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Economic Analysis of Giant Shrimp Cultivation in the Ngusa Taka Group in Sengkong Village, Sesayap Hilir District, Tana Tidung Regency

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Abstract

This research is about economic analysis of giant shrimp cultivation in the Ngusa Taka Group in Sengkong Village, Sesayap Hilir District, Tana Tidung Regency. Carrying out this research for 3 months starting on August 1, 2021 until October 31, 2021 with the object of research being giant shrimp cultivation which is the "Ngusa Taka Group" in Sengkong Village, Sesayap Hilir District, Tana Tidung Regency. The number of cultivators of giant shrimp in the Ngusa Taka Group is 20. Sampling in this study used the census method. Then obtained the number of respondents who will be used in this study as many as 20 cultivators of giant shrimp. The data obtained from the research results will be processed and analyzed and then presented in the form of tables and schematics as well as descriptive descriptions. Giant shrimp cultivation in the Ngusa Taka Group in Sengkong Village, Sesayap Hilir District, Tana Tidung Regency based on indicators of revenue cost ratio, break even point, payback period, and return on investment, obtained the results of the analysis that this business is feasible to continue.

Keywords
giant shrimp; cultivation; revenue

I. Introduction

Sengkong is one of the villages in Sesayah Hilir Subdistrict, Tana Tidung Regency in the youngest province, namely North Kalimantan, geographically this area is an archipelago that accesses Sengkong Village using water transportation, namely ketinting boats and continued using land transportation using only motorbikes, regional people. This company has a giant shrimp cultivation business which was formed in the Ngusa Taka Group. There are cultivators with the commodity of giant shrimp as the leading icon of the commodity in this region.

Marketing is a process of planning and execution, starting from the conception stage, pricing, promotion, to the distribution of goods, ideas and services, to make exchanges that satisfy the individual and his institutions (Dianto in Asmuni *et al*, 2020). According to Mulyana in Erwadi (2012) a group is a group of people who have a common goal, who interact with each other to achieve a common goal, get to know each other, and view them as part of the group. The giant shrimp cultivator group in Sengkong Village is fully involved starting from planning activities and cultivation to marketing. This giant shrimp cultivation can run well and successfully because the involvement of all group members in cultivation activities and this business is very promising from an economic point of view because of the high market demand.

The cultivation of giant shrimp will experience increased development if it is followed by the success of a business venture that affects the amount of profit earned. The financial aspect is one of the important factors in a business project, the right cash flow

forecast will facilitate the business that is run so that it can compete or even grow. Similar to what was conveyed by Gerungan in Mardikanto (1993) that the group is a social unit consisting of two or more people who interact intensively and regularly, so that between them there is a division of tasks, structures, and certain norms that are unique for the unit. Groups are also units that show a collection of people, namely a number of people who have the same interests.

Based on Government Regulation of the Republic of Indonesia Number 18 of 2020, cultivation is the development and use of vegetable natural resources by humans using capital, technology or other resources to produce products in the form of goods to meet human needs. The business of rearing and breeding fish or other aquatic organisms such as giant shrimp is called giant shrimp cultivation. Giant shrimp or commonly referred to as watang shrimp, satang shrimp, or conggah which in scientific language is known as "Macrobrachium Rosenbergii" while in the world of giant shrimp trade it is called "Giant Freshwater Shrimp" comes from fresh waters, namely rivers, lakes and swamps.

According to Kusnadi (2002), income classification is divided into two things, namely operating income, which is normal in nature according to business objectives and occurs repeatedly during the business carrying out its activities and non-operating income, namely income earned in the business within a certain period but not obtained from activities main operations. Production costs are all direct labor costs, direct material costs and factory life costs incurred or charged during a period, both producing finished and semi-finished goods (Lumbatoruan, 2002). Fixed costs are costs incurred for the use of fixed factors of production. The more output produced, the lower the fixed cost of producing each unit of output. Variable costs are costs used for variable factors of production. The more use of variable inputs, the less output will contribute (Makeham and Malcolm, 2001). Revenue is the product of the production volume obtained with the selling price. The selling price is the transaction price between the producer and the buyer for each commodity according to the unit of place (Soekartawi, 2006).

Analysis of the right financial aspects will produce benefits for the management in their efforts to run a giant shrimp cultivation business, which can be seen in the investments that can provide profits.

This research is about economic analysis of giant shrimp cultivation in the Ngusa Taka Group in Sengkong Village, Sesayap Hilir District, Tana Tidung Regency.

II. Review of Literature

2.1 Total Cost (TC)

To find out the total cost, the following formula can be used:

TC = TFC + TVC

Information:

TC (Total Cost) : Total Cost (Rp/Month)
TFC (Total Fixed Cost) : Total Fixed Cost (Rp/Month)
TVC (Total Variabel Cost) : Total Cost is Not Fixed (Rp/Month)

The amount of depreciation is using the straight line method as follows:

$$P = \frac{B-S}{n}$$

Information:
P: Amount of Depreciation
B: Asset Purchase Price (Rp)
S: Residual Value (Rp)

n: Asset Technical Life (Month)

2.2 Reception

Kadariah (1978), to get the total acceptance used the following formula:

TR = P x Q
Information:
TR (Total Revenue) : Total Acceptance (Rp/Month)
P (Price) : Price (Rp)
Q (Quantity) : Amount Sold (Rp/Month)

2.3 Profit

Soekartawi (2006), profit or income analysis can be done as follows:

π = TR – TC
Information:
π (Income) : Net Receipt (Rp/Month)
TR (Total Revenue) : Total Receipt (Rp/Month)
TC (Total Cost) : Total Costs Incurred (Rp/Month)

2.4 Revenue Cost Ratio (RCR)

Mardikanto (1993), to find out whether the business is profitable or not, can be determined using the following analysis:

$$RCR = \frac{TR}{TC}$$

Information:
RCR (Revenue Cost Ratio) : Business Profit Ratio
TR (Total Revenue) : Total Receipt (Rp/Month)
TC (Total Cost) : Total Cost (Rp/Month)

With criteria:
If revenue cost ratio > 1, then the business is profitable and feasible to be developed.
If revenue cost ratio < 1, then the business is not profitable and not feasible to develop.
If revenue cost ratio = 1, then the business is neither profitable nor loss.

2.5 Break Even Point (BEP)

BEP Production

$$BEP_{Production}\ (KG) = \frac{TC}{P}$$

Information:
$BEP_{Production}$: Break Even Point Production
TC : Total Cost (Rp)
P : Selling Price (Rp)

BEP Price

$$BEP_{price} = \frac{TC}{TP}$$

Information:

BEP_{Price} : Break Even Point Price
TC : Total Cost (Rp/Month)
TP : Total Production (Rp/Month)

BEP Sale

$$BEP_{Sale} = \frac{TFC}{1 \frac{TVC}{S}}$$

Information:

BEP_{Sale} : Break Even Point Sale
TFC : Total Fixed Cost (Rp/Month)
TVC : Total Variable Cost (Rp/Month)
S : Sales Results (Rp/Month)

2.6 Payback Period (PP)

Payback period aims to determine the rate of return on investment that has been invested in a type of business. In general, the formula used is as follows:

$$PP = \frac{\text{Total Investment Cost} \times 1 \text{ Year}}{\text{Profit}}$$

Information:
Payback Period = Payback Period (Month)

2.7 Return on Investment (ROI)

According to Samsudin (1994), return on investment is the value of profits obtained by entrepreneurs from each amount of money invested in a certain period of time. The calculation of return on investment is used to determine the efficiency of the use of capital in the business. The amount of return on investment can be calculated by the formula:

$$ROI = \frac{\text{Operating Revenues}}{\text{Total Investment}} \text{ x } 100\%$$

ROI Criteria:
If, ROI > i (applicable interest rate), then the business is feasible.
If, ROI < i (applicable interest rate), then the business is not feasible.

III. Research Method

Research is a careful and detailed study of a particular problem or concern, using scientific methods. An in-depth analysis of information creates space for generating new questions, concepts and understandings (Octiva, 2018; Pandia et al., 2018; Pandiangan et al., 2018). The main objective of research is to explore the unknown and unlock new possibilities. Object of research is scientific goals to get data with the certain purposes and functions about something objectives, valid, and reliable regarding certain of variable (Asyraini et al., 2022; Octiva et al., 2018; Pandiangan, 2015). Carrying out this research for 3 months starting on August 1, 2021 until October 31, 2021 with the object of research

being giant shrimp cultivation which is the "Ngusa Taka Group" in Sengkong Village, Sesayap Hilir District, Tana Tidung Regency

The results of the initial observations of researchers in Sengkong Village, Sesayap Hilir District, Tana Tidung Regency, it is known that the number of cultivators of giant shrimp in the Ngusa Taka Group is 20. Sampling in this study used the census method. Census method is a sampling technique when all members of the population are used as samples (Octiva et al., 2021; Pandiangan, 2018; Pandiangan et al., 2021). Then obtained the number of respondents who will be used in this study as many as 20 cultivators of giant shrimp.

The data obtained from the research results will be processed and analyzed and then presented in the form of tables and schematics as well as descriptive descriptions. Descriptive descriptions something from their own experience and, through careful choice of words and phrasing, makes it seem real (Pandiangan et al., 2022). Descriptive writing is vivid, colorful, and detailed (Pandiangan, 2022; Tobing et al., 2018;). There is also data in the form of cost, revenue, and profit from the giant shrimp cultivation business. In addition to knowing the magnitude of the comparison of income, break even point (production, price, and sale) and payback period.

IV. Results and Discussion

Economic Analysis of Giant Shrimp Cultivation in the Ngusa Taka Group in Sengkong Village, Sesayap Hilir District, Tana Tidung Regency

4.1 Investment Cost

Investment costs are the costs required for giant shrimp cultivation and are required to purchase capital goods. Capital goods are various equipment used to produce giant shrimp. The giant shrimp cultivation business in Sengkong Village uses various equipment to support the business, including bamboo, pipes, nets, buckets, tangguk, huts, ropes, and several other equipment whose functions are to support the production of giant shrimp. Based on the results of the analysis, it is known that the average respondent spent an investment cost of Rp1,227,000. The details can be seen in the following Table 1:

Table 1. Business Investment Cost in Giant Shrimp Cultivation

No.	Description	Unit	Price	Total	UT/Year	Residual Value	Dep./Year
1	Cottage	1	1,000,000	1,000,000	3	50,000	316,667
2	Bamboo/ Pipe	20	2,500	50,000	1	2,500	47,500
3	Net	1	7,000	7,000	1	350	6,650
4	Bucket	2	20,000	40,000	2	2,000	19,000
5	Chest	1	100,000	100,000	3	5,000	31,667
6	Nod	1	30,000	30,000	1	1,500	28,500
Total				1,227,000		61,350	449,983

Source: Primary Data (2021)

4.2 Fixed Cost

Fixed cost is cost that in a certain period the amount does not depend on the amount of production. This cost is fixed only until a certain period or a certain production limit, it will still change if the limit is passed. The total cost is the total cost of all fixed costs incurred in a certain period of time. Based on the results of the analysis, it is known that

the average respondent spends a fixed cost of Rp449,983 per year which is the depreciation value of the investment costs described previously.

4.3 Variable Cost

Variable costs are costs incurred during processing business activities, the size of the cost depends on the size of the production volume. Based on the results of the analysis, it is known that the average respondent incurs variable costs that are used at Rp2,760,000 per year, in detail can be seen in the following Table 2:

Table 2. Description of Fixed and Variable Cost of Business on Giant Shrimp Cultivation

No.	Description	Unit/Production	Price	Total/Production	Total/Year
	Variable Cost				
1	Giant Shrimp Seeds	2,000	40	80,000	160,000
2	Main Feed	10	80,000	800,000	1,600,000
3	Supplementary Feed	10	50,000	500,000	1,000,000
	Sub Total			1,380,000	2,760,000
	Fix Cost				
	Shrinkage			449,983	899,966.67
	Sub Total			449,983	899,967
Total				1,829,983	3,659,967

Source: Primary Data (2021)

4.4 Total Production Cost

Total production cost is cost sacrificed which is the sum of fixed costs plus variable cost. The total cost per production is Rp1,829,983 per production with Rp3,659,967 per year with the assumption of producing twice a year.

4.5 Production and Revenue

The giant shrimp produced will be sold to the market so that consumers or the public can buy them. The sale proceeds are referred to as total revenue (Total Revenue/TR = Quantity x Price). Total revenue will increase if: a) the number of goods sold increases, the price does not change; b)the number of goods sold remains constant, but the price increases; and c)both the number of goods sold and the price both increase). Based on the results of the analysis, it is known that the average respondent spends a fixed cost of Rp3,850,000 per production, in detail can be seen in Table 3:

Table 3. Average Yield on Giant Shrimp Cultivation

Fish Type	Kg/Production	Price (Rp)	Total (Rp)/ Production	Total(Rp)/Year
Giant Shrimp	35	110,000	3,850,000	7,700,000
Total			3,850,000	7,700,000

Source: Primary Data (2021)

4.6 Profit

Profits are obtained by subtracting the total revenue from the production with the total costs incurred during the giant shrimp cultivation business. Based on the results of the analysis, it is known that the average respondent earns a profit of Rp4,040,033 per year.

4.7 Revenue Cost Ratio (R/C)

R/C analysis is an analytical tool to see the relative profit of a business in a month against the costs used in these activities. A business is said to be feasible if the R/C is greater than 1 (R/C > 1). This illustrates that the higher the R/C value, the higher the profit level of a business. In giant shrimp cultivation in the Ngusa Taka Group in Sengkong Village, Sesayap Hilir District, Tana Tidung Regency, the average R/C value is 2.10 where the value is greater than 1 which means that if we spend 1 rupiah in production then will receive revenue of 2.10 times the costs incurred. This shows that the giant shrimp farming business is feasible based on an RCR greater than 1.

4.8 Break Even Point (BEP)

BEP analysis is an analytical tool to determine the production value or volume of a business reaching the BEP (no profit and no loss). The business is declared feasible if the BEP of production, price, and sale is lower than the current price. According to the calculation of the BEP, namely:

a. Price at BEP is the price level at which the amount of revenue actually covers the operating costs, showing the level of production and production costs. Giant shrimp cultivation business will experience a break even point price at a price position of Rp104,570/kg while the real price is Rp110,000/kg. This indicates that this business has passed the price equilibrium point or is profitable.
b. Production at BEP is where the amount of revenue covers production costs, showing the level of production costs and output prices. In this giant shrimp farming business, the production break even point is 33 kg/production. Meanwhile, the real production is 35 kg/production. This indicates that this business has passed the point of balance of sales or profit.
c. Sale at BEP is where the amount of revenue covers the operating costs. Based on the level of fixed costs, variable costs and revenues in this giant shrimp farming business experienced a BEP of sales at a price position of Rp899,966 per year while real sales are Rp7,700,000 per year. This shows that this business has passed the point of balance of sales or profit.

4.9 Payback Period (PP)

PP is the time required to return the investment capital from the giant shrimp farming business. Based on the results of the calculation of the PP, the total investment cost is Rp1,227,000 divided by a profit of Rp4,040,033 per year. The payback period for giant shrimp is 0.30/year, meaning that the payback period for the investment of giant shrimp is about 0.3 years and when compared to the service life of investment goods, namely pondok of 3 years, it can be said that the shrimp farming business is this pole is worth continuing.

4.10 Return on Investment (ROI)

This ROI calculation is used to determine the efficiency of the use of capital in the business. In giant shrimp cultivation in the Ngusa Taka Group in Sengkong Village, Sesayap Hilir District, Tana Tidung Regency, the average ROI value is 3.29. This shows that if we incur investment costs of Rp1, we will get a profit of 3.29 times the investment costs incurred, while the ROI value of 3.29% is greater than the savings interest rate of 1% used is the Kaltimtara Bank and the interest rate used is the tube interest rate. The ROI is compared with the interest rate on the Kaltimtara Bank's savings for a month, this is because the management pattern of the respondents is saving money at the Kaltimtara Bank. This shows that giant shrimp cultivation business is feasible.

Giant shrimp cultivation in the Ngusa Taka Group in Sengkong Village, Sesayap Hilir District, Tana Tidung Regency based on indicators of revenue cost ratio, break even point, payback period, and return on investment, obtained the results of the analysis that this business is feasible to continue.

V. Conclusion

Based on research results, it can be concluded that giant shrimp cultivation in the Ngusa Taka Group in Sengkong Village, Sesayap Hilir District, Tana Tidung Regency based on indicators of revenue cost ratio, break even point, payback period, and return on investment, obtained the results of the analysis that this business is feasible to continue.

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References

Asmuni, *et al*. (2020). Implementation of the principle of sale and purchase transactions through MLM in Brand Branch (BC) PT. Herba Penawar Alwahida Indonesia (HPAI) Tanjungbalai. Budapest International Research and Critics Institute-Journal (BIRCI-Journal) Volume 3, No. 4, Page: 3376-3385

Asyraini, Siti, Fristy, Poppy, Octiva, Cut Susan, Nasution, M. Hafiz Akbar, & Nursidin, M. (2022). Peningkatan Kesadaran Protokol Kesehatan di Masa Pandemi Bagi Warga di Desa Selamat Kecamatan Biru-biru. *Jurnal Pengabdian Kontribusi (Japsi), 2*(1), 33-36.

Erwadi, Doli. (2012). *Peran Penyuluh Pertanian dalam Mengaktifkan Kelompok Tani di Kecamatan Lubuk Along*. Skripsi. Fakultas Pertanian, Universitas Andalas.

Kadariah. (1978). *Evaluasi Proyek Analisa Ekonomi*. Jakarta: Fakultas Ekonomi, Universitas Indonesia.

Kusnadi. (2002). *Nelayan, Adaptasi, dan Jaringan Sosial*. Bandung: Humaniora Utama Press.

Lumbatoruan. (2002). *Buku Latihan Statistik Parametrik*. Jakarta: PT Elex Media.

Makeham & Malcolm. (2001). *Manajemen Usaha Benih Ikan Daerah Tropis*. Jakarta: LP3ES.

Mardikanto, Totok. (1993). *Penyuluhan Pembangunan Pertanian*. Surakarta: UNS Press.

Octiva, C. S., Irvan, Sarah, M., Trisakti, B., & Daimon, H. (2018). Production of Biogas from Co-digestion of Empty Fruit Bunches (EFB) with Palm Oil Mill Effluent (POME): Effect of Mixing Ratio. *Rasayan J. Chem., 11*(2), 791-797.

Octiva, Cut Susan, Indriyani, & Santoso, Ari Beni. (2021). Effect of Stirring Co-digestion of Palm Oil and Fruith for Biogas Production to Increase Economy Benefit. Budapest *International Research and Critics Institute-Journal, 4*(4), 14152-14160. DOI: https://doi.org/10.33258/birci.v4i4.3521.

Octiva, Cut Susan. (2018). *Pengaruh Pengadukan pada Campuran Limbah Cair Pabrik Kelapa Sawit dan Tandan Kosong Kelapa Sawit terhadap Produksi Biogas*. Tesis. Medan: Fakultas Teknik, Program Studi Teknik Kimia, Universitas Sumatera Utara.

https://repositori.usu.ac.id/bitstream/handle/123456789/12180/157022002.pdf?sequence=1&isAllowed=y.

Pandia, S., Tanata, S., Rachel, M., Octiva, C., & Sialagan, N. (2018). Effect of Fermentation Time of Mixture of Solid and Liquid Wastes from Tapioca Industry to Percentage Reduction of TSS (Total Suspended Solids). *IOP Conference Series: Materials Science and Engineering, 309*, 012086. DOI: 10.1088/1757-899X/309/1/012086.

Pandiangan, Saut Maruli Tua, Oktafiani, Fida, Panjaitan, Santi Rohdearni, Shifa, Mutiara, & Jefri, Riny. (2022). Analysis of Public Ownership and Management Ownership on the Implementation of the Triple Bottom Line in the Plantation Sector Listed on the Indonesia Stock Exchange. *Budapest International Research and Critics Institute-Journal, 5*(1), 3489-3497. DOI: https://doi.org/10.33258/birci.v5i1.4016.

Pandiangan, Saut Maruli Tua, Resmawa, Ira Ningrum, Simanjuntak, Owen De Pinto, Sitompul, Pretty Naomi, & Jefri, Riny. (2021). Effect of E-Satisfaction on Repurchase Intention in Shopee User Students. *Budapest International Research and Critics Institute-Journal, 4*(4), 7785-7791. DOI: https://doi.org/10.33258/birci.v4i4.2697.

Pandiangan, Saut Maruli Tua, Rujiman, Rahmanta, Tanjung, Indra I., Darus, Muhammad Dhio, & Ismawan, Agus. (2018). An Analysis on the Factors which Influence Offering the Elderly as Workers in Medan. *IOSR Journal of Humanities and Social Science (IOSR-JHSS), 23*(10), 76-79. DOI: 10.9790/0837-2310087679. http://www.iosrjournals.org/iosr-jhss/papers/Vol.%2023%20Issue10/Version-8/K2310087679.pdf.

Pandiangan, Saut Maruli Tua. (2015). *Analisis Lama Mencari Kerja Bagi Tenaga Kerja Terdidik di Kota Medan*. Skripsi. Medan: Fakultas Ekonomi dan Bisnis, Program Studi Ekonomi Pembangunan, Universitas Sumatera Utara. https://www.academia.edu/52494724/Analisis_Lama_Mencari_Kerja_Bagi_Tenaga_Kerja_Terdidik_di_Kota_Medan.

Pandiangan, Saut Maruli Tua. (2018). *Analisis Faktor-faktor yang Mempengaruhi Penawaran Tenaga Kerja Lanjut Usia di Kota Medan*. Tesis. Medan: Fakultas Ekonomi dan Bisnis, Program Studi Ilmu Ekonomi, Universitas Sumatera Utara. http://repositori.usu.ac.id/bitstream/handle/123456789/10033/167018013.pdf?sequence=1&isAllowed=y.

Pandiangan, Saut Maruli Tua. (2022). Effect of Packaging Design on Repurchase Intention to the Politeknik IT&B Medan Using E-Commerce Applications. *Journal of Production, Operations Management and Economics (JPOME), 2*(1), 15–21. http://journal.hmjournals.com/index.php/JPOME/article/view/442.

Samsudin S, U. (1994). *Manajemen Penyuluhan Pertanian*. Bandung: Bina Cipta.

Soekartawi. (2006). *Analisis Usaha Tani*. Jakarta: UI-Press.

Tobing, Murniati, Afifuddin, Sya'ad, Rahmanta, Huber, Sandra Rouli, Pandiangan, Saut Maruli Tua, & Muda, Iskandar. (2018). An Analysis on the Factors Which Influence the Earnings of Micro and Small Business: Case at Blacksmith Metal Industry. *Academic Journal of Economic Studies, 5(*1), 17-23. https://www.ceeol.com/search/article-detail?id=754945.