

## VILLAGE-OWNED ENTERPRISES (BUMDES) AS A COLLABORATIVE MODEL ENVIRONMENTAL MANAGEMENT

*(Badan Usaha Milik Desa-BUMDes sebagai Model Kolaboratif Pengelolaan Lingkungan)*

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### ABSTRAK

*Beberapa kasus pengelolaan lahan gambut, khususnya di Kalimantan, menimbulkan masalah lingkungan yang serius, terutama lahan yang mudah terbakar. Penduduk lokal di sekitar kawasan itu adalah yang pertama menerima dampak. Oleh karena itu, pengelolaan lahan gambut perlu dilakukan secara hati-hati dan membutuhkan pengelolaan lingkungan yang berkelanjutan. Tujuan penelitian adalah untuk menemukan model pengelolaan lahan gambut yang dilakukan oleh pemerintah dan masyarakat lokal melalui program Badan Usaha Milik Desa (BUMDes). Berdasarkan hasil wawancara dan observasi lapangan, ditemukan adanya pengelolaan lahan gambut dengan model kolaboratif antara pemerintah (negara) dan masyarakat lokal di Desa Rasau Jaya Tiga dalam bentuk BUMDes Maju Jaya. Hasil penelitian mencakup perencanaan, pemanfaatan, pengelolaan, dan pengawasan kawasan lahan gambut. Pemerintah menyediakan dana dan legalitas sedangkan masyarakat lokal melakukan pemanfaatan, pengelolaan, dan pengawasan lahan gambut melalui budaya gotong royong. Dalam kajian ini, fungsi lahan gambut sebagai objek wisata yang dikelola oleh masyarakat setempat (ekowisata). Implementasi nyata dari kolaborasi pemerintah dengan masyarakat setempat telah membuka mata pencaharian baru bagi masyarakat tanpa merusak ekosistem ekologi lahan gambut.*

*Kata kunci: Kolaborasi manajemen sumber daya; lahan gambut; BUMDes.*

### ABSTRACT

Some peatland management cases, particularly in Kalimantan, cause serious environmental problems, especially in flammable land. Local people around the area are the first to receive the impacts. Therefore, peatland management needs to be prudent and requires sustainable environmental management. This study aims to find a model for peatland management carried out by the government and local communities through BUMDes program. According to the interview results and field observations, peatland management with a collaborative model between the government (state) and the local community in Rasau Jaya Village is found in the form of Maju Jaya Village-owned Enterprises (BUMDes). This research includes planning, utilization, management, and supervision of the peatland area. The government provides funds and legality, while the local communities carry out peatland utilization, management, and maintenance through mutual cooperation culture. In this study, peatland functions as a tourist attraction managed by the local community (ecotourism). Real implementation government collaboration with the local community has opened up new livelihoods for communities without undermining peatlands' ecological ecosystem.

Keywords: Resource management collaboration; peatland; village-owned enterprises (BUMDes).

## I. INTRODUCTION

Indonesia is estimated to have more than 14.95 million hectares of peatland which spreads on Sumatera, Kalimantan, Sulawesi, and Papua islands. Therefore, Indonesia occupies the fourth position in the world after Canada, the Soviet Union, and the United States with the largest peatland area (Wahyunto, Nugroho, Ritung, & Sulaeman, 2014). The peatland area is very prone to damage and will be difficult to be restored. Thus, as natural resources, peatlands must be protected from damage in addition to their use for cultivation, using appropriate, and sustainable rules. Peatland utilization and management must be carried out properly based on the principles of conservation and sustainable development regarding ecological, economic, social, and cultural aspects (Glenk & Martin-ortega, 2018; Miettinen, Shi, & Liew, 2012; Suriadikarta, 2012).

Peatland areas have fragile ecosystems because the peat environment is a swamp. Peat ecosystems have inseparable elements that form a whole comprehensive unity and influence to each other in shaping its balance, stability, and productivity. Therefore, protecting and managing peat ecosystems must be carried out with systematic and integrated efforts so that sustainable peat ecosystem functions are realized and peat ecosystem damage can be prevented (Robiyanto S., Nurmala, Setiadi, & Nurholis, 2017).

Peatland damage issues add to the long record of environmental damage in Indonesia (Aswandi, Sadono, Supriyo, & Hartono, 2016; Masganti, Anwar, & Susanti, 2017; Widyati, 2010), especially in West Kalimantan. Many people of West Kalimantan are not compliant with government policies on the prohibition of burning peatland; this indicates that land damage is caused by deliberate social processes that result in the lack of community civilization towards natural resources management and environment. To overcome this, community involvement is needed in protecting the environment as

an important capital for every individual to conserve natural resources (Liao, Ho, & Yang, 2016). The contribution of each individual as a pro-environment soft power is needed because community awareness comes from individual awareness (Prasetyo, Kamarudin, & Dewantara, 2019; Steg & Vlek, 2009). Therefore, pro-environment behavior needs to be applied as a basis for initial thought in raising community awareness, especially in peatlands, and other areas that have the potentials for disaster.

The Indonesian constitution concerning the protection and management of the area has been stipulated in Law Number 32 of 2009 Article 1 Paragraph 2. This law is systematic and consists of integrated steps to preserve environment functions. The systematic and integrated efforts in peatland management are reflected in one of the determinants relating to community welfare. Community involvement in peatland management can increase community ability to optimize the use of natural resources without damaging the environment.

Community involvement in the form of indigenous communities in managing the environment has shown positive values. For instance, the practice of shifting cultivation by Dayak community in Kalimantan (Hijjang, 2019); local knowledge of people in North Sumatera has realized the preservation of natural tourism parks and water resources in TWA Sicike-Cike forest area (Odorlina, Situmorang, & Simanjuntak, 2015), and several more examples of the success of local communities in environmental management (Alcorn, 2010; Berkes, Colding, & Folke, 2000; Puspaningrum, 2015). Iskandar states that Indonesian people, especially those who live in rural areas, generally have a strong relationship with their environment, such as in forest areas (Iskandar, 2012). In fact, in many cases, before a forest area is designated as a nature conservation area, the forest area has been inhabited and managed by local communities for generations of hundreds

of years or more. Each ethnic group has a variety of traditional knowledge related to surrounding biodiversity (Darajati *et al.*, 2016).

Communal environmental management is called a Common Property Regime (Bromley & Cernea, 1989). Studies on the Common Property Regimes are mostly carried out by previous researchers, but some of them mostly studied the use of shared natural resources (Vatn, 2001), the rights of community groups in natural resource management (Barsimantov & Kendall, 2012), and there are even studies on Common Property Regimes discussing phenomena that occur in developing countries, especially those which emphasize performance development based on economics (Wiersum, Singhal, & Benneker, 2004). Communal environmental management has shown success in utilizing a sustainable environment (Agrawal, 2014; Al-Fattal, 2009; Baharudin, 2012; Barbieri & Aguilar, 2011; Efriani, Gunawan, & Judistira, 2019). Therefore, in many countries, local community-based environmental management has received legality from the government (state). The phenomenon in several countries in Europe has involved the community to be active and responsive in maintaining and managing natural resources wisely (Wiersum *et al.*, 2004). As a comparison of Asian and American countries, the Indian government through the forestry department also collaborates with local communities in environmental management (Singh, 2003); the same thing was done by the Government of Peru (Barbieri & Aguilar, 2011).

In the case of Indonesia, it appears that the legality of environmental management based on local communities has also been carried out by the government through the village community empowerment program. Guidance programs generally achieve success because the public trusts in the government. After all, the program is implemented with the principles of openness and justice, which form the values of solidarity and responsibility

within the community. As seen in the community empowerment program carried out by Serdang Bedagai Regency government of North Sumatera Province to the fishing community in Kwala Lama Village who helps repairing damage to the coastal environment. In this phenomenon, it appears that the empowerment process shows its success (Fitriansah, 2012). Involving the community activities in various conservation activities is also the government's strategy in environment management. In the case of local community-based ecotourism management carried out by Tesso Nilo National Park (TNNP) authority in Riau Province, it has shown the government's success in overcoming illegal hunting, encroachment, and forest fires. In this strategy, the government plays a role as an aid provider and the community as an aid recipient, creating collaborative ecotourism management by combining government programs with the potentials of local communities (Putri & Kahfi, 2019). In this article, the researchers present a phenomenon of environment management carried out by the local community and by the Indonesian government. This phenomenon is seen in the BUMDes Maju Jaya program in Rasau Jaya Tiga, namely the management of peatland area.

Therefore, BUMDes Rasau Jaya Tiga becomes a collaborative model of state program involving indigenous people, especially in resource management based on sustainable environment. This phenomenon becomes interesting to be described and explained as a collaborative model of environment management between the government (state) and local communities based on civic virtues. In the case of peatland management in Rasau Jaya Tiga Village, Village-owned Enterprise (BUMDes) is an alternative to environment management in a collaborative form between State Property Regimes and Common Property Regimes.

This study aims to present a new model in environment management spearheaded

by local communities through community empowerment programs known as BUMDes. This study bases on a research question: how can BUMDes program be a collaborative model between the government and local communities in sustainable environment management in peatland areas?

The statement above shows that this article adds a reference to the involvement of local communities who are pro-environment to prevent disasters in peatlands. It also relates to BUMDes program from the government which is able to synergize with local community who contributes to the prevention of peatland fires, community involvement in protecting environment, and empowering local communities around the peatland area. This study aims to describe the success of BUMDes program as a new collaboration between State Property Regimes and Common Property Regimes, which in its implementation, can turn peatland into agricultural land areas as well as business for shared uses. This is done by the local community of Rasau Jaya Tiga Village to develop virtue in the community in the environment field which aims to build natural resources and livelihoods on shared land ownership. The existence of these BUMDes has positive and reasonable consequences for peatland management which has initially been challenging to cultivate profitable assets for the Rasau Jaya Tiga community. BUMDes exists to create social involvement in the community to manage peatlands properly. Even the peatland areas are adequately addressed so that the balance between nature and humans is well maintained.

## II. METHOD

This study implements qualitative methods with a case study research design. Researchers conduct this research and at the same time also become the participants in the fieldwork to obtain data through observation, interviews, and documentation (Creswell, 2009). Preliminary data are collected through observation and it performs significance in the

use of peatlands in agriculture and economic sectors. After conducting observation, researchers conduct data deepening through interviews with informants and document analysis. This study uses a case study because it can reconstruct findings naturally. Therefore, symptoms and facts from the field can be obtained factually and could present knowledge to provide holistic data. These reasons are the basis for taking a qualitative case study method.

Purposive sampling is chosen to determine the research subjects, i.e. the people of Rasau Jaya Tiga Village and community leaders as many as 18 informants. Data analysis technique is carried out through data reduction, data display, verification, and general drawing, and specific conclusions (Miles & Huberman, 1994). This study is conducted in West Kalimantan, Kubu Raya Regency, located in Rasau Jaya Tiga Village. The total land area of Rasau Jaya Tiga is approximately 21.30 km<sup>2</sup> which consists of rain-fed rice fields, open fields, settlements, tidal land, plantation land, state plantation land, public facilities land, village treasury, yard, offices, and others with thick peatland geographical conditions. People in Rasau Jaya Tiga Village are mostly migrants from Java who entered West Kalimantan through the transmigration program in 1970. As peasants, they uphold their unique traditions known as mutual cooperation.

The purposive sampling model is taken in determining and obtaining field data. Researchers use this model to obtain in-depth information from the informants in the field. Informants of this study includes indigenous people living in Rasau Jaya Tiga Village, community leaders, and those involved in BUMDes program. A total of 18 informants consists of 12 residents in Rasau Jaya, 4 community leaders, and 2 civil servants engaged in BUMDes program. In obtaining data from the field, researchers conduct interviews and observations as well as documentation of field results. The

researchers, then, compare the results with interviews with other residents out of the 18 selected informants. The purpose of this comparison is to obtain valid data quality with satisfactory results (Denzin, 2009; Naeem *et al.*, 2016).

To obtain the research data, the researchers come to the village and make a preliminary observation. Researchers conduct interview with the informants at Rasau Jaya Tiga Village. The interview questions focus on 4 points, namely peat environment management, concept of BUMDes program, and impacts of BUMDes program implementation for the community. After all, data are collected, researchers conduct data analysis using data coding model A (community), B (public figure), C (environment managers), and D (supporting informants). Data coding that has been obtained are then analyzed through data reduction and re-reading to determine feasibility of each informant's data description to facilitate researchers in triangulating and grouping the research data (Strauss & Corbin, 1998).

This research is not only revealing the fact that BUMDes as economic institutions, but also a collaboration model between State Property Regimes and Common Property Regimes on peatland management. This is done to find a description of collaborative peatland management that has economic and ecological value.

### III. RESULTS AND DISCUSSION

#### A. Results

Peatland area in Kalimantan island reaches 4.7 million hectares which spreads across the provinces of West Kalimantan and Central Kalimantan with 1,729,000 hectares and 3,070,000 hectares respectively. In West Kalimantan, there are four Hydrological Units of Peat (HUP) which in 2019 were targeted for peat restoration, HU of the Pungur Besar River–Kapuas River, HUP of Matan River–Rantau Panjang River, HUP of Mading River–

Jelai River and HUP of Keramat River–Jelai River (Noviar, 2018).

Of the several regencies determined as the target of restoration, Kubu Raya district has 48,763 hectares (40.76%) of the total restoration target of 119,634 hectare-area of West Kalimantan Province. Rasau Jaya Tiga Village is one of 6 sub-districts in Rasau Jaya sub-district, in Kubu Raya Regency, which are considered as HUP restoration targets. Rasau Jaya Tiga Village is part of HUP of Pungur Besar River-Kapuas River, Kubu Raya Regency (Darajati *et al.*, 2016; Noviar, 2018).

In Rasau Jaya 3 Mid-term Development Plan (RPJM), which is valid for 6 years, i.e. in 2019-2025, there are 4 policy directions and village development priorities. BUMDes can take part in realising policy directions and development guidelines in the field of Community Development and Community Empowerment. These two areas contain the plan of: (1) Increasing agricultural development, both wetlands (rice fields) or dry land (plantations) through increased production, post-harvest and agribusiness-oriented marketing, by taking into account the preservation of available land and water resources; (2) Establishing village businesses that are adapted to existing resources to ease the burden on the community and support physical and non-physical developments; (3) Increasing community participation to assist both central and regional governments in the management and preservation of living natural resources and their ecosystems; increasing public interest in the effort to conserve biodiversity and environment through captive breeding and habitat rehabilitation, collaborating with non-governmental organisations through guidance and counselling programs (Rasau Jaya Tiga Village Regulation Number 1 of 2020). In the RPJM of Desa Rasau Jaya Tiga, there are no policy direction and priority programs regarding peatland management.

Currently, the use of peatlands in Rasau Jaya Tiga Village is starting to be limited due to ongoing environmental damage, which impacts to climate change. Managing peatlands by converting land into industrial forest planting in the form of oil palm plantations causes reduced water content in the peat, which can lead to land fires, degrades environmental quality, oxidation-reduction processes that increase greenhouse gas emissions (Widyati, 2010). Peatland utilization requires great caution and well managed well so as not to cause land damage (subsidence), and environmental damage due to pollution and increased carbon emissions (Sawerah, Muljono, & Tjitropranoto, 2016). Therefore, it is necessary to have appropriate solutions and socialization in utilizing or managing peatlands by the community without burning and damaging the peat ecosystem.

In this study, BUMDes Maju Jaya possesses an innovation and new finding in peatland management. BUMDes is an institution that is built to optimize natural resources and accommodate the economic activities of the community so that the natural resources in Rasau Jaya Tiga Village are well-managed and more structured. In addition, BUMDes Maju Jaya has a number of business units such as tent and chair rentals, kiosks at BUMDes park areas, savings and loan economic business units, building material supply services, and Rajati Flower Garden tourism park development which has proven able to empower community's potentials in managing BUMDes business units.

BUMDes Maju Jaya is established as a new approach to improve the village economy based on the needs and natural resource potentials in the village. BUMDes Maju Jaya is managed independently by the community of Rasau Jaya Tiga Village in mutual cooperation. BUMDes Maju Jaya becomes a business unit that opens economic activities for the local community and is managed professionally. Through BUMDes Maju Jaya, the people of Rasau Jaya Tiga Village have shown their

village independence for improving the community's welfare (Zulkarnaen, 2016).

Initially, Rasau Jaya Tiga Village was a trench area, but the community did not take care of the village's assets so that the trench is gradually filled with trash. In addition, shrubs that grow around the ditch are also worsening the environment condition. Therefore, the head of Rasau Jaya Tiga Village that time innovated an idea to develop the village through a trench revitalization as the village asset to become a tourism attraction. The idea was then taken to the Village Deliberation Forum with BUMDes administrators. Initially, the plan gave rise to the pros and cons from the community. Some people were excited and happy with the idea because they would have a tourist attraction close to their settlements at prices so that it would be economically affordable. However, some others criticized it because the tourist attraction was that time considered to disrupt the traffic lines. Village Deliberation Forum, finally agreed that the Village Fund would be allocated to build a flower garden, and in September 2018, the construction of the park was carried out. One month later, Rajati Flower Garden was officially announced and opened to public and has provided benefits for the community.

Young people in Rasau Jaya Tiga Village, sub-district of Rasau Jaya, Kubu Raya Regency, in the province of West Kalimantan that time were able to initiate a change in what was originally just empty land with thick peats, lots of weeds, and rubbish into a Natural Tourism Destination called Rajati (Rasau Jaya Tiga) Flower Garden. BUMDes program is able to produce positive results for the economic development of the village (Zulkarnaen, 2016).

The success of Rajati Flower Garden is inseparable from the collaboration between the government and the community around peatlands. Karang taruna (youth community) in Rasau Jaya Tiga Village are able to embrace and mobilize dozens of their friends to start doing a change in their village. They build

the concept of tourist village of Rajati Flower Garden. Rajati Flower Garden is planted with various ornamental plants to beautify the atmosphere. Various types of flowers are planted, especially sunflowers, which much attract visiting tourists. There is no unique technology implemented in the planting process on the peatland area, which has shallow to moderate peat thickness of around 0.5 m to 3 m. Rajati's ecotourism flower garden is an alternative management of peatlands, which have been managed for around 50-60% of peatland for the production of food crops and horticulture (Masganti *et al.*, 2017). Rajati Flower Garden utilizes not only the land but also the trenches as water tourism with two duck pedal boats. These duck pedal boats can be rented by visitors to cross along the river while enjoying the beautiful sunflowers and other plants provided in the area.

Visitors of the garden are not only from Rasau Jaya Village, but also from Teluk Pakedai sub-district and even residents of Pontianak in Siantan and Kota Baru areas. They enjoy the natural beauty and reforestation in Rasau Jaya Tiga Village. The number of tourist visits to Rajati Flower Garden is relatively high, especially on weekends; the number of visitors can reach approximately 500 people or even it could reach more in the new year, around 1,000 people. The daily income from the entrance ticket reaches IDR 2-3 million.

The community also forms a team of Rajati Flower Garden supporting management as a BUMDes partners. As examples, Rajati Flower Garden guard team consists of the youth of karang taruna of Rasau Jaya Tiga who has tasks to manage the parking area, the duck paddle boats, and the children's playground area. The personnels of the mangement team of Rajati Flower Garden works in two shifts: morning and evening. Most people in Rasau Jaya Tiga Village have turned themselves into culinary entrepreneurs by opening shops in the tourist area. Consequently, Rasau Jaya Tiga Village has a higher income and at the same time also could absorb some more

new workers. The situation happens due to the creativity of the village government in revitalizing the village assets which were originally dirty trenches and shrubs, now they turn into a beautiful flower garden.

The BUMDes program has a huge impact on the environment. It becomes a new environmental management through the concept of local institutions (Commons Property Regimes). BUMDes program is also civic virtues in the environmental field because the people in Rasau Jaya still hold Javanese cultural traditions called mutual cooperation (Adha, Budimansyah, Kartadinata, & Sundawa, 2019; Prochaska, 2002; Richard, 1997). The mutual cooperation culture carried out in Rasau Jaya Tiga is to protect natural resources and the environment. In this case, working together so that the natural resources provided by the earth are protected together as a livelihood which is also a pro-environmental behavior (Jagers, Martinsson, & Matti, 2014).

BUMDes program can stimulate people of Rasau Jaya Tiga Village in learning about ecology and friendly-environmental villages. BUMDes program can be realized because of the participation and mutual cooperation from the people of Rasau Jaya Tiga Village, through community participation in implementing both material and non-material peatland management activities. Community material participation are delivered in some forms of supports such as financial donations, plant supplies, and other supplies of goods. Various types of plant seeds are donated by the people of Rasau Jaya Tiga Village, such as flower, vegetable, and fruit seeds. In addition, various material donations are also delivered to the construction of the Rajati Flower Garden ecotourism in the form of paint, pots, polybags, and other goods. The community also participates and involves in contributing ideas and time. The community participation can be seen from community service activities or mutual cooperation.

Community participation in the management, utilization, and supervision

of peatlands are optimizing the existence of natural resources without damaging the environment (Schnee, Better, & Cummings, 2016). Various community roles applied on peatlands should be able to create job opportunities, business opportunities, and benefits that can improve the social community welfare while maintaining sustainable peatland environment in accordance with ecological rules (Miettinen *et al.*, 2012).

Mutual cooperation is closely related to the life of the rural community where it is often regarded as an ideal representation of community life related to how the implementation of mutual cooperation values has always existed for generations and has become a cultural heritage. The life of mutual cooperation in rural areas is not spared from challenges and even obstacles that can affect the existence of mutual cooperation itself, especially with the current dynamic and complex community conditions, the effect of modernization, globalization, and coupled with the community of Rasau Jaya Tiga Village who are mostly transmigrants. Of course, it is not easy for the community to maintain the existence of mutual cooperation. Despite the existence of such conditions, it is expected that the values of mutual cooperation remain as the basic value of the social life of the community which will result in the manifestation of national identity and civic culture (Couldry, Stephansen, Fotopoulou, Clark, & Dickens, 2014).

Awareness of the civic culture is essential for social life in Indonesia, therefore, it is necessary to preserve cultural values so as not to be eroded or even extinct. Indonesian people need to have an awareness and strong desire to participate in developing and preserving local and national culture as a civic culture. In addition to being a cultural identity as community local wisdom, mutual cooperation can certainly be a civic virtue representation that can make an individual a wise citizen related to how to behave, to act and to control themselves. Besides, the basic

value of togetherness from mutual cooperation concept is in line with the concept of civic virtues. The concept of civic virtues does not only reflect to actions and mindsets that refer to the civic virtues that a person has but also the values of interaction with others (Moore, 2012; White, 2010).

## **B. Discussion**

### **1. A Collaboration Between State Property Regimes and Common Property in the BUMDes Program in Indonesia**

Environment management is closely related to ownership and Resource Management Regimes (Bromley & Cernea, 1989). Bromley & Cernea (1989) divide Resource Management Regimes into four: private property, common property, state property, and open access.

Many cases occur in 4 forms of ownership classified by Bromley & Cernea, 1989). In some cases, the private property regime shows poor resource management. For example, farming community in Loma Alta rural area, based on recognition from ecuadorian government, traditionally formed a set of special and internal rules to manage forest as much as possible to the point of exploitation (Barbieri & Aguilar, 2011). In other cases, there was an exploitation of privately owned agricultural lands among Australian farmers (Reeve, 1996). These cases show that resource management based on private property regimes is shifting to open access regimes. However, in some cases, common property regimes contribute much to the conservative values of natural resources. In common property regimes, the environment is managed communally in the community, especially the community around the resources. In general, those who close to resources are indigenous people or local communities.

In their mutual interaction with the environment, in addition to being influenced by their belief systems, indigenous people are also influenced by their local knowledge systems (Iskandar, 2012). The United Nations



(UN) has become the main forum that recognizes and protects the rights of local communities in natural management (Kalland, 2000). In relation to the environment, local communities have shown success in preserving the environment (Baharudin, 2012; Efriani *et al.*, 2019). Actors in local communities are able to solve environmental problems around them (Agrawal, 2014; Al-Fattal, 2009; Barbieri & Aguilar, 2011; Setyawan, 2010).

In Indonesia, there are communities in the kars Gunung Kidul area where farmers use conventional methods handed down from their ancestors in managing agricultural land and irrigation. This tradition makes farmers become environmentally wise (Baharudin, 2012). Dayak community has traditionally shown conservative management (Efriani *et al.*, 2019; Seftyono, 2011; Setyawan, 2010). In addition to traditional ecological knowledge (Yuliani *et al.*, 2018), local communities also have special institutions in environment management. In the other hemisphere, namely in California and Oregon, there are local communities that can manage fisheries with resource management through community-owned institutions with effective environment sustainability (Al-Fattal, 2009). The same thing can also be found in a rural area of West Africa, namely the Tongo tradition as a form of joint-resource management in Gambia, Guinea, Sierra, and Leano. Tongo is a form of natural resource conservation (Barbieri & Aguilar, 2011). Chatla in Cachar district in Assam uses the common property regimes for fisheries management (Laughlin, 2013). In Nepal, communities have traditionally managed to manage forests based on traditional norms through traditional institutions (Wiersum *et al.*, 2004); Customary-based water management systems in rural Indian are rooted in community cosmology regarding the relationship between water as a natural resource and supernatural and social order (Singh, 2006).

Therefore, it is not surprising that common property regimes are an answer

to sustainable-environment management in local communities (Sick, 2008). Local community institutions become a management model offered in sustainable-environment management. In some countries, environment management by local communities is recognized by the government. The government provides legality, encourages, and provides protection for the rights of local communities. For example, the Indian government provides legality and makes local community institutions function properly in resource management through their forestry law of 1927 (Singh, 2003). In 1991, the Peruvian Government also issued decree 6531 which involves indigenous communities by giving them "usufructuary rights" of communal lands to protect some rare animals from illegal hunting (Barbieri & Aguilar, 2011).

Based on environment management categorized by Bromley & Cernea (1989), it appears each of the four forms has weaknesses and strengths. In some cases, it appears that private property, state property, and common property succeed in managing environmental sustainability, but in some cases, it also appears that the management failed. In this article, the researchers describe a new model of collaborative environment management between common property and state property. Collaborative management between private property that is managed in common property has been disclosed by Wiersum *et al.* (2004) namely collaborative management of shared forests.

Common property resource management requires the support of government policy. The government gives support for activities of local communities in environment management. The state must present a support for local community activities in environment management. Local institutions become effective with the support of the government (Reeve, 1996). As an example, the presence of the Indian government in community forest management in Orissa (Singh, 2004).

The resource management system achieves collaborative and effective governance. Common property regime requires policy support from the state government through the agency or department concerned (Singh, 2003). Like countries in Europe that have collaborated with local communities in forest management (Wiersum *et al.*, 2004), regulations on local institutions should be accepted by the country (Singh, 2006). In this case, the state does not take over anything that has been communally managed by the community, but the state presents by providing protection through laws and policies.

In case of peatland management in Rasau Jaya Tiga Village, BUMDes is an alternative to environment management in a collaborative form between state property regimes and common property. Through the Law of the Republic of Indonesia (Number 6 of 2014) concerning Villages and Regulation of the Minister of Villages, Development of Disadvantaged Regions, and Transmigration of the Republic of Indonesia concerning Establishment, Management, and Village-owned Enterprises dismissal, the Indonesian Government rules (Number 4 of 2015) directly provides space and alternatives for resource management around the community by implementing common property regimes.

Specifically, BUMDes is stipulated in Law Number 6 of 2014 concerning Villages Chapter X article 87-90. BUMDes are business entities established and managed by the village that functions for community business development and village development. BUMDes can also be a means for the government (state) to encourage the independence of the village community. The government (state) can encourage BUMDes as village independent businesses by providing capital assistance, legitimacy, technical assistance in managing and utilizing village resources/potentials. Therefore, BUMDes establishment is intended to accommodate all activities in economic field and public services managed by the village and/or inter-

village cooperation. This can be used as an indicator in improving the village economy, optimizing village natural resources and utilizing village assets for community welfare, economic growth, and equity in the village, as well as increasing the community income and original village income.

Rasau Jaya Tiga Village builds BUMDes based on Law Number 6 of 2014 article 90, specifically in paragraph c. It can be concluded that in managing village natural resources, BUMDes Maju Jaya aims for mutual prosperity. BUMDes Rasau Jaya Tiga bases on the classification of BUMDes business types as a joint-owned business entity (holding); in this case as the main business of other business units in the form of village tourism. This tourist village is managed on a communal basis by the local community in Rasau Jaya Tiga Village.

BUMDes Maju Jaya displays an active role of the government (state) with the local community in managing village potentials, especially in utilizing and managing the peatland environment. Collaboration in environment management between the government and local village communities can be used as a reference for peatland management and protection including planning, utilization, management, maintenance, and supervision.

Utilization of peat ecosystems can be performed through functioning protection and cultivation and maintaining peat hydrological systems. Efforts in managing and protecting the peatland area in Rasau Jaya Tiga Village are the manifestation of the local community efforts through BUMDes program. However, it does not stop there, some other factors are also possible to drive environmental awareness behavior such as adequate infrastructure, society, culture conditions, and authority politics (Lee *et al.*, 2005). Environmental awareness in BUMDes program is a new scheme and form resulted from a collaboration between state property regimes and common property, in other views, it can be interpreted as civic

Table 1 Collaboration between community and government (state) in peatland management through BUMDes Maju Jaya  
*Tabel 1 Kolaborasi masyarakat dengan pemerintah dalam pengelolaan lahan gambut melalui BUMDes Maju Jaya*

Collaboration aspect ( <i>Aspek kolaborasi</i> )	Contribution ( <i>Kontribusi</i> )		Collaboration form ( <i>Bentuk kolaborasi</i> )	Result/effect ( <i>Hasil/dampak</i> )
	Government ( <i>Pemerintah</i> )	Society ( <i>Masyarakat</i> )		
Peatland planning	- Peatland restoration program - Village-based institutional capacity building - Development of alternative commodities	Participate in developing regional planning as a potential source of assets for village livelihoods	The community supports the peatland restoration program planned by the local government	Successful in mapping areas that have the potential to generate new livelihood for village community
Peatland utilization	The government provides financial resource and capital support in the form of material support	- Village community participate in the form of labor contributions - Local community utilizes peatlands based on traditional ecology	Capital provision by the government to local community as a source of BUMDes fund managed by the community as peatland ecotourism	- Improved economic and welfare of village community are met - Sustainable environmental development
Peatland management	The government provides legality in developing peat care village	The community manages peatlands by not burning the land and not damaging the ecosystem	The government involved local people in the development of a tourist village based on local organizations such as “ <i>pemuda karang taruna</i> ” (youth organization)	Village ecotourism and pro-environmental community are formed
Peatland supervision	The government issued a regulation on monitoring and prohibition to burn forests and land— <i>peraturan pengawasan dan larangan membakar hutan dan lahan</i> (P.8/MENLHK/SETJEN/KUM.1/3/2018)	The community is the supervisor and controller of other communities’ behavior that cause peatland damage and fire	The community participates in government policy, namely “ <i>stakeholder collaborative governance</i> ”	Community behavior towards unwise peatland burning is reduced

Source (*Sumber*): Triangulation results of field data, 2020.

engagement for pro-environment behavior. The meaning of civic engagement is basically an important part of the elements forming a civic community which include a sense of responsibility for the surrounding community to build a good environment and to be used

as a joint livelihood (Adler & Goggin, 2005; Lawry, Laurison, & VanAntwerpen, 2006; Shandas & Messer, 2008; Stamm, 2009).

BUMDes program as an effort from local community of Rasau Jaya Tiga Village in realizing peatland management and protection

is an instrument of empowering the local economy with various types of potentials. BUMDes contributes to the increase in village income sources that enables villages to carry out development and increase people's welfare optimally. BUMDes Maju Jaya is a rural economic organization that has good values and prospects. Therefore, the program is a solution in peatland management, a common property regime environment management innovation, and virtues in environmental fields for the people of Rasau Jaya Tiga Village.

BUMDes, which is managed by the community of Rasau Jaya Tiga Village, is based on integrated social, economic and environmental problems, becoming a solution for peatland management. This solution has a balanced impacts between improving the community's economic welfare and the sustainability of the peatlands in the village, such as revitalising the ditch into a tourist spot, managing peatlands into flower gardens and involving community members actively in management, in the form of material and non-material involvement.

## **2. A Collaborative Scheme Between Indigenous People and Government (State) in BUMDes Maju Jaya**

Collaboration is essentially a mutual-joint action needed at every level of organization. Collaboration is a high-level collective action as well as a form of commitment and complex actions (Campbell, 2016). Basically, collaboration is carried out within an organizations or between organizations to achieve common goals that are impossible or difficult to achieve independently (Campbell, 2016; D'Amour, Ferrada-Videla, San Martin Rodriguez, & Beaulieu, 2005; Gajda, 2004; Riskasari, 2018).

Collaboration is believed to have the potentials to produce good results (Argo & Araz, n.d.; D'Amour *et al.*, 2005; Febrian, 2016; Argo & Araz, 2017; Riskasari, 2018; Thompson & Story, 2002), although not all collaborations can realize shared goals.

Essentially, collaboration is an interaction between collective groups to provide useful results (Gajendran & Brewer, 2012). Five collaboration models can be formed when organizations work together (Raharja, 2008). Interdependent model, negation model, dependent model, compromise model, and independent model (D'Amour *et al.*, 2005; Raharja, 2008).

In the case of BUMDes Maju Jaya management, it appears that the government (state) and local community develop an interdependent collaborative model. The government (state) and local communities formulate together various activities such as peatland planning, utilization, management, and supervision. The government and community jointly commit, form, and optimize a structure in the form of Witas Village (peat care village). Government and local communities have sufficient abilities and resource capacities to support collaboration (independent) and have attitudes and behaviors to voluntarily help to be empowered and independent. The government and the community collaborate to achieve peatland planning, utilization, management, and supervision that achieve economic and ecological goals.

Based on its profile, BUMDes Maju Jaya in Rasau Jaya Tiga village is not intended to be a means of conserving peatland. BUMDes Maju Jaya was established through a village meeting in August 2016. Through this deliberation, government regulation has established in Rasau Jaya Tiga Village with the regulation number 06 of 2016, on 31 December 2016. BUMDes Maju Jaya has established four business units, namely service business, fund business, material procurement business, and tourist village development. Each business unit is developed based on the village potentials.

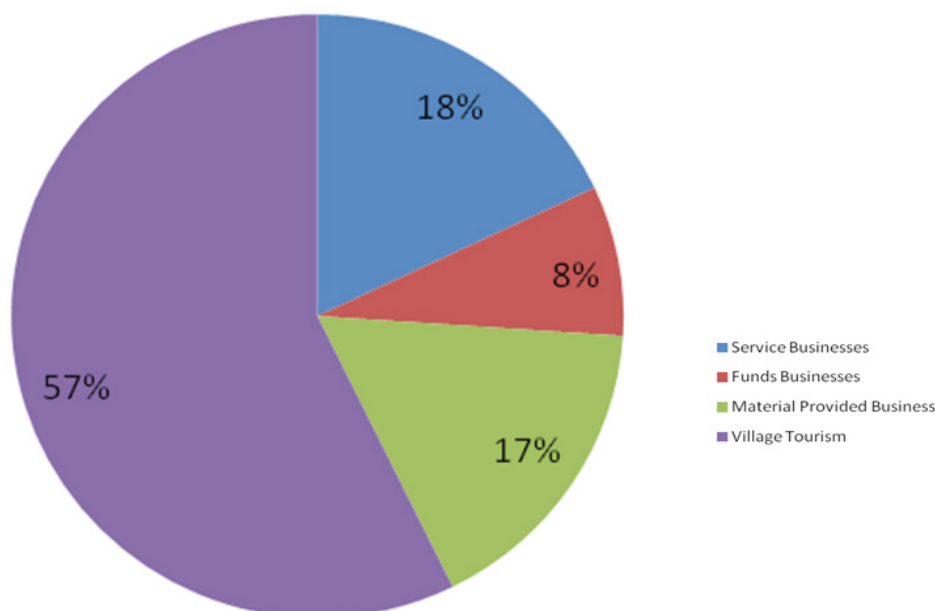
The government (state) through the village government becomes the capital/fund provider. In 2017, the government of Rasau Jaya Tiga Village contributed

IDR50,000,000 with IDR30,000,000 for service business units and IDR20,000,000 for savings and loans fund business units. In 2018, the village government will provide another financial support of IDR75,000,000 with IDR65,000,000 for Rajati Flower Garden tourist village development and IDR10,000,000 for service businesses. In 2019, BUMDes Maju Jaya reported turnover as shown in the following Figure 1.

In the graph above, it appears that the most considerable turnover of BUMDes Maju Jaya villages comes from the tourism village business units with products in the form of eco-tourism and agro-tourism (57%). Rajati Flower Garden as an ecotourism area has a variety of flower plants, especially sunflowers, and water playfields. Meanwhile, there is also agro-tourism in the form of edupark or planting training places. In edupark agro-tourism, there is a strawberry, guava mini park and a hydroponic plant garden. These two tourist destinations are managed by utilizing peatland and also the ditch which was initially an empty land in the village.

Especially for the Indonesian government, this phenomenon has provided an example of business units developed by the village government that are managed independently by local communities and have significantly provide economic values as well as ecological values. Table 1 presents a collaborative form between the government and local communities in peatland planning, use, management, and supervision. This collaboration becomes a peatland management model that is de-facto vulnerable to damage. It appears that through state and community collaboration, peatlands can be planned as a means of development and community empowerment. The involvement of local communities in peatland utilization and management correlates well with economic and ecological achievements.

Rasau Jaya Village is familiar with “peatland fires”, which becomes continues issue every year. The peat fires are associated with agricultural activities, which become the primary livelihood source for Rasau Jaya Village people. Therefore, economic aspects and environmental aspects need to be



Source (Sumber): Mujiono, Suharyati, & Susiana (2019)

Figure 1 Income percentage of BUMDes Maju Jaya-2019  
Gambar 1 Persentase omset unit usaha BUMDes Maju Jaya tahun 2019.



Source (Sumber): Observation result, 2019

Figure 2 Rajati Flower Garden ecotourism  
*Gambar 2 Ekowisata Rajati Flower Garden.*

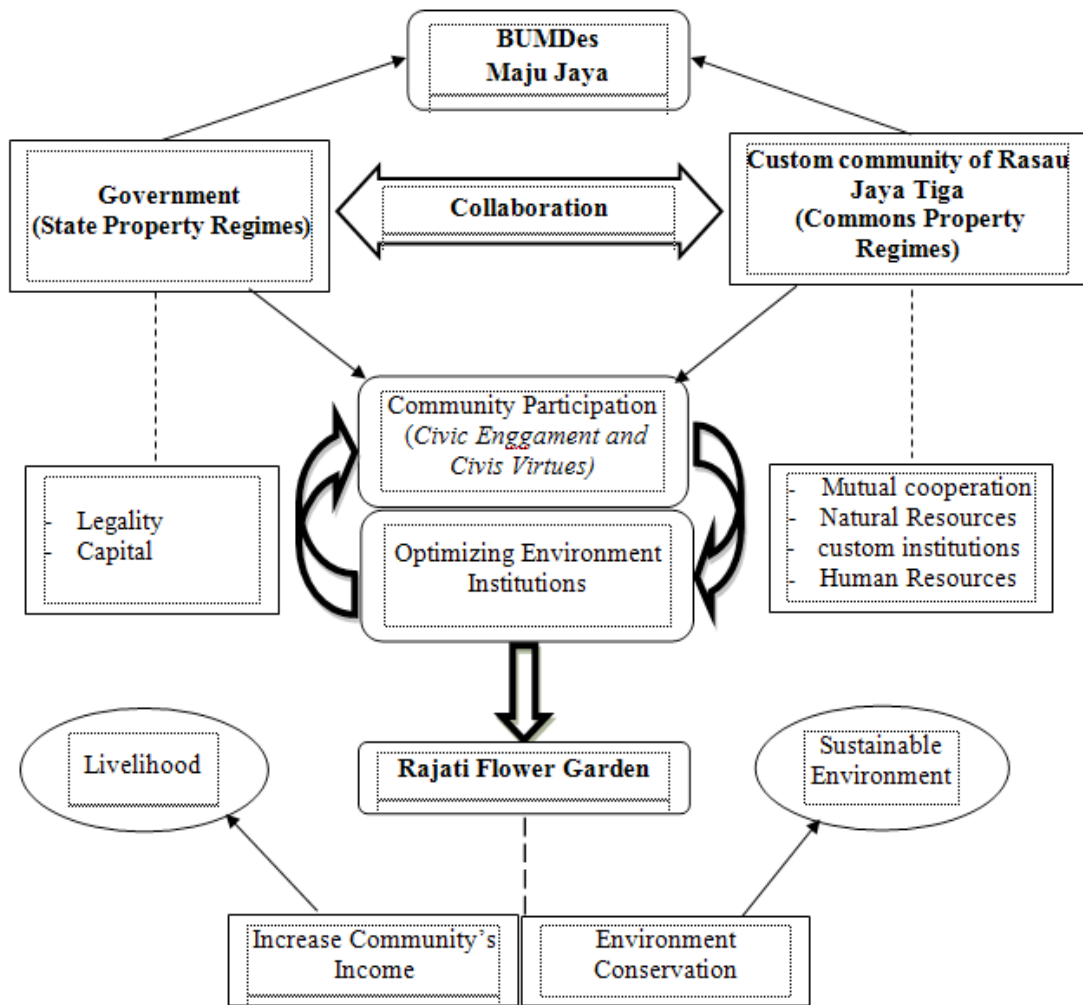


Source (Sumber): Observation result, 2019

Figure 3 Agro-tourism eduparks RJ-3  
*Gambar 3 Agrowisata eduparks RJ-3.*

integrated into the management. Now, through BUMDes, peatlands have been managed in other forms and has functioned as ecotourism which can create a balance between economic prosperity and environmental sustainability and becomes an alternative for preventing deforestation.

The management of these peatlands reduces poverty, increases food security, and improves contextual sustainability and community welfare. Ecologically, ecologically, this ecotourism-based peatland management conserves biodiversity and reduces waste and losses due to land burning. Management



Source (Sumber): Triangulation results of field data

Figure 4 A collaboration scheme model  
Gambar 4 Skema model kolaborasi.

with a collaborative model brings a change in mindset, increases community knowledge and skills on peatlands. The collaboration model has also increased the value of friendship and maintains a culture of mutual cooperation in solving social problems.

Collaboration between the government and community needs to be done in order to strengthen the institutional base between the village government and the local community. As depicted in Figure 4, this collaboration should aim to form a sustainable environment and be able to contribute ideas and improve the village economy in natural resource

management. It has proven that collaboration between the government and indigenous peoples can create a new livelihood in Rajati Flower Garden which was pioneered by Rasau Jaya Tiga youth community called karang taruna. The youth who are active in the karang taruna organization aims to empower village communities, even they have initiatives to approach people both individually and communally at certain events. From the scheme above, the collaboration carried out by the government and local community makes BUMDes Maju Jaya program becomes not only a government program aimed at

improving the community's economy but also a form of political attitudes of policy makers on environmental and natural resource issues (Kostka & Mol, 2013). In addition, the state property regime driven by the government will run successfully if it involves the pro-environment and civilized community who are aware that protecting the environment is a top priority for future survival (Kollmuss & Agyeman, 2010). Therefore, mutual cooperation and volunteerism of local community become an important indicator to develop community awareness towards the improvements of environment quality. In fact, the legality and provision of capital over common property regimes granted by the state to local communities have an impact on increasing people's income. In this case, this action is a source of new livelihoods, as well as changing people's mindset so that the property rights holders will not exploit natural resources carelessly. Thus, environment conservation in natural resource (common property regime) management must have a positive impact on customary rights (property) holders, the government, community, and even the environment.

#### **IV. CONCLUSION AND SUGGESTIONS**

##### **A. Conclusion**

In some cases, resource management leads to exploitation. Resource exploitation can occur in 4 forms of environment management identified by Bromley & Cernea (1989). Therefore, many studies continue to be conducted to find sustainable environment management concepts and models. This study has presented a collaborative resource management model between state property regimes and common property regime. This study also reinforces the theory of collaboration functions, namely collaboration as an effort to achieve goals that cannot be achieved independently.

Through this article, a collaborative model between the government and

local communities in natural resource management, specifically, peatlands, has been developed. Thus, the community living around the peatlands can be the government's partner in realizing peat care villages. At the same time, the government is a partner for local communities in managing potential livelihoods to improve their economy. Local communities in Rasau Jaya Tiga Village have communal management in managing peatlands based on mutual cooperation culture (common property regimes), while the state is the most responsible side in managing natural resources (1945 Constitution 33 verse 3) for the welfare of Indonesian people. The huge potentials of peat in Rasau Jaya Tiga Village area are managed wisely so that it provides economic value without damaging the natural function of the peatland.

Another finding in this study is that BUMDes is not an institution intended for sustainable environment management, but as a business entity owned by the village that is used to manage assets, services, and other businesses for community welfare. BUMDes program developed by the Indonesian government has become a medium for natural resource conservation such as in the Rasau Jaya Tiga Village. Even the establishment of an ecotourism-based tourist village by utilizing and managing peatlands has provided positive impacts on the community. Peatland management in the form of ecotourism (tourist village) has achieved a balance between ecological, economic, social, and cultural functions in one area.

Collaboration between the community and the government in BUMDes Maju Jaya has shown good efforts to manage peatlands in the form of ecotourism flower parks and eduparks. This has undoubtedly become a solution in addressing the problem of peatland deforestation in Rasau Jaya. Direct community involvement in managing peatland has increased their knowledge and skills in sustainable environment management. Rajati Flower Garden and edupark are tangible



forms of the continued control of peatland in Rasau Jaya Tiga.

## B. Suggestions

Based on the conclusions, the researchers advice that:

1. The Ministry of Village through Kubu Raya District Government needs to increase supervision of the burning garbage behavior on peatlands; lack of attention and intensive supervision makes area damages in some aspects and land fires spread continuously. Thus, it damages natural ecosystems and causes haze disasters.
2. The Indonesian government needs to collaborate on policies with indigenous people who have special territorial structures, for example, peatland area, so that they can bring up community potentials in various aspects of life.

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