International Journal of Progressive Sciences and Technologies (IJPSAT)
ISSN: 2509-0119.

Vol. 38 No. 2 May 2023, pp. 245-251

Analysis Of The Socio-Economic Impact Of The Vannamei Shrimp (Litoanaeus Vannamei) Fishery Business Activities On Local Communities In Padang Pariaman Regency

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Abstract – The shrimp commodity in Indonesia is a leading commodity in the fisheries sector which is produced from aquaculture activities. Apart from that, it is also because shrimp farming business activities are able to make a sizeable contribution to earning foreign exchange, cultivator income, creating jobs, and business opportunities. The purpose of this research is to analyze the socio-economic impact of the vannamei shrimp (*Litoanaeus vannamei*) fishery business activities on local communities in Padang Pariaman Regency. The research method that will be used in this research is descriptive quantitative research. The results of the study show that the socio-economic impact that is most felt by the surrounding community from the vannamei shrimp pond fishery business activities in Padang Pariaman Regency is on the community involvement variable as there are already some people who want to open vannamei shrimp ponds and the community is motivated to cooperate with the ponds in shrimp farming business activities and the largest increase in income is in the village community of Simp 4 Palanggahan, Kampung Dalam District, with an increase in income of 10.30%.

Keywords – shrimp ponds; the impact of increasing income; socio-economic.

I. INTRODUCTION

Shrimp are animals that live in fresh water, brackish water and sea water. Shrimp is one of the food menus served in a place to eat. Shrimp can be processed into various types of dishes. Shrimp not only have a delicious sweet and savory taste but also have health benefits, so it's no wonder that many people like processed shrimp food. Shrimps contain various vitamins, namely, protein, phosphorus, choline, iodine, vitamin B3, vitamin B6, vitamin B12, zinc, vitamin E, vitamin A (Hakim et al., 2018)

One of the health benefits of shrimp is to lower cholesterol levels. Shrimp shells contain a food ingredient in the form of chitin which has the ability to bind fat/cholesterol. Chitin compounds contained in shrimp shells can reduce LDL cholesterol (total cholesterol) and increase HDL cholesterol (good cholesterol) levels in blood serum (Isdadyanto et al., 2004).

Hakim et al., (2018) said that the shrimp that are widely cultivated in Indonesia are vannamei shrimp and tiger shrimp. Many tiger prawns are traditionally cultivated but are more susceptible to disease and have a longer growth or maintenance period than vannamei shrimp. Litopenaues vannamei or known as vannamei shrimp is a new variety that has a number of advantages, including more resistance to disease and low environmental quality, high stocking density, shorter rearing time of around 90-100

days per cycle.

In addition, vannamei shrimp are resistant to disease and low environmental quality is related to shrimp survival against organic and inorganic contaminants, where they still survive normally until they are suitable for consumption. Vannamei shrimp have been successfully cultivated using intensive technology as well as traditional or modern methods, while tiger prawns are still cultivated using simple or traditional technology (Hudi and Shahab, 2005).

Shrimp is one of the important commodities in Indonesia. Shrimp contribute around 1.8% of non-oil and gas foreign exchange and provide employment for 1.7 million people (International Finance Corporation/IFC, 2007). However, shrimp development is constrained by low productivity. IFC Studies (2006, 2007); USAID (2006); and World bank (2006) respectively for Indonesia, Negeria, Bangladesh, and these countries are able to compete in the international market. In line with this, Helble and Okubo (2006) stated that sustainable export success can only be achieved if productivity is high (KKP, 2015).

The shrimp commodity in Indonesia is a leading commodity in the fisheries sector which is produced from aquaculture activities. Apart from that, it is also because shrimp farming business activities are able to make a sizeable contribution to earning foreign exchange, cultivator income, creating jobs, and business opportunities.

Ponds are ponds built in tidal areas and are used partly for cultivating fish, shrimp and other animals that normally live in brackish water. Most of the water sources that enter the pond come from the sea during high tides. Ponds are an alternative to seeking land use on the beach, ponds are also an inland fishery activity which can only be carried out in areas that are supported by the ease of obtaining sea water as live fish and shrimp, which generates income for pond farmers (Novyanti et al., 2016).

With the existence of shrimp ponds in Padang Pariaman Regency, it will also have an impact on the income of the people who participate in vannamei shrimp production activities. Until now there has been no research that analyzes the impact of vannamei shrimp pond activities on the environmental and economic conditions of the community around the shrimp pond area. Based on the description above, the purpose of this research is to analyze the socio-economic impacts of the vannamei shrimp (*Litoanaeus vannamei*) fishery business activities on local communities in Padang Pariaman Regency.

II. RESEARCH METHODS

The research method that will be used in this research is descriptive quantitative research. It is hoped that it will be able to describe the socio-economic impacts of vannamei shrimp pond activities on the community around the pond area and analyze the strategy for developing a shrimp pond business in Padang Pariaman Regency.

The types of data used are primary data and secondary data. Primary data is data obtained directly from the object to be studied. Primary data was obtained using the direct interview method with the main actors involved in vannamei shrimp pond cultivation activities in Padang Pariaman Regency using a questionnaire, while the primary data to be collected is:

Secondary data is data obtained not directly from the object under study. This data is usually in the form of documents, either those that have not or have undergone modification and further processing. To obtain secondary data is done by documentation techniques. Secondary data was obtained from books and documents related to research, such as profiles of shrimp ponds, data from the Central Bureau of Statistics for Pariaman Regency, Reports from the Office of Social Affairs and Labor, and BAPPEDA of Padang Pariaman Regency.

Data collection technique

The collection of data used in this study includes:

a. Questionnaires or questionnaires were distributed to the main actors involved in the production of vannamei shrimp ponds in Padang Pariaman Regency with the number of respondents determined by the researcher.

b. Interviews, namely data collection techniques by asking questions directly to informants or respondents based on the research objectives. This interview was conducted with informants who know broadly and deeply about the research variables.

c. Observations were made of various phenomena that occurred at the research location related to the impact of vannamei shrimp pond cultivation activities in Padang Pariaman Regency.

d. Documentary studies, derived from literature studies and scientific journals.

To determine the respondents in this study, the census method was used, namely all the main actors in the production of vannamei shrimp ponds in Padang Pariaman Regency.

Data analysis

Analysis of the socio-economic impact of vannamei shrimp (*Litoanaeus vannamei*) pond activities on this community uses the one-way Anova (Analysis of Variant) test, which is a comparative test used to test differences in mean (average) data over of the two variable groups.

The variables used in this analysis are divided into two main variables, namely social impact and economic impact. Social impact variables are (1) Mitigation efforts, (2) Community involvement and (3) (stakeholder) involvement. Furthermore, variables in economic impact include (1) Income, (2) Health, and (3) Education. ANOVA Test in this study using the SPSS application.The steps in the ANOVA test are as follows:

a) Homogeneity Test

According to Hakim (2002) the homogeneity test is used to test whether two (or more) populations are homogeneous (same) with respect to a particular trait distribution. One Way Anova test can be done if the data has the same variance. Data variance can be tested using the Levene test. If the sig value > 0.05 then the data is assumed to have the same variance. If the sig value < 0.05, the data is assumed to have unequal variance (Ilhamzen, 2013)

b) Hypothesis Testing

Hypothesis testing is done with a statistical test tool, namely analysis of variance. According to Hakim (2002) analysis of variance is a hypothetical test of the mean of more than two populations. Analysis of variance used is Ove Way Anova (one way Anova). One Way Anova, commonly known as one-factor completely randomized of Anova, is a hypothesis test of the mean difference or more than two populations if each member involved in the measurement is free to be located in any population, meaning that there is no gap to arrange the position of a member in a group. certain population (so called completely randomized) (Hakim, 2002).

According to Ilhamzen (2013), the One Way Anova test is a type of parametric statistical test which aims to determine whether there is an average difference between more than two sample groups. What is meant by one direction is the source of the diversity that is analyzed only takes place in one direction, namely between treatments (between groups).

Hypothesis:

Ho : $\mu 1 = \mu\ 2 \ldots = \mu\ k$ (means of all groups are the same) There is no difference in all socio-economic variables for the people of vannamei shrimp ponds in Padang Pariaman Regency.

Ha : $\mu\ 1 \neq \mu\ 2$ (there are means of two or more groups that are not the same) there are differences in all socio-economic variables for the people of vannamei shrimp ponds in Padang Pariaman Regency.

III. Results And Discussion

Analysis of the socio-economic impact of vannamei shrimp (*Litoanaeus vannamei*) pond activities on this community uses the one-way Anova (Analysis of Variant) test, which is a comparative test used to test differences in mean (average) data over of the two variable groups.

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Social Impact

a) Disaster Mitigation

It is necessary to know the disaster mitigation efforts that have been carried out by the Padang Pariaman Regency ponds in

order to identify possible impacts due to the activities of the ponds and what disaster mitigation has been carried out by the Padang Pariaman Regency ponds to take part in disaster anticipation.

The results show that as much as 82.93% of the community stated that the shrimp pond activities in Padang Pariaman Regency also participated in natural disaster mitigation, namely that they had implemented waste screening before being discharged into the waters/last waste disposal site. Since pond activities began to be established/began to operate, the pond has provided information about the positive and negative impacts of the establishment of the pond. These results show that most people answer that there is a social impact (disaster mitigation) felt by the surrounding community from the establishment of shrimp ponds in Padang Pariaman Regency.

One of the impacts of disaster mitigation felt by the community is the avoidance of abrasion disasters. Abrasion is one of the negative impacts resulting from climate change. Indonesia as an archipelagic country is very vulnerable to the risk of abrasion. One of the provinces in Indonesia that has high abrasion vulnerability is Central Java Province. Abrasion in Central Java Province is mostly caused by natural processes (Marfai, 2011). Abrasion in the northern part of Central Java Province causes damage to mangrove ecosystems, seaweed, coral reefs and ponds (MFF, 2011). Furthermore, abrasion that occurred on the north coast of Central Java also caused changes to the coastline (Bagli and Soille, 2003; Sunarto, 2004; Mills et al. 2005, Marfai et al., 2008).

Maulana et al., (2016) said that the high level of risk caused by abrasion requires serious handling so as not to damage the coastal environment. One way that can be done to minimize the risk of abrasion is to carry out mitigation efforts. Mitigation is grouped into two, namely structural mitigation and non-structural mitigation. Structural mitigation is an effort to reduce disaster risk by carrying out physical construction such as the construction of talud, gabions and so on. Non-structural mitigation is an effort to reduce disaster risk by increasing community capacity, such as outreach, simulations, and so on. Structural mitigation efforts are more widely applied in several regions in Indonesia to reduce the risk of abrasion.

b) Community Engagement

In accordance with the expectations of the Padang Pariaman Regency ponds, it is hoped that the existence of this shrimp pond can have a social impact on involving the local / surrounding community at the pond location. In addition to increasing the quality of the shrimp ponds themselves, it is also to increase the knowledge of the local community.

Several forms of community involvement in pond activities include (1) the pond consults directly with the community/representatives before establishing the pond; (2) the pond holds public consultations with the wider community, including vulnerable groups such as women, the elderly, disabled, poor, less educated; (3) the ponds prioritize as far as possible the provision of job opportunities to local people who meet the requirements; (4) the farm ensures that the agreement and work situation related to shrimp farming is consistent with the regulations given by the community; (5) the farm has implemented avoidance of underage labor or forced labor through various means; (6) the existence of this shrimp pond activity also motivates the community to become shrimp cultivators; (7) the existence of this shrimp pond activity helps strengthen social ties between communities.

These results show that most of the community has felt the social impact by being involved in the performance of vannamei shrimp ponds in Padang Pariaman Regency.

Law No. 5 of 1984 Article 3. Industrial development aims to increase the prosperity and welfare of the people in a fair and equitable manner by utilizing funds, natural resources and/or cultivation products and by taking into account the balance and sustainability of the environment. The development of the shrimp pond industry must be able to play a role in providing employment for the surrounding community as well as being able to boost the economy of the surrounding area. One of the efforts that can be made is by utilizing workers from the surrounding community, who can be shrimp pond owners, workers, and shrimp technicians. Communities can also participate by working in other related fields, such as making prawn crackers and shrimp paste

Raziqi (2016) stated that the production process in shrimp ponds which requires a lot of labor should also play a role in the lives of the people around the area, because one of the conditions for the establishment of an industry is to be able to improve the economy of the surrounding community both in terms of increasing income and employment. . Shrimp ponds can be used as new jobs or side jobs when agricultural land experiences crop failure or bad weather so that it becomes an alternative job to increase

people's income.

Economic Impact

a) Income

The economic impact that should be most felt by the community is an increase in income. Apart from that, the community also stated that they obtained additional income from shrimp pond activities in Padang Pariaman Regency. These results show that most people have felt the economic impact in terms of income but it has not been evenly distributed to all levels of society.

Raziqi (2016) says that the results of the study show that the shrimp pond industry can provide employment and increase income to the surrounding population by 13.99% of the total population of productive age in Galis District with an average worker income of Rp. 2,000,000 and on average able to contribute to family income by 75% of total family income. The results are expected to be mutually beneficial and provide benefits to both parties. The surrounding community experienced an increase in income and got jobs from the shrimp ponds, and the ponds also felt helped by using workers from the surrounding community.

Based on the results of comparative calculations of community income before and after the existence of vannamei shrimp ponds in Padang Pariaman Regency, it can be seen that of the 48.78% of the people who answered that there was an economic impact on income, the average income increase was 12.19%, consisting of 65 residents of the village of Pelangahan. % , the community of Pasir Baru Village is 20% and the people of Belibis Beach are 15%. The average income of the people in Pasir Baru village, Kec. Sungai Limau before the existence of ponds was IDR 2,290,000 and the average income after shrimp ponds was IDR 2,399,600, the increase in community income in Pasir Baru Village, Kec. Sungai Limau is 3.61%. The average income of the people in the village of Pantai Belibis, Kec. North Pariaman before ponds were Rp. 2,310,000 and the average income after shrimp ponds was Rp. 2,397,500, the increase in community income in the village of Pantai Belibis, Kec. North Pariaman is 3.79%. The average income of the community in Simp 4 Palanggahan village, Kampung Dalam District before the pond was Rp. 2,423,809 and the average income after the shrimp pond was Rp. 2,656,476, so the increase in community income in Simp 4 Palanggahan village, Kampung Dalam District was 4 .79%. So it can be concluded that the biggest increase in income is in the village of Simp 4 Palanggahan, Kampung Dalam District, namely with an increase in income of 4.79%.

After grouping the increase in community income before and after the Padang Pariaman Regency ponds, income was grouped based on community groups, pond workers and stakeholders. The results show that the average increase in community income is 1.48%, the average increase in pond workers' income is 12% and the average increase in income of stakeholders in the area is 15.90%. So it can be concluded that the average increase in income is most felt by pond workers and stakeholders.

b) Health

The next economic impact is on the health variable, where health is an important indicator in one of the economies and people's welfare. The community feels assisted in terms of the economy such as health care assistance, providing integrated health management services to workers and the local community, especially for mothers and children under five, there have been services to respond to complaints and concerns related to public safety and health.

These results show that there is no health-economic impact from the addition of shrimp in Padang Pariaman Regency. It can be seen that until now there has been no provision of integrated health management services for workers and the local community, especially for mothers and children under five, and there has been no service to respond to complaints and concerns regarding the safety and health of the community around the vannamei shrimp pond area of Padang Pariaman Regency.

Ardika (2015) states that the treatment of employees in every organization requires management that is able to develop quality work in a systematic, planned, controlled and efficient manner. One of the things that should be a concern in employee management is occupational safety and health. The implementation of an occupational safety and health program for employees is very important because it aims to create conditions and work environment that are integrated and create a sense of security in order to reduce accidents.

These conditions were created to meet the demands of the labor law. According to Law no. 13 of 2003 Article 86 paragraph 1 states that every worker/laborer has the right to receive protection for: (1) occupational safety and health; (2) morals and decency; (3) treatment in accordance with human dignity and values as well as religious values. This law is intended to be

able to determine clear standards for work safety for all employees so that they receive protection for their safety in carrying out work for the welfare of life and increase national production and productivity.

Improving workplace safety and health, companies can reduce expenses while meeting the needs of their employees, as well as fulfilling their obligations to the wider community, because the OSH program can produce more productive employees who can carry out work creatively. In addition, K3 can encourage employees to work more optimally in completing their work, so as to increase work productivity (Ardika, 2015).

Although the shrimp ponds in Padang Pariaman Regency have not helped much in providing assistance in the health sector, the Padang Pariaman Regency ponds have not had an impact on the growth of dengue mosquito larvae in the Padang Pariaman Regency area, as we know that keeping mosquitoes or biota other water can help reduce mosquito larvae, this was proven in Wihartyas's study (2015) which stated that giving goldfish was proven effective in reducing mosquito larvae. Suggestions for the health office and puskesmas should socialize and facilitate the community to use goldfish in water reservoirs.

c) Education

The next economic impact is on the education variable, in which health is an important indicator in one of the economies and people's welfare. With the existence of shrimp ponds, the community feels helped in terms of education, such as assisting in providing training/counseling regarding education to the local community, especially the children of the local community. These results show that most of the community has felt the economic impact educationally, namely on the training that has been provided by the ponds of Padang Pariaman Regency.

Strategies or efforts to improve effective occupational safety and health can be seen from 5 (five) dimensions (Handoko, 2000): 1) Creating safe working conditions. Working conditions are a series of conditions or circumstances in the work environment of a company where employees work in that environment. Good conditions are comfortable and support workers to be able to carry out activities properly. The indicators of safe working conditions are as follows. (1) Availability of work protection for employees; (2) Availability of proper equipment used by the company; and (3) Supervision of work equipment periodically. 2) Occupational health & safety education and training.

Occupational safety and health (K3) training is training designed to equip personnel appointed by the company to be able to apply K3 in the workplace. K3 training aims to enable employees to understand and behave the importance of occupational safety and health, identify potes.

each variable, then the next step is to look at the differences in the five impact variables, this refers to the ANOVA table in table 1.

Table 1. ANOVA

ANOVA					
Y					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	1902.411	4	475.603	11.130	.000
Within Groups	573.875	16	35.867		
Total	2476.286	20			

From the ANOVA table it can be seen that the Sig column obtained a P-value of 0.000. Thus, at a significant level of 0.05, the authors rejected the hypothesis Ho and accepted the H1 hypothesis. it can be concluded that there are significant differences from each of the socio-economic impacts on the community from vannamei shrimp pond activities in Padang Pariaman Regency.

IV. CONCLUSION

The socio-economic impact that is most felt by the surrounding community from the vannamei shrimp pond fishery business activities in Padang Pariaman Regency is on community involvement variables such as the presence of some people who want to open vannamei shrimp ponds and the community is motivated to cooperate with the ponds in shrimp farming business activities and the biggest increase in income was in the village community of Simp 4 Palanggahan, Kampung Dalam District,

namely with an increase in income of 10.30%.

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