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THE FUNCTION OF SPATIAL PLAN FOR THE PROTECTION OF PEAT ECOSYSTEMS IN SOUTH KALIMANTAN PROVINCE

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Abstract

Peatland degradation in South Kalimantan due to peatland is often considered as useless land and wasted land that can be drained and converted. This assumption is one of the main causes of peatland degradation and damage especially in changing land use for agriculture and plantations. Government Regulation Number 71 of 2014 as amended by Government Regulation Number 57 of 2016 concerning the Protection and Management of Peat Ecosystems mandates the need to prepare a Peat Ecosystem Protection and Management Plan. This research focuses on achieving focus 1. The research method used is environmental law research that is supported by ecological and planalogical data called by Terry Hutchinson Reform-Oriented Research, namely doctrinal legal research that contains a growing taxonomy for incorporating insights from other disciplines. The findings of this study are most of the peat land in South Kalimantan is damaged due to the conversion of the area and fires. Peatland protection must be linked and harmonized with spatial planning. However, spatial planning in South Kalimantan has not been integrated with the protection of peat protected areas. Therefore, it is necessary to make a Peatland Ecosystem Protection and Management Plan as ordered by the Legislation.

Keywords: RPPEG, spatial planning, peatland.

Introduction

Data from the South Kalimantan Environment Agency noted that at least 58,342 ha or 60% of the 106,000 ha of peatland in South Kalimantan were damaged. The area of peatland considered damaged based on restoration priorities, both damages to canal peat domes and former fires in South Kalimantan in 2015 was 45,567 ha and 11,775.8 ha respectively (Media Indonesia, 2017). This figure is different from the data obtained from Soekardi that South Kalimantan has 1.48 million ha or 15% of peatland distribution on the island of Kalimantan and 8% of Indonesia's peat distribution area (Sudrajat ASE & Sri Subekti, 2019).

Based on the Decree of the Minister of Environment and Forestry No. 129 and 130 of 2017, the area of the peat ecosystem in South Kalimantan Province covers 102,902.95 ha, which is divided into 4 (four) Peat Hydrological Units (KHG). The KHG area crosses regencies from the north, namely Tabalong, Balangan, North Hulu Sungai (HSU), Central Hulu Sungai (HST), South Hulu Sungai (HSS), Tapin continues to the south of Banjar and Barito Kuala Regencies. Some of them cross the South Barito and East Barito Regencies in Central Kalimantan Province. Based on data and maps from the Center for Research and Development of Agricultural Land Resources (BBSDLP), the area of peatland in the peat ecosystem of South Kalimantan Province covers an area of 106,271 ha (BBSDLP, 2014) or 107,344 ha (BBSDLP, 2015). The results of data analysis and field investigations with a

map scale of 1:50,000 showed that the peat ecosystem or KHG of South Kalimantan Province covers an area of 235,561 ha. Thus, all peat ecosystems are included in the KHG area, apart from peat soil, peat soils, but also mineral soils are included in the KHG area.

Damage to the peat ecosystem (KHG) in South Kalimantan Province due to fires in 2015 reached 18,665 ha or 13% of the total area of 148,194 ha. The area with the largest burned area is Tapin Regency, which is in the Barito River KHG – Tapin River with an area of 3,900 ha (3.79%). Peatland fires are always repeated and based on the distribution of hot spots, many are concentrated along canals and concession areas in the peat ecosystem or KHG of South Kalimantan Province. The latest data from the Regional Disaster Management Agency (BPBD) of South Kalimantan shows that until September 2017 there were 566 ha of forest and land fires, an increase compared to August 2017 of only about 170 ha.

Based on the data obtained, a total of 18,665 ha of peat in South Kalimantan became the location for burning. These fires cause impacts, both physically impacting the area, economic impacts, and social impacts. Fire is one of the main causes of damage to the function of the peat ecosystem, in the last six years there have been 1,053 hotspots in the Peat Ecosystem Area in South Kalimantan. In 2015 was the year with many hotspots being monitored with a total of 460 hotspots, while 2011 and 2014 were the year with more than 200 hotspots. Data from the Disaster Management Agency, as of September 2017, the area of forest and land burned reached 566.40 ha, an increase of more than three times from the fire area until August 2017 which was 170 ha. Meanwhile, the distribution of hotspots monitored by the Aqua Terra Satellite at that time was 149 hotspots.

The impacts of these forest and land fires include the destruction of ecosystems, decreased biodiversity, decreased economic value of forests and land productivity, changes in the micro and global climate, disturbed public health and stagnation of all transportation, both land, water, and air.

Peatland damage in South Kalimantan due to peatlands is often considered as useless land and wasted land that can be drained and converted. This assumption is one of the main causes of peatland degradation and damage, especially in changing land use for agriculture and plantations. The conversion of peatland into cultivated land is carried out intensively such as rice fields and other plantation areas through uncontrolled licensing. The clearing of peatlands to be used as plantation areas, most commonly oil palm plantations, has a drainage system that results in compaction and accelerates the oxidation or decomposition of organic matter.

Government Regulation Number 71 of 2014 as amended by Government Regulation Number 57 of 2016 concerning the Protection and Management of Peat Ecosystems mandates the need to prepare a Peat Ecosystem Protection and Management Plan (RPPEG), which is a corrective action effort in managing peat ecosystems.

The RPPEG policy is expected to be able to prevent damage to the peat ecosystem through good peat ecosystem management. RPPEG directs that the protection and management of peat ecosystems be carried out in a systematic, harmonious, and synergistic manner with various other development plans, such as the Regional Spatial Plan (RTRW).

The relevance of the content of the national RPPEG with spatial planning is in the main content of the spatial plan which consists of spatial structure and spatial patterns. RPPEG is prepared based on a spatial approach, both the KHG Map and the Peat Ecosystem Function Map. So that the spatial content of both the KHG Map and the Peat Ecosystem Function Map have relevance to the spatial structure and spatial patterns in the context of realizing harmony between the natural environment and the artificial environment, integration in the use of natural resources and artificial resources by paying attention to human resources and protecting functions. space and prevention of negative impacts on the environment due to space utilization (Menteri Lingkungan dan Kehutanan RI, 2020).

This is also confirmed by Michael Manton et.al. the relationship between peatland protection and spatial planning, namely:

Peatlands are the “kidneys” of river basins. However, intensification of agriculture and forestry in Europe has resulted in the degradation of peatlands and their biodiversity (i.e., species, habitats and processes in ecosystems), thus impairing water retention, nutrient filtration, and carbon capture. Restoration of peatlands requires assessment

of patterns and processes, and spatial planning. To support strategic planning of protection, management, and restoration of peatlands, we assessed the conservation status of three peatland types within the trans-border Neman River basin. First, we compiled a spatial peatland database for the two EU and two non-EU countries involved. Second, we performed quantitative and qualitative gap analyses of fens, transitional mires, and raised bogs at national and sub-basin levels. Third, we identified priority areas for local peatland restoration using a local hotspot analysis. Nationally, the gap analysis showed that the protection of peatlands meets the Convention of Biological Diversity's quantitative target of 17%. However, qualitative targets like representation and peatland qualities were not met in some regional sub-basins. This stresses that restoration of peatlands, especially fens, is required. This study provides an assessment methodology to support sub-basin-level spatial conservation planning that considers both quantitative and qualitative peatland properties. Finally, we highlight the need for developing and validating evidence-based performance targets for peatland patterns and processes and call for peatland restoration guided by social-ecological research and inter-sectoral collaborative governance (Michael Manton et.al, 2021).

The research question is how is the harmonization between the Regional Spatial Plan in South Kalimantan Province and the Regency in South Kalimantan with the Peat Ecosystem Protection Plan? What are the weaknesses of existing regulations in protecting peatland ecosystems in South Kalimantan Province? These two questions will provide answers in the framework of spatial planning that can provide protection for peat ecosystems.

Method

The research method used is environmental law research supported by ecological and planalogical data called by Terry Hutchinson Reform-Oriented Research, namely doctrinal law research that is the evolving taxonomy for incorporation of insights from other disciplines (Hutchinson T, 2015).

Result and discussion

Causes of Peatland Damage

The use of peat for agricultural cultivation has been carried out by the local community for a long time before there was a regulation on the existence of provisions regarding the protection function so that some of the ecosystems that should be included in the protected function (now have been used by the community for agricultural and plantation cultivation. Therefore, it is necessary to plan the protection and management of peat ecosystems that are appropriate according to their functions, while still paying attention to and also accommodating various interests by considering both economic, socio-cultural aspects of the community, as well as the environment with the basic principle of ensuring the sustainability of the peat ecosystem function so that it can support sustainability and sustainability of the ecosystem as well as its usefulness for people's lives in the future.

In addition, in recent decades the existence of forests in the South Kalimantan area has been increasingly threatened due to the activities of forest encroachers, illegal loggers and illegal miners. In addition to the above illegal activities, the decline in forest/land cover area is also influenced by the development of the plantation sector, forestry sector, and mining sector which contributes to the decline in forest cover area as described above.

Legal Basis for Protection and Management of Peatlands

Presidential Decree No. 32 of 1990 concerning Management of Protected Areas has stipulated that peat areas are protected areas (Article 3 and Article 4). Then Article 37 states that in protected areas it is prohibited to carry out cultivation activities, except those that do not interfere with the protected function. However, Article 38 provides

an exception that if it turns out that in the protected area there are indications of mineral deposits or ground water or other natural resources which if cultivated are considered very valuable to the state, then cultivation activities in the protected area can be permitted in accordance with the provisions of the applicable laws and regulations. However, it will be further regulated by the competent Minister, after receiving consideration from the National Spatial Management Coordination Team. In government regulation no. 71 of 2014 concerning the Protection of Peat Ecosystem Management stipulates that in the context of the criteria for the protection of peat ecosystems, there is a striking difference and is more detailed in nature. However, it still uses the 3-meter criteria to be one of the criteria for peatland protection. On the other hand, this regulation has begun to adjust the provisions of spatial planning and forestry which require 30% as a protected area.

The procedure for determining the Peat Ecosystem Function as regulated in Article 9 paragraph (2) of the Minister of Environment and Forestry Regulation Number P.14 of 2017, includes the Peat Ecosystem Protection Function and the Peat Ecosystem Cultivation Function. In relation to the protection of peat with a thickness of more than 3 meters, which is in the upper reaches of rivers and swamps, it must be protected. This element is cumulative in nature as regulated in PP no. 71 of 2014. The "temporary" total protection was carried out from 2011 to 2015 through a policy of delaying new permits or better known as the moratorium policy. This policy no longer distinguishes between peat with a thickness of 3 meters or less than 3 meters, all of which are protected from permit concessions issued by the government. The policy of peat thickness (3 meters) is still a debate in scientific circles to this day. This condition is important to be resolved because it will affect the effectiveness of the implementation of regulations and the sustainability of peat (Indrarto GB, 2015).

Widjaja Adhi (1997) states that there are 2 areas of peatland ecosystems, namely non-cultivated/protected areas and cultivated areas (Adhi WI, 1997). Non-cultivated/protected areas can be divided into two, namely the first green belt which is located along the coast and river embankments and the second is a rain catchment area that covers an area of at least 1/3 of the entire area. The area used for conservation land is the peat dome which functions as a rainwater storage area. The peat ecosystem protection function is as an arrangement of peat elements that have special characteristics and main functions in protecting and balancing water systems, storing carbon stocks, and preserving biodiversity so that they can preserve the functions of the peat ecosystem. While the Peat Ecosystem Cultivation Function is an arrangement of peat elements that have special characteristics and functions in supporting the productivity of the Peat Ecosystem with cultivation activities based on its carrying capacity so as to increase the preservation of the Peat Ecosystem function. Based on the map, most of the indicative function of peat ecosystem cultivation is 156,261.18 ha or 66% of the total area of peat while the indicative area of peat ecosystem protection function is 81,549.16 ha or about 34% (Sudrajat ASE & Sri Subekti. 2019).

The peat ecosystem in South Kalimantan Province is mostly declared as a protection function which is expected to save and develop various flora and fauna typical of the peat ecosystem. The peat ecosystem is known as a mega biodiversity area and has also been occupied by several protected flora and fauna. The results of inventories in peat forests in Kalimantan and Sumatra have found between 34-58 species of trees as wood producers, some of which are already rare, such as ramin, meranti and jelutung (Noor, 2001). According to a report by Dahuri (1997) in primary forest in the peat ecosystem around the Mentangai River, Central Kalimantan, 104 species of wildlife have been found, consisting of 32 species of mammals (of which 13 are protected); 8 types of reptiles (5 protected species); and 60 bird species (19 protected species).

Then about the Carbon stored in forests and the soil beneath it has a total storage of more than one trillion tons with a total that is worldwide. This amount is double the amount of carbon in the atmosphere or equal to + 2,000 times the total weight or equal to 7 billion people in the world, which is averaged or assumed to weigh 70 kg per person.

Protection of Peatlands through Spatial Planning

The regional and regional spatial plans studied have not been able to provide protection for the peat ecosystem. This is because the 2015 Provincial Spatial Plan is still in the revision stage. The 2015 RTRWP has not been integrated with the Peat Ecosystem Management Protection Plan. There is a problem in the 2015 RTRWP that

peatland is designated as a protected area but in fact it is used as a cultivation area because it has already become an oil palm plantation with HGU status. That can only be in the context of returning if it has been in the production cycle so that it can be returned to the state. The problem is that the HGU status has permanent legal force.

There are two provisions, namely the provincial Spatial Plan and the Regency Spatial Plan. Because HGU is a matter of land tenure, it is a matter for the National Land Agency, and everything is related to permits through the Electronically Integrated Business Licensing System (OSS). that is why there is something called land technical considerations. For this reason, after going through such processes, it is called the KKPR "Conformity of Spatial Utilization Activities". There are 3 types of KKPR, including approval. KKPR if there is no detailed plan.

To provide protection for peatlands, peatlands that are protected in character cannot be used as cultivated peat. Therefore, it must be stated in the RTRW of the Province and the Regency/City that part of the peat land is designated as a protected function area.

The function of the RTRW in providing protection for the peat ecosystem is mainly related to the issuance of permits for the use of peatlands which are included in the RTRW as space utilization permits. Space utilization permit is intended as an effort to control space utilization so that every space utilization must be carried out in accordance with the spatial planning plan. Space utilization permits are regulated and issued by the Government and regional governments in accordance with their respective authorities based on the provisions of the applicable laws and regulations. Utilization of space that is not in accordance with the spatial plan, whether equipped with a permit or without a permit, will be subject to sanctions. The sanctions can be in the form of administrative sanctions, imprisonment, and/or fines. These sanctions can be applied if there is behaviour that violates the obligations of space utilization as regulated in Article 61 of Law no. 26 of 2007, the obligations referred to include:

a. Adhering to the spatial plan that has been set.

b. Utilize space in accordance with the space utilization permit from the authorized official.

c. Comply with the provisions stipulated in the requirements for space utilization permits.

d. Provide access to areas which are declared as public property by the provisions of laws and regulations.

Anyone who violates the above provisions, then as regulated in Article 63 of Law no. 26 of 2007, the violation of the law can be subject to administrative sanctions. Other provisions governing administrative legal actions that can be taken by the government for violations of space utilization permits are also regulated in Article 37 paragraphs (2), (3), (4) Law no. 26 of 2007.

In the event of irregularities in space utilization activities, where the implementation of space utilization is not in accordance with the Spatial Planning and zoning regulations, whether equipped with permits or those without permits, enforcement actions will be taken. Thus, every company that requires a business license is required to have a location permit. Based on ministerial regulation ATR/Head of BPN No. 5 of 2015 concerning location permits, Article 1 paragraph (1) states that a location permit is a permit granted to a company to obtain land needed for business purposes and Article 3 states that land that can be designated in a location permit is land which according to the RTRW is designated for use. accordance with the investment plan carried out by the company.

In the context of sustainability, it must consider the existence of a peat ecosystem that can cause potential damage from the determination of the position of the peat ecosystem in the RTRW. This reconciliation is very difficult considering that the Provincial RTRW already has a legal basis for Regional Regulations. For this reason, steps to reconcile the substance of the RTRW at the district level are very important prior to its implementation. The solution is to limit the range of permitted and non-permitted uses or activities to save peatlands in the district. The integration of the proposed land use into the design of the Regency RTRW is carried out with the aim of considering saving peatlands and is recommended in the development scenario. However, integration needs to be carried out with the approval of government elements and stakeholders in the Regency which is currently still facing regulatory obstacles.

Formally, it is known that there is a spatial planning hierarchy starting from the RTRWN, Island RTRW, Provincial RTRW, and Regency RTRW. Meanwhile, in the preparation of the document, sector regulations are

also regulated, so that the integration between spatial planning regulations and sector regulations is the key to the integrity of the regional spatial plan.

The preparation of the regional spatial pattern which is one of the contents of the Regency RTRW faces a dilemma, where currently the area, which is a peat area, in the Provincial RTRW has not been designated as a Peat Area, so that various production activities can still be carried out in accordance with the intended function. In the initial Regency RTRW draft it also did not include the area referred to as a peat area, this was because the reference base was in the RTRWP.

This needs to be confirmed by the existence of the KHG map that has been issued by the Ministry of Environment and Forestry to what extent the regulations regulate if there is an overlap of new regulations, which previously did not pay attention to the peat element in determining the area. In this regard, the region has not been clear enough to interpret this regulation so that there is strong enough resistance to maintain the status of the area as the basis for compiling spatial patterns without paying attention to the KHG map.

The expected role of the Central Government is also about the procedures carried out by the Ministry of ATR as a validator of the contents of the RTRW. In the validation process, the question arises to what extent the peat layer is used as one of the analytical bases used. If this is not a concern of ATR, then the peat management policy at the regional level will be felt to be less effective. However, if this becomes one of the elements, it will be a warning to all areas whose areas have protected peat ecosystems without exception.

The negative impact due to mismanagement of peatlands is explained by Al Mahdi Syahza et.al who stated:

The existence of peatlands plays a very important role both locally, regionally, and globally. Besides having an ecological function to maintain biodiversity and environmental balance, it also has its economic and socio-cultural functions. Furthermore, it has provided enormous benefits for life and has had positive social and economic impacts. Peat ecosystems have been damaged due to the mismanagement of land. Areas that play specific roles in its sustainability have been converted to lands for business activities, which contradicts their characteristic function. Land cover restoration policies will be useful for improving the quality of participatory-based land cover, protecting peat domes, and conserving watersheds (DAS). An increase in greenhouse gas (GHG) emissions, which occurs due to insufficient peatland management is a serious threat to local communities and their livelihoods. Furthermore, the ecosystem can be conserved by ensuring that water is properly managed, drainage to cultivated areas is limited and peat swamp forest systems are protected. The application of eco-hydro technology can be beneficial to biodiversity as it minimizes degradation, reduces carbon emissions, and prevents fires (Syahza et.al A, 2020).

In dealing with the damage to peatlands, efforts have been made to utilize the damaged land by several farmers et.al (Sakuntaladewi N, et.al, 2022):

Peatlands support the daily needs of people in many villages in Indonesia, including in Central Kalimantan Province. They provide the natural resources to enable fisheries, agriculture, plantations, and forestry. However, peatland utilization comes with various challenges, including fire, soil acidity, inundation, low fertility, and limited choice of suitable species. Many of the current uses of peatland can result in its degradation, oxidation, and increased risk of peat fire. Avoiding further environmental degradation will require the development of new technology that allows the community to both earn a livelihood and protect the peatland. In this study we assessed a range of technologies applied by 14 farmers at Tumbang Nusa village, Central Kalimantan province, in managing degraded peatlands in their home yard for agricultural business. The study shows that for endemic peatland species, good success can be achieved if they are planted directly. However, for species endemic to mineral land, there are four technologies applied by farmers in managing degraded peatland. The choice of technologies is influenced by their economic capacity/cash flow flexibility and their understanding of peatlands. Technologies intended to adapt to land inundation include the use of polybags, development of raised beds, and making peat mounds with mineral soil in the centre. Technologies to address the acidity and soil fertility include amelioration with dolomite lime and fertilizer. The use of polybags filled with peat soil is the easiest technology to adopt and can be conducted by all family members. However, a farmer's choice of technology needs to always

consider the potential environmental impacts in addition to increasing soil fertility so that peat conservation is maintained (Sakuntaladewi N et.al, 2022).

Of course, farmers' efforts to utilize damaged peatlands with agricultural activities are spatially located in the cultivation area. So, repairing peatland damage by using peatland technology does not enter protected peatlands. Because if the repair of damaged protected peatlands by utilizing it as agricultural land. This is as stated by the IUCN UK Committee Peatland Program:

Peatland restoration involves giving aid to a complex ecosystem which has been damaged in some way. A reasonable analogy is a patient brought to a hospital for urgent treatment. When arriving at Accident & Emergency, the priority of the medical team is to stabilise the patient's condition. Only after the patient's condition has been assessed and then stabilised can the team begin to think about the longer-term process of healing and recovery. A similar logic is applied to peatlands. First, stabilisation is required to prevent further degradation, following which restoration can focus on the recovery of the ecosystem.

Conclusion and recommendation

Based on the description above, it can be concluded that most of the peat land in South Kalimantan has been damaged due to the conversion of the area and fires. As a result, it can disrupt the life of flora and fauna and damage ecosystems, so peatland protection must be linked to spatial planning. Unfortunately, spatial planning in South Kalimantan has not been integrated with the protection of peat protected areas. Efforts to repair degraded peatlands are often mismanaged. Therefore, it is necessary to make a Peat Ecosystem Protection and Management Plan as ordered by the Legislation.

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