



The Economic Analysis of Fish Farming Business due to the Intervention of Community Direct Aid in Muaro Jambi Regency, Jambi Province, Indonesia

Darlim Darmawi^a, Jafrinur^b, Novirman Jamarun^{b}, Dwi Yuzaria^b, and Roni Pazla^c*

^a PhD Student, Animal Science Faculty, Universitas Andalas, Padang 25163, West Sumatera, Indonesia

^b Lectures Animal Science Faculty, Universitas Andalas, Padang 25163, West Sumatera, Indonesia

^c Lectures Animal Science Faculty, Andalas University, Kampus II, Payakumbuh, West Sumatera, Indonesia

ARTICLE INFORMATION

Article history:

Received: 26 August 2019

Revised: 12 October 2019

Accepted: 22 November 2019

Keywords:

Government intervention policy, economic analysis, implication effect

Correspondence:

* novirman55@gmail.com

ABSTRACT

This study analyzes the existing fish farming economic aspects' due to Community Direct Aid (CDA) intervention in the fish production center in Muaro Jambi Regency, Jambi Province. The research methodology uses survey methods. The data collection tool uses a questionnaire survey, and data analysis uses descriptive analysis, mathematical analysis, and income analysis. As a result, the fish farming of catfish farmers can generate income in a total of Rp. 660,272.410,- with the ability to generate income in 511% and efficient in using production costs. The implications of government political policy intervention on farmers as the activator subject of the economic aspects of fish farming business raise six items (60%) have positive effects, and four items (40%) have adverse effects. In conclusion, the income of fish farming in conditions that can generate overall income. The impact of government policy intervention on farmers as the driving subject of aquaculture's economic aspects.

©2019

INTRODUCTION

The Community Direct Assistance (CDA) is a government's political policy on the Rural Mina Business Development Program (RMBDP) for catfish farmers to obtain aid directly from the government. The assistance is expected to be used effectively by farmers in catfish farming in the fish production centers in Muaro Jambi Regency, Jambi Province.

Siam catfish --with the scientific name *Pangasius hypophthalmus*-- is now a freshwater fishery commodity that is quite popular not only in Indonesia but also abroad (Susanto & Hermawan, 2013). Menteri Kelautan dan

Perikanan (2010) issued a policy/ regulation No.32/Men/2010, concerning the determination of Minapolitan Areas in Indonesia, is aimed to encourage increased production targets achievement. This policy expects to contribute to fostering entrepreneurship which in turn can improve community welfare. Parson (2006)

states that a policy is a set of actions or plans that contain government political objectives. While, Hoogerwef (1972) states that the object of political science is government policy, the process of its formation, and its consequences.

As a result of government political policies' intervention, various phenomena emerged related to farmers' group's business's economic aspects. This phenomenon raises questions to the problems; how high the level of fish farmers' ability to produce income and how efficient are production costs for the fish farming business. Whereas this matter is inseparable from how much the economic value (Rp) of fish production, both sold in cash, and the results of fish production that farmers in non-cash consume as a source of income for the fish farming business. Then it is inseparable from how much the operational cost (Rp) is used to finance the production factors, both variable, and fixed costs, as a result of the fish farming business. Thus, it is necessary to analyze the existence of economic aspects and the effects of the implications caused by the intervention of government policy (policy) on fish farmers' business.

This study aims to analyze the impact of government political policy intervention of CDA on increasing fish farming income, cost efficiency, and investment index.

MATERIALS AND METHODS

The research uses survey methods (Nazir, 1998). Techniques for determining the respondents is a census technique, where all populations of catfish farming (40) people (100%) were interviewed as respondents (Table 1.)

The data collection tool uses structured interview techniques using a questionnaire and direct observation of the field. Data analysis using descriptive analysis by applying the formula of income analysis from Soekartawi (2010);

1. Income, with the formula:

$$\pi = TR - TC$$

where,

$$\pi = \text{Income (Rp)}$$

$$TR = \text{Total Revenue (Rp)}$$

$$TC = \text{Total Cost (total cost) (Rp)}$$

Table 1. The population of farmers participating in CDA at the center of catfish production in Muaro Jambi Regency

No	Name of Business	Population (people)	Village	Subdistrict
1	Usaha Mandiri/ Kreatif	11	Pudak	Kumpeh Ulu
2	Mina Usaha Maju Bersama	17	Pudak	Kumpeh Ulu
3	Usaha Baru	12	Kota Karang	Kumpeh Ulu
Total		40	3	1

2. The level of ability of a fish farming business to generate income:

$$\text{Ability level} = \frac{\text{Cultivation Income (Rp)}}{\text{Total Production Costs (Rp)}} \times 100\%$$

3. Cost efficiency:

Criteria of investment index, with the formula:

$$\frac{R}{C} = \frac{TR}{TC}$$

$$R/C = \text{Revenue Cost Ratio}$$

$$TR = \text{Total Revenue (Rp)}$$

$$TC = \text{Total Cost (total cost) (Rp)}$$

a. If the R/C Ratio is bigger than one ($R/C > 1$), the business is efficient in using production costs and profitable

b. If the R/C Ratio is smaller than one ($R/C < 1$), the business is not efficient in using production costs and losses.

4. Use of each variable cost in the total production cost, formula;

$$\text{Variable Costs (each)} = \frac{\text{Variable Fee (Rp)}}{\text{Total production costs}} \times 100\%$$

5. Analysis of the impact of government policy interventions (policy) on the existence of income from the fish farming business, by the formula:

$$\text{Increased income} = (\text{Income after CDA}) - (\text{Income before CDA}) \times (100\%)$$

Table 2. Existence of economic aspect in catfish fish farming

No	Descriptions	Unit	Economic Value (Rp)			Use of production factors
			Cash	Non Cash	Total	In production cost (%)
I. Revenue :						
1	Fish sold	79.873 kg	1.163.578.970			
2	Fish consumed	216 kg		3.123.000		
	Total revenue	80.089 kg	1.163.578.970	3.123.000	1.166.701.970	
II. Expenditure :						
1	Variable cost :					
	Fish seeds	121.550 fish	25.546.000			5,04
	Commercial feed	51.066 kg	399.103.560			78,81
	limestone	80 sack	1.980.000			0,39
	EM4	80 bottle	1.480.000			0,29
	Refined fuel oil	1600 liters	11.000.000			2,17
	labor	80 people	0			0
	Total variable cost		439.109.560			86,71
2	Fixed cost :					
	Depreciation of equipment:					
	Water pump	40 unit		8.000.000		1,02
	Fishing nets	40 unit		3.000.000		0,59
	Basin	40 unit		320.000		0,06
	Rent fishpond	40 unit		56.000.000		11,06
	Total fixed cost			67.320.000		13,29
	Total Expenditure (Cost)				506.429.560	
III Income						
	Total Income				660.272.410	
	Average income/period (4 mo)				165.068.103	

RESULTS AND DISCUSSION

The income of catfish farmers' business is the difference between revenue and expenditure (costs) used in the production process. Soekartawi (2010) states that income can be defined as the remainder of reducing the value of revenues and expenditures (Cost) incurred.

Revenues from the fish farming business

The business revenue from total catfish production of 80,089 kg is (1) the sale of fish production is 79.887 kg (99.73%) with an economic value in cash of a total of Rp.1.163.578.970,- and (2) yields for the consumption of farmers is 216 kg (0,27%) with economic value in non-cash of Rp.3.123.000, - (see Table 2.).

Thus the fish farming business can obtain revenue at an economical value of a total of Rp.1.166.701. 970, - (averagely Rp.7.291.887, -/period).

Expenditures (expenses) of the fish farming business

Expenditures (costs) of fish farmers' business are namely: 1-2 inch fish seeds (121.550 tails) for the cost of Rp.25.546.000,-; commercial feed (51.066 kg) for the cost of Rp.399.103.560,-; limestone (80 sack) for the cost of Rp.1.980.000; EM4 (80 bottles) for the cost of Rp.1.480.000,-; Refined fuel oil (1.600 liters) for the cost of Rp.11.000.000,-; and labor of 80 people (an average of 2 people/unit for the cost of Rp.0,-. Labor costs should have been a business expense. However, in this business, farmers use family labor that did not get the payment in cash. According to Mubyarto (1998), labor work coming from farmer families contributes to overall agricultural production has never been valued with money. Thus, in total, the total variable costs of this business are Rp.439,109,-.

Farmers have to buy equipment for 40 units (one unit per farmer), such as water pumps, fishing nets, basins, and pay for the fish pond's rent. The annual depreciation of

equipment and fish pond's rent is a fixed cost of Rp.67.320.000,-. Thus, the total expenditure (cost) of the catfish farming business, both variable costs and fixed costs, are Rp.506,429.560, - (averagely Rp.3.165.185,-/period).

Based on the mathematical analysis (in percentage), the use of each variable cost in the total production costs, namely; The cost of feed, is the most significant cost (78.81%) and followed by the cost of seeds (5.04%).

Incomes of the fish farming business

Based on the existence of total revenue (Rp.1.166.701.970,-) and total expenditure (Rp.506.429.560,-), this study found that the difference between income and expenditure (cost) is positive. It means that the fish farming business of CDA participants can produce income as much as Rp.660.272.410,- or an averagely about Rp.165,628.103,-/period (see Table 4.).

Table 3. Index of investment criteria for fish farming business

Item of analysis	Economic value (Rp)		Indeks of investment criteria	Efficiency	
	Revenue	expenditure		R/C Ratio	Information
Total	1.166.701.970	506.429.560	9,11	R/C > 1	Efficient and Profitable
Average	7.291.887	3.165.185	2,28	R/C > 1	Efficient and Profitable

While the amount of each variable cost in the total variable costs is: the cost of feed is equal to (90.89%), followed by the cost of seeds (5.82%). Thus the cumulative amount of variable costs in the total production cost is 86,71%. Fish pond rental cost is the highest cost compared to other fixed costs (11,06% of total cost). Then, it is followed by the depreciation cost of the water pump 1,02% and the fishing net 0,06%. Thus the cumulative amount of fixed costs in total production costs at the same time is 13.29%. Then the comparison between variable costs and fixed costs is 1: 0.15.

Cost efficiency of the fish farming business

Based on total revenue (Rp.1,166,701,970,-) and total expenditure (Rp.506.429.560,-), this study found that the index of investment criteria for fish farming business was 9.11 (averagely 2.28), with the R/C>1 (see Table 3.). Therefore, this business is profitable or efficient in the use of total investment. Khan and Manzoor (2014) state that fish production is economically feasible and profitable. The fisheries sector can improve the quality of life, create jobs and increase the income of farmers. Hermanto (1995) says that cost efficiency is a comparison between revenue and expenditure.

The existence of fish farmers' business of the CDA participants indicates success and has good prospects. It can be considered for farmers or interested parties to maintain the survival of the fish farming business.

By looking at the comparison between the total revenue generated of Rp.660,272,410 and the total production costs of Rp.506.429,560, this is a capable business with a level of 511% (averagely 128%).

Tabel 4. Level of business ability

	Economic cost (Rp)		Level of ability	
	Revenue	Costs	(%)	category
Total	660.272.410	506.429.560	511	capable
Average /period	4.126.703	3.165.185	128	capable

CDA intervention on fish Farming business revenues

As a result of CDA's government policy intervention on fish farmers' business's economic aspects, this study found that the fish farming business income has increased positively. This positive increase is the difference between income after CDA and before CDA (see Table 5.). The income of the fish farming business increased as much as Rp.532,009.754,- (80.57%), from Rp.128,262,656,- (before CDA) to Rp.660,272,410,- (after CDA). Therefore, the ability level of the fish farming business to generate income increased by 58.36% (44.76%), from 72.02% (before CDA) to 130.38% (after CDA). Then, the efficiency of production

Table 5. Increased fish farming income due to CDA intervention

No	Descriptions	Before CDA	After CDA			
		Result	enhancement result	(+)/(-)	difference	(%)
1	Revenue (Rp)	128.262.656	660.272.410	+	532.009.754	80,57
2	The ability to generate income (%)	72,02	130,38	+	58,36	44,76
3	Efficiency Indeks of investmen criteria	1,72	2,30	+	0,58	25,22

costs increased by 0.58 (25.22%), from the investment survey index of 1.72 (before CDA) to 2.30 (after CDA).

CONCLUSIONS

Fish farming business income is found to be able to generate income positively, namely; in the total income of Rp.660,272.410, - (average Rp.165,068,103 / period), with the ability to generate income in the total of 511% (an average of 128%), and the efficient use of production costs (Criteria 2 investment index, 30) (Revenue Cost Ratio ($R / C > 1$)).

As a result of CDA intervention, a positive increase in fish farming business income increased to Rp.532,009,754 (80.57%), from Rp.128.262,656,- (before CDA) to Rp.660,272,410,- (after CDA). The fish farming business's ability level to generate income has increased as much as 58.36%, from 72.02% (before CDA) to 130.38% (after CDA). The efficiency of the production costs increased at 0.58 (25.22%), from 1.72 (before CDA) to 2.30 (after CDA).

ACKNOWLEDGMENTS

This research is part of the Ph.D. dissertation of Darlim Darmawi, Faculty of Animal Sciences, Andalas University.

REFERENCES

Hermanto. (1995). *Ilmu Usahatani*. Jakarta: Penebar Swadaya.

Hoogerwerf, A. (1972). *Politologie*. Begrippen en Problemen.

Khan, Sir Buland and Sheikh Raheel Manzoor. 2014. *Viability of Carp Fish Farming. A Case Study of Kp, Pakistan*. City University Research Journal. Volume 04 Number 02 July 2014 Article 01

Menteri Kelautan Dan Perikanan. (2010). *Keputusan Menteri Kelautan Dan Perikanan Re-publik Indonesia Nomor Kep.32/Men/2010 Tentang Penetapan Kawasan Minapolitan*. Jakarta: Kementerian Kelautan Dan Perikanan Republik Indonesia.

Mubyarto. 1998. *Pengantar Ekonomi Pertanian, Edisi III*. Jakarta: LP3ES

Nazir, M. (1998). *Metode Penelitian*. Bandung: Ghalia Indonesia.

Parsons, W. (2006). *Public Policy: Pengantar Teori dan Praktik Analisis Kebijakan*. (T. W. Santoso, Penerj.) Jakarta: Kencana.

Soekartawi. (2010). *Agribisnis. Teori dan Aplikasi*. Jakarta: PT Rajagrafindo Persada.

Susanto, A., & Hermawan, D. (2013). *Tingkah Laku Ikan Nila Terhadap Warna Cahaya Lampu Yang Berbeda*. *Jurnal Ilmu Pertanian dan Perikanan* Juni 2013, 47-53.