

## FEASIBILITY SIMULATION OF HOUSEHOLD SCALE CATFISH RAISING BUSINESS IN THE FIRST QUARTER OF 2022

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**ABSTRACT** - The first quarter of 2022 in Indonesia experienced an increase in the prices of basic necessities which could increase the amount of capital needed in a catfish (*Clarias sp.*) rearing business. Therefore, it is necessary to conduct a feasibility analysis simulation study of catfish rearing business to determine the capital and feasibility of the business. The method used in this study is a literature review or library research, where the data collection method is entirely with secondary data or literature study. Secondary data is collected by reviewing from references in the form of journals, books and online articles that are still related. The calculation of business feasibility analysis is carried out by calculating investment costs, fixed costs, variable costs, calculating production costs, revenues, profits, BEP Rupiah, BEP Units, R/C Ratio and PBP. Furthermore, an analysis of the supporting and inhibiting factors of the business as well as an analysis of the marketing strategy in the catfish rearing business was carried out. The results of the calculation of the business feasibility simulation show that the production cost is Rp. 14,181,228, the revenue is Rp. 24.12 million, a profit of Rp. 9,938,772, Rupiah BEP of Rp. 3,655,160 which means the turning point will be reached if sales reach Rp. 3,655,160, BEP Unit of 185 kg, which means the turning point will be reached if milkfish production reaches 185 kg. R/C Ratio is 1.7 and PBP is 1.65 or 2 cycles where the investment capital for catfish rearing business will return within 6-7 months or 2 cycles. Therefore, the business of raising catfish on a household scale for the first quarter of 2022 can be said to be profitable and feasible to run.

**Keywords:** *Clarias sp.*, Feasibility Analysis, Catfish Rearing.

### INTRODUCTION

Catfish (*Clarias sp.*) is a mainstay aquaculture commodity for fish cultivators because they have various advantages because they remember good prospects for this commodity to be developed. factually, lately, catfish farming is relatively widespread, especially after this commodity was made one of the leading commodities in the program, minapolitan initiated by the Ministry of

Maritime Affairs and Fisheries (KKP) (Lindawati et al., 2013). Catfish is one type of freshwater fish that has been widely cultivated and consumed by the people of Indonesia, because it has a good taste of meat and an affordable price. Therefore, catfish has a large enough contribution to the increase in community nutrition. Catfish is a relative fishery commodity easily cultivated in densely limited land and water sources high stocking, cultivation technology is easily controlled by the community (Siswandoko et al., 2017). Catfish has a fast growth and ability to adapt to the environment is quite high (Sitio et al., 2017). In addition, the selection of catfish as one of the strategic commodities in cultivation due to the high market demand for these commodities. Para cultivators are interested in cultivating catfish for several reasons factors, namely catfish cultivation can be carried out on land that has limited water resources, has a high stocking density, cultivation technology relatively simple, relatively resistant to disease, have growth fast, and the economic value is quite high (Lindawati et al., 2013).

Business feasibility analysis is used to identify businesses based on eligibility. It is based on the ratio of the value of revenue with cost (R/C ratio), benefit with cost (B/C) ratio, and return on investment (ROI). This can later be used for evaluation in carrying out business development with improvements based on production variables (Wulandari et al., 2019). Investment activities in the development of catfish enlargement business needs to be convinced by a tool analysis that can assess the feasibility of the business as well as the rate of return to investment. The analysis tool is in the form of business feasibility study analysis in order to determine the feasibility and the magnitude of the profits generated from the catfish farming activities (Siswandoko et al., 2017). In the first quarter of 2022 in Indonesia, various problems emerged related to the increase in the prices of basic necessities which could increase the initial capital costs required in a household-scale catfish farming business. Therefore, a simulation study is needed on the feasibility analysis of catfish farming in the first quarter of 2022. This study aims to determine the simulation of the feasibility analysis of household-scale catfish farming in the first quarter of 2022, especially in Indonesia.

## **RESEARCH METHODS**

A simulation study on the feasibility analysis of catfish (*Clarias sp.*) rearing business was conducted in the first quarter of 2022 from January to March. The method used is a literature review method or library research, where the data collection method is entirely with secondary data or library research. Secondary data is collected by reviewing references in the form of journals, books and online articles that are still related (Dadiono and Aminin, 2021; Halim et al., 2021), the studies studied are data on milkfish cultivation and searching for price lists from various tools and equipment. materials used for milkfish cultivation, search for price lists of tools and materials used to simulate the calculation of the feasibility analysis of catfish rearing business for January-March 2022. The data search was carried out using the Google search engine or Google Scholar (Dadiono and Andayani, 2022), with the keywords rearing catfish (*Clarias sp.*). The data obtained were then analyzed using descriptive methods (Dadiono and Suryawinata, 2021; Dadiono et al., 2022). The descriptive method is carried out by describing the results of the discussion then drawing conclusions and calculating the feasibility of the business analysis (Halim and Dadiono, 2021; Dadiono and Suryawinata, 2022).

The calculation of the feasibility analysis of catfish (*Clarias sp.*) enlargement is carried out by calculating investment costs, fixed costs, and variable costs. Then proceed with the calculation of production costs, revenues, profits, BEP Rupiah, BEP Units, R/C Ratio and PBP. Furthermore, an analysis of the supporting and inhibiting factors of the catfish enlargement business was carried out and an analysis of the marketing strategy was carried out on the catfish enlargement business.

## **RESULTS AND DISCUSSIONS**

The results of the simulation calculation of the feasibility analysis of the catfish (*Clarias sp.*) rearing business on a household scale in the first quarter of 2022 are as follows:

## Investment Cost

Table 1. Investment Cost

No	Description	Quantity Unit	Price Unit	Total Cost
1	Terpaulin	24	Rp 12,500.00	Rp 300,000.00
2	Bamboo	6	Rp 15,000.00	Rp 90,000.00
3	Aerators	1	Rp 350,000.00	Rp 350,000.00
4	Lamps	2	Rp 45,000.00	Rp 90,000.00
5	PVC Pipes	2	Rp 40,600.00	Rp 81,200.00
6	Elbow Pipes	10	Rp 4,800.00	Rp 48,000.00
7	Large PVC Pipes	1	Rp 90,000.00	Rp 90,000.00
8	Large Elbow Pipes	3	Rp 7,900.00	Rp 23,700.00
9	Lapse	10	Rp 10,000.00	Rp 100,000.00
10	Sieve Fish	4	Rp 15,000.00	Rp 60,000.00
11	Thermometer	1	Rp 25,000.00	Rp 25,000.00
12	pH meters	1	Rp 200,000.00	Rp 200,000.00
13	Scale Digital	1	Rp 75,000.00	Rp 75,000.00
14	Para net	1	Rp 300,000.00	Rp 300,000.00
15	Hose aerator	1	Rp 90,000.00	Rp 90,000.00
16	Connections Hose Aerator	1	Rp 20,000.00	Rp 20,000.00
17	Installation Electricity	1	Rp 300,000.00	Rp 300,000.00
Total				Rp 2,242,900.00

Investment costs are costs incurred when business activities will be carried out commenced, covering the need for the construction of business facilities. Catfish enlargement done in a 2x4x1 meter tarpaulin pool which requires a tarpaulin measuring 4 x 6 meters. The total investment cost is IDR 2,242,900.00.

**Fixed cost**

Table 2. Fixed Costs

No	Description	Quantity Unit	Price	Cost Per Year (Rp)
1	Electric	kWh	Rp 1,467.28	Rp 681,228.76
<b>Total</b>				<b>Rp 681,228.76</b>

Fixed costs are costs based on technical life and the remaining value of costs investment. Enlargement of home catfish is carried out with good home conditions using wells as irrigation, so it does not require PDAM fees. Business activities are carried out by homeowners or individually so that they have not requires employees, so there is no employee wages. Then because electricity is constantly needed by an aerator with a power of 45 watts for a full 24 hours, and two lamps with 8 watts of power each for 12 hours each day. The total electricity demand for a year is 464.28 kWh. So the total fixed cost is IDR 681,228.76.

**Variable Cost**

Table 3. Variable Costs

No	Description	Specific	Total	Unit	Unit Price	Quantity Cycle per Year	Price per Year
1	Catfish Seeds	7 cm	4600	Seeds/cycle	Rp 400.00	3	Rp 5,520,000.00
2	Artificial Feed	500	166,6	kg/year	Rp 15,000.00	3	Rp 7,500,000.00
3	Probiotics	16	5,3	bottle/year	Rp 30,000.00	3	Rp 480,000.00
<b>Total</b>							<b>Rp 13,500,000.00</b>

Variable costs are costs incurred each period of production where the amount is not always fixed as needed. The variable costs are compiled Before the

cultivation business activities are carried out, monitoring and monitoring is still needed evaluation in the next analysis in the middle and end of the cycle. Total variable cost in one year is IDR 13,500,000.00.

### **Business Feasibility Analysis Simulation**

#### **Production cost**

$$\begin{aligned} \text{Production cost} &= \text{fixed cost} + \text{variable cost} \\ &= \text{Rp}681,228.76 + \text{Rp}13,500,000.00 \\ &= \text{Rp. } 14,181,228,- \end{aligned}$$

#### **Reception**

$$\begin{aligned} \text{Production} &= \text{SR} \times \text{number of seeds/fish} \\ &= 70\% \times 4600 \\ &= 3,220 \text{ heads} \\ &= 3.220 \\ &= 402 \text{ Kg} \\ \text{TR} &= \text{P} \times \text{Q} \\ &= 20,000 \times 402 \\ &= 8.040.000 \times 3 \text{ cycles} \\ &= \text{Rp. } 24.12 \text{ million,-} \end{aligned}$$

#### **Profit**

$$\begin{aligned} \text{Profit} &= 1 \text{ year revenue} - \text{production cost} \\ &= 24,120,000 - 14,181,228 \\ &= \text{Rp. } 9,938,772,- \end{aligned}$$

#### **BEP**

The BEP calculation is divided into Rupiah BEP and Unit BEP, before calculating the BEP, Vc or total variable costs are calculated in 1 year.

#### **BEP (Rupiah)**

$$\begin{aligned} \text{BEP (Rp)} &= \text{Fixed Cost} + \text{Investment Cost} / 1 - (\text{Variable Cost per kg: selling price per kg}) \\ &= 681,228.76 + 2,242,900 / 1 - \{(13,500,000 : 3,220) : 20,000\} \\ &= 2,924,128 / 1 - 0.2 \\ &= 2,924,128 / 0,8 \\ &= \text{Rp. } 3,655,160,- \end{aligned}$$

So, it means that the turning point will be reached if the sale of catfish reach Rp. Rp. 3,655,160,-

### **BEP (Units)**

BEP (Unit) = Fixed Cost + Investment Cost/ (selling price per Kg – variable cost per kg)

$$= 2,924,128/ \{20,000-(13,500,000 : 3,220)\}$$

$$=2,924,128/ (20,000-4,192)$$

$$=2,924,128/ 15,808$$

$$=185 \text{ kg}$$

So, it means that the turning point will be reached when catfish production reach 185 kg

### **R/C Ratio**

R/C ratio = Revenue : Total Cost (Fixed + Variable)

$$= 24.120.000 : 14.181.228$$

$$=1.7$$

The result of the R/C ratio is more than 1, meaning that every additional cost of Rp. 1 will get an income of IDR 1.7 or a profit of 1.7 fold. Thus this business is profitable.

### **PBP**

PBP = Total Investment (Investment) / Profit Per year

$$=16,424,128 / 9,938,772$$

$$= 1.65 \text{ or } 2 \text{ cycles}$$

These results indicate that the entire investment capital of fish hatcheries This catfish will return within 2 cycles or 6-7 months.

### **Supporting and Inhibiting Factors in Catfish Cultivation**

In determining the strategy for developing catfish farming business two factors are needed, namely supporting and inhibiting factors. Supporting factors can optimize the business so that the business can be more developed. Inhibiting factors are also very important to pay attention to so that we can minimize the obstacles that exist in the business being carried out. The supporting factors that affect catfish farming are: the number of consumers who are interested in catfish so that the products to be sold easy to market, environmental cleanliness,

availability of seeds, easy catfish being developed is also one of the supporting factors for progress catfish farming. A clean pool environment can affect the smooth running catfish farming. Marketing of cultivated products can be done by buyer will come directly to the cultivation location to buy the harvest so that it is easier for cultivators to market their cultivated products. The inhibiting factor for catfish cultivation that we must also pay attention to Among other things, the promotional techniques used are less effective and the lack of networks marketing that is owned because it only conveys orally the product that produced in the occupied business, low seed quality, high feed prices, lack of handling of the emergence of the disease, limited information technology and market, the risk of decreasing the quality of fish in transport can be lowering the selling price in the market makes it difficult for cultivators to determine price standard.

### **Catfish Marketing Strategy**

Catfish (*Clarias sp*) is one type of fish consumption that is sufficient popular in Indonesian society. Catfish is one of the fish that is easy to find in Indonesi market, because many Indonesian people cultivate it. Besides Besides that, catfish also tends to be easy to market because it can be sold in large quantities in the form of fresh fish and also sold in the form of processed fishery products. Though already well-known in the market and favored by the public, in terms of marketing needs to be developed again, namely by doing strategic proper and efficient marketing. This marketing strategy is carried out so that the fish business Catfish is growing and increasingly on the market. Catfish marketing strategy This can be done by using direct and indirect marketing strategies direct. Direct marketing strategy is done by selling products directly to consumers, for example selling it directly in the market in the form of fresh catfish. While indirect marketing is done by selling products through intermediary media without being seen as selling. At this time, namely the modern era, where almost everything digital can be accessed become an alternative for catfish marketing, namely by doing marketing digitally. This digital catfish marketing is done by selling various milkfish products online through social media and other supported online platforms. Some online social media that can used to market catfish such as facebook, instagram, twitter, an etc. Digital marketing is a solution for product



marketing that growing very rapidly and cheaply to reach customers maximum without any limit. Through digital marketing adjustments, managers can convey their message only to potential customers and many new customers can be attracted by using different techniques. The existence of digital marketing through online media can make fish business Catfish is growing and can reach a wider market. Marketing Digital technology also tends to be easy to do, where someone who plays a role As a producer, you can promote it only through your cellphone or laptop and can be done at home without having to meet consumers directly (Hereyah, 2019).

Besides doing digital marketing for the fish business Catfish, direct marketing through marketing agencies is also necessary conducted. The involvement of marketing institutions has an important role in distribute the results of production in marketing activities. Multiple institutions The existing marketing consists of fish farmers, middlemen, wholesalers, traders district collectors and retailers. The presence of a marketing agency This will affect the size of the marketing margin, profits and marketing costs that will be incurred by each marketing agency in market catfish. In addition to the existence of a marketing agency, it is also necessary to have a marketing channel. A marketing channel is a collection of organizations that interdependence involved in the process of providing a product or services to be used or consumed. Marketing channel or channel distribution is a series of organizations involved in an activity used to distribute the product and the status of its owner from producer to consumers (Api et al., 2019).

## **CONCLUSION**

Based on the simulation study of the feasibility analysis of the catfish rearing business that has been carried out, it can be concluded that the catfish (*Clarias sp.*) rearing business for the first quarter of 2022 can be said to be profitable or feasible to do.

## **DAFTAR PUSTAKA**

Api, M. T., Murtisari, A., dan Saleh, Y. (2019). Saluran Pemasaran Ikan Bandeng Di Kecamatan Popayato Barat Kabupaten Pohuwato. *Jurnal Agrinesia*, 3(3), 183- 191.

- Dadiono, M. S., & Aminin, A. (2021). PENINGKATAN KETERAMPILAN DAN INOVASI WARGA DESA RAYUNGGUMUK KABUPATEN LAMONGAN DALAM MEMANFAATKAN IKAN NILA. *Jurnal Hilirisasi Teknologi Kepada Masyarakat (SITECHMAS)*, 2(2), 75–83. <http://dx.doi.org/10.32497/sitechmas.v2i2.2990>
- Dadiono, M. S., & Suryawinata, I. (2021). Health Management of Humpback Grouper Larvae (Cromileptes altivelis) in BBRBLPP Gondol. *Journal of Aquaculture Development and Environment*, 4(2), 239–243. <http://dx.doi.org/10.31002/jade.v4i2.5252>
- Dadiono, M. S., & Andayani, S. (2022). POTENSI TANAMAN BINAHONG (Anredera cordifolia) SEBAGAI OBAT ALTERNATIF PADA BIDANG AKUAKULTUR. *Jurnal Perikanan Pantura (JPP)*, 5(1), 156-162. <http://dx.doi.org/10.30587/jpp.v5i1.3769>
- Dadiono, M. S., & Suryawinata, I. (2022). PROSES PENANGANAN TELUR KERAPU TIKUS (Cromileptes Altivelis) DI BBRBLPP GONDOL. *Jurnal Biogenerasi*, 7(1), 17-22. <https://doi.org/10.30605/biogenerasi.v7i1.1626>
- Dadiono, M. S., Suryawinata, I., & Kusuma, R. O. (2022). PENGELOLAAN PAKAN DAN PENGENDALIAN PENYAKIT LARVA KERAPU TIKUS (Cromileptes altivelis). *Jurnal Biogenerasi*, 7(1), 80-84. <https://doi.org/10.30605/biogenerasi.v7i1.1672>
- Halim, A., & Dadiono, M. (2021). Pelatihan Pembuatan Handsanitizer di Desa Kembaran, Kabupaten Banyumas Sebagai Upaya Pencegahan Covid-19. *Darma Sabha Cendekia*, 3(2), 61-65. doi:10.20884/1.dsc.2021.3.2.4972
- Halim, A. A., Dadiono, M. S., & Kusuma, R. O. (2021). UPAYA PENCEGAHAN PENYEBARAN COVID-19 DI DESA KEMBARAN, KECAMATAN KEMBARAN, KABUPATEN BANYUMAS. *At-Tamkin: Jurnal Pengabdian Kepada Masyarakat*, 4(2), 14–19. <https://doi.org/https://doi.org/10.33379/attamkin.v4i2.960>
- Hereyah, Y. (2019). Implementasi Digital Marketing Produk Umkm koperasi Cipta Boga Di Kampung Wisata Eko Kuliner keranggan Kecamatan Setu Tangerang. *Prosiding Comnews*, 358-362.
- Lindawati, L. R. (2013). Analisis daya saing komoditas ikan lele Kabupaten Bogor. *Jurnal Sosial Ekonomi Kelautan dan Perikanan*, 8(1), 93-101.
- Siswandoko, R. D. (2017). ANALISIS KELAYAKAN USAHA PEMBESARAN BUDIDAYA IKAN LELE (Clarias sp) POKDAKAN MINA MAKMUR DI DESA SIDOHARJO KECAMATAN PATI KABUPATEN PATI. *Journal of Aquaculture Management and Technology*, 6(4), 1.
- Sitio, M. H. (2017). Kelangsungan hidup dan pertumbuhan benih ikan lele (Clarias sp.) pada salinitas media yang berbeda. *Jurnal Akuakultur Rawa Indonesia*, 5(1), 83-96.
- Wulandari, Y. W. (2019). ANALISIS KELAYAKAN USAHA TEH MAWAR PADA UKM DI DESA CLUTANG-BOYOLALI. *Sustainable Competitive Advantage (SCA)*, 9(1).