

Analysis of Capture Fisheries Business at Limboto Lake

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Abstract

This study aims to determine the feasibility of fishermen's business and possible development in Lake Limboto, Gorontalo Province. The study was conducted from February to August 2016. This study used direct observation and interviews with fishermen and field observations. The results showed that financially the fishing effort in Lake Limboto was feasible to be developed, this was proven by the acquisition of R / c Ratio and payback period of each type of fishing gear used.

Keywords: Fishing gear; fisherman; development; feasibility; Lake Limboto

Introduction

Lake Limboto is the largest lake in Gorontalo Province. Administratively the lake is located in Gorontalo Regency and Gorontalo City. Lake Limboto is in the lowlands of \pm 25 m above sea level and its position on the outskirts of Gorontalo City. Physiographically the landscape of Lake Limboto's catchment has various slopes, namely: very steep 6.71%, steep 42.80%, rather steep 3.03%, sloping 4.24% and flat 43.22% (BPDAS Bone-Bolango, 2003). Lake Limboto has a strategic role, including: (i) ecological aspects as a natural reservoir of river water runoff entering its catchment area or flood control, (ii) providing important economic resources for fisheries (cultivation and capture), (iii) development of natural tourism, (iv) potential sources of clean water, (v) containing biodiversity for natural laboratories, and (vi) for agriculture, (Ministry of Environment, 2008).

Lake Limboto is one of the lakes that has abundant natural resource potential which is located in Gorontalo Province. Lake Limboto as a source of income for fishermen, flood prevention, irrigation sources and tourist attractions. The area of the lake is located in two regions, namely 30% of Gorontalo City area and 70% of Gorontalo Regency area and covers 5 Districts. The decreasing area of the lake's waters causes the lake's function as a reservoir to decrease so that the potential for flooding and drought around the lake area even outside the Limboto Lake area. Many communities around utilize Lake Limboto to cultivate tilapia, goldfish, catfish and koan fish in

floating net cages. In addition, groups of fishermen in the limboto lake area also engage in freshwater fishing activities such as tilapia, goldfish, koan, mai bai, hulu'u, umbrella and shrimp using wild fishing gear, nets, and gill nets (Krismono et al 2008). Limboto Lake is classified as eutrophic waters with production potential ranging from 269.7932-589.9142 kg / ha / year, socio-economic and institutional conditions of the coastal fisheries community of Lake Limboto show that around 30-64% search as fishermen, with the type of fishing gear used by gillnet, nets, and sero with an average catch of about 2-15kg / RTP / day.

This study aims to determine the feasibility of a fishermen's business and possible development in Lake Limboto, Gorontalo Province.

Research Methodology

This research activity was carried out in February to August 2016 at Lake Limboto Gorontalo.



Figure 1 Research site: Lake Limboto

Samples taken as many as 75 people from 126 fishermen who do business fishing. This is in accordance with the opinion of Ashari (2011), regarding sampling techniques.

Analysis of the data used are: total cost, total revenue analysis, profit analysis, Break Event Point (BEP) analysis, R / C ratio analysis, and PBP analysis.

Total cost is the total amount of fixed costs with variable costs in tilapia aquaculture business activities (Ashari, 2011).

Total Revenue is the total amount of results obtained in tilapia fish farming business activities in floating net cages (Ashari, 2011).

The advantage is the results obtained by the tilapia farmers from the revenue after being reduced by the total cost in the cultivation of tilapia during one production process. The formula used to calculate profits according to Ashari (2011).

Break Event Point (BEP) is a point or condition at a certain level of sales volume (production), with a certain sales price, companies do not experience profit or loss (Gusdi, 2012).

R / C ratio is an analysis that divides between the receipt of aquaculture production with the total costs incurred in tilapia aquaculture business during the one-time cultivation process (Ashari, 2011).

According to Gusdi (2012), the payback period analysis aims to find out the time rate of return on investment that has been invested in a business.

Results and Discussion

Investment is the initial capital owned by a business, because capital is the main means to support the smooth production process of a business. Capital can be divided into 2 namely investment and working capital. According to Mahardikha (2008) fixed costs, costs that are not used up in one time production and variable costs, which are used up in one production. The fixed costs referred to in this study consist of boats, engines and fishing gear while the non-permanent costs are operational capital. Based on the results of the study obtained the average investment capital required in the capture business in Lake Limboto Gorontalo can be seen in Table 1

Table 1 Average fixed cost for catch fishery per year

Fixed cost for each fishing gear	
Fishing gear	Average (IDR)
Gillnet	3.002.000
Throw net	2.774.000
Sircle net	2.482.000
Sero	2.546.000
Hand line	2.498.000

Source: analyzed from primary data, 2016.

Variable costs are the size of operational costs influenced by distance, length of capture, and the amount of production. The greater the distance, the greater the operational costs per year (Table 2).

Table 2 Average variable cost for catch fishery per year

Variable cost for each fishing gear	
Fishing gear	Average (IDR)
Gillnet	2.660.000
Throw net	2.762.000
Sircle net	3.247.000
Sero	2.593.000
Hand line	2.871.000

Source: analyzed from primary data, 2016

Total costs represent costs incurred by adding up investment and operational costs. Total average cost that must be incurred in the business of fishing using fishing gear in Lake Limboto. The total cost of the fishing business can be seen in Table 3.

Table 3 Average total cost for catch fishery per year

Total cost for each fishing gear	
Fishing gear	Average (IDR)
Gillnet	5.662.000
Throw net	5.536.000
Sircle net	5.729.000
Sero	5.139.000
Hand line	5.369.000

Source: analyzed from primary data, 2016

Revenue is income depending on the volume of catch, type and condition of fish caught and the price of fish in the market. The sale value of fish in Lake Limboto is not distinguished from the size of the fish, but is sold at a price per kilogram (Table 4).

Tabel 4 Average revenue from catch.

Revenue for each fishing gear	
Fishing gear	Average (IDR)
Gillnet	19.422.000
Throw net	15.420.000
Sircle net	15.426.000
Sero	14.412.000
Hand line	12.654.000

Source: analyzed from primary data, 2016

Profits are the result of total revenues reduced by total costs during the fishing process. Profit is the goal of the fishermen on Lake Limboto. To find out how much profit gained in catching fish in Lake Limboto Gorontalo can be seen in Table 5.

Tabel 5 Average profit

Profit for each fishing gear	
Fishing gear	Average (IDR)
Gillnet	13.759.000
Throw net	9.883.000
Sircle net	9.696.000
Sero	9.272.000
Hand line	7.363.000

Source: analyzed from primary data, 2016

Break Even is nothing but a principal return, which means no profit not loss. Break even point (BEP) is a point or condition at a certain level of sales volume (production), with a certain sales price, companies do not experience profit or loss (Gusdi, 2012). Break even points used in the fishing business in Lake Limboto are BEP production and BEP price. To find out the production BEP and price BEP can be seen in Table 6.

Table 6 BEP product

Fishing gear	Total Cost (IDR)	Price/kg (IDR)	Product BEP (kg)
Gillnet	5.663.000	35.000	162
Throw net	5.536.000	35.000	158
Sircle net	5.729.000	30.000	191
Sero	5.139.000	30.000	171
Hand line	5.370.000	30.000	179

Source: analyzed from primary data, 2016

To find out whether a business unit in carrying out the production process suffers from loss, breakeven or profit, an analysis can be carried out by dividing the total revenue (TR) with the total cost (TC). The RC ratio calculation is intended to find out how much the fishing effort is worth doing. For more details, the RC ratio of tilapia aquaculture business can be seen in Table 7.

Tabel 7 R/C Ratio

Fishing gear	Total Revenue (IDR)	Total Cost (IDR)	R/c Ratio
Gillnet	19.422.000	5.663.000	3
Throw net	15.420.000	5.536.000	3
Sircle net	15.426.000	5.729.000	3
Sero	14.412.000	5.139.000	3
Hand line	12.654.000	5.370.000	2

Source: analyzed from primary data, 2016

R / c ratio value of fishing effort in Lake Limboto in each fishing gear used has an R / C ratio > 1, it means that the business is feasible to run.

Calculating Payback Period is to find out the time rate of return on investment in a fishing business that has been implanted. the faster the PP time the better, because the smaller the risk obtained, if a small-scale business, the time period is less than 5 years, while the scale of large businesses more than 5 years (Gusdi, 2012). For more details, see Table 8.

Tabel 8 PBP rata-rata usaha penangkap ikan

Fishing gear	Total Cost (IDR)	Profit (IDR)	PP
Gillnet	5.663.000	13.759.000	0.4
Throw net	5.536.000	9.883.000	0.6
Sircle net	5.729.000	9.696.000	0.6
Sero	5.139.000	9.272.000	0.6
Hand line	5.370.000	7.363.000	0.7

Source: analyzed from primary data, 2016

The Payback Period (PP) value of the business shows that the investment can be recovered within an average period of 110 days or 3 months and 20 days, this shows a moderate rate of return on capital. The rate of return on capital is said to be moderate

because the Payback Period (PP) value is 0.4 but less than 0.5 years (> 4 Payback Period <5). The fastest payback period is 0.1 years, while the longest payback period is 0.5 years.

Conclusion and Suggestion

Financially the fishing effort in Lake Limboto is feasible to be developed, this is proven by the

acquisition of R / c Ratio from each type of fishing gear used, greater than 1 and the average payback period (PBP) of 0.6 years.

It is sought that the local government can pay attention to the fishermen in Lake Limboto so that in catching activities can get good results, in the development of capture fisheries there needs to be a role from the government directly.

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