



## RESEARCH PAPER

## OPEN ACCESS

## Factor analysis of implementation of operationalization of forest management units (FMU) in Hulu Sungai Forest Management Unit (FMU) South Kalimantan Province

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### Abstract

As a site-level forest management institution, Forest Management Unit (FMU) is a regional entity at the site level with a special organization to ensure increased regional certainty and the implementation of sustainable management of areas for the environmental functions. The objective to be achieved is to identify and analyze the factors that influence the implementation of the operation of the Hulu Sungai FMU and provide an alternative formulation that are ideal for independent and professional FMU. The SWOT analysis is used to determine the identification of various factors systematically and determine the direction of the strategy in increasing the effectiveness and implementation of the operationalization of FMU. The results of this study are (1) The internal environmental factors that are strengths are (a) policy support and commitment of the local government (b) the potential for forest use is quite extensive; while weaknesses are (a) lack of competency in human resources (b) lack of data on potential forest resources and forest use. Opportunities for external environmental factors are (a) community support, academics and international relations (b) the potential for the utilization of forest products; while threats including (a) high conflict of land tenure (b) weak forest security and protection. (2) Results of the AHP to set a goal of the operational implementation of the Hulu Sungai FMU with 5 criteria and 14 indicators that the main priority at the criteria level is Forest Management (0.381) and at the indicator level being the top priority is Increasing Community Management Access (0.249).

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## Introduction

As a site-level forest management institution, Forest Management Unit (FMU) is a regional entity at the site level with a special organization to ensure increased regional certainty and the implementation of sustainable management of areas for the production of forest products (timber and non-timber), environmental functions, carbon sequestration (maintaining a balance of carbon/CO<sup>2</sup> concentrations) in the atmosphere and community welfare.

Forest Management Unit as an extension organization of the Provincial Forest Service that acts as a forest manager at the site level is expected to carry out basic tasks, functions optimally. Through the development and functionalization of FMU, the following objectives are expected to be achieved (1) improving forest governance, (2) minimizing the rate of degradation, (3) accelerating forest and land rehabilitation, (4) forest protection and security, (5) optimizing forest utilization, (6) increasing the supply of forest products and (7) providing forest area data and information (Hardiansyah, 2012). FMU will shift the role of forestry bureaucrat from “forest administrators” into “forest managers” and also improve transparency and accountability in forest governance (Kartodihardjo, Suwarno 2014).

Hulu Sungai Forest Management Unit (FMU) is an implication of the enactment of Law No. 23 of 2014 concerning Regional Government where the authority of the forestry sector is in the Central Regional Government and Provincial Region, the Hulu Sungai FMU area is determined based on the Minister of Forestry Decision Number: SK.750/Menhut-II/2012 dated December 26, 2012 concerning the Establishment of the South Hulu Sungai Model Protected Forest Management Unit located in South Hulu Sungai Regency of the Province of ± 32,803 (Thirty Two Thousand Eight Hundred Three) Hectares with details (1) Protection Forest of ± 21,211 Ha, (2) Limited Production Forest of ± 52 Ha and (3) Production Forest of ± 11,503. Until now, there has been no research to identify and analyze the factors that influence the operationalization of the FMU

through the SWOT analysis approach. This research is expected to provide an alternative strategy formulation for the operationalization of the Hulu Sungai FMU to become independent and professional. The FMU policy is expected to function as an enabling condition for efforts to improve forest governance, reduce the rate of degradation, accelerate forest and land rehabilitation, implement forest protection and security, optimize forest utilization, increase the stability of forest product supply and provide forest area data and information.

## Materials and methods

### Materials

The tools used in this study consist of questionnaires (questionnaires), stationery, digital cameras, GPS, tally sheets, machetes, and computers for data processing. The object of research is the Hulu Sungai Forest Management Unit, Hulu Sungai Selatan regency, South Kalimantan Province, Indonesia.

### Methods

The collection of data and information is done by (1) Literature study and secondary data collection which includes the design of the Upper River KPH, data on forest area conditions, a general description of the FMU Model HSS, Hulu Sungai FMU Forest Management Map, Long-Term FMU FMU Management Plan, Activity report, Regulations related to Hulu Sungai FMU, Community Social Economic Conditions around the Hulu Sungai FMU area and other data needed in the study. (2) Premier data collection, including in-depth interviews from respondents with a questionnaire guide to determine the factors for the implementation of the operation of the Hulu Sungai FMU development (Makasau, 2012). The SWOT analysis is used to determine the identification of various factors systematically and determine the direction of the strategy in increasing the effectiveness and implementation of the operationalization of the Hulu Sungai FMU. Analysis of the factors for the implementation of the operation of the Upper River KPH was carried out using the AHP (Analytical Hierarchy Process) tool. AHP's working principle is to simplify a complex and

unstructured, strategic and dynamic problem and organize it in a hierarchy. Then the importance of each variable is subjectively numerically given the relative importance of the variable compared to other variables. With a variety of considerations, then a synthesis is made to determine variables that have high priority and play a role in influencing the results of the system (Saaty, 1993). Data analysis was

assisted by using Expert Choice 11 software. In this analysis the goal of the assessment is the implementation of the operationalization of the Hulu Sungai FMU development, from the aspect of functionalization. The assessment consists of 5 criteria and 14 indicators, the model for the implementation of the upstream FMU development assessment is presented in Fig. 1.

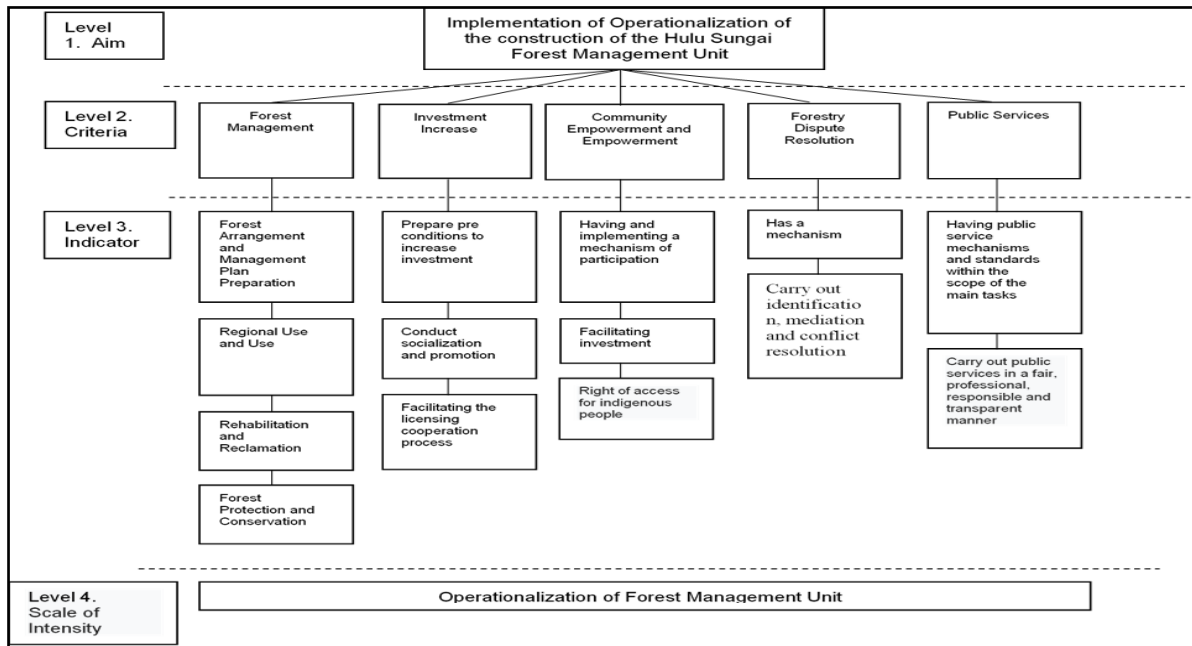


Fig. 1. Model for Assessing the Implementation of the Operationalization of Hulu Sungai FMU Development.

**Results and discussion**

Based on observations and interviews with the object of the research results, there are several dominant factors that influence the level of operational performance of Hulu Sungai FMU are human resource competencies, potential database and forest area utilization, forest planning/governance, forestry conflicts, forest product utilization, forest security and protection.

Hulu Sungai FMU has a lot of potential that can be developed as a business entity, but the potential utilization of both timber and non-timber forest areas (Non-Timber Forest Products and Environmental Services) is still not well mapped so that quantitative calculations of forest resource potential and economic value of forest resources are still estimated. Likewise with the utilization of forest areas, licensing schemes

and partnership of forest area utilization by permit holders or communities in and around the forest have not led to profitable transactional relations by prioritizing the economic and sustainability aspects of forest ecosystems. The limitation of Hulu Sungai FMU in presenting detailed data / information related to the potential and utilization of forest areas has an effect on the mechanism of operationalization and investment cooperation designed in the Hulu Sungai FMU planning document.

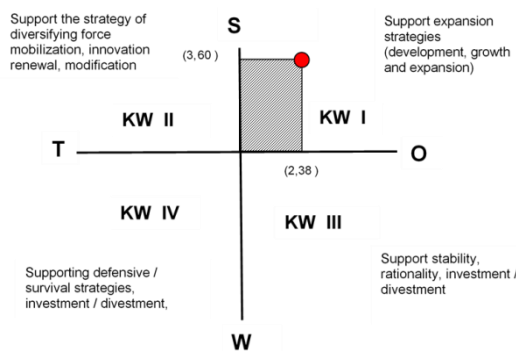
Referring to the results of the SWOT strategy formulation of the two key success factors, we can see the Organizational Strength Map - Weaknesses (S-W) at 3.60 and Opportunities - Threat (OT) at 2.38 so that the operational strategy for the Hulu Sungai FMU is at Quadrant I (SO), which means a very favorable situation, has opportunities and strengths

so that it can take advantage of the opportunities available, the SWOT matrix can be seen in Fig. 2. The focus strategy that can be applied in this condition is supporting aggressive growth policies (growth oriented strategy) by optimizing all stakeholder support to support the operationalization of Hulu

Sungai FMU, optimizing policy support, optimizing the use of forest areas in the form of timber and non-timber forest products, optimizing the potential of forest area by involving the support of all stakeholders and optimizing the potential for forest utilization of timber products (Table 1).

**Table 1.** SWOT Matrix Factors for implementation of the operationalization of the Hulu Sungai FMU.

INTERNAL	Strengths	Weaknesses
	1. Policy support and government commitment	1. Lack of competence in human resources (HR)
	2. There is a potential for extensive use of forest areas	2. Lack of data on potential and utilization of forest areas
EXTERNAL	S-O STRATEGY	W-O STRATEGY
Opportunities		
1. Community, University and International Support for sustainable forest management	1. Optimizing the support of all stakeholders to support the operationalization of FMU	1. Improve HR competencies and institutional capacity by utilizing the support of all stakeholders.
2. Potential utilization of Timber and Non-Timber Forest Products is quite large	2. Optimizing the potential of forest area utilization in timber and non-timber forest products.	2. Optimizing the implementation of identification and inventory of potential Forest Resources and their utilization.
Threats	S-T STRATEGY	W-T STRATEGY
1. High land tenure conflicts in FMU management areas	1. Optimizing efforts to resolve forest conflicts with the Social Forestry mechanism at FMU	1. Improve HR handling forestry conflicts in FMU
2. Weak security and protection of forests	2. Strengthening cooperation in forest security and law enforcement in FMU management areas	2. Optimizing social forestry schemes as part of forest security and protection.



**Fig. 2.** The space matrix factor is the implementation of the Hulu Sungai FMU Operationalization.

After obtaining several alternative strategies through a SWOT analysis, priority selection is based on the criteria set. Determination of these priorities is done because to do all the strategies obtained will require resources that are not always available. To select the priority strategy, then using the approach with the Analytic Hierarchy Process (AHP), AHP's working

principle is to simplify a complex and unstructured, strategic and dynamic problem and organize it in a hierarchy. Then the level of importance of each variable is subjectively numerically given the relative importance of these variables compared to other variables. With a variety of considerations, then a synthesis is carried out to determine variables that have high priority and play a role in influencing the results of the system (Marimin, 2004).

The results of the analysis of the 5 criteria combined results of several experts using the Expert Chois 11 application with recommendations for priority strategies can be seen in Fig. 3. Forest Management (0.381), is the main priority for the implementation of the operationalization of the Hulu Sungai FMU. The indicators consist of forest management and management plan preparation (0.649), forest area utilization and use (0.149), rehabilitation and

reclamation (0.99) and protection and conservation (0.102). This shows that site-level forest management by the Hulu Sungai FMU must be good in terms of forest planning both macro and micro. Although the Hulu Sungai FMU has developed a Long-term Forest Management Plan (RPHJP) and a Short-term Forest Management Plan (RPHJpd), in practice in the field it has not shown that the reference to operational activities. The Hulu Sungai FMU has not yet led to the realization of the elaboration of RPHJP and RPHJpd that have been made. This means that the current operationalization activities are still very dependent on the convergence of activities originating from the

LHK Ministry and the South Kalimantan Provincial Forest Service. In addition, technical activities that are still referring to this are a factor in policy changes in Law Number 23 Year 2014 which has an impact on the extent of the Hulu Sungai FMU management area, so that revisions to existing Forest Governance and RPHJP are needed. Furthermore, the Blocks and Plots that have been made and ratified in the RPHJP have not become a basic reference for spatial data in determining the activity strategies to be implemented by the Hulu Sungai FMU, therefore a review of the forest governance needs to be done in making the Hulu Sungai FMU RPHJP document.

**Priorities with respect to:**  
**Goal: Implementasi pembangunan KPH Hulu Sungai**

**Combined**



**In consistency = 0,08  
with 0 missing judgments.**

**Fig. 3.** Graph of AHP analysis level criteria.

One of the duties and functions of the FMU is to implement forest management in the form of watershed rehabilitation activities. The Governor of South Kalimantan is seriously committed to reducing critical land by initiating the "Green Revolution Movement" which is implanted in Regional Regulations (Perda) Number 7 Year 2018. In line with the implementation of the Green Revolution Movement, Hulu Sungai FMU in 2018 has planted less critical land more than 543, 35 ha of 10,735ha of total critical land in the Hulu Sungai FMU management area.

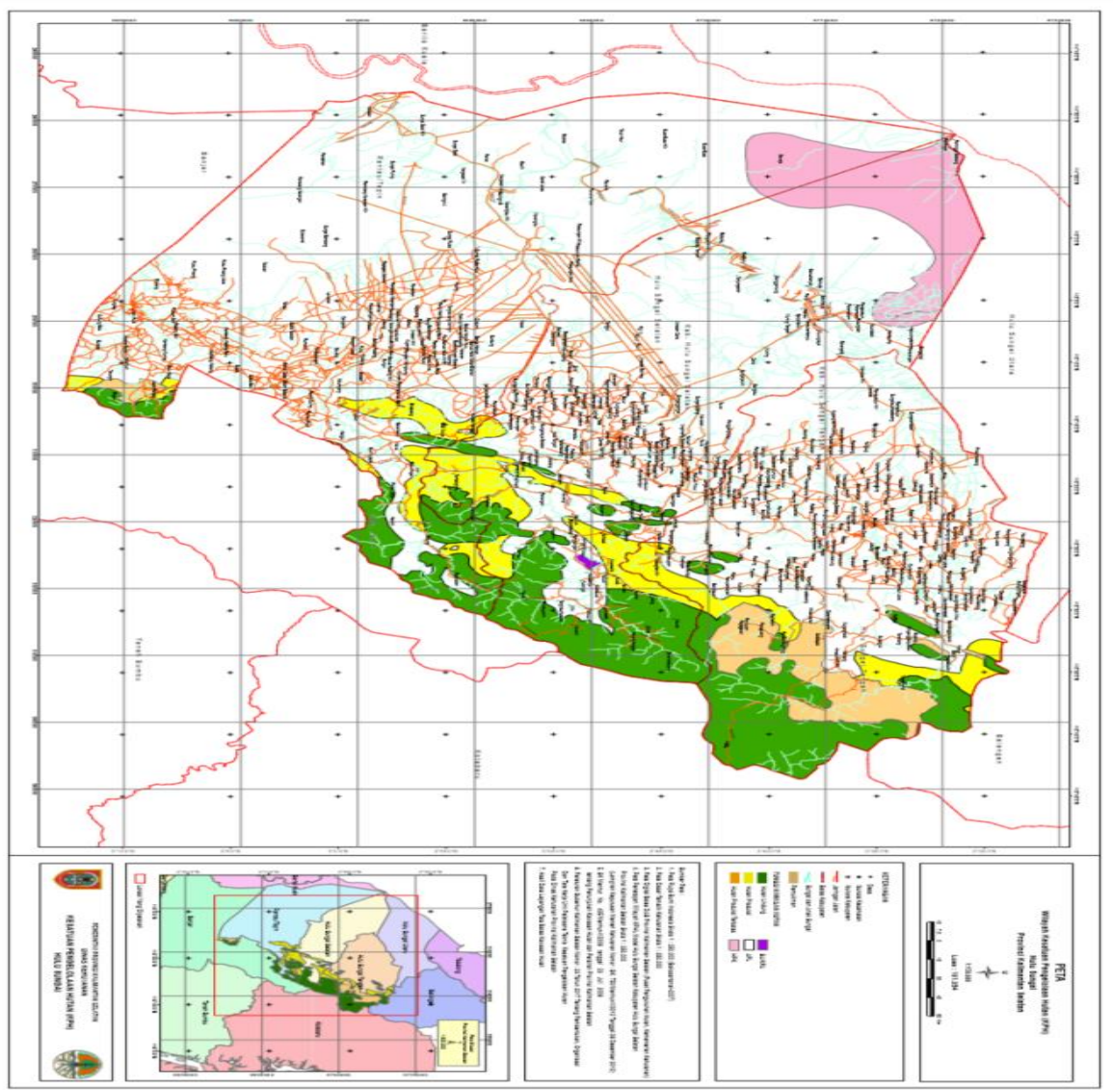
and Forestry's priority programs related to providing community management access of 12.7 million hectares of forest through the Social Forestry scheme and regulated in the Minister of Environment and Defense Minister P.83/MENLHK/SETJEN/KUM.1/10/2016 concerning Social Forestry. The Forestry Service of South Kalimantan Province in 2018 has set a target of providing 10% or 170,000 Ha of access to community forest management from the total forest area in South Kalimantan. It is hoped that the provision of access to community forest management will hinder the development of sustainable forestry well resolved. According (Andi C.I. *et al*, 2019), areas already delineated, take into account the participation of the community in the implementation phase.

The results of the priority strategy analysis at the indicator level that can be implemented by the Hulu Sungai FMU are that what can be a priority alternative is Community Access Access Improvement (0.249). Increased access to community management of forests is in line with the Ministry of Environment

The government has a policy of granting small-scale forest management permits to local communities

through various schemes, such as Community Forestry (HKm), Village Forests (HD), Community Plantation Forests (HTR), Customary Forests (HA) and Partnerships with holders of forest product

utilization permits and ecosystem restoration (IUPHHK-HA/HT/RE) or directly with the management of Forest Management Units (KPH) (Nova, N. *et al*, 2018).



**Fig. 4.** Map of the Hulu Sungai FMU management area.

In the Hulu Sungai FMU the provision of access to community management on forests has been carried out since 2013 with the pattern of Village Forest (HD) 4,293 Ha located in Hinas Kanan Village, Hantakan District, Hulu Sungai Tengah Regency with an area of 565 Ha, Nateh Village Batang Alai District, Hulu Sungai Tengah District 1,507 Ha, remit village of Loksado sub-district, South Hulu Sungai regency with an area of 1,405 ha and Haratai village, Loksado sub-district, South Hulu Sungai district with an area of

762 hectares. The Forestry Service of South Kalimantan Province in 2018 targets the achievement of community management access in the Hulu Sungai FMU management area of 12,290 Ha consisting of Village Forest (HD) covering an area of 5,750 Ha, Community Forest (HKm) 2,222 Ha, Forestry Partnership 4,318 Ha. To achieve the target of the Hulu Sungai FMU community management access, it was fully facilitated by the South Kalimantan Provincial Forestry Service, the Kalimantan Forestry

and Environmental Partnership (BPSKL) and the South Kalimantan Social Forestry Acceleration POKJA. The support of these various parties has become the strategic strength of Hulu Sungai FMU in the efforts of sustainable forest development based on community access and reducing forestry conflicts that have occurred in the Hulu Sungai FMU management area. Forest governance reforms tailored to addressing equity require ensuring that all the stakeholders, particularly the most vulnerable have the opportunity to participate in the decision making process. Moreover, their interests need to be considered by decision makers in the decision making process (Jane MK and Nelly CM, 2018).

### Conclusion

The formulation of focus strategies that can be taken to improve the operational performance of Hulu Sungai FMU is (1) Optimizing policy support and commitment of all stakeholders to support the operationalization of Hulu Sungai FMU, (2) Optimizing policy support and government commitment to utilization of timber and non-timber forest products, (3) Optimizing the potential for extensive use of forest areas by involving the support of all stakeholders and (4) Optimizing the potential of forest area by utilizing timber and non-timber forest products. Results of the Analytic Hierarchy Process (AHP) to set a goal of the operational implementation of the Hulu Sungai FMU with 5 (five) criteria and 14 (fourteen) indicators obtaining analysis results that the main priority at the criteria level is Forest Management with a score of 0.381 and at the indicator level which must be a top priority in the Hulu Sungai FMU is Increased Access to Community Management (0.249).

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