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by Eva Alviawati

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Livelihood Strategies of Fish Farmers in Tiwingan Lama Village

Faisal Arif Setiawan^{1*} KaruniaPuji Hastuti¹ Eva Alviawati¹
Akhmad Munaya Rahman¹

³
¹Faculty of Teacher Training and Education, Lambung Mangkurat University, Banjarmasin, Indonesia
*Corresponding author. Email: faisal.setiawan@ulm.ac.id

6 BSTRACT

Livelihood strategy is a combination of activities and choices made by households to achieve prosperity. Welfare is a manifestation of a better standard of living. The decline in the water level in the right cascade reservoir caused fish cultivator households to change their livelihood strategies. The purpose of this study was to determine the livelihood strategies of the community due to lowering the reservoir water level. Data obtained through a questionnaire adapted from DIFD. The results showed the community survival strategy had a value of 22, 23.57 consolidation, 34 accumulation, 27.02 diversification, and 24.5 compensation. The highest score is the accumulation strategy as evidenced by the community's efforts to increase income through opening grocery stores and raising poultry.

Keywords: Livelihood strategy, reservoir, household

1. INTRODUCTION

Livelihood strategies are used to show that people choose to do many combinations of activities to achieve their life goals [1], [2]. Livelihood strategy is the ability of an individual or household consisting of assets (natural, physical, human, financial and social capital), activities, access mediated by institutions, and social relationships that collectively determine the life of an individual or household [3]–[5]. The same definition is put forward by [6] that livelihood is an ability, asset, and activity needed to support household welfare.

Livelihood strategies include ways in which households organize various activities to generate income. These activities are in the form of a combination of ways to use various assets, the choice of assets for investment and how households maintain their income [7]–[9]. The elements in the livelihood strategy according to [10], [11] are assets, capabilities, activities, and access. Assets can be in the form of ownership claims over goods or land. Capability shows an individual's ability to realize his potential in making and carrying out economic and social characteristics. Activities refer to activities that generate income. Access is as a social rule or norm that regulates or affects different abilities between people to own, control, claim or control in terms of using capital / resources such as land use and public ownership or private interests.

The idea contained in the livelihood that individuals and groups seek to make a living, seek to meet various consumption and economic needs, overcome uncertainties, respond to new opportunities, and choose between different options [12],[13]. Meanwhile, in the module issued by the Food and Agricultural Organization (FAO) regarding the Rapid Guide for Missions Analysis of Local Institutions and Livelihoods compiled by Carloni and Crowley [14],

livelihood analysis on the one hand is linked to various shocks, the context of vulnerability, and changes, both due to policies and internal influences; and on the other hand, livelihoods are also related to the various provisions possessed by an economic unit which enable or not allow them to develop strategies to survive.

Banjar Regency originates at Pangeran Muhammad Noor Reservoir (better known as Riam Kanan Reservoir) and empties into the Martapura River. The quality and quantity of water from the Riam Kanan River supports the life of aquatic biota [15]. This condition is what encourages the development of fish farming in cages which are cultivated by the community along the Riam Kanan River. This cultivation business is spread over 13 villages and three districts. The types of commodities that are kept are tilapia, goldfish and catfish. This business began in the 1980s and has grown rapidly due to the economic and social benefits it has generated. This activity is carried out as a side business to supplement the family's economy to commercial business as the main source of household income [15]. Aranio sub-district in the Riam Kanan watershed was designated by the Banjar Regional Government as a fish Minapolitan area. Along the Riam Kanan watershed in Aranio sub-district, there are floating cages belonging to local residents as a place for freshwater cultivation. The contribution of fish production in Aranio District reaches 31.7% of the freshwater fish production in Banjar Regency. Aranio and Tiwingan Lama villages are two villages in Aranio sub-district which have 951 floating nets [16].

In 2019 there was a long dry season which caused the right cascade reservoir to recede. The water level in the reservoir is 54.45 meters and it is in a critical status. The standard limit for normal reservoir water level is 58-60 meters. According to BMKG at that time the receding of the Riam

Kanan reservoir is expected to continue until the end of October 2019. Deputy Chairman of the Banjar Regency Fisheries Group Association, M. Ridwan, said that during the dry season in the cage area, low tide can make the fish die slowly, until they eventually die. Another threat is that when the water of Riam Kiwa rises, namely the rainy season, then it is not matched by the supply from the fast flowing from the right cascade, it can cause another mass fish death disaster. This of course will greatly affect the people who depend on the existence of the Riam Kanan reservoir. As a result, people who depend on the lake and its surrounding resources find it increasingly difficult to get welfare or a better life due to the fluctuating reservoir environment during the dry season and the arrival of the rainy season. This of course causes the population to lose their livelihoods and decrease incomes, as well as experience turmoil and pressure that can cause both socio-economic vulnerability of the population around the Riam Kanan Reservoir.

The study of livelihood strategies can be carried out in communities affected by major and immediate changes, thus placing the community in a vulnerable condition. Thus, it is necessary to study the livelihood strategies of the affected community to determine the capacity of the community to face change. Farm owners are surrounded by various risks both from social and economic sides, as well as the assets they own that come from the conditions of the Riam Kanan reservoir. People must be able to manage their income and resources / assets by pursuing various livelihood strategies so that they are able to meet the needs of their household.

2. RESEARCH METHODS

This study aims to examine the livelihood strategies of fish farmers in Tiwingan Lama Village, Aranio District, Banjar Regency. This search is descriptive quantitative with survey method. Survey research is one of the most widely used social research methods. Apart from being able to be used to collect data from a relatively large number of respondents, survey research also allows making generalizations from the results of a sample study to a large population [17]. Considering that the population in this study is quite large, it cannot be fully researched, so the sampling method is used for fish pond owners. To determine the size of the sample, the researcher used the formula from Slovin.

$$n = \frac{N}{1 + Ne^2}$$

Description:

- n = Sample
- N = Population
- e = Level of error or critical value

Sampling was carried out at a 95% confidence level or a critical value of 5%. In accordance with the formula above, the number of samples in this study are as follows: Based on this calculation, the sample taken is rounded up to 90 tax auditors. The sampling technique used simple random sampling. Simple random sampling is the taking of sample members from the population at random without paying attention to the strata in the population [18]. Components questionnaire adapted from DFID in Table 1.

Table 1 Variable Livelihood Strategies

Variable	Subvariable	Indicators	Source
Strategy of livelihood (livelihood strategy)	Strategy survival (Fulfillment of Life)	• Changing eating patterns	- DFID (2001), Scoone (2001), (Ashley and Carney, 1999), Ellis (2000); (Baiquni, 2007); Rijanta (2006) descriptive analysis with variables FGD, in-depth interview Data analysis: and graphs
		• Changing food portions	
		• Changing food spending patterns	
		• Changing food types	
		• Controlling income and expenses	
		• Children / in-laws / other family members who help finance	
	strategy Consolidation (Maximizing income)	• Doing homework by themselves	
		• Utilizing the yard, and livestock	
		• Increase access to food	
	Accumulation	• Increase access to important and sudden needs	
		• Utilize resources to do work	
		• Increase income by: Opening a business, sale and raising for	
• Investing and business expansion by: saving			
• at a bank borrowing, opening a, opening a shop/business elsewhere			

	Diversification	<ul style="list-style-type: none"> • combines work • with working in other • sectors agriculture (crops), sale of crops • Adding good jobs longer working hours • Seeking additional income 	
	Compensation strategies	<ul style="list-style-type: none"> • jobs with different job status • land • Changing Change of use anti-plant species • Use flood time to earn income as a substitute for inundated • land Use of land according to the season 	

Source: [19],[20].

3. RESULTS AND DISCUSSION

Livelihood strategies are activities to carefully organize or plan in response to changes in life carefully to obtain the desired target or target. [7]-[9]. The household livelihood strategy is the basis for the choice of livelihood activities carried out by households to meet household needs or achieve household goals. Livelihood activities are actions of household members which can be seen as a form of household livelihood strategy. The household livelihood strategy in this study adopted from Tomers and Scoones research [21],[22]. White classifies into three typologies, namely: a survival strategy, a consolidation strategy and an accumulation strategy. [21] classifies four typologies, namely the accumulation strategy, consolidation strategy, compensation strategy and security strategy, while [22] classifies livelihood strategies into at least three major groups, namely: agricultural livelihoods engineering, namely intensification and extensification, diversification patterns (diversification) and, spatial engineering (migration). Livelihood strategies for fish pond owners in Tiwingan Lama Village.



3.1 Survival Strategy

Strategy shows that value is a strategy undertaken by fish farmers. This group manages limited natural resources or is forced to work anything, especially as agricultural laborers, or just to help the people with low pay, just to make a living without being able to save money or for business capital. Limited household asset ownership causes them to choose several strategies to survive. The type of strategy that is carried out is not limited to just one strategy but more than the combination of several strategies that are applied. Even so with the tough circumstances, the persistence to survive is high and the types of strategies are varied and the more

the results are obtained only a few. This is one of the characteristics of a survival strategy [23].

In the face of sudden and temporary changes in income, households make adjustments to maintain marginal utility and consumption [24]. Methods taken by households to reduce the impact of temporary income fluctuations due to floods in the rainy season are called survival strategies. This strategy is a short-term strategy in which households take steps to protect themselves from income shocks when a shock occurs. In this study, the survival mechanisms evaluated are consumption patterns and income variations. In addition, the strategy taken by the household is also long-term, which includes a number of activities to maintain the household's long-term survival.

Community households living around the Riam Kanan reservoir generally apply a survival strategy which is measured in terms of: changing the portion of food, changing food shopping patterns, changing the type of food, controlling income and expenditure, and the parties who help with family finances. From several aspects of the survival strategy, respondents' answers were in the low category. This means that the people living around the reservoir are not affected by the dry season conditions which of course affect the fish yield in floating net cages. Although income from the fisheries sector has decreased, people have not changed their food portions, food shopping patterns, and have not changed the types of food they consume. In terms of finance, people also do not control income and expenditure.

This community attitude is a form of local wisdom values possessed by the Banjar tribe, namely an attitude of sincerity and submission to God. Surrendering to God is a human attitude to totally surrender to God or the highest power he worships [25].

3.2 Consolidation strategy (consolidation strategy)

The consolidation strategy is a strategy of the middle group that prioritizes security and stability of income from processing owned resources [22]. If it is successful in consolidating resource assets and increasing production, it will gradually enter the group implementing the accumulation strategy. Conversely, if you experience a failure in implementing a consolidation strategy, it can also degenerate into poor fish farmers implementing a survival strategy.

A consolidation strategy is a form of strategy carried out by households, in addition to meeting the basic needs of the household, it is also able to set aside a portion of their income for savings. Consolidation strategy by maximizing income contains actions of respondents who have passed the security level of just survival, where respondents are able to meet subsistence needs. This strategy is carried out to avoid or anticipate if it is insufficient for subsistence needs or sudden needs, namely: adjusting consumption / expenditure over time by: taking savings, seeking loans / debts to various parties, pawning goods, selling valuables; utilize household resources, namely employing adult household members, increasing working hours by choosing / doing side jobs, employing children; and utilizing Social Networks and the Government, namely: Social networks are an option that must be utilized to obtain assistance from economic resources such as social assistance (BLT / BLSM).

The results showed that the community consolidation strategy living around the Riam Kanan reservoir was low. This can be seen from the way in which people do not increase access to food, do not increase access to fulfill urgent and sudden needs, do not take advantage of social networks, family and government, do not try to get formal assistance, do not take advantage of cooperatives.

3.3 Accumulation Strategy

Livelihood strategies are influenced by the structure of transformation and processes in the form of institutions, organizations, policies and regulations as well as the culture that shapes or affects their lives. Structure and process work in determining what strategies a person or household or community chooses to develop their life [3]-[5].

Households with an accumulation strategy have a higher asset capacity and fulfill household needs than others. With their abilities, they can accumulate capital and increase their welfare better than others. Productive activities are intended for the long term and expand access to resources. The accumulation of capital was played again as an investment and business diversification. The diversification effort is intended to expand the influence of its business on various products and market segments that strengthen its accumulation position. The household accumulation strategy in the community around the Riam Kanan reservoir tends to be higher than the other strategies. This can be seen from the existence of community efforts to increase income through various kinds of businesses, such as: opening grocery stalls and raising poultry. The jobs that are chosen when not farming or fishing are adjusted to utilize the potential of existing resources both around the place of residence and in the area around the reservoir. , the expertise they have and the culture that develops in the community. Some of the jobs that are undertaken are intended to:

1. Fulfill short-term household needs, such as being a farmer, becoming a laborer. The results and income obtained can be enjoyed within a period of 1-30 days.
2. Fulfilling household needs for the medium term, namely farming, where the harvest from rice fields is partially consumed and partially stored in rice mills to

be sold at any time for further purposes. Especially if you experience crop failure, you can anticipate saving rice.

3. Meeting long-term needs, carried out by fish farmers who have businesses and can invest. However, there are poor fish farmers who open small shops for their daily needs in the long term

3.4 Diversification Strategy

[22] to solve household economic problems is to implement job diversification or find other jobs to increase income. In general, fish farmers apply two kinds of strategies to diversify income sources, namely fisheries / agriculture or non-fisheries / non-agriculture. The strategy of diversifying sources of income or implementing multiple employment patterns is also taking place among fish farmers in the study area. The results showed that the diversification strategy carried out by the people living around the Riam Kanan reservoir was classified as low. This can be seen from the majority of people who do not combine work with working in other sectors, do not add additional time to work, do not seek additional income.

3.5 Compensation Strategy (Compensatory Strategy)

Another livelihood strategy is the compensation strategy. Households with a compensation strategy are households that initially depend on their income from one or several economic activities, but for some reason in the end the household only relies on one economic activity but is able to provide an income that is at least equal to the previous income, even greater. The current economic activity that is used as a mainstay can be part of previous economic activities or activities that are completely new to the household concerned. The results showed that the compensation strategy carried out by the people living around the Riam Kanan reservoir was classified as low. This can be seen from the majority of the community who do not change jobs with different occupational statuses, do not optimize the use of available land, and do not change the types of fish that are cultivated.

The implementation of various forms of livelihood strategies is an effort made by fish farming households to meet various needs, living and continuing. The livelihood strategy is implemented by making use of various existing livelihood assets. In an effort to extend the distribution of income, fish farming households do not just implement one form of strategy. Combinations of various forms of livelihood strategies are commonly used to sustain life. The implementation of a combination of strategies carried out by fish farming households is very dependent on the availability of time, energy and various other sources of livelihoods. Under these conditions, the household livelihood strategies adopted by fish farmers are increasingly complex.

4. CONCLUSION

work of the people who live in the vicinity of the Riam Kanan reservoir is fish farming using the floating net cage

method, as traders, tenants of klotok services, motorcycle taxis, construction workers, carpenters, etc. The human capital in the research locations is quite diverse, with this percentage (human capital) not too much difference. This is due to the fact that in terms of occupation and skills, generally respondents have homogeneous livelihoods and skills, namely as fish farmers as well as farmers. Natural capital comes from household control over land, water, and other facilities that support household life in survival. According to respondents' answers, the existence of the right cascade reservoir, especially during the rainy season, brings many benefits. This is because the respondent uses the physical conditions of the right cascade reservoir for freshwater fish farming through the floating net cage method. The cultivation of floating netting is a good enough effort for the survival of its inhabitants. Fish harvesting is carried out every four months, most of the fish products are sold to fish collectors or directly to the market.

Social capital shows how households interact with other communities in their social environment. Based on the results of interviews with the communities around the Riam Kanan reservoir, it was found that the social relations of the community were still quite strong where their social life was so close. Financial capital is usually an economic asset which illustrates the household's control over the ease of financial fulfillment that comes from savings, wages, credit, and debt or goods of economic value. Based on the results of interviews with respondents, they do not have financial sources (financial) from debt, inheritance, or assistance from BLT, BASIS, and NGOs. Most of the respondents only rely on their own business capital from the income they get. Physical capital shows the ownership of a person's physical assets in the household. Based on the results of interviews with respondents, most of them already own a motorized vehicle (two wheels) and are technology literate. This is evidenced by the fact that almost all respondents already have electronic devices. The implementation of various forms of livelihood strategies is an effort made by fish farming households to fulfill various needs of life and sustainability. The livelihood strategies of the people living around the Riam Kanan reservoir are classified as low.

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