POTENTIAL OF SMOKED FISH INDUSTRIAL CLUSTER IN THE ISLANDS AREAS
Ariviana Lientje Kakerissa; Hendri Dony Hahury; Fredy Hendry Louhenapessy

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Abstract: Potential utilization of owned natural resources is the advantage of each region as an industrial competitiveness strategy. Moreover, each existing industry can be grouped (clustered) according to the characteristics of the industry which in turn can support regional economic growth and improve the welfare of its people. This study seeks to map of potential of smoked fish industrial cluster product in the archipelago by focusing on the Ambon Island area. The results showed that, there were 78 smoked fish industries that formed 6 (six) groups of smoked fish industry agglomerations in the Ambon Island region with an average distance between point (industrial) with its closest point is 0.208 km. A total of 78.79% or 78 points (industry) has a distance to their nearest industry which is less than the average distance. The Average Nearest Neighbour Analysis using ArcGis 10.5, found that the distribution of the fishery processing industry in the Ambon Island region has a ratio of 0.203416 with a Z-score of -15.008879 and a significance of 0.000. This ratio is within the parameters that indicate a spatial clustered pattern, which means that the distribution of smoked fish industry on Ambon Island is identified as having the potential to develop into industrial clusters.

1   Introduction

Industrial clusters are believed to have an important and strategic role in industrial development and increasing industrial competitiveness, which supported by the availability of adequate natural resources in an area. Furthermore, the existence of this industrial cluster is expected to reduce high production costs, such as raw material costs, transportation, and transaction costs. Industrial clusters can be viewed as specific groups of industry, which is linked by a network of links, the process of creating added value through business and non-business relationships. [1] argues that industrial clusters (including the fisheries sector) refer to a close and binding relationship between companies and certain industries together in various aspects. These aspects can be viewed from the geographical location, sources of innovation, suppliers, and production factor. In other words, it can be said that industrial clusters are interrelated industrial groups that encourage the creation of an "industrial area" in an area through the activities of exporting goods and services [2].

The Moluccas region itself has many islands with an ocean area larger than the mainland, which make Moluccas a rich area in fisheries and marine potential [3]. A data from [4], shows that Moluccas Province has an area of 46,914.03 km2 which consist of 92.4 percent of the ocean area and 7.6 percent of the land area with reach to 1,392 islands. Ambon as the capital of Moluccas province, which is

located on the island of Ambon, has played an important role in various aspects of people's lives including the development of industrial centers. Based on fishery data from Ambon City in 2022, the existing aquaculture production includes seawater and freshwater aquaculture. In 2019, marine aquaculture commodities including grouper, trevally fish and snapper, with a total production of 124.94 tons. Meanwhile, freshwater fish farming commodities include carp, tilapia, and catfish with a production volume of 49.80 tons. Meanwhile, from the aspect of fishery investment in Ambon city in 2019, there were 30 companies engaged in marine and fishery business with processing, frozen and fresh product types. Data on processed fish products in the city of Ambon was recorded in the form of smoking and frozen with the production volume of processed smoked fish of 3,828.32 tons and frozen processing of 4,461.69 tons.

Regarding the potential of the fisheries sector, the same picture is also expressed by [5] which mentioned that the potential of fishery resources in Moluccas reaches 1,640,160 tons per year. Nevertheless, the reality proves that, until now, Ambon City and Ambon Island do not yet have a fishing industry that can be used as a strategic sector for regional economic growth through the contribution of income and employment. In this context, the author thinks that the existence of Ambon City, which is supported by the ownership of such large potential fishery resources, should have a fishing industry area that can be used as a

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POTENTIAL OF SMOKED FISH INDUSTRIAL CLUSTER IN THE ISLANDS AREAS
Ariviana Lientje Kakerissa; Hendri Dony Hahury; Fredy Hendry Louhenapessy

strategic sector, however, this situation is the exact opposite.

In other words, it should be with a large fishery production potential as mentioned above and supported by the presence of fish catching and landing centers scattered in several locations on the island of Ambon, such as in Laha, Hitu, Waai and Latuhalat [6], then the island of Ambon should have a fishing industry grouping or what is known as a cluster. [7] research, in South Korea, revealed that the development of a fishing industry cluster must consider several aspects, for governance structure of local government and delegation of authority to the government below them. This includes the management of fishing ports which have a strategic role in the fishing industry cluster [8]. Meanwhile, the study of [9], found that, in the development of industrial clusters, the creation of markets and financial support through government's role is absolute and very important. Things that are different but have a significant impact on the development of industrial clusters are shown through research by [10] that managerial problems, public partnerships, and even social barriers are problems that are often faced in the process of developing industrial clusters. Furthermore, [1] mentioned that clusters show a very close relationship that binds certain companies and industries together in several general aspects such as geographic location, sources of innovation, suppliers, production factor and others.

Meanwhile, the study of [11] mentioned that the cluster approach in managing regional development is a new management technology that allows the increasing of competitiveness of the region or industry, as well as the country. This is supported by the research of [12] which mentioned that the formation and operation of fishing clusters will allow to achieve a synergistic effect through a single production, technology base, infrastructure, as well as through the distribution of shared resources which will produce the following economic effects for the regional economy, which is increase the competitiveness of fish products, increase the share of added value in products sold to external and domestic markets, stimulate innovative potential, increase staff, and increase economic employment in the region.

On the other hand, [13] in their research also mentioned that if the state has the capacity to stimulate the formation of clusters that have the potential for economic development, which can become points of growth, it is advisable to use an appropriate public administration economic mechanism because the cluster objectively has all the advantages that economic integration affords on the basis of cooperative ties.

Based on the trajectory of the studies related to the cluster above, it shows the focus on managerial issues, partnerships, and government support [9-10]; local government governance [7-8]; regional economic development and increasing regional and industrial competitiveness [11-13].

In fact, the existence of industrial clusters in an area has a relationship with the potential of available natural resources as a means of sustaining the development of industrial clusters starting with the support of natural resources. This condition is quite reflected in the existence of the island of Ambon which has abundant natural resources in the fisheries sector [5-6] but until now the existence of industrial clusters on the island of Ambon is not yet available. For this reason, this study tries to offer a potential map of smoked fish clusters through the formation of industrial clusters. Thus, this study contributes to the development of industry in the archipelago as well as small and medium-sized industrial enterprises and increasing regional competitiveness.

2 Methodology

This study uses a quantitative method with the approach of Average Nearest Neighbour. The research locations on the island of Ambon include Nusaniwe District, Sirimau District, Baguala District, Teluk Ambon District, Leihitu District and Tulehu Village, Salahutu District. This research was conducted for 9 months, starting from October 2021 to June 2022. There are considerations for choosing the location of this research are as follows: a). most of the people who live in the area are on the coast and make a living as fishermen, b). There are quite a lot of smoked fish industrial centers in these areas, c). There is support for abundant fish raw materials.

Then, the data collection process was carried out through in-depth interviews, observations and questionnaires. The interview process was carried out by means of direct interviews with the business owners of the smoked fish industry spread throughout the island of Ambon, as well as to the related of government agencies that support the smoked fish production and marketing process; Observations are made to directly see the process of producing and marketing smoked fish, both at the location where the industry is located, as well as to the target markets for product sales; The questionnaire is used to determine the supporting institutions that support the production process and the survival of the smoked fish small and medium industry. Furthermore, data has been collected was analysed by using Average Nearest Neighbour analysis which using ArcGIS 10.5. The Average Nearest Neighbour analysis aims to determine the distribution pattern of the smoked fish industry on the island of Ambon.

3 Result and discussion

3.1 *Potential of fishery industry on Ambon Island*

Fisheries activities on the island of Ambon are dominated by fishing activities at sea. This is caused by the geographical condition of the island of Ambon which is indeed surrounded by the ocean so that at any time fishermen can carry out fishing activities taking into account the condition of the season (weather). Ambon

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POTENTIAL OF SMOKED FISH INDUSTRIAL CLUSTER IN THE ISLANDS AREAS
Ariviana Lientje Kakerissa; Hendri Dony Hahury; Fredy Hendry Louhenapessy

Island experiences two seasons, namely the west and east monsoons.

When the west season arrives, fishermen have a great opportunity to catch fish with fishing grounds up to the Banda Sea. Meanwhile, during the east season, fishermen will move to Ambon Bay. Data from [14] in 2022 shows that Fishery Households (RTP) in Ambon City are 3,820 RTPs with fishing boats in various sizes as many as 2,475 boats. Furthermore, BPS data in the same year also shows that the ownership of fishing boats at the landing center in Ambon City is 2,493 units. Meanwhile, fishing gear owned consists of various types, for example beach trawl (17 pieces), ring trawl (89 pieces), gill nets (630 pieces), lift nets (515 pieces), huhate (541 pieces), tug fishing line (368 pieces) as well as nets, traps, scoops (1,832 pieces).

The various conditions which described above, shows that Ambon Island has a quite large industrial potential in the fisheries sector to be developed. In fact, field findings show that there are numbers of fishery processing industries scattered throughout the island of Ambon. The fishery processing industry can be categorized as traditional or modern. The traditional fishery processing industry is generally still carried out by the community using traditional methods or based on knowledge from previous generations. Meanwhile, modern fishery processing has used production facilities with machines. The fishery processing industry on the island of Ambon consists of the frozen fish industry and smoked fish industry as shown in table 1 below.

Table 1 Potential of fishery industry in Ambon island region

Fishery Industry	Quantity
Frozen Fish Industry	42
Smoked Fish Industry	99

Data source: Research Results, 2022

This fishery processing industry consists of small-scale industries (IKM) or individual industries to large-scale industries and business entities whose products have been exported. The detailed data on the fishery processing industry can be seen in the following table 2.

Table 2 Grouping of fisheries industry in Ambon Island region by type of business entity

No.	Type of Business Entity	Number	Type of Industry
1.	Perseroan Terbatas (PT)	31	Frozen Fish
2.	Perseroan Komanditer (CV)	8	Frozen Fish
3.	Usaha Dagang (UD)	2	Frozen Fish
4.	Koperasi	1	Frozen Fish
5.	Perorangan dan Kelompok (IKM)	99	Smoked Fish

Data Source: Research Data, 2022

3.2 Identification of potential smoked fish industrial clusters on Ambon Island

Cluster has a literal meaning as a collection, group, set, or combination of certain objects that have similarities or based on certain characteristics. Findings in the field indicate similarities in the production process as well as several other factors in the smoked fish industry on the island of Ambon. In this study, the identification of potential industrial clusters for 99 smoked fish industries was carried out in the Ambon Island region. Based on the data on the location of the smoked fish industry on the island of Ambon mentioned above, the position or location of the company can be mapped as shown in the picture below (Figure 1).
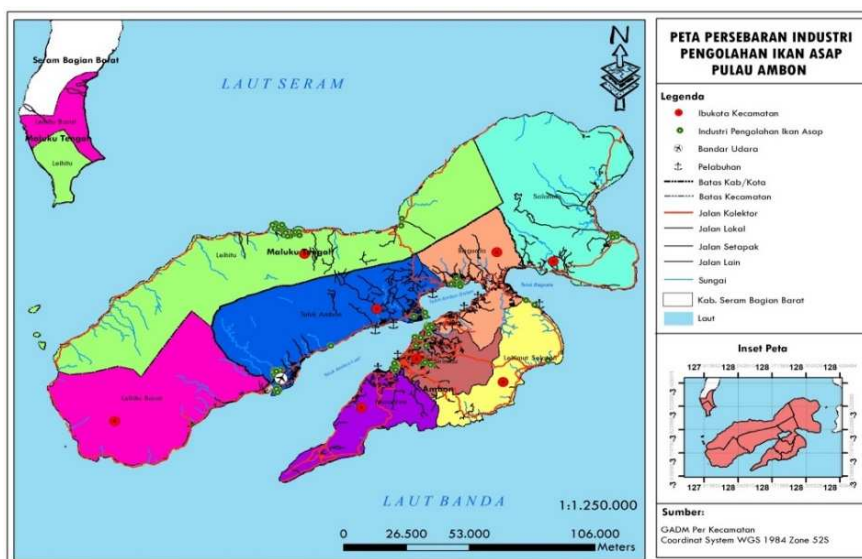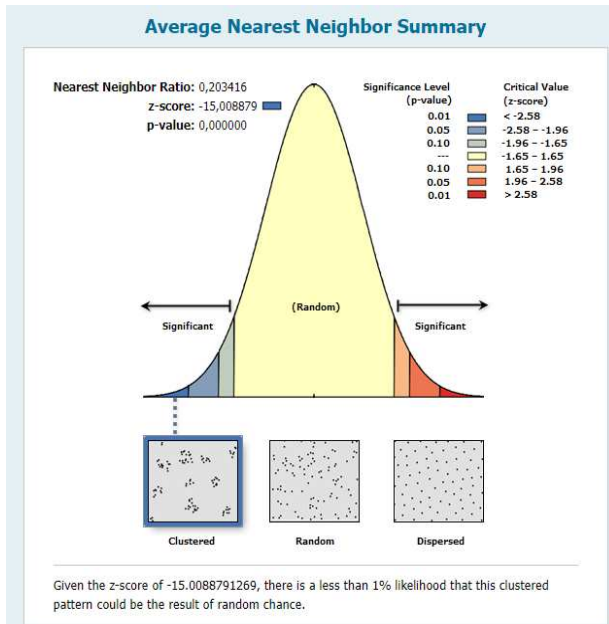

Figure 1 Distribution Map of Smoked Fish Industry on Ambon Island
Source: Research Data, 2022

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POTENTIAL OF SMOKED FISH INDUSTRIAL CLUSTER IN THE ISLANDS AREAS
Ariviana Lientje Kakerissa; Hendri Dony Hahury; Fredy Hendry Louhenapessy

Industry groupings or agglomerations can be identified by mapping the distribution of the 99 smoked fish industries in the Ambon Island Region and assessing the ratio of their closest neighbours. The results of the Average Nearest Neighbour analysis using ArcGIS 10.5, it was found that the distribution of the smoked fish industry in the Ambon Island region has a ratio of 0.203416 with a Z-score of -15.008879 and a significance of 0.000. The ratio is within the parameters that indicate a spatial clustered pattern.

Figure 2 Analysis results of average nearest neighbour smoked fish industry in Ambon Island region
Data Source: Research Data, 2022

The next analysis is carried out by calculating the comparison of the number of points (industry) which tend to be clustered and random. The average distance between the (industrial) point and its closest point is 0.208 km. A total of 78.79% or 78 points (industry) has a distance to their nearest industry less than the average distance. These results indicate that the comparison of the number of industries that tend to cluster is bigger than the number of industries that tend to be random.

This view is supported by the Cluster Life Cycle theory according to [15], where industrial clusters at the embryonic stage are characterized by a comparison of the number of industries that clustered together more than similar industries which are randomly distributed. Then, the embryo cluster can develop to strengthen the cluster's focal point, which is indicated by the growth in the number of business units exceeding the growth of business units in the same non-clustered sector. The emergence of an industrial cluster cannot be separated from the symptoms of industrial agglomeration that can be formed due to the concentration of production factors. [16] even realized that clusters can undergo an evolutionary process from the beginning of their emergence to its decline.

Based on his study of industry in Italy, [17] identified that industrial clusters have evolved over time. There are three stages in the industrial cluster cycle, which are:

a. Embryonic: groups of companies in the same industry, or in related industries, can be considered a potential group; limited to local/regional markets; companies that work as subcontractors for large companies.
b. Consolidation: activate the innovation mechanism; expanding market; increasingly specialized companies and begin to acquire identity as a cluster.
c. Mature: achieve high endogenous innovation capacity; international market; focus on increasing product value and level of specialization.

[18] describe the cluster life cycle as follows:
a. Agglomeration: an area with several clustered companies.
b. Emerging Cluster: As a cluster embryo, several actors in the agglomeration are connected, cooperate with each other, and realize common opportunities.
c. Developing Cluster: New and related companies are emerging near the location of the agglomeration. Institutions began to emerge.
d. Mature Cluster: Cluster member has reached critical mass. Clusters are also starting to build relationships with clusters in other areas. The dynamics of creating new companies with start-ups, joint ventures, and spin-offs.
e. Transformation: Over time, markets and technologies change, as do clusters. In order for the cluster to avoid

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POTENTIAL OF SMOKED FISH INDUSTRIAL CLUSTER IN THE ISLANDS AREAS
Ariviana Lientje Kakerissa; Hendri Dony Hahury; Fredy Hendry Louhenapessy

stagnation and decline, the cluster must be able to innovate and adapt through change. Adaptation can be in the form of transformation into new, more specialized clusters.
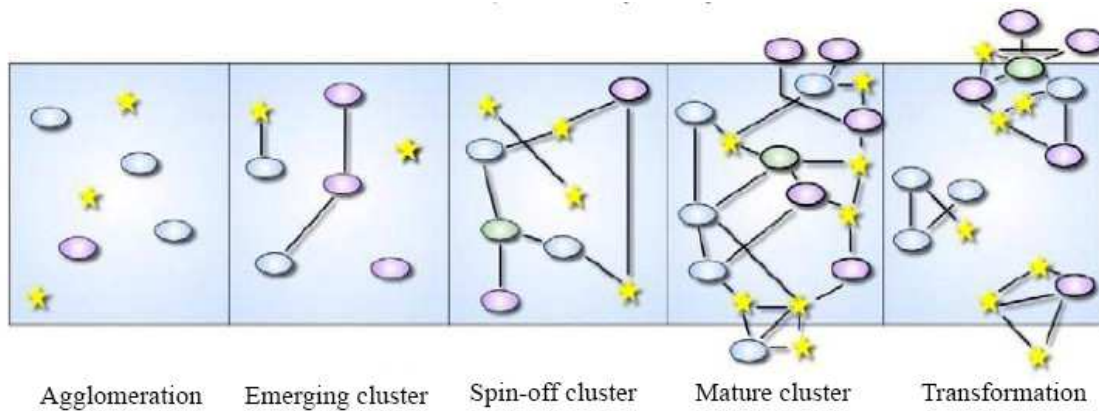

Figure 3 Cluster Life Cycle [18]

[18] explain that clusters are formed from spatial agglomerations of similar and related economic activities which form a basis of local environments that can facilitate knowledge gathering and stimulate various forms of learning and adaptation. This cluster is generally formed by SMIs and the core of their success is centered on the strength of social capital and geographical proximity. [15] divide the cycle stages into four, namely cluster embryo, growth stage, survival (adult cluster), and decline stage. According to [15], it is quite difficult to identify at the embryonic stage, because the shape of the cluster does not resemble an ideal cluster.

Cluster embryos usually only contain a few business units with a fairly small number of employees, but enough to show the orientation of a particular product. Industrial agglomeration can be the beginning of the formation of clusters. According to [15,17,18] not all industrial agglomerations can develop into clusters. There are different prospects or potentials in the industrial agglomerations that are formed to evolve into clusters. The potential for agglomerations to develop into clusters can be assessed based on the following criteria.

The potential for agglomeration to be developd into a cluster if it is associated with the Cluster Life Cycle theory, can shows at which stage the agglomeration of the industry is. The following map illustrates the strengthening of the focal point of smoked fish industry cluster embryos in the Ambon Island region.

Table 3 Assessment criteria

Aspect	Indicator	Source
Size of Agglomeration	The more concentrated the number of business units, the more potential	[17] [19]
Actors involved	• Completeness of related actors (horizontally and vertically) with industry agglomeration • The more concentrated the actors, the more potential	[16] [17] [18] [15]
Form of relationship between actorr	• Mechanism of relationship between actors • Condition of vertical relationship (industry with its suppliers and distributors) • Conditions of horizontal relations (industry with institutions)	[17] [18] [15]
Marketing Reach	The wider the marketing reach of the product, the more potential it has	[17] [18] [15]

Source: Research Data, 2022

Acta logistica   - International Scientific Journal about Logistics
Volume: 9 2022 Issue: 4 Pages: 457-466 ISSN 1339-5629

POTENTIAL OF SMOKED FISH INDUSTRIAL CLUSTER IN THE ISLANDS AREAS
Ariviana Lientje Kakerissa; Hendri Dony Hahury; Fredy Hendry Louhenapessy
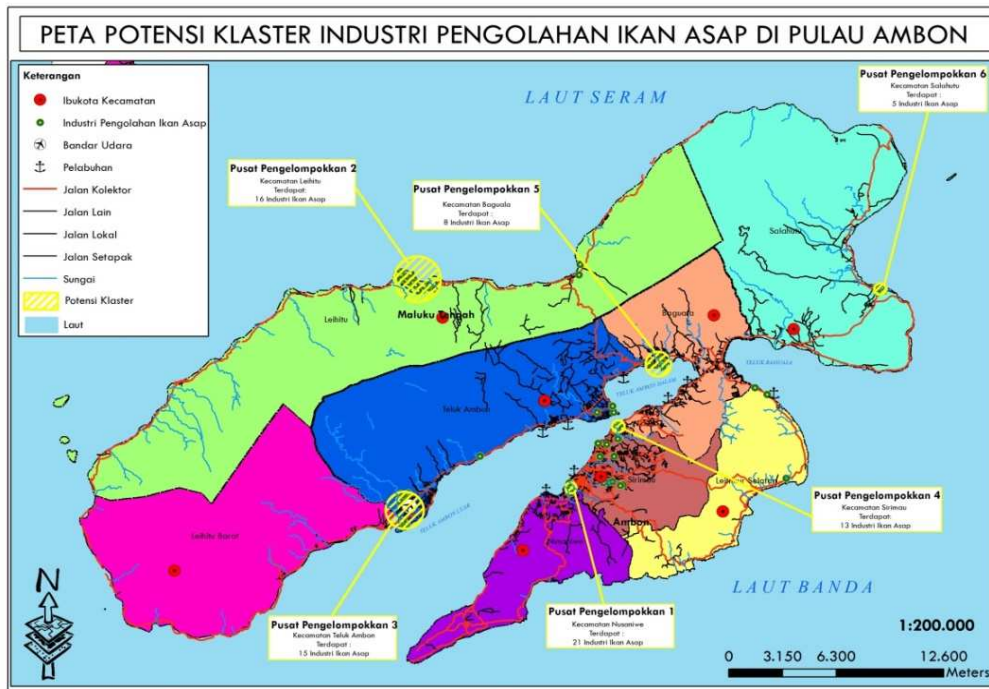
Figure 4 Center for grouping/agglomeration of smoked fish industry in the Ambon Island region
Source: The results of data processing using ArcGis 10.5

The above map shows that there is a strengthening of the focal point or the formation of a grouping center for the smoked fish industry in the Ambon Island Region. There are 6 (six) centers for grouping or agglomeration of smoked fish industries in the Ambon Island Region, which is 21 industries in Nusaniwe District, 13 industries in Sirimau District, 8 industries in Baguala District, 15 industries in Teluk Ambon District, 16 industries in Leihitu District. and 5 industries in Tulehu Village, Salahutu District.

In its production process, the agglomerated smoked fish industry establishes good relationships, vertically (with suppliers and distributors) and horizontally with other institutions which aim in improving business and consulting mechanisms. The following institutions that are horizontally related to the smoked fish industry in the Ambon Island Region are the Regional Government through the Marine and Fisheries Service and the Industry and Trade Office, as well as the Cooperatives and MSMEs (Provincial and City/Regency) Service in the form of production facilities assistance, such as fumigation equipment, fresh fish storage equipment, raw materials for packaging, labour assistance, capital assistance, and others, Banking in this case Bank Rakyat Indonesia, Universities and other Institutions.

Regarding the relationship with the determination of potential suppliers, the determination of industrial clusters can not only rely on the intuitive nature of determining potential suppliers but it also requires scientific steps involving the mathematical principles of decision making which involving multi criteria [20]. To assess the potential of smoked fish industry agglomerations in their development into clusters, the following is a description of each smoked fish industry agglomeration in the Ambon Island Region, based on the theoretical principles of industrial clusters.

1. Agglomeration size: the number of business units, each in cluster I as many as 21 industries, in cluster II as many as 16 industries, in cluster III as many as 15 industries, in cluster IV as many as 13 industries, in cluster V as many as 8 industries and in cluster VI as many as 5 industries.
2. Parties involved:
   a. The Parties in the vertical relationship in the six clusters formed are the same, including:
      - Fishermen
      - Fish processing industry
      - Fish processing unit
      - Fish collector
      - Fish retailer collector
      - Raw material suppliers
      - Supporting material suppliers
      - Production tools and machines suppliers
      - Exporter
      - Local distributors
   b. Parties in a horizontal relationship include:
      - Fishing industry
      - Department of Industry and Trade of Moluccas Province
      - Department of Maritime Affairs and Fisheries of Moluccas Province

Acta logistica   - International Scientific Journal about Logistics
Volume: 9 2022 Issue: 4 Pages: 457-466 ISSN 1339-5629

POTENTIAL OF SMOKED FISH INDUSTRIAL CLUSTER IN THE ISLANDS AREAS
Ariviana Lientje Kakerissa; Hendri Dony Hahury; Fredy Hendry Louhenapessy

- Department of Industry and Trade of Ambon City
- Ambon City Maritime Affairs and Fisheries Service
- Department of Industry and Trade of Central Moluccas Regency
- Department of Marine Affairs and Fisheries of Central Moluccas Regency
- Bank Rakyat Indonesia
- Universities
- Other Institutions

3. Collaboration between parties:
   a. Vertical relationship: production chain, including supplier-industry-distributor/consumer relationship, which is related to distribution and marketing mechanisms.
   b. Horizontal relationship: relationship between businesspeople and institutions which includes:
      - The Department of Industry and Trade, as well as the Department of Marine Affairs and Fisheries at the Provincial and City and Regency levels in terms of policies and regulations, information on capital assistance, infrastructure assistance, appropriate technology, product marketing, business assistance.
      - Bank Rakyat Indonesia: partner in capital and infrastructure assistance.
      - Universities: project oriented.
      - Other Institutions: Joint Venture Cooperatives (KUB) and Cooperatives.
   c. Results of collaborations between parties:
      - Vertically:
        - Mechanism: joint distribution and marketing
      - Horizontally:
        - Government: There are regulations and policies related to the business world
        - There is a donation of production equipment for IKM
        - There is a capital loan for SMEs
   d. Marketing reach: on average 97% of products are sold to meet local market demands and the remaining 3% are sold as souvenirs to another region.

Based on the completeness of parties involved, all industrial agglomerations have potential as indicated by the involvement of parties both vertically and horizontally. Another potential is also shown by the emergence of attention from local governments to all industrial agglomerations that are formed, even though they are not evenly distributed in form and number. Industrial agglomeration has also been able to attract higher education institutions and the City-Regency Government, through related agencies. The response from this institution influences the emergence of innovation in the production process and business management. Universities help SMEs through the provision of fish smoking equipment. Each local government also provides technical assistance and training for the fishery processing industry in their respective administrative areas.

In addition, each IKM also exchanges information informally regarding the production process and solves problems together. This shows the close relationship between industry players in this agglomeration. According to [18], this condition shows that this industrial agglomeration is entering a developing phase which is marked by the active participation of related institutions. If referring to the cluster life cycle theory according to [15], the emergence of collective activities indicates that the cluster has entered a growing phase. On the other hand, there are still smoked fish industry agglomerations that have not been able to attract responses from various cluster supporting institutions, for example in industrial agglomerations V and VI. Meanwhile, the existence of institutions according to [16] is one of the important components to stimulate innovation.

3.3 Potential of smoked fish industry cluster in archipelago region

The industrial cluster is an approach which is considered appropriate for economic development in an area and in accordance with the current dynamics of the development of the business world. By strengthening industrial clusters, an area (region or country) has more opportunities to develop its best potential and compete in the global industry. Clusters as an approach have proven to be increasingly accepted in development approaches that involve grouping patterns, both industry and infrastructure, so that the nature of clusters will be increasingly used. With regional autonomy, urban development will occupy a central place in regional development, the implication is that the construction of business premises is an important component of urban economic life in the region. Therefore, the cluster approach will be part of the model development in each region. In line with this, optimal agglomeration must produce synergies for efficiency and sustainable progress for competitiveness, successful cluster brings efficiency and sustain progress for better competitive strength [21].

In line with the definition of an industrial cluster put forward by [22] as a group of companies that are interconnected because of togetherness and complementarity and are geographically close to related institutions in a specific field, the existing smoked fish Small and Medium Industries (IKM) on the island of Ambon is considered to have a collaborative cooperative relationship and create synergies which is to increase competitiveness. This can also be seen from the active participation of all stakeholders, namely the core industry, related industries, and supporting industries in the cluster. So, it can be said that the synergy of all partner activities (companies, universities, governments and research centers) in the cluster can determine the social and

Acta logistica   - International Scientific Journal about Logistics
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POTENTIAL OF SMOKED FISH INDUSTRIAL CLUSTER IN THE ISLANDS AREAS
Ariviana Lientje Kakerissa; Hendri Dony Hahury; Fredy Hendry Louhenapessy

economic development of a region to be more stable and competitive, both at the regional, national and international levels [23].

By analysing the participation of stakeholders involved in the smoked fish industry and based on the Porter's Diamond Model, a map or a design of a cluster model of the smoked fish industry on the island of Ambon can be made and can be used as a reference for other areas that are geographically similar to the island of Ambon as an archipelago. The creation of the "new industrial area" is inseparable from the existence of globalization which has enormous impacts and challenges for developing countries in the world [21-22]. The emergence of new challenges in the form of new industrial areas is more aimed at increasing competitiveness and as well as maintaining and developing economic activities sourced from local resources owned by each region [26-28]. This makes the form of cluster management and development in each region different and tends to develop at the regional level based on existing economic realities [29-31].

In general, Michael Porter defines an industrial cluster as a geographic concentration with related entities in a specific field that is the goal of clustering. With this definition, an industrial cluster can include suppliers of raw materials and other inputs from upstream to downstream in the form of marketing to potential markets. Clusters also include government agencies, business associations, service/research providers, and other institutions that support the "added value" of the specific field which is being clustered [22].

[16] argue that the industry in a region/country excels not from its own success but is the success of the group with the interrelationships between companies and supporting institutions. A group of companies and institutions in an industry in an area is called an industrial cluster. In the industrial cluster, the companies involved are not only large and medium-sized companies, but also small companies. The existence of industrial clusters will stimulate the occurrence of new businesses, new jobs, new entrepreneurs who are able to rotate new loans. Based on the description above, it can be believed that the cluster approach is an effective approach for industrial development.

Clusters represent all added value from suppliers to final products including supporting services and infrastructure. The cluster concepts are based on three main concepts, namely:

1. The Concept of Economic Geography (Economic Geography Concept)
   This concept is based on the territorial characteristics and environmental functions of companies that focus on identifying the characteristics or location factors that influence the selection of industrial locations. As a result, when viewed from a macro perspective, the behaviour of each company is not explicitly modelled but can be seen from the behaviour of the company as a whole [32-33].

2. Organizational Concept
   This concept considers the behaviour of each company based on the company's internal and environmental factors [34-35]. According to Scott, what underlies the emergence and growth of a cluster is the transaction cost approach. While Harrison's concept is based more on social economic theory (Social Economic Theory).

3. Strategy Concept (Strategy Concept)
   The selection of a company's location is inseparable from the company's strategy. The internal condition of a companyl, territorial, and environmental conditions are considered at various levels. This concept is supported by [24] and [36]. Porter mentioned that companies can increase their competitiveness through the formation of clusters with the assumption that competitiveness depends on the ability to innovate and upgrade. Storper stated that companies can compete if they carry out a dynamic production system, which is always adjusting production techniques without increasing production costs.

4 Conclusion

The results of this study conclude that there are 78 smoked fish industries that make up 6 (six) groups of smoked fish industry agglomerations in the Ambon island region with the average distance between the point (industry) and the closest point is 0.208 km. A total of 78.79% or 78 points (industry) has a distance to their nearest industry less than the average distance. These results indicate that the comparison of the number of industries that tend to cluster is bigger than the number of industries that tend to be random. The results of the Average Nearest Neighbour analysis using ArcGis 10.5, found that the distribution of the fishery processing industry in the Ambon Island region has a ratio of 0.203416 with a Z-score of -15.008879 and a significance of 0.000. The ratio is within the parameters that indicate a spatial clustered pattern. This means that the distribution of smoked fish industry on Ambon Island has been identified as having the potential to develop into industrial clusters. This potential is demonstrated through phases in the life cycle of industrial clusters which are assessed based on aspects of agglomeration size, completeness of parties involved, forms of collaboration between parties, and marketing reach. The size of the agglomeration includes the number of Smoked Fish Small and Medium Industries (IKM) on the island of Ambon, each in cluster I as many as 21 industries, in cluster II as many as 16 industries, in cluster III as many as 15 industries, in cluster IV as many as 13 industries, in cluster V as many as 8 industries and in cluster VI as many as 5 industries. The completeness of the actors involved is indicated by the large number of industries and companies involved both vertically and horizontally. The smoked fish Small and Medium Industries (IKM) on the island of Ambon is considered to have a collaborative cooperative relationship and create synergies which is to increase competitiveness. The

Acta logistica — International Scientific Journal about Logistics
Volume: 9 2022 Issue: 4 Pages: 457-466 ISSN 1339-5629

POTENTIAL OF SMOKED FISH INDUSTRIAL CLUSTER IN THE ISLANDS AREAS
Ariviana Lientje Kakerissa; Hendri Dony Hahury; Fredy Hendry Louhenapessy

marketing reach shows that 97% of smoked fish products are sold to meet local market demands and the remaining 3% are sold as souvenirs to another region. By analysing the participation of stakeholders involved in the smoked fish industry and based on the Porter's Diamond Model, a map or a design of a cluster model of the smoked fish industry on the island of Ambon can be made and can be used as a reference for other areas that are geographically similar to the island of Ambon as an archipelago.

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