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Network governance in value chain management of traditional fisheries industry

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Abstract

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Network governance in value chain management of traditional fisheries industry

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Abstract. Indonesia is one of the countries having the longest coastlines in the world. However, the productivity in fishing industry less contributes to the Gross Domestic Product (GDP). Besides, fishermen along the coastlines in Indonesia have a relatively very low standard of living. This study aimed to determine the role of network governance in the value chain of traditional fisheries industry on the coastal region of Cilacap, Central Java.This research was an exploratory study with the objective of exploring the concept of network governance in the traditional fisheries along the offshore Nusa Kambangan coast, Cilacap, Central Java. The sampling method used in this study was non-probability sampling with purposive sampling technique. The data collection techniques were observation, interviews, questionnaires, and documentation.The results of this study were expected to be able to get the actual value chain of wild fisheries off the coast of Nusa Kambangan, so that they can provide suggestions on the network governance model in the value chain of the traditional fisheries industry.

1 Introduction

Indonesia's economic growth continued to increase in the decade of 2006 to 2016. The economic growth was supported by the development of new economic zones. We saw that this activity was expected to be able to increase new economic growth areas. The central government tried to make a package of economic policies to increase economic growth in the new region so that the distribution of wealth was not only spread across the island of Java. The Nawa Cita (nine development goals) program created by the central government was expected to be able to build new economic zones in areas of 3 T, Terdalam (Inmost), Terluar (Outermost), and Terpencil (Remotest). The development of the areas was expected to be able to reduce income inequality between the people with low and high income. The efforts of the central government in resolving various economic problems of the community need to be appreciated. The appreciation was carried out with the support of various layers of society, both businessmen and local governments.

The central government is trying to build road, port, airport, and other infrastructures. However, was the infrastructure development in line with the improvement in the living standards of the people in the areas? The question is a fundamental thing that must be

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answered by stakeholders, considering the purpose of development is to improve the welfare of the people, especially traditional fishermen. The program was considered futile when traditional fishermen along the coasts in Indonesia couldn't use these infrastructures. The program will not be enjoyed by traditional fishermen if the productivity in obtaining wild fisheries does not have a competitive advantage compared to other countries in the ASEAN region. The enactment of the ASEAN Economic Community (AEC) at the end of 2015 marked a reduction of government protection of Indonesian businessmen, including traditional fishermen. The central government also can no longer protect traditional fishermen from the entry of foreign companies in the fisheries sector, where they have the resources and technology that are far superior to the resources and technology possessed by local fishermen along the Indonesian coastlines. The concern is that we import fish, especially from countries in the ASEAN region, which have opened a marine fishing industry since the introduction of the AEC in early 2016.

The construction of such infrastructures must be able to sustain and enhance the competitive advantage of traditional fishermen in Indonesia. If the productivity of traditional fishermen is still relatively lower than that of the fishermen of other ASEAN countries, it means the infrastructures are mostly used by foreign multinational companies to enter and take market share in the country. Therefore, the role of various stakeholders is needed so that traditional fishermen have a competitive advantage in order to excel from foreign products. Competitive advantage can be realized with a holistic understanding of the value chain of the products. In this context, it is needed the value chain of fisheries industry. However, the value chain could not be fulfilled by fishermen, considering they have a variety of resource limitations. The most possible thing is to implement network governance in the management of the fisheries industry.

As it has been known, the purpose of the economic policy package is to improve people's welfare, which in this case is through the construction of fishing port infrastructure to reduce logistics costs. With the reduction in logistics costs, the prices of various fisheries commodities as industrial raw materials can be reduced. The decrease in the prices of the raw materials is expected to increase the competitive advantage of fisheries products. However, if the scale of production from traditional fishermen is low, the development of various supporting infrastructure is considered to have less impact. It means that if the orientation of the local or regional entrepreneurs has not been oriented to the national market or even to export, then the goal of infrastructure development has not been achieved. Therefore, the main issue in wild fisheries products is how to increase the productivity and competitive advantage of traditional fishermen in Indonesia.

The production capacity of fish caught by traditional fishermen must be increased so that the product expansion to other regions or countries can enter economies of scale. In this case, traditional fishermen at the local level cannot compete against medium and large-scale companies. Large-scale companies have the supports of superior and specialized human resources, technology, and company infrastructure that is far better than traditional fishermen. In such situations, traditional fishermen cannot compete with large-scale companies from within and outside the country. Moreover, traditional fishermen are currently faced with a fundamental problem, i.e., that the majority of traditional fishermen are still not incorporated. These conditions make traditional fishermen not have a competitive advantage to face large-scale companies. The competitive advantage of a business organization is determined by the extent of its ability to manage its value chain. The higher the ability to manage the value chain, the higher the competitive advantage of a company. Meanwhile, to develop organizational value chain management in an integrated manner, various resources are needed, i.e., raw materials, technology and human capital.

Peter Drucker stated, "Management is getting things through other people." Therefore, in principle the implementation of management science can only be carried out by the

organization and cannot be implemented without an organization. If most traditional fishermen still do not apply organizational principles, i.e., vision, mission, and goals, impersonal relationships are more dominant than personal relationships, formal relationships are more dominant than non-formal relationships, and right man in the right place and are relatively permanent or long-term. Therefore, increasing the competitive advantage of traditional fishermen is done by converting from non-organizational to organizational, as can be seen in the picture below:

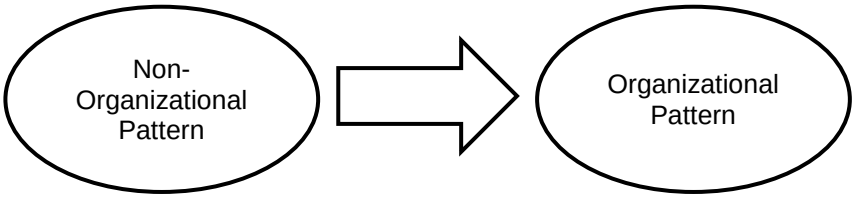


Fig. 1. The change of traditional fisheries management pattern.

This study aimed to obtain an actual value chain analysis model in the wild fisheries industry in Cilacap, Central Java. The reason for choosing the location was because Nusa Kambangan is one of the fish catching areas with relatively good fishing port infrastructure, so that it can be used as a role model for the development of network governance for fishermen in other regions in Indonesia. The results of this study were also expected to provide education to traditional fishermen, so that they are able to change from non-organizational to organizational management with the use of modern management science. It was hoped that by changing the management pattern towards the organization through network governance, it would be able to increase the productivity of wild fisheries, because of the application of knowledge of business organization management. The implementation of network governance was expected not only to increase fish catch productivity, but also to process the fish, to market them, and distribute them without ignoring the ecosystem.

Network governance is management based on the network. In the process, the governance of the network functions to build the value chain of an industry in a holistic and integrated manner. To build network governance in the context of traditional fisheries industry, it is required entrepreneurship-based leadership in the traditional fishing group. This study aimed to build a network governance model in the traditional wild fisheries value chain in Indonesia.

2 Theoritical

2.1 Wild fisheries production factors

To understand how to increase fisheries production, it is necessary to know various variables that form the basis for increasing fisheries production. In classical economic theory, the factors of production consist of natural resources, human capital, capital, and entrepreneurship. Thus, network governance aims to coordinate, integrate and synchronize these production factors in the value chain to improve competitive advantage.

This research focused on how to build leadership and entrepreneurship as the determining factors in developing network governance in the traditional fishing group. These three variables were to be explored to get dimensions and indicators to measure them. If the indicators are considered to have precision, then generalizations can be made for further research.

2.2 Entrepreneurship-based leadership in managing micro, medium and small enterprises (MSMEs)

2.2.1 Leadership

Leadership is the center for understanding entrepreneurial growth when the businesses develop with facilities of both individual and group efforts (Ensley et al., 2006). Entrepreneurial leadership is explained as the influence and regulator of the performance of a group of people involved and having entrepreneurship opportunity to achieve organizational goals (Gupta et al., 2004: 2420). Leadership is a group activity as well as the value of the team leader which has an influence on the company's strategy and results (Carpenter et al, 2004). Leaders in traditional fisheries / MSME groups have a high degree of flexibility in the organization and have a greater impact on the company's behavior and results in entrepreneurial leadership in small companies (e.g. Coglister and Brigham, 2004; Cope et al., 2011; Leitch et al., 2013; Ling et al., 2008). To understand the impact of leadership on MSMEs, this study used cognitive and motivational dimensions of the MSME leaders. Entrepreneurial cognition is related to people's mentality as the models used to make judgments or decisions involving the evaluation of opportunities, business creation, and growth. In entrepreneurship, knowledge has a positive influence on the number of markets (Gruber et al, 2008, 2012, 2013; Ucbasaran et al, 2009).

A MSME led by a team can improve their opportunity identification capabilities. The team consists of people with technical experience, marketing, as well as managerial and entrepreneurial experience to identify more opportunities. Intention is a motivating factor that influences behavior; it can be indicated from how much people's effort to do something when they experience difficulties. Entrepreneurs differ in terms of orientation and intention towards growth (Dutta and Thornhill, 2008). Furthermore, intention to grow (defined as aspiration and hope) predicts growth (Barringer et al., 2005; Delmar and Wiklund, 2008; Wiklund, Koryak et al., 1995, and Shepherd, 2003a).

Various studies show that entrepreneurial intentions depend on two antecedents: perceived desires and feasibility. The perceived desires are measured by individual attitudes to taking risks, taking autonomy decisions, work effort, and enjoyment of work (Chen et al., 1998; McGee et al, 2009). Feasibility is measured by entrepreneurial self-efficacy, that is, the strength of one's belief that he is able to successfully carry out various roles and tasks of entrepreneurship (Chen et al., 1998). Self-efficacy increases the focus, direction, perseverance, and intensity of action. Entrepreneurs with high self-efficacy believe that they have all the resources in themselves and in their hands to achieve their task goals (Chen et al., 1998).

According to Miftah (2007: 31), there are three main factors that influence the determination of entrepreneurs about which leadership behaviors to use to make decisions: entrepreneurs personality strength, strength in the subordinates, strength in leadership situations. The whole point of entrepreneurial leadership is that the entrepreneur can generate the best from each individual, team and organization. Remember that entrepreneurial leadership is: instilling the belief to think, behave and act in an entrepreneurial manner with a mindfulness of the real goals of the organization for profitable growth for all stakeholders involved.

2.2.2 Innovation

Drucker (1985), the father of management science, introduces innovation as a special tool for entrepreneurs that enables them to use change as an opportunity to offer services, and view innovation as an organizational capability that can be learned and applied. The most

important thing from Drucker's definition is the organizational innovation capability that entrepreneurs can learn to turn threats into opportunities to gain profits. In the same context, Nohria & Gulati (1996) defined innovation as an acceptance of any policy, program, structure, market or product that is deemed appropriate by the manager. Innovation as the formation, acceptance, and implementation of new ideas, products, processes or services, and creative ideas in an organization (Amabile et al., 1996).

Differentiation Strategy includes the creation of a unique product. This can be said to be an effort to create innovation. The uniqueness of features or benefits providing superior value for customers can guarantee the success of the differentiation strategy. It means that innovation is also part of the company's differentiation strategy (Hull & Rothenberg, 2008: 781). Customers see products as unmatched products and no equals, so price elasticity tends to be reduced and customers tend to be loyal to the brand. Valuable innovation can avoid competition. However, this strategy needs additional costs related to the cost of creating different product features. Thus, it is needed a premium pricing strategy in an innovation.

In a study by Marques & Ferreira (2009), innovation consists of product innovation, process innovation, investment in R & D, and new distribution channels. Factors that influence Firm's Innovative Capacity are: (1) Size of the company: the bigger the company the greater the ability to innovate (2) Phase of life-cycle of the company: the company increasingly loses the ability to innovate along with each phase of the life-cycle that it passes (3) Quality of entrepreneurship: the higher the quality of entrepreneurship of a company, the higher the ability to innovate (4) Partnership and cooperation: a company partnering and working with other companies has higher ability to innovate.

The study presented by Marques & Ferreira (2009) is intended for companies in general. In its development, the dimensions of innovation can be simplified into four types of innovations (Hassan, Shaukat, Nawaz, & Naz, 2013): (1) Product innovation (2) Process innovation (3) Marketing innovation, and (4) Organizational innovation.

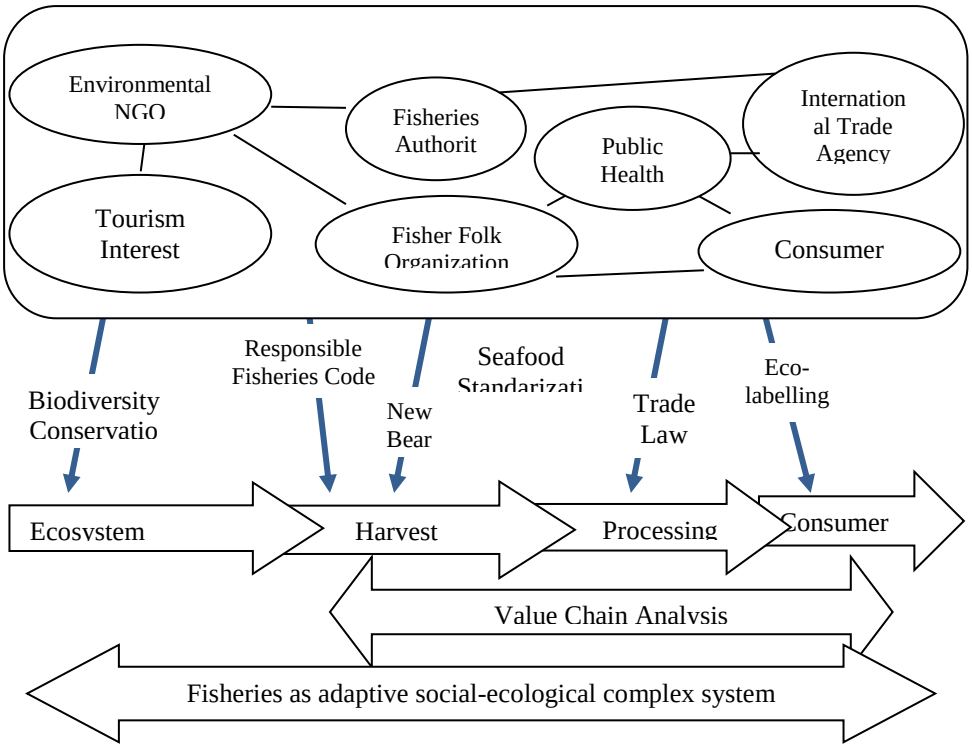
Product innovation includes offering new products and services to the market as well as major improvements to the functions or characteristics of the users of existing goods and services. Process innovation includes major changes to methods, equipment and / or software. One example is a new production method. Marketing innovation seeks to respond to customer needs better in order to increase company sales. Among the examples of this innovation are opening new markets and relocating company products on the market. Organizational innovation can be defined as an implementation of new organizational methods in commercial practices, workplace organizations, or corporate external relations. This study also does not focus on one type of company, but all types of companies.

Leadership and Innovation are related to the human resource performance of an organization. Nathaniel and Handy (2010: 3) stated that a leader at all times plays a role to direct, guide, supervise, and carry out several other managerial functions. Besides, the leader also shows a leadership style that will be applied in accordance with the conditions, situation and needs of the organization to increase innovation.

2.3 Network governance in the value chain of fisheries industry

The concept of the value chain was first coined by Porter in 1985 (Conney, 2011). The concept of social-ecological interaction adapts the value chain concept of Porters because it is considered to have similarities. The relations between systems are regulated in a governance system. The idea of value chain was developed to provide institutional value chain analysis, so that management principles can be applied. According to Kaplinski and Moris (2000), the idea of a value chain is expanded to bring more elements of institutional analysis (Kaplinski and Morris, 2000). At present, value chain is also applied to communities and politics-power (Keane, 2008).

Various references discuss value chain and governance, but it is still needed further explanation regarding the relationship between parts of value chain. In the context of fisheries, the value chain is related to health, welfare and the value chain besides being as commercial commodities (McConney, 2011). Thus, the main issues relating to value chain in fisheries industry can be explained as in Figure 2 below.



Source: McConney (2011:2)

Fig. 2. Network Governance in Fisheries Industry.

As can be seen in Figure 2, according to McConney (2011), the value chain analysis perspective should be based on good ecosystem health. Fish catches, marketing, and distribution also influence the health of the ecosystem. This is done through technology of harvesting to disposal of fish waste on land. If there are fish species that have characteristics of moving and spreading more widely, then the involvement of regional and international communities is much needed in fisheries management based on the network. Stakeholders are also involved in policy making in the fisheries sector.

According to McConney (2011), the network perspective can help stakeholders to develop fisheries value chains that contribute to sustainable social and economic development. A governance with the network perspective helps in thinking more broadly about how trade activities in one region have an impact in other regions. Regions refer not only to places, but also to legal institutional arrangements and virtual communities that reach the entire world. The network perspective places the fisheries value chain in a social-ecological context. This can help analyze lateral and vertical relationships in building development-oriented network governance.

As explained earlier, the network perspective will reveal how value chain of an industry is related to other institutions / organizations. According to McConney (2011), in the future, the linkages of networks at local and international levels and the possibility of changes in

anthropogenic climate, ecosystems, and international trade patterns are mediated through value chain analysis. In the construction of physical infrastructure for landings and handling of living fish, the rising sea level and coastal inundation models should be considered. Besides, people are given an option to buy fish in the market if there is a shortage of supply. This network provides small-scale fisheries authorities to be able to deal with international / multinational companies, so that the welfare of fishing households is spread throughout the coastline.

Various studies have investigated the networks and governance of fish marketing in Grenville, Canada, where the value chain is adaptive and is very dependent on the social network of the fishermen. The condition can facilitate the marketing of fish with the role of cooperative. The function of network governance completely helps policy makers explain how to move fish catches from ships to consumers (McConney, 2011).

Like any fisheries industry in general that gets a variety of fish catches, commercial fisheries not only run the chains of international marketing, but also marine conservation areas for tourism purposes. Both perspectives must be holistic and integrated considerations. Considering only one of these perspectives can result in a loss to one party. For example, if marine conservation applies a prohibition zone for fish catches and results in reduced fishermen's fish catches, it will have an impact on the reduced supply of fish for local and foreign needs. The reduced availability of fish in the country will encourage importation of fish.

According to McConney, managers must be aware of the various inter-sectoral links that affect value chains. This encourages the implementation of management to be based on the ecosystem as part of the social-ecological network. McConney (2012) stated that groups of fishermen play a collective role in maintaining fisheries value chains to avoid imports. Based on various literature about network-based governance, traditional fishermen groups need to adapt the concept of network governance in accordance with natural resources, human capital, capital and the entrepreneurial spirit. The applied network governance can mobilize various resources in groups of fishermen, both tangible and intangible resources. This is expected to provide economic benefits to traditional fishermen groups by not ignoring other environmental impacts.

3 Methodology

3.1 Research type

This study was an exploratory research. It aimed to conceptualize the network governance in the value chain of the wild fisheries industry off Nusa Kambangan coast. The subjects in this study were fishermen living along the coast of Nusa Kambangan, Cilacap, Central Java. Data collection was done in the following ways:

3.1.1 Primary data

Primary data were obtained in the field directly from the sources. The data were obtained through observation and interviews with key-informants, i.e., the chairperson of a fishing group and the chairperson of a fish auction site.

3.1.2 Secondary data

Secondary data were obtained from literature study in the form of literature, written sources, and documents having relevance to this research, including documents from the

Department of Industry and Trade of Cilacap Regency, and other agencies related to this research. The secondary data included the general state of the study site.

3.2 Data collection techniques

3.2.1 Observation

This was collecting data by holding observations directly to the object or location of research to get a clear picture of the object under study (Nasir, 2003).

3.2.2 Interview

The interview technique used was depth interview, i.e., conducting in-depth interviews with traditional fishermen living along Nusakambangan coast, Cilacap, Central Java, regarding their opinions on the role of the leader of the fishermen group in Cilacap, Central Java. Interviews were conducted with key-informants, namely people who were considered to know aspects of the response. The following are the key informants interviewed in this study: Sumadi, Chairperson of the Fisherman Group and Chair of the Fish Auction Site of Menganti Kisik, Cilacap Regency ; Salimun, Supervisory Board of Fishermen Group and Fish Auction Site of Menganti Kisik, Cilacap Regency and Abnu, a farmer of cultivation of shrimp ponds in the area of the Fish Auction Site of Menganti Kisik, Cilacap Regency.

3.2.3 Questionnaires

The data collection method in this study also used questionnaires that had been systematically designed with closed and open questions.

3.3 Population and samples

The population in this study was fishermen living along Nusakambangan coastal region in Cilacap Regency, Central Java. Determination of the samples in this study used purposive sampling method, i.e., sampling with certain criteria. The criteria set out in determining the samples in this study were that they were traditional fishermen living in Nusakambangan coastal region, given that the traditional fishermen had knowledge of various phenomena that they had to face in increasing fisheries productivity. By using the purposive sampling technique, 30 traditional fishermen were taken as the research samples.

3.4 Data analysis method

Data analysis was carried out in a double way, i.e., interpretive qualitative analysis and quantitative analysis. Interpretative qualitative analysis was used to identify the respondents' characteristics and their responses to questions on the questionnaires. Quantitative analysis using descriptive analysis aimed to describe phenomena in the object being studied.

4 Results and discussions

4.1 Activities of fish auction sites in cilacap regency

Fish auction sites have an important role in the economic activities of coastal communities, including on the coast of Cilacap, Central Java. At this fish auction site, traditional fishermen sell the fish they have obtained to buyers. Therefore, fish auction sites have a significant role for the fishermen. In the coastal area of Cilacap, there are at least 9 (nine) fish auction sites:
Fish Auction Site (FAS) of Jetis
FAS of Menganti
FAS of Lengkong
FAS of Kemiren
FAS of Tegal Kamulya
FAS of PPC
FAS of Pandanaran
FAS of Sidakaya
FAS of Bonbaru

Each FAS has an average of 100 fishermen with 50 ships/boats. Each FAS has a coordinator/chairman who oversees 100 to 200 active fishermen in the Cilacap Regency. The FAS serves to collect fish catches and fish landing centers on the coast of Cilacap, Central Java.

4.1.1 Fishing activities

Wild fisheries activities in Cilacap consist of marine fisheries and fishing in public waters. Marine fisheries are a series of activities to find and take fish in sea waters with boundaries ranging from the coastline to the waters of the sea. Marine fisheries are carried out using fishing boats or boats equipped with certain types of fishing gear. Fishing boats or boats use propulsion engines. The size of the propulsion machine varies from small to large sizes adjusted to the size of the ship.

Fishing activities using fishing ships or boats are carried out from the coast to the open sea. There are no longer any ships or boats that are not machine-driven. The equipment used includes gillnets, bag nets, Danish seines, purse seines, shrimp nets, squid nets, crab nets, bubu traps, sero traps, and fishing rods. By using the equipment, the results obtained include fish, shrimp, squid, crab, crab, sea cucumber, and shellfish.

4.1.2 Range of fishing area

Limitation in reaching fishing areas for traditional fishermen is because most of the boats they have are small, so that they are unable to reach a wider area. They only sail around the offshore of Cilacap. Given the small capacity of the fuel that can be accommodated by the small boats, they try to reach only nearby areas. In addition to the limited range of fishing areas, there is an electric steam power plant (Pembangkit Listrik Tenaga Uap / PLTU) of Cilacap in one of the fishing areas. It results in increasingly limited space for fishermen to find fish.

4.1.3 Implementation of network governance in the ecosystem

Normally, the management of fisheries system cannot be separated from three dimensions inseparable from one another: (1) the dimension of fisheries resources and their ecosystems; (2) the dimension of fisheries resource utilization for socio-economic interests of the community; and (3) the dimension of fisheries policy itself (Charles, 2001).

4.2 The potentials of network governance implementation in fishing activities off the coast of cilacap, central java

Network governance is an effort to involve all stake-holders to overcome various problems involving external parties outside the organization to solve problems. This approach is considered as a solution to solve problems holistically and not partially. Based on the research results, there are several institutional potentials that can be done to create network governance in ecosystem management, fishing, processing and packaging, and marketing activities.

4.2.1 Ecosystem

Ecosystem damage on the coast of Cilacap, Central Java, includes coastal abrasion. The magnitude of the waves of the Indian Ocean resulted in the damage to the southern coast of Cilacap. Although in some areas breakwaters have been installed, but they have not been able to withstand the increasing rate of abrasion, particularly on the eastern coast of the Turtle Bay (Teluk Penyu).

Several institutions, both business (company) and government organizations, including Jenderal Soedirman University, Marine Affairs and Fisheries Office of Cilacap Regency, PT. Pertamina, and PT. Holcim, have tried to resolve these issues. The obstacles are not only technical, but also social. The community feels no interest in maintaining the coastal ecosystem of Cilacap, Central Java.

Jenderal Soedirman University and PT. Holcim collaborated in planting 3500 pine trees in 2015 in a part of the coastal area of Cilacap, Central Java, but one month after the tree had been planted, the community damaged the conservation area for the sake of making ponds. Diponegoro Regional Military Command (Komando Distrik Militer / KODAM) as the owner of the land rents out to the surrounding community, while the surrounding communities who rent the coastal area feel they have no economic advantage if the land rented is only used as marine pine forest. Therefore, they did land-use conversion into manufacture of shrimp farms, boat parking and other uses.

Based on the description above, various parties involved in network governance in solving the ecosystem problems are as follows: (1) Diponegoro Regional Military Command of Indonesian Armed Forces (KODAM TNI) as the landowner (2) University as the party conducting the study using a scientific and objective perspective (3) Marine Affairs and Fisheries Office of Cilacap Regency (4) Environment and Forestry Office of Central Java Province (5) Companies (state-owned enterprises and private companies).

The involvement of these institutions must be under the coordination of the Authority/Regional Management Agency of the South Coast of Cilacap Regency, Central Java.

4.2.2 Fishing

The people of the coast of Cilacap, Central Java, make fishing the main activity to earn income. However, the number of fish catches is still relatively low. The fish catches are

only able to fulfill their daily needs. There are at least 3 (three) issues relating to the fishing activities of the fishermen: (1)unpredictable fish catches (2) limited boat capacity (3)The fishermen's position only as the price takers, due to the small number of middlemen who control all the Fish Auction Sites (FAS) on the coast of Cilacap.

Unpredictable catches due to weather and climate are conditions that cannot be controlled. Based on the Chairperson of the Fishermen and FAS Group, Cilacap, the fishermen need for fuel for one day's operation to go to sea is 20 liters or Rp140,000 to Rp150,000. The highest fish catches in harvest seasons are 100 kilograms, while the catches in normal seasons are 20 kilograms. In famine seasons, fishermen are sometimes unable to meet operational needs, especially fuel. Therefore, efforts need to be made to create a system of Social Security Needs so that it can be ensured that the condition of fishermen can still meet their needs when they do not get fish catches.

Limited boat capacity is also a very relevant issue to solve. One fisherman's boat usually carries 4 crew members, while the boat is 10 square meters with the height of 60 cm. With the relatively small capacity, it cannot carry large quantities of fish catches in harvest seasons. Thus, this problem needs to be solved, i.e., through the increase in the boat capacity.

The issue of selling prices of fish also needs to be solved. During famine seasons, the fish caught by fishermen are relatively low in number, even in certain situations they cannot cover operational costs at sea, especially fuel. During harvest seasons, fishermen also do not get much benefit from the fish catches due to the falling fish price. The fishermen also cannot take the initiative to do fish cooling and drying because the investment needed to buy the equipment is relatively high for them and the capacities of fish cooling machine and fish drying machine cannot accommodate fish catches. This condition is used by middlemen in pricing the fish production. As a result, the fishermen do not experience a significant increase in income when the production is abundant.

Various issues regarding fishing in the sea need to be solved by using a network governance approach. In the implementation of network governance, the parties that need to be involved in managing fishing activities are as follows: (1) fishermen groups (2) fish auction sites (3) fishermen's cooperatives (4) marine affairs and fisheries office

4.2.3 Processing and Packaging

The number of fish catches that cannot be predicted, both due to weather factors and the availability of fish in the sea need to be anticipated by the fishermen. This is to prevent the fishermen from accepting the price set by the middlemen. When the production of fish catches decreases, the fishermen can get a high price, but when there are abundant fish catches obtained, the fishermen need to keep the price from falling dramatically. This can be done by processing and packing fish catches to last a long time, either with freezers or drying machines (ovens). However, it is not possible for them individually or in groups to meet the needs of the fish processing and packaging machines. They have limited funds to buy the equipment. It is large-scale companies having sufficient funding sources that have the possibility to purchase the equipment.

In this case, the establishment of a state-owned enterprise (Badan Usaha Milik Negara / BUMN) or a regional-owned enterprise (Badan Usaha Milik Daerah / BUMD) in the field of fish processing and packaging should be considered in order to keep the price of fish caught not falling and harming fishermen. Processing and packaging of fish caught by fishermen have several objectives, including: increasing the durability of these fishery products so that when there is abundant production of fish, they can be stored for sale when the famine season arrives, expanding the distribution range, and creating hygienic fish production. To achieve the quality of these products, traditional fishermen have limited

resources. Thus, the implementation of network governance in processing and packaging needs to be done. The institutions to be involved are as follows: (1) Indonesian National Agency of Drug and Food Control (Badan Pengawas Obat dan Makanan / BPOM) (2) Fish processing companies (BUMN/BUMD/private companies) (3) Center for Appropriate Technology (Balai Besar Teknologi Tepat Guna / B2TTG) of Indonesian Institute of Sciences (Lembaga Ilmu Pengetahuan Indonesia / LIPI)

The involvement of these institutions is expected to improve the ability of traditional fishermen to produce quality fish, reach wider consumers, and be able to meet national and international needs. Having good quality is a requirement for any product to be accepted by the market. Therefore, the processing and packaging of fish products need to be carried out in accordance with health and safety standards.

4.2.4 Marketing

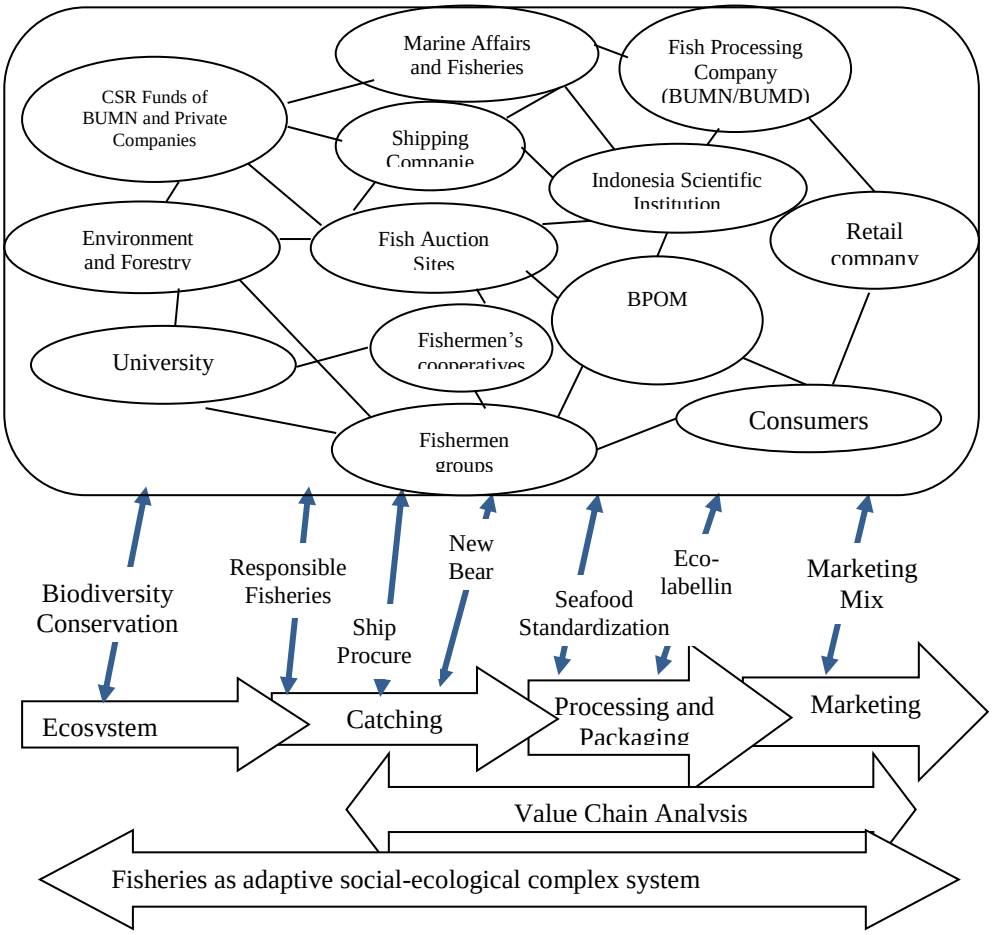


Fig. 3. Network governance model of traditional wild fisheries in indonesia.

The marketing function is done by creating, communicating, and delivering fishery products to consumers. It is hoped that by optimizing the marketing function of these fishery products, traditional fishermen can have loyal customers and obtain maximum profits. The obstacle faced by fishermen is in meeting market needs outside the region. So

far, fishermen have relied on selling to middlemen. The average number of middlemen in each Fish Auction Site is 5 to 7 people. They control the price of fish and reach consumers outside the region. In this case, traditional fishermen need to be given an understanding of the environment of fish marketing, so that the dependence on middlemen can decrease. Thus, network governance in the activities of marketing fish products involves at least the parties as follow: (1) Indonesian Consumers Protection Foundation (Yayasan Lembaga Konsumen Indonesia / YLKI) and (2)Retail entrepreneurs (supermarkets) who are willing to accommodate fresh fish catches directly from fishermen.

Management of wild fisheries value chains from ecosystems, fishing, processing and packaging to marketing activities must be carried out in an integrated manner. Network governance seeks to integrate each of these actors as a network that has mutual connection between them. It is hoped to increase the productivity of fish catches while maintaining the marine ecosystem as can be seen in Figure 3.

5 Conclusions

5.1 Conclusions

The fishermen groups apply entrepreneurship-based leadership. It can be seen from the leaders of fishermen groups carrying out business activities to generate added value. In terms of creativity, the leaders of the fishermen groups have created new ideas for the development and welfare of fishermen in the coastal area of Cilacap Regency. The innovations made by the leaders of the fishermen group can be seen in the efforts to collaborate with multinational companies to invest in the fishing area, where the investment is expected to absorb large numbers of workers. However, this leadership has not been supported by managerial competence, so that management principles have not been applied in the fishermen groups.

Based on the results and discussions, there are several institutional potentials that can be realized to create network governance in the management of ecosystem, fishing, processing and packaging, and marketing activities. In managing ecosystems, the parties involved in implementing network governance on coastal management are Environment and Forestry Office, University, and CSR of private companies / BUMN / BUMD. Fishing activities are carried out by involving Marine Affaris and Fisheries Office, Shipping companies, Fish Auction Sites, Fishermen Groups, and Fishermen's cooperatives. Processing and packaging activities are carried out by involving fish processing companies, Center for Appropriate Technology of Indonesian Institute of Sciences (B2TTG-LIPI), and Agency of Drug and Food Control (BPOM), and marketing activities are carried out by involving the Indonesian Consumers Protection Foundation (YLKI) and retail companies (department stores) to distribute fresh fish to end consumers.

5.2 Recommendations

Menganti fishermen group implements entrepreneurial leadership pattern but do not yet have managerial competencies in business management. Thus, they are required to have managerial competencies in managing the group.

The management of wild fisheries value chain from ecosystem, fishing, processing and packaging, to marketing activities must be carried out in an integrated manner. Network governance seeks to integrate each of these factors as a network where there are mutual relationships among its parts, i.e., the activities in managing the ecosystem, fishing, processing and packaging, and marketing. The involvement of various actors in

implementing network governance is not possible if it is established by the groups of fishermen themselves, so a government policy is needed to manage the coast in an integrated manner. The management authority of the coastal region of Cilacap needs to be established, so that network governance in the management of the Cilacap coast can be realized.

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