

# STRATEGIES FOR DEVELOPING SUSTAINABLE AND COMPETITIVE CLUSTER FOR SHRIMP INDUSTRY

Anas M. Fauzi<sup>\*)</sup>, R.Dikky Indrawan<sup>\*\*)</sup>, Farida Ratna Dewi<sup>\*\*)</sup>, Lindawati Kartika<sup>\*\*)</sup>,  
Alim Setiawan Slamet<sup>\*\*)</sup>, Firmansjah S<sup>\*\*\*)</sup>

<sup>\*)</sup> Department of Agroindustrial Technology Faculty of Agricultural Technology Bogor Agricultural University

<sup>\*\*)</sup> Department of Management Faculty of Economic and Management Bogor Agricultural University

<sup>\*\*\*)</sup> PT. Central Proteinaprima

## ABSTRACT

*Kampung Vannamei as shrimp cluster is being developed since 2004 by PT CP Prima, Tbk Surabaya through Shrimp Culture Health Management transformation technology to several traditional farmers in Gresik, Lamongan, Tuban, and Madura areas. The research objectives aims to identify and mapping of stakeholder, to analyze interaction of stakeholders, to formulate strategy from internal and external environment factors and to set priority on strategy to develop sustainable and competitive shrimp cluster in the Kampung vannamei. Primary data was collected through stakeholders' discussion forums, questionnaires, and interviews with relevant actors. Observations to the business unit also performed to determine the production and business conditions, particularly in capturing information about the threat and challenges. While the secondary data is used in policy documents national and local area statistics, and relevant literature. Analyses were performed by using the SRI International cluster pyramid, diamond porter's analysis, SWOT and Matrix TOWS analysis, and analytical hierarchy process. Analyses were performed by the methods discussed in qualitative and descriptive. There are 7 strategies could be implemented to develop sustainable and competitive shrimp cluster. However, it is recommended to implement the strategy base on priority, which the first priority is strategy to improve linkages between businesses in the upstream and downstream industries into multi stakeholders' platform in shrimp industry.*

*Keywords: Shrimp, Cluster, Competitiveness, Diamond Porter, SWOT Analysis, AHP*

## ABSTRAK

*PT. CP Prima mengembangkan Kampung Vannamei sebagai klaster udang sejak tahun 2004 melalui transformasi teknologi manajemen kesehatan budidaya udang di petani wilayah Gresik, Lamongan, Tuban, dan Madura. Tujuan penelitian ini adalah mengidentifikasi dan memetakan pemangku kepentingan, menganalisis interaksi pemangku kepentingan, menformulasikan strategi dari factor-faktor lingkungan internal dan eksternal, dan menetapkan prioritas strategi dalam mengembangkan klaster udang yang berkelanjutan dan berdaya saing di Kampung Vannamei. Data primer dikumpulkan di para pemangku kepentingan dengan forum diskusi, kuisisioner dan wawancara dengan pelaku usaha yang relevan. Pengamatan pada unit bisnis dilakukan untuk melihat kondisi produksi dan kondisi bisnis, khususnya dalam mengumpulkan informasi terkait dengan ancaman dan tantangan. Sementara itu, data sekunder didapatkan dari dokumen kebijakan di tingkat pusat dan data statistik daerah dan literature yang relevan. Analisis yang dilakukan adalah SRI International cluster pyramid, analisis diamond porter's, analisis SWOT and Matrix TOWS, dan analytical hierarchy process. Analisis dilakukan dengan metode kualitatif dan deskriptif. Terdapat 7 strategi yang dapat diterapkan untuk mengembangkan klaster udang yang berkelanjutan dan berdaya saing. Tetapi direkomendasikan bahwa prioritas strategi yang dapat dilaksanakan adalah meningkatkan keterkaitan antar usaha di industry hulu dan hilir dengan membentuk platform multi pemangku kentingan di klaster udang.*

*Kata Kunci: Udang, Klaster, Daya Saing, Diamond Porter, Analisis SWOT, AHP*

## INTRODUCTION

### Background

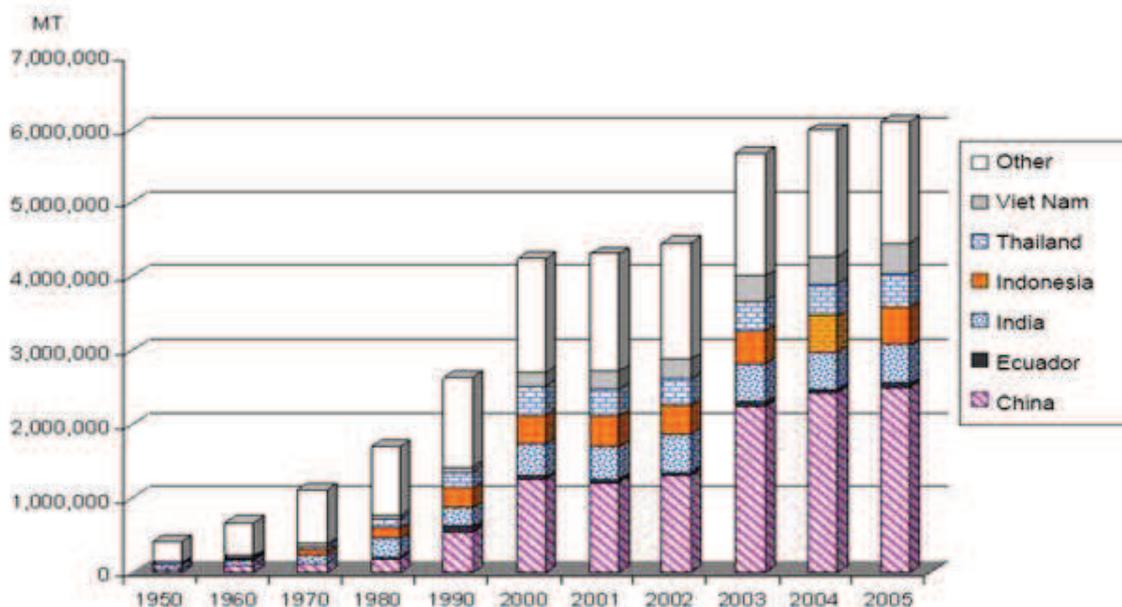
Indonesia has infinite fishery potential which most of area is dominated by watery/ oceanic area around 7,9 million km<sup>2</sup>, plus very wide shore line of 80.791 km<sup>2</sup>. It means that Indonesia overall area, 81% consist of unlimited fishery potential. Fishery sector is considered as one of promising non-migas export commodity that can contribute significant amount of national income. One of the main fishery export product that has become Indonesia's prime product is shrimp. World shrimp consumption is increasing significantly while in Indonesia, the utilization of shore natural resource is still not optimal. Therefore, shrimp prospect in Indonesia is very promising.

Indonesian shrimp industry was the largest in the world number 3 in 2005. But Indonesia was not able to exploit its natural resources to maintain its position and left behind China and competes with India and Thailand shrimp industry in world market.

East Java has a great potential for aquaculture production which contributes to national aquaculture production. The production contribution in 2008 East Java export volume of frozen shrimp is 48.384 tons, which comprises 28,4% of the national shrimp export volume. East Java shrimp export value for the respective year is 385.527.631 USD, which comprises 33,1% of the national export value (Dinas Perindustrian dan Perdagangan Jawa Timur).

East Java big population needs large quantity of fresh and processed fish. The processed fish are mainly for both human and animal consumption. Although it is still lower than the international standard, the people consumption for fish is significant. Based on the interval statistical data (1993-2008) in between the national census, the fresh fish/shrimp consumption per capita was 13,53kg per year (2008). Whereas the preserved fish/shrimp consumption was 2.76kg per year. Here, the need for fresh fish/shrimps in East Java will be around 519.552 MT per year. Theoretically, with an average production of 486.82,80 MT per year (2008), East Java is still around 27.156 MT short of fresh fish. Not to mention the preserved fish/shrimp consumption (2,76kg per capita), which East Java would need 104.880 MT per year. In 2007, the frozen shrimps and prawns export reached to 26.144 MT at US\$193 million value. Whereas the processed shrimps (shrimps and prawns prepared) reached to 13.930 MT with US\$105 million money value. Other than marine prawns, in 2007 East Java also exported frozen crayfish of almost 8.000 MT at US\$58 million.

Kampung Vannamei is part of east Java shrimp production is a new approach of shrimp development. Kampung Vannamei as shrimp cluster is being developed since 2004 by PT. CP Prima, tbk Surabaya through Shrimp Culture Health Management transformation technology to several traditional farmers in Gresik, Lamongan, Tuban, and Madura areas. This village concept is developed based on a farm territorial security concept that uses the same SOP (standard operational procedures) in order to have a secure farms complex. Kampung Vannamei is becoming phenomena in



Source: <http://www.fao.org/fishery/aquaculture/en>

Figure 1. Shrimp Competition

seafood business by transforming traditional ponds into semi-intensive ponds and at the same time changing traditional farmers into knowledgeable farmers. Kampung Vannamei is a success cluster model of semi-intensive shrimp farming with sustainable yield.

The effect of importance role of Kampung Vannamei in shrimp value chain development is show by the number of ponds being transformed in the last decade. Many of the ponds are newly established within the vannamei shrimp cluster and it still grows. This is interesting fact that Kampung vannamei is opening new opportunities for Indonesian shrimp export. This paper will explore Kampung vannamei experience in developing shrimp as a lesson learns to develop a sustainable and competitive cluster in shrimp industry. This paper moves beyond this impasse by focusing on the identifying and mapping stakeholders, analyzing interaction impact of clusters-groups of related industries operating in a given location-on economic performance. Our key insight is strategy to develop cluster most likely to have strong factors forces operate a within a cluster.

## Objective

The research objectives are:

1. To identify and mapping of stakeholder in shrimp Cluster.
2. To analyze interaction of stakeholders in shrimp Cluster.
3. To formulate strategy from internal and external environment factors.
4. To set priority on strategy to develop sustainable and competitive shrimp cluster.

## LITERATURE REVIEW

The Global Competitiveness Report of the World Economic Forum defines competitiveness as "the set of institutions, policies, and factors that determine the level of productivity of a country". Competitiveness can be divided into various levels. National competitiveness refers to the ability of a country to market the products produced relative to the ability of the country's other states. The competitiveness of the regions has the same meaning as the national competitiveness, but on a regional scale. An area that can compete with other regions in the manufacture and marketing of goods and services referred to high competitiveness. There is also the competitiveness of enterprises, namely the ability of a company to produce a product that consumers demand relative to other companies. The difference between the

three competitiveness are national competitiveness is determined by the competitiveness in these areas in the country, regional competitiveness is determined by the competitiveness of existing companies in the area, while the company's competitiveness is determined by the level of productivity of the company.

There are two reasons why it's important regional competitiveness. First, to realize that a company's competitive advantage is not entirely dependent on the internal respectively. Secondly, there are two types of competitive advantage that should be recognized, namely the competitive advantage of static and dynamic competitive advantage.

The diamond model is an economical model developed by Michael Porter where he argued his theory of why particular industries become competitive in particular locations (Porter, 1990). The approach looks at clusters of industries, where the competitiveness of one company is related to the performance of other companies and other factors tied together in the value-added chain, in customer-client relation, or in a local or regional context.

Theory and practice showed that individual firms cannot become competitive and stay competitive in global markets on their own. They need to have industrial clusters environment in which influence its competitiveness. A firm's suppliers and supporting institutions must continually improve their capabilities in order to provide the firm with necessary inputs and services. This means that firms in the cluster must constantly innovate and create new products, new processes, and new ways of managing their operations to stay competitive. The phenomena that are analyzed are six factors incorporated into the Porter diamond, which has become a key tool for the analysis of competitiveness.

Porter, (1998) defined clusters as "geographic concentrations of interconnected companies, specialized suppliers, service providers, and associated institutions in a particular field". The clusters will affect competition in increasing the productivity of companies and lead the direction of innovation, and stimulating the formation of new businesses.

According to Rosenfeld (1997), the success of a cluster is determined by several factors, namely (1) specialization, (2) the capacity of research and development, (3) knowledge and skills, (4) human resource development, (5) network collaboration

and capital social, (6) proximity to suppliers, (7) the availability of capital, (8) the entrepreneurial spirit, and (9) leadership and shared vision.

## RESEARCH FRAMEWORK

This research conceptual framework can be formulated in figure 2. The framework develops by several analytical tools to assess the shrimp cluster and develop the strategy. It started by identification of actors who are involved in cluster using SRI pyramids model. It was followed by analyzing the competitiveness factors by diamond porter, and continued to develop alternative strategy by assessing internal and external factor environment using SWOT analysis. Finally, this paper will recommend the policy from the priority strategy developed.

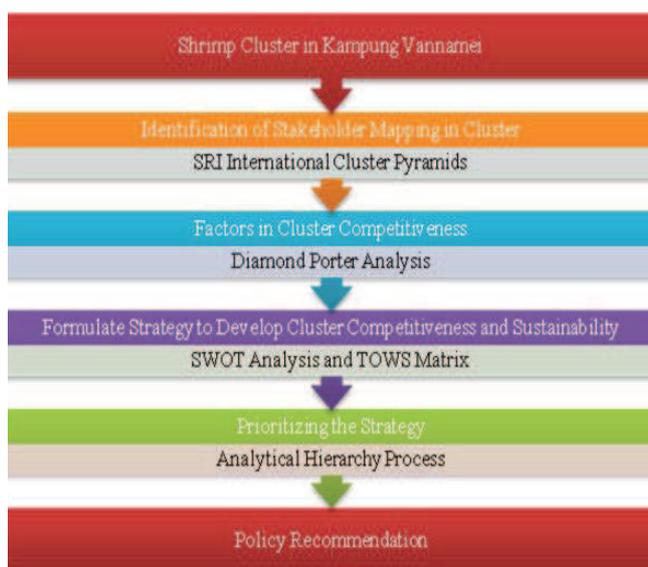


Figure 2. Conceptual Research Framework

## RESEARCH METHODOLOGY

The research was conducted in Kampung Vannamei cluster, in East Java, which the location was selected intentionally (purposive). Kampung vannamei is a cluster develops naturally in shrimp business industry.

Data used include primary and secondary data. Primary data was collected through stakeholders' discussion forums, questionnaires, and interviews with relevant actors, as well as unit -existing business unit, including labor to work on it. Observations to the business unit also performed to determine the production and business conditions, particularly in capturing information about the threat and challenges. While the secondary data is used in policy documents national and local area statistics, and relevant literature.

Analyses were performed by the methods discussed in qualitative and descriptive as well as quantitative analysis. Base on the research framework, the first analysis was performed by using the SRI International cluster to indentify and mapping the stakeholders. Using the cluster pyramid approach developed by SRI International, stakeholders were identified from actors from all three tiers of the cluster pyramid in the Kampung Vannamei East Java. Then it followed by Diamond Porter's analysis to synthesis interaction between actors and factors and determined the champions within the actors in cluster.

Strengths, Weaknesses, Opportunities, and Threats [SWOT] analysis is a commonly used instrument which scans internal strengths and internal weaknesses of industry and highlights the opportunities and threats of the external environment (Pesonen *et al.*, 2000; Rauch, 2007). The SWOT analysis is used for identification and definition of the historical, geographical, social, and economic and industry related core issues and conditions existing in the cluster. SWOT analysis resulted evaluation of the Strengths, Weaknesses/Limitations, Opportunities, and Threats involved in cluster. Identification of SWOTs is essential because subsequent steps in the process of planning for achievement of the selected objective may be derived from the SWOTs. And then The TOWS Matrix will provide alternative strategies of cluster development.

Weihrich (1982) developed TOWS as the next step of SWOT in developing alternative strategies. TOWS matrix provides means to develop strategies based on logical combinations of factors. The TOWS Matrix is a conceptual framework for a systematic analysis that facilities matching the external threats and opportunities with the internal weaknesses and strengths of the shrimp cluster. It indicates four conceptually distinct alternative strategies, tactics and actions for shrimp cluster development. The TOWS analysis is shown the process of strategy formulation.

In order to determine the best strategic consolidation option for the shrimp industry, this study utilized the Analytic Hierarchy Process (AHP) framework to guide the decision process. Analytical hierarchy process (AHP) has been applied in this study to prioritized strategies develop by TOWS matrix. AHP is a problem-solving framework and flexible, systematic method employed to represent the elements of a complex problem. It is based on the three principles: decomposition, comparative judgment and synthesis of priorities. The priorities of criteria and sub-criteria

are synthesized to establish the overall priorities for decision alternatives (Saaty, 1980).

## RESULTS AND DISCUSSIONS

### Stakeholders Mapping

In the Kampung Vannamei, the following actors and activities were identified in each tier:

1. The top tier features shrimp farmers, who are producing shrimp products to market in Kampung Vannamei. The shrimp farmers in East Java has enourmous number which operate in different places in East Java. The most populated area of shrimp farmers are in Lamongan, Gresik, Tuban and Situbondo. There are many farmers active in Kampung Vannamei. East Java has many Kampung Vannamei, which associated with the East Java Kampung Vannamei. These Kampung activities are improving the Kampung Vannamei people's knowledge and support for the growth of the East Java's Kampung Vannamei industry by maintaining relationships with government in order to overcome possible challenges to the development of the Kampung Vannamei industry Competitiveness between shrimp farmers in East Java is high but they are willing to cooperate and collaborate among

themselves in order to achieve a good value of Kampung Vannamei product.

2. The second tier features supplier industries. These are all the services supplied to shrimp farmers, which are eventually provide raw material for shrimp ponds. Four general areas of services have been identified as key inputs into a shrimps business in Kampung Vannamei, and will be the focus area for interviews in this study. These are: (i) the broodstock sub-sector, (ii) feed companies, (iii) medicine, and (iv) supplier/buyers.

PT. Central Proteinaprima Tbk. (CPP), as the founding father of Kampung Vannamei, played a vital role in Kampung Vannamei development, which they operated from broodstock to hatchery sub sector, feeding sub sector and medicine sub sector. CPP is providing SPF seed, feed and medicine through their distributor agent. These agents have a unique business role and strategic position within Kampung Vannamei. Their wide range businesses are from supplying the production support and financing activities in Kampung Vannamei into marketing the products.

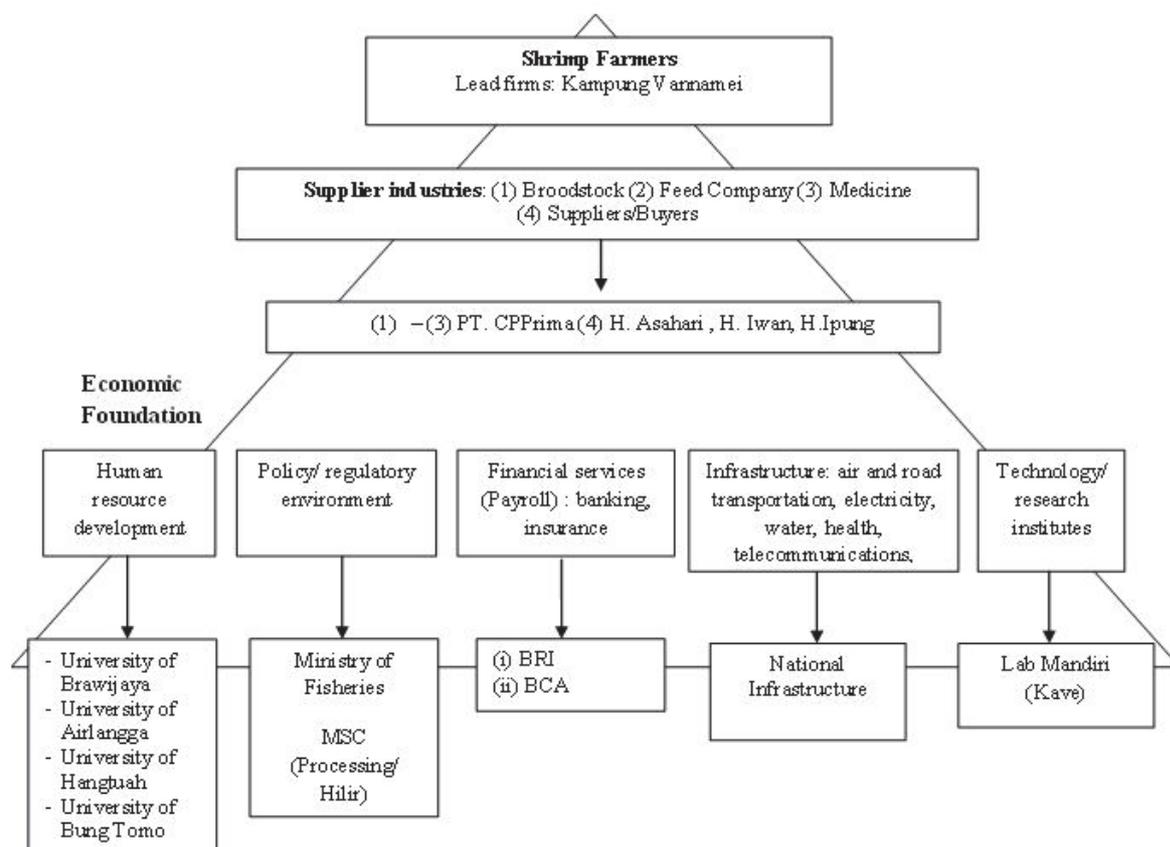


Figure 3. Kampung Vannamei Shrimp Close Circuit Cluster Actors

There are three well-known supplier-buyers in the Kampung Vannamei across East Java, H. Asahari, H. Iwan, and H. Ipung. These actors mainly business is in fisheries products; however their business network is part of national fisheries including shrimp exporter.

3. The bottom tier is the economic foundation of the cluster. It includes agencies responsible for the environment in which the firms targeted need to prosper: policy makers, financial services providers, infrastructure providers, training providers and research institutes responsible for technology and innovation.

Policy / regulatory environment from the national and local government in East Java is not supported directly Kampung Vannamei. Several regulations by endorsing production mainly is generally program in fisheries. The certification regulation and supports are slowly implemented, this is creating problem in Kampung Vannamei development.

There are a variety of financial services developed in East Java. There are a lot of commercial or corporate banks in East Java which cater for the Kampung Vannamei sector. In many ways, banks in East Java also giving credit support to investors in East Java. There are different types of credit products which cater for the Kampung Vannamei business. However, the financial services still not provides directly financial arrangement for shrimp industries. All financial loan programs are using consumer loan program.

In terms of infrastructure development, East Java has a very good infrastructure compared to other places in Indonesia. The Kampung Vannamei stakeholders interviewed indicated that the development and quality of infrastructure linking shrimp industries to major attractions in East Java is in good shape and is kept properly by the East Javanese government. In terms of access to electricity supplies, East Java is facing problems in terms of the availability of power due to the increasing demand of electricity. The Kampung Vannamei industry is reacting by using more and more alternative energy sources such as solar and wind-energy. Also the healthcare facilities are considered to be of high quality.

In human resource development there are currently several training institutions for Kampung Vannamei located in East Java: University of Brawijaya, University of Airlangga, University of Hangtuh and University of Bung Tomo. The Kampung Vannamei stakeholders in East Java acknowledge the importance of human resources by supporting the development of training institutes. The development of human resources will supports quality, new shrimp industries attractions and innovation. Many students and scholars from all over Indonesia go to East Java to learn about Kampung Vannamei management and production.

Technology: Research and product development in Kampung Vannamei benefited from the availability of several research institutions. However Kampung Vannamei established their owned laboratory to support their business.

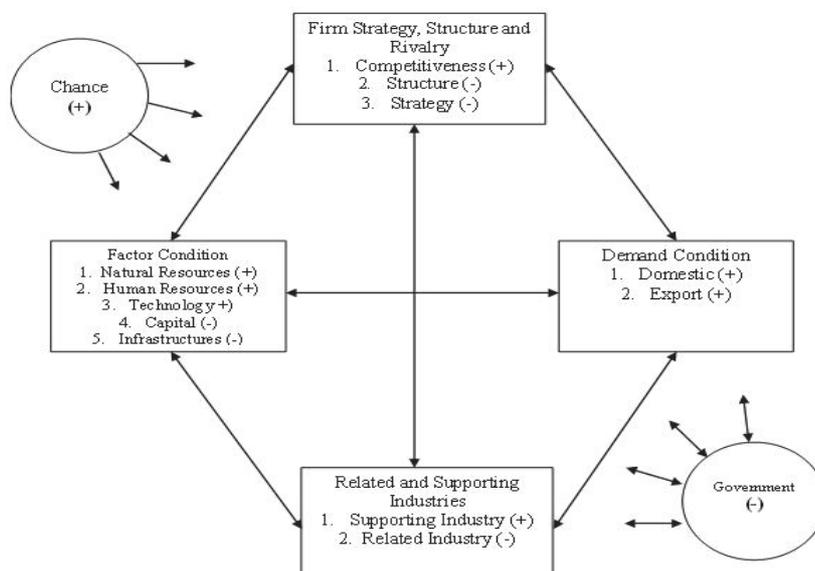


Figure 4. Kampung Vannamei Shrimp Cluster Diamond Porter Analysis

## **Shrimp Cluster Competitiveness Factors**

Figure 4 summarizes the finalized assessments concerning the effects of the different parts of the diamond on the competitive advantage of Kampung Vannamei as shrimp industry studied as the key findings that describe factors interaction cause by the actors. In the following paragraph, the paper will discuss the results analyses for each determinant of the diamond framework.

### **Factor Conditions**

With regard to the factor conditions, the Kampung Vannamei shrimp industry cluster become competitive industry derive considerable advantages from technology factor provided by PT. Central Proteinaprima, which can cope with the basic and generalized factors like lower labor cost (human resources) and natural resources. In other words, although availability of some ponds and labor reserves probably was encouraging, the driving force in the initial foundation of the industry was the eagerness of the PT. CPP to provide technology rather than the other factor conditions. The weaknesses the industry suffers concerning advanced and specific factor conditions like capital and infrastructures.

### **Demand Conditions**

When consider demand conditions, domestic and export market potential is encouraging. Indonesia is a developing country with a large and rapidly growing population, meaning that many industries are far from being mature, or, at least, face a considerable potential increase in demand. Income levels are, however, still rather low, restricting this potential. The production for exports is open market and to be prepared, despite the fact that domestic production cannot meet recent export standard requirement. The main motive is the anticipation that exporting may contribute to quality improvement. PT. CPP played major part contributing the preparation of standard operating procedures in farmers' ponds by setting the bio security standard as mandatory in Kampung Vannamei. Those SOP would be able to meet the international market requirement. Moreover, the industry studied is deriving substantial advantages from the demand. However, the domestic demand is derive shrimp price higher rather than export market.

## **Related and Supporting Industries**

The shrimp industry is competitive industry surrounded by a cluster of related and supporting industries. However, the shrimp processor industry as related industry is becoming weak industry. Many of the processors especially for export market are closing down their business, because they cannot fulfill their export market due high price of shrimp in local market.

On contrary, the supporting industry is bigger and internationally operated industry. PT. CPP as supporting industry is very strong in providing seed, feed and medicine and on top off that the technology to maintain the shrimp in healthy condition. PT. CPP is a subsidiary of Charoen Pokphan group which concentrate in sea food supplies. Financial industry as supporting industry in Indonesia is also bigger industry. Many of types of financial company are available; however none of them directly have financing the shrimp business. However many of agent of PT. CPP are finance by the bank or on bank, and they financing farmer through credit for seed, feed and medicine. In this case, the agents are confidence that the technology and SOP in Kampung Vannamei aquaculture which supported by PT. CPP will guarantee Kampung Vannamei shrimp production.

### **Firm Strategy, Structure and Rivalry**

With regard to 'firm strategy, structure and rivalry,' two major issues arise. The first one is that Kampung Vannamei competitiveness is amongst the leading assets of the shrimp industry. The second issue relates to the other element included in this category: structure and the strategy n Kampung Vannamei cluster are weak element. From the beginning, since its establishment, Kampung Vannamei cluster depends on PT. CPP on development strategies.

### **The Role of Chance**

Chance events have usually been favorable for the industries. The effects of chance events as a source of advantage for the Kampung Vannamei in shrimp industries have been increasing however still requires special attention. PT. CPP by providing technology in shrimp aquaculture brought many chances to farmers such as new market, new investment and new financing opportunity. These chances are encouraging many of farmers outside cluster to join and become a member, which endorsing shrimp industry development.

## The Role of Government

Regarding the role of government, in the shrimp industries, which are all capital-intensive, the role of the government has been rather minimum. It could be argued that this is, in fact, the role of PT. CPP since early stages of cluster created bigger trust and loyalty from the farmers, which lower the role of government. The national and regional government, however, did not only support or protect and not even tried to develop shrimp industry. Despite the government established National Shrimp Commission, the development of the industry still rely on the private sector.

## Overall Finding from Diamond Porter's

The general finding relates to the study is the role of PT. CPP seems to be dominant factor in Kampung Vannamei competitiveness. Specifically, it is interesting to observe competitiveness will not taken place without PT. CPP. It was simply shown that PT. CPP is the champion in the cluster, which it was better explained by the diamond framework. Shrimp industry can be characterized as a capital-intensive sector where competition takes place on a global scale and government involvement is high and more direct.,

External Factors (EFAS Table)  Internal Factors (IFAS Table)	<b>Opportunities (O)</b> 1. Supporting industries 2. Chances	<b>Threats (T)</b> 1. Related Industries 2. Government Regulations 3. Fisheries Industries Competitor
<b>Strengths (S)</b> 1. Natural Resources 2. Human Resources 3. Technology 4. Domestic Market 5. Export Market	<b>SO Strategies</b> <ul style="list-style-type: none"> <li>improve linkages between businesses in the upstream and downstream industries into multi stakeholders platform</li> <li>Enhancing the role of supporting institutions</li> <li>Enhancing farmer's capacity building</li> </ul>	<b>ST Strategies</b> <ul style="list-style-type: none"> <li>Government institutions must be proactive, effective and efficient.</li> <li>Advance Product value added</li> </ul>
<b>Weaknesses (W)</b> 1. Structure 2. Strategy 3. Capital 4. Infrastructure	<b>WO Strategies</b> <ul style="list-style-type: none"> <li>Increased trust building, cooperation and networking between businesses on the value chain</li> </ul>	<b>WT Strategies</b> <ul style="list-style-type: none"> <li>Creating a conducive business climate</li> </ul>

Figure 5. TOWS Matrix of Kampung Vannamei : Shrimp Industry Cluster

The existence of an established Kampung Vannamei, surely initiated by PT.CPP as well as a pool of qualified technical and managerial personnel has probably contributed. The importance of such factors becomes more obvious when we turn to the analysis of factors condition and supporting industries and the role of government. It proved the argument that PT. CPP could established better shrimp cluster without any government involvement. The Kampung vannamei cluster in shrimp industry, as a result, shows that it can be successful in explaining the sources of advantage

and the actor as champion in a relatively competitive industry.

### Strategies to Develop Shrimp Cluster

The SWOT analysis is used for identification and definition of the basic elements from Diamond Porter's. The analysis has been done keeping in mind the historical, geographic al, social, economic and industry related core issues and conditions existing in the cluster. The following chart lists the SWOT components

and their implications, which are the likely points of interventions and the basis of a long run strategy.

The SWOT analysis above put the diamonds porter factors into strength, weakness, opportunity and threat. It shown above, natural resources, human resources, technology, domestic market and export market classified as the strengths factors, because its contribution to enhance the cluster development. Meanwhile, structure, strategy, capital and infrastructure classified as weakness, due lack of neither availability nor its contribution to the Kampung Vannamei cluster development.

External factors in SWOT analysis, classified supporting industries and chances as the opportunity. Those factors are encouraging cluster development, while other external factors such as related industries, government regulations and fisheries industries competitor are not supporting and become threat to the shrimp industry.

Base on the SWOT analysis, the TOWS matrix identify strategic alternatives to develop sustainable and competitive shrimp industry. There are 7 alternative strategies available from TOWS matrix.

1. The first group of alternative strategy is base on Strengths and Opportunities (SO)-which the strategy to maximize strengths to take advantage of the opportunities. Also known as "Maxi-Maxi" Strategy, in this case are:

Improve linkages between businesses in the upstream and downstream industries into multi stakeholders' platform in shrimp industry. The current condition in shrimp industry has not a real conducive linkage between actors in shrimp chain business. For years, the actors could not reach a common goal and shared vision to develop sustainable and competitive industry. It is now, become urgent to improve interaction among actors to have better business linkages.

Enhancing the role of supporting institutions in shrimp industry. As we know, supporting industry played vital role in encouraging shrimp industry. The involvement of PT. CPP becomes a reason behind the success of Kampung Vannamei Cluster. However, the improvement and enhancement are important not just limited to PT. CPP but also to other supporting institutions such a banking industry.

Enhancing farmer's capacity building in shrimp aquaculture. This factor is one of the key success factors in implementation of Good Aquaculture Practices and bio-security in shrimp industry. The kampong vannamei was succeeded to transform traditional farmers into semi-intensive farmers. Therefore, the enhancement of farmers' skills and knowledge are part of the long term strategy to overcome future challenges.

2. The next group of alternative strategies from TOWS matrix is Strengths and Threats (ST)-the strategy of taking advantage of strengths to avoid real and potential threats, also called as "Maxi-Mini" Strategy:

Government institutions must be proactive, effective and efficient to develop shrimp industry. The role of government should be increased to develop the industry, because its importance to regulate and support and maintain the shrimp business environment and broaden the success of the cluster becomes national competitive cluster. It is unavoidable in every nation, to have political will and grand strategy to learn and duplicate competitiveness in shrimp industry.

Advance Product value added must be developed in shrimp industry. With an opportunity in the international market, it is important for business sector to meet the demand and fulfill the requirement asked by different country in the world. Therefore, adding a value added and product diversification are important factor to develop competitive business.

3. There is only one alternative strategy of Weaknesses and Opportunities (WO)– which using opportunities to overcome the weaknesses called as Mini-Maxi" Strategy: Increased trust building, cooperation and networking between businesses on the value chain in shrimp industry. This is importance strategy in building competitiveness along the chain in shrimp industry. The history of shrimp business shown trust building is a major influencing factor in the development of shrimp business in Indonesia. The cluster has to learn from trust building in Kampung Vannamei which lead to Kampung Vannamei competitiveness and success.

4. The last alternative is Weaknesses and Threats (WT)-which is minimize weaknesses and avoid threats, called as "Mini-Mini" Strategy: Creating conducive business climate in shrimp industry. For years, the

shrimp cluster is having problem and challenges, and now it is time to build business climate which encourage the competitiveness and sustainability of shrimp industry.

Those alternative strategies should be implemented in achieving sustainable and competitive shrimp industry. However to have better result, the strategies need to be prioritize, which will be helpful in implementing the strategy to reach its goal.

### Shrimp Cluster Strategy Base on Strategic Priority

To find the best strategy base on strategic priority to develop shrimp industry, a model of Analytic Hierarchy Process (AHP) framework is set up to guide the decision process. The AHP model deals with prioritizing of decision making by reducing complex decisions to a series of pair wise comparisons and then synthesizing the results.

Adaptation of the Analytic Hierarchical Process to this model set identification of the goal, the criteria (the factors that affect the objective), actors and the alternative strategies. Those AHP model and calculation result are as follows:

1. The goal to be Sustainable and competitive cluster.
2. The factors (criteria) were including (from Diamond Porter's): a.) Related and Supporting Industries (0,471) b.) Factor Condition. (0,295) c.) Firm Strategy and Rivalry. (0,888) d.)Demand Condition (0,146)
3. The actors were (from SRI pyramids). a.)PT. Central Proteinaprima (0,320) b.) Farmer 0,232 c.) Universities 0,176 d.) Export Market 0,160 e.) Government 0,111
4. The alternatives strategies available (from TOWS Matrix) were : a.) Improve linkages between businesses in the upstream and downstream industries into multi stakeholders' platform in shrimp industry. (0,290) b.) Increased trust building, cooperation and networking between businesses on the value chain in shrimp industry. (0,200) c.) Government institutions must be proactive, effective and efficient to develop shrimp industry. (0,145) d.) Advance Product value added must be developed in shrimp industry (0,110). e.) Enhancing the role of supporting institutions in shrimp industry. (0,100) f.) Creating conducive business climate in shrimp industry. (0,085) g.) Enhancing farmer's capacity building in shrimp aquaculture. (0,069)

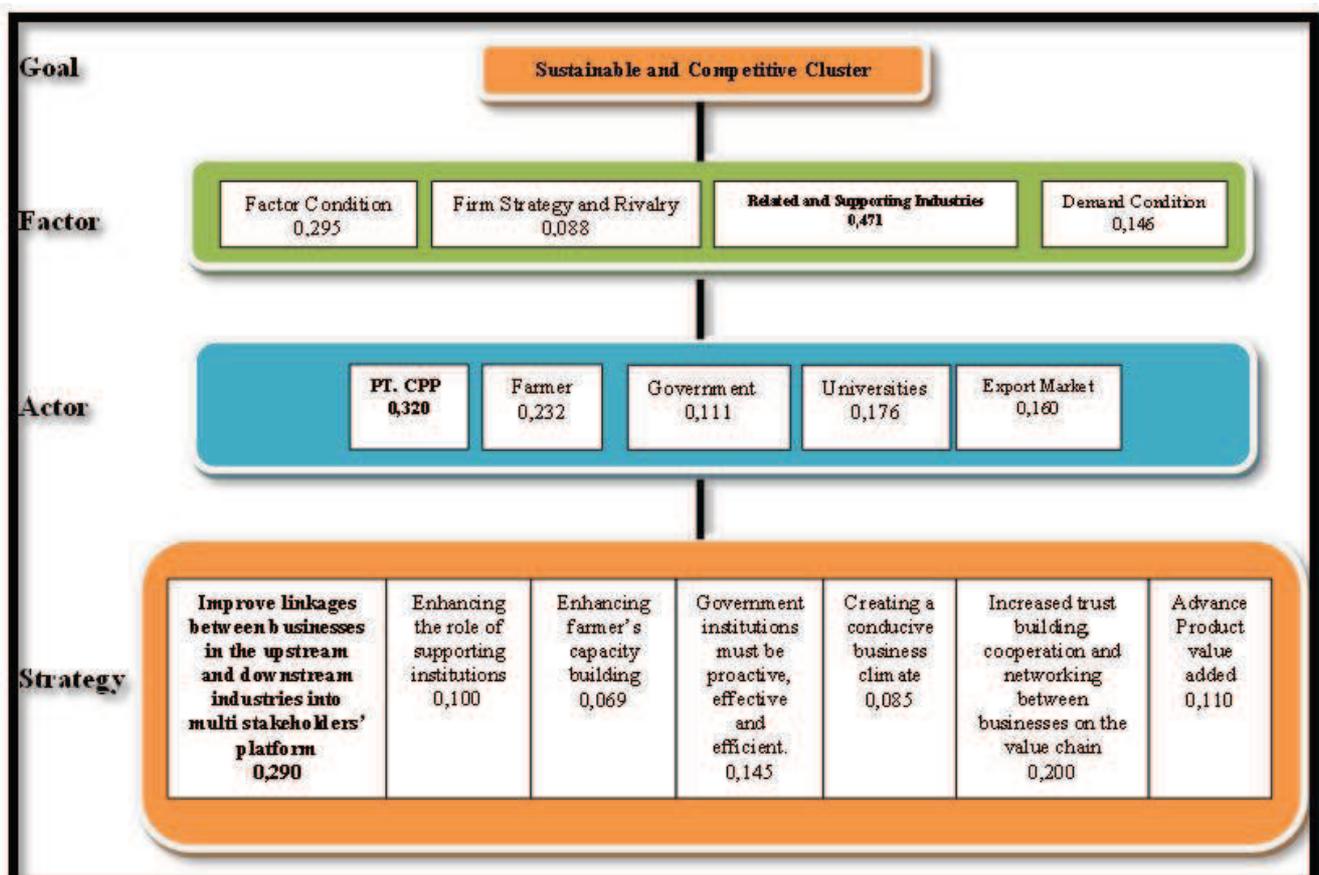


Figure 6. Analytical Hierarchy Process of Shrimp Cluster Development Strategic Framework

AHP analysis shown that to reach the goal to be sustainable an competitive cluster, the strategy should be the priority is a improve linkages between businesses in the upstream and downstream industries into multi stakeholders' platform in shrimp industry. Moreover, the strategy should be implemented by PT. CPP as the main actors and champion in the cluster, to invite other actors to develop shrimp industry together. It is understandable, since the Kampung Vannamei was built under their business strategy, so their willingness to open their success and shared vision will endorse the sustainability and competitiveness on shrimp industry. PT. CPP is a main factor in related and supporting business as key factor in sustainability and competitiveness. Their reputation as multinational company will be a guarantee to attract financial industry and ensuring international market. Therefore, PT. CPP as supporting business in shrimp industry could play role as avalist to shrimp cluster.

## CONCLUSIONS AND RECOMMENDATIONS

A lesson learn from the successful cluster development in Kampung Vannamei has shown the important of the private sector present and innovation contribution to the cluster. It is ensuring findings that a sustainable and competitive in shrimp cluster must have business perspective involve, along with long term strategy.

The shrimp cluster pyramids identify and mapping of stakeholder as placed farmers in top tiers, meanwhile the private sector; PT. Central Proteinaprima as supporting business, in second tier played important role with significant contributions to the shrimp cluster development. The diamond porters shown that those contributions placed PT. Central Proteinaprima as champion in cluster, in other word, the cluster development will not develop without the present and endorsement from the company.

There are 7 strategies could be implemented to develop sustainable and competitive shrimp cluster, taken from the alternative strategies formulate from TOWS matrix. However, it is recommended to implement the strategy base on priority especially strategy to improve linkages between businesses in the upstream and downstream industries into multi stakeholders' platform in shrimp industry. Other alternative strategies will follow as AHP results order.

## REFERENCES

- Pasonen M, Kurttila M, Kangas J, Kajanus M, and Heinonen P. (2000) Assessing the priorities using A'WOT among resource management strategies at the Finnish forest and park service, *Forest Science* 47(4):534-541.
- Porter ME. 1979. How Competitive Forces Shape Strategy. *Harvard Business Review*. March/April 1979.
- Porter ME. 1990. *The competitive advantage of nations*. New York: Free Press.
- Porter ME. 1998. Clusters and the new economics of competition. *Harvard Business Review* 76(6):77.
- Rauch P. 2007. SWOT analyses and SWOT strategy formulation for forest owner cooperations in Austria. *Eur J Forest Res* (126):413-420.
- Rosenfeld SA. 1997. Bringing Business Clusters Into The Mainstream of Economic Development, *European Planning Studies* (5).
- Saaty TL. 1980. *The analytic hierarchy process: Planning, priority setting, resource allocation*. McGraw-Hill International Book Co.
- Weihrich H. 1982. The TOWS matrix-A tool for situational analysis. *Long Range Planning* 15(2):54-66.
- World Economic Forum. The Global Competitiveness Report 2009-2010

## VOLUME 9 NO 1 MARET 2012

STRATEGI PENGEMBANGAN EKOWISATA DI TAMAN NASIONAL SEBANGAU KALIMANTAN TENGAH  
Ign. Anung Setyadi, Hartoyo, Agus Maulana dan E.K.S Harini Muntasib

LIBERALISASI KEUANGAN DAN PENGARUHNYA TERHADAP NILAI Q-TOBIN  
SEKTOR INDUSTRI DASAR DAN KIMIA DAN PERBANKAN  
Trias Andati, Hermanto Siregar, Bonar M.Sinaga, dan Noer Azam Achsani

FAKTOR-FAKTOR KUNCI YANG BERPENGARUH PADA EFEKTIFITAS PENGENDALIAN RISIKO KREDIT  
HC Royke Singgih, Eriyatno, Heni K. Daryanto dan Dedi Budiman Hakim

FAKTOR-FAKTOR YANG MEMPENGARUHI SUSTAINABILITAS PERTUMBUHAN  
FINANSIAL LEMBAGA KEUANGAN MIKRO DI INDONESIA  
Siti Sundari, Arief Daryanto, Mangara Tambunan dan Asep Saefuddin

PERANCANGAN MANAJEMEN KINERJA PENYELENGGARAAN PENDIDIKAN DAN PELATIHAN  
DENGAN ANCANGAN MANAGEMENT BY OBJECTIVES (MBO) DAN PERSPEKTIF BALANCED SCORECARD  
Ika Susanti, Aida Vitayala Hubeis, Sadikin Kuswanto

KEY SUCCESS VALUES IN RELATIONSHIP MARKETING OF AGRICULTURE PRODUCTS  
Muchlis Ahmady, Ujang Sumarwan, Budi Suharjo dan Agus Maulana



Jurnal Manajemen & Agribisnis memuat informasi hasil kegiatan penelitian, pemikiran konseptual dan review bidang ilmu manajemen dan agribisnis. Jurnal ilmiah ini diterbitkan oleh Program Studi Manajemen dan Bisnis, Sekolah Pascasarjana, Institut Pertanian Bogor. Mulai diterbitkan pada awal tahun 2004 dengan frekuensi terbit dua kali dalam setahun, yakni pada bulan Maret dan Oktober.