Analysis Of Fishermen'S Enterprises Gondrong Net In Bontang City East Kalimantan Indonesia

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Abstract. *The sea in Bontang City is wider than the land. It is therefore logical that the output of fishing is dominated by marine fishing. Bontang City fishermen who use Gondrong Nets catch devices 147 fisherman with 147 units catch equipment Based on the analysis of gondrong nets catching devices enterprise produced NPV value of Rs. 184.512.787, gondrongo nets IRR of 223%, payback period for 6 months, R/C > 1.3 and net income of fishing catch gondrongi nets annually in Bontong City is an average of Rs.68.266.784,- /respondent, with an average income of Rs.55.377.243, / year/responden.*
Keyword *: business analysis, Fisherman, Gondrong Net*

1. INTRODUCTION

The fisheries sector has a strategic role in national development in terms of natural resource potential, Indonesia is known as the largest maritime country in the world because it has a relatively large potential wealth of fishery resources. The fisheries sector also absorbs a lot of labor, starting from catching, cultivation, processing, distribution and trade activities. Therefore, the development of the fisheries sector cannot be ignored by the Indonesian government (Triarso, 2012).

The sea area in Bontang City is larger than the land area. Therefore, it is natural that fisheries production is dominated by marine fisheries. Capture fisheries production in 2022 was recorded at 21,916.20 tons with 3,331 marine fisheries households. Meanwhile, aquaculture production in 2022 was recorded at 3,471.45 tons with 330 aquaculture households (Bontang in figures, 2023).

The fishing community of Bontang City that uses Gondrong net fishing gear is 147 fishermen with 147 units of fishing gear. The fishing gear is included in traditional fishing gear because fishermen still use small boats whose fishing area is still around the Bontang City area with the main target of fishing is bawis or baronang lingkis. The advantages of Jaring Gondrong fishing gear include active fishing gear that can catch in several *fishing grounds* by moving even though using one *fishing gear*.

The fishing activities of the fishing community must know the level of success in the business activities carried out to be able to assess whether a business is profitable or not. One of the business objectives is to determine or seek financial feasibility and compare the feasibility of catching business on both fishing gear, this goal can be achieved if you want to make an investment should be preceded by a study the purpose is to assess whether the investment to be invested is feasible or not to run, to avoid failure it is necessary to conduct a study before the business is run.

2. RESEARCH METHODS

Research Time And Location

This research was conducted in June 2022 - completed. The research location was in Bontang City. The stages of this research include preparation, data collection, analyzing data, discussion and preparation of thesis reports. The research location was carried out in Bontang City

Data Collection Method

Primary data is data obtained directly at the research location through direct interviews with respondents who are guided by a list of questions (questionnaire). Secondary data is data obtained or collected from existing sources. And is data that is needed as supporting data obtained from parties or institutions - related institutions originating from

related agencies, literature studies, fisheries and marine offices and others.

The sampling method is the number of respondents in this study carried out is *Stratified random sampling* The research uses the Slovin formula because in the withdrawal of samples, the number must be representative so that the research results can be generalized and the calculation does not require a sample size table, but can be done with simple formulas and calculations.

The number of samples in the study to be studied so that the results of the jarring gondrong respondents are 37 people. The program of research activities included surveys for primary and secondary data collection. The next step is data processing and analysis. In detail as follows:

1. Collect primary and secondary data.
2. Analyze data from observations and interviews using analytical techniques.
3. Discussing the results of data analysis

Data Analysis Method
Business Feasibility Analysis

This study aims to analyze the financial business of fishing gear Gondrong nets and splints, then from the results of interviews with respondents will be calculated business analysis with the analysis method used, namely:

a. *Net Present Value* (NPV) is the difference between benefits and costs that have been present value. The unit is in the form of currency (Tiwa *et all*, 2016).

With the formula:
NPV = (PV) Benefit (Bt) - (PV) Cost (Ct)
Description:
B   = benefits that have been discounted
C   = discounted cost
PV   = Present Value

b. *Internal Rate of Return* (IRR) , a percent figure that shows the ability of the project / business to return the investment we have spent. (Tiwa *et all*, 2016)

$$IRR = i' + \frac{NPV'}{NPV' - NPV''} \times (i' - i')$$

Description:
IRR   : *Internal Rate of Return*
i '   : Discount Rate that generates NPV+
i "   : Discount Rate that generates NPV-
NPV'   : Net Present Value is positive
NPV"   : Net Present Value is negative

c. Net income

According to (Yustiarani, 2008 *in* andrian *et all* 2020) states that the net income (π) of capture fishermen using gondrong nets and splints is calculated based on the difference between total revenue (*total revue / TR*) and total cost (total *cost / TC)*. This calculation aims to determine the input and output components involved in it and the amount of profit obtained from the business carried out:

$$\pi = TR - TC$$

Description:
π : Net income
TR   : Total Revenue or total revenue
TC   : Total Cost or total cost
Criteria used: $\pi > 0$ = profit, $\pi < 0$ = loss

c. R/C Ratio
R / C Ratio is the ratio between revenue and total costs (Suratiyah, 2015 *in* andrian *et all* 2020). The formula for calculating the R / C Ratio, as follows;
R/C = Total Revenue (TR) / Total Cost (TC)
Description:
TR   : The amount of revenue earned
TC   : The amount of costs incurred

d. *Payback Period*
According to (Gitingger, 1986 *in* andrian *et all* 2020) Payback Period is the period of time for the return of the entire amount of capital investment invested calculated from the start of the project until the flow of net value of additional production, thus reaching the total amount of capital investment invested. The formula used to calculate the Payback Period is as follows:

$$PP = \frac{Investasi\ (Rp)}{Pendapatan\ bersih\ (Rp)} \times 1\ year$$

PP is a way of valuing an investment based on the time required to return the invested capital. With criteria:

a. PP < 3 years fast / quick: then the investment is categorized as a quick return on capital.
b. PP of 3 years < PP < 5 years medium: then the return on investment is categorized as medium.
c. PP > 5 years slow: hence investment

3. RESULTS AND DISCUSSION

The gondrong net by Bontang City fishermen is a net consisting of three layers, two layers of *outer net* and one layer of *inner net* sheet. The *inner net* sits between two layers of *outer net* that are loosely fitted. The *outer net* has larger meshes than the *inner net* causing fish to be caught in a twisted manner. The *inner net is* made of *Polyamide* (PA) with a mesh size of 5 cm. The outer net layer is also made

of *Polyamide* (PA) with a mesh size of 12 cm. The length of the gondrong net is 180 m with a net width of 1.5 m. At the top of the net is tied to the top ris rope and buoy, while at the bottom is tied to the bottom ris rope and ballast. The buoyant force and weight of each buoy and ballast will cause the net to be stretched in the water. Another function of the ris rope is to connect the net sheets *horizontally*.

The buoys used were made of sponge with a length of 6 cm and a diameter of 3.5 cm with an installation distance of 50 cm. The buoy is placed on a buoy rope made of PE. The ballast is made of oval-shaped lead with a length of 2 cm and a diameter of 1.05 cm. The ballast is attached to a ballast rope made of PA with a diameter of 0.15 cm. The distance between the weights installed is 10 cm. Selambar rope is a rope that connects the net to the boat and also connects the net to the mark buoy. Gondrong nets in each region have different characteristics because they are handmade by fishermen or craftsmen who are the wives of fishermen.

The method of operating the *gondrong net* or gondrong net is by spreading the net and soaking it for a few minutes. The net is operated on the bottom of the water in a straight and loose manner. The length of the gondrong net fishing trip is from 07.00 - 16.00 WITA depending on the catch obtained and the distance of the *fishing ground* traveled. The boat used is an outboard motor boat with a workforce of 1 person.During the trip the net is carefully prepared by separating the floats and weights before operating the fishing gear. This is so that the net is easily lowered and not tangled. The boat is placed in a way that does not block the direction of the current and wind so as not to hinder the *setting* process after arriving at the *fishing ground*.

The lowering of the net begins with the lowering of the mark buoy followed by the front selambar rope, the body of the net, and the back selambar rope tied to the boat. The time required for *setting is* usually approximately 30-60 minutes. The next process is net immersion. This is the stage where the net will be soaked for the desired time to wait for the fish to get entangled. While waiting for the net to soak, fishermen usually hit the water while directing fish into the gondrong net. The next process after *immersing* is *hauling*. *Hauling* is the pulling or lifting of the net onto the boat. The order of hauling is the reverse of the *setting* process, which starts from the rear selambar rope, the body of the net, the front selambar rope, to the mark buoy. The *hauling* stage takes 60 minutes depending on the number of fish caught. The catch is sorted and put into a cork box filled with ice cubes. The advantages of gondrong nets are that spending on net repairs is cheaper and produces more catches, fatter fish, especially the target fish, namely bawis. The disadvantage of the gondrong net is that it takes

longer to catch fish because you have to move to different fishing grounds. The energy spent is also greater in catching because when catching the boat must move to throw the net, coupled with fishermen having to hit seawater towards the net so that fish can be trapped into the net. The time in catching must wait for low tide, because the target catch is less than 1 - 2 meters into the water. The selling price obtained is also cheaper because they have to do marketing through collectors because the fishing time is very long, which is around 8-10 hours.

Production Cost

The production process in the splint fishing gear and gondrong nets occurs 1 time production in one fishing day so that in one month there are 30 fishing production times and in one year there are 360 times while the gondrong net occurs 1 time production in one fishing day so that in one month there are 26 production times. The production process of gondrong net fishermen is off on Friday so that and in one year there are 312 fishing productions. Based on the results of research conducted in Bontang City, it is known that the costs incurred consist of investment costs and operational costs.

The types of investment equipment required in gondrong nets are nets, ppc buoys, weights, corks, ris ropes, boats and machines. The amount of investment costs required in the fishing business using gondrong net fishing gear ranges from Rp. 13,375,000, - to Rp.23,160,000, - with an average per respondent of Rp.21,669,189, - and the technical service life of the equipment ranges from 12-60 months. The vessels used by fishermen in catching with gondrol nets are vessels with 6-13 PK engines, each fisherman has 1 vessel with an engine according to their needs. The gondrong net fishing gear consists of nets, floats and weights. The cost details of the investment can be seen in detail in Table 1.

In the gondrong fishing gear business in Bontang City, non-fixed costs include the cost of purchasing and maintaining nets, boat maintenance, engine maintenance, oil, cigarettes, ice cubes, consumption and fuel In the gondrong net fishing gear business, maintenance of gondrong fishing gear is carried out about 24 times a year consisting of replacing torn nets, the cost incurred for one maintenance is Rp. 220,000, - so that in 1 year it costs Rp.1,320,000, -. Boat maintenance carried out, namely painting and patching leaking parts, is carried out once a month at a cost of Rp. 300,000, or around Rp. 1,800,000 in a year. Boat engine maintenance is carried out every month or if there is damage to the engine and replacement of engine spare parts, the cost incurred for the engine reaches Rp. 1,200,000 in a year. Other costs are costs incurred by fishermen for supplies during fishing

operations, the amount of non-fixed costs incurred ranges from Rp. 4,900,000, - to Rp. 7,900,000, - /

year with an average per respondent of Rp. 6,275,900, - / year.

Table 1. Details of Investment Costs of Gondrong Net Fishermen

| No. | Description of Investment | Gondrong Net Fisherman | | | | |
		Unit	Total	Price (Rp)	Total Cost Per Respondent (IDR)	Service Life (month)
1	Net	Set	26	220.000	5.720.000	12
2	Ppc Buoy	Pockets	4	25.000	100.000	36
3	Ballast	Kg	8	60.000	480.000	60
4	Cork	Unit	1	100.000	100.000	60
5	Rope Ris	Roll	8	25.000	200.000	48
6	Ship	Unit	1	5.000.000	5.000.000	60
7	Machine	Unit	1	10.000.000	10.000.000	60
Total Investment Cost					21.500.000	

In the gondrong net business, fixed costs come from household costs and replacement of investment equipment that is 1 - 5 years old. Total fixed costs per month in the splint business ranged from Rp. 6,552,000, - to Rp. 8,414,000, - with an average per respondent of Rp. 6,613,600, - / year. Details of fixed costs incurred in the gondrong net business can be seen in Appendix 5. The average amount of operational and maintenance costs incurred by gondrong net fishermen per month is Rp. 635,100-/month and the annual average is Rp. 7,621,200,-/year.

Price And Production

In the fishing business with gondrong nets, the main commodity is Bawis fish with a selling price of Rp. 20,000, - per kilogram, Baronang fish with a price of Rp. 60,000, - per kilogram, Ketamba fish with a price of Rp. 5000, - per kilogram and mixed fish which is valued at Rp. 3,000, - this is because gondrong net fishermen still sell fish to fish collectors where the price is far from the market price. Each fishing cycle of gondrong fishermen is also carried out for 1 day, so that in one month there are 12 production cycles and in 1 year 365 production cycles. The average amount of catch production is 2848 kg/year/respondent. The following table shows the production results of gondrong fishermen.

Table 2. Production of Gondrong Net Fishermen in Bontang City

	Production Quantity kg/cycle	Production Quantity kg/month	Production Quantity kg/year
Total	301	7.833	93.990
Average	9	237	2848

Revenue and Profit

The amount of revenue from catching gondrong nets each year in Bontang City is an average of Rp. 68,266,784, - / respondent, with an average profit of Rp. 55,377,243, - / year / respondent. The average revenue and profit obtained by splint and gondrong net fishermen in Bontang City can be seen in Table 3 in below:

Table 3. Average Revenue and Profits Earned by Gondrong Net Fishermen in Bontang City

Total Revenue (Rp)	Biaya Tetap	Biaya Tidak Tetap	Jumlah	Keuntungan
42.491.291,-	6.782.595,-	12.765.973,-	19.548.568,-	22.417.564

Financial Analysis

Net Present Value (NPV)

Net Present Value (NPV) is the difference between *benefits* and *costs* that have been made into present value. The gondrong net business produces an *NPV* value of Rp. 184,512,787, - meaning that the benefits of the gondrong net business for the next 5 years with the present value of 37 fishermen, are in the range of the *NPV* value. Thus, the gondrong net fishing business in Bontang City is feasible to continue based on the NPV> 0.

1. *Internal Rate of Return (IRR)*

Internal Rate of Return (IRR) is the ability of capital to provide benefits in the form of discount factors, with *IRR > OCC* criteria. In the fishing business with gondrong net fishing gear in Bontang City, the *IRR* value is 230%, meaning that the profit level of the investment capital invested in the fishing business with gondrong net fishing gear for the next 5 years from 37 fishermen, is in the range of the *IRR*

value. Thus, the fishing business with splint fishing gear in Bontang City is feasible to continue, when compared to the *OCC of* 7%.

2. R/C Ratio

Based on the results of the R / C Return ratio analysis, the fishing gear business run by respondents has a feasible ratio with a value of R / C> 1.3. It is concluded that the income of splint fishermen and gondrong fishermen is feasible or profitable.

3. *Payback Period*

Payback Period is the timeframe for returning investment costs from the profits obtained. Research on gondrong net fishing in Bontang City can recover investment costs in a period of 0.53 years (6.3 months) from 37 fishermen. These results indicate that the fishing business using gondrong nets is very profitable, because before the project life is up, the investment capital spent can be returned. Thus, this business is feasible to continue. The gondrong net fishery in Bontang City is much more profitable than the splint fishery.

4. Net income

The total net income of gondrong net fishermen each year in Bontang City is an average of Rp. 68,266,784, - / respondent, with an average income of Rp. 55,377,243, - / year / respondent.

4. CONCLUSION

Based on the results of the research conducted, several conclusions can be drawn, namely:

1. Based on the analysis of the business of fishing gear and gondrong nets in Bontang City, this business is feasible, the gondrong net produces an NPV value of Rp. 184,512,787, - meaning the profit from the gondrong net business for the next 5 years. Thus the gondrong net fishing business in Bontang City is feasible to continue based on the NPV> 0.

2. From the results of descriptive analysis of economic aspects, it increases the income and welfare of fishermen, social aspects, there is an increase in togetherness and silatulrahmi from the field of community life, technological aspects with limited education that exist fishermen are still able to operate and modify fishing gear.

5. RECOMMENDATION

From the results of the research conducted, researchers can provide several suggestions,The business of catching gondrong nets still needs to be developed again in the future.The gondrong net business is very profitable so that it can be continued as a source of business for fishermen.

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Proceeding 2nd International Conference Khairun University (IConKU) 2024
Postgraduate, Khairun University
Publish Online, September 10, 2024

ISBN. 978-602-74809-2-6
Vol 1, No 1 (2024)

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