Integration of Cultural Values and Local Knowledge as Community Resilience Capital on Kaledupa Island, Wakatobi

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Abstract. This study aims to analyze the forms of cultural values and local knowledge of Kaledupa community, as well as their roles in socio-economic life and environmental management, by integrating these elements into the framework of community resilience theory. Using a qualitative-descriptive approach through observation, in-depth interviews, and document analysis, the research finds that cultural values such as pomae-mae and siyasa constitute social capital that strengthens solidarity, mutual cooperation, and the community's safety net. Meanwhile, local knowledge regarding fishing seasons, wind directions, current patterns, and natural indicators functions as ecological capital that shapes livelihood strategies, reduces economic risks, and enhances the effectiveness of fishing activities. In environmental management, customary institutions serve as self-governing entities that establish rules for marine resource use, resolve conflicts, and maintain ecosystem sustainability. The findings show that cultural values and local knowledge are integrated within four dimensions of community resilience: adaptive capacity, social capacity, organizational capacity, and knowledge capital. These dimensions explain how the Kaledupa community anticipates change, responds to socio-ecological pressures, and sustains their livelihoods. This research emphasizes that cultural values and local knowledge are not merely cultural heritage but constitute the strategic foundation of coastal community resilience in facing environmental dynamics and socio-economic challenges.
Keyword: community resilience, local knowledge, cultural values, kaledupa.

1 Introduction

Communities in various regions of Indonesia possess local knowledge systems that have been passed down across generations. This knowledge encompasses understanding of natural phenomena, environmental signs, adaptation techniques, and socio-cultural ethics that maintain the relationship between humans and the environment. Amidst increasing disaster intensity and climate change, local knowledge is once again under scrutiny as both social and ecological capital for community resilience [1].

Community resilience depends not only on infrastructure but also on a community's ability to predict, respond, adapt, and recover from threats [2]. Therefore, examining the relationship between community resilience and local knowledge systems is crucial for strengthening community-based disaster risk reduction.

Kaledupa Island in Wakatobi Regency is inhabited by coastal communities, including the Bajo ethnic group and local subgroups, who have strong cultural practices, rituals, and forms of traditional knowledge related to marine management, seasonal calendars, and social rules governing resource utilization [3].

These socio-cultural conditions provide crucial capital in addressing environmental pressures such as climate change, sea level rise, and extreme events, such as storms, high tides, etc [4]. Local studies show that traditional practices and local wisdom in Wakatobi have been used in coastal resource management and community-based tourism development, and can strengthen community resilience when integrated with scientific approaches and public policy [5]. Discuss the incorporation of local knowledge into coastal policy innovation, demonstrating collaborative

L. R. Sugiarti et al. (eds.), *Proceedings of the 2nd International Conference on Social Environment Diversity (ICOSEND 2025)*, Advances in Social Science, Education and Humanities Research 1011,
https://doi.org/10.2991/978-2-38476-565-2_30

methods and knowledge co-production processes between scientists, policymakers, and local residents, which serve as a framework for participatory integration processes [6].

The need to understand how cultural valuesand local knowledge can be integrated into community resilience strategies is relevant because: (1) local knowledge is often more responsive to local contexts, (2) the loss of traditional knowledge transmission risks weakening a community's adaptive capacity, and (3) culturally insensitive policy interventions have the potential to generate social resistance. Findings from a case study of conservation areas and Nature-Based Solutions-based policies in Wakatobi also emphasize the need to incorporate community perspectives into adaptation planning.

A study of the implementation of the Tamburu Barata tradition in the Kaledupa community documents the stages of implementation of the Tamburu Barata Kahedupa tradition in the Kaledupa community [7]. This study demonstrates the role of rituals and cultural norms in strengthening social cohesion and the transmission of community values. These findings support the argument that local ritual practices serve as social mechanisms for maintaining solidarity and transferring knowledge between generations [8].

A report/assessment of Nature-based Solutions (NBS) and Wakatobi policies by conservation organizations (YKAN/TNC and partners) shows that an ecosystem-based approach, as part of NBS, can enhance coastal resilience in Wakatobi if designed in collaboration with local communities and respecting traditional management practices. This report provides policy evidence that integrating local knowledge into NBS planning increases effectiveness and social acceptance.

Highlight local-level resilience governance, participatory techniques (e.g., participatory mapping) for capturing local knowledge about flood hazards, and addressing tensions between scientific knowledge and local practices, providing guidance on how to design negotiation and compromise processes among actors [9].

These references help frame participatory methodologies and adaptive policies that can be applied in Kaledupa, with contextual adjustments to local norms and social structures.

Research gaps can be identified, including: (a) A lack of documented empirical studies that systematically map the transmission mechanisms of Kaledupa-specific local knowledge, such as how rituals like the tamburu contain adaptive information related to natural signs or resource management rules. Although descriptive studies exist, analyses of the adaptive function of knowledge in the context of DRR are lacking in depth. (b) There are few integrative models that empirically test how local knowledge can be combined with scientific early warning systems (NBS) in Kaledupa; most recommendations are still normative/conceptual. The NBS report recommends collaboration, but evidence of implementation and evaluation of its socio-ecological impacts at the Kaledupa community level is relatively limited. (c) There is a need for process-oriented research on how negotiations between local actors (traditional leaders, fishermen, women, youth) and external actors (NGOs, government, researchers) take place. German literature emphasizes that resilience management requires process research to manage the tension between scientific and local knowledge. This has not been widely explored in the context of Kaledupa Island. (d) Therefore, this research will fill this gap with an approach that emphasizes the documentation of the adaptive function of Kaledupa local knowledge and the development of a participatory integration model that can be tested empirically.

Based on the above background, the focus and objectives of this research are: (a) The Forms of Cultural Values and Local Knowledge of the Kaledupa Community. (b) The Role of Cultural Values and Local Knowledge in Socio-Economic Life. (c) The Role of Cultural Values and Local Knowledge in Environmental Management in Kaledupa. (d) Integration with Community Resilience Theory.

Theoretically, the results of this research can be useful in adding to the literature on the relationship between cultural values, local knowledge, and community resilience in the context of small islands in Indonesia. Furthermore, practically, this research is useful in providing recommendations for local policymakers, including the Wakatobi Regional Government, conservation NGOs, and community actors in designing DRR interventions and culturally sensitive sustainable development programs. Furthermore, the results of this research can serve as the basis for developing local knowledge preservation modules and traditional wisdom transmission programs in schools and local communities.

2 Method

The approach used was a qualitative interpretive approach [10]. Data collection techniques included in-depth interviews with traditional leaders, fishermen, religious leaders, and ritual organizers; Focus Group Discussions (FGDs) with women's and youth groups; participant observation; participatory mapping to map local knowledge about hazards and utilization zones; and documentary studies. Data analysis used Thematic Coding to identify the adaptive

functions of local wisdom, and actor network analysis to understand inheritance mechanisms and potential integration between local actors and external institutions [11].

3 Result and Discussion

3.1 Forms of Cultural Values and Local Knowledge of the Kaledupa Community

Customary Value System as the Foundation of Community Life. These cultural values are passed down orally through traditional rituals, village deliberations, and the role of traditional leaders. Research by Clifton & Majors shows that in several villages in Kaledupa, customary rules determine fishing zones, types of fishing gear, and harvest times for marine life [12]. In an interview with a traditional leader, he stated that customary rules prohibit catching kaso fish during certain full moons because they are considered spawning periods. This aligns with Berkes' concept of Traditional Ecological Knowledge (TEK), which states that customary values are part of ecological knowledge integrated with cultural identity [13].

Local Ecological Knowledge. The Kaledupa community possesses in-depth ecological knowledge of ocean dynamics and seasonal changes, which impact their daily activities, particularly in the fishing sector. This local knowledge includes the ability to recognize wind direction, particularly easterly winds prevailing from May to September and westerly winds dominant from December to March, each of which has different consequences for wave height and risk levels at sea. Furthermore, the community understands the spawning seasons of small and large pelagic fish, allowing fishing activities to be adjusted to these ecological cycles [14]. Other crucial knowledge includes understanding current patterns in the Kaledupa Strait, variations in sea surface temperature, and the locations of traditional fishing grounds passed down through generations. Furthermore, natural signs such as changes in seawater color, cloud formations, and star positions are used as indicators of weather conditions and navigational directions [15]. Empirical data obtained through interviews with fishermen in Sombano and Horuo showed that local fishing communities were able to identify between six and eight natural signs to predict potential bad weather. For example, they identified clouds that appeared "thicker than usual" as a sign of strong winds, and waves that formed a specific pattern known as kacimuk, which was considered an indication of an approaching storm or high waves. This local knowledge system not only serves to ensure their safety at sea but also impacts economic efficiency, as fishermen can determine the best fishing times and locations to maximize catches and minimize the risk of loss [16].

Mutual Cooperation and Communal Solidarity. The practice of siyasa (community service) in the lives of the Kaledupa community is evident in various collective activities that emphasize a spirit of togetherness and social cooperation. This tradition is evident, for example, in the mutual cooperation (gotong royong) of housebuilding, where residents help each other without compensation to ensure each family has a decent place to live [17]. The same value of togetherness is also reflected in the creation of sero (bala), a process that involves the participation of many people, from the collection of bamboo and wood to the assembly stage, requiring collective skills and labor [18]. Furthermore, during seaweed harvesting, communities work in groups to expedite the lifting, drying, and packaging processes, simultaneously strengthening economic solidarity between families. The practice of Pohamba-hamba is also present in various cultural rituals such as karia'a and posuo, which bind residents together in a shared sense of value, identity, and social structure [19]. All of these practices form strong social capital and serve as a crucial element of community resilience, strengthening the community's ability to support each other, reducing vulnerability, and increasing collective capacity to cope with social change and environmental pressures.

3.2 The Role of Cultural Values and Local Knowledge in Socio-Economic Life

Cultural Capital as the Basis for Livelihood Strategies. Ellis states that the livelihoods of rural communities are highly dependent on the social and cultural capital inherent within the community. Social capital, in the form of cooperative networks, trust, and shared norms, plays a crucial role in maintaining economic stability, while cultural capital encompasses local knowledge, traditions, and values that guide community adaptation patterns to environmental changes [20]. This framework is highly relevant for understanding the dynamics of the lives of the Kaledupa Island community, most of whom depend on fishing and other coastal activities for their livelihoods. In Kaledupa, local knowledge about fishing seasons is one of the most crucial cultural assets for the community's survival. This knowledge influences various aspects of fishing activities, from choosing the time to go to sea, the

type of fishing gear used, to the fishing locations considered most productive based on seasonal changes and sea conditions. This knowledge even influences decisions about when to sell seafood, as the community understands market demand patterns influenced by seasonal fish availability [21]. Thus, traditional ecological knowledge serves not only as a technical guideline but also as a strategic economic instrument. Empirical data shows that this pattern is not unique to Kaledupa, but also to Indonesian coastal communities in general. A study by Rahayu and Satria found that 78% of fishers in various coastal areas in Indonesia use traditional ecological knowledge as a basis for adaptation in their fishing activities. This knowledge helps them assess risks, read natural signs, and determine strategies to increase catches. This finding strengthens the argument that local knowledge is an integral part of coastal communities' livelihood systems. The local context of Kaledupa also emphasizes the importance of traditional knowledge in fishing activities. A small survey of 32 fishermen conducted found that 90% of respondents began their fishing activities based on wind direction and the phase of the moon. This indicates that ecological orientation remains a key element in decision-making. This knowledge has been shown to reduce economic risks, such as losses due to bad weather or unproductive fishing grounds, while simultaneously increasing catch productivity. Thus, the integration of cultural values and local knowledge forms a strong foundation for the economic resilience of the Kaledupa community.

3.3 Customary Rules as Regulators of Resource Access

Ostrom explains that self-governing community-based institutional structures can be referred to as self-governing institutions. These institutions are built on norms, values, and collective agreements that enable communities to sustainably manage shared resources without complete dependence on the state. This concept is highly relevant to resource management practices on Kaledupa Island, where local communities have established unwritten rules that have been consistently implemented from generation to generation [22].

In Kaledupa, customary institutions play a crucial role in regulating the use of marine resources. Customary leaders have established temporary no-take zones (seasonal closures) in certain areas to maintain fish regeneration and ecosystem health. When disputes arise over territorial waters between groups or villages, they are resolved through customary deliberation, rather than through state legal mechanisms. Furthermore, the use of destructive fishing gear such as fish bombs and tranquilizers has long been prohibited by customary institutions, long before formal state regulations were enacted [23]. This demonstrates that the Kaledupa community has a strong culturally based resource management system that aligns with modern sustainability principles.

Empirical data supports the existence of these local institutions. A study by Clifton and Majors found that at least four villages on Kaledupa Island implemented informal rules regarding coastal and marine use, including restrictions on fishing gear, seasonal fishing zones, and social sanctions for violators. These rules were not always written down, but they were enforced with a high level of compliance because they were rooted in cultural values and the legitimacy of traditional leaders. This finding reinforces Ostrom's view that local communities are capable of developing effective and adaptive resource governance systems without direct government intervention.

Local structures like these play a crucial role in community resilience. When communities have internal governance mechanisms, they are better able to respond to environmental changes, social conflict, and economic pressures. In the Kaledupa context, customary institutions not only maintain ecological sustainability but also strengthen social cohesion and a sense of shared ownership of resources. Thus, the sustainability of marine management practices in this region rests not only on ecological knowledge but also on the cultural values and social legitimacy that underpin customary institutions, limiting coral reef exploitation.

3.4 Social Solidarity as an Economic Safety Net

Cultural valuessuch as Pohamba-hamba (mutual assistance) and heala (collective cooperation) play a crucial role in strengthening the social safety net of the Kaledupa community. These two valuesguide daily life, especially when the community faces economic pressures or environmental changes [24]. In the context of coastal life, where livelihoods depend on unstable natural conditions, culturally based solidarity is crucial social capital.

One concrete manifestation of these valuesis seen when families experiencing seaweed crop failure receive assistance from other families. This assistance can take the form of seeds, labor, or temporary economic support. These actions are not only an expression of caring but also a collective mechanism to ensure that no family falls into extreme vulnerability. In many cases, assistance is provided voluntarily without any obligation to return, as the community believes that solidarity is part of the moral obligation among community members [25].

Furthermore, many economic activities in Kaledupa are carried out in small groups that function like informal cooperatives. These groups typically consist of families or close relatives who trust each other and collaborate in the production and marketing of seafood. This pattern of economic organization strengthens the community's ability to share risks, reduce operational costs, and increase access to capital. Under certain circumstances, these groups also serve as a forum for sharing information about weather, market prices, or more efficient cultivation techniques.

This finding aligns with research, which shows that social solidarity is positively correlated with the economic resilience of coastal communities. When communities have strong social support networks, they are better able to cope with ecological changes, price fluctuations, or production failures. This research confirms that cultural valuesare not only elements of identity but also strategic factors that underpin long-term community resilience.

3.5 The Role of Cultural Values and Local Knowledge in Environmental Management in Kaledupa

Custom-Based Conservation. The customary rules enforced by the Kaledupa community play a crucial role in maintaining the sustainability of marine resources. One example is the prohibition on harvesting sea cucumbers during certain seasons, which aims to protect marine biota populations from overexploitation. This practice reflects ecological understanding passed down through generations and illustrates how local communities integrate cultural valueswith natural resource management. These rules are generally enforced through mutual agreement and social oversight, so compliance is not only formal but also moral [23].

Custom-based management practices in Kaledupa align with the findings of Johannes, who explained that coastal communities in Southeast Asia consistently apply traditional rules that have proven effective in conserving marine resources. According to Johannes, customary systems such as temporary fishing area closures, fishing gear restrictions, and seasonal harvest bans are forms of Traditional Ecological Knowledge that function as long-term conservation mechanisms [24]. In other words, local communities have long been implementing sustainability principles long before the concept became a focus in modern government policy.

Empirical data from Kaledupa Island also demonstrates the strong role of custom in resource management. In Mantigola Village, for example, an informant stated that "fishermen are prohibited from taking more than three he'e (clams) per day." This rule is unwritten, but it has been implemented for generations and is adhered to by most fishermen as a form of responsibility to nature. This restriction directly helps maintain the clam population, which is a marine biota vulnerable to fishing pressure and habitat degradation.

Through these practices, it is clear that cultural values and customary rules function not only as a social system but also as a strategic ecological instrument. The integration of local knowledge and resource management enables the Kaledupa community to maintain a balance between economic needs and environmental sustainability, thereby strengthening the ecological and social resilience of the community as a whole.

Natural Indicators as a Local Mitigation System. The Kaledupa community possesses the ability to read natural signs, which serve as a traditional early warning system to avoid ecological hazards [25]. This ability is the result of accumulated knowledge passed down through generations and is a crucial part of their adaptation strategies to the dynamics of the marine environment. In the context of coastal life, weather changes such as high waves, strong winds, or storms can pose significant risks to the safety of fishermen. Therefore, the ability to recognize natural signs is a vital skill that determines their decision to go to sea or stay on land.

An empirical example that reinforces this is found in the fishing community of Horuo, where they routinely observe changes in cloud color, or the "tombulu-mata" phenomenon, as a natural indicator of an approaching storm. According to the fishermen, these changes signal that bad weather is likely to occur within the next six to twelve hours. By relying on these signs, they can adjust their departure times, choose safer sailing routes, or even postpone fishing activities altogether. This demonstrates that local knowledge systems serve not only as technical guidelines but also as safety navigation tools.

The ability to read natural signs is a concrete manifestation of community-based ecological resilience, where people use information embedded in tradition to respond quickly and effectively to environmental threats. This resilience is formed not only through individual experience but also through the collective process of discussing, teaching, and updating this knowledge from generation to generation. Thus, local ecological knowledge plays a

crucial role in strengthening the Kaledupa community's adaptive capacity to climate change and the risk of marine disasters.

3.6 The Role of Traditional Leaders in Environmental Governance

In the Kaledupa social structure, the traditional leader plays a central role in maintaining the balance between customary rules, environmental sustainability, and social harmony. He or she serves as a supervisor of customary rules, ensuring that all provisions regarding the use of marine space, seasonal prohibitions, and traditional territorial boundaries are consistently implemented by all community members [26]. This oversight is not coercive in nature, but rather relies on social legitimacy and community trust in the moral authority of the traditional leader.

In addition, customary leaders also act as mediators in environmental conflicts. Disputes over maritime boundaries, seaweed farming locations, or access to fishing grounds are often resolved through customary deliberation mechanisms. In this process, customary leaders act as mediators, ensuring fair decisions are made without disrupting social solidarity between groups. This customary conflict resolution has proven more effective in local communities, as it prioritizes long-term harmony and avoids tensions that could undermine community cohesion.

Another important role is as deliberative-based ecological decision-makers. Decisions regarding fishing area closures, gear restrictions, or the establishment of conservation zones are generally made through customary meetings involving community leaders and fisher representatives. This deliberative process allows for collective decisions on ecological regulations, resulting in higher levels of community compliance.

These functions align with the principles of adaptive governance described by van der Brugge and colleagues, namely governance that is flexible, responsive, and based on collaboration between various local actors. In this concept, local institutions are considered capable of adapting to environmental changes through social learning, dialogue, and collective decision-making. The customary leadership structure in Kaledupa demonstrates that traditional mechanisms can function as an effective form of adaptive governance, as they combine local ecological knowledge, cultural value systems, and community oversight within a single, sustainable governance framework.

3.7 Integration with Community Resilience Theory

Community resilience theory provides a framework for understanding how a community can survive and thrive despite facing various stresses or shocks. From this perspective, resilience is not simply understood as a passive ability to cope, but as a dynamic capacity that develops through ongoing social, cultural, and institutional processes within a community. Weichselgartner and Kelman emphasize that community resilience encompasses the collective capacity to anticipate, respond to, adapt to, and recover from social, economic, and ecological disruptions [27].

First, anticipatory capacity refers to a community's actions in predicting and preparing for potential threats. This can take the form of local knowledge of natural hazards, historical experience with disasters, or customary rules that protect resources from over exploitation. Communities with strong anticipatory capacity tend to be able to reduce vulnerability early on before a threat actually occurs.

Second, the ability to respond involves taking swift and appropriate action when faced with shocks. In the context of coastal communities like Kaledupa, responses can include adjusting fishing activities, sharing resources between families, or holding customary meetings to resolve conflicts caused by environmental stress. Effective responses minimize the direct impact of shocks on people's daily lives.

Third, adaptability reflects a community's flexibility in adjusting livelihood strategies, governance, or social interaction patterns to reflect changes. Adaptation can mean changing fishing gear, altering planting or harvesting patterns, or updating customary rules to accommodate new environmental conditions. Such adaptations strengthen a community's capacity to remain resilient in the long term.

Fourth, recovery capacity refers to the process by which a community returns to its original state or even achieves a better one after experiencing a disturbance. Recovery encompasses not only physical or economic aspects, but also social recovery, such as strengthening solidarity networks, collective norms, and local knowledge systems that were previously impacted.

Thus, community resilience theory describes resilience as a continuous process involving the integration of local knowledge, cultural values, social practices, and institutional structures. This perspective is highly relevant to understanding how communities like Kaledupa are able to maintain their sustainability amidst constantly changing socio-ecological dynamics .

Integration in the context of Kaledupa:

1) Adaptive Capacity

The adaptive capacity of the Kaledupa coastal community is evident in their ability to read and interpret natural signs passed down through generations. This local ecological knowledge, ranging from changes in wind direction, current patterns, seawater turbidity, to the behavior of certain fish, forms the basis for decision-making in fishing activities. The community not only relies on modern information but also combines it with local wisdom passed down across generations. This ability to read natural signs allows them to adapt their activities to rapidly changing environmental dynamics, particularly in the face of extreme weather or seasonal shifts.

Furthermore, adaptive capacity is also reflected in the community's ability to change fishing techniques seasonally and diversify their economy. During certain seasons, they switch from nets to rods, or from traps to arrows, to maintain a stable catch. When sea conditions are unfavorable, some communities utilize seaweed cultivation as an alternative source of income, thereby mitigating economic risks. This diversification strengthens community resilience, as they are not dependent on a single source of livelihood. The combination of technical flexibility, economic innovation, and utilization of local resources strengthens their adaptive capacity in the face of environmental changes and socio-economic pressures.

2) Social Capacity

A community's social capacity is reflected in the strong valuesof togetherness that are consistently maintained in daily life. The value of mutual assistance forms the basis for various collective activities, from helping damaged boats and repairing public facilities to collaborating on fishing trips. This practice of mutual assistance not only speeds up work but also strengthens a sense of belonging and bonding among community members. In the face of social and ecological pressures, mutual assistance serves as social capital, enabling communities to survive through mutual support.

Furthermore, the community's social capacity is strengthened by solidarity and the existence of respected customary structures. Social solidarity is evident in the habit of sharing information about the weather, fishing locations, or potential risks at sea, ensuring that every community member feels safe and connected. Meanwhile, customary structures serve as regulators of social life, maintain norms, and serve as a source of conflict resolution. Stable customary leadership ensures that decisions are made collectively and take into account socio-ecological balance. Thus, the combination of solidarity and strong customary systems forms the foundation of social capacity that maintains the resilience of the community as a whole.

3) Organizational Capacity

Organizational capacity in coastal communities is evident in the functioning of various local institutions that manage social, economic, and ecological activities. Customary institutions play a primary role in regulating norms and rules related to the use of natural resources, including establishing prohibitions, sanctions, and managing marine space based on tradition. Fishermen's groups, on the other hand, serve as a forum for coordinating fishing activities, sharing information on marine conditions, and regulating the division of fishing areas to prevent conflict among members. Furthermore, seaweed groups play a crucial role in organizing production, determining harvest schedules, and cooperating in marketing cultivated products. The presence of this organizational structure demonstrates that the community has a structured internal mechanism for self-regulation, collective decision-making, and responding to various environmental changes and emerging economic dynamics.

4) Knowledge Capital

Knowledge capital in the Kaledupa community is reflected in the strong local knowledge passed down across generations and serves as both ecological and adaptive capital. This knowledge enables the community to understand natural signs, recognize the dynamics of coastal ecosystems, and adapt their livelihood strategies to increasingly rapid environmental changes. Thus, local knowledge is not merely seen as a cultural aspect but as a foundation that supports community resilience. It functions as an internal mechanism that helps the community anticipate risks, respond to change, and maintain socio-economic sustainability amidst ecological shocks. This knowledge enables the Kaledupa community to survive and continuously adapt to a constantly changing environment.

4 Conclusion

This study concludes that the cultural valuesand local knowledge of the Kaledupa community play a crucial role in supporting the sustainability of socio-economic life and environmental management. Cultural values such as pomae-mae and siyasa foster solidarity, mutual cooperation, and social networks that serve as the basis for

strengthening relationships between families and groups within the community. Meanwhile, local knowledge regarding fishing seasons, wind direction, natural signs, and current patterns provides ecological capital actively utilized in determining fishing strategies, selecting fishing gear, managing seaweed, and mitigating economic risks. In the context of environmental management, customary institutions function as self-governing institutions that establish regulations for marine use, regulate fishing seasons, and resolve territorial conflicts through deliberation. This system contributes to the sustainability of coastal ecosystems and maintains a balance between utilization and conservation. The findings of this study also indicate that cultural valuesand local knowledge are integral elements of the theory of community resilience. Its four dimensions adaptive capacity, social capacity, organizational capacity, and knowledge capital are evident in how the Kaledupa community anticipates environmental change, regulates economic activities, maintains social cohesion, and recovers from socio-ecological stress. Overall, cultural valuesand local knowledge are not only a cultural identity but also serve as the foundation for the resilience and sustainability of the Kaledupa community in the face of social, economic, and environmental change.

Acknowledgments

The authors would like to express their sincere gratitude to the Faculty of Teacher Training and Education, Universitas Muhammadiyah Buton, for the institutional support provided in conducting this research. The authors also extend their appreciation to the traditional leaders, fishermen, women's groups, youth participants, and community members of Kaledupa Island who generously shared their knowledge, experiences, and cultural insights, which were essential to the completion of this study.

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