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LOCAL WISDOM AND ECONOMIC-CONSERVATION STRATEGY IN COMMUNITIES AFFECTED BY NATURAL DISASTERS

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ABSTRACT

Community interaction with the natural environment is reflected through the local wisdom implemented by the community. This is not free from the parties' interests in natural resources. Exploitative behavior or otherwise maintaining ecological and socio-economic balance in the natural environment arises from the various interests of the parties. Such conditions raise the question: How can society's socio-economic strategies be strengthened so that harmonious relations between humans and nature are maintained through a balance of ecological-conservation and socio-economic interests? This research uses a qualitative approach by collecting data through interviews and observation. The research results show that people living in areas prone to natural disasters in the form of earthquakes and landslides have a pattern of relationship with their natural environment in socio-economic activities. Efforts to escape the impact of natural disasters are experiencing obstacles because the community's socio-economic strategies and activities rely on agriculture and plantations which are directly related to the condition of natural resources. In this situation, it is necessary to improve and strengthen community economic activities in the fields of agriculture, plantations and collaboration at the community level.

INTRODUCTION

Global climate change is causing natural disasters in various regions. In the period 1980-2014, natural disasters due to climate change have caused losses of around US$ 1 trillion and caused human casualties of around 226,000 people (Mård et al., 2018). Indonesia has a fairly high level of natural disaster vulnerability, which is 36th out of 172 countries most prone to natural disasters in the world. During 2021, there were 3,092 disasters in Indonesia (Putri et al., 2022).

Disasters that have an impact on the community show the importance of local wisdom in natural disaster mitigation (Thene, 2016). The community has local wisdom as a guide to respond to natural disasters and guide the community to use natural resources wisely. Local wisdom is manifested in the local knowledge system, belief system, action system, technology, and community insight in interacting with nature. The entire system guides human behavior in interacting with the environment or ecological community (Putra, 2022).

However, the knowledge system and technology system run by the community are also experiencing contractions in the midst of socio-economic changes. There has been a decline in local values and wisdom in many places. Socio-economic pressures exceed the carrying capacity of nature and cause the degradation of the values embraced by society (Rahmayanti & Feryl Ilyasa, 2022). All parties seek to take socio-economic benefits, even when the drought of nature threatens human safety at any time. The reference for collective action becomes ineffective because all parties have different interests in natural resources (Maring, 2020).

Such an overview encourages the need for a study on how to integrate local wisdom in community collective action guidelines and natural disaster mitigation strategies are non-structural in the form of policy implementation and community capacity building (Putra, 2022). The above description is formulated into the problem of this research, namely: How to integrate the value of local wisdom in natural disaster mitigation strategies?

Local wisdom is interpreted as a system of knowledge and a system of activities carried out by the community in the context of a certain space or region (Seli, 2018). The knowledge system can be sourced from previous generations or from the experience of the community or community in interacting with the environment and other communities. The knowledge system and activity system (action) are used or carried out to solve various problems faced in a good, correct, and good manner (Putra, 2022). The definition looks integrated and complete because it includes a system of knowledge, views, values, and practices carried out by the community in the context of a certain space but always in contact with other cultures.

Local wisdom is also defined differently by some researchers, even though it contains the same essence. Ahimsa-Putra (2022) cites several definitions from researchers, which are summarized as follows: First, local wisdom is interpreted as an idea developed by a certain group of people that contains wisdom, wisdom, and good values (Putra, 2022). Second, local wisdom is also interpreted as a view of life, knowledge, life strategies, and activities carried out by the local community in overcoming the problems faced (Suparmini, 2013). Third, local wisdom is also interpreted as the indoctrination of reason by humans in actions and attitudes in the context of a definite space.

The study of local wisdom is also directed to the problems of environmental degradation faced by the community, such as mitigation of natural disasters, suppression of exploitative actions against nature, and understanding good practices in maintaining human relations with nature. Several research results show that local wisdom contributes to disaster risk reduction strategies carried out by the community through rituals, landslide overcoming activities, and folklore that function as a means of saving themselves from natural disasters.

However, the study of local wisdom needs to avoid the trap of romanticism that simply describes local wisdom as good things only, useful, noble, and philosophical (Putra, 2022). Thus, this research seeks to fulfill the element of novelty by: First, the placement of the research framework in the paradigm and framework of ethnoscience methodology (ethnoecology and ethnotechnology) to conduct local wisdom analysis, namely domain analysis, taxonomy analysis, and componential analysis.

Second, this research places local wisdom in the context of socio-economic reality that continues to move dynamically both at the village level and the wider surrounding area. Third, local wisdom needs to be integrated in social action guidelines and mitigation strategies so that local wisdom is not only at the unconscious level (tacit knowledge) but becomes an explicit culture, explicit knowledge (Putra, 2022).

METHOD

This research is driven by social phenomena due to natural disasters which are strengthened through relevant reference sources. Researchers are moved to study socio-ecological phenomena in the form of natural disaster events that cause victims to people who have local wisdom in their daily lives (Bahri, 2022).

To understand such a topic, this research inspires the constructivism paradigm which views that the source of truth and meaning of an event or occurrence is always in the frame of mind, understanding, and experience of the informant or resource person. Researchers must explore the meaning and truth of the phenomenon that occurs by relying on empirical data/facts in the field obtained through informants or resource persons in the field (Maring, 2020; Maring et al., 2024).

After turning off the paradigm inspiration, topic selection, and research title, the researcher continues to design the research by ensuring supporting theories/concepts, research methodologies, data collection techniques, locations, informants, and analytical frameworks to meet the achievement of research outputs. The main theories/concepts used in this study are local wisdom and natural disaster mitigation strategies. This study uses a qualitative approach by applying the ethnoscience methodological framework as an effort to be able to analyze local wisdom more systematically.

In the data collection process, interviews, observations, and the application of focused group discussions are applied according to data needs. The informants for this study mainly involved local community members and government officials and informant figures in the village. In addition, the determination of informants has also been expanded, involving government officials at the district and district levels, as well as other relevant institutions and interests in natural disaster mitigation. The location of the study was villages and village communities directly affected by natural disasters in Cianjur Regency, West Java. The village used as the location of the research is Cijedil Village, Cianjur from January to March 2024.

To answer the problem and objectives, this study applies a qualitative approach that emphasizes the process of collecting field-based empirical data and additional data sourced from texts and secondary data. Data collection in the field uses interview and observation methods. Text-based data collection uses a content analysis method combined with interviews with competent informants.

In line with the research problem, the data collected includes primary data and secondary data. The data collected included data on local wisdom, community social systems, local leadership, community socio-economic strategies, social rules applied by the community, and land use and economic policies. Based on the type and variety of data, informants or research resource persons include the community (community leaders, farmers, environmental activists), village/sub-district government officials, district governments, and government agencies that have authority in disaster management.

The selection and determination of informants or resource persons starts from the key informant and then refers to the snow-ball principle, which is to move to the following informant according to the needs of the data/information collected. The data mining process starts from the village. Data analysis begins when the identification process is during field research. The analysis process continues at the stage of analyzing local wisdom using the framework of ethnoscience methodology.

RESULTS AND DISCUSSION

Natural disasters in Cijedil village, Cugenang, are mainly in the form of floods and landslides. Floods and landslides are directly related to the topography and land use at the wider landscape level, namely the sub-district and Cianjur regency area. Cijedil Village is not spared from natural disasters in the form of floods and landslides. The soil structure and the intensity of land use in the form of agriculture and plantations also determine the vulnerability of Cijedil village to floods and landslides.

In early 2023, there was a flash flood that hit Cijedil Village, Cianjur, with high intensity. The flash floods that hit two sub-districts, Pacet and Cugenang were the result of overflowing water from the river that stretched across the region. As a result of the flash flood, around 100 houses in a number of villages in Pacet and Cugenang Districts, were flooded as high as adults' calves, including evacuation tents for residents who were flooded. Public facilities in the form of schools were also flooded. Although there were no casualties in the incident, hundreds of families were forced to evacuate to a number of places that were considered safe from flooding. In fact, the trauma of the residents of Cijedil Village and its surroundings due to the earthquake about three months ago is still felt. Dozens of evacuation tents for victims affected by the earthquake in Gununglanjung Village, Cijedil Village, Cugenang District, were swept away by the flood. The sudden flash flood caused people to be unable to save their property.

In addition to floods and landslides due to high rainfall, several villages in the Cugenang District area in Cianjur district were also the epicenter of the 2022 earthquake which caused casualties and severe distress in residential areas and agricultural/plantation areas in the area. The earthquake that occurred in the Cianjur area included a type of shallow crustal tectonic earthquake with the type of mainshock-aftershocks, which is a major earthquake followed by a series of aftershocks. An earthquake with a mainshock magnitude of 5.6 has caused casualties and socio-economic losses to the community. The destructive strength is also greatly influenced by the occurrence of aftershock earthquakes with a magnitude of 1.2 - 4.2 in the form of 140 aftershocks. Earthquakes with an average depth of about 10 kilometers have caused serious distress (Supendi et al., 2022).

The impact of the Cianjur earthquake has material, social, and economic destructive power (Caswati & Sudharmono, 2023). On November 24, 2022, the National Disaster Management Agency reported that the number of fatalities due to the Cianjur earthquake in 2022 reached 272 fatalities. The number of injured victims was 2,046 people, while the evacuees were 62,545 people. For material losses, as many as 56,311 houses were damaged. Of these, 22,267 houses were severely damaged, 11,836 houses were moderately damaged, and 22,208 were lightly damaged. The location of villages on fragile slopes also triggered landslides and made it difficult to search for and rescue victims. Heavy rainy weather in landslide-prone areas triggers natural disasters in the form of post-earthquake floods and landslides and hampers efforts to mitigate and recover from the impact of the earthquake (Muharromah et al., 2023).

Economic and conservation strategies

Economically, Cijedil is a strategic village because it is traversed by the Cianjur-Cipanas highway. Geologically, Cijedil Village is also in the fault plate area Cimandiri. Based on the 2017 Indonesia Earthquake Source and Hazard Map, the Cianjur area is crossed by the Cimandiri Fault of the Rajamandala segment which has a left-lateral strike-slip fault mechanism, making this area vulnerable to earthquake hazards (Sulthan et al., 2017).

The total population of Cijedil village is 9,723 people, consisting of 5,021 men and 4,702 (BPS Cianjur, 2023). The number of poor people is 726 people. Existing data shows that most of the residents of Cijedil village work as farmers/planters who have their own land resources with a total of 939 people. However,

the number of villagers who work in the agricultural sector but do not have their own land resources with the status of farm laborers is 1,883 people.

In general, economic activities as well as a source of income for the people of Cijedil village vary, namely as farmers/planters, self-employed, in the service sector, working in the formal sector such as teachers, employees. Cijedil Village and the Cugenang sub-district area are flowed by the Cibeureum River to the Cianjur River. This condition allows the people of Cijedil and its surroundings to carry out farming and gardening activities. This can be seen from the use of 6,600 hectares of land for a rice field area of about 1,800 hectares and the use of plantation areas of around 2,400 hectares of the total area of Cijedil Village covering an area of 610,258 hectares (BPS Cianjur, 2023).

Conditions in the field show that in general, agricultural areas or plantations in the Cijedil area and its surroundings are located in the area on the edge of the cliff which is prone to landslides. This is like what happened in 2022, when an earthquake occurred, a landslide occurred in the hilly area. The main roads and agricultural and plantation areas cultivated by the community were buried by landslides. In general, the Cugenang area is known as an agrarian area. Most of the residents of CijedilCugenang make a living as farmers, their main activities are farming and gardening. It can be seen from the data that around 105,777 residents in Cugenang are farmers who garden and grow vegetables. When the 2022 earthquake occurred, many of the villagers were working in gardens and rice fields (BPS Cianjur, 2023).

Efforts to know and understand the local wisdom system practiced by the community can be traced from the local values, norms, and rules that apply in the community concerned. In addition, efforts to know and understand the value of local wisdom that prevails in the community can be traced in economic practices run by the community as a source of livelihood for the local community. Economic practices carried out by the community can be more directed to activities that are directly related to natural resources such as agriculture, plantations, and forestry activities, both those that are exploitative and those that care for or conserve the surrounding environment.

In relation to the prevention and management of natural disasters, efforts to understand these economic practices can be an entry point to make improvements to natural disaster mitigation strategies in a sustainable manner because they directly touch what economic practices are carried out by local communities. The value of local wisdom is not only constructed in the form of norms and rules, but is also directly applied in improving natural resource-based economic practices that are friendly to natural disasters and sustainable.

The results of the study show two economic practices that on the one hand show a pattern of land use for agriculture and plantations with high intensity. Such practices are certainly directly related to floods and landslides that often occur in the region. On the other hand, the results of observation and reference studies also show that economic practices in the form of bamboo planting can be used not only to meet the economic needs of local communities but also to contain land and water conservation practices.

Ecologically, economically, socially, and culturally, bamboo plants are known as multi-functional plants. Ecologically, bamboo plants have a conservation function. Socio-economically, bambbu plants are an economic source for the community through various handicraft product creations. Bamboo is also one of the renewable natural resources. The superiority of conservation and socio-economic value makes bamboo have a value advantage in biodiversity conservation. Bamboo plants with various products they produce support the economic sustainability of the community.

Cijedil Village is one of the villages that produces booths , namely house walls made of woven bamboo. This potential needs to be supported by the development of community knowledge and skills in the use and management of bamboo. On the one hand, the community needs to be supported to take advantage of available resources, and on the other hand, carry out conservation and bamboo cultivation activities. The potential for bamboo development in Cijedil village is still open due to the availability of land and the existence of bamboo plantation land. Bamboo gardens in Cijedil are planted on land owned by residents so that bamboo plants are cared for and used continuously. Some bamboo plants that grow on residents' land in Cijedil village are deliberately planted by residents and some grow naturally from existing bamboo clumps.

Field research shows that land use practices in Cijedil village and its surroundings are directly related to the occurrence of natural disasters in the form of floods and landslides. Some of the community's activities related directly to land include: 1) The rice field and field farming system implemented by the community. 2) The system of smallholder plantations and large plantations implemented in Cijedil village and its surroundings. 3) Fisheries (tilapia and goldfish). 4) Animal husbandry (silkworms). 5) Nature tourism (Glass Waterfall in Pameungpeuk village). Economic activities directly related to land use need to pay attention to and apply the principles of land conservation.

In addition, there are also economic activities that are not directly related to natural disasters in the form of floods and landslides. These alternative economic activities can reduce pressure on resources in

land/nature. Some community activities that are not directly related to land include: 1) Creative industries in the form of making bamboo booths, resin, and ornamental flowers. 2) Religious tourism (Al Firdaus Mosque, tomb of Sheikh Abdul Ghofur). 3) Food processing industry. 4) Artificial tourism equipped with a reading garden. Economic activities that are not directly related to land use need to be strengthened to reduce direct pressure on intensive land cultivation.

The above description is in line with the study that states that there are many endemic animals in Cijedil Village that need to be preserved (Rizkawati, 2021). This requires careful calculations so that on the one hand, the needs of local communities from forest use continue, but conservation efforts are also still being made. Environmental management in the Cijedil forest area is not only related to biodiversity protection but also social and economic empowerment of the community. It is necessary to build a common understanding between stakeholders through a process of collaboration, dialogue, consensus, and joint action (Lukman & Gunawan, n.d.). In connection with natural disaster management efforts, in the future, consensus of all parties is needed through the design of natural disaster mitigation strategies.

CONCLUSION

Cijedil is in a strategic position economically and prone to natural disasters. Most of the residents of Cijedil village work in agriculture and plantations that depend on land resources. The number of villagers who work in the agricultural sector but do not have their own land resources with the status of farm workers is 1,883 people. Economic activities as well as a source of income for the people of Cijedil village vary, namely as farmers, planters, self-employed, service sector businesses, formal sector workers such as teachers and employees.

The system of local wisdom practiced by the Cijedil community can be traced from the local values, norms, and rules that apply in the community. In addition, efforts to know and understand the value of local wisdom that applies in the community can be traced in economic practices run by the community as a source of livelihood for the local community. In general, there are two economic practices that on the one hand show a pattern of land use for agriculture and plantations with high intensity. Such practices are certainly directly related to floods and landslides that often occur in the region. On the other hand, economic activities in the form of planting bamboo are used to meet the economic needs of the local community and show the practice of land and water conservation. Bamboo has many advantages in terms of ecology, socio-economy.

Cijedil Village is one of the villages that produces house walls from woven bamboo (bilik). The utilization of this potential needs support for the development of community knowledge and skills. The community can take advantage of available resources while carrying out conservation and bamboo cultivation activities. The potential of Cijedil bamboo can be developed because of the existence of a bamboo garden that is still large. Bamboo plants are cared for and used continuously to support the socio-economic life of the village community. Methodologically, this study has limitations in terms of the depth of data mining and analysis on the transformation of local wisdom values into community socio-economic strategies and activities. Further studies are needed to fill this gap.

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