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PEATLAND MANAGEMENT BASED ON LOCAL WISDOM THROUGH RURAL GOVERNANCE IMPROVEMENT AND AGROINDUSTRY

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Abstract:
This paper explores the sustainable management of peatlands by examining various types of local wisdom used in community-managed areas. The concept of "Tata Kuasa, Tata Kelola, Tata Produksi, and Tata Konsumsi" is used as a framework for managing peatlands. This study was conducted in 16 villages in the Tanjung Jabung Barat and Tanjung Jabung Timur districts of Jambi Province, using field observations, interviews, and literature studies. The results show that the use of local wisdom can guide the management of peatlands by improving village governance and implementing agroindustry based on local knowledge. The village community can utilize and process natural resources using existing local wisdom and implement it through village regulations and processing agricultural products. This study contributes to the sustainable management of peatlands by highlighting the importance of local wisdom in guiding community-managed areas. The concept of Tata Kuasa, Tata Kelola, Tata Produksi, and Tata Konsumsi can be used as a framework for managing peatlands sustainably and efficiently. Furthermore, the study emphasizes the need for effective village governance in promoting the use of local wisdom in peatland management. Overall, this paper provides insights into the potential of local wisdom in promoting sustainable peatland management, which can be useful for policymakers and practitioners in the field of environmental management.

Keywords: Agroindustry, Local Wisdom, Peatland Management, Rural Governance, Rural Regulations, Wilayah Kelola Rakyat.

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INTRODUCTION

Jambi is one of the areas that has peatlands with a large area of around 676341 Ha. The distribution of these peatlands is in several districts which are in the downstream region and part of the east coast cluster of Sumatra, namely Tanjung Jabung Timur Regency (46%), Muaro Jambi Regency (30%) and Tanjung Jabung Barat Regency (20%). A critical condition of 8.07%, a very

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critical condition of 18.05%, a slightly critical condition of 33.93%, and a reasonably good condition of 34.95% were recorded for the peat swamp forest region in Jambi Province (Janah, 2021). Critical conditions on peatlands are caused by two factors, namely direct causes and indirect causes. The cause is directly caused by logging and burning for land clearing, which causes forest fires. Most of the land clearing is used to plant oil palm commodities which are currently increasing because they are considered capable of providing better economic value (Janah, 2021).

Land destruction and fires that started when investors entered the palm oil plantation business area will trigger the establishment of palm oil processing factories and open jobs for local communities and migrants. The growth of oil palm farms has an effect on societal transformation as well. School dropout rates have fallen, local communities' health and education levels have improved, and children's nutritional needs may now be met. The growth of oil palm plantations and agriculture, while beneficial for the socio-economic health of the society, nevertheless has drawbacks. The change can be seen in the loss of the dignity of local institutions (customary institutions) of the local community. People think more pragmatically and hedonistically, and their way of life no longer refers to the rules of local customs and culture (Ruslan, 2014).

Traditional rituals, such as religious and social media, have become more ceremonial and tourism-oriented. Local communities are losing their identity; everything related to heritage has lost meaning. The environmental element is also affected negatively by the oil palm plantation industry's entry. Previously, indigenous peoples, in fulfilling their lives, depended on nature and forests, including interacting with their creator, believing that the balance of nature was a medium to communicate with their creator. Today, indigenous forests that function as protected forests have turned into oil palm plantations. Local communities or the government cannot stem the wave of oil palm plantations. Investment in oil palm plantations has reached large capital owners. Oil palm agribusiness owners are dominated by large capital owners collaborating with policymakers at every level (Ruslan, 2014).

While environmental damage and fires are only a tiny part of the problem, there are potentially more significant problems related to land ownership conflicts. Potential land conflicts are caused by uncontrolled land clearing and land ownership dominated by large capital owners. The government's development of infrastructure and public facilities contributes to opening access to forest areas, indirectly contributing to land occupation, which triggers land conflicts (Mustofa & Bakce, 2019). Conflicts can arise over corporate land between the community and between the community and the government or between the community and each other (Mutolib et al., 2015). If land conflicts occur, communities tend to be marginalized when dealing with large capital owners in collaboration with policymakers at every level.

Improving the welfare of forest management communities and distributing it fairly among community members, especially to the poor and marginalized groups, must be one of the main goals of forest management policy in Indonesia. Due to the increasing demand for land for plantations, which has yet to be supplied by converting land from agricultural land or other designations, the community's success in controlling land has emerged as an appealing market arena. Transactions on conflict land occur openly by indigenous peoples as rulers of customary land with outsiders on a massive and continuous scale (Mutolib et al., 2015). So indigenous peoples are threatened with losing their customary lands and being controlled by migrants. (Mustofa & Bakce, 2019). Strengthening the legality of community control over forest areas is essential and urgent, but that alone is insufficient. Rights over forest areas granted to communities will not necessarily result in actual benefits to improve the welfare of the recipient communities. (Syahza et al., 2020).

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Based on these considerations, the implementation of the concept of community-managed areas (wilayah kelola rakyat) is relevant and is the first step to reorganizing the legal relationship between the management community and the forest area that is the source of their livelihood. However, more than merely obtaining rights to resources is required for the recipients to draw real benefits from these resources. The granting of rights itself can result in the exclusion of poor and marginalized groups, potentially sharpening social inequalities in the community. In addition to efforts to restructure legal relations, another agenda must be carried out concurrently, namely restructuring technical relations and social relations, to ensure that welfare improvements and equitable distribution of benefits can be accomplished. It includes developing the community's capability to utilize and cultivate resources and, at the same time, organizing a scheme for distributing the benefits fairly among members of the community concerned. (Rachman, 2013).

Therefore, peatland management that has been carried out to overcome environmental problems such as land degradation, forest fires, low-income and socio-economic problems, and potential land conflicts can be approached using community-managed areas. However, the concept of community-managed areas, which consists of four (4) factors, namely Power of Attorney, Governance, Production and Consumption, must be complemented with some expertise. In the Power of Attorney and Governance aspects, the community must have expertise in managing land and community institutions, in this case, the village, which will be implemented to prepare village regulations. Regarding production and consumption, the community must be able to choose commodities and cultivation in agriculture, fisheries and livestock suitable for peatland conditions based on local wisdom and assess commodities that can provide good added value. Furthermore, still, in terms of production and consumption systems, the community must be ready and willing to accommodate technology in the agroindustry sector in order to increase the added value of the commodities produced into a product, able to open up better market opportunities so that the concept of community-managed areas can run well not only at the concept level but also reliable implementation and execution to a minor level.

From the phenomena described above, the researcher intends to investigate the different types of local knowledge used in managing peatlands sustainably within the framework of community-managed areas. So researcher conducted a study entitled "Peatland Management Based On Local Wisdom Through Rural Governance Improvement And Agroindustry."

METHODS

This activity is carried out by building understanding between stakeholders involved in peatland management, in this case, the Peatland Restoration Agency, Village Facilitators, Village Officials, Village Communities and Academics involved in this research. Critical appraisal was used to assess the literature that was found. The study's findings are examined through critical evaluation to determine the similarities and differences between the produced journal articles. Critical appraisal is a systematic method for assessing the results, validity, and usefulness of scientific articles and encourages an objective assessment of the usefulness of scientific information. This activity is carried out through data collection by direct observation of research objects to determine the actual conditions in the 16 villages concerned. Apart from that, it is also recorded in a structured manner so that data, information, and facts are obtained following actual conditions.

RESULT AND DISCUSSION

Peatland Management Based on Ecology and Local Wisdom. The ecological concept of managing the region as a unitary ecosystem cannot be denied because the existence of indigenous

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and local communities that inhabit all regions in the archipelago has been able to survive and live for a very long time. Interactions between the community and its environment form a good value order, forming a symbiotic relationship that is mutually complementary and beneficial. The whole process has unwittingly formed a specific folk management model, which has certain characteristics according to its social and geographical characteristics. In turn, it will create an ecosystem balance that is always well maintained. (Amady, 2020).

Theoretically, ecological-based regional management is an integrated regional governance system that considers community participation and local wisdom in power, management, production and consumption. The concept allows management to always considers the function of natural resources and the environment to support a good and balanced life between society and the environment based on the values and wisdom of local communities to realize equitable and sustainable prosperity. The idea of community-managed areas is one of the environmentally based area concepts. (Tarigan, 2021). In this concept, the community has a deep-rooted value construction in managing and modeling spatial planning in one unit of space and territory. In the concept of community-managed areas, spatial planning is divided into 4 groups, there are:

a) **Sacred area**, or usually in the form of cover, pong, the area in the form of Rimba/limbo sunyi and other designations. This term is typically used to describe a type of forest region that is still natural and exceptionally well preserved, directly tied to the cultural beliefs of the locals that reside in the area. This area is usually prohibited for all forms of activity;
b) **Restricted areas or prohibited areas**, somewhat similar to sacred areas but still accessible, the term is used to designate a spring area with cultural functions.
c) **Productive areas** are used to fulfill the food and shelter needs of the community. These areas can be forest, agricultural, grazing, and
d) **community settlement areas**. Areas are used for people to live in, build dwellings, establish households, and create social and economic relations with those in the area.

Communities in the peatland and ecosystem environment already have a good understanding and have rules that have been running for generations. Although some rules have undergone adjustments, updated to accommodate new policies, and adjusted to developments in the community. However, in practice, some original and natural rules still survive. The disadvantage is that the original management rules passed down from generation to generation in the community are usually unwritten, in oral form, based on the culture of each region. (Badan Restorasi Gambut, 2021).

Through this concept, communities have a space for dialogue through deliberation to find solutions to problems related to their lives. This concept allows communities to implement democratic practices in accordance with their respective communities' character. These democratic practices can be carried out directly between the community and stakeholders or through a hierarchical process. Naturally, communities living in peatlands and ecosystems also have technical knowledge of managing their areas in harmony and balance with nature. This technical and organic knowledge has been applied in various forms of activities by the community, for example in the management and cultivation of agricultural land and plantations, irrigation arrangements and the management and utilization of forest products. (Tarigan, 2021).

The existing capabilities and knowledge of the community still need to be used as a basis or foundation in formulating or planning regional management policies as well as natural resources. Although the community's understanding is more grounded and sourced from the local wisdom of the community, many stakeholders prefer and are interested in adopting management concepts from the outside world—the concept from the outside looks progressive and able to overcome

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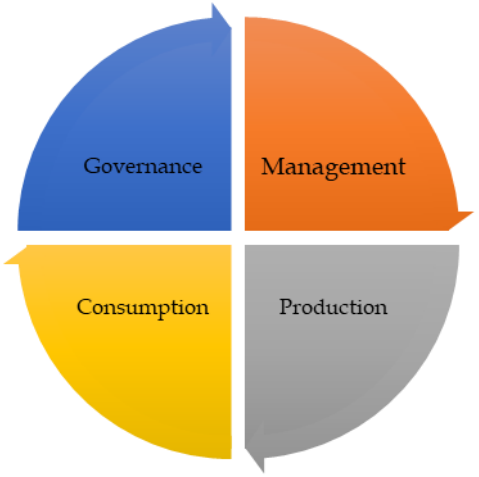
problems well. However, the concept can only sometimes adapt to the local community's geographical conditions and socio-cultural life. Many concepts and management seem forced, with specific objectives, which raises questions and indications of the entry of the interests of a handful of parties who want to control natural and economic resources. (Tarigan, 2021).

Main Pillars of Peatland Management based on Ecology and Local Wisdom. Ecology-based regional management is an integrated approach where there are interrelated relationships and mutual influence. Referring to this concept, the place where people live, one example of which is an ecological village, must be seen as a whole. There are 4 (four) main pillars as the constituent and primary foundation of an ecological village area.



Source: Author 2023

Figure 1. Main Pillars of Peatland Management Based on Ecology and Local Wisdom

Governance (Tata Kuasa). This concept is motivated by economic inequality caused by the unfairness of land ownership between communities and corporations, in which the state plays an important role. Some studies mention that land ownership and control exceed 50% of the total area. If this happens and continues, the potential for conflict is more significant, and poverty will increase (Tarigan, 2021).

Management (Tata kelola). The concept of management in community-managed areas is an ability the community has to manage, maintain, run, control and utilize the space/area. So far, the spatial and regional planning rules in the Law have adopted issues related to the environment. However, in reality, it has yet to be appropriately implemented, considering that the community has an original and natural understanding of managing the environment in which it lives. In addition, the socio-geographical conditions of Indonesian society are very diverse, differing from one region to another (Tarigan, 2021).

Therefore, in each area's management and spatial planning, including (natural forest, secondary, savanna and karst areas) each community has a different mindset, perspective and approach. Each community has a social and cultural life that follows the character of the geographical area; for example, the Bajo tribe has a marine culture, people in tidal land areas have a culture of honor system agriculture, and people in savanna areas have a hunting culture. In-depth research on geography and local culture is crucial for planning communities that consider ecological factors and the environment's carrying capacity while upholding local values and traditional knowledge (Tarigan, 2021).

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Production (Production Arrangement). The third concept in the people's management area is the production system, which is an order or rule to produce a product in the form of (clothing, food, shelter, or energy) that refers to the natural conditions and potential that exist in an area or village, where the product can be used to improve the welfare and living standards of its citizens. At the implementation level, ideally, the production system is expected not to increase the risk of ecological balance in a region or rural community. The production process development needs to consider and look at local wisdom and the carrying capacity of the environment and natural resources to avoid causing new problems (Tarigan, 2021).

One of the ideas resulting from the thinking of experts who began to be adopted by policymakers in the current government era is the development of the periphery (rural areas). However, this concept will only work well if the strategy and its application heed the basic needs for the economic development of rural communities. Several factors become challenges and obstacles in supporting community production businesses, including:

Insufficient knowledge, slow dissemination, and adaptability to developing low-cost (effective and efficient) cultivation and appropriate technology in rural communities. Much information, knowledge and related technological developments produced by many research institutions and universities in Indonesia have yet to be appropriately conveyed to community groups, especially farmers in rural areas. Although the institutional infrastructure and human resources from the government are available down to the village level, this is not the case.

It has led to low productivity of commodities produced by the community while production costs are increasing, which impacts the inability to keep up with the increasing growth of community consumption (Tarigan, 2021).

It is increasingly evident in rural areas where commodities produced from rural areas are almost all raw material products with low selling value. These problems impact the community's low initiative to try to provide added value from the commodities produced, for example, processing existing commodities into semi-finished materials or finished products. Intensive technical assistance to village communities is expected to accelerate technology dissemination and increase the entrepreneurial spirit of village communities in providing added value and product innovation from the commodities produced (Tarigan, 2021).

Consumption (Tata Konsumsi). The concept of consumption management is the last element and part of the three previous and interrelated aspects. In this concept, the consumption system has 2 (two) main goals and objectives, namely; 1) regulating the consumption patterns of rural communities must be able to improve and strengthen the relationship with the region regarding the potential commodities produced, and 2) regulating the delivery or distribution of products produced by rural communities must be able to add value to rural communities, in this case, referred to as producers (Tarigan, 2021).

The current reality is that people's consumption patterns have changed rapidly and massively from being based on indigenous commodities in the region, such as corn, tubers, rice, sorghum and sago for their carbohydrate intake to only being dominated by rice. This change in the pattern also has an impact on the greater dependence of the community on one type of commodity alone, making them very dependent and increasingly dominant in corporate control (seeds, fertilizers, chemical control materials); it has also had an impact on changes in local culture and ecology which were previously oriented towards food fulfillment, to cultivate crops that are only economically oriented such as oil palm (Tarigan, 2021).

Peatland Authorization and Governance in Jambi Province. In Indonesia, peatlands can be found on the west and south of Papua, the west and south of Kalimantan, and the east coast of Sumatra. With a total area of 5.51 ha, Papua has the most peatland, followed by Riau (3.96 million

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ha), Central Kalimantan (2.93 ha), and West Kalimantan (1.69 million ha). Peatlands cover 14.9% of Sumatra Island's surface area, with the provinces of Riau, South Sumatra, Jambi, and North Sumatra having the highest concentrations (Surati, 2021).

The area of peatland in Jambi Province is 621,089 ha, which is distributed in Tanjung Jabung Timur Regency with a proportion of 46%, Muaro Jambi Regency with a proportion (30%) and Tanjung Jabung Barat with a proportion (20%). According to BRGM (Peat and Mangrove Restoration Agency) data, the peat swamp forest area in Jambi Province is in a critical condition in 8.07% of cases and a very severe condition in 18.05% of cases. Slightly critical conditions amounted to 33.93% and 34.95%, with relatively good conditions. Critical peatland is caused by logging in the land-clearing process and forest fires (Yuniati et al., 2018).

Peatland clearing techniques that do not consider peatland characteristics lead to an increase in land and environmental acidity. In addition, climate change and land use policies indirectly increase the critical land on peatlands and reduce the area of forest cover and peat swamps, resulting in increased carbon emissions and reduced biodiversity. Fires on peatlands have a variety of impacts ranging from thick smoke, obstruction of transportation between villages and other areas at large, loss of flora and fauna and finally, a decrease in peat soil height (Surati, 2021). Based on the analysis of satellite imagery, more than 47,510 ha of forest and land areas in Jambi were burned, of which 28,889 ha were in peat areas.

Peatlands in the village of Jambi have potential that has yet to be maximized due to inadequate land management and access to transportation which is constrained in development, making community conditions need to be improved. The potential of the village needs to be developed with the data that has been obtained. Village potential data in each district can be seen in Table 1.

Table 1. The Potential of Each District

Classification	Type	Region	
		Tanjung Jabung Timur	Tanjung Jabung Barat
Plantation	Rubber	7.756 ha	8.109 ha
	Deep Coconut	58.912 ha	55.384 ha
	Coffee	3.450 ha	2.751 ha
	Chocolate	441 ha	351 ha
Fishery	Freshwater Fish	19.521 ton	1.014 ton
	Cornish	668.661 kg	361.947 kg
Farm	Laying Hens	370.174 kg	0 kg
	Duck	35.010 kg	65.625 kg
Crops	Paddy	7.423,50 ha	6.719,04 ha
	Lime	2.029 kg	140 kg
	Ginger	47.943 kg	356.534 kg
	Aromatic ginger	1.707 kg	16.391 kg
	Turmeric	9.669 kg	22.748 kg
	Laos	9.586 kg	26.917 kg
Horticulture	Curcuma	2 kg	27 kg
	Lempuyang	0 kg	54 kg
	Temuireng	0 kg	12 kg
	Noni	82 kg	0 kg
	Lemongrass	43 kg	5.298 kg
	Sambiloto	20 kg	0 kg
	Aloe Vera	40 kg	0 kg

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Source: Badan Pusat Statistik (2021)

One of the activities carried out to improve and restore the function of peatlands is through community empowerment by making village regulations to encourage the protection and conservation of peatlands. One of the contents of the village regulation is to require the planting of woody plants, either fruit plants or plants that make the environment more beautiful. (Surati, 2021).

Village ordinances are an essential and distinctive tool that the community must follow. Therefore they can be used as a strategy for environmental conservation. Improving village governance by drafting village regulations is one conservation activity that all social groups can carry out. Several local laws (village laws), notably the Masyarakat Peduli Api (MPA) and water management are related to forest fires on peatlands based on the conditions on the ground. Some villages have also tried to plant plants adaptable to peatland conditions, including Jelutung, Guava and Jackfruit Trees. Some communities also carry out extensive agricultural activities to increase their income, such as raising ducks and fish (Janah, 2021).

Village regulations are a means to raise the communities' problems so that the community is more aware and has a foothold to solve problems. The implementation of village regulations, especially on peatlands, can have a positive impact on peatland conservation and village progress. It can be seen from the reduced incidence of fires in the following year. According to the literature, there are at least two categories related to the discussion in preparing village regulations for peatland management: natural and human. The natural aspect includes activities regulated in the village related to the environment or nature. Meanwhile, the human aspect relates to activities carried out by humans in utilizing peatlands (Janah, 2021).

Natural aspects of peatland restoration and management. Peatland restoration is carried out through planting, which aims to preserve biodiversity on peatlands. Land restoration can be done through reforestation, including planting local plants and plants that can survive well on peatlands. In addition, there are land management activities in the form of social forestry and PLTB (Land Processing Without Burning). These activities are carried out as an effort to prevent peatland fires. Both activities are included in nature because they aim to improve and preserve the peatland environment. This activity has a direct impact on the peatland (Janah, 2021).

Restoration activities can be carried out by conducting reforestation activities. The types of plants used in reforestation activities are chosen to be adaptive to the peatland conditions. Adaptive plants are several types of plants that are suitable or easy to adjust to certain land conditions. Forestry plants that are adaptive to peatlands include Jelutung (Dyera costulata), Balangeran (Shorea balangeran), Bira-bira (Alocasia macrorrhizos), Pulai (Alstonia scholaris), Meranti Merah (Shorea siamensis), Perupuk (Lophopetalum javanicum), Bintaro (Cerbera manghas), and Medang (Phoebe bournei). In contrast, fruit plants are Kweni (Mangifera odorata), Limau Kuit (Citrus amblycarpa), Rambutan (Nephelium lappaceum), dan Kasturi (Mangifera casturi) (Janah, 2021).

Another activity is land management, which is a form of action or behavior to maintain land productivity by considering its sustainability. Land management is essential to prevent ecological damage to an area. Careless peatland utilization for food agriculture and plantations can damage the ecological balance. Several land management methods exist, such as social forestry, wind farms, and land use for agricultural and livestock purposes (Janah, 2021).

The social forestry scheme is one of the strategies to restore peatlands. The concept of social forestry began in 1978 as forests for communities. Social forestry is a management mechanism that provides forest utilization based on social forestry adjusted to its function, namely production and

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protection. Based on Ministerial Regulation No. 83 on social forestry, it is explained that social forestry is a system of sustainable forest management in state forests or rights forests by local communities. (Janah, 2021).

One example of social forestry management is plasticulture and bee cultivation. The results of social forestry utilization can be developed into community-based businesses that can be incorporated into BUMD (Village-Owned Enterprises). The implication of social forestry workflow can be built together to provide added value to community groups. About 300 thousand ha of forest area in Jambi Province has been utilized as social forestry with 12 companies involved in forestry partnerships. These companies provide training and mentoring to assist communities in increasing success in utilizing social forestry (Janah, 2021).

The last natural aspect of peatland restoration is land management for agricultural and livestock purposes. Community participation is through planting activities. Peatlands with a pH of 5 can be planted, especially horticultural crops. Plants planted on peatlands include long beans, purple eggplant, bitter melon and chili. Meanwhile, the community conducts many activities in the livestock sector, such as raising ducks, fish, and bees. Utilization of peatlands in the livestock sector can be carried out, especially on receding swamplands, Albino Duck culture is one of the innovations that can be done to increase the community's income (Janah, 2021).

Human aspects of peatland restoration and management. One of the human aspects of peatland management is institutions because institutions require a community structure as the organizer of the village regulation program. In addition, the institution requires meetings and discussions to run the program, so it requires much participation from the community. Institutions are created to facilitate the community's coordination of directing programs and activities. Establishing these institutions also impacts the community that will carry out business activities, especially in utilizing peatlands, so that business activities can be monitored and training provided to increase business productivity (Janah, 2021).

The role of MPA in managing and preventing peatland fires. The creation of MPA (Masyarakat Peduli Api), MDPG (Masyarakat Desa Peduli Gambut), and laws that impose fines are only a few examples of the substantial institutional efforts that have been made. The establishment of MPA (Masyarakat Peduli Api) aims to involve organized communities to assist the government in preventing and tackling forest fires. The establishment of MPA aims to provide information on the occurrence of land fires so that fires can be dealt with quickly (Janah, 2021).

The human and institutional aspects of peatland management include the establishment of MDPG (Masyarakat Peduli Gambut). The formation of MDPG is supported by three pillars: the government, the business world, and the community. The formation of MDPG is based on stakeholder support with the first flow, namely the socialization of peat restoration activities to all stakeholders by BRGM and the Regional Government. Second, the formation of the MDPG Institution with a membership of all stakeholders, and finally, the preparation of the organizational structure and management of the MDPG (Janah, 2021).

Another human and institutional aspect is the initiation of local communities in peatland management with regulations on fines or sanctions for people who cause fires and damage peat ecology. Individuals who cause fires or land damage will be fined Rp 20 million and compensated for losses caused by negligence in a family manner. As for the company, the fine is Rp 500 million plus the value of the losses caused. According to the village government, implementing the village regulation has had a positive impact, but further socialization is needed to reach the entire community (Janah, 2021).

Local Wisdom in the Production and Consumption System of Peatland Management. Among the local wisdom on peatlands is the system of land preparation and tillage carried out by

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the community. Some of the local knowledge that thrives and develops on peatlands includes the following: (1) the use of tidal movements for irrigation and drainage; (2) the choice of crops to be planted around irrigation; (3) water conservation using the tabat system; (4) the system of land selection; (5) the system of land preparation and tillage; (6) the system of land arrangement; (7) the system of managing soil fertility; and (8) the way farmers recognize the season (Fadly & Batubara, 2019).

Some forms of local wisdom adopted by the government to be applied in the village include land preparation, tillage, and water conservation with a tablet system. In addition, the community can carry out intercropping planting activities between agriculture and plantation crops as a form of local wisdom for communities living on peatlands. Many types of plants can be cultivated on peatlands, but not all of them are economical and benefit the community's welfare. A combination of species suitable for agroforestry patterns will increase community income, for example, a combination of rambutan, run, areca nut, liberica coffee, jelutong-crops, and jelutong-rubber (Fadly & Batubara, 2019).

In restoring peatlands, communities can focus on planting high-value crops that benefit the welfare of the people. Areca nut is one of Jambi province's leading export commodities with good prospects. East Tanjung Jabung Regency is the largest producer of areca nut in Jambi Province. Planting areca nut intercropping system with food/seasonal crops (Agung) or other plantation crops (cacao, coffee) can provide added value because new areca nut plants produce at the age of 5 years so that farmers have income from harvesting seasonal/food crops before areca nut plants (Fadly & Batubara, 2019).

Agroindustry as an Implementation of Production and Consumption System in Peatland Management. Agroindustry is a branch (subsystem) of agribusiness that processes and refines agricultural products (foods, wood, and fiber) into semi-finished goods that can be consumed immediately and industrial goods or materials used in the production process, such as tractors, fertilizers, pesticides, agricultural equipment, and others. The agroindustry is a significant sub-sector that includes industries upstream of the agricultural sector to downstream industries, notwithstanding the restrictions mentioned above (Udayana, 2011).

Agroindustry is the primary force behind the growth of the agricultural sector within the context of agricultural development. It is especially true when agriculture plays a more significant role in national development as a staple sector. In other words, for the agricultural sector to become a driving force in national development, it must be supported through the growth of the agroindustry, which will lead to the creation of a robust, modern, efficient, and effective agroindustry (Turniasih & Dewi, 2016).

Agroindustry application is essential for developing production and consumption systems in community-managed regions to increase the added value of agricultural products produced on peatlands. One agricultural commodity that is almost always available is coconut, which has much potential to be developed into products with better uses and added value. Some products that can be developed include charcoal briquettes, cocopeat, coco fiber and biochar.

In Table 2, many potentials in 16 villages can cause various problems. Therefore, it is essential to innovate to help solve these problems. The large amount of coconut waste that does not pass the screening for saleability can be used as a new product innovation, which can improve the community's economy.

Table 2. List of Village Land Uses

Regency	Village	Peat Area	Peat Type	Depth	Potency	Land Area
Tanjung	**Air Hitam**	4.608 ha	Dry	3 m		

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Regency	Village	Peat Area	Peat Type	Depth	Potency	Land Area
Jabung Timur	Laut Remau Baku Tuo	5.078 ha	Shallow	0,5 - 2 m	Paddy	150 ha
	Simpang	1.600 ha	Toboggan	0,6 – 2 m	Paddy	825 ha
					Corn	145 ha
					Soybean	30 ha
	Kota Kandis	1600 ha	Very deep	6 – 7 m	Coconut	35 ha
	Dendang				Areca and coffee	46 ha
					Gontor	
					Paddy	200 ha
						200 ha
	Bhakti Idaman	19.200 ha	Red	0,5 – 3 m	Watermelon and melon (demplot)	2 ha
	Tanjung Pasir	700 ha	Moderate	1 – 2 m	Areca	100 ha
					Paddy	40 ha
					Banana	2 ha
	Margo Rukun	1.450 ha	Half-ripe	2 – 3 m	Paddy	250 ha
	Mekar Jati	2.878 ha	Ripe	2 – 4 m	Coconut	600 ha
					Areca	600 ha
					Paddy	400 ha
	Sungai Kayu Aro	250 ha	Half-ripe	0,5 – 2 m		
	Pasar Senin	3.598 ha	Half-ripe	0,5 – 2 m		
Tanjung Jabung Barat	Sungai Jering	371,69 ha	Half-ripe	1 - 2 m	Paddy	411,6 ha
	Sungai Serindit					
	Teluk Pulai Raya	1.305,4 ha	Half-ripe	1 – 2 m	Coconut	1.263,7 ha
					Areca	529,6 ha
	Sungai Raya	793 ha	Half-ripe	2 m	Coconut	1.350 ha
					Areca	1.350 ha
					Paddy	179 ha
	Parit Sidang	1.299,9 ha	Half-ripe	2 – 3 m		
	Sungai Pampang	310,28 ha	Half-ripe	3 m		

Source: Observation Data (2022)

Coconut Oil. The best natural source of lauric acid is coconut oil. In tropical and subtropical areas of the world, coconut oil from the coconut tree (*Cocos nucifera*) is widely used for industrial and culinary uses. In West Africa, coconut oil is traditionally manufactured by crushing and pressing copra to release the oils. About 90% of the fat in coconut oil is saturated, and the remaining 9% is unsaturated. The saturated fats in it are distinct from those in animal fats, in any case. A lipid from coconut oil, lauric acid and its derivative monolaurin, accounts for around 50% of the total (Boateng et al., 2016).

The methods used to extract coconut oil—hot or cold pressing—impact the quality. Refining, bleaching, and deodorizing coconut oil changes the oil's composition. The nutritional benefit of numerous bioactive components, including phytosterol and phenolics, which are often lost during

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the synthesis of coconut oil, is eliminated by this process. Coconut oil differs from virgin coconut oil (VCO), which contains vitamins, minerals, and antioxidants because of the processing process. While virgin coconut oil (VCO) is prepared from milk from fresh and mature coconut meat or coconut fruit and processed at a low temperature, coconut oil is made from dried coconut meat (copra) processed at a high temperature. Coconut oil and VCO are unique compared to most other common oils (Silalahi, 2020).

They were processing Coconut Waste into Charcoal Briquettes and Activated Charcoal. The main ingredient in charcoal and activated charcoal production today is coconut shell. The complex, coir-covered endocarp, which is a component of the coconut fruit, is the shell. Coconut shells are typically utilized as building materials, fuel, and briquettes. It is so that it can provide calorific value, which a coconut shell may do. In addition to having a sufficient calorific value for evaluating coconut shells calorific value, explicitly utilizing a bomb calorimeter tool, coconut shell is also a good source of active charcoal material (Hendra, 2007).

Processing organic waste made of wood, bamboo, coir, and coconut shells can produce liquid smoke and usable items like charcoal, the latter of which can be used to make charcoal briquettes. The raw material element significantly influences the value of the water content, ash content, volatile substance content, carbon content, density, compressive strength, and heating value of the resulting charcoal briquettes (Hendra, 2007)

Compared to the raw material's characteristics and quality, the generated charcoal briquettes often have more significant physical and chemical properties. The range of properties included moisture content of 2.59 to 9.31%, ash content of 1.75 to 10.47%, volatile matter of 13.45 to 19.89%, bound carbon of 67.17 to 75.75%, density of 0.32 to 0.71 g/cm3, compressive strength of 6.57 to 18.19 kg/cm3, and heating value of 5,953 to 6,906 ka/g (Hendra, 2007)

Processing Coconut Fiber Waste into Cocopeat and Cocofiber. Coconut fiber is the outer part of the shell of the coconut, which is fine fiber; if the coconut fiber is broken down, it will produce fiber (coco fiber) and fiber powder (cocopeat). Coconut fiber waste can be used to make various valuable and useful goods (Ayu et al., 2021). In addition, coconut fibers as organic waste have other advantages such as being resistant to fungi, good against ambient temperatures, durable, and loosening the soil. They can absorb water three times the weight of the fibers. Coconut fiber waste is then processed by going through several stages. The result of the coconut fiber crushing process produces a fine powder called cocopeat, and the result of crushing produces fibers called coco fiber (Ayu et al., 2021)

Processing Coconut Biomass into Biochar. Biochar is charcoal used as a soil enhancer for plants and soil systems. Biochar is created using a similar procedure to charcoal, frequently used as fuel. Pyrolysis, or the combustion of organic material under low oxygen circumstances, produces biochar. Biochar is more stable and long-lasting in the soil than organic matter since it comprises aromatic carbon rings (Aprianus, 2021; Zulfita et al., 2020). Biochar is frequently used as a soil enhancer to fix issues in the soil. Applying biochar to acidic soil can raise pH and enhance soil CEC, supplying nutrients N, P, and K. The ability of biochar to maintain soil moisture and restore soil contaminated with heavy metals like (Pb, Cu, Cd and Ni). Additionally, adding biochar to the soil can help plants develop and take up nutrients more readily (Aprianus, 2021) (Zulfita et al., 2020).

Utilization of Coconut Shell into Crafts. Coconut shells can be used as handicraft items that have higher economic value. Various unique and creative handicraft items can be produced from coconut shells. The creation of coconut shell crafts that are recycled into crafts that are used, such as key chains and tissue holders, and for daily needs, such as spoons, forks, bowls and other craft items. In addition to increasing community income and absorbing labor from the local workforce,

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establishing the coconut shell business will also provide other development benefits that can lower unemployment and enhance human welfare (Heriawan, 2020; Sadilah, 2010).

Batik Product Development. Batik art is a piece of intellectual property that has gained recognition on a global scale. Jambi batik has specific characteristics. The motif or design relates to cultural and natural wealth by reflecting Jambi social/culture, describing Jambi resources and historical value (Sarah, 2020). Indonesia is rich in its batik tradition, so, unsurprisingly, various ways continue to be done to preserve the culture of wearing batik-patterned cloth, including in Jambi Province. Some models of Jambi batik motifs taken from the theme of the surrounding environment are Kale, Keladi, and Tali Aek (plants that creep into the water). At the same time, the plant elements made into batik motifs are taken from trees, flowers and fruits. Bungo Duren, Bungo Pauh, Bungo Kaco Piring, Bungo Tanjung, and Bungo Cengkeh are several plants. Kuwaw Berhias, Merak Ngeram, and other motifs, such as the Sanggat Ship, are derived from faunal elements (Mahila, 2018).

CONCLUSION

The study's findings demonstrate that the local population has a working knowledge of traditional knowledge in their interactions with the peatland environment. The community already knows what commodities can grow well on peatlands in terms of production and consumption systems, namely agricultural and fisheries cultivation. However, cultivating must also be strengthened by the ability to process agricultural products into more value-added products through agroindustry development. In terms of power and governance, the community has understood their strategic role as humans in managing nature, reflected in their ability to make village regulations a formal basis for managing and controlling land on peatlands.

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