



Collaborative Institution-Based Freshwater Cultivation Agribusiness Model (Study at UPTD-BAT Fishery Department of Jember Regency)

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ABSTRACT

The need for freshwater fish food for the community has never decreased. The availability of food for the community needs to be guaranteed continuity of supply, including the Government Institution UPTD Fishery Department of Jember Regency as the main actor. The study aims to explain the institutional capacity of UPTD Fishery Department of Jember Regency in maintaining the sustainability of seed provision for the community, business actors and industry players. Furthermore, the study explains and analyzes aspects of strengths, weaknesses, opportunities and threats in fish seed production activities. The research method uses a survey research approach using a questionnaire as a data collection tool. Quantitative and qualitative data analysis is analyzed using descriptive statistical analysis tools and SWOT analysis. The results of the study showed that the production capacity of fish seeds was dominated by black tilapia at 36% followed by Tawes fish at 21%. The production of red tilapia and Tombro seeds was 18% each. The factors that are the strength of fish seed production are the availability of facilities and infrastructure, strategic location, human resources and labor. The weaknesses are operational costs, budget, promotion. The opportunities available are in the form of availability of feed suppliers, consumers, raw materials. Optimization of UPTD-BAT institutions can be achieved through strategic programs, namely product pricing, potential partnership networks, and fish seed product quality

INTRODUCTION

With the increase in fish consumption in Indonesia and the rapid development of freshwater fish farming, it is necessary to guarantee the availability of good seed supply in terms of quantity, quality and continuity (Pramono et al., 2017). The availability of seeds is guaranteed by the government through the UPTD (Regional Technical Implementation Unit) of the Fishery Department of Jember Regency. This institution is a unit that carries out freshwater fish seeding activities. Several types of fish seeds that are cultivated are tilapia (*Oreochromis niloticus*), gourami (*Osphronemus gouramy*), tawes fish (*Barbonymus gonionotus*), catfish (*Clarias* sp.), tombro fish (*Cyprinus carpio* L.), patin fish (*Pangasius* sp.) and koi fish (*Cyprinus carpio*). One of the roles of the UPTD-BAT Institution is to carry out quality control of fish seeds, application of seeding techniques in accordance with the rules, Good Fish Seeding Methods (CPIB) and seed quality assurance systems. The aim is to provide superior and quality freshwater fish seeds for the community, as well as preserving fish resources and the environment.

The availability of good and quality seeds will increase the growth rate of fish, so that the need for fishery product food sources can be met. Slow fish growth can be caused by a number of factors including poor quality seeds, poor quality feed and the use of ancient technology in the production system which has an impact on productivity (Phiri & Yuan, 2018).

Good quality seeds in large quantities require healthy broodstock provision techniques, feed provision, spawning, seed care, and other supporting materials in a planned manner. Good broodstock candidates have the properties of being resistant to disease, growing quickly and being responsive to the feed given. Broodstock that show abnormal body color and shape are not good for use (Afriani, 2016).

The research problems are (1) What is the institutional role of UPTD Fishery Department of Jember Regency in optimizing the production capacity of quality fish seeds, (2) What are the strengths, weaknesses, opportunities and threats to the production of fish seeds at UPTD Fishery Department of Jember Regency, and (3) How is the development of UPTD Fishery Department of Jember Regency strategy to increase the production capacity of quality fish seeds. The objectives of the study are (1) to explain the capacity of quality fish seed production, (2) to explain the aspects of strengths, weaknesses, opportunities and threats in the fish seed production program of UPTD Fishery Department of Jember Regency, and (3) to design a strategy for developing the institution of UPTD Fishery Department of Jember Regency to optimize the capacity of fish seed production.

Research on the performance and ability of fish seed production, and aspects of the analysis of strengths, weaknesses, opportunities and threats in fish seed production, can provide relevant insights and recommendations for stakeholders to strengthen the institution of UPTD Fishery Department of Jember Regency as an institution that provides sustainable fish seeds for the community.

LITERATURE REVIEW

Product Capacity

Capacity is the throughput or volume of processing (throughput), or the number of units that can be handled, received, stored, or produced by a facility in a given time period. Capacity also determines whether demand can be met, or whether existing facilities will be excessive (Abram et al., 2018). The production process is defined as the way, method, and technique of how resources (labor, machines, materials, and) are actually transformed to obtain a result. Production is an activity to create or add to the usefulness of goods or services. Capacity also determines whether demand can be met, or whether existing facilities will be excessive (Abram et al., 2018). Production capacity is related to the results that have been handled and obtained by a business that produces a product.

Fish Seed Business

Traditional fish seed business patterns on a traditional scale, a natural spawning system, where a pair of broodstock that are ready to spawn will be placed in a holding tank in the form of a permanent pool/wall, without the intervention of the seed breeder (Bank Indonesia, 2010).

Collaborative Agribusiness Strategy Between Institutions

The development of the agribusiness sector requires a planning strategy by implementing efficient and adaptive business techniques according to changes in external conditions and internal carrying capacity conditions (Alifa Putri Madina, Darsono, 2024). UPTD-BAT is a government institution that carries out the functions and roles of freshwater fish seed agribusiness, where the institution requires the role of other institutions in order to meet the needs of feed, production technology innovation, market information and so on. The institution needs to carry out collaborative governance and complementary cooperation.

Collaborative governance model, which aims to unite stakeholders to improve the effectiveness of maritime security management (Sudarto, 2024). Strong collaboration and synergy are needed between institutions in the form of building systemic relationships in effective collaborative cooperation. Furthermore, it is explained that the collaboration model can maintain sovereignty. Because between institutions together handle problems with a multi-agency single task approach. Each institution contributes expertise and resources in an effective integration of handling violations, as well as the smooth exchange of cross-sectoral information.

METHODOLOGY

This research was conducted on kelembagaan UPTD Perikanan Budidaya Air Tawar Dinas Perikanan Kabupaten Jember and is located in Rambigundam Village, Rambipuji District, Jember Regency. The method used in this research is a descriptive method with a case study approach. The data sources used in this research are primary and secondary data sources. The primary data source in this research was obtained through distributing questionnaires directly in the field, while the secondary data source in this research was obtained from scientific journals, books, and reports.

Research data was collected by interviews and questionnaires. Literature study, namely research by studying various reference books, journals, reports and other sources. The sampling technique used in this research is a purposive sampling technique, namely a data source sampling technique with certain considerations and objectives. The researcher conducted interviews with people who were deemed to know the most about UPTD - BAT situation and were experts in the field of fisheries.

The questionnaire results were then analyzed using SWOT analysis. Lamb et al. (2021) explains SWOT analysis as a tool for identifying internal strengths and weaknesses and also examining external opportunities and threats. When examining external opportunities and threats, marketing managers must analyze aspects of the marketing environment. This analysis is based on logic that can maximize strengths and opportunities, but simultaneously minimize weaknesses and threats. Alternative strategies are several strategies that are appropriate to be applied to the company.

UPTD-BAT Institution

Jember Regency Freshwater Aquaculture UPTD is a Regional Technical Implementation Unit under Fishery Department of Jember Regency which is led by the Head of the UPTD. The determination of the name of the UPTD-BAT is based on Jember Regent Regulation No. 51 of 2021. Before the stipulation of the regent regulation, the name of the institution was the Rambigundam Fish Seed Center (BBI). Since its establishment, BBI has undergone 12 changes in management. The duties and roles of the UPTD-BAT are to foster, monitor the implementation of fish seed and seed distribution techniques, control seed quality, and preserve fish resources and their environment.

RESULTS AND DISCUSSION

Table 1 below shows the production capacity of fish seeds carried out at the Freshwater Aquaculture UPTD Fishery Department of Jember Regency during 2023.

Table 1. Fish Seed Production Capacity

NO	COMMODITY	LARVA PRODUCTION			PRODUCTION OF LARVA INTO SEED		SEEDS SOLD (Piece)
		SIZE (cm)	QUANTITY (Piece)		SIZE (cm)	QUANTITY (Piece)	
1	BLACK NILA	0,5-0,8	2.000.000	36	1-2	1.500.000	1.407.000
2	RED NILA	0,5-0,8	1.000.000	18	1-2	650.000	633.000
3	TOMBRO	0,5-0,7	1.000.000	18	1-2	820.000	717.500
4	TAWES	0,5-0,7	1.200.000	21	1-2	1.150.000	1.090.500
5	GOURAMI	0,5-0,7	50.000	1	1-2	35.000	31.790
6	CATFISH	0,5-1,0	200.000	4	1-2	125.000	119.000
7	KOI	0,5-0,7	150.000	3	1-2	125.000	110.000
TOTAL			5.600.000	100		4.405.000	4.108.790

Source: UPTD-BAT Fishery Department of Jember Regency, 2023

The types of fish seeds produced are diverse, including tilapia, tawes, tombro, gourami, catfish and koi. The amount produced is determined by consumer interest and market absorption capacity, the types of fish seeds raised come from local fish species. The production of fish seeds raised is dominated by black tilapia, red tilapia, tawes and tombro.

IFE Matrix

Based on the internal environmental analysis, factors were found that were the strengths and weaknesses of UPTD-BAT institution. The results of this analysis are shown as follows:

Table 2. IFE Matrix

NO	INTERNAL FACTORS	WEIGHT	RATING	SCORE
STRENGTHS				
1	Adequate water resources	0,077	4	0,308
2	Large potential for seed production	0,077	4	0,308
3	Affordable fish seed prices	0,058	3	0,173
4	Wide marketing area	0,058	3	0,173
5	Skilled labor in the seed production process	0,058	3	0,173
6	Wide marketing area	0,058	3	0,173
7	Strategic and easily accessible seed production locations	0,077	4	0,308
8	Complete seed production facilities	0,077	4	0,308
9	Routine or by-order seed production system	0,058	3	0,173
WEAKNESSES				
1	Fish seed production quality is not optimal	0,058	3	0,173
2	Limited budget availability	0,058	3	0,173
3	Marketing instruments are inadequate	0,077	4	0,308
4	Number of workers is insufficient	0,058	3	0,173
5	High operational costs	0,077	4	0,308
6	Incomplete information about the seed products provided	0,077	4	0,308
TOTAL		1,000		3,538

Source: Primary data was be processed

EFE Matrix

Based on the analysis of the external environment, factors that are opportunities and threats for UPTD-BAT institution, are obtained. The results of this analysis are shown as follows:

Table 3. IFE Matrix

NO	EXTERNAL FACTORS	WEIGHT	RATING	SCORE
OPPORTUNITIES				
1	Seed availability is easy to obtain	0,083	3	0,250
2	Many suppliers to partner with	0,111	4	0,444
3	High consumer demand and interest	0,111	4	0,444
4	Consumers are loyal to the product	0,056	2	0,111
THREATS				
1	The existence of competitors with similar products	0,083	3	0,250
2	Dynamic market trends	0,083	3	0,250
3	Fluctuating raw material prices	0,083	3	0,250
4	Use of fish feed technology	0,139	5	0,694
5	The development of production technology used is not optimal yet	0,111	4	0,444
6	Social media as a promotional medium is not optimal yet	0,139	5	0,694
TOTAL		1,000		3,833

Source: Primary data was be processed

IE Matrix

Based on the IFE and EFE matrix analysis, the position of UPTD-BAT institution is obtained as follows:

Table 4. IE Matrix

		IFE TOTAL SCORE		
		Strong	Moderate	Weak
		3.0-4.0	2.0-2.99	1.0-1.99
EFE TOTAL SCORE	High	I	II	III
	3.0-4.0			
	Moderate	IV	V	VI
	2.0-2.99			
	Low	VII	VIII	IX
	1.0-1.99			

The IFE and EFE score values are in quadrant 1. Quadrant 1 means a profitable position for the company because the company has the strength to take advantage of existing opportunities to increase sales and develop the company. The strategy that can be applied to the company is to support growth policies in aggressive companies (growth-oriented strategy). UPTD-BAT as a government institution that runs a fish seed business is declared feasible to develop a freshwater fish seed business because it is supported by several aspects of strength and potential opportunities.

SWOT Matrix

Based on the analysis, the following alternative strategies are obtained:

Table 5. SWOT Matrix

	Strengths 1. Adequate water resources 2. Large potential for seed production 3. Affordable fish seed prices 4. Wide marketing area 5. Skilled labor in the seed production process 6. Wide marketing area 7. Strategic and easily accessible seed production locations 8. Complete seed production facilities 9. Routine or by-order seed production system	Weaknesses 1. Fish seed production quality is not optimal 2. Limited budget availability 3. Marketing instruments are inadequate 4. Number of workers is insufficient 5. High operational costs 6. Incomplete information about the seed products provided
Opportunities 1. Seed availability is easy to obtain 2. Many suppliers to partner with 3. High consumer demand and interest 4. Consumers are loyal to the product	STRATEGI SO 1. Maintaining affordable seed prices and customer service to maintain consumer loyalty and interest in seeds 2. Synergy with supplier partners to optimize product branding and face competition	STRATEGI WO 1. Improve seed quality by adding alternative raw material suppliers 2. Synergize with local government to increase budget
Threats 1. The existence of competitors with similar products 2. Dynamic market trends 3. Fluctuating raw material prices 4. Use of fish feed technology 5. The development of production technology used is not optimal yet 6. Social media as promotional medium is not optimal yet	STRATEGI ST 1. Improve cooperation with raw material suppliers to maintain the quality of raw materials to remain superior to competitors 2. Increase the company's positive image by utilizing various social media platforms	STRATEGI WT 1. Collecting information from consumers to meet market tastes 2. Optimizing market research to anticipate price fluctuations and raw material quantities

Agribusiness Institutional Development Strategy of UPTD-BAT

Based on the results of the analysis of the strengths, weaknesses, opportunities and threats matrix, alternative strategies were obtained from the most important level, namely maintaining affordable seed prices and service to consumers to maintain consumer loyalty and interest in seeds. Followed by the 2nd alternative strategy, namely synergy with supplier partners to optimize product branding and face competition. Furthermore, the 3rd is to improve seed quality by adding alternative suppliers of raw materials. The main fish seed development strategy for UPTD-BAT is related to aspects of seed prices, partnership networks. These findings are relevant to previous research on production efficiency and reducing fisheries production costs (Saputra et al., 2024). Both findings have similarities and complement each other. The similarity

is that competitive fisheries businesses require production efficiency which has an impact on lower fish seed prices. An important finding is the networking aspect. Networking with the right stakeholders, UPTD-BAT is possible to carry out production efficiency. Cooperation with institutions that have the potential for local feed resources, allows UPTD-BAT to obtain more economical feed raw materials. Feed raw materials are managed effectively, efficiently helping to improve the quality of the fish seeds produced. The impact is that the production of quality fish seeds can be sold at lower prices. This is because the UPTD-BAT Institution is able to reduce feed prices by utilizing cheaper local feed but is still able to maintain seed quality.

Agribusiness Model based Collaborative Institution

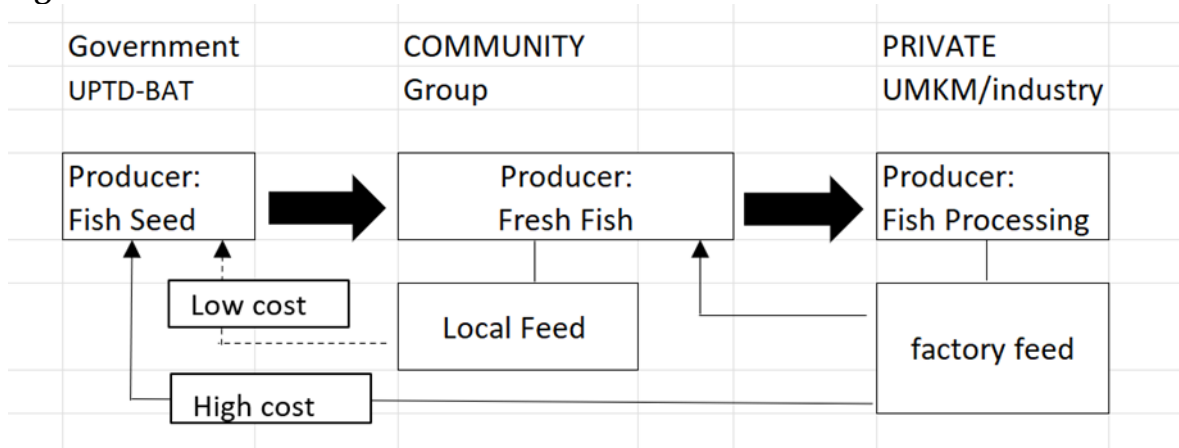


Figure 1. Agribusiness Model based Collaborative Institution

The UPTD-BAT institution as an agribusiness actor in fish seed production requires the role and contribution of other institutional resources such as fish feed manufacturing factories, also requires fish farmers and fish processing industries. Fish farmers are direct consumers of UPTD-BAT while the fish processing industry is a 2nd level consumer. Agribusiness actors are recommended to be able to compete by making changes, namely production efficiency that allows for lowering operational costs so that it has an impact on determining selling prices below market prices. Price efficiency in the fish seed supply chain will be followed at levels 1 and 2.

Efficient and strategic changes in the production process are carried out by utilizing the potential resources of other institutions. The Community Group Institution has a maggot agribusiness that sells its results in the form of maggot flour. Maggot flour as cheap local feed. This institution needs to be established cooperation as a supplier of cheap feed raw materials for cheap fish seed agribusiness.

Collaboration between institutions allows one agribusiness institution to share potential resources with institutions in need, which ultimately benefits the entire agribusiness institution's trade system. As an illustration, the potential of maggot flour feed resources will move and accelerate, if there is high demand from fish seed businesses. The impact is that more and more community waste is managed into maggot flour raw materials. Another impact is that fish seed businesses are able to provide raw materials for fish seeds for fish farming groups

at cheaper prices. Cooperation between institutions by mutually utilizing potential sources greatly helps the ability of these institutions to achieve their respective goals. Collaborative institutions in the agribusiness world are expected to encourage the achievement of more efficient local fish feed sovereignty.

CONCLUSIONS AND RECOMMENDATIONS

Jember Regency has a fish seed provider institution to meet the market demand for fish farming and community consumption. In the supply chain of raw materials for fish seeds, UPTD-BAT services are the main level 1 supplier to meet the needs of fish farmer groups (level 2). Quality and low prices can determine the price and quality of supply in the next supply chain.

Fish seed production capacity is dominated by local fish with types of tilapia, tombro and tawes. The average mortality rate is below 10% to 12%. In order to ensure the supply of raw materials for seeds for farmer groups and fish processing industry groups, a strategic development program is needed. The results of the analysis of strengths, weaknesses, opportunities and threats obtained several alternative strategic programs, namely the availability of cheap fish feed, partnerships with suppliers and adding alternative suppliers of raw materials for feed. The three alternative strategic programs can be realized if the production process is efficient and reduces operational costs. This is possible if the UPTD-BAT Institution makes a breakthrough in the institutional partnership network that has potential resources, namely the maggot flour producer community group. Maggot flour is a cheap and environmentally friendly raw material for fish seed feed. Cooperation between institutions allows each institution to provide resources and gain benefits from these resources. Institutional collaboration can benefit and ensure the sustainability of the Community Group and UPTD-BAT Institution businesses. Maggot flour production businesses will grow along with the high demand for fish seed institutions. Fish seed institutions can reduce selling prices, according to the expectations of fish farming groups.

FURTHER STUDY

This research still has limitations, so it is necessary to carry out further research related to the topic of Collaborative Institution-Based Freshwater Cultivation Agribusiness Model in order to improve this research and add insight to readers.

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