

ADAPTATION PATTERNS OF FISHERMEN IN UJUNGALANG VILLAGE, KAMPUNG LAUT DISTRICT, CILACAP TO MAINTAIN THE ECONOMY FAMILIES IN FACING CLIMATE CHANGE

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Abstrak: Perubahan iklim merupakan permasalahan utama yang dihadapi masyarakat nelayan. Adanya pemanasan global dan perubahan cuaca yang tidak menentu membuat nelayan Desa Ujunggalang, Kecamatan Kampung Laut, Cilacap, tidak bisa menentukan datangnya ikan. Sebagai masyarakat pesisir pantai, masyarakat nelayan bergantung pada sumber daya kelautan untuk memenuhi berbagai macam kebutuhan hidup. Berdasarkan permasalahan tersebut maka tujuan dari penelitian ini untuk (1) mengidentifikasi dampak perubahan iklim pada perekonomian dan aktivitas perikanan tangkap, dan (2) menganalisis pola adaptasi dan strategi ekonomi yang dilakukan oleh nelayan untuk mengatasi dampak ekonomi yang ditimbulkan oleh perubahan iklim. Metode yang digunakan dalam penelitian ini adalah penelitian deskriptif dengan pendekatan kualitatif. Penelitian dilakukan di Desa Ujunggalang, Kecamatan Kampunglaut, Cilacap. Teknik penentuan subjek penelitian menggunakan Teknik *purposive* Teknik pengumpulan data menggunakan wawancara dan dokumentasi. Teknik pemeriksaan keabsahan data dalam penelitian ini menggunakan *cross check*. Analisis data pada penelitian ini menggunakan analisis data induktif, meliputi tahap reduksi data, kategorisasi data, penyajian data dan pengambilan kesimpulan. Hasil penelitian ini mengungkapkan bahwa dampak perubahan iklim membuat nelayan mengalami permasalahan sosial ekonomi. Dalam persoalan ekonomi, dampak perubahan iklim membuat masyarakat nelayan tidak dapat memenuhi kebutuhan hidup dan rentan terhadap pemasukan pendapatan yang rendah. adaptasi yang dilakukan oleh nelayan antara lain adalah adaptasi iklim melalui “mengejar musim ikan”, adaptasi sumber daya pesisir, adaptasi alokasi sumber daya dalam rumah tangga yang meliputi optimalisasi tenaga kerja dalam rumah tangga.

Kata Kunci : Pola Adaptasi, Perekonomian Nelayan, Perubahan Iklim

Abstract: Climate change is the main problem faced by fishing communities. The existence of global warming and erratic weather changes are making village fishermen Ujunggalang, Kampung Laut District, Cilacap, cannot determine the arrival of the fish. As coastal communities, fishing communities depend on marine resources to fulfill various kinds of living needs. Based on these problems, the aim of this research is to (1) identify the impact of climate change on the economy and capture fisheries activities, and (2) analyze adaptation patterns and economic strategies carried out by fishermen to overcome the economic impacts caused by climate change. The method used in this research is descriptive research with a qualitative approach. The research was conducted in Ujunggalang Village, Kampunglaut District, Cilacap. The technique for determining research subjects uses purposive techniques. Data collection techniques use interviews and documentation. The technique for checking the validity of the data in this research uses a cross check. Data analysis in this research uses inductive data analysis, including data reduction stages, data categorization, data presentation and conclusion drawing. The results of this research reveal that the impact of climate change is causing fishermen to experience socio-economic problems. In economic matters, the impact of climate change makes fishing communities unable to meet their living needs and vulnerable to low income. Adaptations carried out by fishermen include climate adaptation through "chasing the fishing season", adaptation of coastal resources, adaptation of resource allocation in the household which includes optimizing the workforce in the household.

Keywords: Adaptation Patterns, Fishermen's Economy, Climate Change

INTRODUCTION

Indonesia is the largest archipelagic state in the world which has a very strategic geographical position. The number of islands in Indonesia officially recorded has reached 16,056 islands. (Bappenas, 2022). This vast marine area has quite large potential for sustainable production of marine fish, assuming around 6.51 million tons/year or 8.2% of the total world marine fish production potential (Decree of the Minister of Maritime



Affairs and Fisheries, 2011). There are 79,075 villages in Indonesia (www.wikipedia.com). Of these villages, approximately 8,090 villages are classified as coastal villages (Satria & Kusumastanto, 2009;1). As time goes by fishing villages develop along the coastline which is used as a place to live and build the economy. Most of these coastal communities earn their living as fishermen. The assumption that the large amount of marine and fisheries resources makes fishermen live prosperously is dismissed by data from the Ministry of Maritime Affairs and Fisheries (2020) which confirms that there are 7.87 million poor coastal communities and 2.2 million very poor coastal residents throughout Indonesia. These poor fishermen are spread across 10,640 fishing villages on the coast (dfw.or.id/isu-isu/mdgs). With abundant natural wealth, around 70 percent of Indonesian fishermen experience poverty. The enormous wealth of marine and fisheries resources contrasts with the sad economic conditions of fishermen in Indonesia. One of the reasons for the poverty experienced by fishing communities is the impact of global warming and erratic weather changes, making fishermen unable to determine the season when fish will arrive.

AAISF report (Archipelagic And Island States Forum) on 11 October 2023 in Bali, placing Indonesia as one of the countries that most vulnerable to climate change. Because island countries and archipelagos are members of the Archipelagic and Island State (AIS) Summit are the countries most vulnerable to being affected by climate change (www.antaranews.com). Climate change can make it difficult for fishermen to determine the fishing season due to unpredictable weather and this risks changing the stability of the ecosystem, social economy of society, and damaging the function of the planet Earth as a support for life. There are at least four things that can happen to capture fisheries related to the impacts of climate change in marine areas, based on opinion (Diposaptono et al., 2009). First, there is a change in fish migration patterns due to changes in sea surface temperature. Second, there is stratification of the water column which influences the upwelling process which is positively correlated with schooling of fish, and in itself makes it difficult for fishermen to catch fish. Third, there is a change in the fishing area (fishing ground). Fourth, the worsening fate of fishermen is due to the need for greater time and costs to go to sea due to migration and destruction of fisheries habitat and fishing grounds. Davies's (1993) study, on land-based resources, climate change triggers shock and stress due to crop failure or falling prices or inadequate land resources which then affect the basis of household livelihoods. This shock and stress is thought to also occur in fishermen due to the destruction of their sources of livelihood due to ecological changes. The 2021 National Social and Economic Survey recorded that around 5.6 million Indonesians depend for their livelihood on the head of the household who works as a fisherman. The average income of fishermen from sea catches is around IDR 28.08 million/year, which is smaller than the income of fish farmers in public waters and in ponds which reaches IDR 34.80 million/year and IDR 31.32 million/year. The small income received by fishermen provides meaning that the economic condition of fishermen in Indonesia is very weak and at an end on fishermen poverty.

This climate change is of course also experienced by the fishing community in Ujunggalang Village, Kampung Laut District, Cilacap. Until now, the fishing community still feels it the impact of climate change on fishing activities in the sea. Various news emerged that bad weather makes fishermen unable to go to sea. Bad weather is usually known there were high waves and crashing waves reaching a height of two meters hit Central Java's northern sea waters which create fishing activities in the village Ujunggalang, Kampunglaut District, Cilacap was disturbed. Every year fishing

communities feel the impact of climate change that is occurring and affecting the economy public. Where when climate change occurs, more than a hundred fishermen in the village Ujunggalang, Kampunglaut District, Cilacap, did not go to sea because of this storms and high waves due to climate change. So it is known that the public Fishermen have complex problems in economic life. A number of problems climate change which has an impact on capture fisheries activities, as has been done explained previously, is the basis for the importance of carrying out research aims to (1) identify the impact of climate change on the economy and activities capture fisheries, and (2) analyzing adaptation patterns and economic strategies carried out by fishermen to overcome the economic impacts caused by climate change.

METHODS

This research is descriptive research using a qualitative approach emphasizes the socially constructed nature of reality, the close relationship between researcher and subject being researched and the pressure of the situation that shapes the investigation (Denzin & Lincoln, 2009;6). This research uses an interpretive paradigm that involves direct observation towards fishermen. This research was conducted in Ujunggalang Village, Kampunglaut District, Cilacap. The location for this research was chosen based on the characteristics of the community Most of them are low-income traditional fishermen. Subjects in this research taken purposively, namely collecting data by determining it yourself and based on it certain considerations. Data analysis techniques used by researchers in this research is a cross check by collecting research data through interviews, analyzing the data interviews, then group them according to the research problem and draw conclusions or verify data.

FINDINGS AND DISCUSSION

The Impact Of Climate Change On The Economic Lives Of Fishermen

Economic capital owned by the fishing community of Ujung Ngalang Village, Kampung District, Cilacap sea. does not only include items used as tool equipment catch fish. The economic capital you have also includes your daily opinions obtained from the results of work. This income is used for various things to make ends meet necessities of life or used as capital to return to work. But when Climate change has an impact on weather changes which result in fishing can't work. If there is a bad season, fishermen will not be able to work up to one Sunday. Meanwhile, every day fishermen need expenses to meet their needs daily living needs, paying debts and needing capital to work. Fishing communities depend on fisheries resources that are uncertain every day. This uncertainty is because fishermen have to find and catch fish for earn income, in contrast to farming communities who own agricultural land. The fishing community must look for fish in the sea to obtain the catch. Income is the economic capital of fishing communities to meet their living needs. The income obtained will be used again as capital to buy diesel fuel and repairs boats and buying damaged fishing equipment. Fishing equipment and boats is the main means by which fishermen can work to catch fish. Equipment owned by fishermen as economic capital in the form of goods used for work. Fishing gear and The boats owned come from money owned by fishermen and loans or debts to them middleman. The fishing community during the short season is faced with vulnerable conditions poverty and welfare continues to decline. The fishing community gets it elements of economic life from fishing which depend on sources of livelihood marine power. Conditions of deprivation are not only seen from an economic but social perspective, culture and politics (Nugraho, 1995;31).

In the economic dimension, poverty is seen and manifested in various basic human needs such as food, clothing, housing and health, while in fishing communities, poverty is seen from the condition of ability to meet the needs of life, clothing, food and health. Poverty in the socio-cultural dimension cannot be calculated using numbers, however emerges in the form of a culture of poverty. In responding to the lives of poor people tends to be wasteful in spending money, easily discouraged, helpless and apathetic. Although this is not entirely true, the conditions experienced by fishing communities are also almost the same such as spending money on home furnishings, jewelry and consumer goods.

The tendency to buy consumer goods when fishermen get results catch a pretty big one. However, when the fishing season arrives, fishermen no longer have any savings to be used to meet living needs and develop venture capital. Poverty in fishing communities in socio-political terms is emerging poor fishing community groups in the social structure who are not involved in decision-making. In the fishing community of Ujung Ngalang village, Laut village, Cilacap. this thing appeared as a marginalized community so they do not have access to fulfillment requirements for accessing capital in financial institutions such as banks. Hence the network which is formed in fishing communities with middlemen guarded and maintained through shared beliefs and values to gain access to capital without having to engage more complicated requirements. Fishermen simply sell the fish they catch to middlemen and The middleman will provide loan capital as a means to meet living needs. There is vulnerability experienced by fishing communities because they experience difficulties to facing emergency situations, in this case such as those faced by the fishing community of Ujung Village Ngalang Kampung Laut Cilacap sub-district with the impact of climate change. Fisherman had difficulty buying fuel for fishing because they couldn't get it catch that can be sold and there are no reserve funds that can be used for sudden needs, so that fishermen fall into the trap of poverty. This condition is also made worse by the situation of fishermen with limited equipment and debt larger and limited fishermen in making decisions regarding price determination fish. In general it can be said that the term poverty always refers to a deprived conditions. This condition of deprivation can be measured objectively, perceived subjectively, or relatively based on comparison with others, thus giving birth to objective, subjective and relative views about poverty (Imron, 2013). Adaptation To Climate Change And Fishermen's Economic Strategies.

The lean season causes fishermen to experience periods of risky unemployment on the welfare of fishermen, if fishermen cannot work then to fulfill their living needs fishermen use their savings. When saving As it decreases, fishermen will turn to other people for help by getting into debt. In this case fishermen need the social capital they have to be able to use it maximally in the hope of maintaining the family's economic needs. Capital social media provides hope for fishing communities as a useful resource in facing climate change. The existence of social capital owned by fishing communities in the form of networks, beliefs, shared norms and values, it will be impossible The fishing community can survive even though it is experiencing a bad season. During the lean season, fishermen prefer to owe money to middlemen. Loan capital provided by middlemen or suppliers opens up social capital for fishermen to accessing the resources needed to face times of economic crisis. Social capital not only formed through interactions between fishermen and middlemen, but also through interactions back from them middlemen make these relationships provide opportunities for the use of networks owned. The economic capital owned by fishing communities is the income they earn from the work of fishing in the sea and the tools used for fishing. Can be known that in fishing communities the economic capital obtained initially originates from Cultural capital as a bridge to obtain

other capital to achieve goals. The relationships that exist in fishing communities are interactions that occur based on social and cultural society.

The Impact Of Climate Change On The Economic Lives Of Fishermen In Ujungalang Village, Kampung Laut District, Cilacap

Figure 1. Map of Sagaran Anakan Cilacap Sea Village and Ujungalang Village



1) Climate Adaptation

Kampung Laut District, Cilacap is an area in Cilacap Regency, Java Middle. It is known as the sea village because it is close to the sea and is a group of small islands in the Segara Anakan lagoon which forms several villages. One of them is Ujungngalang Village, Kampung Laut District, Cilacap closest to the island of Java and the island of Nusa Kambangan. Difficulty in getting results catch in a fishing area when climate change occurs, encouraging fishermen from Ujungngalang village, Kampunglaut sub-district, Cilacap to carry out strategies an adaptation which among fishermen is usually called "the strategy of catching the fishing season". This strategy is a form of adaptation carried out by fishermen in Ujungngalang village if the water area around the village of Tepingalang experiences a lean period. Information the presence of fish in other areas from one fisherman to another is what drives this fishermen carry out fishing activities in areas where the fishing season is happen. In Ujungngalang village, Kampunglaut sub-district, Cilacap is not available In the fishing season, fishermen do not sail to look for fish, for example near the island of Nusa Kambangan does not have high tide, sometimes fishermen try to find fish there. Because of the climate sometimes it's hard to predict.

2) Adaptation To Climate Change And Economic Strategies Of Fishermen In Ujungalang Village, Kapung Laut District, Cilacap

Adaptation of coastal resources is a form of economic strategy through resource utilization coastal power to produce various economically valuable commodities without going to sea free. One potential resource is mangroves. Ujungngalang Village, Kampung Laut District, Cilacap has quite extensive mangrove land. Ecosystem The estuary in Segara Anakan includes mangrove forests and all kinds of flora and fauna fauna in it. The mangrove ecosystem here is the largest mangrove ecosystem in Indonesia Java Island. Although the mangrove ecosystem is not in very good condition, because changes due to natural factors, namely changes in environmental

changes that occur in These physical areas include shallowing of water areas, water quality decreasing, as well as the narrowing of mangrove forest areas. waters in this mangrove area still provides useful fishery products for fishermen. One of the commodities Mangrove areas with high economic value are mangrove crabs. Activity The search for mangrove crabs is also an alternative adaptation pattern by fishermen in Ujunggalang Village, Kampung Laut District, Cilacap. During weather conditions It's not possible to go to sea. In lean seasons, there are many fishermen looking for mangrove crabs as a substitute commodity to cover life's needs daily. Apart from mangrove crabs, other commodities can be obtained from the region mangroves are mullet fish and shellfish or totok. This full-blooded clam is a type of shellfish live in tidal areas and around mangroves. Fishermen's wives often look for them These shellfish are for consumption or processed into shellfish satay and then sold.

Abundance of full-blooded clams in the mangrove area of Ujunggalang Village, Kampung District The sea in Cilacap is still quite high. This kerrang processing can be an alternative additional income for fishermen's families when fishermen have difficulty going to sea. Apart from that, in Kampung Laut District itself there is an Arboretum tourist area mangrove "kolak sekancil" which has various collections of mangrove plants, flora and protected rare fauna. Apart from the diversity of flora, the sea village also has a variety of plants fauna diversity. There are 3 types of mammals, namely langurs (*Presbytis cristata*), tailed monkeys long (*Macaca fascicularis*) and linsang (*Ictonyx perspicillata*). The animals found namely 32 types of fish, monitor lizards (*Varanus salvator*) and mangrove snakes (*Homalopsis buccata*). Para When not fishing, fishermen often help out in the Mangrove Arboretum and tourist areas There are even fishermen's wives who sell in this tourist area to increase their income household income.

3) **Adaptation Adaptation of Human Resource Allocation in Households in Ujunggalang Village, Kampung Laut District, Cilacap**

When the fishing season is uncertain and fishermen's fishing frequency is decreasing, Fishermen's children often look for catches in mangrove areas, either with fishermen (his father) or with other fishermen's children. Fishermen's wives also play a role in saving the family economy by carrying out other efforts such as processing of full-blooded clams. Apart from that, when there is a prolonged lean season or an uncertain climate, fishermen start doing part-time work as agricultural laborers, Fishermen's wives also usually do the same work as their husbands increase the income earned. Optimization of household labor The most income is usually obtained if one of the family members starts doing it migration, looking for work in the city or becoming a TKI (Indonesian Worker) abroad. Several fishermen's wives admitted that they had become migrant workers in Saudi Arabia to earn their living family income. Families where one member has been a migrant worker usually It can be seen from the shape of the house that it is better compared to fishermen's houses generally.

CONCLUSION

Ujunggalang Village, Kampung Laut District, Cilacap is a community that Their lives depend on the potential of marine resources, most of the people work as a fisherman. However, the impact of climate change has an impact on life socio-economic society. Climate changes that occur affect fishing activities fishing carried out by fishermen due to ecological changes which include changes fish season and wind season chaos. The impact is a decrease in catches caused by the difficulty of determining the catchment area, the difficulty of determining the season fishing, increased risk of going to sea and hampered access to fishing activities Adaptations and economic strategies carried out by fishermen in facing problems This climate change is dominated by reactive adaptation patterns. This happened because fishermen in Ujunggalang Village, Kampung Laut District, Cilacap are still there so far are traditional fishermen with relatively limited access to technology and information so that more anticipatory forms of adaptation are not widely known by the public. The form of adaptation that has been carried out is climate adaptation in the form of catching up with the fish season other regions, Adapting coastal resources by looking for catches in the region mangrove, Adaptation of human resource allocation in the household which includes optimization of household labor.

REFERENCES

- Coleman, James S., 2009. *Social Capital In The Creation Of Human Capital*. University Of Chicago Press.
- Denzin, Norman K. & Lincoln, Yvonna S., 2009. *Handbook of Qualitatif Research*. Yogyakarta: Pustaka Pelajar.
- Fukuyama, Francis. 2002. *Trust: Kebajikan Sosial dan Penciptaan Kemakmuran*. Yogyakarta: Qalam.
- Helmi, Dan Satria. 2012. *Strategi Adaptasi Nelayan Terhadap Perubahan Ekologis*. Jurnal: IPB. Vol 16, No. 1, Juli 2012:68-78.
- Imron, Masyhuri. 2003. *Kemiskinan dalam Masyarakat Nelayan*. Jurnal Masyarakat dan Budaya, Volume 5 No.1 Tahun 2003.
- Kusnadi. 2000. *Nelayan: Strategi Adaptasi Dan Jaringan Sosial*. Bandung: Humaniora Utama Press.
- Nugraho, Heru. 1995. *Kemiskinan, Ketimpangan, dan Pemberdayaan*. Yogyakarta: Aditya Media.