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BENEFITS OF HATCHERY BUSINESS FOR RECIPIENTS OF GOVERNMENT ASSISTANCE IN THE FORM OF REVITALIZATION OF THE PEOPLE'S HATCHERY UNIT IN HULU SUNGAI TENGAH REGENCY, INDONESIA

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ABSTRACT

Haruan snakehead fish, as one of Indonesia's fishery germplasm assets, has an important role as a source of animal protein and buffers the stability of inflation rates in the Kalimantan region. The research aims to analyze the benefits of the local Snakehead fish Haruan fish hatchery business for recipients of government assistance in the form of revitalization of the People's Hatchery Unit (UPR) in Hulu Sungai Tengah Regency, South Kalimantan Province. Research activities took place in the Mufakat Group of Mahang Baru Village, South Labuan Amas District, Hulu Sungai Tengah Regency - South Kalimantan Province. Sampling was carried out using the proportional sampling method, namely samples were taken deliberately from Haruan snakehead fish cultivators who received grant assistance. The total number of respondents was 1 Cultivator Group. The profit from the local Snakehead fish Haruan fish hatchery business for recipients of government assistance in the form of revitalization of the People's Hatchery Unit (UPR) in Hulu Sungai Tengah Regency, South Kalimantan Province is IDR. 6,517,783, -per month. The profits obtained by cultivators are still above the Decree of the Governor of South Kalimantan Number 100.3.3.1 /0972/KUM /2023. The 2024 Hulu Sungai Tengah UMK amount is IDR 3,282,812, so that the results of the cork fish cultivation business are still able to meet the needs of the cultivator's family.

KEY WORDS

Haruan snakehead fish, benefits, revitalization, public service.

Haruan snakehead fish (*Channa striata*) is a local fish from South Kalimantan, and is also a type of fish that has high economic value, both in fresh form and in preserved or dried form. Supandi et al, (2015) Haruan snakehead fish cultivation is currently increasingly developing, because raising this fish is relatively easy and very profitable.

Haruan snakehead fish, as one of Indonesia's fishery germplasm assets, has an important role as a source of animal protein and buffers the stability of inflation rates in the Kalimantan region. This endemic species is found in most countries in Southeast Asia (Froese and Pauly, 2010), including Indonesia and peninsular Malaysia (Courtenay et al., 2004). Based on data from the Ministry of Maritime Affairs and Fisheries (KKP), Indonesia's Haruan snakehead fish production reached 117,624 tons with a value of IDR 4.63 trillion in 2021, where total production increased by 5.63% compared to the previous year which was 111,359 tons with a value of IDR 4.05 trillions. Sourced from inland water catches amounting to 60,583.42 tons in 2021 and from cultivation results amounting to 53,743.46 tons (Hanifa, et al. 2014).

From 2011 to 2021 there was an increase in the production of Haruan snakehead fish in Indonesia, where the highest production was in 2019, reaching 121,831 tons or worth 4.3 trillion Rupiah. The results of inland fish production in South Kalimantan in 2009, where the Haruan snakehead fish is a very popular commodity and certainly has high economic value. In the data table above, Haruan snakehead fish is in fourth place with total production reaching 4,258.6 tons in 2019, below betok fish, swamp sepat and Siamese sepat.

The price of Haruan snakehead fish at the consumer level can reach IDR 120,000/Kg and is the second cause of inflation after chili commodities. The domestication of Haruan snakehead fish has been carried out by BPBAT Mandiangin since 2016. The difficulties



faced in the form of technology that seems difficult and expensive make people reluctant to cultivate it. So a seed production strategy is needed that is relatively cheap and easy to implement at the cultivating community level. Cheap, continuous and environmentally friendly cultivation approaches continue to be developed so that applicable seed production techniques can be obtained for dissemination in society (Augustin, 2017).

The government's seriousness in developing Haruan snakehead fish cultivation is outlined in the Regulation of the Director of Aquaculture Number. 160/PER-DJPB/2021 concerning Amendments to the Regulations of the Director General of Aquaculture Number 37/PER-DJPB/2021 concerning Technical Instructions for Assistance for the Revitalization of Community Hatchery Units and Household Scale Hatcheries for the 2021 Fiscal Year, which specifically includes a menu of assistance for Local Fish Hatcheries. The Ministry of Maritime Affairs and Fisheries of the Republic of Indonesia, in this case, through the Directorate General of Aquaculture, instructed the Technical Implementation Unit of the Mandiangin Freshwater Aquaculture Fisheries Center to carry out dissemination in the community, namely by building facilities and infrastructure for the Snakehead fish Haruan local fish hatchery in the 2021 Fiscal Year, to analyze the benefits of the local Snakehead fish haruan fish hatchery business for recipients of government assistance in the form of revitalization of the People's Hatchery Unit (UPR) in Hulu Sungai Tengah Regency, South Kalimantan Province.

MATERIALS AND METHODS OF RESEARCH

Research activities took place in the Mufakat Group of Mahang Baru Village, South Labuan Amas District, Hulu Sungai Tengah Regency - South Kalimantan Province. Sampling was carried out using the proportional sampling method, namely samples were taken deliberately from Haruan snakehead fish cultivators who received grant assistance. The total number of respondents was 1 Cultivator Group.

Data analysis was carried out quantitatively, including profit calculations which are calculations as a description of the results achieved by a business activity during a certain period (Subanar, 1994). In this research, the periods analyzed are 2022 and 2023.

To calculate the amount of income, the following formula is used (Soekartawi et al, 2003):

$$\pi = TR - TC$$
$$\pi = (P \cdot Q) - (FC + VC)$$

Where:

- π : Total Income/Profit;
- TR: Total Revenue/Receipt;
- TC: Total Cost/Costs incurred;
- P: Product Selling Price;
- Q: Production Amount;
- TC: Total Cost;
- FC: Fixed Cost.

Total costs (TC) in production are the costs of all production elements that are charged, in this case for the production of Haruan snakehead fish seeds, both fixed costs (FC) and variable costs (VC) during the production period.

Fixed costs are costs that have a fixed amount of value that are incurred by the seed business unit regardless of the number of seeds produced (still within the production capacity of the facilities and infrastructure). This Haruan Snakehead Fish Hatchery Unit which can be categorized as fixed costs includes: Depreciation Costs, Land Rental/Maintenance Costs and Overhead Depreciation or also known as depreciation is the reduction in the value of fixed assets over time. This occurs due to wear and tear or due to the end of the useful life of the asset. One way to calculate depreciation is the Straight-Line Method, where the cost of the



asset is divided by its useful life to get the annual depreciation amount. This amount is then deducted from the book value of assets every year (Subanar, 1994):

$$D = \frac{P - S}{N}$$

Where:

- D: Amount of depreciation (Rp/Year);
- P: Purchase/Acquisition Price (Rp);
- S: Residual Value (Rp);
- N: Economic age (years).

Variable costs are costing whose value proportionally changes along with the increase/decrease in the number of seeds produced, and can be said to be consumable costs once used. This Haruan Snakehead Fish Hatchery Unit which can be categorized as variable costs includes: Costs of Fish Feed, Electricity, Casual Labor, Production Support Materials (Fuel, Lime, Fertilizer, Vitamins) and others.

The minimum wage in the world of work and business is the standard required for a single worker/laborer to be able to live a decent life physically in a unit of time (months). South Kalimantan Governor's Decree Number 100.3.3.1 /0972/KUM /2023 The amount of the 2024 Hulu Sungai Tengah UMK is IDR 3,282,812.

Technically, the Haruan Snakehead Fish Hatchery Unit Business for Government Assistance Recipients in Hulu Sungai Tengah Regency, South Kalimantan Province, based on workload and technical activities, can be carried out or operated by 1 (one) person and for special activities, freelance workers can assist.

The decision making criteria in profit analysis are:

- $\pi < \text{UMK}$ value of Hulu Sungai Tengah Regency, Haruan snakehead fish hatchery business suffers losses;
- $\pi > \text{UMK}$ value of Hulu Sungai Tengah Regency, Haruan snakehead fish hatchery business Untung;
- $\pi = \text{UMK}$ value of Hulu Sungai Tengah Regency, Haruan snakehead fish hatchery business breaks even.

RESULTS AND DISCUSSION

The government assistance program for the Revitalization of People's Seeding Units and Household Scale Hatcheries is one of the policy programs of the Ministry of Maritime Affairs and Fisheries of the Republic of Indonesia. Based on the Regulation of the Director General of Aquaculture Number 37/PER-DJPB/2021 and the Regulation of the Director General of Aquaculture Number 160/PER-DJPB/2021 concerning Technical Guidelines for the Revitalization of Community Hatchery Units and Household Scale Hatcheries, assistance is given in the form of comprehensive goods (building new) or in part as needed.

The government assistance program for UPR/HSRT revitalization facilities and infrastructure in Pokdakan Mufakat-HST aims to increase the productivity and sustainability of Haruan Snakehead fish cultivation, as well as assist fish farmers in obtaining the resources and knowledge needed for the success of their businesses. Such programs must be carefully designed to ensure maximum benefits for farmers and the continuity of local aquatic ecosystems. The revitalization of the UPR/HSRT through cultivating snakehead fish in Hulu Sungai Tengah Regency, accompanied by experts from the Mandiangin Freshwater Aquaculture Fisheries Center (BPBAT), South Kalimantan Province, is a positive and sustainable concept. Snakehead fish cultivation can be an effective tool for restoring and maintaining the balance of aquatic ecosystems. Snakehead fish hatchery operations are in accordance with the Standard Operating Procedure (SOP) from BPBAT Mandiangin, namely SOP-05P.01 concerning Haruan Fish Hatchery, which includes: Pond Preparation, Parent Selection, Parent Care and Maintenance, Gonad Mature Parent Selection, Spawning Tank



Preparation - Hatching , Parent Spawning, Egg Hatching, Seed Nursery, Harvesting and Seed Packaging.

Haruan snakehead fish hatchery in Pokdakan Mufakat will start in early 2022, with the application of controlled natural methods of Haruan snakehead fish hatchery technology. The results of research on the profits of the local Snakehead fish haruan fish hatchery business on recipients of government assistance in the form of revitalization of the People's Hatchery Unit (UPR) in Hulu Sungai Tengah Regency, South Kalimantan Province, carried out sampling of 1 group of cultivators, the profit analysis consists of total costs which are all costs incurred in one production cycle to profit in the production cycle. The investment costs for enlarging cultivated haruan corks are in the following table:

Table 1 – Investment Costs

No.	Facilities and infrastructure	Investment Value (Rp)
1	Main Tank	2,777,173
2	Spawning Tanks	21,932,811
3	Nursery Tubs	51,400,845
4	Larval rearing tanks	12,653,867
5	Pumps and water installations (installed)	16,920,593
6	Electrical Installations (installed)	4,202,880
7	Fishery Equipment	9,968,640
8	Water Quality Equipment	528,000
9	Mother Haruan Snakehead Fish	2,000,000
10	Feed Warehouse and Packing Area	11,354,654
11	Fish Feed (parents and fry)	4,635,000
Total		138,374,463

The Snakehead fish Haruan Pokdakan Mufakat fish hatchery facilities and infrastructure unit were built as a pilot model for local fish hatcheries where the economic life of the facilities and infrastructure can last at least 10 years. Based on this, one of the correct cost elements can be identified, namely the total depreciation of the asset over its economic life. Based on the investment costs obtained from the costs incurred by the cultivator amounting to Rp. 138,374,463, -. From this cost data, we will continue with the calculation of fixed costs per year, which can be seen in the following table:

Table 2 – Fixed Costs

No.	Facilities and infrastructure	Investment Value (Rp)	Economic Age (years)	Projected Annual Depreciation Value (Rp)
1	Mother Tub	2,777,173	10	277,717
2	Spawning Tank	21,932,811	10	2,193,281
3	Nursery Tub	51,400,845	10	5,140,085
4	Larval rearing tank	12,653,867	10	1,265,387
5	Pump and water installation (installed)	16,920,593	10	1,692,059
6	Electrical Installation (installed)	4,202,880	10	420,288
7	Fishing Equipment	9,968,640	2	4,984,320
8	Water Quality Equipment	528,000	1	528,000
9	Parent Haruan Snakehead Fish	2,000,000	2	1,000,000
10	Feed Warehouse and Packing Area	11,354,654	10	1,135,465
11	Land Maintenance	2,400,000	1	2,400,000
Cost of depreciation				21,036,602

Table 2 displays various facilities and infrastructure that are an integral part of investment in the fisheries business, along with the investment value, economic life, and projected annual depreciation value of each item. From this table, it can be seen that the largest investment is for nursery tanks with a value of Rp. 51,400,845 and the projected annual depreciation value is Rp. 5,140,085, while the smallest investment is Water Quality



Equipment with a value of Rp. 528,000 and the projected annual depreciation value is Rp. 528,000. Overall, the total depreciation cost of all facilities and infrastructure is IDR. 21,036,602.

According to Soekartawi (1995), variable costs are costs that change due to changes in the selling value of the product, if the number of goods produced increases, then the variable costs increase. The higher the volume of activities or activities, the higher the total variable costs proportionally. The lower the volume of activity, the proportionally lower the total variable costs.

Table 3 – Variable Costs

No.	Elements of Variable Costs	Amount	Unit Price (Rp)	Amount (Rp)
1	Mains Feed (Kg)	30	14,500	435,000
2	Seed Feed (Kg)	20	20,000	400,000
3	Silk Worms (measure)	20	25,000	500,000
4	daily energy Harvest & Post-harvest	1	500,000	500,000
Amount of Variable Costs Per Cycle				1,835,000
Total Variable Costs Per Year (10 Cycles/year)				18,350,000
5	Electricity (Month)	1 Month	200,000	2,400,000
Amount of Variable Costs Per Year				20,750,000

Table 3 shows that the variable cost per year for cultivating haruan snakehead fish is IDR. 20,750,000. This cost includes elements such as parent feed, seed feed, silk worms, and daily labour for harvest and post-harvest. Compared to the potential profits from selling haruan snakehead fish, these relatively affordable variable costs can increase profit margins for fish farmers.

Table 4 – Total Operational Costs per Year

No.	Cost	Price (Rp)
1.	Fixed Cost	Rp. 21,036,602
2.	Variable Cost	Rp. 20,750,000
Total		Rp. 41.786.602

Table 5 – Acceptance

Production	Volume	Unit Price (Rp)	Revenue/production (Rp/production)	Revenue/Year (Rp/Year) (Per Year Opimal 10 Cycles)
Haruan Snakehead Fish Seed	10,000 Heads/Cycle	Rp. 1.200	Rp. 12.000.000	Rp. 120.000.000

Profit/Profit = Revenue – Total operational costs = IDR 6,517,783/month or 7,821,339/Cycle.

Based on the results of the profit analysis obtained from the research respondents of the Mufakat Group, Mahang Baru Village, South Labuan Amas District, Hulu Sungai Tengah Regency - South Kalimantan Province, the net profit obtained from the haruan snakehead fish hatchery was IDR. 6,517,783,-per month. The profits obtained by the Haruan snakehead fish hatchery pilot unit are still above South Kalimantan Governor Decree Number 100.3.3.1 /0972/KUM /2023. The 2024 Hulu Sungai Tengah UMK amount is IDR 3,282,812, so the results of the Haruan snakehead fish cultivation business are still able to meet family needs. Haruan snakehead fish cultivation in the community still experiences many obstacles, both from technical aspects, growth and reproduction, while research efforts to find appropriate techniques for cultivating it are continuously being carried out so that it is hoped that the cultivation technology will become established (Ansyari & Slamet, 2022). The obstacles faced in cultivating haruan snakehead fish are cannibalism. Cannibalism is intraspecific predation by preying on the same species in one population (Naumowicz et al, 2017).



Cannibalism can cause mortality rates of more than 90% of individuals (Solomon & Udoji, 2011; Naumowicz et al, 2017). In an effort to overcome the problem, double hapa technology is used as a fish seed incubator to reduce fish deaths.

Ansyari & Slamati, (2022) the results of the analysis of the semi-artificial haruan snakehead fish hatchery business are quite profitable. Just by cultivating 6 tarpaulin ponds each measuring 2.5 m x 1.5 m x 1.0 m for brood ponds, spawning, natural food ponds and rearing larvae until the seeds are white/fingerling sizes (1-3 cm) you can get a profit. Production cycle (3 months) amounting to IDR 10,237,500,- meaning 1 (one) month makes a profit of approximately IDR 3,412,500,-. From the B/C ratio parameter, the Haruan snakehead fish hatchery business with a semi-artificial system has a B/C ratio = 1.83, meaning that the income obtained exceeds 1.83 times the total costs incurred. Furthermore, the parameter Return of capital (ROI = Return of Investment) ROI = 1.22, meaning that the capital spent on this business can be returned within 1.22 periods and this is very tempting if you invest in this business.

Revenue is the total receipts obtained in a certain period. Companies that want maximum profits will make marginal decisions, where the company can adjust variables that can be controlled to enable maximum profits (Gratio, 2013). Income is divided into gross income (receipts) and net income (profits). Gross income is a measure of the productivity of resources produced from farming, while net income is gross income minus the total business costs incurred (Soekartawi, 2001). The profit (profit) or loss of a business will be known after the receipt of product sales is reduced by the product price, marketing costs and general costs.

Profit is the difference between revenue and all costs. Calculating business income requires two main information, namely the state of expenses while the business is running within the specified time and the total receipts. Income is a source of income to meet daily needs and is very important for a person's survival and livelihood directly or indirectly (Mustapha, 2012).

Income is very influential on the continuity of a business, the greater the income obtained, the greater the ability of a business to finance all expenses and activities that will be carried out (Humaerah et al, 2014). Interpreting gross income, all components of the product that are not sold must be valued at market prices, the calculation of gross income must also include all changes in value added in the field between the beginning and the end of the opening year. This kind of change is very important, especially for annual plants (Soekartawi, et al, 1986 in Erwan Purnomo, 2001).

CONCLUSION

Snakehead fish Haruan local fish hatchery business benefits for recipients of government assistance in the form of revitalization of the Community Hatchery Unit (UPR) in Hulu Sungai Tengah Regency, South Kalimantan Province as a pilot local fish hatchery unit, namely Rp. 6,517,783,-per month. The profits obtained by cultivators are still above the Decree of the Governor of South Kalimantan Number 100.3.3.1 /0972/KUM /2023. The 2024 Hulu Sungai Tengah UMK amount is IDR 3,282,812, so that the results of the corks fish cultivation business are still able to meet the needs of the cultivator's family.

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