

# DEVELOPMENT OPPORTUNITIES FOR VENNAME SHRIMP FARMING IN EAST NUSA TENGGARA: A PROSPECTIVE ANALYSIS

Franchy Christian Liufeto<sup>1</sup>

Ade Yulita Hesti Lukas<sup>2</sup>

Wesly Pasaribu<sup>3</sup>

FPKP Univ Nusa Cendana, Indonesia

Email: [franchy.liufeto@staf.undana.ac.id](mailto:franchy.liufeto@staf.undana.ac.id)<sup>1</sup>, [ade.yulita@staf.undana.ac.id](mailto:ade.yulita@staf.undana.ac.id)<sup>2</sup>,

[wesly@staf.undana.ac.id](mailto:wesly@staf.undana.ac.id)<sup>3</sup>

\*Correspondence: [franchy.liufeto@staf.undana.ac.id](mailto:franchy.liufeto@staf.undana.ac.id)

**Abstract:** The research examines opportunities in the development of venname shrimp cultivation which is one of the main commodities in the pond cultivation business, but there are still many problems faced by farmers in the venname shrimp cultivation development business. The purpose of this research is to find out the efforts and priority strategies that can be applied in developing the venname shrimp business in East Nusa Tenggara. The results that the main opportunity in developing the venname shrimp business is a safe and controlled environment. While the biggest threat is the price of venname shrimp from other areas which is cheaper. The priority strategy that can be applied to efforts in developing venname shrimp cultivation businesses is by maintaining the quality, promotion of fisheries, venname shrimp distribution networks, partnerships, and private investment to redeem the export market, optimizing empowerment, increasing the number of seeding units and improving the infrastructure facilities for the cultivation site as well as improving the quality of farmers' resources technically, morally and spiritually through coaching activities to maximize the production and competitiveness of venname shrimp.

**Keywords :** Cultivation, Venname Shrimp, Development Opportunities.

## INTRODUCTION

Indonesia is an archipelagic country that has an extraordinary amount of natural wealth. Indonesia's sea area is two-thirds of its land. The total sea area of Indonesia is 3.544 million km<sup>2</sup>. Indonesia has the second longest coastline in the world after Canada with a length of 104 thousand km. In addition to the long coastline,

Indonesia has the largest number of islands, namely 17,504 islands spread from Sabang to Merauke. So with the picture of abundant natural resources in the sea and coast, it is appropriate that Indonesia's development is maritime-oriented, one of which is in the fisheries sector (Pursetyo K.T., Wahju T., 2015).

Fisheries in Indonesia are divided into three categories of waters, namely

salt water, fresh water and brackish water. Of the three categories that have advantages due to the controllable production process and ease in the harvesting process is brackish water cultivation (pond) (Jamaluddin, N.J., Ratniarsih, I. & Widjajanti, 2013). The potential of pond cultivation can be seen from the area of Indonesian pond land which continues to increase. The area of ponds in Indonesia in 2010 reached 2.9 million hectares and only utilized around 0.7 million ha. This means that there is still an opportunity of around 2.2 million ha to develop Indonesia's coastline (KKP, 2012).

Shrimp farming is one example of aquaculture that is developing and has profitable prospects. Shrimp is a commodity determined by the Ministry of Marine Affairs and Fisheries as the mainstay commodity of aquaculture fisheries. Shrimp production is projected to increase by 74.75% from 403,000 tons in 2010 to 699,000 tons in 2014. The increase in total national shrimp production in 2010 was dominated by vaname shrimp species amounting to 207,855 tons or 59% of total national shrimp production, while tiger shrimp production amounted to 116,944 tons or 33% of total national shrimp production, and the remaining 8% were other shrimp species (Afrianto S, 2014).

Venname shrimp (*Litopenaeus vannamei*) or known as pacific White Shrimp is an introduced shrimp that is economically high value because it is in demand by the American and world markets (Sugama, 2002). Vaname shrimp

(*Litopenaeus vannamei*) is a type of shrimp that is widely cultivated in Indonesia because this shrimp has many advantages. Vaname shrimp (*Litopenaeus vannamei*) has disease resistance as well as a high level of productivity. Venname shrimp need for relatively low feed protein content, and fast growing, tolerant of water temperature, dissolved oxygen and relatively low salinity (Sudrajat A, 2010). In addition, this vaname shrimp can be raised with high stocking density because it can utilize feed and space more efficiently. This is what makes many farmers in Indonesia cultivate it (Sumeru, 2009).

The main problem that is often found in the failure of venname shrimp production is the poor quality of water during the rearing period, especially in intensive ponds. At high stocking and abundant feeding can reduce water quality conditions (Yuniasari, 2009). Despite various problems, until now venname shrimp commodities are still the main choice for cultivation by farmers. This is because economically the success of harvesting venname shrimp, the size of consumption provides the highest profit per unit time compared to other fish commodities, besides that venname shrimp has a good market price and is certainly relatively stable.

## METHOD

This research was conducted in East Nusa Tenggara from September to October 2023. The determination of the

sample used in this study is a non-probability sampling technique with a purposive method. With the number of respondents taken is 10 people. The selection of respondents is chosen intentionally and willing to be interviewed as a step in collecting data from respondents'

The research method used is qualitative descriptive research method. Used to identify a general description of the condition of vaname shrimp farmers and identify strengths and weaknesses from internal factors as well as opportunities and threats from external factors in an effort to develop vaname shrimp farming business at the research location.

To identify strengths and weaknesses from internal factors as well as opportunities and threats from external factors in an effort to develop a vaname shrimp farming business in East Nusa Tenggara using SWOT analysis. SWOT analysis is the systematic identification of various factors to formulate a company strategy. This analysis is based on logic that maximizes *strengths and opportunities*, but simultaneously minimizes *weaknesses and threats* (Rangkuti, 2001).

## LITERATURE REVIEW

### Shrimp

Types of shrimp other than vaname shrimp are tiger shrimp. Tiger shrimp farming has reached its climax with high production through intensive systems until 1990, then declined very sharply due to disease outbreaks caused

by viruses and poor environmental conditions. The government has been trying to increase shrimp production through the introduction of vaname shrimp, a type of white shrimp originally from the coast of the United States and Hawaii (Suyanto R, 2009).

Vaname shrimp have a segmented body and each segment has a pair of limbs that are generally bibranched or biramus. *L. vannamei* has superior cultural characteristics. Vaname shrimp can gain more than 3 grams per week in high-density cultures (100 shrimp/m<sup>2</sup>). The weight of adult shrimp can reach 20 grams and above that weight. *Panaeus vannamei* grows slowly, which is about 1 gram / week. Female shrimp grow faster than male shrimp. *L. vannamei* has a wide salinity tolerance, ranging from 2-40 ppt, but will grow rapidly at lower salinities, when the environment and iso regions are osmotic (Suhabawa, 2018).

The morphology of vaname shrimp consists of the head of vaname shrimp consisting of antennula, antennae, mandibula and 2 pairs of maxillae. The shrimp head is also equipped with 3 pairs of maxilliped and 5 pairs of walking legs (*paripods*) or ten-legged (*decapoda*). The abdomen consists of 6 internodes. On the abdomen there are 5 pairs of swimming legs and a pair of *uropods* (similar to the tail) that form a fan together with the telson. The important characteristics of vaname shrimp are as follows: active in gelab conditions (nonturnal), can live in a wide salinity range (*euryhaline*), likes to prey on the same sex (cannibals), slow-eating,

but continuous type (*continuous feeder*), likes to live at the bottom of the pond (benthic), forages through sensor organs (*chemoreceptor*).

### **Strategy Management**

Strategy is a tool to achieve company goals in relation to long-term goals, follow-up programs as well as resource allocation priorities. Strategy is also a process or series of decision-making activities that are fundamental and comprehensive along with the determination of how to carry it out made by the leader and implemented by all levels in an organization or company (Rangkuti, 2006).

In line with the development of the concept of strategic management, strategy is not only defined solely as a way to achieve goals, because strategy in the concept of strategic management includes also the application of various goals itself (through various strategic decisions made by company management that are expected to ensure the maintenance of the company's competitive advantage. Strategy is also understood as a pattern that includes both planned strategies and strategies that were not originally intended by the company but became strategies that were considered and even chosen by the company to be implemented (Solihin, 2012). Strategy management is part of the art and knowledge in formulating, implementing and evaluating decisions that enable an organization to achieve its goals. Management strategy focuses on efforts to integrate management,

marketing, finance, production, research, and development, as well as management information systems to achieve organizational success. Strategy management aims to create new opportunities (David, 2009). According to (Hunger, D, 2003), The concept in strategic management is to apply the concept in the long term which is used as a technique to be interconnected, strategic management has been successfully developed and used for the company's business.

### **Internal Environment and External Environment**

#### 1. Internal Environment

Internal Environmental Analysis of the company requires the collection and matching of information regarding management, marketing, finance, production, research and development as well as the company's management information system. Internal environment analysis is useful to find out the strengths and weaknesses of the company, so it can be useful for companies to know the extent to which each division in the organization can function properly (David, 2009).

### **Management**

The management function consists of 5 main activities, namely planning, organizing, motivating, staffing, and controlling staff.

### **Planning**

Planning is the process of determining a business to be run, finding the most effective way to achieve company goals and preparing to face

various unexpected difficulties with adequate resources.

### **Organizing**

Organizing aims to achieve a coordinated effort by means of determining tasks and authority relationships. Organizing means determining who does what, and who should give responsibility to whom.

### **Motivation**

Motivation is the process of influencing others to do a certain thing. The function of motivation consists of 4, namely leadership, group dynamics, communication, and organizational change.

### **Staffing**

Staffing activities play an important role in strategy setting efforts, therefore human resource managers are more actively involved in the strategy management process. The staffing management function includes various activities, such as recruitment, interviewing, testing, selection, onboarding, training, development and so on.

### **Controlling**

The control function includes all activities carried out to ensure that actual operations are in line with planned operations. This function is very useful for conducting strategy evaluation.

### **Marketing**

Marketing can be described as the process of defining, creating and fulfilling consumer needs and desires for products and services. Marketing has seven main functions, namely consumer

analysis, product/service sales, product/service planning, pricing, distribution, market research, and opportunity analysis. The marketing function can help devise strategies to identify and evaluate marketing strengths and weaknesses.

#### 1. Finance

Financial analysis is the most widely used method to determine the strengths and weaknesses of an organization.

#### 2. Production

The production function in business includes all activities that convert inputs into goods or services. Production management handles inputs, transformations and diverse outputs from one industry and market to another industry and market.

#### 3. Research and Development

Today many companies do not have research and development (R&D) divisions, but many others rely on successful R&D activities to stay afloat. Companies executing product development strategies need to have a strong R&D orientation.

#### 4. Management Information System

Information connects all business functions and provides the foundation for all managerial decisions. The purpose of management information systems is to improve the performance of a business by improving the quality of managerial decisions. An effective information system can collect, store and present information in such a way

that it is able to answer a variety of operating and strategic questions (David, 2009).

### **External Environment**

External Environment Analysis aims to find out opportunities that can benefit a company and threats that companies must avoid. External forces are divided into five categories, namely economic forces, social forces, cultural, demographic, and environmental forces, political, governmental and legal forces, technological forces, and competitive forces. Changes in the external environment can affect changes in consumer demand for products and services. External forces influence the type of product developed, market segmentation strategy, type of services offered, and choice of business to be bought or sold. Directly, external forces affect both suppliers and distributors. Identifying and evaluating external opportunities and threats helps companies to develop a clear mission, design strategies to achieve long-term goals, and develop various policies to achieve goals (David, 2009).

### **Economic strength**

The economic condition of a region or country can affect the business climate of a company. The worse the economic conditions, the worse the climate of an enterprise. Therefore, the government and all levels of society should jointly maintain or even improve the economic conditions of their regions to be better so that companies can move forward in their business.

### **Social, Cultural, Demographic and Environmental Forces**

Social, cultural, demographic and environmental changes have a profound impact on almost all products, services, markets, and consumers. Social, cultural, demographic and environmental trends shape the way we live, work, produce and consume. These new trends create different types of consumers and consequently create different needs for different products, services and strategies.

### **Political, Governmental, and Legal Power**

Political, governmental, and legal factors can pose major opportunities and threats to both small and large businesses. The direction, policy and political stability of the government are important factors for entrepreneurs to run their businesses. A political situation that is not conducive will have a negative impact on the business world, and vice versa.

### **The Power of Technology**

Revolutionary technological changes and inventions have a significant impact on organizations. The power of technology represents great opportunities and threats that must be considered in strategy formulation. Technological advances can create new markets, develop higher quality products, streamline the use of costs, and provide a better competitive advantage.

### **Climate and weather**

Climate and weather will affect the purchase price of raw materials so that it

can affect production costs within the company.

### Competitive Strength

The intensity of competition between companies varies greatly from one industry to another. The collective impact of competitive forces is felt for companies causing the market to become unattractive from a profit seeker's point of view. Competition between existing companies is fierce, new competitors can enter the industry with relative ease and both suppliers and competitors (David, 2009).

### SWOT Analysis

SWOT analysis is the systematic identification of various factors to formulate a company's strategy. This analysis is based on logic that can maximize *strengths and opportunities, but simultaneously minimize weaknesses and threats*. The strategic decision-making process is always concerned with the development of the company's mission, goals, strategies, and policies. Thus strategic planning must analyze the company's strategic factors (strengths,

weaknesses, opportunities and threats) in the current conditions. This is called Situation Analysis. The most popular model for situation analysis is SWOT Analysis (Rangkuti, 2006).

The basic components of a SWOT analysis are as follows:

1. Strength is a special compensation that provides a competitive advantage for business units in the market.
2. Weakness of limited resources that hinder the effective performance of business units.
3. Opportunity (*opportunity*) is an important characteristic that benefits the environment.
1. Threat is an important characteristic that does not benefit the business unit environment (Solihin, 2012).

## RESULT AND DISCUSSION

### Analysis of Internal and External Factors

Internal and external factors of venname shrimp farming business can be seen in Table 1.

Table 1. IFE matrix

No	Internal Strategic Factors	Weight	Rating	Score
<b>Strength</b>				
1.	Location close to raw materials and easy transportation	0,074	3,500	0,259
2.	Quality products produced	0,082	3,500	0,287
3.	Good relationship and service to the community	0,079	3,500	0,277
4.	Districts used for seeding	0,082	4,000	0,382
5.	Already strong network marketing	0,079	3,500	0,277
6.	Good communication between owners and employees	0,093	3,000	0,279
7.	High profit	0,090	2,000	0,315
<b>Weaknesses</b>				

**1305 | Development Opportunities For Venname Shrimp Farming In East Nusa Tenggara: A Prospective Analysis**

1.	The intended market is the same as other regions	0,063	2,000	0,126
2.	Natural feed still depends on the season	0,063	1,500	0,095
3.	The amount of venname shrimp fry production fluctuates	0,067	1,500	0,101
4.	The loss of seed death on delivery is the responsibility of the cultivator	0,063	2,000	0,126
5.	Absence of insurance from the government	0,085	1,500	0,0128
<b>Total</b>		1,000		2,648

**Tabel 2. Matriks EFE**

No	External Strategic Factors	Bobot	Rating	Score
<b>Chance</b>				
1.	Increased number of venname shrimp farms	0,080	3,000	0,240
2.	There is a government policy that encourages an increase in venname shrimp exports	0,084	3,000	0,252
3.	Declining tiger shrimp production	0,150	3,500	0,368
4.	Build good relationships with suppliers	0,082	3,500	0,287
5.	The price is relatively low compared to tiger shrimp	0,084	3,000	0,252
<b>Threat</b>				
1.	Competition between similar commodities	0,093	3,000	0,279
2.	There is an increase in hatchery costs	0,089	3,000	0,267
3.	Climatic circumstances affecting the availability of raw materials	0,095	3,000	0,285
4.	The threat of substitution products	0,089	2,500	0,223
5.	The presence of diseases and bacteria	0,098	3,500	0,343
<b>Total</b>		1,000		3,157

**Identify Strengths, Weaknesses, Opportunities and Threats**

Based on the results of the analysis of internal and external factors, it can be identified strengths, weaknesses,

opportunities and threats that affect the development of venname shrimp farming in East Nusa Tenggara (NTT). These factors can be seen in table 3.

**Table 3. Identification of Strengths, Weaknesses, Opportunities and Threats in the development of venname shrimp farming in East Nusa Tenggara (NTT).**

Internal Factors	Strength	Debilitation
Human Resources	-	The farmer's ability is limited
Marketing	Quality of venname shrimp Continuity of venname shrimp yields	Poor transport conditions
Product / operational Management	Easy cultivation and little risk	Less optional management



	Potential resources owned	Unable to cultivate their own venname shrimp hatchery and nursery
	Saprodi is easy to get	Poor farmer financial management
<b>External factors</b>	<b>Chance</b>	<b>Threat</b>
Economic conditions	-	Increase in the price of basic necessities and animal feed
Social and Cultural	Growing demand for shrimp products	Social inequality
	Close relationships with stakeholders	Waste disposal that disturbs the community
	Safe and controlled environmental conditions	
Politics and law	Government attention to the development of shrimp farming	-
Technology	Development of food management technology	-
Competition		The price of venname shrimp from other regions is lower
		Increased marketing of marine fish

### Alternative Strategy

In formulating alternative strategies in an effort to develop

venname shrimp farming business in East Nusa Tenggara (NTT), SWOT Matrix analysis is used as in table 4.

**Table 4. SWOT Matrix Alternative Venname Shrimp Development Efforts**

	Power - S	Disadvantages - W
	1. Quality of venname shrimp	1. The farmer's ability is limited
	2. Easy cultivation and little risk	2. Unable to cultivate their own venname shrimp hatchery and nursery
	3. Saprodi is easy to get	
	4. Continuity of venname shrimp yields	
	5. The potential of natural resources owned	
Opportunity - O	Strategists - SO	Strategy - WO
1. Safe and controlled environmental conditions	1. Maintaining quality, fisheries promotion, venname shrimp distribution network, partnerships and private investment, to redeem the export market.	1. Optimization of empowerment, increase in the number of hatchery units and improvement of cultivation infrastructure.
2. Have a close relationship with distributors		2. Increasing marketing of venname shrimp processed products
3. Development of food management technology		

4. The demand for products is increasing	2. Increased cultivation land and utilization of existing resources with government support	through the promotion of superior products accompanied by coordination between related agencies in the context of capital and market development of venname shrimp processed products.
5. Government attention to the development of venname shrimp farming		
Threat - T	Strategy - ST	W-T Strategy
1. The price of venname shrimp from other regions is cheaper	1. Maintain and improve the quality of venname shrimp enlargement products and efficient use of production facilities	1. Improve the quality of farmers' resources technically, morally and spiritually through coaching activities to maximize the production and competitiveness of venname shrimp
2. Increased marketing of marine fish		
3. Increase in the price of basic necessities and animal feed	2. Maximum management of natural resources and waste by the government and the community	2. Establish cooperation with the surrounding community in order to maintain harmony and increase job opportunities.
4. Social inequality		
5. Venname shrimp disposal waste that disturbs the community		

**Strategy Priorities**

The results of the analysis of strategic priorities in an effort to develop venname shrimp farming business in East Nusa Tenggara (NTT) are as follows:

1. Maintaining quality, fisheries promotion, venname shrimp distribution network, partnerships, and private investment to redeem the capital market.
2. Optimization of empowerment, increasing the number of hatchery units (People's Hatchery Units) and improving the infrastructure of cultivation locations.
3. Improve the quality of farmers' resources technically, morally

and spiritually through coaching activities to maximize the production and competitiveness of venname shrimp.

**Conclusion**

Based on the results of research on opportunities for the development of venname shrimp farming in East Nusa Tenggara (NTT) can be concluded as follows:

1. The main strength in developing a good venname shrimp farming business and has been recognized by the community and its weakness is low farmer skills. While the main opportunity is a safe and controlled environment, the biggest threat is

the cheaper price of venname shrimp from other regions.

2. Priority strategies that can be applied in an effort to develop venname shrimp farming business in East Nusa Tenggara are maintaining quality, fisheries promotion, venname shrimp distribution network, partnerships, and private investment to redeem export markets, optimizing empowerment, increasing the number of hatchery units and improving the infrastructure of cultivation locations as well as improving the quality of farmer resources technically, morally and spiritually through coaching activities to Maximizing the production and competitiveness of Venname shrimp.

## REFERENCE

- Afrianto S, M. (2014). Manajemen Produksi Nauplius Udang Venname (*Litopenaeus vannamei*) di Instalasi pembenihan udang balai perikanan budidaya air payau, gelung, Situbondo, Jawa Timur. *Jurnal Ilmu Perikanan*, 53–64.
- David, F. . (2009). *Manajemen Strategis Konsep Edisi Keduabelas*. Jakarta: Salemba Empat.
- Hardianto, T., Suleman, Y., Mustafa, F. T., & Triadi, F. (2022). Economic Analysis of Sustainable Admission Business in Development Area Tanete Riattang East Bone. *Jurnal Ilmiah Ilmu Administrasi Publik: Jurnal Pemikiran dan Penelitian Administrasi Publik*, 12(1), 49-60.
- Hunger, D, K. dan T. L. W. (2003). *Manajemen Strategis*. Yogyakarta: Andi.
- Jamaluddin, N.J., Ratniarsih, I., D., & Widjajanti, W. W. (2013). Perencanaan dan Perancangan Pusat Pengembangan Budidaya Ikan Bandeng Tambak Sidoarjo. *Jurnal IPTEK*, 51–60.
- KKP. (2012). *Laporan Akuntabilitas Kinerja Kementerian Kelautan dan Perikanan*. Jakarta.
- Pratiwi, R., Sudiarsa, I. N., Amalo, P., & Utomo, Y. W. W. (2022). Production Performance of Super Intensive Vannamei Shrimp *Litopenaeus vannamei* at PT. Sumbawa Sukses Lestari Aquaculture, West Nusa Tenggara. *Journal of Aquaculture & Fish Health*, 11(1).
- Pursetyo K.T., Wahyu T., H. P. (2015). Perbandingan Morfologi Kerang Darah di Perairan Kenjeran dan Perairan Sedati. *Jurnal Ilmiah Kelautan Dan Perikanan*, 31–33.
- Rangkuti, F. (2001). *Analisis SWOT Teknik Membedah Kasus Bisnis*. Jakarta: Gramedia Pustaka Utama.
- Rangkuti, F. (2006). *Analisis SWOT Teknik Membedah Kasus Bisnis*. Jakarta: PT Gramedia Pustaka Utama.
- Rimmer, M. A., Sugama, K., Rakhmawati, D., Rofiq, R., & Habgood, R. H. (2013). A review and SWOT analysis of aquaculture development in Indonesia. *Reviews in*

*Aquaculture*, 5(4), 255-279.

Solihin, I. (2012). *Manajemen Strategik*. Jakarta: Erlangga.

Sudrajat A, W. (2010). *Budidaya Udang di Sawah dan Tambak*. Penebar Swadaya. <https://doi.org/S01170>

Sugama, K. (2002). Status budidaya udang introduksi *Litopenaeus vannamei* dan *Litopenaeus Stylirostris* serta prospek pengembangannya dalam tambak air tawar, Disampaikan dalam Temu Bisnis Udang . Makassar, 19.

Suhabawa, L. (2018). *Teknik penanganan*

*hasil perikanan*. Yogyakarta: gadjah Mada University Press.

Sumeru, S. (2009). *Pakan Udang*. Yogyakarta: Kanisius.

Suyanto R, T. E. (2009). *Panduan Budidaya Udang windu*. Jakarta: Penebar Swadaya.

Yuniasari. (2009). Pengaruh pemberian bakteri nitrifikasi dan denitrifikasi serta molase dengan C/N Rasio berbeda terhadap profil kualitas air, kelangsungan hidup, dan pertumbuhan udang venname (*litopenaeus vannamei*). *Fakultas Perikanan Dan Ilmu Kelautan*.



© 2023 by the authors. Submitted for possible open access publication under the terms and conditions of the Creative Commons Attribution (CC BY SA) license (<https://creativecommons.org/licenses/by-sa/4.0/>).