BUSINESS FEASIBILITY ANALYSIS OF PATIN FISH ENLARGEMENT POND IN BANUA LAWAS VILLAGE, TABALONG REGENCY

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Abstract This study aims to analyze the Patin fish enlargement pond business in Banua Lawas Village, both from cultivation techniques, production results, revenue, income, profits, and business feasibility. Sampling using the census method with the number of respondents as many as 20. The results showed that the Patin fish enlargement pond business in Banua Lawas Village with 40 ponds with an average seed stocking of 12,100 and a total cost of IDR. 4,220,832,280, the revenue obtained was IDR. 4,299,700,000 with an average of IDR. 214,985,000, the income received was IDR. 513,688,627 with an average of IDR. 25,684,431, the profit obtained in the Patin fish enlargement pond business in Banua Lawas Village was Rp. 78,867,720 with an average of IDR. 3,943,386. The business carried out in Banua Lawas Village is worth working on but has a very small RCR value of 1.02 where every capital spent of IDR. 1 will generate a profit of IDR. 1.02.

Keywords: Business analysis • Explicit • Implicit • Banua Lawas

Introduction

Indonesia has a lot of potential from the agricultural sector that can be used as a support for national economic development (Kuswanto, 2020; Novianti et al., 2018; Ikram et al., 2023). One of the agricultural sectors that has considerable potential is the fisheries sub-sector. Judging from the geographical session, the area of Indonesian waters is wider than the land, so the fisheries sector is very strategic to be developed as a driver of the national economy (Tanjung, 2017). The enormous potential stored in Indonesia's aquatic environment should be able to be utilized optimally (Fajri, 2020; Bowo and Ginting, 2015).

The agribusiness sector has good prospects for the development is the fisheries sector. One of Indonesia's growing fisheries potentials is aquaculture. Indonesia's aquaculture potential is estimated at 15.59 million ha consisting of freshwater (2.23 million ha), brackish (1.22 million ha), and marine (12.14 million ha), but its utilization is still very small, namely for fresh 10.01% (223,223 ha), brackish 40% (488,000 ha), and marine 0.01% (1,214 ha) (Fadel, 2011).

According to Witoko et al. (2013), aquaculture business with ponds is currently a business that is widely done looking at environmental conditions where farmers or cages are currently experiencing many difficulties or failures due to water factors and little capacity so many people choose businesses with earthen ponds, fish that can be cultivated in this pond business such as Patin fish. Patin fish is known as a commodity with bright prospects because it has a high selling price. However, the availability of feed is one of the main obstacles in cultivation, so
the source of Patin fish feed only comes from one source, namely commercial feed. These fish are quite responsive to supplementary feeding. This causes the need for feed in Patin fish farming to be quite high. So, the production costs needed for Patin fish farming are quite large. In carrying out a Patin fish enlargement business activity, not only Patin fish enlargement business, any business is very important to do a financial analysis of the business, because sometimes business actors think that if they can continue to produce, the business they run is profitable and still feasible, they need to conduct a feasibility study of the business first whether the business is still suitable to run. A business activity is said to be successful if the production results can pay capital interest, tools used, wages for external workers, and other production facilities including obligations to third parties, and can maintain the sustainability of their business (Purwanti, 2013).

Banua Lawas District is one of the good areas in fisheries business, especially Banua Lawas village, in addition to fishing, fish farming is also an important activity in fisheries in Banua Lawas village. Fish farming can be done in ponds, or cages in the waters around the village. Some species of fish that are generally cultivated include tilapia, and Patin fish, where the village is close to rivers and swamplands so it is good for Patin fish farming. For the Patin fish enlargement business, which is spread throughout the Banua Lawas sub-district, many entrepreneurs are doing Patin fish enlargement business. In Banua Lawas village, the fish enlargement pond business is currently one of the promising businesses and has become a livelihood business for the community, especially Banua Lawas village, where there are many Patin fish enlargement business actors, both old and new business actors. As the years go by, business actors are increasing, but business actors do not see the conditions where feasibility is very important to consider before doing a Patin fish enlargement business, it is necessary to determine the location, target market, selling price, and production cost price, this needs to be considered first, but there are some problems in this business so that many entrepreneurs choose to stop doing this business due to several good factors from capital, production costs, and sales. In other words, fishery production in Banua Lawas is quite large, but market demand is still lacking and the selling price is still cheap, inversely proportional to the relatively expensive price of feed.

Materials and Methods
Sampling was chosen by purposive sampling technique, where from the data of Banua Lawas District there were 15 villages, and one village was taken that had the most Patin fish enlargement business, namely in Banua Lawas Village there were 20 entrepreneurs and all of them were taken as respondents by census method. The number of respondents was 20 people and the data was obtained from the initial survey. Once the data is collected, it is processed, tabulated, and analyzed. To find out the first and third objectives using descriptive analysis, which is in the form of interviews with the help of questionnaires conducted. To find out the second goal using financial analysis, the number of costs, depreciation, receipts, income, profits, and business feasibility in the Patin fish rearing business.

The cost of the Patin fish rearing business is divided into two, namely explicit costs and implicit costs, according to Kasim (2004) to calculate costs using the formula:

$$TC = TCE + TCI$$

Description:
TC: Total cost of Patin fish rearing business
TCE: Total cost of Patin fish rearing business
TCI: Implicit cost of Patin fish enlargement business.

The depreciation of the tool is calculated using the formula

$$P = \frac{Na - Ns}{Up}$$

Description:
P: the amount of depreciation value of fixed capital goods for 1 business year (in rupiah per year)
Na: the initial value of fixed capital goods. This initial value is equal to the purchase price or procurement price
Ns: the residual value of fixed capital goods, which is other when the goods are no longer used, for example in the form of junk
Up: The service life of fixed capital goods, which is the length of time for the use of goods until the goods are no longer in use
Revenue is the result of the output of starch fish enlargement efforts (kg) by multiplying the market price of Patin fish (IDR). According to Kasim (2004) to calculate receipts use the formula:

\[ TR = P \times Q \]

Description:
TR: Total Revenue
P: Price
Q: Quantity

Revenue is the difference between receipts and total explicit costs. According to Kasim (2004) to calculate income used formula:

\[ I = TR + TCE \]

Description:
I: income
TR: Total revenue.
TCE: Total cost explicit

The profit is the total receipt minus the total cost. According to Kasim (2004), profit calculates profit using a mathematical formula.

\[ \pi = TR - TC \]

Description:
\( \pi \): Advantages of Patin fish farming
TR: Total receipts of Patin fish farming
TC: Total cost of Patin fish

Business Feasibility, Revenue Cost Ratio (RCR) or known as the comparison between profit and cost (Soekartawi, 2006). Mathematically, this can be written as follows:

\[ RCR = \frac{TR}{TC} \]

Description:
RCR: Revenue Cost ratio
TR: Total Revenue/ Total receipts of Patin fish farming in one period
TC: Total Cost/ Total Cost of Patin fish farming

Theoretically, \( R/C \) Ratio = 1 means that the business carried out is not profitable and not loss, \( R/C \) Ratio < 1 means the business carried out is not profitable (not feasible), and if the \( R/C \) Ratio > 1 means a business that is worth carrying out.

**Results and Discussion**

Banua Lawas Village is one of the villages located in Banua Lawas District. This village is located directly in the center of Banua Lawas sub-district, Tabalong Regency. Banua Lawas Village has an area of about 15.8 km² and has now been designated as one of the priority residential areas. Geographically, Banua Lawas village is in the central part of Banua Lawas District and borders the following areas:

- **North Side**: Banua Regional Village.
- **South Side**: Bungin Village.
- **West Side**: Habau Village / Bangkiling Village.

The amount of empowerment potential in Banua Lawas Village is large seeing the good geographical location of the village where the market and trade sectors are directly centered in the sub-district, Map of Banua Lawas Village shown in figure 1.

![Figure 1. Map of Banua Lawas Village](image-url)
The total population of Banua Lawas Village is 1,748 people, consisting of 884 male residents and 864 female residents with 532 households and 8 RT numbers.

**Table 1.** Number of inhabitants of Banua Lawas Village by age group.

<table>
<thead>
<tr>
<th>No</th>
<th>Age group (years old)</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0 - 1</td>
<td>25</td>
</tr>
<tr>
<td>2</td>
<td>2 - 3</td>
<td>18</td>
</tr>
<tr>
<td>3</td>
<td>4 - 5</td>
<td>26</td>
</tr>
<tr>
<td>4</td>
<td>6 - 7</td>
<td>34</td>
</tr>
<tr>
<td>5</td>
<td>8 - 9</td>
<td>38</td>
</tr>
<tr>
<td>6</td>
<td>Adult</td>
<td>1607</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td><strong>1748</strong></td>
</tr>
</tbody>
</table>

The table 1 explains the number and age of the population in Banua Lawas Village, where the population is dominated by adults which is as many as 1607 people Banua Lawas Village.

**Village Potential**

**Agricultural potential**

Banua Lawas Village has an average of two farms in one year, especially those in RT 01, 02, 03, 05, 06, and 07. Meanwhile, once a year only cultivate in RT 04 and 08 because the rice fields are flooded when the rainy seasons arrive.

**Fisheries Potential**

In Banua Lawas Village, the potential of fisheries is highly developed by the community, either fish enlargement in caramba or in ponds. The types of fish cultivated by some people in Banua Lawas Village are types of freshwater fish such as carp, tilapia, pomfret, catfish, and jumbo catfish. Currently the type of fish enlargement in the pond is very promising and many are loved by the people of Banua Lawas Village.

**Tourism Potential**

Tourism potential in Banua Lawas Village is in RT 04, Banua Lawas Village, Banua Lawas District, namely religious tourism Pusaka Mosque and the Tomb of Penghulu Rasyid. Many visitors come, both local tourists and foreign tourists.

**Community Economic Activities**

The economic activities of the people of Banua Lawas Village are the buying and selling of agricultural products such as (Spinach and Kangkung), livestock products (chickens, cows, and goats) which are sold directly to the local community or selling products to markets in Banua Lawas. The habits of local people carry out plantation activities (such as rubber), agriculture (cassava and vegetables), and fisheries cultivation. Farmed fish are sold to collecting traders who usually come in person to farmers. Economic activities carried out by the people of Banua Lawas Village include the occurrence of buying and selling of fishery and agricultural products to meet their daily needs (Maruta, 2020).

**Table 2.** The number of Main Jobs of Banua Lawas Village Community.

<table>
<thead>
<tr>
<th>No</th>
<th>Occupation</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Farmer</td>
<td>781</td>
</tr>
<tr>
<td>2</td>
<td>Civil Servants</td>
<td>44</td>
</tr>
<tr>
<td>3</td>
<td>Private Employees</td>
<td>47</td>
</tr>
<tr>
<td>4</td>
<td>Merchant</td>
<td>89</td>
</tr>
<tr>
<td>5</td>
<td>Self-employed</td>
<td>75</td>
</tr>
<tr>
<td>6</td>
<td>Student</td>
<td>617</td>
</tr>
<tr>
<td>7</td>
<td>Teacher</td>
<td>67</td>
</tr>
<tr>
<td>8</td>
<td>Police</td>
<td>4</td>
</tr>
<tr>
<td>9</td>
<td>National soldier</td>
<td>-</td>
</tr>
<tr>
<td>10</td>
<td>Pensioner</td>
<td>18</td>
</tr>
<tr>
<td>11</td>
<td>BUMD employees</td>
<td>6</td>
</tr>
</tbody>
</table>

The table 2 explains the existing working conditions in Banua Lawas Village where the most jobs are farmers around 781 people.

**General State of Fisheries**

In general, a fish farming business has two main activities, namely hatchery activities and maintenance or enlargement where each other is closely related so that the business will produce satisfactory production. In a fish farming business activity, the success or failure of the aquaculture activity is determined by the availability of various facilities that support the course of the activity (Indradi et al., 2019).

Banua Lawas Village became the village that did the most fish enlargement business and one of the earliest / first villages to have a business in the field of fish enlargement. Banua
Lawas Village is one of the villages that is the center of freshwater enlargement fisheries in Banua Lawas District and its surroundings. The media used in enlargement activities are soil pond media and cages. The commodities carried out by enlargement in Banua Lawas Village based on the results of interviews with fish-rearing business actors are as follows:

Rearing efforts
Nila fish (*Oreochromis niloticus*)
Goldfish (*Cyprinus carpio*)

Rearing efforts
Patin fish (*Pangasius hypophthalmus*)
Catfish (*Clarias sp*)

Fish-rearing business activities are activities that support the welfare and prosperity of the local community with fishery business activities. The average work that is done a lot in Banua Lawas Village is the raising of fish and farmers.

More fishery businesses are carried out are catfish enlargement businesses (*Pangasius hypophthalmus*) whose income is used to meet daily needs and feed investment in fish rearing businesses (Asyari et al., 2017; Agriansa, 2020; ILavy, 2019). The enlargement method carried out by each business actor in Banua Lawas Village is almost the same even though it has several different methods used such as the size of the enlargement pond, the density of stocking fish fry, the amount of feed used, the price and size of fish fry and the amount of production in one production.

### Table 3. Tools Used in Patin Fish Enlargement in Banua Lawas Village

<table>
<thead>
<tr>
<th>No.</th>
<th>Tools</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Water Machine (Robin)</td>
<td>To fill and drain water in the pool</td>
</tr>
<tr>
<td>2</td>
<td>Paralon Pipe</td>
<td>As a place for water channels</td>
</tr>
<tr>
<td>3</td>
<td>Scales</td>
<td>For weighing crops</td>
</tr>
<tr>
<td>4</td>
<td>Nets</td>
<td>As a tool for catching/netting fish</td>
</tr>
<tr>
<td>5</td>
<td>Lawn Mower</td>
<td>As a tool for cleaning ponds</td>
</tr>
<tr>
<td>6</td>
<td>Machete</td>
<td>As a tool for cleaning grass and mowing</td>
</tr>
<tr>
<td>7</td>
<td>Baskum</td>
<td>To temporarily hold fish during harvest</td>
</tr>
</tbody>
</table>

The table 3, shows the tools used in the process of enlargement of catfish in Banua Lawas Village, where these tools have their respective uses and are very important in the effort to enlarge catfish in ponds (Data Primer 2023).

The table 4, explains that lime is used before the pond is watered to increase the pH of water and soil, the amount of lime used depends on the size and area of the pond. Salt is used when fish experience a lack of appetite, how to control salt is sown into the pond as much as 10 kg/pond the wider the pond is usually as much as needed. EM4 functions to improve the quality of water that has been polluted or turned green due to moss, and how to control it by sowing directly into the pool, the wider the size of the pool and the pollution of water, the more EM4 drugs needed. Boster is a vitamin as well as a medicine.

### Table 4. Ingredients Used in the Enlargement of Catfish in the Village of Banua

<table>
<thead>
<tr>
<th>No.</th>
<th>Materials</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Lime</td>
<td>To raise the pH level of water and soil.</td>
</tr>
<tr>
<td>2</td>
<td>Salt</td>
<td>Kills bacteria, the appetite of fish.</td>
</tr>
<tr>
<td>3</td>
<td>EM4</td>
<td>Improve Water Quality</td>
</tr>
<tr>
<td>4</td>
<td>Boster</td>
<td>Fish vitamins, redfin medicine</td>
</tr>
<tr>
<td>5</td>
<td>Herbatov</td>
<td>To control weeds in the pond</td>
</tr>
</tbody>
</table>
for fish affected by redfin disease, how to use it is by sowing directly into the pond or mixed in feed with a dose of 50 mm / 3 kg of feed. Herbatov is a weed control drug/grass that grows in ponds usually one lid for one tangka hand sprayer (Primary Data, 2023).

**Production costs**

Production costs consist of explicit and implicit. Explicit costs are all costs that are incurred in the catfish rearing business in Banua Lawas Village explicit costs incurred amounted to IDR. 3,786,011,373 with an average cost of IDR. 189,300,569 / respondent/period/month. In Rahmawati (2019), the costs incurred are variable costs where these costs consist of, feed, seeds, and labor, almost the same as explicit cost calculations, but the difference in depreciation costs of the tool goes into fixed costs. This can be seen in the cost of different costs where using explicit costs is greater than variable costs.

**Implicit costs**

Implicit costs in Patin fish rearing business in Banua Lawas Village include labor in the family (TKDK). Total implicit costs amounted to IDR. 434,820,909 with an average amount of IDR. 21,741,045/respondent/period. Implicit costs themselves are costs that are only calculated as costs but are not expenses paid in real-time in catfish rearing efforts. In Rahmawati (2019) there is a difference where the calculation of costs uses fixed costs which have calculations such as depreciation of equipment, pool rental, etc., the costs incurred are IDR. 767,562,200 with an average of IDR. 40,398,011, the costs incurred are much greater because there are calculations of depreciation of equipment and fixed costs.

**Revenue**

The price of catfish at the farmer level at the time of the study was IDR. 18,000-IDR.20,500, where the selling price is still said to be cheap or far from the usual price of IDR.25,000 / kg. The total production of the Patin fish enlargement business in Banua Lawas Village amounted to 225.3 tons with an average production of 11.2 tons/fish farmer, then the revenue for the Patin fish enlargement business in Banua Lawas Village amounted to IDR. 4,299,700,000 or with an average revenue of IDR. 214,985,000/respondent/period, revenue was obtained from the product of Patin fish prices at the fish farmer level with total production in one stocking. The results of Rahmawati (2019) resulted in revenues obtained of IDR. 17,839,450,000 with an average of IDR. 938,918,421, this difference is very clear to see the main cause of this difference can be caused by production results and selling prices. This research shows that the size of revenue is influenced by production results, selling prices, and marketing strategies.

**Income**

The total income of the Patin fish-rearing business in Banua Lawas Village during one seed stocking/season is IDR. 513,688,627 or an average income of IDR. 25,684,431/ respondent/period/ month. Revenue is derived from the difference in the value of receipts with explicit costs incurred in one period/seed stocking. The difference in income from Rahmawati (2019) earned income amounted to IDR.4,994,611,630 with an average of IDR.41,261,689, what caused the difference in income, namely in terms of respondents where the respondents studied amounted to 61 people, and the total costs incurred were small so that the difference was very clear.

**Profit**

The total profit obtained by fish farmers in Banua Lawas Village amounted to IDR. 78,867,720 and an average of IDR. 3,943,386 / respondent/period/month. The total profit of revenue with the costs incurred in the catfish enlargement business. The value of profits obtained from Patin fish rearing businesses in Banua Lawas Village is very similar to the profits obtained this is influenced by the value of the revenues obtained as large as the value of expenses or total costs. The advantages of Rahmawati (2019) research are calculations to different profits where the calculation uses profit sensitivity analysis in the Patin Fish Enlargement Business in Kambitin Raya Village which is obtained at Rp 166,672,358 per year or Rp 13,889,363 per month. Results that distinguish the length of business time and selling price. The RCR calculation analyzes the Patin fish-rearing business in Banua Lawas Village...
obtained from the average revenue quotient of IDR. 214,985,000 / production/farmer with an average total cost of IDR. 211,041,614 / farmer then a quotient of 1.02 is obtained. This shows that for every IDR.1, the costs incurred provide revenue of IDR.1.02. The Patin fish enlargement business in Banua Lawas Village from the results of the business analysis can be interpreted as feasible but gets a low or little RCR value, because the selling price is very cheap and inversely proportional to the capital spent is very large because it is influenced by the price of feed which is very expensive because the feed there buys all no one does their own feed making.

The difference in analysis where research from Rahmawati (2019) uses BCR and the intention obtained is 1,270 which means that it is following the conclusion criteria that the BCR value = 1,270 > 1, is said to be feasible to run.

Conclusion
The technical enlargement of Patin fish in ponds in Banua Lawas Village is carried out intensively, Patin fish fry are stocked once in ten months / per period, and good stocking time. Feeding is done twice a day morning and evening, harvesting is done using a net, fish are collected inside and then caught using baskets, then weighed and put in the shelter so that when sold it is still fresh. Financially, the Patin fish enlargement business in Banua Lawas Village is feasible, but the profit obtained is thin because the Revenue Cost Ratio (RCR) is 1.02 which means, every IDR.1 spent will generate revenue of IDR.1.02 (RCR>1.02). The problem with Patin fish enlargement in Banua Lawas Village is that the price of feed is expensive around IDR 228,000 or more depending on the store where to buy so many people are constrained in providing feed due to insufficient capital. The cheap selling value is due to the many business actors both in Banua Lawas Village and other village so that the selling value decreases from the usual price of IDR. 22,000-23,000 to 19,000, harvest synchronously, and sells below the target market due to insufficient capital. The influence of water quality changes when the fish is big then the water will turn green or mossy because the water source is far away so it rarely changes water, so dirty and polluted water causes fish to die.

Compliance with ethical standards
Conflict of interest
The authors declare that they have no conflict of interest.

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Primary data. (2023). Banua Lawas District people (interview results data).

