Sriwijaya Journal of Environment
Article
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Community Based Forest Management Strategies and Projections In KPH XIX Saka South Oku, South Sumatera

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Article history

Received	Received in revised form	Accepted	Available online
17 October 2022	05 November 2022	26 November 2022	27 November 2022

Abstract: In accordance with the mandate of the law, forests are part state-controlled and must be managed sustainably, for that the existence of KPH is a necessity for all parties. Forest management is generally realized based on forest governance, management plans, forest rehabilitation, forest protection, and conservation. To improve people's welfare, it is necessary to make optimal use of forest areas to support the preservation of natural resources and overcome global climate change. This research was carried out in KPH Unit XIX Saka, South OKU Regency which is located in the forest group of HL Saka, HPT Saka, and HP Saka, South OKU Regency. Data presentation was carried out descriptively and analyzed using the SWOT method. The results of the study show that KPH as a forest area manager at the site level can guarantee the continuity of forest area functions by implementing sustainable forest management with forest ecological values, based on community welfare. The strategy adopted is the SO Strategy, namely by utilizing and promoting the potential of forest resources, especially non-timber forest product resources (HHBK), and the potential for forest environmental services in the KPH.
Keywords: community based, forest management, forest management unit, projection

1. Introduction

In accordance with the mandate of the law, forests are part state-controlled and must be managed sustainably, for that the existence of Forest Management Units (KPH) is a necessity for all parties. Forest management is generally realized based on forest governance, management plans, forest rehabilitation, forest protection, and conservation. The government's policies help align rules, regulations, and interests with those of the communities involved and the interests of external institutions and it is necessary to design a scale that matches local, national, and international interests in protecting forests [1]. Globally, forests have the ability to produce a variety of valuable ecosystem services over time [2]. Most of Indonesia's territory consists of forest areas whose existence needs to be maintained as permanent forests and the rest is state land as areas for other uses (APL) and owned land. As a source of ecosystem services, forests are very important for human well-being. A forest management strategy by making good use of forest products from a community perspective is an important step that must be taken in the future [3]. Apart from that, its management, community forestry also offers many perspectives on forest management [4].

To improve people's welfare, it is necessary to make optimal use of forest areas to support the preservation of natural resources and overcome global climate change. In addition, it is necessary to carry out sustainable forest management involving the local community and its surroundings. The government has implemented sustainable forest management practices by empowering local communities living in and around forest areas [5] with programs to build community forests, village forests, conservation forests, and production centers for non-timber forest products [6]. Based on the Regulation of the Minister of Environment and Forestry Number P.83 / MENLHK / SETJEN / KUM.1 / 10/2016 explains social forestry, namely a sustainable forest management system implemented in state forests carried out by local communities or customary law communities as the main actors in efforts to improve welfare. Efforts to improve social forestry are to create environmental balance and socio-cultural dynamics in it the form of Village Forests (HD), Plantation Forests (HTR), Community Forests (HKm), Community Plantation Forests (HTR), and Customary Forests (HA).

The government prioritizes social forestry programs as an effort to improve community welfare through empowerment mechanisms and is guided by aspects of forest sustainability. The contribution of local communities is influenced by community forest management. In the tropics, in both forest and

agricultural landscapes, many households depend on forest resources [7]. In rural Ethiopia, 38% of people's annual income comes from community forests [8] and in Vietnam 25% there is an increase in livelihoods for people living around forest areas [9]. This is a great opportunity for the community to be able to manage and empower forest land. Community involvement in forest management is very important. Social forestry programs that carry out forest management activities at the site level have held forest management rights by community groups.

The framework for sustainable forest management is a form of harmonization of forest use by various parties by identifying the existence and needs of the community in utilizing forest data sources clearly and carefully. Collaboration and communication in the process of recognizing rights, permits, and establishing partnerships will be more likely. Community harmonization in structuring rights and access to forest resources with the government can be bridged by KPH. Forest Management Unit (KPH) is a forest management area in accordance with its main functions and designations that can be managed efficiently and sustainably.

However, the KPH itself has several weaknesses in the institutional field thus the performance of the KPH itself is not optimal [2]. It is necessary to promote localized KPH by reforming forest governance[10]. The three main functions of the forest area itself are conservation, protection, and production. The implementation of forest management includes forest governance and the preparation of forest management plans, both short and long-term. Integrity forest management using forest management principles that can ensure the sustainability of its functions (sustainable forest management) and can understand the ecological, social values of forests and forestry (MacDicken 2015).

KPH Unit XIX Saka is a forestry institution at the site level as a cross-sectoral coordination, information node and is able to accommodate every interest fairly. In the context of managing the entire area, KPH Unit XIX Saka is expected to be able to become a manager at the site level to achieve sustainable forest management, namely to maintain the existence of community-based forest functions by managing forests together with the community. Community-basedforest management is expected to be able to minimize environmental problems that can have a broad impact on the surrounding community which is supported by control of social community relations related to ecological, social, economic and cultural factors. For this reason, it is necessary to have strategies and projections on the strengths, opportunities, weaknesses, and threats in community-based forest management to achieve good forest governance, slow down the rate of degradation and optimize the utilization of forest products.

2. Material and Methods

2.1. Materials

This investigation was carried out at KPH Unit XIX Saka, South OKU Regency which included 2 aspects, namely regional aspects and activity aspects. Based on the Decree of the Minister of Forestry and Environment Number SK 454/MENLHK/SETJEN/PLA.2/6/2016 dated June 17, 2016 it has an area of ± 30,903 Ha located in the forest group of HL Saka, HPT Saka and HP Saka, South OKU Regency. Administratively, KPH Unit XIX Saka is located in 2 district administration areas, namely South Ogan Komering Ulu District (Buana Pemaca District and Buay Pemaca District) and East Ogan Komering Ulu District (Jayapura District) with an area of +30,887.62 hectares can be seen Figure 1.

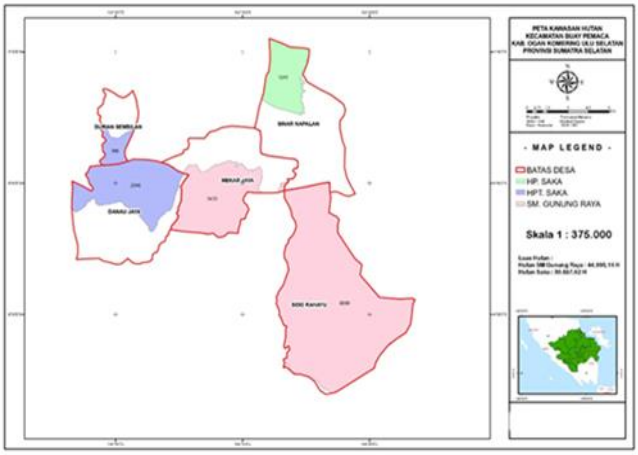

Figure 1. Research Location Map

2.2. Methods

This research is a survey research, namely by conducting field surveys by exploring questions of key informants who were used as respondents, namely as many as 26 respondents consisting of 10 respondents from the HL Saka area, 8 respondents from the HPT Saka area and 8 respondents from HP Saka area. The selection of key informants was carried out with the consideration that the information collected was relevant to the information that would be provided by key informants regarding community-based forest management. The list of key informants can be seen in Table 1. The research flow can be seen in figure 2.

2.3. Experimental Variable and Analytical Procedures

The technique of determining the sample using a purposive sampling technique with the consideration that the research location is a location that can answer the research objectives, namely in accordance with forest cover data and community-based management.

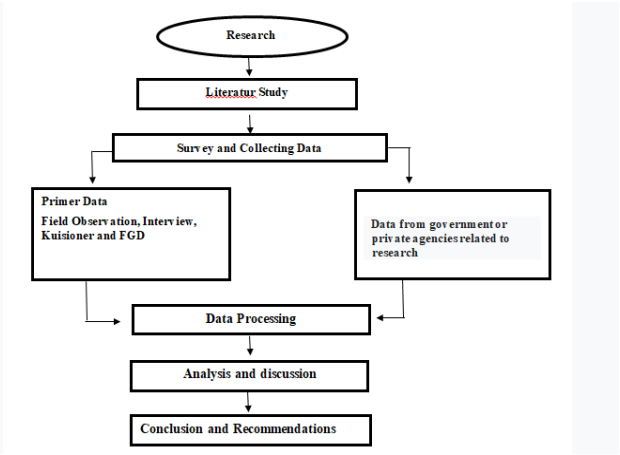

Figure 2. Research Flow

2.4. Data Analysis

Interviews with informants were conducted to find out strategies in forest management. Data and information from the results of the interviews were analyzed using SWOT analysis by identifying external and internal factors and then weighting each variable. The values obtained from external and internal variables are then totaled to obtain a score by multiplying the weights and ratings of the two variable factors. The next stage is compiling strategic factors in the form of a matrix which clearly describes how the opportunities and threats that arise, as well as the adjustment of the strengths and weaknesses possessed.

Table 1. List of Key Informant

No	List of Key Informant from Various Stakeholders
1	Head of the South OKU Regency Environmental Service
2	Head of UPTD KPH Region XIX Mekakau Saka
3	Head of Forest Rehabilitation and Protection
4	Head of the Agriculture Office of South OKU Regency
5	Field Extension Officer of UPTD KPH Region VII Mekakau- Saka Forestry
6	Sub District Head of Buay Pemaca South OKU Regency
7	Community leaders, village officials, sharecroppers, coffee plantation's farmers in Buay Pemaca District, OKU Selatan District

3. Results and Discussion

3.1. Forest Cover and Timber Potential

Land cover data in KPH Uni XIX Saka majority are not forested areas both primary dryland forest and secondary forest. Dryland forest cover covers 5% of the total area is the remaining forest cover area today, while the secondary cover area is 714.88 hectares from the total area of KPH Unit XIX Saka is 30,887.62 hectares. Forest resources in Indonesia reached 137,090,468.11 hectares consisting of 133,694,685.18 hectares of terrestrial forest and 3,395,783 hectares of water [5]. Forest protection with a global ecological significance of 7.7% in 1990 increased to 16.3% in 2015 [12].

The results of the analysis of Landsat 8 imagery, land cover changes for 2 years, 2018 and 2019 are shown using the Sankey Diagram. The use of digital remote sensing data in forest inventories is often limited by the nature of the measurement [13]. The visualization used to depict the flow from one set of values to another is called a Sankey diagram (Figure 2). From the Sankey Diagram, it can be seen that the area of dry land agriculture in 2018 and 2019 was 33% while mixed agriculture was 44% while the amount of secondary forest was only 2% smaller than the number of shrubs at 13%. Based on the assumption of prediction of the evolution of natural forests and plantations in the next 15 years, the loss of forest resources tends to slow down. Forests in the tropical domain are at high risk for conversion, while forests in protected areas are at low risk for conversion in the near future [14].

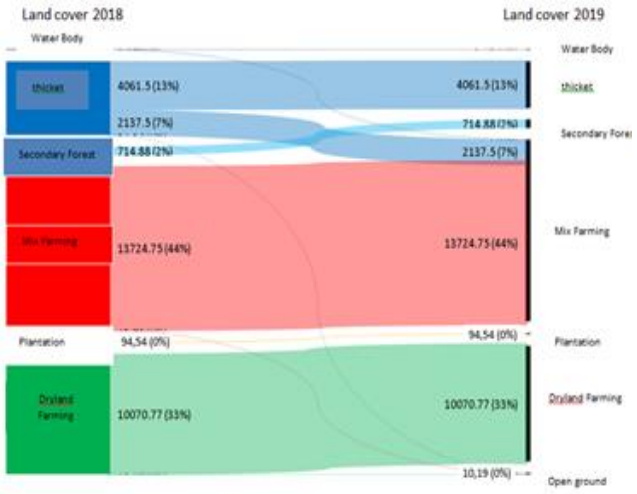

Figure 2. Area of each land cover class of KPH Unit XIX Saka

3.2. Characteristics of Community and Environmental Social Conditions

The main livelihood of the community around the area is as a farmer. Most of the community's coffee plantations are from the clearing of forest areas. An effective forest policy can be achieved with an orientation toward improving people's welfare [15]. Agricultural commodities other than rice fields are coffee plantations. In addition to coffee, the community also cultivates corn, pepper, and rubber.

The average rubber plantation owned by the community is 2 hectares. In the coffee plantation sector, the trend of recent years has decreased yields. This affects the economy and the purchasing power of coffee farmers. The average yield is 300 kg per hectare with prices ranging from 12,800-16,000 per kg. Most of the farmers tried the intercropping system, namely by planting pepper and avocado intercrops between coffee plants. This is expected to increase farmers' income.

For almost 6 years, all village areas have not experienced major harvests. The yield of coffee plucked decreased thus the income of farmers also decreased. This suboptimal yield is due to reduced soil fertility resulting in decreased coffee yields, operational costs, especially fertilizers, tend to increase, while subsidized fertilizers are not evenly distributed. The availability of nutrients in the soil is influenced by changes in the land cover of forest areas which can cause land degradation. The results of the study in KPH Batutegi were about 10 cm of nutrient content (N, P, and C-organic), pH, soil thickness, total pores, and texture. lost after one year of land clearing from secondary forests to mixed coffee plantations [16]. Decreased forest productivity, loss of other organisms in forest areas such as flora and fauna are on the verge of extinction as well as rapid changes in climate and rainfall [3] For this reason, it is necessary to protect and conserve forests by the government, as was done by the Minangkabau community by establishing a forest prohibition system to prevent forest destruction and loss of forest biodiversity [17].

The majority of the people who are in the KPH Unit XIX Saka area are aware that the land currently occupied by the community is a forest area obtained by buying/compensating by mutual agreement based on the boundaries of tree planting land with specific tree species or tree planting at a close distance. Policies that occur in Asian forests, and nationalization often results in a decrease in local ownership of forest due to short-term exploitative behavior that leads to forest degradation [18].

Assistance by a special institution on environmental management, both forest, and agriculture based on the results of interviews with respondents, 96.5 percent said that it had never been done. However, 93.5 percent of respondents said they strongly support any forest management program. Findings in Jimma Zone 87% of the community is aware of forest resource management and forest degradation and 75.4% are aware that forest clearing is done to expand agricultural land [19]. Forest management has a significant influence on the provision of ecosystem services, and production-oriented management will produce productivity with structural diversity [20].

The SWOT analysis approach is carried out to produce the current situation, identify problems, and project the next 10 years. Factors of strengths, weaknesses, opportunities and challenges. Determination of internal and external factors, where internal factors (strengths-weaknesses) produce a score (weight x rating) = 4.55 while external factors (opportunities-threats) produce a total score (weight x rating) = 5.81 Internal factor weight values and external can be seen in Table 1 and 2.

Table 1. The Weight Value of Internal Factors

Internal Factors	Weight (B)	Rating (R)	B x R
Strength			
a. The existence of laws and regulations that form the basis for the work of the KPH area government	0,11	4	0,43
b. Central government support in the development of KPH institutions	0,11	4	0,43
c. The existence of high and important natural resource potential as an increase in regional development	0,11	4	0,43
d. The potential for environmental services and nature tourism in the KPH area	0,14	5	0,68
e. The existence of value local communities that encourage the formation of local institutions in the utilization of KPH areas	0,11	4	0,43
f. Customary values of Potential of flora and fauna as well as environmental services in KPH XIX Saka	0,11	4	0,43
Total (1)	0,69	25	2,83
Weakness			
a. Limited human resources for managing KPH areas	0,11	4	0,43
b. Data and information on potential forest resources are still limited	0,11	4	0,43
c. Boundary markings in the field are unclear due to various factors	0,11	4	0,43
d. Limited funding	0,11	4	0,43
Total (2)	0,44	16	1,72
Total (1 + 2)	1,00	41	4,55

Table 2. The Weight Value of External Factors

External Factors	Weight (B)	Rating (R)	B x R
Opportunity			
a. There is support from parties related to efforts to manage the KPH area	0,13	4	0,50
b. KPH has become a commitment from the ministry of environment and forestry for develop ment strategy	0,11	4	0,43
c. Carbon trading through the REDD+ scheme is a core business opportunity	0,11	4	0,43
d. Academic support and science and technology	0,11	4	0,43
e. Financial assistance from the central government	0,11	4	0,43
f. Attention of international institutions in sustainable forest development	0,11	4	0,43
g. Development of certain areas to encourage KPH independence	0,11	4	0,43
Total (1)	0,79	28	3,08
Threats			
a The current condition of KPH is almost entirely not forested, so it is feared that agricultural land and plantations will expand within forest areas.	0,11	3	0,39
b. Population growth	0,11	3	0,39
c. Community and local government perceptions of the KPH concept	0,11	3	0,39
d. Uncontrolled encroachment, logging and poaching	0,11	3	0,39
e. KPH area boundaries at the site level	0,11	3	0,39
f. Complexity of coordination between local government administration agencies	0,11	3	0,39
g. Community knowledge which is still low on aspects of forest functions, especially protected forests and forestry regulations	0,11	3	0,39
Total (2)	0,77	21	2,73
Total (1 + 2)	1,00	49	5,81

Based on the assessment of the score value, the determination of the Grand Strategy obtained shows the results in the matrix I (Quadrant I) to produce a strategy by connecting elements of strength with elements of opportunity. In other words, the strategy generated in quadrant I is basically obtained by utilizing the elements of strength to seize available opportunities. This strategy is commonly referred to as the S-O strategy and some even mention the Expansive Strategy to support aggressive growth policies (Growth Oriented Strategy). The SWOT strategy can be seen in Table 3.

Based on Table 3 it can be seen, the future condition of the KPH Unit XIX Saka can be projected in terms of projected opportunities, strategies, partnerships, conservation, funding opportunities, projected strategic threats, external risks, projected internal capacity and projected potential risks due to management weaknesses.

The SO (Strength-Opportunities) strategy can be done to take advantage of the potential of SDH/HHBK and which environmental services deserve to be developed and the support of related parties, with promotion by related parties, especially in the international world, where KPH are high can develop the potential of SDH/HHBK and environmental services. The WO (Weakness-Opportunities) strategy needs to be carried out by increasing the quantity and quality of human resources through the support of stakeholders, reconstruction, maintenance, and participatory socialization of KPH boundaries and community-based KHP area structuring. The ST (Strength-Treats) strategy is to increase agricultural land productivity and develop the non-forestry sector, develop multipurpose crop-based agroforestry such as pepper, coffee, areca nut, candlenut, use and develop environmental services, ecotourism, and need support from indigenous/local communities in forestry development social. Strategy – WO (Weakness Opportunities) is to increase the quantity and quality of KPH human resources, clarify boundaries through reconstruction and maintenance therefore to create a common perception and increase community participation.

The projection of potential analysis of KPH Unit XIX Saka is an opportunity to develop a natural tourism area aimed at exploiting the potential of waterfalls in the area, in the future integrated tourism can be developed by utilizing the potential of coffee production, namely by seeing the atmosphere of the coffee garden while enjoying a cup of coffee at the location with clean and fresh air. Projected strategic threats in the form of increasing the area of agricultural land carried out by the community, especially threats to forest land cover in the core block which is a block that is able to maintain the protected function of the FMU. For the successful management of KPH Unit XIX Saka, adequate internal capacity support is needed by improving the quality of human resources in KPH at the regional, national and international levels. Weaknesses of all management activities contain potential risks, due to limited resources, both human resources and infrastructure. Gradually it is necessary to increase the budget for management activities.

Table 3. The SWOT Strategies

IFAS	**Strengths (S)**	**Weakness (W)**
EFAS	1. The existence of laws and regulations that form the basis for the work of the KPH area government 2. Central government support in the development of KPH institutions 3. The existence of high and important natural resource potential as an increase in regional development 4. The potential for environmental services and nature tourism in the KPH area 5. The existence of valuelocal communities that encourage the formation of local institutions in the utilization of KPH areas 6. Customary values of. Potential of flora and fauna as well as environmental services in KPH XIX Saka	1.Limited human resources for managing KPH areas 2.Data and information on potential forest resources are still limited 3.Boundary markings in the field are unclear due to various factors 4.Limited funding
Opportunity (O)	**Strategy (SO)**	**Strategy (WO)**
1. There is support from parties related to efforts to manage the KPH area 2. KPH has become a commitment from the ministry of environment and forestry for development strategy 3. Carbon trading through the REDD+ scheme is a core business opportunity 4. Academic support and science and technology 5. Financial assistance from the central government 6. Attention of international institutions in sustainable forest development 7. Development of certain areas to encourage KPH independence	1.Take advantage of the potential of HHBK and environmental services that are worthy of development and support from related parties 2. Promotion of high international attention to develop potential of SDH and environmental services 3.Upgrade the status of UPTD to KPH	1. Increase the quantity and quality of human resources through the support of the parties 2. Reconstruction, maintenance and socialization of KPH boundary markings in a participatory manner 3.Community-based KPH area arrangement
Treats (T)	**Strategy (ST)**	**Strategy (WO)**
1. The current condition of KPH is almost entirely not forested, so it is feared that agricultural land and plantations will expand within forest areas. 2 .Population growth 3. Community and local government perceptions of the KPH concept 4.Uncontrolled encroachment, logging and poaching 5.KPH area boundaries at the site level 6. Complexity of coordination between local government administration agencies 7. Community knowledge which is still low on aspects of forest functions, especially protected forests and forestry regulations	1.Increase agricultural land productivity and development of the non-forestry sector 2.Development of agroforestry based on multipurpose crops such as pepper, coffee, areca nut, candlenut 3.Utilization and development of environmental services and ecotourism 4.Support of indigenous/local communities in the development of social forest	1. Increasing the quantity and quality of FMU human resources 2. Clarify boundary markings through reconstruction and maintenance so that a common perception is realized 3. Increased community participation

4. Conclusion

The success of management at the site level is determined by the success of the KPH in managing its area. The existence of KPH at the site level gives hope that the forest will be managed sustainably and independently on a community-based basis with the welfare of the surrounding community. The potential analysis projection of KPH Unit XIX Saka is an opportunity to develop natural tourism areas aimed at exploiting the potential of waterfalls in the area, in the future integrated tourism can be developed by utilizing the potential for coffee production. Projected strategic threats in the form of increasing the area of agricultural land carried out by the community, especially threats to forest land cover in the core block which is a block that is able to maintain the protected function of the KPH. The strategic and management plans that have been prepared involve various parties, namely the government and the community which are expected to build strong support from related parties and can be guided by all stakeholders and parties related to KPH Unit XIX Saka.

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