The concept of forest natural resources conservation on traditional dayak mualang community

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Abstract. The current study aims to investigate: 1) the extent to which the community relies on forest natural resources, 2) community knowledge of the potential of natural forest resources 3) the concept of forest natural resources conservation for traditional Mualang Dayak community. This research is a qualitative research with descriptive approach. Sampling was done using the purposive sampling technique. Data collection techniques used are interviews and questionnaires with descriptive data analysis techniques. The results showed that: 1) the dependence of Dayak Mualang community on forest natural resources to meet their daily needs such as rice, water, animal protein, vegetables, and wood as a building material. 2) knowledge of the potential of forest natural resources owned by the community regarding the availability of forests for daily needs, forest products, the best seasons of the forest, and the best locations in the forest. 3) The concept of conservation of traditional dayak mualang community by applying the ethno-conservation concept, by using customary law as a rule in forest management, customary forests, and prohibited places in the forest.

1. Introduction
Indonesia is known for its rich natural resources. This natural wealth spreads from east to west and north to south. Owned natural resources ranging from wide forests, marine wealth, mining goods, and others. Apart from physical wealth, Indonesia also has a diverse tribal wealth. Various tribes and cultures that live in the territory of Indonesia, one of which is the Dayak tribe. Dayak tribe with a large population of other tribes spread throughout Kalimantan region. The daily activities carried out by Dayak Mualang tribe cannot be separated from the physical aspects of Geography, where people live together with nature, especially forests. The role of forests in improving livelihoods or in reducing poverty is complex. On the one hand, natural forests often contain commercially valuable resources. But, on the other, local people have rarely benefited from the more valuable of these resources [1]. One of the human treatments for the environment is that forests are important so that nature can always provide maximum service. Services provided by the environment that have been used as a place to obtain food sources and all activities carried out by humans are carried out in it. The utilization that has been carried out directly has eroded the ability of the environment itself, so that it needs to be reciprocated to the environment. Reward for these services can be done by making payments, Environmental service payment or reward refers to compensation for service, merit or effort, and/or incentive for maintaining or enhancing environmental service functions, received by the sellers or paid by the buyers of the environmental service(s) [2]. Local wisdom created by the Dayak Mualang community contains rules about community life to the utilization of natural forest resources. Governance based on local wisdom is inherited from generation to generation.
Local wisdom that is a community agreement is one of the efforts in conservation even though without realizing [3]. Efforts to conserve forest natural resources are one of the efforts to support sustainable development programs. There has generally been a recognition of three aspects of sustainable development; 1) Economic: An economically sustainable system must be able to produce goods and services on a continuing basis, to maintain manageable levels of government and external debt, and to avoid extreme sectoral imbalances which damage agricultural or industrial production, 2) Environmental: An environmentally sustainable system must maintain a stable resource base, avoiding over-exploitation of renewable resource systems or environmental sink functions, and depleting non-renewable resources only to the extent that investment is made in adequate substitutes. This includes maintenance of biodiversity, atmospheric stability, and other ecosystem functions not ordinarily classed as economic resources, 3) Social: A socially sustainable system must achieve distributional equity, adequate provision of social services including health and education, gender equity, and political accountability and participation [4]. The utilization of forest natural resources is one of the ways of Dayak Mualang tribe community in Sungai Antu Hulu village, Sekadau District, West Kalimantan in fulfilling their daily needs. The forest products enjoyed today by Dayak Mualang are the result of the implementation of traditional forest governance regulated in customary law. Thus, it is necessary to know how the concept applied by the traditional Dayak Mualang community in applying the concept of conservation to natural forest resources

2. Methods
This type of research is qualitative with a descriptive approach by describing how the application of conservation concepts carried out by the Dayak Mualang community in an effort to preserve the forest's natural resources. The sampling uses purposive sampling techniques, by taking samples that can provide information related to the discussion. Data collection techniques use interviews and questionnaires with data analysis techniques using descriptive analysis.

3. Result and Discussion
The Local wisdom can still be found in the management and preservation of forest natural resources by the Mualang Dayak community. Local wisdom, in the context of development or environment conservation is often addressed as the discourse for policy practitioners and academicians, and it is always connected to the efforts to overcome the global issues on disadvantage situations for the third
It can be seen from how the community relies on the forest, knowledge about the potential of the environment and conservation in the management of natural forest resources.

3.1 Community Dependence on Forest Natural Resources

Mualang Dayak tribe is one of the majorities of Dayak sub-tribes in Sekadau Regency of West Kalimantan, which lives around the forest. Then, it can be ascertained that one source of income for the community is obtained from forest products. Availability of forest products is very important for people who still depend on forest natural resources to meet their daily needs. The staple food of Dayak Mualang people in Antu Hulu River village is rice which is produced from fields that move. Switching management is a way to maintain soil fertility and yields. The clearing of forest land is carried out by the community to be used as fields for generations. Treated fields will be abandoned to be reprocessed in the future. Fulfillment of water needs for the Dayak Mualang people depends on river water conditions. River water is the community’s main water source for cooking and drinking. In addition, to cook and drink using river water is also used for washing and bathing. Dependence on river water availability makes the community obliged to maintain and protect the cleanliness of the water.

Meeting the needs of traditional animal protein for Dayak Mualang people depends on the ability of the forest to provide its services. Animal protein needs such as pigs, monkeys, deer, fish and so on are obtained from the availability in the forest. The activity of hunting wild boar is usually carried out by men to meet the needs of animal protein while women seek fish in the river. Hunting effort in three ways: time spent, number of trips, and number of hunters in particular types of forest [6]. In addition to meeting the needs of animal protein, hunting is also carried out as a way to eradicate plant pests.

Community dependence on forest natural resources other than animals is vegetables. Forest plants are used as vegetables such as leaves, shoots (soft parts of plants), and bamboo shoots. To choose plants that are safe for consumption by the Mualang Dayak community. Finding vegetables in the forest is a common task for women.

The ability of forest natural resources provides great services to the Mualang Dayak community. Community dependence on the forest as a producer of wood used in building materials. The construction of Mualang Dayak houses still depends on the wood available in the forest. The selection of building materials using wood is believed to be very strong and durable. All building materials made from wooden houses including the roof of the house (shingle) with a model house on stilts.

3.2 Community Knowledge of the Potential of Natural Forest Resources

Using various kinds of plants that exist in the forest is to be used as well as supporting life such as food, medicine, building materials, traditional ceremonies, culture, and others. The awareness and knowledge of Dayak Mualang people about the potential possessed by forests is important for their survival. Knowledge of the potential of forest natural resources owned by the community about the availability of forests such as staple food, protein sources, vegetables, fruits, home appliances and so forth. Important knowledge is owned by the community about how to identify the types of sources of protein, vegetables, and water sources that are safe and unsafe for consumption by the community. In addition, knowledge of the types of wood in forest is also important to maintain its availability. Knowledge of how to use it properly by taking it as needed indirectly is to maintain the preservation of forest natural resources. The use of forest natural resources by Dayak Mualang community is also provided with knowledge of the best seasons of the forest, such as the fruit season or certain crop seasons. The selection of the best locations in the forest is also one of the knowledge possessed by Dayak Mualang people. Location selection about forest area boundaries can be utilized. Customary forest is a sacred location for Dayak Mualang people, besides as balancing nature, it is also as an inheritance that they must protect. Knowledge of the prohibition of the community by customary rules in utilizing the results from customary forests is also mandatory. Knowledge of the potential of natural forest resources owned by Dayak Mualang people must be held in order to use the results wisely.
3.3 The Concept of Conservation of Traditional Dayak Mualang Community

Dayak Mualang tribe is one of Dayak tribes who hold customary law as a rule in their lives, both in social and environmental interactions. Customary law does not only regulate aspects of community life in Dayak Mualang but also includes the utilization and management of forest natural resources. This customary rule is an agreement taken by the community itself through deliberation and applies to indigenous people and migrants. This customary rule has been made by the previous generation which was later passed on to the next generation and changes can be made with a mutual agreement led by the tribe leader. Customary law is one of the efforts of Dayak Mualang community in preserving the forest resources they have. Conservation efforts using customary law carried out by traditional Dayak Mualang communities are the application of the ethno-conservation concept. A locally generated, community-based conservation must rest on local ideas of the environment [7]. The ethno-conservation concept uses customary law carried out by Dayak Mualang community to regulate the management of forests, and customary forests.

3.3.1 Forest management

Forest utilization is one of the routine activities carried out by Dayak Mualang community. Most community needs are generated from forests, both basic and secondary needs. One of the basic needs of Dayak Mualang community is rice produced by shifting fields. The concept of shifting cultivation is a method of planting rice by moving the planting location. This transfer was carried out to produce good crops and obtain fertile land. This method is carried out by the community because they only use residual combustion ash and do not use fertilizers, pest control, and other chemicals. The procedure for clearing new land for farming is done by traditional ceremonies called mudas. Mudas ceremony was carried out by slaughtering chickens, pigs, drinking tuak (fermented rice from sticky rice) and included with spells or prayers which were read by the traditional leader. Religious values are one type of aesthetic and ethical argument made for conservation, in contrast to scientific and economic reasons [8].

![Figure 2. Opening of land for farming as a source of staple food](image)

This mudas traditional ceremony is carried out to express our gratitude to nature and expect safety or ease in clearing new land. The next step is to join in/durok balas (mutual cooperation) by cutting down trees and burning down the forest that will be opened. The beroyong activity is carried out with a group of people according to their needs, usually between 10 people to 20 people where each person will play his role in accordance with the stages performed. The combustion stage will usually be assisted by women to guard the fire at predetermined boundary points. The stage of seeding of rice seedlings was carried out after the land had been burned by the community groups. The procedures carried out by Dayak Mualang people by joining them in opening new land is one of the efforts taken
to maintain when the land burning process does not spread to other land or surrounding forests so that forest sustainability is maintained.

![Figure 3](image_url)

**Figure 3.** Pemanfaatan kayu sebagai bahan bangunan rumah

3.3.2 **Utilization of Customary Forests**

Customary forest is a forest location guarded by tribe of Dayak Mualang people in accordance with established customary law. Utilization of plants such as vegetables, fruits, and consumption animals that are in customary forests is not prohibited by custom. The community is free to enter customary forests and take various types of consumption plants in customary forests. The use of plants is limited to consumption and is prohibited from being traded. In addition to consumption plants, timber harvesting in customary forest is also not prohibited but is limited. The harvesting of customary wood is only to be used by Dayak Mualang people, not to be traded, and not taken to other villages. Therefore, houses in the form of wood for the community are still available in traditional forest.

Another prohibition on customary forests is the prohibition of private use by the community, both opened for garden land or fields and for other purposes. The prohibition on customary forest governance that has been agreed through customary law by the community is one of the community's efforts to preserve the preservation of their forest natural resources.

4. **Conclusions**

Based on information obtained that the dependence of Dayak Mualang community on forest natural resources is used to fulfill daily needs such as rice, water, animal protein, vegetables, and wood as building materials. Knowledge of the potential of forest natural resources owned by the community regarding the availability of forests includes knowledge of the types of plants for daily needs, types of forest products, forest management procedures, and the best locations in the forest. The application of ethno-conservation of traditional Dayak Mualang people to forest natural resources is to use customary law as a rule in forest management, utilization of forest products, and the application of customary law to customary forests

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