







Bau Nyale Tradition: Local Wisdom in Addressing the Impact of Climate Change in Lombok Sea

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ABSTRACT

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Bau Nyale, local wisdom, environmental preservation, climate change, marine ecosystem

The Bau Nyale tradition, practiced by coastal communities in Lombok, West Nusa Tenggara, revolves around the search for sea worms, symbolizing blessings and good fortune. This study aims to 1) identify the behavior of the Kuta village community in the Bau Nyale tradition to address climate change impacts, and 2) analyze the tradition's role in mitigating these impacts, especially on the marine ecosystem in Lombok. Using a qualitative approach, data collection methods included in-depth interviews, direct observation, and documentation in Sukarara Village, Central Lombok. Data analysis was conducted using NVIVO 12 plus. The findings show that Bau Nyale is not only a cultural ritual but also an environmental adaptation mechanism. It contributes to maintaining marine ecosystem balance through sustainable practices and raises public awareness about environmental conservation and climate change threats. The tradition has significant potential to be integrated with modern scientific approaches, offering a sustainable and resilient strategy for natural resource management in the face of climate change.

1. INTRODUCTION

Climate change is one of the greatest challenges facing humanity today. Its impacts are widespread and affect various aspects of life around the world, including economic, health, and social. The continued rise in global temperatures has led to an increase in the frequency and intensity of natural disasters, such as floods, droughts, and tropical cyclones. In addition, changes in unpredictable weather patterns threaten food security and the availability of water resources, especially in areas that depend on agriculture as their main livelihood [1]. Coastal areas are among the areas most vulnerable to the impacts of climate change. Climate change is worsening environmental conditions, such as rising sea levels and ocean acidification, which can threaten marine ecosystems and the lives of the people who depend on them. In Indonesia, for example, many coastal communities face threats to their biodiversity and are at risk of losing their livelihoods due to damage to marine ecosystems [2]. This issue is very important, considering that Indonesia is an archipelagic country with thousands of islands and a long coastline.

In this context, the sustainability of natural resources and environmental preservation are issues that require serious attention. Mitigation and adaptation efforts to climate change must be carried out in an integrated manner to maintain environmental sustainability and support people's lives, especially in developing countries. Success in facing this challenge depends not only on government policies, but also involves the active participation of local communities in

maintaining and managing the natural resources they have [2]. With a collaborative approach and based on local wisdom, it is hoped that sustainable solutions can be created in dealing with the impacts of climate change.

The Bau Nyale tradition is a form of local wisdom that has developed in the coastal communities of Lombok, West Nusa Tenggara (NTB), for centuries. This tradition involves the ritual of searching for and collecting Nyale sea worms, which are considered to bring blessings and good fortune to the community. Nyale appears only once a year, generally between February and March, and its presence is welcomed with various activities involving the wider community. Culturally, Bau Nyale is a symbol of harmony between humans and nature, where local people believe that preserving the environment is the main requirement for receiving blessings from nature [3].

The sustainability of this tradition has important relevance in the context of global climate change. Changes in sea water temperature, increasing acidity, and the threat of sea storms are challenges for the Lombok Sea ecosystem [1]. Meanwhile, local communities must adapt to these changes to continue their traditions and lives. According to Dorji et al. [4], adaptation based on local wisdom can be an effective solution for maintaining threatened ecosystems. In this case, the Bau Nyale tradition acts as a form of local adaptation rooted in the community's deep understanding of their environment. However, research on the role of the Bau Nyale tradition in the context of adaptation to climate change is still very limited. Previous studies have focused more on the cultural and

tourism aspects of this tradition [5], but only a few have explored the potential of this tradition in relation to mitigation or adaptation to climate change. This is an important research gap to fill, considering that the sustainability of marine ecosystems is closely related to practices. Local practices that may have been overlooked by modern scientific approaches [6].

The Bau Nyale tradition can function as an effective environmental adaptation mechanism. Local communities utilize this tradition to maintain the balance of the marine ecosystem and overcome the threats posed by climate change [7]. The potential for integration between local wisdom and modern scientific approaches in efforts to manage natural resources sustainably [8-10]. Adaptation based on local wisdom, as applied in the Bau Nyale tradition, has the advantage of being rooted in a deep understanding of the local ecosystem. Unlike modern adaptation approaches that often do not take into account social and cultural dimensions, local wisdom has been proven to function in maintaining the balance of nature through sustainable practices [11]. This is in line with the findings of a study stating that ecological and socio-cultural-based adaptation has a higher level of sustainability compared to technocratic adaptation that only relies on advanced technology [12].

The concept of community-based adaptation is increasingly recognized by various parties as an effective solution in dealing with the impacts of climate change [13]. The Bau Nyale tradition can be a concrete example of how local communities use knowledge passed down from generation to generation to protect their marine ecosystems from further damage [14]. This study of Bau Nyale is expected to provide a significant contribution to the literature on community-based adaptation, especially in coastal areas that are vulnerable to the impacts of climate change. Management of marine resources based on local wisdom is not only important for the people of Lombok, but is also relevant to other coastal areas facing similar challenges. Many studies have shown that effective climate change adaptation policies need to integrate local knowledge with scientific approaches to create more resilient solutions [15]. This study will try to provide recommendations on how such integration can be carried out, using the Bau Nyale tradition as a model.

As one of the regions in the world most affected by climate change, Indonesia has many examples of local wisdom that have great potential to be integrated into national policies. In this case, the Bau Nyale tradition is not only important as a cultural ritual, but also as a source of knowledge for more inclusive and community-based adaptation strategies [16, 17]. This tradition provides an example of how communities coastal communities are able to adapt to environmental changes without sacrificing their cultural identity [18]. In addition, the Bau Nyale tradition also has the potential to be developed into an environmental education program for the younger generation. With increasing awareness of the importance of environmental conservation, the involvement of the younger generation in this tradition can strengthen efforts to adapt to climate change in the future [6, 19, 20]. Education based on local practices such as Bau Nyale can provide new perspectives in understanding complex environmental issues.

From an economic perspective, the Bau Nyale tradition can also provide significant benefits for the development of sustainable tourism. This ritual has become an important tourist attraction in Lombok, and with proper management, Bau Nyale can be an example of ecosystem-based tourism that

supports environmental conservation efforts [21]. The development of this tourism can also create wider awareness of the importance of preserving the sea. By combining local and scientific knowledge, this research is expected to contribute to the sustainable management of marine resources in coastal areas [22, 23]. The challenges faced by local communities in preserving the Bau Nyale tradition amidst globalization and modernization. One of the main challenges is how to maintain the relevance of this tradition amidst rapid social and economic changes [24, 25]. This is important so that the Bau Nyale tradition remains relevant and can continue to contribute to environmental conservation in the future. The Bau Nyale tradition is an important example of how local wisdom can be used as an adaptation strategy to climate change. The sustainability of this tradition is highly dependent on the ability of the community to maintain sustainable practices that they have been doing for centuries [13]. Based on the description, the objectives of this study are 1) to identify the behavior of the Kuta village community in the Bau Nyale tradition to cope with the impacts of climate change, and 2) to analyze the role of the Bau Nyale tradition in mitigating the impacts of climate change, especially on the marine ecosystem in the Lombok Sea.

The Bau Nyale tradition has important value in supporting mitigation and adaptation efforts to climate change, especially in the coastal areas of West Nusa Tenggara. As a unique tradition of the Sasak people, Bau Nyale not only represents local cultural identity but also plays a role in preserving marine ecosystems which are vulnerable to the impacts of climate change, such as rising sea temperatures and habitat destruction. The promotion of this tradition has great significance in increasing public awareness about the importance of maintaining the balance of nature through tradition-based conservation practices. Apart from that, the Bau Nyale tradition can be a concrete example of the integration of cultural values in climate adaptation strategies, such as the use of local traditions to support sustainable ecotourism and economic diversification of coastal communities affected by climate change. In this way, Bau Nyale contributes to sustainable development while strengthening the resilience of local communities to global environmental challenges.

2. METHODOLOGY

This study uses a qualitative approach with a descriptive method, aiming to explore a deep understanding of the role of the Bau Nyale tradition in maintaining marine ecosystems amidst the threat of climate change. The location of the study was in Kuta Village, Central Lombok, West Nusa Tenggara in January-April 2024. The research location can be seen in Figure 1.

Kuta Village, which is located in Central Lombok Regency, West Nusa Tenggara, is unique geographically, socially and culturally, making it interesting and potential for research. Geographically, this village is part of the Mandalika Special Economic Zone (KEK) and is famous for its stunning beaches, such as Kuta Mandalika Beach which is a major tourist attraction. The region has rich coastal ecosystems, including coral reefs and marine habitats, which support the livelihoods of local communities but are vulnerable to the impacts of climate change, such as sea level rise and coastal erosion. Socially, the people of Kuta Village uphold the Bau Nyale

tradition, namely a cultural ritual that reflects harmony between humans and nature while fostering concern for the environment. This tradition also strengthens social solidarity amidst the dynamics of change brought about by the rapid growth of the tourism sector in the Mandalika SEZ. Culturally, Bau Nyale holds ecological and spiritual values that can be adapted into community-based environmental conservation models, such as beach clean-up initiatives. With this uniqueness, Kuta Village is an ideal research location to explore the relationship between local traditions,

environmental sustainability, and community adaptation to climate change.

The informants in the study were traditional figures, local communities (perpetrators of the Bau Nyale tradition) and community leaders. The determination of informants was done by purposive sampling. Data collection techniques in this study consisted of in-depth interviews, observation, and documentation. Distribution of Informants and Key Interview Topics Based on Data Collection Techniques can be seen Table 1.

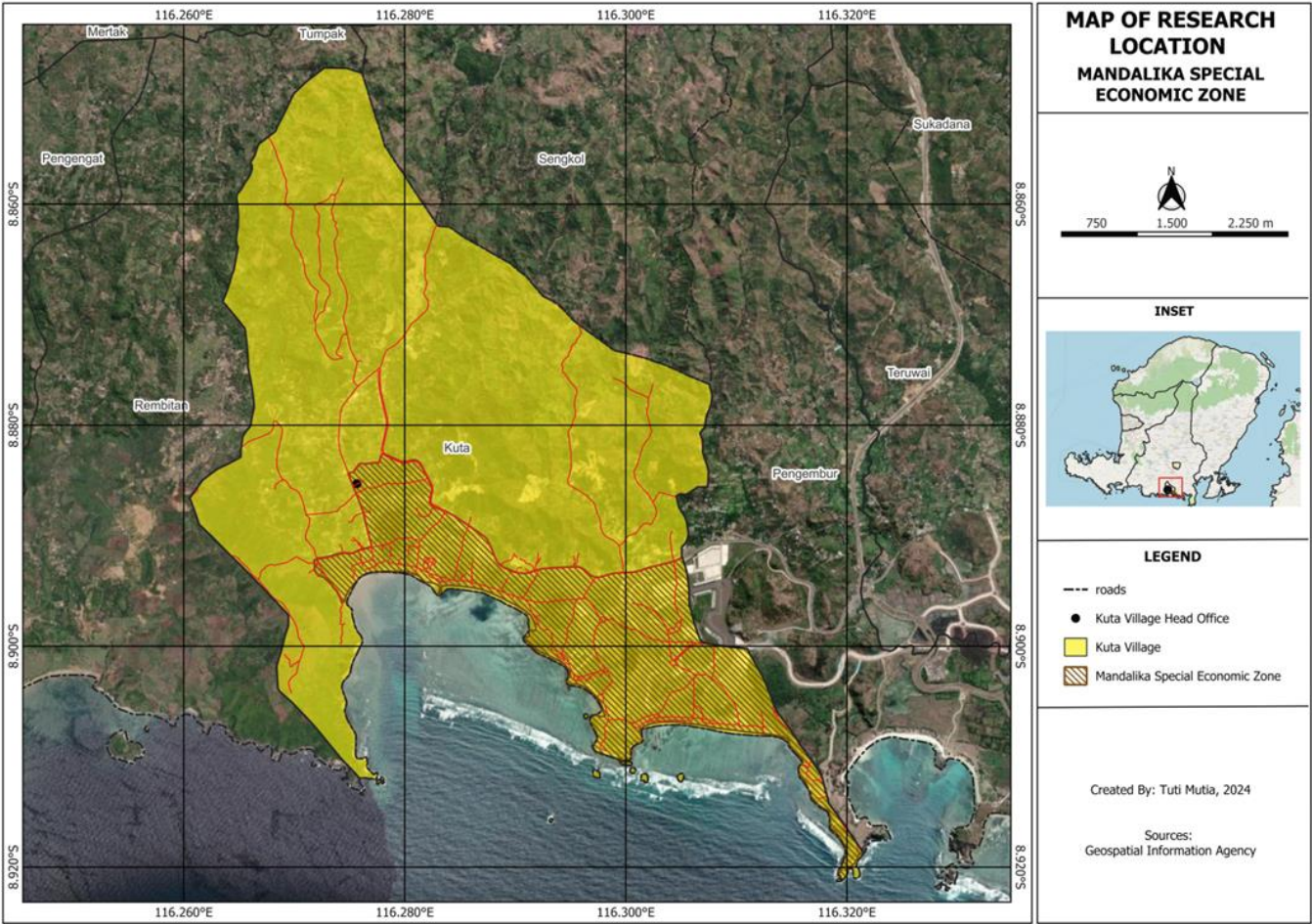


Figure 1. Location research

Table 1. Distribution of informants and key interview topics based on data collection techniques

| Informants | Role/Description | Data Collection Technique | Key Interview Topics |
|-----------------------|--|--|---|
| Traditional Leaders | The guardian of the Bau Nyale tradition, provides insight into cultural and ecological values. | In-depth Interview: Semi-structured interviews to explore the meaning of Bau Nyale, environmental conservation, and the impact of climate change. | Ecological significance, cultural meaning, and environmental conservation practices related to the Bau Nyale tradition. |
| Public Figure | Local leaders who influence social dynamics and community involvement in traditions. | In-depth Interview: Discussion on community engagement, adaptation to climate change, and the role of tradition. | Community participation, adaptation strategies, and the role of tradition in climate change mitigation. |
| Active Participants | Individuals who are directly involved in the Bau Nyale tradition. | In-depth Interview: Semi-structured interviews to explore personal experiences, participation in rituals, and environmental efforts. | Personal involvement, perception of Bau Nyale as an environmental effort, and its impacts. |
| Local Observers | Community members who observe environmental traditions and practices. | Observation: Researchers observed rituals, social interactions, and conservation efforts during the event. | Rituals, symbolism, social interactions, and environmental practices observed during the Bau Nyale tradition. |
| Documentation Experts | Individuals who document traditions through photos, videos, and notes. | Documentation: Collection of visual and written data during the Bau Nyale tradition to record environmental conservation symbols. | Visual documentation of rituals, environmental practices and symbols associated with Bau Nyale. |

Data from interviews, observations, and documentation were then analyzed using NVIVO 12 Plus to find relevant patterns related to the Bau Nyale tradition and environmental conservation. including coding, Query and Visualization, and Thematic Analysis. the flow is as follows:

Data from interviews, observations, and documentation were then analyzed using NVIVO 12 Plus to find relevant patterns related to the Bau Nyale tradition and environmental conservation. including coding, Query and Visualization, and Thematic Analysis. the flow is as follows:

1. Preparing Data: collect and prepare data from in-depth interviews, observations and documentation related to the Bau Nyale tradition, including environmental conservation practices and the impact of climate change.

2. Prepare a New Project: with the name “Bau Nyale and Mitigation of Climate Change.”

3. Import Data: Enter interview transcripts (traditional, government, fishermen), observation notes, photos and videos. Separate data by source type or category.

4. Create Node (Code):

- A. Main Theme: Climate change mitigation, environmental conservation, impact of ecotourism, community participation.

- B. Subtheme: Bau Nyale’s ecological value, adaptation of coastal communities, tradition-based policies, and integration of traditions in sustainable tourism.

5. Coding data through segments of community views on traditional values, the impact of climate change, and conservation practices.

6. Thematic Analysis: Run questions to look for connections between themes, such as the link between traditional Bau Nyale practices and climate change mitigation strategies.

7. Create a visualization to map the relationship between the Bau Nyale tradition, conservation activities and climate change mitigation.

8. Finally, drawing conclusions based on the analyzed data, supporting them with direct quotes from interviews and observations.

3. RESULT AND DISCUSSION

3.1 History of the Bau Nyale tradition in central Lombok, West Nusa Tenggara

The Sasak people in Lombok associate Bau Nyale with the mythology of Princess Mandalika, a very beautiful princess. Princess Mandalika was a daughter of King Tonjang Beru, the king who ruled Lombok at that time. Princess Mandalika had extraordinary beauty, was smart, always gave in, and had noble character. The beauty of this princess became a topic of conversation among the people, from ordinary people to princes, and many wanted to marry her. The princes came from the Kuripan, Daha, Johor, Beru, and Pane Kingdoms. Seeing several princes fighting over his daughter, King Tonjang Beru finally allowed the princes to openly participate in the competition. Wisely, the king did not force Princess Mandalika to choose between the princes who proposed to her, but left the decision entirely up to his daughter. In her confusion, Princess Mandalika had to choose from the many proposals that came. Finally, she asked for guidance from the Almighty through a semidi. On the 20th day of the tenth month according to the Sasak calendar, at Seger Beach, Kuta Lombok, the princess gathered all the princes who had proposed to her.

From the top of Seger Hill, Princess Mandalika announced

her desire to unite Lombok into a peaceful place, fearing that there would be a split. Thus, she accepted all the proposals made by the princes, which surprised them. If she chose one of the princes then what would happen was a great war. If the great war happened then the people would be the victims, the princess avoided bloodshed, so the princess made her own decision. Princess Mandalika’s first step was to isolate herself for a while to seek guidance. After some time, she managed to get a clue and immediately invited the princes and all their people to gather at Kuta Beach on the 20th day of the 10th month, before sunrise. When the appointed date arrived, the six princes and their people—from children to the elderly—were present at Princess Mandalika’s invitation. Kuta Beach was filled with crowds, similar to sugar swarmed by ants. All the invited guests did not know what decision the princess would take. Some of them arrived long before and came from various regions, even from all over the island of Lombok, in order to await Princess Mandalika’s decision. However, they all patiently awaited the arrival of the princess (Figure 2).



(a) Nyale worms



(b) Monument of Princess Mandalika

Figure 2. Nyale and the monument of Princess Mandalika

The sky to the east began to show a reddish-orange color, while the guards were seen carrying a palanquin that was most likely ridden by a beautiful woman. Upon arriving at Kuta Beach, the guards stopped beside a large rock. Instantly, it was clear that the palanquin was made of gold, and the dress worn by the woman was also made of silk. The guests were silent, captivated by the luxury before them. A few moments later, the woman showed her face. As promised, Princess Mandalika appeared just before sunrise. The guests could only smile faintly at the beauty of the princess.

With the open sea as a backdrop, the princess stood before all the people she had invited. She greeted them and announced the long-awaited decision. She did not say many words; she simply said, “O beloved father and mother, the princes, and all the people of Tonjang Baru whom I love. Today I have decided that I belong to all of you, and I do not

choose one of the princes. Fate wills that I become the Nyale that you can enjoy together on the month and date when the Nyale appears on the surface of the sea.” After saying those words, the princes and invited guests were confused by the meaning contained in Princess Mandalika’s words.

The green worms are said to be male and the brown ones are female. The statements of informants 1, 2, 3 also explain that.

“The whereabouts of the missing Princess Mandalika were followed by the emergence of thousands of colorful sea worms on Seger Beach, the main venue for the Bau Nyale event to this day. Princess Mandalika had a will that anyone who wanted to meet her could come to the beach every 20th day of the 10th month in the Balinese calendar. Sasak. On that date, sea worms will appear en masse in rocky coastal areas.”

During the Bau Nyale, tens of thousands of residents around Seger Beach will crowd the area for two peak days. The activity of catching Nyale is the core of this annual tradition. In addition, there are various activities in the Nyale Festival series, such as music performances, surfing competitions, traditional music performances, and others. From the mythology of the Lombok people, the Nyale tradition is interpreted as the embodiment of Princess Mandalika [13, 21]. Until now, the Nyale tradition has become a way for people to miss Princess Mandalika, and the sacredness of this tradition is considered a symbol of blessing.

3.2 The behavior of the Kuta Village community in the Bau Nyale tradition to overcome the impacts of climate change

Nyale tradition to overcome the impacts of climate change. The Bau Nyale tradition in Lombok is a celebration that involves various activities that are rich in cultural and environmental meaning, while also contributing to the preservation of marine ecosystems. According to data obtained in the field, the phenomenon of the emergence of Nyale (sea worms) occurs between February 15 and 16, which is an agreement in the traditional calendar that has been agreed upon by four stakeholders, namely representatives from the four cardinal points (north, east, south, and west), as well as experts in the fields of astronomy, maritime, agriculture, and cultural, religious, and community figures. The process of the emergence of Nyale only takes place between dawn and sunrise, namely between 04.00 and 06.00. This condition often raises curiosity among the community. In a series of Bau Nyale traditional ceremonies, the community feels various benefits, including welfare, social integration, increased solidarity, patriotism, and cultural enculturation, as well as a movement to preserve the natural environment [21]. In accordance with the information provided by informants 3, 4, 7 below.

“In the past, before electricity or diesel came to the village, bonfires were lit surrounded by young men and women, while some of the older people accompanied them.”

The presence of the girl’s parents at the place did not prevent them from responding to each other in pantun during the connection, with the contents of the pantun remaining within the limits of politeness. The pantun that was responded to by the young man and woman sitting opposite each other was separated by a burning bonfire. This activity became interesting entertainment. For the young men and women, responding to pantun is a very valuable means of “enculturation”, because from the pantun they can take various wisdom and feel joy. For parents who are already married, this

activity brings back beautiful memories of an unforgettable past. The pant that answer each other is also an interesting attraction that helps to drive away sleepiness while waiting for dawn to break. In the tradition of Bau Nyale, there are sacred values that guide good behavior, one of which is caring for the environment, especially around the coast.

The presence of the Bau Nyale tradition provides deep cultural values for the Sasak people. This tradition is glorified by most members of the community as an ethical system that strengthens their identity. The implementation of this tradition begins with Initial Preparation, where the Kuta Village community cleans the beach to maintain environmental cleanliness. This activity involves all residents, including children, and aims to build awareness of the importance of maintaining marine cleanliness and instilling the value of mutual cooperation among the younger generation [21].

Next, a Sangkep, or village deliberation, is held to plan the event, including determining the date, location, and security aspects. This fosters a sense of togetherness and collective responsibility in carrying out the tradition [7, 26-28]. On the night before the event, the community performs Nyale Fishing, a ritual that involves summoning Nyale with prayers and offerings to the sea god. The community believes that by seeking blessings, the search for Nyale will yield abundant results. In the digital era, social media is also used to inform the public about the implementation of Bau Nyale, helping to attract the attention of tourists and visitors [7].



Figure 3. Activities the Warige to determine the right time in implementation of Nyale smell

On the morning of the event, activities begin with people using simple tools, such as hoes or their hands, to search for Nyale worms on the beach. This activity is often accompanied by competitions and games between groups, making the event more engaging and enjoyable [7]. The event continues with Warige, which includes celebrations and festivals showcasing artistic and cultural performances, such as traditional dances and music, reflecting the richness of Lombok’s culture. The community also serves local cuisine, including Nyale-based dishes, to introduce their culinary traditions to visitors and strengthen social ties among residents [5, 21, 29]. Activities during the Warige celebration can be seen in Figure 3.

After the search and celebration, the Pangaru ritual is performed as a form of gratitude. The community gathers to pray for safety and blessings for their catch. In addition, a ceremony called Surrounded is conducted, where the community gathers to celebrate the catch together. Evaluation and reflection are also carried out to discuss the successes of the event and identify areas for improvement for the next tradition [5]. Through participation in this tradition, the community becomes more aware of the importance of preserving the environment, especially the marine ecosystem.

The involvement of tourists in the Bau Nyale tradition has

a positive economic impact on the local community, while also encouraging the preservation of culture and the environment [29]. The community is committed to implementing environmental education programs, making the Bau Nyale tradition a platform for spreading awareness about the importance of preserving the marine ecosystem. The Bau Nyale tradition is not only a celebration of culture but also serves as a vital mechanism for maintaining the balance of the marine ecosystem, increasing public awareness, and strengthening cultural identity in the face of challenges such as climate change.

The results of the NVivo 12 plus analysis related to the behavior of the Kuta Village community in the Bau Nyale tradition can be seen in Figure 4. The following codes or themes emerged as the Nyale summoning festival, beach clean up, and participation in the festival.

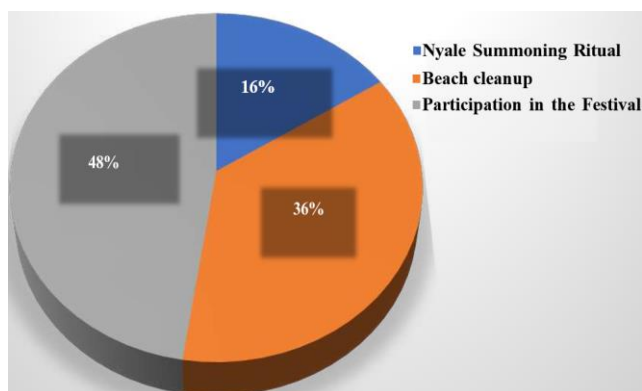


Figure 4. Percentage behavior of Kuta Village community in the Bau Nyale tradition for support environmental conservation

The image explains the behavior of the Kuta Village community in the Bau Nyale tradition to overcome the impacts of climate change with a dominant participation in the Bau Nyale festival. Findings regarding the behavior of the Kuta Village community in the Bau Nyale tradition show a close relationship between local culture and climate change mitigation. The Nyale calling festival, beach clean-up, and participant participation reflect the strong ecological awareness in the community. The Bau Nyale ritual links ecological values to marine conservation efforts, while beach clean-up activities demonstrate concrete action in reducing pollution. However, further analysis is needed regarding the sustainability of this activity and its impact on the ecosystem. Tourist participation also adds to the challenges in waste management. Overall, this tradition has the potential to support climate change mitigation if integrated with broader environmental management policies.

The active participation of the Kuta Village community in the Bau Nyale festival reflects a collective effort to overcome the impacts of climate change through environmental conservation and strengthening cultural identity. This festival not only celebrates the phenomenon of the release of Nyale worms, but also becomes a means to increase public awareness of the importance of maintaining the cleanliness of the sea. Preparatory activities, such as beach cleaning and Nyale summoning rituals, involve all members of the community, including children, which aim to instill the values of mutual cooperation and environmental awareness among the younger generation [30]. In addition, the community uses the festival as an opportunity to attract tourists, which contributes to

positive economic impacts and cultural preservation [31]. The Bau Nyale festival activities can be seen in Figure 5.

The Bau Nyale Festival also serves as an important mechanism in maintaining the balance of the marine ecosystem, where the community not only celebrates their culture but also commits to carrying out environmental education programs (Figure 6). In each implementation of the tradition, evaluation and reflection are carried out to discuss successes and improvements needed for the coming years [29]. Thus, participation in this festival not only strengthens social ties among residents but also raises awareness of the importance of maintaining the marine ecosystem in facing the challenges of climate change [23].



Figure 5. Bau Nyale festival activities the night before the Nyale harvesting event



Figure 6. Nyale harvesting activity

Beach Cleanup



Nyale Summoning Ritual



Participation in the Festival

Figure 7. Interaction of Nyale summoning ritual, beach cleaning and festival participation the smell of Nyale

The time for collecting Bau Nyale is usually done before sunrise, starting at around 04.00 to 06.00 in the morning. This ritual takes place in the waters of Seger Beach and other beaches in Central Lombok, especially around the Kuta area. At these times, people gather on the beach to catch Nyale, which are believed to appear in large numbers before dawn. This moment is considered sacred because it is believed to

bring good luck and prosperity to the local community [5, 7, 21, 29].

Behavior reflected from various activities interacting and supporting each other in the context of environmental conservation. This can be seen in the Figure 7.

The relationship between the Nyale summoning ritual and participation in the festival is also very significant. The success of the ritual in producing Nyale is not only a source of pride for the community, but also a driving force for a more festive festival celebration. The results of this ritual strengthen the meaning of the celebration, where the community feels that their participation in maintaining the cleanliness and health of the sea has produced results that can be celebrated together [36-41]. Thus, community involvement in the festival becomes more meaningful and inspires collective enthusiasm to continue preserving their traditions and environment.

In addition, participation in the festival reflects the success of the beach cleaning activities and the Nyale summoning ritual. A lively and interesting festival is the result of collective efforts made by the community to maintain environmental cleanliness. The better the environmental conditions, the more lively the festival is, creating an atmosphere full of joy and togetherness. This festive atmosphere also creates a positive cycle, where the celebration further strengthens cultural and environmental values. This, in turn, encourages more participation in rituals and conservation activities carried out by the Kuta Village community [5, 29]. In this way, the Bau Nyale tradition is not only an event for cultural celebration, but also serves as an important mechanism for maintaining the balance of the marine ecosystem and strengthening the cultural identity of the community.

3.3 The role of the Bau Nyale tradition in mitigating the impacts of climate change, especially on the marine ecosystem in the Lombok Sea

On Earth, humans live together with other creatures, such as plants and animals. Human survival is not affected by the existence of other living things. For example, humans will have difficulty breathing fresh air without trees, and so on, that is the relationship between humans and the living things around them. The environment is a collection of spaces consisting of various objects, conditions, and living things, including humans and their behavior, which have an impact on nature and the sustainability of life. Theoretically, the environment can include anything from the sky, air, water, or land. We have to say this broadly because human behavior also includes the environment [42-44]. Some Lombok people consider the Bau Nyale tradition to be based on the environment, as stated by informant 8 below:

“Actually, the Bau Nyale tradition has been around for a long time, ma’am. However, we still maintain it to this day. We should maintain this as a way to show our gratitude for what nature has given us. We will respect nature more with the smell of Nyale. In determining the date of the community meeting, which is chaired by the elders, communication will occur between nature and humans. When I watched the show, I really felt there was a connection between nature and us (human). However, nature always provides enough for us, and we always need it. In addition, because of the tradition of Bau Nyale, we will pay more attention to the beach. This is a small example, because the cleanliness of the beach is better maintained and when more people come to the beach, they will have the opportunity to touch the natural beauty and enjoy the

experience. As local residents, we are also happy to see many people gathering to enjoy the beauty of Seger Beach.”

The fact that the informants above are driven by an awareness of the relationship between humans and the environment shows that the Bau Nyale tradition has greater values than simply looking for sea worms. This tradition involves respect and concern for the balance of the marine ecosystem, which is increasingly important amidst the threat of climate change and environmental damage. Along with the development of large industrial developments around the coast, many have noted that such development risks eliminating local culture and accelerating the degradation of coastal ecosystems. Uncontrolled exploitation of nature often ignores the long-term negative impacts on the ecosystem and the lives of local people [45].

Some experts also highlight that pressure on the environment due to industrial activities can weaken local traditions that function as social mechanisms to maintain the sustainability of the ecosystem. Traditions such as Bau Nyale play an important role in reminding communities about environmental values that cannot be replaced by economic development alone [7, 21]. In addition, development policies that do not take into account the balance of the ecosystem often lead to the loss of local cultural identity and the destruction of the harmonious relationship between humans and the environment [22]. Thus, the Bau Nyale tradition is not only a cultural celebration, but also a social movement that emphasizes the importance of protecting the environment from excessive exploitation. Community participation in this tradition fosters a collective awareness that the preservation of nature and culture are interrelated and must be maintained for future sustainability [46, 47].

The Bau Nyale tradition in Kuta Village, Lombok, plays an important role in efforts to mitigate the impacts of climate change, especially on the marine ecosystem in the Lombok Sea. One of its contributions is seen through the beach cleaning activities carried out before the ritual begins. This activity not only aims to maintain environmental cleanliness, but also to increase public awareness of the importance of marine conservation. By cleaning the beach regularly, the community helps reduce pollution and maintain the health of marine biota, which is very important in dealing with climate change that impacts coastal ecosystems [48, 49].

In addition, the ritual of summoning Nyale itself has a cultural value that strengthens the relationship between society and nature. The people of Kuta Village believe that the purity and cleanliness of the environment influences the success of the ritual in attracting Nyale, which is considered a symbol of blessing from the sea god. Through this tradition, the community is invited to appreciate and preserve the environment more, in line with the principle of sustainability which emphasizes that local culture can play an important role in ecosystem conservation [22]. Participation in this ritual further binds the community to maintain the balance of nature amidst the increasingly real challenges of climate change.

Community participation in the Bau Nyale festival also strengthens the positive cycle in marine resource management. After the Nyale summoning ritual, the festival is not only a celebration event, but also a means to spread educational messages about marine conservation. By involving various elements of society, including the younger generation, the festival serves as a platform to instill environmental and cultural values in a sustainable manner. This cycle encourages broader community involvement in maintaining marine

ecosystems and mitigating the impacts of climate change, which in turn strengthens coastal environmental resilience [48].

Based on the results of the NVivo 12 Plus analysis on the Role of the Bau Nyale Tradition in mitigating the impacts of climate change in the Lombok Sea, this tradition integrates environmental conservation activities into the cultural practices of the community. More details can be seen in Figure 8. The following codes or themes emerged as Nyale summoning festival, beach clean up, and participant in festival, environmental awareness, and climate change.

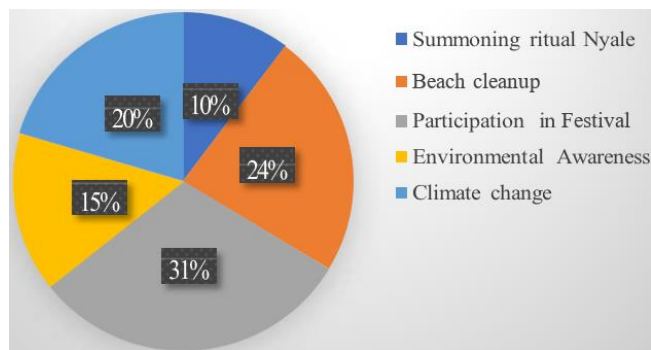


Figure 8. Percentage role of the Bau Nyale tradition in mitigating the impact of climate change in the sea

The graph shows the percentage of activities related to the Bau Nyale tradition in the Lombok Sea indicating active community involvement in efforts to mitigate the impacts of climate change. Beach cleaning activities are the most dominant with 24%, confirming the community's commitment to maintaining the cleanliness of the sea before the ritual begins, which also creates a better environment for the implementation of the ritual. In addition, participation in the festival reached 31%, illustrating the collective spirit of celebrating traditions while educating the community and tourists about preserving marine ecosystems. Activities related to environmental awareness and climate change show the community's understanding of the importance of maintaining ecosystem balance, so that the Bau Nyale tradition functions not only as a cultural event but also as an important mechanism in environmental conservation [5, 21].

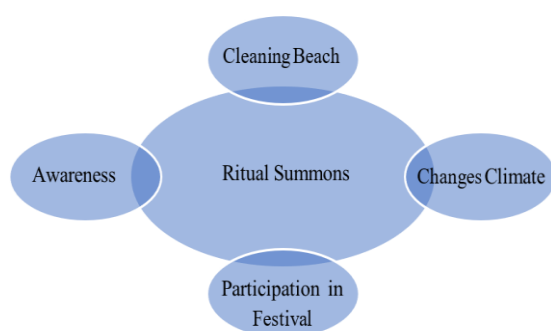


Figure 9. Relationship between the Nyale summoning ritual, participation in the Nyale Bau festival, environmental awareness and climate change

The results of NVivo's analysis of the Role of the Bau Nyale Tradition in mitigating the impacts of climate change in the Lombok Sea show that there is a strong relationship between the ritual activities of summoning Nyale, participation in the

Bau Nyale festival, environmental awareness and climate change. This relationship can be seen in Figure 9.

The picture shows a strong relationship between beach cleaning activities and the Nyale summoning ritual. The Nyale summoning festival functions as a platform that brings together cultural values with environmental issues, especially in mitigating climate change. In this tradition, beach cleaning activities become a real symbol of efforts to preserve nature and clean coastal ecosystems. Community involvement in this festival not only reflects respect for nature, but is also a form of collective awareness of the importance of preserving the environment amidst the increasing challenges of climate change. Apart from that, this tradition provides an opportunity to educate the younger generation about the importance of nature conservation in a way that is closer to them, namely through cultural rituals that have been going on for generations. These activities connect spiritual aspects with deep ecological practices, providing concrete examples of how local culture can be a tool in strengthening community resilience to climate change. Beach cleaning activities not only serve to maintain cleanliness, but also create a conducive atmosphere for ritual implementation. Clean and well-maintained beaches support the success of the Nyale summoning ritual, which is an important tradition for the local community [5, 21, 29]. Through this cleaning activity, the community learns about the importance of maintaining a clean environment as part of their culture, which contributes to the sustainability of the ecosystem. This shows that everyday practices, such as beach cleaning, have a vital role in maintaining and preserving traditions [50, 51].

Furthermore, the Bau Nyale Festival serves as a platform that not only celebrates tradition but also raises public awareness of the importance of environmental conservation. In this festival, the community is actively involved in activities that encourage them to protect the marine ecosystem [52]. Awareness of the need for conservation becomes an integral part of the community's culture, which is then passed on to the younger generation. In this way, the festival becomes an effective educational tool, encouraging a collective commitment to environmental conservation and internalizing these values in everyday life [53].

Finally, there is a significant link between climate change and the Nyale summoning ritual. The community is beginning to realize that the natural phenomena that are the basis of this tradition, such as the emergence of Nyale, can be affected by climate change [21]. This awareness encourages them to engage in efforts to mitigate the impacts of climate change, so that the Nyale summoning ritual functions not only as a spiritual practice but also as a collective response to environmental threats. Thus, this ritual becomes a symbol of hope for the community to protect their environment while still respecting the existing cultural heritage [24].

4. CONCLUSIONS

The Bau Nyale tradition in Kuta Village, Lombok, plays an important role in mitigating the impacts of climate change by strengthening public awareness of the importance of preserving the marine environment. By involving all members of the community in beach cleaning activities before the ritual is carried out, this tradition not only maintains cleanliness but also instills the values of mutual cooperation and concern for the ecosystem. The Nyale summoning ritual that is carried out

emphasizes the spiritual relationship between humans and nature, where the community believes that the success of the ritual depends on clean and well-maintained environmental conditions. In addition, this lively celebration provides an opportunity for the community to celebrate their culture while spreading the message of the importance of preserving the ocean to visitors. As an implication, this tradition can be integrated into environmental policies. Further research is recommended to examine the integration of this tradition with modern scientific approaches, evaluate the impact of tradition-based policies, and expand the study to other coastal areas with similar challenges. Limitations of this study include the geographical focus which is only limited to Kuta and Sukarara Villages.

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