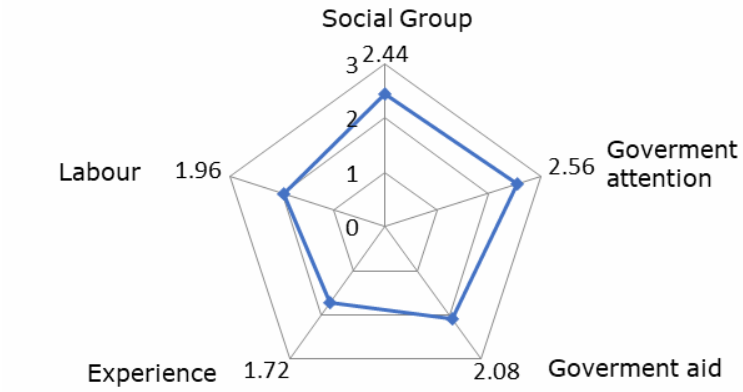

Figure 1. Social dimension attribute sustainability scores in Sungsang 1 Village.

Raw material dimension. The raw material dimension includes information on the basic raw materials needed for shrimp *kemplang* processing. There were 6 attributes in this dimension: raw material volume, shrimp type, how to obtain raw materials, the origin of raw materials, the availability of raw materials, and the production period. The scores for the sustainability of the raw material dimension attributes are presented in Figure 2.

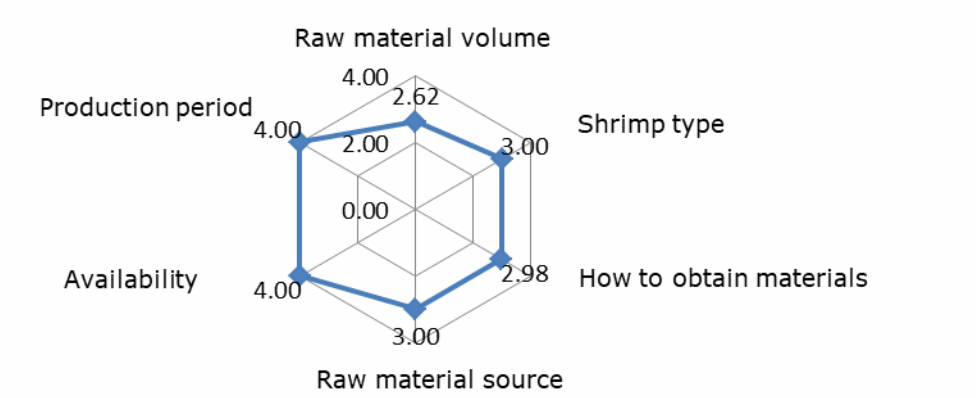

Figure 2. Raw material dimension attribute sustainability scores in Sungsang 1 Village.

The continuous analysis ordination produced an index value of 2.62 (less sustainable) for the volume of raw material used in each production run; 34% required raw materials from 15-30 kg, 46% required 35-45 kg, and only 12% of processors required raw materials over 45 kg. The shrimp attribute had a sustainability index value of 3.00 (adequately sustainable) with a percentage of 100% for the shrimp type. The sustainability index value for the attribute on how to obtain shrimp raw material was categorized as quite sustainable with an index value of 2.98, and 100% of processors buying shrimp from the market. The raw material origin, availability, and production period attributes had index values of 3.00, 4.00 and 4.00 respectively; these three attributes were categorized as *adequate to very* sustainable with a percentage of 100%.

Economic dimension. The economic dimension is used to evaluate the level of sustainability of the economic system in vigour for shrimp *kemplang* processing. The economic dimension is a reflection of whether the activity of exploiting capture fisheries resources can or is likely to produce long-term and sustainable economic benefits. The economic dimension has 5 attributes: raw material prices, raw material price trends, labour salaries, availability of capital and income outside fisheries. The sustainability scores for the economic dimension attributes in the village of Sungsang 1 are shown in Figure 3.

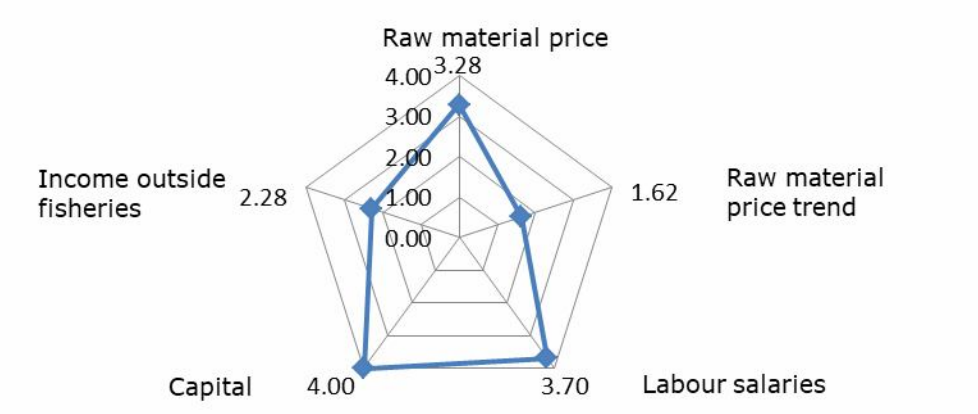

Figure 3. Economic dimension attribute sustainability scores in Sungsang 1 Village.

The sustainability analysis ordination showed that the status of the raw material price attribute was adequately sustainable, with an index value of 3.28 with 72% of raw material prices in the range of IDR 20,000/kg, and 28% below IDR 20,000/kg using *Metapenaeus* sp. shrimp as raw material. For the trend in raw material prices, the status was unsustainable (1.62) because many of the processors (68%) stated that prices were unstable. The attribute of wages for workers was almost considered very sustainable

(3.70). Workers' salaries were paid based on *kemplang* production, and did not vary very much, with 32% paid less than IDR 50,000/kg and 68% paid more than IDR 50,000/kg.

Marketing dimension. The marketing dimension attributes relate to the marketing processes, system and the selling price of processed shrimp *kemplang*. The five marketing dimension attributes were: sales chain processes, shrimp *kemplang* collectors, sale prices, shrimp *kemplang* price trends, and marketing extent. The continuous ordination analysis gave a poor sustainability status for four out of the five attributes (Figure 4).

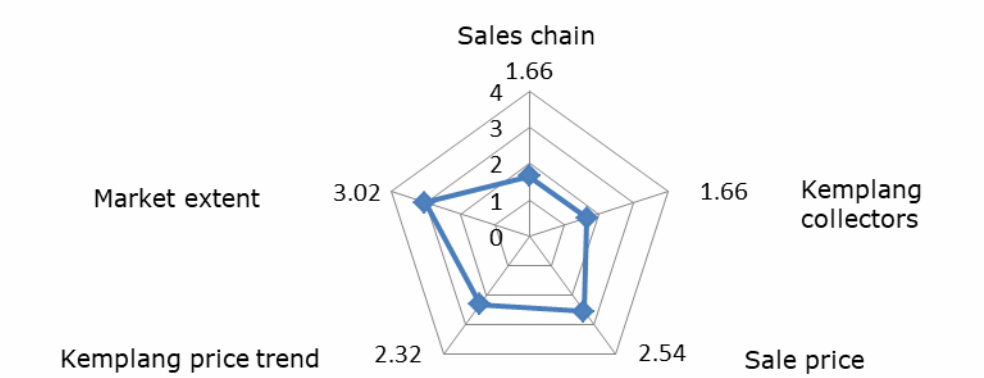

Figure 4. Marketing dimension attribute sustainability scores in Sungsang 1 Village.

The sales chain process attribute was categorized as less sustainable (1.66) with 78% of respondents using marketing chains with 2-3 stages, and only 22% selling directly to consumers. The shrimp *kemplang* collectors attribute was categorized as less sustainable (1.66) with 22% saying there are no shrimp *kemplang* collectors. The sale price attribute was adequately sustainable (2.54), with 46% quoting a selling price less than IDR 50,000 and 64% with a price of IDR 50,000-100,000. The sales price trend was classified as adequately sustainable, with an index value of 2.32 and a percentage of 72%. Meanwhile, the marketing extent attribute was also categorized as adequately sustainable (3.02) with 96% accessing the regional market, and 4% accessing the national market. The regional market for shrimp *kemplang* covers the cities of Palembang, Kayuagung, Banyuasin, while the national marketing has reached several provinces (e.g. Bangka Belitung Islands, Jambi, Bengkulu, Lampung, etc.).

Ecology dimension. The ecological dimension addresses the environmental status, the equipment used for processing shrimp *kemplang*, climate and weather suitability, and shrimp seasonality. This dimension is a reflection of the level of capture fisheries resource utilization and the interactions between shrimp fishing and the environment. The ecological dimension has 4 attributes, namely environmental carrying capacity, fishing gear, climate suitability and shrimp seasonality. The sustainability scores of the ecological dimension attributes are presented in Figure 5.

The environmental carrying capacity, fishing gear and shrimp seasonality attributes was categorized as sustainable with index values of 3.92 to 4.00, giving percentages over 98%. These values are based on the results of interviews with shrimp *kemplang* processors, and direct observations on site. The shrimp used as a raw material were caught in an environment which seemed to be in good condition, the fishing gear used can be considered environmentally friendly (e.g. nets and traps). Also, fishing activity is not greatly affected by seasonality (more than 8 months fishing season per year). However, this long fishing season was being heavily influenced by the climate. The climate-related season-suitability status of the shrimp was unsustainable with an index value of 1.00, independent of the season (Figure 5). Bremer et al (2012) said that for the agricultural sector in general, the major framing or challenge for sustainable development is climate change. This is because climate affects all living things in an ecosystem, and they have to adapt to or mitigate the effects of change. In addition, the

occurrence of weather anomalies, especially weather anomalies due to excessive heating, will affect the season and availability of shrimp, which are also related to their feed (e.g. feeding migrations).

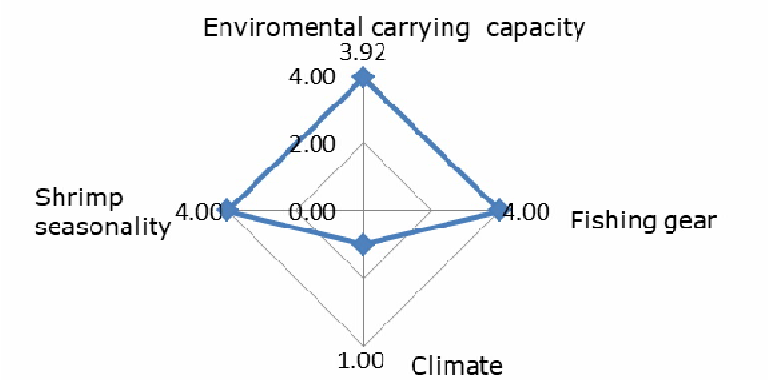

Figure 5. Ecological dimension attribute sustainability scores in Sungsang 1 Village.

Composite sustainability scores. The composite scores resulting from all the ordination analyses have indicated that the sustainability status of shrimp *kemplang* processing in Sungsang 1 village was adequately sustainable, with a composite index value of 2.58. The multidimensional sustainability status (Figure 6) showed three components likely market, social, and economic dimensions as less sustainable with index values of 2.24, 2.15 and 2.02. The raw material and ecological dimensions were categorized as adequately sustainable with index values of 3.27, and 3.23, respectively. The economic dimension was the weakest dimension, while the raw material and ecological dimensions had the highest scores.

Even though the social dimension was the weakest of the five dimensions, it has sensitive attributes which could be considered as strengths in the shrimp *kemplang* business such as capital, labour, and raw material price. All of these were a source of strength that could contribute towards making the shrimp *kemplang* production business sustainable. The market and social dimensions also have attributes with potential for further development and sustainability. The main point is that the market is always wide open for this product.

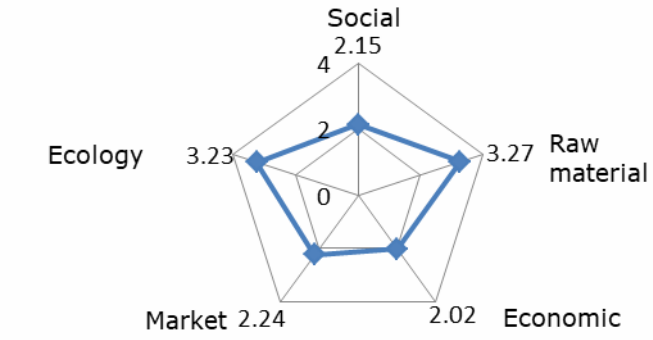

Figure 6. Composite sustainability scores for shrimp *kemplang* processing in Sungsang 1 Village.

SWOT analysis. The RAPFISH sustainability analysis was followed by a SWOT analysis after analysing internal and external factors. The quadrant diagram (Figure 7) showed the position of the shrimp *kemplang* processing in order to select appropriate strategies that could be formulated to develop the business sustainably.

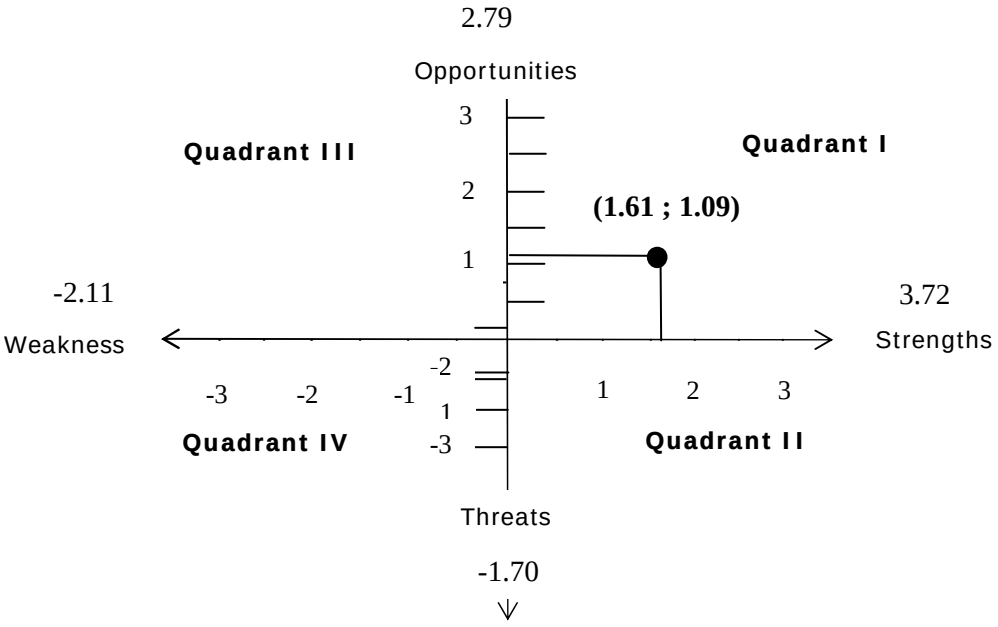

Figure 7. SWOT analysis plot of shrimp *kemplang* processing in Sungsang 1 village.

The SWOT analysis (Figure 7) placed the shrimp *kemplang* business in Quadrant I. This indicates than an SO (Strength-Opportunity) strategy is appropriate, making use of the strengths of the shrimp *kemplang* processors to be able to take advantage of the opportunities available. This quadrant (positive, positive) supports aggressive strategies (Bremer et al 2012). Meanwhile Quadrant II (Strength-Threat) strategies should make use of every strength to face threats, e.g. through diversification to create opportunities (product diversification strategy); Quadrant III (Weakness-Opportunity) strategies should aim to minimize internal problems for shrimp *kemplang* processing, in order to seize better market opportunities (turnaround strategy); while Quadrant IV (Weakness-Threat) strategies aim to minimize existing weaknesses to overcome threats (defensive strategies). These strategies could be complementary to the main Quadrant I strategies.

Discussion. In the social dimension, the attribute of government attention has the highest index score because the government has declared the Sungsang area as a shrimp centre. In Banyuasin II District there is a silvofishery program and Sungsang villages is a special case under this program. Several *kemplang* processors stated that there had been a lot of government attention in the form of various kinds of assistance, such as drying equipment, money, and counselling. The *kemplang* processors who have a lot of experience in this business could contribute to product sustainability. Many had less than 5 years experience, and this was generally a family or household business, where the workforce includes many family members. Three attributes in the social dimension were categorized as less sustainable (Figure 1). Other attributes with a higher score in this dimension included social groups and the role of government; according to Lam (2016), the interaction between human institutions and social groups in processing governance can influence the sustainability of food products. One visible weakness of shrimp *kemplang* processing in Banyuasin district was the lack of shrimp *kemplang* processing groups. The number and membership of shrimp *kemplang* processing groups was limited, meaning that most processors worked separately, without friends/colleagues to exchange ideas; therefore they were not getting additional information or knowledge in processing the shrimp *kemplang*. That is one reason why people in this village have found it hard to adopt the technological advice which is given by government or other sectors.

The manufacturing of shrimp *kemplang* in Sungsang villages still uses traditional technology. For example, the processors still relied on direct sunlight to dry the shrimp *kemplang*; there was no use of modern dryers. Fisheries technology used in capturing and processing was sub-optimal, so that the attributes of how to obtain in raw material were classed as less sustainable, even though the other raw material attributes were

categorized as adequate to very sustainable (Figure 2). With respect to the raw material dimension, Sungsang village is the source area for shrimp, where shrimp are always available (not dependent on a limited shrimp season). The processors make shrimp *kemplang* from their own local resource potential, with the fishing grounds located at the mouth of the river and the nearby coastal waters. Capital is very influential in the processing of shrimp *kemplang*. Even though they have some capital of their own, the shrimp *kemplang* processors said that their capital was limited, and could interfere with the processing of shrimp *kemplang*. For example, the processing of shrimp *kemplang* required quite high investment at times because the price of shrimp is not stable even though the shrimp are generally relatively cheap, as also reported by Prianto & Aprianti (2016) and Suharno et al (2016). The shrimp season generally runs from March to December, with maximum availability of raw materials for making shrimp *kemplang* from the end of April to November. This shrimp season is greatly influenced by climate.

Beeharry et al (2014) found a similar sustainability status for the ecological dimensions of anchovy fisheries in the Coastal Zone (fairly or adequately sustainable) compared to the results for Sungsang 1 village, where the ecological dimensions (environmental carrying capacity, fishing gear, and fishing season) were also categorized as sustainable. The relatively low price of raw materials for shrimp *kemplang* processing in Sungsang 1 can be considered as one of the strengths in shrimp *kemplang* processing; affordable materials with a stable supply should enable shrimp *kemplang* processors to make good profits. Furthermore, the fishing gear types used to catch the shrimp used in *kemplang* processing in this villages are mostly environmentally friendly, such as nets, fishing rods, traps, etc., and are made locally by the villagers. Such fishing gears made the shrimp fishing less damaging to the environment (Suharno et al 2017; Suharyanto et al 2018), and should enable a sustainable fishery to support the shrimp processing industry. Actually, we found that the market for this product is always expanding (Figure 4, marketing dimension); however, the challenges include how to fix the sales chain and the price trend. The market sustainability is intrinsically related to the mind-set of consumers; we should know the differences in understanding and motivation related to the *kemplang* product which are related to consumer behaviour (Grunert et al 2014), including their reasons for consuming *kemplang*.

Raw material quality is one of the main factors in shrimp *kemplang* processing. The raw materials used by the shrimp *kemplang* processors in Sungsang 1 are local, allowing processors to run their businesses freely without fear of shortage of raw materials for shrimp. The processors use uncomplicated processes; this is another strength of shrimp *kemplang* processing. Even though the processors mainly had a low level of education, they could improve their standard living through making shrimp *kemplang* because this business does not require special expertise. Processing of shrimp *kemplang* in Sungsang 1 villages has advantages in terms of low labour costs (wages mostly less than IDR 50,000/kg of raw material) and abundant labour availability. To make shrimp *kemplang* the workers make shrimp *kemplang* dough with tapioca flour, boil it, and then dry the *kemplang* under the sun. The shrimp *kemplang* processors are often members of the family of the fishers who catch the shrimp, such as their wives and children, as well as neighbours, as also reported by Suharno et al (2016).

However, one of the threats to the shrimp *kemplang* processing in the Banyuasin II area is the large number of *kemplang* processing enterprises outside this area. One way in which shrimp *kemplang* products can compete is through packaging, which can influence consumers when judging the quality of the shrimp *kemplang*. The shrimp *kemplang* in Banyuasin II District seemed unable to compete with shrimp *kemplang* products outside the region, with poor or less attractive packaging being one reason. The motivation-ability-opportunity framework implies that sustainability labels are needed. The demographic area, human values, and between-province differences will influence the attitude of consumers. The actual behaviour in social communities could affect the sustainability of *kemplang*. An analysis by Pullman et al (2009) concluded that sustainability in the food industry required both environmental and social elements; in particular, attention to the environmental elements could lead to improvements not only in the quality performance but also with regards to costs and pricing.

Brooks (2010) said that business continuity needs networking and connecting with a variety of social entities, such as inter/intra social group connections for making decisions on sustainability. The social dimension needs collaboration between economic and biological factors, wherein there is a sense of corporate social responsibility and eco-labelling both in government and private sector. This result agrees with studies that determined the component likely to be influencing factors include material productivity, availability of fishing grounds, percentage of total revenue, fishermen's economic condition, government subsidies, production facilities, price trends, motivation, the average age of *kemplang* processors, their level of education, technology adoption levels, and the market. These factors are similar to those identified for the aquaculture system in Bone Bay, especially with respect to weather as a factor in the ecology dimension.

When the weather conditions are unpredictable and fishermen experience difficulty in obtaining their catch, this often means that the household business has to stop production. Simple technology often causes production capacity to be sub-optimal when shrimp catches are abundant. Drying relies on sunlight; often the drying process for raw *kemplang* is not optimal and takes a long time (Rice & Rochet 2005). This is due to very dynamic water conditions, as well as the presence of climatic influences that have recently been difficult to predict (climate anomalies). Low harvest volume or harvest failures can be due to the influence of large waves, as well as the occurrence of climate anomalies such as very high rainfall or prolonged droughts.

Development strategies aim to revitalize local economic development by improving key factors: promotion of products; capital facilities; improvements in technology, management and local institutions; as well as opportunities for cooperation with similar industries and upstream-downstream industries (Petit et al 2018). The sustainability of each aspect does not reflect the status of the activity as a whole. For this reason, the index value of each aspect or dimension needs to be combined to determine the value of the multidimensional sustainability status. The use of this status has an important role in monitoring, assessing and understanding the condition of ecosystems (resources), the impact of human activities, and the effectiveness of policies in achieving management objectives (Rice & Rochet 2005; Petit et al 2018). The fairly sustainable aggregate category indicates that to improve the overall sustainability status of the activities, it is necessary to address the attributes with high sensitivity, especially aspects of the factors related to distribution and policy focus.

Based on the SWOT, one of the strategies needed to develop shrimp *kemplang* processing in Banyuasin District is to increase the production volume and make packaging innovations, so that the traditional processing system can be updated to meet market demand. To make attractive and unique packaging, the shrimp *kemplang* could use plastic packaging with a distinctive brand for the product from Sungsang 1 villages, Banyuasin district. Demand for shrimp *kemplang* has risen every year, so that there is a great opportunity for people who increase production while paying attention to the quality and the visual attractiveness of the shrimp *kemplang* product. There are still opportunities to recruit more workers to meet the high market demand for shrimp *kemplang*.

Marketing could expand both through increased direct sales (without a middleman or reseller) and by expanding the geographical extent of the market. This product has been and still is commonly consumed by many people at various events despite the relatively high selling price. This good price can be seen as an opportunity for shrimp *kemplang* processors in Banyuasin district to develop their products because of the considerable benefits in terms of the income was received by the shrimp *kemplang* processors, many of whom have regular customers. However, to expand further the producers could market directly not only to consumers but also collectors and through other trade links. The correlations with the social setting, natural environment, and customers are all part of building and maintaining markets and marketing strategies (Schmidt-Riediger 2008; Santipolvut 2015). Ways to increase the added-value when marketing include raising the perceived value to the customer through adding aesthetic, social and environmental value. In a marketing concept, the shrimp kemplang processors should analyse what customers need and want. Also, there is room for market

segmentation and targeting specific customer groups, as well as product selectivity/ diversification with attention given to strategies for marketing sustainability, as well as social and ecological sustainability.

This strategy should be implemented in a consistent manner so that it can generate consumer confidence in the product, especially in relation to perceptions of health problems related to shrimp-based products, to support the sustainable performance of *kemplang*. Many researchers have found answers for addressing similar social problems, through management of various factors correlated to social and environment attributes (Dreyer et al 2010; Frimawaty et al 2013). Whatever other features are used to promote the product, there should not be any compromise on the quality of the product. However, to make the business economically viable and sustainable the processors must tightly control the variable costs and overheads. This strategy sometimes needs a higher market share so as to obtain significant cost savings through economies of scale, in particular bulk buying of inputs and selling the product in reasonably large quantities. This is one area where the formation of groups could be beneficial. Current government policies have tended to allow businesses to run independently until they collapse, and the government does not yet have policy priorities aimed at the shrimp processing industry (Suharno et al 2017; Suharyanto et al 2018). There is a need for special attention from government, including policies on marketing issues as well as on fishermen as shrimp suppliers and the formation of cooperative groups in coastal fishing communities (Suharno et al 2017; Suharyanto et al 2018).

Conclusions. The Rapfish multi-dimensional sustainability analysis concluded that the status of shrimp *kemplang* processing in Sungsang 1 village, Banyuasin District was categorized as adequately sustainable. The sustainability index value of 2.58 indicates the need for improvement. The raw materials dimension had the highest sustainability index (3.27), while the economic dimension had the lowest value (2.02), in the less sustainable category. Based on the SWOT analysis, the shrimp *kemplang* processors in Sungsang 1 villages, Banyuasin District were in Quadrant I, indicating that a Strength-Opportunity strategy is needed, using the strength of the shrimp *kemplang* processors to take advantage of the opportunities available.

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