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Harmony and Sustainability: Traditional Ecological Knowledge Systems of the Kaluppini Indigenous People

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Abstract

The existence of knowledge of local indigenous local knowledge in natural resource management has experienced a shift. This research aims to reveal the forms of wise tought of the natural environment by the Kaluppini indigenous people, and to reveal how the Kaluppini community maintains the ecological knowledge systems. This research used ethnographic methods. It is a qualitative research procedure for describing, analyzing, and interpreting elements of a cultural group such as behavior patterns, beliefs, and language that develop over time. Data analysis techniques are processed. The collected data was analyzed by using Berkes' theory (1980). The research results show that the Kaluppini indigenous people maintain their traditional ecological knowledge from time time. First, traditional institutions which include the role of traditional stakeholders along with the legal system and rules for implementing traditional rituals, play a core role in maintaining harmony between society and the environment. Second, ethical land management in the form of traditional agricultural methods, pest and disease control, crop rotation systems, selection of plant varieties, and efficient irrigation systems support agricultural sustainability. Third, the existence of myths related to nature produces a respectful attitude towards the surrounding natural environment. Finally, the implementation of zoning reflects a wise policy to conserve natural resources while meeting community needs. It is important to recognize that most regions in Indonesia are currently facing serious challenges in the form of the climate crisis, including the phenomenon of long droughts that threaten agricultural activities and daily life. However, the Kaluppini community stands out as a unique example amidst this changing climate.

Keywords: *Boqbo Taun Ritual, Kaluppini Indigenous Community, Traditional Ecological Knowledge*

INTRODUCTION

In the midst of the turmoil of the technological era that is engulfing society today, the paradigm in resource management is experiencing a significant shift. Local wisdom, which was previously the main pillar in maintaining balance between humans and the environment, is now marginalized by the flow of modernization. Many local wisdom values that should be passed down from generation to generation are now neglected and are no longer practiced by their adherents (Arafah et al., 2023; Merina et al., 2023; Touwe, 2020). Although technology brings progress and convenience, these changes also have serious consequences for environmental sustainability and local culture. Therefore, it is important for people to understand and appreciate local wisdom as an inseparable part of identity and sustainable life (Laurian et al., 2017; Rahman et al., 2019; Ginting et al., 2020).

Changes in people's behavior that are increasingly focused on technology often result in an imbalance in the use of natural resources. Local wisdom, which was previously a wise guide in utilizing nature, has been neglected because there is too much focus on technological innovation. This triggers environmental degradation and has a negative impact on human life (Abas et al., 2022; Pesurnay, 2018; Arsal et al., 2023; Parameswara & Wulandari, 2020). Therefore, it is very important to revitalize local wisdom and integrate it with technological developments. Through this holistic approach, society can create harmony between technological advances and

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local wisdom, so that it can maintain the sustainability of natural resources and preserve rich cultural heritage. In this way, the technological era can be lived in a balanced and sustainable manner, respecting and utilizing local wisdom as the main pillar in managing resources (Ufie et al., 2021; Komariah & Asyahidda, 2020; Adriani & Supriatna, 2019; Rahman, 2019; Sahib et al., 2019).

As in research conducted by Hidayanti (2016, p. 42), local knowledge practices in the form of Pronoto Mongso as a planting season calendar system to adjust agricultural schedules and water availability have disappeared, replaced by technological advances through irrigation systems. Apart from that, there are also Tambas, et al (2018, p. 78) in their research found that the Maneke tradition, a way of catching fish using natural materials, has shifted its position to be replaced by technological mobility. Furthermore, Thamrin (2017, p. 357) in his research found that the existence of the Rokan Hilir indigenous community with environmental management policies was a victim of capitalist modernization.

Based on the description above, it appears that local knowledge regarding nature conservation has been largely ignored. As a result, more and more natural damage occurs as a result of human activities. Data from the Meteorological, Climatological and Geophysical Agency (2023) shows that Indonesia is currently facing serious challenges due to the long drought that will hit most of the region in 2023. This phenomenon causes drought which has an impact on agricultural activities and the availability of clean water for daily needs. Environmental damage, which is the root of this problem, needs special attention, because, if left unchecked, it will have an impact on human life and the earth's ecosystem as a whole.

Humans are the central point of environmental balance in nature. When humans are able to protect and care for nature, it will react the same way to human treatment (Nahdhiyah et al., 2023; Akhmar et al., 2022). On the other hand, if humans damage nature, it will react negatively. Therefore, humans will not be able to understand and solve world problems with scientific knowledge alone, but integration with local knowledge that is integrated with nature is needed. This aims to develop strategies that are more complex and based on local wisdom to face increasingly complex challenges.

One of the local community knowledge that attracts attention is the Kaluppini indigenous community with the local knowledge in maintaining harmony with the environment. This community's natural management activities are always guided by customary rules. Much of this knowledge is stored in the form of myths and confirmed through rituals. The ritual ceremony that is still practiced by the Kaluppini traditional community is known as the Taun Boqbo ritual (source: traditional authority/Village Imam). It is a ritual specifically for rice plants. Implementation starts from before planting until harvest time.

Even though the local traditions and knowledge of the Kaluppini people still survive in society, but it should be protected, because the modern life patterns is going so fast. Herein lies the significance of this research which aims to research the Kaluppini indigenous community with its traditions which are still practiced today. This research aims to explain the forms of wise management of the natural environment by the community. The presence of this research has significant implications that are not only relevant at the local level, but also have implications at the national and global levels regarding sustainable procedures for living side by side with nature. Researchers used Berkes' theory (1980) in analyzing the traditional ecological knowledge (Traditional Ecological Knowledge) of the Kaluppini indigenous people, hereinafter abbreviated as TEK. Berkes (1980) divides TEK into four categories, namely:

First, it includes knowledge about local types of flora and fauna, taxonomy and their use (etho-botany). Second, the natural resource management system is in the form of knowledge about functional relationships or ecological processes. Third, TEK is embedded in social institutions and informal rules practiced by community groups. Fourth, TEK is related to the perspective that forms an interpretation of the environment or world around it (ethics and values).

People Behaviour

People's behavior in a culture is the result of complex interactions between individuals and their environment which are influenced by the norms, values, traditions and social structures that exist in a culture (Beaulieu & Jimenez-Gomez, 2022; Tahir et al., 2020). This behavior is often a reflection of patterns that have been formed

in society and passed down from generation to generation. Explanations of people's behavior in culture cover various aspects, including social interactions, ways of communicating, norms in the family, work, religion, as well as habits and traditions that influence daily actions (Widarko & Anwarodin, 2022; Rahman et al., 2022).

People's behavior in a culture also includes an understanding of the hierarchies and roles assigned in society, such as differences between gender, age, social status, and ethnic background. Apart from that, culture also influences the way individuals express emotions, resolve conflicts, and form their identity and identity (Nisar et al., 2022; Arniati et al., 2019; Suma et al., 2023). In the context of globalization, culture can also become dynamic and continue to change due to external influences, such as technology, media and migration, which also influence the behavior of individuals in that culture. By understanding and appreciating the diversity in people's behavior across cultures, it builds more harmonious and inclusive relationships in a multicultural society.

Local Community

Local communities in a cultural context refer to groups of individuals bound by a common cultural heritage, including the values, traditions, language and cultural practices they share. These communities are often formed around certain aspects of culture, such as religious beliefs, cultural traditions, local art and music, or the language spoken in a particular region (Yang et al., 2022).

Local communities in culture can be the custodians and bearers of a rich and diverse cultural heritage. It is not only maintain old traditions, but also develop new innovations inspired by their cultural heritage (Girard et al., 2022). Through various activities such as cultural festivals, art exhibitions, or traditional performances, local communities within a culture strengthen their own cultural identity and also share it with others inside and outside their community.

Furthermore, it can also be centers of important social and economic activities, such as traditional handicrafts produced by local people or culture-based tourism that highlights the uniqueness of their culture (Amrin et al., 2022). Thus, local communities in culture not only play an important role in maintaining cultural heritage, but also in building local economies and strengthening relations between community members and with the outside world.

RESEARCH METHOD AND SOURCES OF DATA

The type of research used was ethnographic one using a qualitative approach. This research was carried out in the Kaluppini traditional area which is located in Kaluppini Village of Enrekang District, Indonesia. The data in this research were obtained from interviews to respondents who met the research criteria. The selected informants in this research came from traditional leaders, religious leaders, farming communities, and several other communities (teachers, entrepreneurs). Informants are determined not based on the number required, but based on considerations of the function and role of the informant according to the research boundaries. Data analysis techniques are processed based on four steps: a) data collection, b) data reduction, c) data processing, d) drawing conclusions.

RESULTS AND DISCUSSION

The results of the research found that there are four categories of traditional ecological knowledge (so called TEK) of the Kaluppini indigenous people which are used in maintaining the natural environment. The four TEK include: traditional institutions, land management ethics (knowledge), myths (value systems), and zoning. The following is a table of the TEK categories of the Kaluppini indigenous community:

Table 1. TEK Categories of the Kaluppini Indigenous Community

No.	Categories of Traditional Ecological Knowledge (TEK)	Aspect
1	Traditional Institutions of the Kaluppini Indigenous Community	13 Parallu Banua (Traditional ruler)
		Massipulung (collective decision procedures)
		Traditional Legal System
		Performing Rituals
2	Land Management Ethics	Traditional Agriculture
		Pest and Disease Control
		Crop Rotation System
		Selection of Plant Varieties
		Water System
3	Myth	The Myth of Nature Protection
4	Zoning	Sacred Zone
		Utilization Zone
		Residential Zone

Analysis of the TEK categories found in the Kaluppini indigenous community shows that: First, traditional institutions which include the role of traditional stakeholders along with the legal system and rules for implementing traditional rituals, play a core role in maintaining harmony between the community and the environment. Second, ethical land management in the form of traditional agricultural methods, pest and disease control, crop rotation systems, selection of plant varieties, and efficient irrigation systems support agricultural sustainability. Third, the existence of myths related to nature produces a respectful attitude towards the surrounding natural environment, and the last, the implementation of zoning reflects a wise policy to conserve natural resources while meeting community needs.

Traditional Institutions of the Kaluppini Community

The traditional institution of the Kaluppini community, called Parallu Banua, consists of 13 traditional stakeholders. Traditional leadership systems play an important role in solving social problems and preserving nature. The traditional leadership in the community is seen as the main authority. Customary law and social norms are often seen as stronger than formal government law. Conflicts and problems in society are first resolved through customary processes. If the problem cannot be resolved by custom, then formal authorities such as the village government or authorized legal institutions can be involved.

The form of management for the natural environment is largely determined by institutional rules. If a rule is violated, it must be decided through customary justice by providing customary sanctions. The imposition of customary sanctions on perpetrators is carried out based on the results of the massipulung (deliberation) of the customary stakeholders. Customary sanctions that apply to the community include; Social sanctions as exclusion from other communities, fines for preparing ritual needs, and suspects being expelled from the Kaluppini traditional territory. The fines cannot be tolerated. The existence of traditional institutions in society as determinants of the course of policy in managing natural resources is included in ecological knowledge.

The highest officials of the Kaluppini community are called To Aqpa. They are Tomakaka, Ada', Khali and, Imam. All four have the same authority. Tomakaka and Ada' are the top leaders in the customs section, dealing with issues related to the world. Adaq's duties are the same as those carried out by Tomakaka. Tomakaka is replaced by Adaq if he is unable to carry out his duties. Meanwhile, the Khali and Imam are the top leaders in the sharia or religion department.

Furthermore, the Kaluppini traditional institution that is a person who is an expert in astronomy known as Pande Tanda. The Pande Tanda has a responsibility for seeing and determining good and bad days. For example, carrying out wedding ceremonies, building a house, including carrying out the Taun Boqbo ritual and other rituals. Furthermore, the Kaluppini traditional institution also has a traditional intelligence called Tappuare. The Tappuare has the authority to deal with threats both from within and outside the community. During his tenure as Tappuare, he was not allowed to cut his hair. Therefore, Tappuare has long hair.

Land Management Ethics

The knowledge of managing natural resources by the Kaluppini indigenous community can be seen through

the Taun Boqbo ritual. The plant pattern carried out includes the following cycle of stages of the Taun Boqbo ritual:

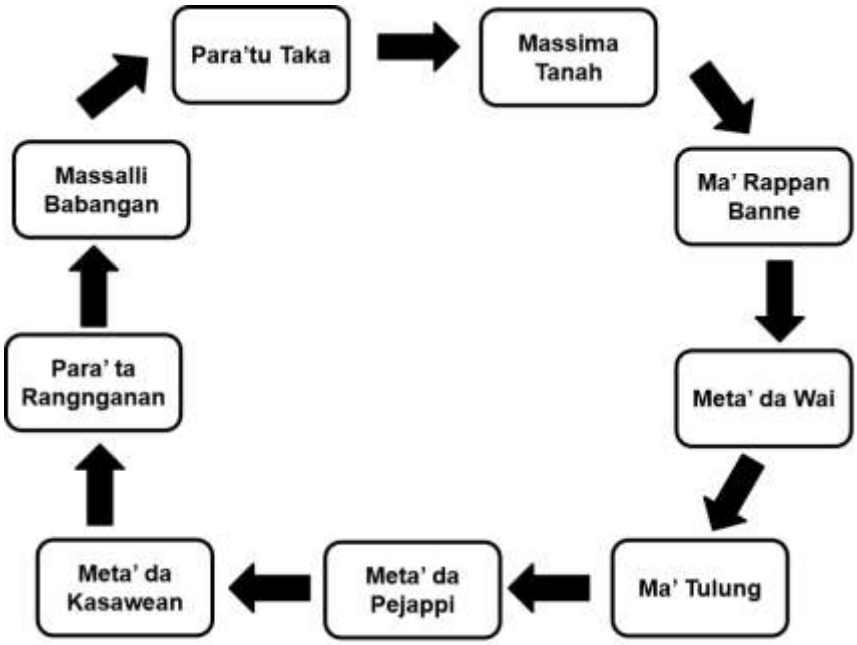

Figure 1. Bobbo Taun Ritual Stage Cycle

From the picture above, researchers found that the Taun Boqbo ritual has environmental conservation values which are implemented in the agricultural system. These values are not only in the form of implementation that is full of noble values, but also a system of knowledge and real actions of the community in processing their land. These conservation values can be seen in the following;

1. Land Management

Before the people cultivate the land, they first carry out the first ritual, massima tana (figure 1). It believed that when they want to cultivate land, they must first ask permission from the land owner or the magical guardian of the place. After that, they started cultivating the land.

Furthermore, the land that will be used for planting is cleaned first. Large plant stems are cut using a machete. Meanwhile, the grass is cleaned using a sickle. After the plant stems and grass have been cut, then collect the grass to the edge of the land so that it does not interfere with plant growth. Plant stems are also collected, usually dried and taken home to be used as firewood.

The next stage is loosening the soil using a hoe and fork. The method of loosening the land of the Kaluppini people is by turning over the soil to a depth of about one inch. Land processing by turning over the soil is carried out to change the structure of the soil to make it loose and increase nutrients so that plant production also increases. For subsequent plantings, this method does not need to be repeated because the soil structure that has been previously processed already has sufficient nutrients.

The land management of the Kaluppini community is carried out by relying on a mutual cooperation system called makkombong. Makkombong is an activity or collaboration involving many people. Makkombong activities by the community are not only in land processing activities, but also during harvesting and building houses.

2. Planting

In Figure (1), planting is at the Marappan Banne stage (sowing seeds). Before people plant, firstly it should carry out a second ritual. Marappan Banne aims to ask God to make the land he is planting fertile and loose. Planting

activities begin with the dry season process. Marau is the process of selecting seeds carried out by women.

Women have the main role in selecting seeds. When the person is choosing plant seeds, it is forbidden for men to be kanyennye-nyennye or making any gaps in selecting the seeds. The people believe that the selection of seeds should be done by women. They believe that women are the source of seeds and the source of life. Therefore, the presence of women in selecting plant seeds is considered to bring blessings and fertility to the plants. The way to determine good seeds is to look for seeds that are large and full with small stems. Meanwhile, for corn, the seeds are taken not from the top and bottom ends but from the middle of the corn. As the informant stated, "Yana lainala bibi pileiki alanbibi yato bibi macege ladi ala yato malapu". This means: when choosing seeds, choose seeds that are large and full (Saidi, 2020).

There are restrictions on taking seeds for women: pissentawakding ki totobaine marau ke carepai. This means that it is forbidden for women to take seeds when they are dirty (menstruation, postpartum, etc.). After completing the selection of seeds, the next stage is planting. The Kaluppini community pays attention to planting time when planting. The timing of planting by this community is based on Pande Tanda (traditional leaders) as a person to ask for guidance regarding good times to plant.

3. Fertilization

Fertilization is carried out to increase the availability of nutrients needed by plants. There are two types of fertilizer commonly used, namely organic fertilizer and inorganic fertilizer. Organic fertilizer can be in the form of compost and manure. This event requires them to combine the use of organic and inorganic fertilizers. Continuous use of inorganic fertilizers will have negative effects on the soil, such as decreasing organic matter content and the activity of microorganisms. Therefore, it is necessary to have a combination of organic and inorganic fertilizers to reduce the opportunity for land degradation.

4. Pest and disease control

Pest control by the Kaluppini community is carried out using non-cultural (chemical) techniques as well as using cultural techniques. Cultural control can be done by: 1) Fumigation using Tabang Flowers, this method can eradicate stink bugs. Fumigation is also interpreted as fragrance, so the plants will feel happy. On the contrary, the smell is actually disliked by pests. 2) Use of spices (cakku, panini). These spices are ground together. This spice water is then sprinkled on the plants to eradicate fruit-sucking plant hoppers. 3) To get rid of rat pests, this is done by not killing them directly, but by moving the remains of rat food to the edge of the rice fields or drying the rice fields. 4) In gardens, most people have huts (garden houses) whose roofs are made of reed grass. The old or porous wood from the roof is then stuck in the middle of the rice field to protect the plants. 5) Pig pests, before people hunt, they first carry out the eighth ritual Para'ta Rangnganan.

Based on the results of the analysis obtained by the researcher above, it was found that the knowledge of the ecological wisdom of the Kaluppini community contained in the Taun Boqbo ritual was implemented in land processing activities. They realize that apart from forest damage, implementing poor agricultural patterns will also result in environmental damage.

Myth

Several myths that exist and develop in the Kaluppini traditional community are believed by the community to this day to have a very big role in preserving nature. Reviews of each of these myths can be seen in the following sections:

1. Message that prohibits taking wood in customary forest areas

The cultural message of the people is anggi nala kaju lakoi tana ongko, meaning do not take wood from the Tana Ongko area (customary forest) without the permission of the traditional authorities. Every resident who lives around the Kaluppini traditional community is prohibited for taking wood from Tana Ongko without permission from the traditional authority. This rule is binding on the people living in this area. Everything that lives and grows in the Tana Ongko area is customary property, so all activities that will be carried out in it must have permission or go through a customary deliberation process.

People who need wood from Tana Ongko to replace the pillars of their houses must obtain permission from traditional authorities. If the people concerned really have the right to obtain the wood, the person concerned has the right to plant the same tree as the one who cut down. Part of the harvest was handed over to traditional institutions in preparation for repairs to traditional houses and mosques (Saidi, 2020).

The belief of the Kaluppini people is that Tana Ongko is something mystical. When someone takes something from within Tana Ongko without the permission of the traditional authority, the person concerned will receive sanctions (Jam et al., 2019). Apart from sanctions from institutions, there are also sanctions from entities or forces from within. Plants planted can experience pest problems and failure in growth.

The existence of myths that regulate human relations with Tana Ongko functions to protect the Kaluppini traditional forest area. This is why the existence of Tana Ongko is still maintained to this day.

2. Prohibition of cutting down Baloboan trees

Another cultural message is anggi tabangki kaju baloboan sa yato kaju baloboan inganna tomanurung, meaning: do not cut down the Baloboan tree because this tree belongs to Tomanurung. Baloboan is one of thirteen Tana Ongko in the Kaluppini traditional territory. It can find many types of Baloboan trees which are also nesting places for bees. Residents who are caught cutting down this tree will be subject to sanctions to replant it, one Baloboan tree is equivalent to 10 ordinary trees. The implementation of this customary law is a threat to the community not to disturb and damage this tree.

Traditionally, the Baloboan Tree is bound by customary law. It is taboo for the people to cut down this tree. The Kaluppini people believe that trees under which there are springs have guardians, so it is prohibited from cutting down these trees. They believe that if the Baloboan tree is cut down, the reaction will be that the tree will not fall. Meanwhile, the perpetrator of the tree cutting will be mapadik (sick) after cutting it down (interview results with Lasida, 2020). Lasida also added that when the tree is disturbed by humans, the Rano (spring) will disappear or move.

In the prohibition above, Tomanurung is interpreted as honey. It is with all the good messages and teachings as well as the benefits of honey. Honey has special benefits for the body and is efficacious in treating various diseases. It found in the Baloboan Tree is a type of Apis Dorsata honey (forest/wild honey) which has a higher antioxidant content than farmed bee honey which is good for digestion, improving appetite, as a source of energy and nutrition, as well as preventing and healing disease.

The myth of the Baloboan Tree has been transformed into ecological wisdom to protect Baloboan as one of the Tana Ongko (customary forests), protect the Baloboan Tree from illegal logging and deforestation activities, protect the habitat for honey bees to nest and produce honey. As well as, maintaining the role of trees in preserving soil and water springs.

3. Prohibition of polluting water sources

Anggi brings Rano's kurin lako. Meaning: do not bring a black pot to Rano (spring). The Kaluppini indigenous people believe that Rano has a guardian and that when it breaks taboos the spring will dry up. Therefore, it tries as much as possible so that no one brings the black pot to Rano. In this case, people do not dare to take the risk of dealing with supernatural things in the spring area.

The emergence of a collective belief in this kind of myth brings benefits to the sustainability of water resources. In fact, the rationalization is that a pan that turns black due to cooking using firewood on a regular stove or stove produces black soot that changes the color of the pan. Black soot is formed from carbon and water vapor resulting from combustion in ordinary fires and stoves. If the black pot is used as a container for drawing water, the black soot will mix and flow along the water flow. Water that was previously clear and odorless will be polluted by soot waste.

From the results of this research, the researcher obtained several myths regarding the protection of forests and springs by the Kaluppini indigenous people. The relationship between myth and the environment is that when humans do not consider the existence of myths important, humans will tend to freely and wildly carry out

environmental destruction such as deforestation and forest burning for marketing and agricultural purposes. Therefore, the myth in this research has explained its role as an environmental conservationist.

4. Zoning

The local knowledge of the Kaluppini community, the so called indigenous people, includes land use management. It divides the territory into three main zones, namely: sacred zone, utilization zone and residential zone. There are 13 sacred traditional forests in this traditional area. The thirteen traditional forests are called Tana Ongko. It is a traditional forest that is protected and sacred as a place for rituals including the Taun Boqbo ritual. The existence of Tana Ongko as a sacred place is an idea based on mythology and to enter it you must get permission from traditional authorities.

The existence of prohibitions and strong reasons for entering Tana Ongko makes this area a Sacred Zone. The sacred zone can be understood as the existence of an area related to mysterious things that are both very amazing and frightening. The sacredness of Tana Ongko can be seen in the stories that contain mystery and horror. As a result of the sacredness of it, the Kaluppini people are reluctant to behave towards nature. Indirectly, it realized that forests are a source of life and must be cared for along with all the ecosystems in them. Not only as a place for rituals but also as a source of water availability for the region and its surroundings. When forests are damaged by human hands, that is water availability will stop.

Below it will briefly explain the division of zoning by the Kaluppini community:

a) Sacred Zone

The sacred zone for the Kaluppini indigenous people is in the form of 13 traditional forests or called Tana Ongko. It is a customary forest zone with original forest conditions, the land has never been cleared or cultivated for farming or agricultural activities. Inside is a spring. Its biodiversity is still pristine, contains its own cultural and magical value for its people. Of the 13 traditional forests in Kaluppini, there are several that are used as places for rituals to be carried out. The thirteen Tana Ongko are: Palli, Pesapoan, Bulung, Liang, Tiro Padang, Batang, Malenyong, Sarasa, Baloboan, Tepulu, Tangmaroja, Warngian, and Rumbia. Basically, Tana Ongko has a story that is still developing among the Kaluppini community. Thanks to this mystical thinking, it is in the Kaluppini traditional area has been preserved until now.

b) Utilization Zone

The utilization zone for the Kaluppini indigenous community is in the form of gardens (uma) and rice fields (teppang). The types of plants in the utilization zone consist of high canopy plants, namely Mult Purpose Trees Species (MPTS) plants such as coconut, clove, areca nut, candlenut, cocoa, palm palm, coffee, nutmeg, candlenut, rambutan, langsat, mango, nutmeg, cocoa ; medium canopy crops (staple crops), namely: corn and rice; low canopy plants (vegetable plants) such as long beans, kale, spinach, pumpkin, mustard greens, chilies, Tana beans, sweet potatoes, green beans, red beans, tomatoes and spinach.

c) Residential Zone (Kampong)

Kaluppini traditional territory with settlements located outside the city and with the majority of the population being farmers. Its geographical location is at an altitude of 800 to 1,200 meters above sea level at the foot of (mount) Gunung Latimojong. Its location in the highlands means that Kaluppini has a cold climate with temperatures ranging from 15 C2 to 22 C2. Such climatic conditions make Kaluppini a potential agricultural area.

The characteristics of residential areas in the Kaluppini traditional area are characterized by the irregular physical shape of the houses with patterns that tend to be clustered and follow the road. A map of the distribution pattern of Kaluppini community settlements can be seen in figure (2).

Figure 2. Distribution Map

From figure (2) above, it can be seen that the Kaluppini area is in the form of mountains or plateaus with rough relief, thus forming a clustered settlement pattern that follows the road. This pattern is also caused by the majority of the population working in the agricultural sector and located close to residential areas to make it easier for them to approach transportation facilities.

Based on the spatial planning model that researchers obtained from the Kalupini indigenous community, it should be able to provide a solution to spatial planning problems that occur in Indonesia in particular. It can be seen that local wisdom is indeed able to solve environmental problems. Indigenous peoples are able to maintain their relationship with nature through wise and responsible use.

Furthermore, the Kaluppini community zoning concept described above is expected to be able to support national development as an effort to protect and manage the natural environment in an integrative, sustainable and consistent manner through local wisdom.

CONCLUSION

The TEK findings of the Kaluppini community can be seen in four ways, namely traditional institutions, land management ethics, myths, and zoning. 1) Traditional institutions: the traditional institution of the Kaluppini community is called Parallu Banua which consists of 13 traditional stakeholders. The form of management and use of the natural environment is largely determined by institutional rules. If a rule is violated, it must be decided through customary justice by providing customary sanctions. 2) Myth: there are three myths that are still often found in the Kaluppini indigenous community. These myths take the form of: a prohibition on entering customary forests, a prohibition on cutting down Baloboan trees, and a prohibition on polluting water sources. The presence of the myth of the existence of spirits who inhabit forests and suffer bad luck if they destroy the forest has been transformed into ecological wisdom in maintaining and managing forests so that damage does not occur and the naturalness is maintained. 3) Ethics of land management: management of natural resources by the Kaluppini community is based on local ecological knowledge, which can be seen from the selection of seeds, use of fertilizer, and how it eradicates pests and diseases. It realized that apart from forest destruction, implementing poor agricultural patterns will also result in environmental degradation. 4) Zoning: Zoning in the Kaluppini community is divided into three, namely: sacred zone, utilization zone and residential zone. The existence of knowledge regarding zoning provides guidance for the community not to just cultivate or clear land. Unconsciously, it has carried out an action that has implications for environmental sustainability.

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