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Local Wisdom of Bulalo Mangrove Forest Management, Kwandang District, North Gorontalo Regency

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ABSTRACT
Local Wisdom is a form of environmental wisdom in social life in a place or region. So, it refers to a particular locality and community. This research aims to determine local wisdom and community dependence on forest management in Bulalo Village, Kwandang District, North Gorontalo Regency. The research method used was Snowball sampling with 15 respondents, consisting of 1 Pante Hamlet Head, 1 traditional leader, 7 Fishermen/Farmers, and 6 Farmers. Types of Mangroves in Bulalo Village, there are 5 types of mangrove vegetation, namely Wu'ata (Rhizophora sp.), Tangalo (Ceriops sp.), Tamenda'o (Sonneratia sp.), Songge (Bruguierra sp.) and Yapi-yapi (Avicennia sp.). Mangrove farming groups and local communities have long implemented this belief or taboo. They think that these methods must be implemented to maintain and avoid damage to the mangrove forests in Tuwoto Village, Kwandang District, North Gorontalo Regency. Plant parts that are often used are roots, fruit, sap, and leaves.

Keywords: *Bulalo, Mangrove, Wisdom*

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INTRODUCTION

Mangrove is a type of vegetation whose habitat is in the coastal area which is always affected by the ebb and flow of sea water. Vegetation that lives in muddy soil and brackish water areas is very beneficial for coastal communities. The function of mangrove forests for the community from a physical aspect as a wave breaker and prevention of sea water intrusion, a biological aspect as a breeding ground for animals and biota, from a chemical aspect mangroves can manage waste and chemicals produced by ships or garbage dumped into the sea, from an economic aspect increasing the income of fishermen from fish sources that are close to the mainland (Ruruh & Ernikawati, 2021).

People are beginning to see the impact of mangrove forest destruction. Specifically, coastal communities include fish that were previously on the coast but are now far out to sea, seawater intrusion that has an impact on plantations and rice fields, salty taste in

several coastal locations, and abrasion in many coastal areas (Ruruh, 2019). One of the cultural knowledge needed for a particular civilization to exist and have a variety of cultural knowledge is traditional wisdom. One aspect of Indonesia's cultural heritage is Local Wisdom. Human-environment interaction produces local knowledge that is able to meet various needs (Pulubuhu, 2019)

The type of environmental Local Wisdom that enters the social life of a location or region is Local Wisdom. Therefore, Local Wisdom—which refers to a particular location and group, namely as a type of human behavior—is not static but develops over time in response to the social and cultural order and interconnectedness that exist in a community. (Denius, et., al. 2013).

Forests for the people of Bulalo Village are not only economic resources, but are also related to their lives. The people of Bulalo Village are also very dependent on forests for clothing, shelter, and food. From the forest, the people of Bulalo Village also need various types of non-wood such as sap and leaves for herbal medicine. Awareness of the importance of forests for their daily lives causes the people of Bulalo Village to see forests not as objects of exploration to meet needs.

RESEARCH METHODOLOGY

This research was conducted in Bulalo Village, Kwandang District, North Gorontalo Regency for 2 months, starting from March to May 2024.

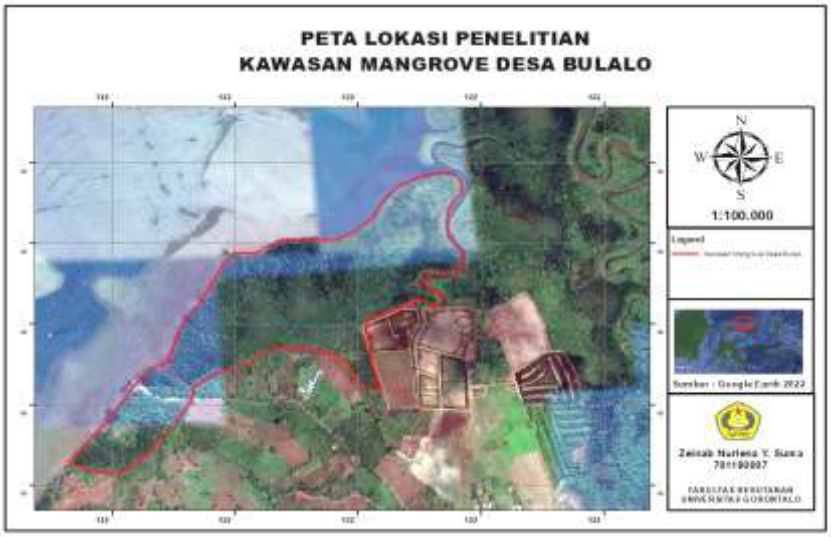

Figure 1. Map of research location

The equipment used in conducting research is in the form ofLocation Map to see the existence of mangrove areas in Bulalo Village, The tools used in this study were a digital camera, laptop and stationery while the materials used in this study were a questionnaire guide for in-depth community interviews as an instrument for collecting primary data in the field.

Interview, data collection through interviews that are sources of key informants including the Village Head and Traditional Leaders, as well as the general public living in

Bulalo Village, Kwandang District. We can get information on local wisdom in everyday forest management and find socio-cultural impacts on forest sustainability by using the results of these community interviews.

Observation, which is the process when the desired information has not been obtained. To ensure the condition of the community, a direct examination of the condition of the community is carried out. Data is collected through direct observation through interviews to complete the validity test.

The snowball sampling method is used to determine the sample. Snowball sampling is a multi-level and even method of selecting respondents, where researchers collect data evenly (multi-level) from one of the respondents in this case the Head of Bulalo Village or a traditional figure who has been selected by the researcher. The researcher then uses the data collected from this respondent to select the next respondent. Based on these respondents, the researcher will determine the next informant based on information obtained from previous respondents.

After the primary and secondary data are collected, they are processed and assessed descriptively and qualitatively to provide a summary of each research objective that has been achieved. Data collected through observation, interviews, or additional sources are categorized according to the research study concept and issues. Data interpretation is then used to conduct the analysis.

RESULT AND DISCUSSION

The research location is in Bulalo Village, Kwandang District, North Gorontalo Regency, Gorontalo Province. Administratively, Bulalo Village is located in North Gorontalo Regency, namely in the North it borders Cisadane Village, in the East it borders Posso Village, in the South it borders Alata Karya Village and in the West it borders the Sulawesi Sea.According to the interview results, Bulalo Village has 5 types of mangroves based on local names, namely Wu'ata, Songge, Tangalo, Yapi-yapi and Tamenda'o.

The results of the study showed that the resultsObservations at the research location and supported by the results of interviews with the community, in BULALO Village, the type of mangrove found was Wu'ata, and the type whose sap is often used is yapi-yapi, as seen in Table 1.

Table 1. List of Mangrove Types and Their Benefits in BULALO Village

No	Local Name	Latin Name	Benefit
1	Wu'ata	*Rhizophora*sp.	Roots are used as a crab breeding ground
2	Songge	*Bruguierra*sp.	Fruit made into cakes and chips
3	Tangalo	*Ceriops*sp.	The branches are made into shrimp traps
4	Yapi-yapi	*Avicennia*sp.	The fruit is made into cakes and the sap is used as medicine.
5	Tamenda'o	*Sonneratia*sp.	The fruit is made into an anesthetic for crabs

The local wisdom owned by the people of Bulalo Village is used as a reference in managing customary forests in their village. Forms of Local Wisdom in Bulalo Village are the community's conception of forest areas, ritual practices and local customary village regulations. The forest area in Bulalo Village is a customary forest owned by the Bulalo Village community whose work as fishermen is very dependent on the condition of the Mangrove Forest. This Mangrove forest area is managed with the beliefs of the community.

The results of the interview that can be taken above are that the Head of Bulalo Village really hopes that the traditional beliefs in Bulalo Village need to be maintained and not just customs but the ethics and rules in Bulalo Village are maintained for their children and grandchildren.

The results of observations and interviews as well as observations in the field, then there are several basic things related to Local Wisdom by the community in Bulalo Village in managing the forest environment. The forms of Local Wisdom can be seen in table 2. below:

Table 2. Forms of Local Wisdom in Bulalo Village

Product	**Types of Local Wisdom**
Beliefs or Taboos	1. It is not permitted to catch fish, shrimp and crabs using drugs without asking the area's caretaker directly. 2. It is not permitted to cut down mangroves without the consent of the community in the afternoon because it will make a strange sound at night and the sea water will suddenly rise to the land. 3. It is forbidden to wear bright red clothes in the middle of the mangrove forest and it is not permitted to eat yellow rice in the mangrove forest as it will cause illness.
Ethics and Rules	1. Local people prohibit people from entering the mangrove forest wearing bright red clothing because it will cause dehydration. 2. It is not permitted to exploit mangrove forests carelessly without permission so as not to damage the ecosystem. 3. The community does not justify being surprised or in the local language known as (Hunggalabu). 4. It is not permitted to catch fish by bombing because it can damage the coral reef.
Engineering and Technology	1. Local people use mangrove roots as a crab breeding ground 2. Mangrove fruit of the Bruguiera gymnoriza or Songge species is used as the main ingredient for making chips. 3. There are several types of mangroves used as traditional medicine used and marketed by local people. The parts of the

	mangrove used are leaves, fruit, and sap.
Forest Land Management Practices and Traditions	1. If you cut down trees carelessly without reporting to the village office, you will be fined: if you cut down one tree, you must plant 25 trees. 2. Do not catch small crabs or female crabs that are laying eggs. 3. Determining zones as conservation areas.

On the coast of Bulalo Village, Kwandang District, North Gorontalo Regency, there are beliefs and taboos in the context of preserving mangrove forests, namely that it is not permissible to catch fish, shrimp, and crabs using drugs without asking the area's caretaker directly, it is not permissible to cut down mangroves without the consent of the community in the afternoon because it will make a strange sound at night and the sea water suddenly rises to the land, it is forbidden to wear bright red clothes in the middle of the mangrove forest and it is not permissible to eat yellow rice in the mangrove forest because it will cause illness. These beliefs and taboos are found in Bulalo Village, North Gorontalo. These beliefs and taboos have long been implemented by mangrove farmer groups and the local community. They assume that these methods must be implemented to maintain and avoid damage to the mangrove forest in Bulalo Village, Kwandang District, North Gorontalo Regency. The mangrove forest area functions as a source of livelihood for the local community. They utilize mangrove forest resources in the form of wood and non-wood forest products. One of the non-timber forest products utilized by the local community is the sap of the yapi yapi mangrove (Avicennia alba), this sap is used as a traditional medicine that has many benefits and has been marketed so as to increase the economic resources of the Tuwoto Village community. With the existence of mangrove forests that are maintained, the surrounding waters will be protected from sea water intrusion so that it is very profitable for crab pond cultivation.

On the coast of Tuwoto Village, North Gorontalo, community values in mangrove forest management, in particular: the use of nets, traps, and iron hooks to catch fish, shrimp, and crabs; the use of hatcheries for crab farming in mangrove forest areas; planting mangroves regularly; making mangrove nurseries; notifying the village office before cutting or thinning mangroves; selective cutting and replanting; educating the community about the risks of cutting mangrove forests with a family-oriented approach; zoning as a conservation area; and not catching crabs and female crabs that are laying eggs.

Bulalo Village, Kwandang District, North Gorontalo Regency, is home to forest management practices and traditions. You will be subject to sanctions if you cut down trees carelessly without notifying the village office. You need to plant 25 plants for every tree cut down. Avoid catching juvenile crabs or female crabs that are laying eggs. Establish conservation area zoning. Mangrove branches or bamboo are used for crab cultivation in areas around the mangrove forest. The mangrove forest area is used for cultivating and fattening caught mangrove crabs, taking into account the abundance of food and the fertility of the surrounding mangrove area. With the coordination and

cooperation of KPH Unit IV of North Gorontalo Regency, the local community also wants a division of zones, including cultivation, conservation, and rehabilitation zones. However, they really hope to be involved in the determination process, starting from the planning stage, maintenance, to the utilization of the results.

Meanwhile, for the product norms that exist in the community, it was obtained that there are provisions that if you cut down trees carelessly without reporting to the village office or farmer group, you will be fined, namely if you cut down one tree, you must plant 25 trees. If you do not comply with the applicable norms, you will be given sanctions as regulated in Article 98 and Article 109 concerning Environmental Protection and Management. Threatened with imprisonment for a minimum of 3 (three) years and a maximum of 10 (ten) years, a fine of at least IDR 3,000,000,000.00 (three billion rupiah) and a maximum of IDR 10,000,000,000.00 (ten billion rupiah).

Wearing red or bright colored clothes in the middle of the mangrove forest according to people's beliefs will cause illness after returning from the mangrove forest, usually often said langgu lo laut, even though scientifically because of the very high sea evaporation will cause dehydration and fatigue when in the middle of the mangrove and will attract insects in the mangrove. Then if eating yellow rice according to beliefs invites evil spirits because the smell of the food is considered as a ritual at sea and attracts insects that will disturb while in the mangrove.

CONCLUSION

Based on the research that has been carried out, it was concluded that:

The local wisdom owned by the Bulalo Village community is used as a reference in managing customary forests in their village. Forms of Local Wisdom in Bulalo Village are community conceptions of forest areas, ritual practices and local customary village regulations. The forest area in Bulalo Village is a customary forest owned by the Bulalo Village community whose work as fishermen is very dependent on the condition of the Mangrove Forest. This Mangrove forest area is managed with the beliefs of the community. The results of the interview that can be taken above are that the Head of Bulalo Village really hopes that the customs and beliefs in Bulalo Village need to be maintained and not just customs but the ethics and rules in Bulalo Village are maintained for their children and grandchildren.

The coastal area of Bulalo Village, Kwandang District, North Gorontalo Regency, has an idea/concept in the context of preserving mangrove forests, namely that it is not permissible to catch fish, shrimp and crabs using drugs and poison, it is not permissible to cut down types of mangroves, it is not permissible to drain waste and throw garbage carelessly. This idea/concept was obtained in Bulalo Village, North Gorontalo. This idea/concept has long been implemented by mangrove farmer groups and the local community. They assume that these methods must be implemented to maintain and avoid damage to the mangrove forests in Bulalo Village, Kwandang District, North Gorontalo Regency.

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