

# Ethnoecological Study In The Legend Of Dedu Ngode

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**Abstract.** Ethnoecology is an approach used to analyze and interpret local knowledge of cultural communities regarding the environment and its sustainable use. The purpose of this study was to analyze and interpret the legend of Dedu and Ngode using an ethnoecological approach. This study was conducted in Totomala Village, Wolowae District, Nagekeo Regency. Data were collected through interviews and documentation. The data were analyzed using Miles and Huberman's interactive analysis technique with the first step of reducing data by selecting, sorting, and choosing ethnoecological data. Then, the data were presented by referring to the focus of the study. The last step was concluding and verifying the data. The study's results revealed five ethnoecological representations in the legend of Dedu and Ngode in the form of livelihood systems, living equipment systems, social systems, knowledge systems, religious systems and social system.

**Keywords:** culture, ethnoecology, legend

## 1 Introduction

Literature is an important part of the growth and development of a society's culture. In addition to being part of culture, literature is a form of creative art that focuses on humans and their lives with language as a medium of expression. Human thoughts, emotions, and expressions are poured into literary works, which become a vessel to reflect concepts, aspirations, views, and individual desires and ideals. Every literary work is formed in a human and personal way so that it contains certain values that reflect the intentions and ideas of its creator. Literary works are personal expressions of the author that involve thoughts, feelings, ideas, beliefs, and contents of the heart in a depiction of life. The existence of literary works in society proves that literary works, as a result of human creation, can be a part of life that provides enjoyment for others [1]. Literature comprises two types, namely written literature and oral literature. Written literature includes manuscripts and works with important values and meanings, and oral literature is passed down orally and passed from generation to generation in society.

Oral literature reflects the values, beliefs, and understanding of society towards their environment and life [2]. Oral literature can overcome social problems [3]. Through literature, people can record and pass on environmental knowledge, including traditional ways to maintain ecological balance. One of the oral literature that is rich in knowledge about the environment is legend. Stories and legends are part of culture and traditional knowledge because both signify meaning [4]. A legend is a folk prose story described an event that happened [5]. In the legend, there are stories of the people in the past in terms of local knowledge. Local knowledge and

expertise are most valuable in providing information about community development, overcoming particular problems, and being the first step towards change [6]. This prevents cultural globalization that robs the cultural identity of society. Elements of culture include language systems, knowledge systems, social systems, systems of living equipment and technology, livelihood systems, religious systems, and art systems [7]. This shows that the culture built within a society is always filled with the characteristics of that society itself [8].

Literature not only contains aesthetic aspects but also has an important role in maintaining ethnoecology, namely the collective understanding of society regarding ecosystems and sustainable natural resource management practices. Through this approach, oral literature is seen as a medium that conveys traditional ecological knowledge or ethnoecology, which reflects the way local communities interact with nature, protect the environment, and express local wisdom that is passed down from generation to generation. Local knowledge is part of local wisdom. Local wisdom includes all forms of knowledge, beliefs, understanding, or insights, as well as customs and norms that guide human behavior as part of an ecological community [8]. Since ancient times, local communities in various regions have studied, utilized, and passed down local knowledge from generation to generation. This knowledge is obtained through experimentation with the biodiversity in their environment and how to utilize it for various purposes, such as food, agriculture, livestock, medicine, construction, clothing, religious expression, culture, music, and even to obtain commercial resources. All of these goals support human survival [9].

In the modern era, the need for a more sustainable approach to addressing environmental issues such as climate change, pollution, and biodiversity decline is increasingly urgent. One potential source of value is the ecological wisdom in folklore, where traditional communities have long developed a way of living in harmony with nature. Indigenous communities, for example, often describe ecosystems, plants, and animals in their folklore as entities that must be protected because they have an important role in maintaining environmental balance. The relationship between humans and their natural environment is not only seen directly but can also be studied in depth through an ethnoecological approach. Ethnoecology is the view of indigenous peoples about the interdependent relationship between plants, animals, and humans. This knowledge is local and contextual, reflecting people's understanding of the environment and its sustainable use based on beliefs, values, and practices passed from generation to generation [10]. The implementation of ethnoecology in a literary context marks the advancement of mimetic methodology (reflection of social phenomena) through the integration of interdisciplinary fields [11].

Ethnoecological research in Indonesian folklore has not been widely conducted. Based on analysis data in Scopus, there has only been one study conducted by [11] entitled *The Ethnoecology of the Malay Sacred Myth through Narratives of Kampung Tua Nongsa in Batam*. The purpose of this study is to analyze the ethnoecology behind the sacred myth stories of Bumbang, Puak, and Batu Belah as representations of environmentally conscious Malay local wisdom in Kampong Tua Nongsa, Batam. Within the conceptual framework of ethnoecology as a bridge to understanding the relationship between literary works in the form of folklore and community culture, this qualitative study collected data through direct observation of the community and in-depth interviews with 21 informants including key judges of sacred places, community advisors, community leaders, village officials, and the young generation of Malays in Kampong Tua Nongsa. Data analysis was carried out by comparing, reconfirming, classifying, and interpreting data with an ethnoecological approach. The results of the study indicate that there are three important ethnoecological representations: (1) the ecological bond

between the forest and humans in the sacred Bumbum, (2) the image of a wise king in the sacred Puak, and (3) the sea as the center of natural life in the sacred Batu Belah.

Research conducted by [12] entitled Ethnoecology in the Folk Tales of Pebenaan Village Community, Keritang District, Indragiri Hilir Regency. This study aims to analyze, interpret, describe, and conclude aspects of ethnoecology related to the religious system, livelihoods, and life equipment/technology in the folk tales of the Pebenaan Village community. The results of the study indicate that the folk tales contain elements of ethnoecological culture in the form of religious systems (with 15 data, 3 samples were taken), livelihood systems (23 data, 8 samples were taken), and life equipment/technology systems (26 data, 8 samples were taken). The most dominant ethnoecological element is the life equipment/technology system because most fairy tales describe the daily activities of the characters that involve the use of tools to meet their life needs. This article examines ethnoecology in the legend of Dedu and Ngode as a contribution to a better and more sustainable understanding of the environment. The purpose of this study was to reveal the ethnoecological truth that underlies the narrative of the legend of Dedu and Ngode. This study is also an initiative to help revitalize the local wisdom of the Toto community.

Previous studies have examined myths and folktales using certain approaches; therefore, the researcher intends to examine an ethnoecological approach to legends. The aim of this study is to analyze, interpret, describe, and draw conclusions about the ethnoecology related to cultural values in the Dedu Ngode legend.

## **2 Research Method**

This study uses a qualitative research method. Qualitative research is a type of research that produces descriptive data in the form of words or written texts and observable behaviors [13]. In this research, the focus is on gaining a deep understanding of the social phenomena that occur, through observing, interviewing, or interacting with participants to obtain richer and more diverse information. This approach emphasizes the meaning contained in the collected data, as well as the social and cultural contexts surrounding it. This research was conducted in Totomala Village, Wolowae District, Nagekeo Regency.

The data in this study included words, phrases, clauses, and sentences in the legends of Dedu and Ngode, which depict the cultural values. The primary data source is the Dedu and Ngode legends, which were taken from a website [14]. In addition to the data from the website, the researcher also conducted direct interviews with community leaders in Totomala Village. Data analysis was carried out using interactive analysis techniques from [15], which includes three steps: first, reducing data by sorting and selecting relevant data related to the cultural values using an ethnoecological approach; second, presenting data based on the focus of the research; and finally, drawing conclusions and verifying the data.

## **3 Result and Analysis**

Totomala is a village located in Nagekeo Regency. The livelihoods of the Totomala village community are farming, raising livestock, and fishing. One form of cultural heritage rich in moral, social and environmental values that is still maintained and told to this day in the Totomala community is the Dedu Ngode folktale. The Dedu Ngode folktale tells the story of

two brothers who turned into stone. Until now, the stone statues of Dedu and Ngode still stand firmly on the edge of Watubhaya Beach, which is located near Kotajogo, Anakoli, in Wolowae sub-district, Nagekeo district.



Figure 1. Picture of Dedu Stone and Ngode

In the story of Dedu and Ngode, there are values that can instill a deep understanding of the relationship between humans and nature, which includes aspects of sustainable practices in livelihood systems, living equipment systems, knowledge systems, and religious systems.

### 3.1 Knowledge System

Ecological time in agriculture refers to the time cycles and seasonal patterns associated with agriculture and the interactions between humans and the natural environment in local communities. This includes understanding the timing of planting, tending, and harvesting crops, as well as sustainable management of natural resources. Local farmers often rely on experience and observations of natural signs, such as weather changes, animal behavior, and soil conditions, to determine the best time to plant and tend crops. Local communities often need to adapt to climate change that affects weather patterns and timing, which can impact food security. Innovation and adaptive traditions in agriculture are essential to maintaining food security. By understanding ecological time in agriculture, local communities can improve the efficiency of food production and ensure sustainability in their farming practices.

The Toto indigenous people in ancient times who depended on agriculture for their livelihood, had a lot of knowledge about ecological time. This can be seen in the following data:

- Data 1: In the dry season, after the harvest is over, the stepmother gives them the task of pounding corn (Yodo). Every day, they are always given the same task, which is to pound the corn. Nevertheless, neither of them ever complains or resists
- Data 2: As teenage girls, both of them naturally had the desire to play with their peers. However, that never happened. They were tightly controlled by their parents. It was very rare for them to play with other children or kids in the village. They were

very isolated. One of the best ways to suppress their youthful instincts was by assigning them the task of pounding corn every day. Moreover, their harvest from the fields was abundant that year and enough to sustain them for a year. For the local community, with such a harvest, it was guaranteed that they would have enough food for the year. This was especially important because it was common for many people to run out of food as they entered the planting season. This usually occurred between January and April. During this time, the community could only rely on root vegetables for food.

Data 1 and 2 show the understanding of the ecological time of the Toto indigenous people in ancient times. In ancient times, people in the agricultural sector were often very tied to seasonal cycles, such as the rainy season and the dry season. Indigenous people used direct observation as an ecological indicator to determine the timing of seasonal activities, such as agriculture, which can also change with climate change [16], [17]. Planting and harvesting are usually done based on these weather patterns to maximize agricultural yields. Local communities also often need to adapt to climate change that affects weather patterns and times, which can impact food security. Innovation and adaptation traditions in agriculture are important to maintain food security. Climate change can also affect traditional ways of predicting seasonal changes for these activities.

### **3.2 Living equipment/technology systems**

The technological system includes various ways of producing, using, and maintaining all the equipment that supports the life of an ethnic group. Technology as a concrete form of culture is manifested through physical objects. In other words, technology includes all types of tools or goods society uses to interact with its environment [12]). The following data shows the usefulness of tools as part of ethnoecology:

- Data 3: They were given the same task every day, which was to pound corn.
- Data 4: One day, their stepmother asked the two of them to pound more corn than usual. They worked on this task from morning until noon.

Dedu and Ngode pound corn using a pestle and mortar. Pestle and mortar are traditional tools used by people in ancient times to process agricultural products to be used as food ingredients. Before the grinding machines, the Nagekeo people used pestles and mortars to pound food ingredients such as corn, and rice, or to pound coffee and rice to be used as flour. This activity usually involves the cooperation of several people, not only representing the values of togetherness and mutual cooperation but also being part of the ethnoecology of the community. From an ethnoecological perspective, this practice reflects the way the Toto indigenous people at that time interacted with their natural environment through environmentally friendly and sustainable local food processing methods. This tradition also maintains local knowledge about natural resource management passed from generation to generation. However, with the increasing rarity in the use of mortars due to the existence of grinding machines that are more efficient in terms of time and energy, these sustainable practices are also in danger of disappearing. Preserving traditional tools such as mortars is not only important to maintain the

cultural identity of the Nagekeo indigenous people, but also to maintain a way of life that respects nature, as embedded in their ethnoecological wisdom. Output to the environment was such as air pollution.

### 3.3 Livelihood system

Livelihood is the way people earn a living; it includes their abilities, and their way of life, including food, income, and assets [18]. Livelihood consists of innumerable resources used for living and the activities carried out to meet life's needs [19]. In the folklore of Dedu and Ngode, the following quote explains the livelihoods of the Toto people at that time:

- Data 5: His parents are farmers.
- Data 6: Meanwhile, their parents went to the fields to feed the livestock.
- Data 7: On that day, coincidentally all the residents of Toto village also went to their respective fields. The only ones left in the village were Delu and Ngode, along with an old grandmother who was already very elderly. Meanwhile, the old grandmother could no longer walk; she just sat at home. The village was indeed very quiet. Therefore, whatever they were going to do no longer had to be under the supervision of older people..

Data 5, 6, and 7 show that in ancient times, the Toto indigenous people utilized land for farming and raising livestock. This sustainable practice has been carried out until now. According to the statement of the Head of Totomala Village, he said that "The potentials of the Totomala Village area in the field of food agriculture such as corn and dry rice, while in the livestock sector there are cows, buffalo, and goats" [20]. Since ancient times, the Toto indigenous people have implemented an integrated farming system. Integrated farming is a comprehensive strategy in agriculture that combines various farming and livestock practices cohesively [21]. This idea is rooted in the recognition that integrated farming systems can offer synergistic benefits and supportive interactions between different elements of farming. In Integrated Farming, various components of farming such as crops, livestock, and natural resource management including water and land are managed collaboratively. The Toto indigenous people utilize harvested corn or rice stalks for animal feed and utilize animal waste as organic fertilizer. This method aims to increase efficiency, maximize resource utilization, increase productivity, and minimize adverse environmental impacts.

- Data 8: In addition to being used as food at that time, pounded corn (yodo) was stored as food preparation until the next harvest season and was also prepared for traditional rituals.

Data 8 shows the food security system. The quote above shows the local community's understanding of food security. The local Toto community has long understood how to meet basic needs. The most essential basic need to maintain life and living is food (Suandi, 2012). Food security is a condition where food is fulfilled for the country and individuals, which is reflected in the availability of sufficient food, both in quantity and quality, safe, diverse, nutritious, evenly distributed and affordable and does not conflict with the religion, beliefs and culture of the community, to be able to live healthily, actively and productively in a sustainable manner [22]. Since ancient times, the Toto tribe has implemented food security to prevent starvation. The indigenous people prepare food until the next harvest. This prevents starvation

due to the depletion of food before the next harvest. The World Bank, quoted in [23] states that food security is safe access at all times to sufficient food for a healthy life.

### 3.4 Religious system

A religious system is a belief system that includes elements related to faith, rituals and symbols, perspectives and behavior, intellectual and emotional domains in addition to aspects relevant to its followers [24]. Religion is a series of ceremonies based on myths, aimed at activating supernatural forces to achieve or avoid certain changes in human life or nature (Wallace, 1966: 107). The following is data on the religious system in the legend of Dedu

Data 9 : At the end of the big village, there is a lake known as Poma or Tiwu in Toto language. Although its location is close to the settlement, the community never uses the water from the lake for drinking or other purposes. The lake is specifically used as to carry out the traditional ceremony of 'bringing rain.' They believe that by carrying out the ritual there, rain will fall. This ceremony is usually carried out before the rainy season or when planting rice, but the rain has not yet arrived. With full faith, the community asks for help from their ancestors through this sacred ritual.

Data 10 : According to the traditional beliefs in the village, bathing during the day is not allowed, especially in sacred places such as Poma Toto. Taking water from these places is also considered taboo. The community believes that during the day jinns or spirits often appear. They believe that if someone is alone in the middle of the day or disturbs the presence of these creatures, then that person can be taken by them (Nitu Poto in Toto language). Only certain people are believed to have special abilities to see the presence of these spirits, while ordinary people generally cannot detect them.

Data 9 and 10 show that the Toto indigenous people have had a deep spiritual relationship with their environment since ancient times, as seen in their rituals and beliefs around water sources. The Toto indigenous people have taboos related to the behavior of human spiritual relationships with nature. They believe that the supernatural world exists. Therefore, the community has made a prohibition against bathing or washing in the lake. In addition to not being allowed to bathe and wash, during the day the community is not allowed to pass through the place because it is considered to disturb the rest time of supernatural beings. If anyone violates it, it will have a bad impact on the person who violates it. The water source is only used for traditional rituals to bring rain. This shows their respect for natural resources and belief in the connection of life with the ecosystem.

Data 11: The shaman said that the two children were still around the lake. To prove this, it is recommended to use the tool that was last used by Dedu and Ngode, and then throw it into the lake. The father also took the pestle two children had used to pound corn in the last few days.

While holding the pestle, he said his vows loudly through the pazi or traditional prayer: "If you drown in this lake, then this pestle will not appear on the surface of the water. However, if not, this pestle will reappear." With full confidence, the father conveyed this vow.

Data 11 tells the story of Dedu and Ngode's father asking for help from a shaman to find the whereabouts of his two children. This shows that people in the past believed in shamans as people who had supernatural abilities. Shamans were considered to be able to communicate with supernatural beings and spirits. Shamans were people considered to know about the occult and told humans about events in the universe [26]. For society, the role of shamans has historically been seen as a socio-cultural phenomenon believed to have magical powers [12]. A shaman can also refer to a magic specialist in traditional societies, assisting all individuals suffering from illness, whether physical, emotional, or psychological. This illustrates how ethnoecology encompasses not only the physical environment but also the spiritual and cultural dimensions.

### **3.5 Social System**

Social systems, as interconnected entities that demonstrate systemic characteristics, differ from traditional views that only regard them as society [27]. A social system is a network of relationships between individuals and groups within a society, governed by norms, values, and rules that guide social interactions. This system encompasses various aspects of life, such as social structure, social roles, and social institutions, which influence the way of life and interaction patterns among its members. Social systems include several elements, such as norms, values, and roles, which create pressure and tension among individuals due to differing interpretations of status and behavior (Sukadi et al., 2021).

Data 12 : The dry season, a time when people, especially children, enjoy themselves by playing games, was something Delu and Ngode had never experienced. Indeed, when their mother was still alive, they were given enough freedom for that. Their mother truly understood how to treat her daughters. Socially, having daughters was very significant. Because with daughters, at some point, when they marry, the family would receive a significant dowry according to local traditions. For those from well-off families, the groom's family would pay a high price for them

Data 12 shows the social system in gender roles. The story illustrates different gender roles within the Toto community. Gender roles determine that women, in particular, handle household tasks, which are often viewed as an extension of their identity [29]. In the story, Dedu and Ngode are assigned household chores, while their parents are engaged in agricultural work. This division of labor reflects the social norms of the Totomala community, where women are often expected to manage household responsibilities, which are crucial in maintaining the social order. This phenomenon is rooted in cultural beliefs and has a significant impact on the social order and marital structure, especially in patrilineal societies like Totomala.

Data 13 : "As teenage girls, of course, both of them always longed to play with their peers. However, that never happened. They were strictly supervised by their parents. It was very rare for them to play with other children or kids in the village. They were very secluded. And one of the best ways to suppress their youthful instincts was by assigning them to pound corn every day. Especially since their harvest from the fields was abundant that year and enough to last for a year. For the local community, with such a harvest, it could be guaranteed that they would have enough food for the year. This was because it was not uncommon for many people to run out of food during the planting season. This usually happened between January and April. Those were the times when the community could only find food by eating root crops, such as wild yams (Toto: Ondo)."

Data 13 shows cooperation: The people of Toto village demonstrate a strong sense of togetherness, as seen in their collective farming practices. The act of pounding corn is not just a task but a communal activity that fosters social bonds and strengthens cultural traditions. Pounding corn is often a collective activity that reinforces relationships among community members, solidifying cultural practices and a shared identity (Rival et al.,2023). This cooperation is crucial for ensuring food security and maintaining social ties among the Totomala people. Such communal efforts promote trust and collaboration, which are key components of social capital that enhance community resilience [31].

#### **4 CONCLUSION**

Based on an ethnoecological study related to the cultural values found in the Dedu and Ngode legend, there are values that can instill a deep understanding of the relationship between humans and nature, encompassing aspects of sustainable practices in livelihood systems, life equipment system, knowledge systems, religious systems, and social systems. This study shows that the Toto indigenous people have a system of knowledge, technology, livelihood, and religion that are closely interrelated in maintaining their relationship with the environment. These systems not only reflect the adaptation of society to ecology and society but also show the importance of maintaining traditional values and local wisdom in facing changing times. However, modernization and environmental change can endanger these systems, so efforts are needed to preserve them as part of the cultural and ecological identity of indigenous peoples. The researcher hopes that future researchers will contribute to the growth of knowledge in ethnoecology and help bridge the gap between traditional wisdom and contemporary environmental challenges.

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