The 7th Open Society Conference (OSC) 2025
Faculty of Law, Social and Political Science
Universitas Terbuka
DOI: 10.33830/osc.v3i1.7871 / ISSN: 3032-2227

Lebur Alako Ka' Tasek: Navigating Resilience of Pasongsongan Fisher Community in Madura

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Abstract

Climate change that has hit the entire Minapolitan area is so worrying, it is not only a threat to the Blue Economy order in Indonesia, but also to the entire fishing community. The people of Pasongsongan Village Madura are one of the coastal communities which quite vulnerable to climate change. Data from the Sumenep Fisheries Office (local government) stated that production achievements in 2023-2024 were somewhat reduced due to bad weather even though this sub-district received appropriate technological aids and also the System Information Kapal which is cutting-edge application form the goverment. This research successfully explores the vulnerability of coastal communities in the midst of climate change and how they collaborate with governments and institutional agencies through various strategies. This study used the Theory of Practice from Pierre Bourdieu in the concept of Habitus and capital with a phenomenological approach. The data collection technique used In-depth interview, observation and focus group discussion with the source triangulation analysis technique. The results of this study revealed several findings, first, institutional agencies that are established in collaboration between fishermen and the Sumenep Regency government both in the context of *bonding social capital, Bridging Social Capital*, and Linking Social capital are part of participatory decision making in saving the Madura Strait area. Second, the spirit of "Lebur Alako Ka'Tasek" becomes the resilience of fishermen by implementing Resilience as a recovery shown by the ability of fishermen to maintain the balance of tradition and belief in maintaining the principle of "*Lebur Alako Ka Tasek*" by preserving the traditions of *Nyonson, Rokat Tase and Nyabis*. Resilience as a stability can be seen from the existence of client patrons in the relationship between traders and ship crew, while resilience as a transformation can be seen from the existence of a search area mapping system in an effort to find more marine products accompanied by the support of the SI-KAPAL application which helps in navigation and mapping.

Keywords: *Climate Change, Fisher, Resilience, Sumenep*

INTRODUCTION

Indonesia, as the world's largest archipelagic country, faces various climate challenges that affect coastal zones and fishing communities, such as extreme weather patterns and rising sea levels by the Asia Climate Impacts Tracker. This impact is particularly felt in coastal communities that rely heavily on marine resources for their livelihoods. Indonesia, with a coastline length of 108,000 km, ranks second longest in the world. However, this geographical advantage is accompanied by a high vulnerability to climate change. Data from the Intergovernmental Panel on Climate Change, projects that sea level rise in Southeast Asia will reach 0.4–0.8 meters by the end of this century. Climate change also triggers extreme weather phenomena such as high waves, tropical storms, and changes in ocean currents, resulting in a decrease in capture fisheries productivity [1].

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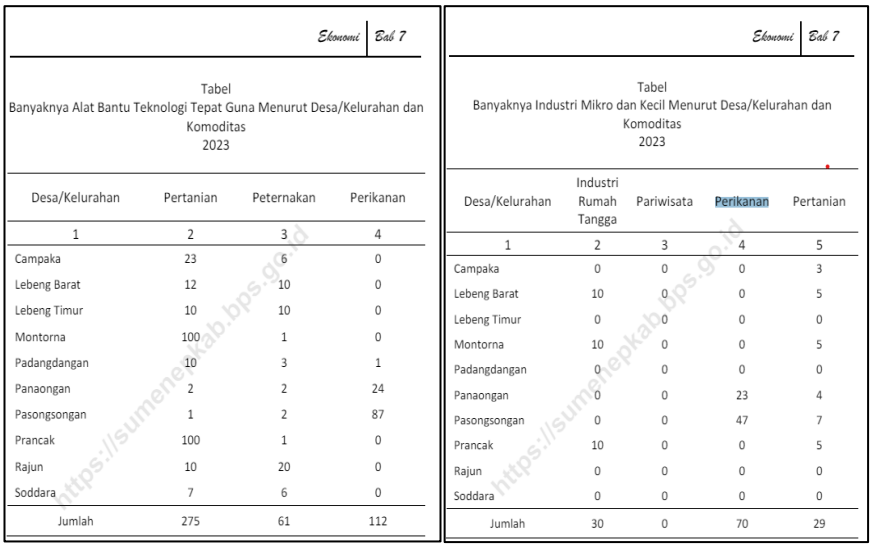
Global climate change shows El Nino events that tend to be characterized by a stronger increase in sea surface temperatures in the eastern Pacific Region to the equatorial mid-latitudes [2]. While La Niña events tend to occur more strongly in the western region, the El Nino Southern Oscillation (ENSO) is a major source of annual variability that occurs in the development of the earth's climate and has a major impact on the global climate, ecosystems, and human societies [3]. Climate change is a global phenomenon that is a challenge in the life of the universe's ecosystems. As a maritime country supported by the wealth of the "Blue Economy", Indonesia is an area that has quite high climate fluctuations that have a very significant impact on the stability and balance of the ecosystem [4]. All events that occur due to extreme climate change cause changes in weather frequency, such as changes in rainfall, seasons, and wind patterns over a period of time that are unpredictable and have never occurred on a previous time scale [5].

The effects of climate change not only hit and disrupt terrestrial ecosystems, but also have a great impact on coastal areas so that coastal areas are the most vulnerable areas to disruption. Changes in sea level temperatures will affect the conditions of marine ecosystems simultaneously, which will ultimately have an impact on the existing fisheries cycle [6]. Through climate change that occurs, the number of fish catches has changed erratically and resulted in a shorter disruption in the dynamics of the fishing season. This certainly worsens the economic condition of fishermen who depend on the maritime economic ecosystem for their livelihoods. Pasongsongan Village, Sumenep Madura Regency is one of the coastal areas that is quite vulnerable. This area has the UPT (Integrated Service Unit) of the Pasongsongan Beach Fishing Port. This area is included in the strategic plan of the East Java Provincial Marine and Fisheries Service in 2024. Based on the Work Plan of the East Java Provincial Marine and Fisheries Service [7], the Pasongsongan Village Fishermen's Village Area is focused on two aspects, namely reporting the number of marine and fisheries monitoring results and optimizing Business Governance in the Pasongsongan Fishing Village. In addition, the Pasongsongan Village Fishermen Community is one of the Fishermen Communities that has good socio-cultural capital when compared to other coastal community areas in Sumenep Regency and Madura Island.

Table 1. Technology Aids & Micro Industry of Paverssongan Fisheries



Ekonomi | Bab 7

Tabel
Banyaknya Alat Bantu Teknologi Tepat Guna Menurut Desa/Kelurahan dan Komoditas
2023

Desa/Kelurahan	Pertanian	Peternakan	Perikanan
1	2	3	4
Campaka	23	6	0
Lebeng Barat	12	10	0
Lebeng Timur	10	10	0
Montorna	100	1	0
Padangdangan	10	3	1
Panaongan	2	2	24
Pasongsongan	1	2	87
Prancak	100	1	0
Rajun	10	20	0
Soddara	7	6	0
Jumlah	275	61	112

Ekonomi | Bab 7

Tabel
Banyaknya Industri Mikro dan Kecil Menurut Desa/Kelurahan dan Komoditas
2023

Desa/Kelurahan	Industri Rumah Tangga	Pariwisata	Perikanan	Pertanian
1	2	3	4	5
Campaka	0	0	0	3
Lebeng Barat	10	0	0	5
Lebeng Timur	0	0	0	0
Montorna	10	0	0	5
Padangdangan	0	0	0	0
Panaongan	0	0	23	4
Pasongsongan	0	0	47	7
Prancak	10	0	0	5
Rajun	0	0	0	0
Soddara	0	0	0	0
Jumlah	30	0	70	29

(Source: BPS Sumenep Regency [8])

The potential of Social and Cultural Capital owned by the Pasongsongan Village Fishing

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Village Community is supported by data from the Central Statistics Agency of Sumenep Regency in 2023. The Fishermen Community in Pasongsongan Village in 2023 will be the most likely to receive the most appropriate technological aids in optimizing fisheries and marine resources, namely 87 technology units, thus placing Pasongsongan as the Village with the highest growth for the micro and small fisheries industry, which is 47 business units in 2023 [9]. In addition to serious attention from the local government, Pasongsongan Village, which is known to have abundant marine wealth and marine products by a number of reliable fishing communities, is currently experiencing serious problems related to climate change.

Resilience built through local socio-cultural aspects of the coastal communities of Madura Island, especially in Pasongsongan Village, Sumenep, has its own peculiarities compared to other areas and previous research. Fishermen and community elements fully use traditional values as cultural capital that they use as a principle to maintain the spirit and unity in maintaining the marine ecosystem. Seeing the many vulnerabilities experienced by the fishing community of Pasongsongan Village in facing climate change, this study focuses on how the habitus of the fishing community can become the resilience of the fishing community in Pasongsongan Village, Sumenep Regency in the face of climate change.

METHOD

This study uses a qualitative approach with interpretative phenomenological analysis (IPA) strategies. This approach was chosen because the focus of the research is to understand the subjective meaning experienced by the Pasongsongan fishing community in dealing with climate change through the philosophy of "Lebur Alako ka Tasek". Phenomenology allows researchers to explore fishermen's lived experiences, including the values, beliefs, and adaptation strategies they build the conceptual framework of this research is built on Pierre Bourdieu's Theory of Practice (Bourdieu) [10].

The research process was carried out within 4 months from September to November 2024. The procedures and data collection techniques in this study began with the steps of literature study to obtain an overview of the conditions in the field, conducted gradual observations and conducted an in-depth interview process and ended with a focus group discussion with various parties. The subjects of this study include 1) Pandiga Fishermen of Pasongsongan Village, 2) Fish Traders/Fish Traders, 3) Employees of UPT PPP Pasongsongan, 4) Community Leaders of Pasongsongan Village. Data analysis is carried out through several stages in accordance with the research flow, including: 1) adjusting various materials and facts in accordance with the systematics and objects to be researched, 2) after adjusting the materials and facts in the systematic elements, then re-elaborated in the object being researched based on elements and theoretical aspects, 3) evaluation of various materials and facts that have been successfully obtained [11].

RESULTS AND DISCUSSION

The increase in deforestation and industrial development without sustainability principles has driven climate change globally, including in Indonesia. In the past decade, the problem of climate change caused by a number of socio-anthropological processes has become a crucial problem that concentrates on ecological problems, this problem is also related to aspects of population growth, deforestation, globalization flows, economic dynamics and consumption of

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industrial products [11] .The concept of "Blue Economy" development is needed to answer the challenges of existing development systems that tend to be exploitative and damage the environment and exceed their carrying capacity milieu. It is hoped that by applying the Blue Economy Principle, the community's economy will increase, then the community will become more prosperous besides that the sky and sea will remain blue (sustainable) [12]. Promoting and strengthening the blue economy holds great promise for countries in Asia, which are the world's trading centers. However, the region is also faced with many socio-economic challenges. In this context, the blue economy offers a path to address some of these challenges. Where the Asian Region has special social, economic and political interests as one of the most populous regions in the world [13].

In order to maintain and maintain the strength of existing resources in the climate uncertainty that occurs, it is necessary to have a definite structural ecosystem to regulate and manage member components systemically. The structures formed in society then function to create reciprocal interactions that cause habitus patterns to be formed [14]. The Fishermen's Structure in Pasongsongan Village, Sumenep is also clearly seen in the division of fishermen's work in order to maintain the dynamics of existence and effective work continuity of each crew member and their leaders. The structures built in the Pasongsongan Village fishermen arena consist of Helmsmen, Crew Boats or commonly abbreviated as ABK, as well as traders consisting of local traders and fish traders. A helmsman, in the perspective of the local community, has the meaning of someone who plays the role of a guide or captain when the ship leaves for sea, as well as an individual who also plays the role of a ship owner who provides full capital proceeds to buy a ship which then provides jobs for the surrounding residents [15]. Thus, ship ownership is the main asset that is also developed in addition to having a role in the helmsman aspect and has an impact on multiplied income for fishermen:

> *"If there are many here, the helmsman plays the role of the owner and also has shares there, so the land owner will be the employer, but he also plays the role of the owner of the assets of the ship, so the capital is both" (UPT Pasongsongan Employee Interview, on October 2024).*

In addition to consisting of the helmsman who is the main source of ship capital, then they form a fishing team consisting of Crew Men or commonly called ABK, to serve as fishermen during sea and sell fish catches to traders [6]. Helmsmen also have the same role to sell fish which is called the term land helmsman, they are tasked with selling fish catches to fish collectors who have different levels from local traders. The difference here can be seen from the income of the money earned from the catch sold, local traders or what is called the term "pel-pel" in the Pasongsongan Fishermen only take profits on a small scale (retail), which ranges from Rp.2000-Rp.3000 Rupiah from the total sales. Meanwhile, fish bowlers take great advantage with the scale of the unit of boats obtained by one group of fishermen.

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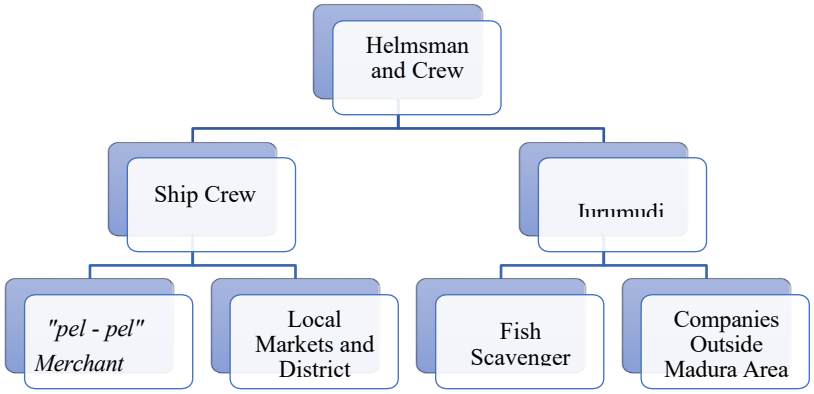

Figure 1. Structure of the Pasongsongan Fishermen Community

Threats in the form of disruption experienced by the Pasongsongan Fishermen community include changes in the fishing season experienced in the last 2 years since 2022. This change starts from a shift in seasons that initially occurred from June to December (occurring for 7 months), changing in the period from July to October (occurring for 4 months only). This then creates a variety of economic cycles and dynamics that are different from previous years. So that through the change in the fishing season, the number of fish catches also decreases and decreases as a result of an uncertain climate. Because of this event, there have been large-scale changes regarding the dynamics of fishermen's regeneration, including many boats that are sold, ships that are left unscathed, and crew members who are still young tend to choose to migrate because of the uncertainty of income from the profession of a fisherman.

The habitus of "Lebur Alako Ka'Tasek" Pasongsongan Fishermen as Resilience in the Digital Era

In the conception of habitus developed by Pierre Bourdieu in the theory of social practice "*Theory of Practice*" known as three main concepts. The first concept includes habitus as an element of habit over social consciousness where the interaction takes place. The second concept discusses the area or realm as a place where habitus is carried out, and the last concept is commonly known as capital or what is commonly called capital as a support for the aspects of habitus and realm so that it can take place optimally [16]. Bourdieu explained that habitus is the key where there is a belief in social and cultural values that create and form various social movements that are adjusted to the rules of the game that have been agreed. Habitus is a historical work that is formed and interacts in a certain space and time [17]. Habitus is the result of socialized learning and normalized processes in the community aspect. Through this concept, various communities form different habits, one of which is the conception of habitus that can be observed in the Fishermen community of Pasongsongan Village, Sumenep Madura.

> *"Because it feels that the catch has decreased because of the range from 2014 – 2022, the increase in the number of fleets is extraordinary, sir, finally it is felt that the following year 2023, anyway we must always run, sometimes even help other ships to go to sea due to a lack of fleets" (Interview with UPT Pasongsongan employees on November 2, 2024).*

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The habitus of the Pasongsongan Village Fishermen community was born from the roots of a strong tradition that became the spirit in going to sea. "Lemelt Alako Ka Tasek" which means Madurese people prefer to work at sea is an expression of a Madurese proverb that is still a principle of fishermen in Sumenep in making a living. The Pasongsongan Madura Fishermen Community believes that the fishing profession is one of the uncertain jobs and full of risks, but they always believe that the sea always provides sustenance by holding fast to the courage in attacking the waves and not getting seasick, so undoubtedly the wealth of the sea will always provide a livelihood for them. Habitus then directs various actions of society in various classifications, one of which is through resilience which has become a norm and characteristic. This is polarized by the dynamics created in social structures and systems. Resilience itself is formed from long-lasting uncertainty and encourages individuals to carry out appropriate adaptation processes so that they can survive for life in the present and sustainability in the future [18]. The meaning of resilience includes the process of adaptation accompanied by the ability to rise from various bad experiences. Resilience is not only needed in individual aspects but in societies with various backgrounds, Resilience also plays a role in creating community resilience [19]. In Bourdieu's concept, Habitus consists of three elements, namely habitus as the actor's knowledge, habitus as the process of interaction and habitus as disposition. These three elements then produce a number of forms of habitus that adjust to which the habit is born and instilled in the arena [18].

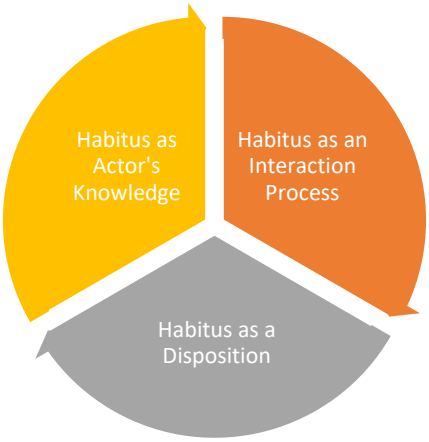

Figure 2. Habitus Dimension of Pierre Bourdieu

Through adaptation and classification produced by the habits of the fishing community in Pasongsongan Village, the habitus is divided into three parts along with the resilience aspects that follow, including the first is the concept of habitus as the knowledge of actors which then produces resilience as recorvery (elements of resilience in the aspects of resilience and recovery). Habitus as an actor's knowledge has a very important role as an intermediary between the individual and the social reality that exists through actions reflected in daily life [10]. Based on this concept, actors who play a role in carrying out social actions through experience then produce resilience of recorvery as one of the strengths used to help individuals rise and recover from the downturn that hits [20]. Habitus as the actor's knowledge as an aspect of resilience of recovery is then divided into three parts according to the habits of Pasongsongan fishermen, including habitus in

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the culture of rokat tase', the culture of nyabis, and nyonson.

Rokat Tase' is one of the views of the Madurese people who have a direct relationship or relationship with the universe system. Rokat Tase' is a traditional ceremony that is generally carried out by coastal communities or fishermen in the area, as a form of maintaining peace and asking for safety while carrying out activities and activities to go to sea. Rokat Tase' is also interpreted as a form of gratitude to God for all the abundance and blessings that have been received while carrying out the profession as a fisherman. Rokat Tase' has the basic sentence of ruwat, which is to take care of and maintain the gift of the Power. ***Nyonson*** is one of the elements of local wealth that is still maintained and preserved today. Nyonson has a meaning as a custom to put incense and offerings on Friday night, as a symbol to pay homage to the Ancestors who are considered protectors in the context of the journey to the sea. According to the belief of the Pasongsongan Community, when they give offerings to the Ancestors, the offering in physical form should not be taken back until it disappears in the wind. Nyabis is one of the activities carried out by the Madurese people for generations until it is inherited in the habits of the current era. ***Nyabis*** is an activity to visit the kyai house which is trusted and respected by the local fishing community. According to the perspective of the Madura Society, Kyai is a good individual figure to be used as an example in directing, leading, and giving advice in carrying out daily life. The fishing community does nyabis when they are going to go to sea, asking for blessings and advice from Kyai [21]

> *"Yes, the T-junction is the junction of the intersection, at the pier. Maybe for safety purposes because it is believed that there are waiters. Here, there are a lot of these, especially for example, Friday mornings, morning walks around the night, on Fridays, there are many who usually take it," (interview with UPT Pasongsongan employees, October 2024).*

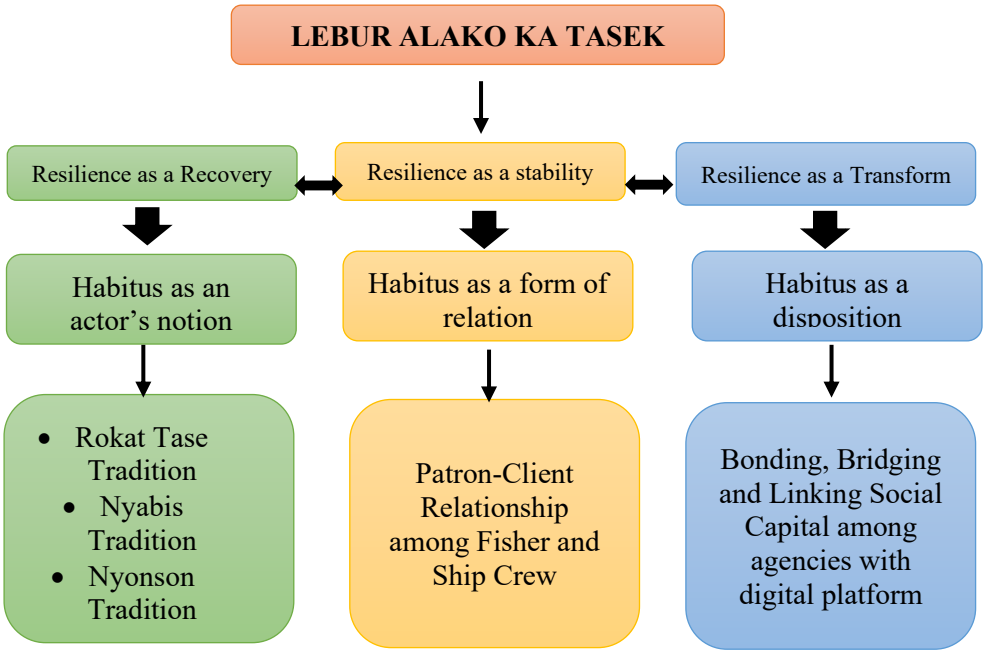

Figure 3. Mode of Lebur Alako Ka Tasek Resilience

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After going through the process of forming the habitus component as the actor's knowledge and habitus as an interaction, then an element of habitus is formed as a disposition that brings transformation towards change through action [22]. Habitus as a disposition interprets a habit acquired from individuals towards the social environment they create, thus influencing their responses and ways of thinking and acting. The Individual Role will then present similar actions according to the reflection they receive. Through the reflection of the results of these actions, it will then provide how understanding is created through actions and thoughts.

> *"The ship is more to know this, sir, to detect more if there is an accident, it is connected, the last point is directly connected to them" (Wawacara of UPT Pasongsongan Employees, October 2024).*

A disposition that is created sustainably through resilience in social transformation, based on the emergence of concepts, regeneration, renewal and sustainability in certain elements and various aspects [9]. Habitus through the transformation component is adapted through the aspect of facilities that each fisherman gets when going to sea. In the past until a few years ago, fishermen could freely sail until they found unsafe risks such as accidents and loss of contact with fellow fishermen. As one of the efforts to maintain the welfare and ensure the safety of fishermen while carrying out their activities, the government has created a new innovation called SI-KAPAL. The SI-KAPAL application is a digital platform used to record the navigation tracks of fishermen, as well as make it easier to find the location point of fishermen when an accident occurs in the middle of the sea.

Bonding, Linking, And Bridging Social Capital Agency of Sumenep Government and Fisher Community in Digital Era

Linking social capital, on the other hand, refers to the vertical relationships that Pasongsongan fishermen build with influential actors outside the community, such as local governments, fisheries agencies, and universities. This collaboration is manifested, for example, in the Ship Information System (SI-KAPAL) distribution program developed by the Ministry of Maritime Affairs and Fisheries to facilitate navigation and mapping of fishing areas. Access to this technology not only reduces the risk of going to sea in adverse weather conditions, but also improves time and fuel efficiency.

A study of IOP Conference Series claimed [23] that fishermen's connection with formal institutions accelerates the technology transfer process and improves the safety of fishing operations. This bridging and linking relationship also have a critical trust dimension. Interview data shows that fishermen are more receptive to new technologies if they are introduced by a party they trust, such as fisheries extension workers who have been accompanying them for a long time or local community leaders. This is in accordance with the findings [24] underline that the success of technological innovation in the fisheries sector is highly dependent on the quality of social relations between technology developers and end users. This trust forms a bridge that facilitates the integration of innovation in daily practice. In addition to technology transfer, bridging and linking social capital also open access to wider sources of financing. Some fishermen report that through this network they can access capital loans from low-interest government programs, which were previously difficult to reach due to limited information and administrative requirements.

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Local institutions, such as fishermen's groups and cooperatives, serve as centers for coordination and resource management. Through this group, fishermen get access to environmentally friendly fishing technique training, marine safety training, and administrative support to obtain government assistance. Interviews show that fishermen's groups in Pasongsongan serve as hubs that connect fishermen with external institutions such as the Fisheries Service, NGOs, and universities. In the context of Southeast Asia confirms that the existence of effective local institutions strengthens adaptive capacity because it is able to integrate scientific information and local knowledge in decision-making [1]. The local knowledge of Pasongsongan fishermen is the third pillar of adaptive capacity. Senior fishermen still retain the skills to read natural signs such as wind direction, cloud patterns, and marine animal behavior that are used to predict weather conditions and potential catch locations. This knowledge is not only inherited orally, but also practiced directly by the younger generation through involvement in seagoing activities.

The combination of local and scientific knowledge results in a more effective adaptation strategy than using one approach separately. Adaptive capacity is also strengthened by the flexibility of livelihoods. During the famine season, some fishermen turn to alternative economic activities such as seafood processing, small trade, or ship repair services. This diversification reduces their dependence on a single source of income and enhances their ability to recover from economic shocks [25]. The livelihood diversification is a vital component of the adaptive capacity of coastal communities. With a combination of adequate physical assets, responsive institutional support, and preserved local knowledge, Pasongsongan fishermen show high adaptive capacity. However, challenges remain, especially related to equitable access to technology among the older and younger generations, as well as the improvement of digital skills to take advantage of online market opportunities. Policy interventions that focus on strengthening local institutions, improving access to technology, and preserving traditional knowledge will be key to sustaining and enhancing this adaptive capacity in the future [26].

CONCLUSION

This research succeeded in collecting in-depth and comprehensive research results in the form of identifying aspects of vulnerability and Social and Cultural Resilience of the Fishing Community of Pasongsongan Village, Sumenep Regency in Digital Era where climate change which is so volatile then brings a disruption of habitus in the social system of the fishing community, so that the fishing community becomes a vulnerable entity that requires resource optimization in digital era. Social capital in the realm of habitus is an element of strength formation in an effort to fight the condition of vulnerability which is then conceptualized as a means of forming resilience. The resilience constructed by the fishing community then forms a new habitus which forms cultural traditions that are maintained and sustainable. Through the trinity of the Nyabis Tradition, Rokat tase', and Nyonson's habits, he was able to maintain the cultural spirit of the community to always maintain a maritime identity with the life principle of "*Lebur Alako Ka Tasek*" which then became a form of resilience as recovery. In addition, the relationship between the fishing community and local traders (Pel-Pel) forms strong patrons and clients during the famine season to become resilience as a stability that maintains the balance of fishermen's economic power. Then the Fishermen's institutional agency with the UPT PPP Pasongsongan and the Regional Government, in this case the Sumenep Regency Fisheries Service

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in providing training and resource development and economic support even providing a digital platform called SI-Kapal which help fisher in facing uncertain seas and as a transformation that is able to strengthen the social order of the fishing community in the face of climate change.

ACKNOWLEDGEMENTS

Thank you to the Lembaga Penelitian dan Pengabdian Masyarakat (LPPM) of Trunojoyo University Madura for providing funding to support this research. In Addition, for all students who had been completed research assistants, lecturers, colleagues as members of research, and also all government agencies who have assisted in the research licensing process. The last but not least, all the Leaders and Staff at UPT PPP Pasongsongan and the Pasongsongan Fishing Community who are willing to be resource persons.

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