






Livelihood Strategies of the Bajo Fishing Community in the Outbreak of COVID-19 (Study of Bajo People in Salabangka Island of Central, Sulawesi, Indonesia)



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<https://doi.org/10.18280/ijstdp.180330>

ABSTRACT

Received: 20 September 2022

Accepted: 28 February 2023

Keywords:

Sama Bajo, COVID 19, livelihood, diversification, and adaptation

This study aims to find out how *Sama Bajo* fishermen adapt to the seasonal monsoon and environmental changes in the midst of the Corona Virus Disease (Covid-19) outbreak. The research conducted in one of the villages in the *Salabangka* Archipelago, precisely on *Paku* Island which is one of the largest islands in the *Salabangka* archipelago of Central Sulawesi Province, Indonesia. The study utilized the principle of a livelihood approaches. The adaptation strategies observed include; livelihood diversification, business intensification, utilization of social networks, asset sales and mortgages. The results showed that some of *Sama Bajo* fishermen carried out adaptation strategies, several livelihood adaptation strategies that were previously quite effective in overcoming the decline in income due to seasonal changes, currently could not be fully relied to tackle stress and shock. The development of several multinational mining investment activities on land has also resulted in pollution that affects the loss of seaweed cultivation which was previously become the mainstay of fishermen in times of famine. This situation has caused some *Sama Bajo* fishermen, especially the younger generation who have studied up to university to consider trying new livelihoods on land that were previously rarely done by *Bajo* fishermen.

1. INTRODUCTION

Bajo community settlements are located in remote locations, present social and economic drivers which translate into daily challenges for households. In general, the *Bajo* people live in remote areas with limited infrastructure and a slum environment [1]. They are generally marginal fishermen at the household level, fishing with or without fishing vessels less than 5 GT, and using fishing gear operated by human labor [2]. The livelihoods of the *Bajo* fishing community are complex and dynamic. Seasonal cycles have an impact on resource fluctuations. Like most maritime communities, the livelihoods of the *Sama Bajo* in *Salabangka* are shaped by seasonal patterns of fishing and harvesting and sea-based trade [3]. This study aims to look at the various actions taken by the *Bajo* *Salabangka* community to implement adaptation strategies to deal with various changes that occur due to the seasonal monsoon and environmental changes in the midst of Covid-19 attack. Generally, the adaptation strategy carried out refers to the activities of (1) business diversification; (2) livelihoods intensification; (3) social network utilization strategy, and (4) selling or pawning valuable assets owned [4-7].

Climate change, response, and resilience have become popular in recent years. Most fishermen feel peculiar changes in temperature fluctuations and rainfall, stronger storms, frequent drought, and freshness of water that cannot be predicted, but do not know that there has been a phenomenon of climate change [6]. This change also significantly affects the livelihoods of *Bajo* people who rely on life from the sea, including in the *Salabangka* Islands. Adequate understanding of the social, economic and cultural aspects of the related

socio-ecological system is very important in determining the path to sustainability [5].

The concept of livelihood is considered very important in efforts to overcome vulnerability and marginalization factors which are interrelated [8]. Livelihoods strategy includes how to enable poor people to take control over their assets to establish livelihoods and to generate sustainable production and income while maintaining environmental sustainability [9]. People have a variety of ways to live with intricate activities, and interactions [10]. Differences in environments, cultures, and assets result in different pathways, trajectories, and outcomes of their livelihoods. People who live near coastal areas will rely on the sea to construe their livelihoods [7, 11]. In their livelihood ‘guidance sheet’ (a collection of ideas) maintains that the assets of a livelihood can be classified into five types of capital: human, natural, financial, physical, and social [12]. Connected to that categorization, Bebbington [13] declares that assets are a vehicle that can facilitate empowerment and change people’s lives.

A seminal paper of Chambers and Conway [14] suggested that “a livelihood is sustainable when it can cope with and recover from stresses and shocks, maintain or enhance its capabilities, assets, and entitlements, while not undermining the natural resource base.” This definition has been taken up by other scholars such as Krantz, Scoones, Rakodi, De Haan, and Zoomers, Hussein and Nelson [8, 10, 15-17] as well as institutions such as UNDP, DFID, CARE and IDS (International Development Studies) Furthermore, the interaction of global and local forces generally causes pressures and shocks to people’s livelihoods [16].

This paper aims to use the concept of livelihood trajectories and adaptation as an analytical approach in advancing the understanding of livelihoods, in particular taking into account the dynamics of how people make a living, and the various characteristics of complex adaptive systems, particularly scale and uncertainty. We are interested in the usefulness of resilience thinking or adaptation strategies in understanding livelihood challenges. This analysis highlights the livelihood strategies that fishermen consider important in dealing with the pressures of changing seasons and the Covid-19 pandemic. In this research, we do not explore the extent of the political issue of what and for who are we trying to promote adaptation? Research like this has been carried out elsewhere [18] but we do recognize the importance of contextual factors in adaptation strategies in certain cases. In general, Hussein and Nelson [17] proposed that rural communities in Asia and Africa generally implement three main strategies, namely intensification, diversification of livelihoods, and migration.

After an explanation of the study area and methods, we present an overview of the stresses and shocks that occur to fishermen living on *Salabangka* Island of Central Sulawesi - Indonesia. This overview includes an examination of livelihood diversification as a coping strategy and potentially as an adaptive strategy [19, 20]. Resilience-building strategies are observed at household and associated with community levels. Considering that the household is a convenient and practical unit in the process of collecting empirical data [16], we used a framework based on four categories of factors for building resilience: (1) learning to live with change and uncertainty; (2) nurturing diversity for reorganization and renewal; (3) combining different kinds of knowledge; and (4) creating opportunity for self-organization [21].

2. STUDY AREA AND METHOD

The *Salabangka* Islands consist of a number of small islands; administratively the *Salabangka* archipelago is included in the South *Bungku* sub-district, *Morowali* district of Central Sulawesi, Indonesia (Figure 1). South *Bungku* sub-district itself consists of 22 Islands and 26 villages. Although the *Salabangka* archipelago is administratively included in the territory of Central Sulawesi Province, it is easier to access through Kendari (the capital of Southeast Sulawesi province) via land transportation for approximately six hours to *Lafeu* port in *Morowali*, Central Sulawesi. Another alternative is through sea transportation, using a ferry from *Kendari* to *Kaleroang* for approximately ten hours. Most of the *Bajo* people in *Salabangka* Island (about 98%) are fishermen, both fishing and fish traders, with the fishing gear used, are fishing rods, trawlers, trap fishing gear, and *sero*. Other economic activities carried out apart from fishing are those related to or outside fishing.

This research conducted in *Lokombula* Village located on *Paku* Island; it is the largest island in the *Salabangka* archipelago. Like other residents in *Salabangka* archipelago people in *Lokombulo* village are also known as *Bajo Salabangka*. The capital of the South *Bungku* sub-district is located in *Kaleroang* village at *Kaleroang* Island, about five minutes by small boat from *Lokombulo* village. Out of 161 *Bajo* family heads who live in *Lokombulo* Village, we took 32 families as informants to find out how the *Bajo* community responded and adapted to the situation during the change of wind season and Covid 19 pandemics.

Qualitative and quantitative methods were used for data collection focusing on livelihood adaptation and resilience; analysis stretches the *Bajo* fisherman households and community level. Quantitative methods included the households income survey representing 20% of the households (n=161) or 32 respondents [22]. In-depth interview had been carried out in household-level discussions, in order to collect information regarding how households (and individuals within households) dealt with change over time. Emphasis was given on describing how the adaptation strategies of *Sama Bajo* fishermen in the midst of seasonal change and pandemic Covid-19, was evident in terms of diversifying their business (learning to live with change and uncertainty), intensifying their business (combining different kinds of knowledge), utilizing social networks (nurturing diversity for reorganization), and pawn or selling valuable goods. These five strategic patterns will contribute to their ability to cope and adapt to changing situations. Research findings were supplemented with the use of other participatory methods and discussions with officials at various levels. The use of computer software supported qualitative and quantitative analysis.



Figure 1. Research site

3. RESULTS AND DISCUSSION

Based on FAO data in 2012 Indonesia ranked 2nd for capture fisheries production and 4th place for the production of aquaculture in the world [23]. This fact can illustrate that the potential of Indonesian fisheries is very large, so that if it can be managed properly and responsibly, the fisheries production can be sustainable. Fisheries production can become one of the main sources of development in the present and future [23]. Based on this, in order to provide maximum benefits for the community and state of Indonesia and guarantee the sustainability of the fisheries business itself, then the development and activities of national fisheries should be directed to implement sustainable fisheries rules. Basically sustainable development, consist of three main aspects, namely: Ecology, Economics, and Social [24].

The residential areas of the *Bajo Salabangka* people are located in remote areas; poverty is spatially related to locations with certain similar conditions [25]. The *Salabangka*

archipelago also lacks of physical facilities such as banking institutions, markets, good docks that can be used by the community for various income pressure problems, as a result prices for basic needs as well as capital goods which can be used as production inputs also tend to be expensive [26]. Most of the productions inputs are obtained from Kendari, as well as the most of fisherman's production are marketed in *Kendari*, which is far from *Salabangka*. This causes transportation costs to tend to be crippling. Limited access to facilities as well as lack of adequate facilities result in most of the population having a low level of education, the average population finished only elementary school (54.1%) particularly those who are over 30 years old. Only in the last decade or so, there are several young people from *Lokombulo* Village who have completed junior and senior high school education (8.6%) and 0.07% graduated from university.

The livelihood approach is not only related to income, but also includes access to benefit from various development activities carried out by the government such as roads, education, health services, clean water supply, access to banking, and other things that can increase community capacity [27]. In the last few decades, the poverty approach to overcoming economic backwardness in some countries has begun to be abandoned and replaced by a sustainable livelihood (SL) approach. SL approach is considering a more coherent and integrated effort in poverty alleviation. On the other hand, the poverty alleviation approach is considered too narrow because it only focuses on certain poverty parameters, such as low income, and does not consider other important aspects of poverty such as vulnerability and social exclusion. The sustainable livelihoods approach pays attention to the various factors and processes that hinder or enhance the ability of the poor to earn a living in an economically, ecologically, and socially sustainable manner [8].

Even though there is abundance of sea-based resources, with a very limited socio-economic infrastructure, the *Bajo* people are not able to optimally utilize these resources. Limited infrastructure and access to capital, coupled with the low quality of human resources that lack of education and skills are an inhibiting factor in being able to utilize these abundant marine resources. People survive on a hand-to-mouth basis [28]. Although consistent economic growth in the last few decades in Indonesia has meant that much of the population is no longer plagued by poverty. However, it is recorded that around 28 percent of the population still lives below the poverty line [3, 29], and many more are vulnerable to returning to poverty. *Bajo* people who inhabit marine coastal areas are included in the category that is vulnerable to entering the poverty trap, because their livelihoods are vulnerable to uncertain environmental conditions and pollution of fishing grounds due to activities on land.

The lives of *Sama Bajo* in *Salabangka* in general also experience ups and downs and depend on the seasons, namely that of the east monsoon and the west monsoon. Generally, fishermen In *Salabangka* Island can only go to sea during the westerly wind season, which is from October to March, or what many people know as the west wind season. In the season of the east monsoon, this area is generally hit by strong winds with wave heights that can reach 4-5 meters. According to information from the *Bajo* community, these extreme waves have become increasingly severe and erratic at least in the last decade. This makes it more difficult for the fishing community in the *Salabangka* Islands to be able to catch marine products to meet their needs. For this reason, knowledge about climate

change, resource management, and livelihood diversification strategies as well as increasing innovation in fishing technology for the *Bajo* fishing community becomes prominent [4]. Previously, fishermen can estimate accurately the fish season for each particular type of fish, where at a certain time there was a certain fish season, so they could determine when to catch what and how much should be harvested according to the size of the catch and the costs that must be allocated, but at this time, especially in the last decade It is difficult to ensure the season due to climate change that occurs, especially for fishermen who only rely on traditional fishermen equipment, such as in *Salabangka*. In the face of fluctuating income, fishermen need to be able to allocate fishing effort and use a portfolio of fishing quotas to minimize income risk [30].

In these difficult times, fishermen usually make a variety of efforts to survive. Seaweed cultivation, for many years has been a buffer for the economy of the fishing community in the *Salabangka* Islands [31] and Indonesia especially during the lean season [32-34]. But since almost the last decade these activities have decreased because mining companies started operating and caused pollution on the coast of the *Salabangka* archipelago. Landscape changes cause changes in livelihoods. Small fishermen are generally always victims of human activities on land [35]. The *Bajo* community has always been famous as a sea community who is very concerned with the conservation of marine resources [36, 37]. However, conservation actions which is taken by *Bajo* people to improve the environment are greatly influenced by the dynamic local socio-political context and individuals who mediate the idea of conservation [38, 39].

As a result of environmental and climate change, *Bajo* people in the last decade not only cultivatign sea weed but also also carry out other activities, such as taking boat taxis with an average size of 1.5 x 7 meters (using an outboard motor), working on boats, or fixing their fishing gear, which is generally undertaken during the east monsoon season when they are confined to sea activities.

This life cycle has become a routine in the life of the *Bajo* people. In the last two years, it has been exacerbated by the COVID-19 outbreak (since 2019) which has made it increasingly difficult for people to adapt to the difficult situation in the east monsoon. Restrictions on social and economic activities during Covid-19 have caused income from activities outside of fishing previously to decrease significantly.

3.1 Income before Covid and after Covid from fishing activities

Household income is the amount of fisherman's household income contributed by all members of the fishermen's household. In fishermen's families, income is generally obtained from activities related to business in the fishery sector and activities not related to the fishery sector (non-fishery). The types of fish that are generally caught by fishermen are grouper, *Siganus Sp*, *streaked spinefoot*, *white-spotted spinefoot*, *skipjack tuna*, *yellowtail snapper*, *red snapper*, and the most common are *decapterus russelli* and *rastrelliger faughni*. Many of them also catch sea cucumbers. However, due to the polluted sea conditions in recent years, it is increasingly difficult for fishermen to get sea cucumbers.

Prior to Covid-19, fishermen's incomes ranged from Rp. 5.000.000 – Rp.10.000.000 or between USD 357.14 - USD

714.29 (1 USD equals Rp. 14,000) per month. During the plague attack, fishermen's monthly incomes ranged from only USD 149.79 - USD 632.44. Most *Bajo* fishermen feel that this income is insufficient, because the operational costs for fishing and the cost of replacing damaged equipment are also considerable. On average they have to spend between USD 35 – USD 215 per month, for fishing operational costs and pieces of equipment maintenance. The economic effects from market disruptions have further impacted small-scale fisheries' ability to pursue their livelihoods through these double disasters of reduced demand and attendant collapse of prices [5, 40, 41].

The decline of income was largely also due to the decline in the price of crabs, which before Covid-19 ranged from USD 1.79 - USD 2.50 per kilo, due to the decline in demand during Covid-19 the price of crabs decreased to only around USD 1.07 - USD 1.29, as well as the case for all reef fish, it is decreased by more than 50% on average. This is because the middleman (local patron or *punggawa* also known as boss is the owner of a fleet of boats where small fishermen who do not have fishing equipment work) reduced the demand for fish and forced the *Bajo* to sell at such low prices that they had no option but to comply if they were to survive. Usually, the high yields obtained in the west wind season are also saved in the form of money, gold, or valuables that can be resold during the famine season in the west wind season. In times of declining income, most fishermen sell or pawn their valuables. However, the length of the famine caused by the outbreak of the Covid-19 attack has caused many *Bajo* fishermen to spend or sell all their savings and rely on income from livelihoods outside the fishing sector.

3.2 Income before and after Covid from non-fishing activities (livelihood diversification)

Non-fishing activities are carried out by fishermen's wives and other members of each household as an alternative to help families to survive. The Covid-19 pandemic resulted in people having to avoid contact to reduce the spread of the virus; this consequence, among others, has affected artisanal fisheries around the world.

Some of the activities to increase income carried out by the *Bajo* fishing community outside the fisheries sector cover selling traditional cakes or selling basic ingredients. However, the biggest income is actually sourced from taxi boats taking residents to the village market located in the capital of the southern *Bungku* sub-district capital in Kaleroang village which takes about ten minutes. However, during the Covid-19 pandemic, the government recommended social distancing and working from home which significantly reduced people's mobility, causing the income from the boat taxi business to decrease by more than 50%. Previously, people could earn around USD 100-USD 200 per month from non-fishing activities, during the outbreak of Covid-19, these boat taxi drivers could only earn less than USD 100 per month. Apparently, the Covid-19 disaster that lasts for quite a long time will change many things. The lives of people including the *Bajo* fishermen will go to New Normal Conditions that are different from the previous situation.

Vulnerability and risk always overshadow people's lives in the form of changes that often occur suddenly, seasons that change from time to time, and changes in global conditions such as prices and markets demand. The context of these vulnerabilities differs according to the environment in which they live. According to several donor agencies and experts, the

sustainable livelihoods approach will change from a needs-based approach to a focus on community capacity in an effort to take the initiative to adapt to any changes [42]. Adaptation can be said as behavior that refers to a survival strategy. Each community develops different forms of adaptation strategies according to the environment they live in. generally they diversify their livelihoods, improve the quality of fishing gear, even in urgent conditions most of them sell their assets, generally gold jewelry. Fishers diversify their livelihoods for a number of very clear reasons. Fishing at sea is a high-risk occupation, and is subject to seasonal fluctuations, some of which are highly unpredictable. Diversification reduces the risk of livelihood failure, reducing the risk of vulnerability by spreading it to more than one source of income [42, 43].

Diversity is one that has tended to be ignored by policies that are sectorally based, actually diversity is an important strategies of rural livelihoods as well as fishermen in developing countries [42]. The lack of fishermen's income during bad weather and the Covid-19 pandemic have forced fishermen to look for other alternative livelihoods in order to cover their needs. Based on the data collected during the study, there were 21% of the community doing additional work as rock and sand miners, 7% work as part-time teachers, 7% as village officials, 10% as boat builders, 24% as marine motorcycle taxis, and 31% work as a land motorcycle taxis. Some also combine working as rock and sand miners and motorcycle taxis (*ojek*). Diversification of livelihoods is the most frequently done way to reduce the risk [44, 45]. Understanding of the factors that determine the diversification strategy is very important to increase the sustainability of livelihoods [46, 47]. It seems that the *Bajo* people, who previously forbade working on land, because the difficult conditions forced them to start taking advantage of the opportunities created on land. Students from *Bajo*, *Salabangka*, who are continuing their education at the university level, also said that they would take advantage of opportunities to work as employees in mining companies or work on land after completing their studies (Figure 2).

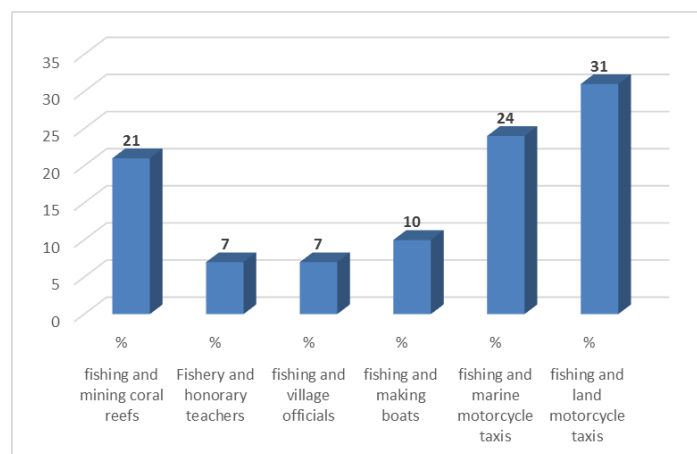


Figure 2. Livelihoods diversification conducted by *Bajo* fishermen during the East Wind season and COVID-19

A nickel processing factory (smelter) was built in *Bahodopi* sub-district, which is only about 50 km from the study site, The *Bahodopi* area was determined by the government as an industrial area under the name Indonesia *Morowali* Industrial Park (IMIP). Many foreign and local mining companies operate in this region. Since 2015 IMIP has been recorded as providing a fairly large royalty of nickel mining and

processing activities. The royalty continues to increase from year to year (Figure 3).

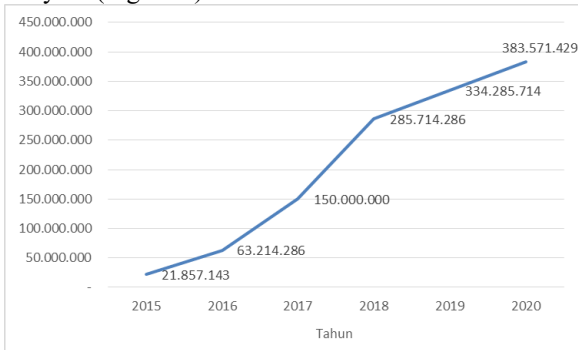


Figure 3. Royalty IMIP deposit to the Indonesian Government in IDR (2015-2020)

IMIP is supported by the Shanghai Decent Investment (Group) Co., Ltd, which is in cooperation with *PT. Bintang Delapan Investama*? IMIP has an industrial area based on nickel processing with the longest industrial chain in the world and has main products in the form of Nickel, stainless steel, and carbon steel. In 2018, IMIP already controlled 50% of downstream nickel production in Indonesia. Since 2018, IMIP also has overtaken some concession area of PT Vale Indonesia Tbk (formerly INCO) and PT Aneka Tambang Tbk (Antam), IMIP then controlled the production of refined Nickel in the country. Specifically, in PT IMIP there are a total of 16 companies employing 25,447 Indonesian workers and 3,121 foreign workers. Meanwhile, the indirect workforce involved in supporting industries such as suppliers, contractors, and so on, is around 53,500 people (<https://www.ap3i.or.id/News/News-Update/perusahaan-nikel-terbesar-di-sulawesi-tengah-apa-itu-pt-imip-cek-penjelasan-nya.html> access 31 July 2022).

Not only giving royalties to the country, a mining company in the last five years has opened new jobs opportunities to people surrounding the *Morowali* regency including *Bajo* who live in *Salabangka*. The mining company also offers a good salary and is available to young *Bajo* people who have graduated from minimum senior high school. Almost all of the *Bajo* in *Salabangka* who graduated from university are now working in this mining company. Although most of the people from *Salabangka* work at the low-level management in the mining company, the income they receive from mining is far high than if they work on other activities in *Salabangka* such as honorary teacher, nurse, coolie or motorcycles taxis. So, the only members of households who do not have enough education keep work in *Salabangka*. The opportunity to work in a mining company with a high salary has also encouraged several *Bajo* youths to continue their education up to the university level. For comparison, the salary received by a teacher, nurses, or any other job is only between USD 71.43 – USD 107.14 per month, while by working in the mines they can earn from USD 285.71 per month. As a result of the 32 fishing households interviewed, 16 households sent their family members to work at the mining company and can send money on average between USD 71,4 to USD 214,23 every month.

The environmental changes that occur, caused by climate change as well as community activities on land, encourage the *Bajo* community, previously known as a community whose livelihood orientation is on the exploration of coastal and marine resources, to shift to being oriented towards finding

work on the land. Globalization and development provide wider possibilities for livelihood diversification. On the other hand, increasing opportunities to find new livelihoods have made family ties weaker or family decomposition [27]. Based on research conducted on the *Bajo* community in *Karimunjawa*, who previously lived and relied on marine resources for their livelihoods then moved to settle and seek livelihoods on land, due to the declining fish catch. Interaction of the *Bajo* community with mainland communities which raised awareness of the importance of education and a government program that encourages *Bajo* people to build permanent settlements on land [48]. The income level of fishermen cannot be separated from income opportunities from other sectors outside of fisheries [42]. Especially in other jobs that fishermen may be able to reach if there is a decline in income in the fisheries sector. In other words, the number of family members engaged in livelihoods in the fisheries sector will largely depend on the income opportunities available to them. If higher income opportunities are available in other sectors, individual fishermen can leave fishing jobs or become part-time fishermen.

3.3 Livelihoods intensification

In addition to diversifying their livelihoods, some members of the fishermen's families, especially those who do not have adequate education to be able to work on land but have funds, undertake activities to intensify their fishing gear. It is recorded that 59% of all informants have intensified their livelihoods by intensifying the use of their traditional fishing gear such as *bagang* (A fishing tool that uses nets and lights so that this tool can be used for light fishing.) or *sero* (Traditional fishing trap, in the form of a fence that leads the fish to the trap. Consists of 4 important parts, namely the main fence, wing, body, and crib.), especially for those who have financial strength. Others tend to keep fishing by changing their fishing grounds. However, most suffered losses, due to high operational costs, especially fuel and larger logistics but not accompanied by adequate fish catches. Basically, although equipment such as *bagang* and *sero* are old fashion of fishing equipment, they are still effective enough to be the mainstay of survival in difficult situations such as the east wind moonson, and the current Covid-19 pandemic. However, generally only *Punggawa* has *bagang* or *sero*, small fishermen generally work as laborers (*sawi*) in *bagang* or *sero* owned by *Punggawa* (Figure 4).



Figure 4. *Bagan* or *bagang*

The absence of access to credit institutions causes most *Bajo* small fishermen to have difficulty developing fishing gear as an alternative to adaptation in the east wind season.

Several informants considered most of their fleets needed to be rejuvenated or replaced, but their limited financial strength forced them to survive with minimal equipment. Some of them can replace new equipment by borrowing from the “*Punggawa* or *Bos*” (*patron*) but with stifling interest. As a result, most fishermen can only make traditional fishing nets that they can make themselves. The material is a plastic rope and a kind of nylon rope. The process of making fishing nets is done by fishermen by knotting. The buoys are made by themselves from used flip-flops, while the weights are made from white tin (Figure 5).

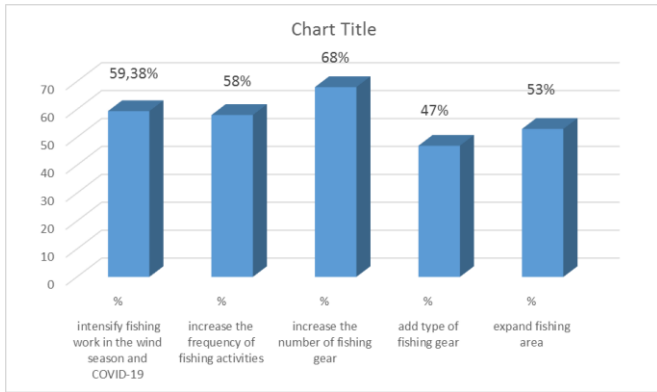


Figure 5. Adaptation strategy by intensifying fishing equipment carried out by *Bajo* fishermen on *Salabangka* Island

3.4 Social network utilization strategy

The strategy for using social networks is a reciprocal relationship between one individual and another, influencing each other and based on the awareness to help each other. A social relationship is also a process of social interaction between individuals with others. Social interaction is also a process of mutual influence between two or more people. The resilience of a society is determined by social relations [49]. The exchange ritual mechanism is a strategy to reduce the impact of economic uncertainty [50]. Strong social relationships between fellow *Bajo* people causes the spread of information about new fishing locations, techniques to optimize the fishing gear owned. Family ties that are still quite strong tend to cause pressure or changes in conditions to be faced together, including access to fishing opportunity may be determined by social relations [42, 51] (Figure 6).

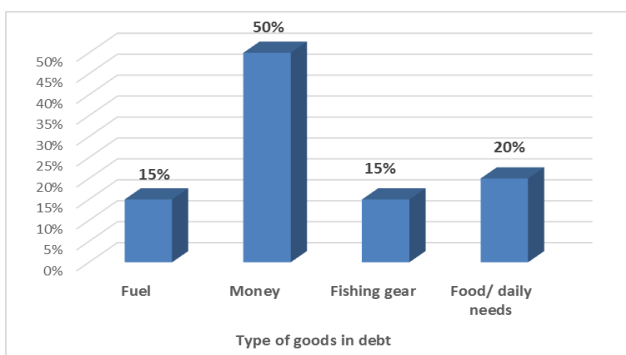


Figure 6. Type of goods in debted by respondents

Good relations have also been established between the *Bajo* in the *Salabangka* Islands and several traders (Traders are

people who work as sellers of daily necessities, including fishing equipment. Some live in *Salabangka* and some come from outside *Salabangka*, such as *Kendari*, where fishermen usually have contact with them, or have become traders' customers in buying fishing equipment. They are different from *Punggawa*.) This allows them to go into debt with traders in difficult conditions due to the pandemic. The information collected shows that 74% of all informants are in debt. Most (50%) of the informants owed money, while 15% owed fuel, 15% owed fishing gear such as fishing rods, baits, and nets, 20% owed food items while the rest owed debt due to sudden needs, especially the education costs of their children who continued their education outside the *Salabangka* Islands region. According to some informants, borrowing from traders is different from lending to *bos* or *punggawa*; the interest set by traders is generally not too high and the payment terms are not too tight as happens when they lend to *punggawa*.

It seems that the adaptation of individual and household livelihoods is supported by enabling institutions such as traders in this regard. People or institutions from outside can access village-based fishing areas when needed [51]. However, the entry of outside parties during this famine, on the one hand seems to be able to help fishermen, but on the other hand, the entry of outsiders can be a kind of investment for cooperation at harvest time which tends to lead to a decrease in fishermen's income through fish prices that tend to decline, but sometimes fishermen become powerless to escape [42]. The short-term impacts mentioned are likely to be followed by longer-term crises related to economic hardship and the global food crisis. Internationally, the Small Scale Fishery sector plays an important role in food security and livelihoods. Therefore, the emphasis on the need for rapid organization by all parties in support of the Small Scale Fishery sector must be carried out [41]. In the long term, initiatives are needed to promote coordinated responses and support networks that can create existing institutions, supply chains and food systems in such a way as to improve conditions and resilience of the small fishing sector.

3.5 Pawning valuable possessions

Fishermen pawning or selling goods is usually done when fishermen cannot go to sea and additional work cannot be done, or sources of income are insufficient. Proceeds from selling or pawning goods are usually used to meet the needs of daily life [52]. The more frequent the intensity of the storms, the more often this adaptation strategy is carried out among fishermen. The situation is getting worse with the emergence of the COVID-19 attack, which significantly affects the welfare of the fishing community. The epidemic shows that the livelihoods of our fishermen are fragile. The world's population and urbanization that will continue to increase in the coming decades, increase the chances of epidemics. To that end, we have highlighted the need to ensure contingency plans and mitigation strategies regarding livelihood systems in the fisheries sector will make them more sustainable and resilient [40]. Most of the respondents sell or pawn their gold jewelry to traders, they hope to buy it back during the west season or their family members who work in the mines are successful.

Prior the outbreak of COVID-19, for some rich fishermen, mortgaging or selling valuable goods is not done as a form of survival, but to enlarge the fishing fleet so that the income that can be obtained does not decrease. Not only fishermen, but

also *punggawa* or *bos* sometimes pawn their ships as collateral to obtain a capital loan, which will later be purchased for new ships or additional equipment for their own ships so the *punggawa* does not make efforts to pawn and sell valuables as a form of adaptation strategy but to accumulate their assets. During the outbreak of COVID-19, all parties are experiencing difficulties, including wealthy fishermen, some of whom are resting their boats due to declining demand and falling fish prices. It seems that the COVID-19 attack is more powerful than the east wind season.

4. CONCLUSION

The experience of stress and shock that routinely occurs due to changing seasons has provided valuable lessons for the *Bajo* fishermen. Livelihood diversification is a common strategy used by *Sama Bajo* fishermen in anticipating seasonal changes. However, environmental changes caused by activities on land have resulted in higher pressure on the livelihoods of the *Sama Bajo* fishing communities who inhabit the *Salabangka* Islands. Coupled with the explosion of the Covid-19 pandemic, causes several types of alternative livelihoods that are considered to be the basis for alternative livelihoods previously are currently proving to be unreliable. However, various new livelihood opportunities that have opened on the peninsula have provided new livelihood opportunities for *Bajo* fishermen. It is possible that in the future for *Sama Bajo*, fishermen's livelihoods will become part time livelihood for *Sama Bajo* fishermen, along with the availability of fish which is getting farther away from their fishing area accompanied by environmental and climate changes that are getting worse day by day. The opening of transportation access to new growth areas due to the emergence of multinational investment may provide a new alternative for *Sama Bajo* people to slowly start considering new alternative sources of livelihood, as evidenced by the increasing number of *Sama Bajo* youth who work as mining employees while others are motivated to continue their education to university level.

In addition to carrying out various activities to diversify livelihoods, it appears that the next generation of *Bajo* people will take part in taking advantage of the various opportunities created on the mainland as a new strategy for survival, not even impossible to improve welfare.

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