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# Study of forest management unit performance in Indonesia

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**Abstract.** The existence of forest management institutions based on the site level is the philosophy of the birth of an FMU. The purpose of this study is directed to provide an overview related to the performance of FMU development carried out by the Government (central and regional) in Indonesia. This research was conducted during the period of February 2015 to February 2019 in eight FMU areas in seven provinces in Indonesia. Technical data and information through stakeholder interviews result from verification workshops and secondary supporting data collection. The data and information collected are then processed into a working paper on the FMU Development Performance Assessment tool using FWI 1.0 and FWI 2.0 Criteria and Indicators, compiled by Forest Watch Indonesia (FWI). The results are presented in the form of an index by calculating the total value of all data units then divided by the number of data units. The FMU development performance evaluation index can be categorized into three classes, namely high, medium, and low. The results of studies in eight FMU areas illustrate that FMU development at the site level still faces various challenges and problems. The main problems faced are focused on three main aspects namely; Regional Stability which includes clarity of boundaries and tenure conflicts; Institutional Aspects concerning political support and institutional capacity in supporting the operation of FMUs; and the planning aspect which concerns the bureaucratic chain and the stability of the FMU development platform at the site level. Comprehensive efforts from stakeholders are needed to encourage the optimization of FMU functions and roles at the site level.

## 1. Introduction

At present, the condition of Indonesia's forests has reached a very alarming level [1]. Forest Watch Indonesia (FWI) notes that the deforestation rate from 2009 to 2013 reached an average of 1.13 million hectares per year, natural forest cover left in 2013 at only around 82 million hectares [2]. This is inseparable from the shape and characteristics of Indonesia's forestry policy, which is still oriented towards the forest administrator approach. The government has also not been able to develop an established institutional system and can guarantee certainty of rights and access for indigenous peoples and local communities over forest resources.

The pressure from the parties on the high rate of deforestation and other forestry issues urges the Central Government to implement various policies as a solution to improve the forest governance system that has been implemented so far. The absence of forest managers at the site level is suspected



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to be the cause of failure for many programs, both in the context of critical land rehabilitation, sustainable use of forests, community empowerment, and forest protection. This failure will automatically give a bad condition to forest management in Indonesia. This indicator can be seen from the high number of damaged forests and land, around 60 percent of Indonesia's forests are in a damaged condition (FWI 2014) while the Government's ability is only 200 thousand hectares per year to rehabilitate them (PPID KLHK 2018) [2].

Forest destruction that continues to occur, not only causes economic losses for the country but will also reduce the ecological carrying capacity for human life. This situation has implications for the uncertainty of the fate of approximately 48.80 million people who live in and around forest areas. Around 10.20 million of them are classified as poor [3]. This situation also has implications for the high conflict over the use of forest resources in Indonesia. The Association for Community-Based and Ecological Law Reform (HuMa) in 2012 noted that there were 278 natural and agrarian resource conflicts, which took place in 98 cities/districts in 23 provinces with conflict areas reaching 2,416,035 hectares.

At present, the Government of Indonesia is implementing the concept of forest management at the site level by relying on a forest management approach based on forest management units as part of offering solutions to forestry problems. Conceptually, FMU development policy is a process of institutional shift that brings fundamental changes to the way of thinking, value systems, and culture of Indonesian forest management. The role of the FMU will shift the fulcrum of the role of forestry bureaucrats from forest administrators to forest managers, and increase transparency and accountability in forest governance [4].

The existence of forest management institutions based on the site level is a specific feature of the existence of FMUs, so that the management process carried out also has unique characteristics and differs from one another. Thus, the purpose of this study is directed to provide an overview related to the performance of FMU development carried out by the Government in Indonesia by using the parameters contained in the FWI criteria and indicators.

## 2. Method

This research was conducted from February 2015 to February 2019 in eight FMU areas spread across seven provinces in Indonesia, namely West Nusa Tenggara, East Kalimantan, West Kalimantan, Central Sulawesi, West Sumatra, Aceh, and Papua. The selection of FMU areas that are used as study locations is representative of the characteristics of FMU management in Indonesia (KPH models, KPHL, KPHP) as well as the specificity of Local Government policies (special autonomy, and regional initiatives). The list of FMUs are (1) West Rinjani FMU West Nusa Tenggara, (2) West Berau FMU East Kalimantan, and (3) Kapuas Hulu FMU representing the model FMU initiated by the Central Government; (4) Central Sulawesi Kulawi FMU representing the FMU initiative of the Sigi Regency Government; (5) FMU Unit XXX Sungai Wain Protection Forest in East Kalimantan representing the FMU initiative of the Balikpapan City Government and managed by multi-stakeholder management; (6) Bukit Barisan West Sumatra FMU represents FMU across districts/cities; (7) FMU Unit 1 Aceh and (8) FMU Keerom Papua represent FMUs under a special autonomy policy. Representation of study locations in the eight FMU areas can at least represent Indonesia's geographical distribution on the Westside (Sumatra Island), in the Central (Kalimantan, Sulawesi, and Nusa Tenggara Islands), and in the East (Papua Island).

The method in this study uses a descriptive method that aims together the information that is currently present, analyzes it, and interpretes the facts or information found. This research was carried out in several stages, including, administrative preparation, conducting research, and reporting the results. Administrative preparation includes logistics supplies and submission of a research permit application to the Head of the FMU. The research includes observation, document studies, interviews, and Focus Group Discussions [5,6]. While the reporting phase includes scoring and assessment activities, writing of results, verification workshops with stakeholders and finalization reports The data and information collected are then processed into working papers on the FMU Development Performance Assessment

tools using FWI 1.0 and FWI 2.0 Criteria and Indicators (FWI 2014 and FWI 2018) Then scoring and assessment are presented in an index form, calculating the total value of all scores the data unit is then divided by the number of data units.



**Figure 1.** Map of the FMU development performance evaluation study area.

The final results of the scoring and assessment in the form of an index of development performance in each FMU can be categorized into three classes: high, medium, and low (Table 1). The index is processed from the score of each quality element that has a gradation from highest to lowest value, with the consideration that each weight in the quality element and indicator is equivalent (Table 2). The above scoring and assessment consists of tabulating data and analyzing data based on field findings and documentary evidence. The criteria and indicator components in this assessment are based on the framework of the criteria and indicators matrix previously developed by a team of experts in collaboration with Forest Watch Indonesia. This assessment matrix consists of 8 criteria, 22 indicators, and 49 quality elements in FWI version 1.0 and then revised in 2018 to 9 criteria, 28 indicators, and 62 quality elements in FWI version 2.0 (Table 3).

**Table 1.** Categorization index of FMU development performance assessment.

Index	Category	Description
2,34 – 3,00	High	It is an ideal average value obtained from each element of quality, indicators, and criteria.
1,67 - 2,33	Medium	Is the average value of the medium category obtained from each element of quality, indicators and criteria.
1,00 -1,66	Low	Is a low average value obtained from each element of quality, indicators, and criteria.

**Table 2.** Categorization weight of FMU development performance evaluation.

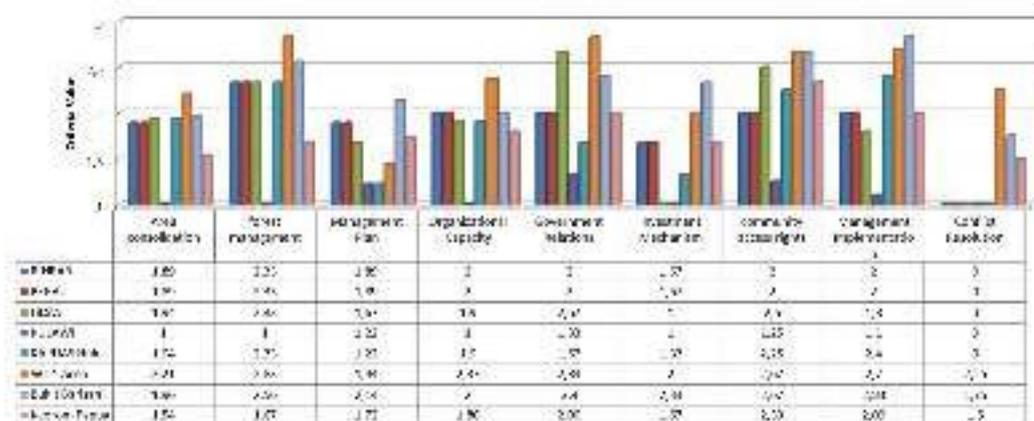
Description	Score
If the field data meet all elements contained in the quality element	3
If the field data only meets some of the elements contained in the quality element	2
If the field data does not meet all the elements contained in the quality element	1

**Table 3.** Criteria contained in FWI 1.0 and FWI 2.0.

Criteria	FWI Version 1.0	FWI Version 2.0
Regional Stability	√	√
Forest Management	√	√
Management Plan	√	√
Organizational Capacity	√	√
Government Relations and Regulations	√	√
Investment Mechanism	√	√
Rights and Access Mechanisms for Indigenous / Local Communities	√	√
Implementation of FMU Forest Management	√	√
Conflict Management	-	√

### 3. Results and discussion

The results of the assessment carried out using the Performance Evaluation Guide for FMU Development FMU show that from the criteria and indicators assessed, each FMU has quite a varied value. Value is certainly strongly influenced by the readiness of each region in translating the position of FMU in its territory and also the level of coordination and participation of stakeholders in FMU development. The results of the study also pointed to that during the management resources of forest resources based FMU still oriented to meet the needs of the administrator f and not lead to the domains of substantive aspects of sustainable forestry development. On the other hand, the results of this study also illustrate that the mainstreaming of FMUs at the site level is still interpreted differently by each Regional Government, this has implications for differences in treatment in encouraging FMU development at the site level. There are at least three aspects of the criteria be focus FMU attention in the development process at the site level, namely the Stability Aspects Region, The Nature Conservancy, and the Management Plan. Become arguments are constructed from endings findings during the course of study that represents the criteria and indicators used. In general, the results related to the evaluation of FMU development performance can be seen in Figure 2.



**Figure 2.** Results of performance assessment of development forest management units.

### 3.1. *Region stability*

Region stability is fundamental in running a forest management system at the site level. In this context, the consolidation of the area can be seen from the availability of clear boundary administrative documents and minimal conflicts, as well as the availability of adequate budget in implementing forest boundary boundaries. Based on the results of the analysis conducted in this elucidation, information was obtained that most of the FMU areas that were the focus of the study experienced various problems related to the stability of the region both in terms of boundary administration, tenure conflicts and policy support and budget implementation at the site level. some specific findings that can be expressed in this study are:

1. Most of the FMU areas have not yet completed boundaries, of the 8 new FMUs Rinjani West that have finished implementing boundaries, while the other FMUs still tend to be partial and tend to face uncertainty about the implementation of the boundary area [7].
2. In the boundary process carried out by the competent authority, namely the Forest Area Consolidation Center (BPKH), the community is less involved in the vicinity of the location, resulting in excesses in the community in the form of land-use conflicts. This also injures the mandate of Article 68 of Law No. 41 of 1999 which expressly mandates that the community has the right to oversee forestry development starting from the planning to the evaluation stage;
3. During the implementation of boundary setting, less socialized well in all layers of a society and stakeholders related.

Lack of clarity about the boundaries of the FMU area has caused confusion in the management system of forest resources in Indonesia. The current forest management system tends to be incompatible with social situations that have been internalized in the community for a long time [7]. this also disclosed Dorji et al., 2006, which states that forest management policy by most countries in Asia, including Indonesia, often leads to non-recognition of property rights locally on forests [8]. In the short term, this situation could lead to an exploitative user. However, the facts show that state ownership and management of forest resources have failed to prevent forest conversion and degrading [9].

The ambiguity of the boundaries of the area that became the FMU work area was also found especially after the implementation of Law Number 23 of 2014 concerning Regional Government. The Provincial Government re-delineates the FMU area, which had previously been formed at the Regency level due to the transfer of forestry affairs from the Regency to the Province. The re-delineation not only changed the FMU territorial boundary but also caused a change in the nomenclature of the FMU organization name from the existing one. This happened at the Kapuas Hulu FMU, West Kalimantan Province. After the delegation of forestry affairs from Kapuas Hulu District, the West Kalimantan Provincial Government plans to change the nomenclature and boundaries in the Kapuas Hulu FMU area to the Kapuas Hulu Utara FMU.

### 3.2. *Organizational capacity*

The birth of the concept of Forest Management Unit (FMU) as an institution that manages forests at the site level, is expected to be a prerequisite for the implementation of a sustainable and equitable forest management system. Conceptually, FMU development policy is a process of institutional shift that brings fundamental changes to the way of thinking, value systems, and culture of Indonesian forest management. The role of the FMU will shift the fulcrum of the role of forestry bureaucrats from forest administrators to forest managers, as well as increase transparency and accountability in forest governance [4].

Within the framework of the National RPJM-, FMU an instrument that is being developed as a fulcrum of forest management in the future. A strong commitment from the Central Government and Regional Government is needed to support the work of the FMU as the smallest management unit at the site level. In the context of developing an FMU organization, the following four aspects need attention; namely, 1) the FMU organizational structure, 2) the human resources that manage the FMU,

3) The FMU system and work procedures, and 4) the FMU values and culture. To support FMU building in Indonesia, Government has issued a number of regulations, among others :

- 1) Law No. 41 of 1999 concerning Forestry;
- 2) Government Regulation No. 34 of 2002 concerning Forest Management and Preparation of Forest Management Plans, Forest Utilization and Forest Area Use;
- 3) Government Regulation No. 44 of 2004 concerning Forestry Planning;
- 4) Government Regulation No. 6 of 2007 in conjunction with Government Regulation No. 3 of 2008 concerning Forest Management and Preparation of Forest Management Plans and Forest Utilization;
- 5) Government Regulation No. 41 of 2007 concerning Regional Apparatus Organization in conjunction with PP Number 18 of 2016 concerning Regional Apparatus
- 6) Minister of Forestry Regulation No. P.6 / Menhut-II / 2009 concerning Formation of FMU Areas;
- 7) Minister of Forestry Regulation No. P.6 / Menhut-II / 2010 concerning Norms, Standards, Procedures and Criteria for Forest Management in KPHL and KPHP;
- 8) Minister of Home Affairs Regulation No. 61 of 2010 concerning Organizational Guidelines and Working Procedures of KPHL and KPHP;
- 9) Regulation of the Minister of Environment and Forestry of the Republic of Indonesia Number P.74 / Menlhk / Setjen / Kum.1 / 8/2016 Regarding the Nomenclature Guidelines for Provincial and Regency / City Regional Apparatuses implementing Governmental affairs in the Environment and Governance Sector in Forestry ;
- 10) Minister of Forestry Regulation No. P.41 / Menhut-II / 2011 junto Minister of Forestry Regulation No. P.54 / Menhut-II / 2011 about Facilitation Standard on KPHL and KPHP Model.
- 11) Regulation of the Head of BKN Number 2 of 2016 concerning Implementation of the Transfer of District / City Regional Civil Servants Who Implement Government Affairs in the Forestry Sector Apart from Implementing the Management of Grand Forest Parks (Tahura} Regencies / Cities Becoming Provincial Civil Servants.
- 12) Circular of the Minister of Environment and Forestry Number: S.141 / Menlhk / Setjen / Pla.0 / 3/2017 concerning the Typology of Institutional KPH after Law Number 23 of 2014 concerning Regional Government.

However, the completeness of the structures and mechanisms that are built to optimize the process of operationalization of the FMU at the site level, can not provide assurance that the FMU can be operated consistently well. This can be seen from the following indications:

1. The reluctance of some regional governments to encourage the development of FMUs in their regions, with the consideration that later these FMUs are feared to burden regional finances.
2. Still happened cases of mutations that do government Regions to head of FMU previously been given training and technical briefing based forest management FMU by the ministry to another although KLHK has released Regulation No. P. 42 / Menhut-II / 2011 Concerning Competency Standards for Forestry Technical Fields in Protection Forest Management Units and Production Forest Management Units.
3. Some of the FMUs that have also been formed still encounter technical obstacles such as the limited availability of operational field infrastructure. On the other hand, the number and capacity of human resources available in the FMU are also still very limited, which has implications for the suboptimal operation of FMU management in the field.

The peak of the instability of FMU institutions at the site level occurred after the implementation of Law Number 23 of 2014 concerning the Regional Government. The devolution of forest management authority to the provincial government led to high forest management responsibilities among others

for their delegation to Personnel, Funding, Facilities, and Infrastructure, as well as Document (P3D) of the District Government.

The provincial government responded by merging, restructuring the composition of human resources in the FMU, and establish a new institutional FMU. This follows the Regulation of the Head of BKN Number 2 of 2016 concerning Implementation of the Transfer of District / City Regional Civil Servants Implementing Government Affairs in the Forestry Sector Apart from Implementing the Management of Grand Forest Parks (Tahura) Regencies / Cities Becoming Provincial Civil Servants.

The complexity of the problem and the high dynamics in the context of the development and operationalization of FMUs at this site level become a separate challenge that must be resolved immediately. Adiwibowo et al. (2013) revealed that the critical problem in designing an institution, including the FMU institution, was the issue of institutional sustainability itself [10]. Institutional design often does not become a rule that is run by the parties in interacting. Building a strong FMU institution is a prerequisite that must be met so that the FMU is able to carry out management at the site level that is oriented towards the whole ecosystem approach by considering aspects of sustainability in its management.

### 3.3. Management plans

The existence and functionalization of FMU operations can be measured by the maturity of the planning process that is built. In this context, a Document plan that is prepared should follow the procedures and rules specified in the Regulation of the Director-General of Forestry Planning Number:

P.5 / VII-WP3H / 2012 and integrated with other planning documents at the regional level. However, in reality, many FMU level who do not yet have a legal planning document and fit- in with other planning documents in the area. This certainly has negative consequences for FMU development at the site level. A few notes of findings in this study illustrate that there is still much that needs to be improved in the context of FMU planning at the site level. The records are described as follows :

- 1) Some of the FMU, an area of study have not a document Forest Management Plan (RPHJP) passed and integrated with other planning documents, namely documents Medium Term Development Plan as at Kulawi FMU, Kapuas Hulu FMU and FMU of Unit 1 Aceh. this will certainly have implications for the implementation program at the site level;
- 2) Most of the FMU areas are the focus of this study did not have a business plan, and that accommodate all potential local in each region of the FMU. On the other hand, the absence of this business plan document is feared to hamper the FMU's independence process;
- 3) The process of administration and legalization RPHJP FMU long enough, a major complaint about FMU, come from the information obtained, there are FMUs who have experienced the change of FMU heads three times, but the RPHJP has not yet been ratified. This is certainly a bad precedent for governance systems. The demand for fast, precise and complete services as a mandate for bureaucratic reform is not going well;
- 4) The revision of the RPHJP document also occurred in a number of FMUs, especially after the implementation of Law Number 23 of 2014 concerning Regional Government due to changes in the FMU institutional structure within the Provinces Government.
- 5) FMU planning in guaranteeing rights and access for local and adat communities has not been maximized. It is still limited to the Social Forestry scheme while the FMU demands are independent institutions, such as the utilization of Government policies for the FMU area. A few FMU policies that can be used as follows:
  - a. PERMENHUT No. P. 43 / Menlhk-Setjen / 2015 concerning Administration of Timber Forest Products Originating from Natural Forests ;
  - b. PERMENLHK NUMBER P.71 / MenLHK / Setjen / HPL.3 / 8/2016 concerning Procedures for Imposing, Collecting and Depositing Forest Resource Provisions,

Reforestation Funds, Standing Reductions, Penalty Violation of Forest Exploitation and Contribution of Forest Utilization Business Permits ;

- c. PERMENLHK No.P.81 / MENLHK / Sekretariat / KUM.1 / 10/2016 on Cooperation Use of D late Utilization Forest Zone for Supporting Food Security ;
- d. PERMENLHK No. P.83 / MENLHK / Sekretariat / KUM.1 / 10/2016 about Social Forestry ;
- e. PERMENLHK No.P.49 / MENLHK / SETJEN / KUM.1 / 9/2017 concerning Cooperation in Utilizing Forests in FMUs .

### 3.4. *Alternative action*

In general, the procedure for establishing an FMU area has been regulated in a Minister of Forestry Regulation (Permenhut) Number P.6 / Menhut-II / 2009 concerning FMU Area Formation. Based on these regulations the formation of an FMU through four stages, namely: (i) Proposed design of FMU construction by the Provincial Forestry Service; (II) Direction of FMU area reserve by the Ministry of Forestry (KLHK) ; (III) Proposed FMU determination from the Provincial Forestry Service; and (IV) Determination of FMU areas by the Ministry of Forestry (KLHK). Thus to ensure the fulfillment of effective FMU development goals, policy formulations are needed that are able to describe well the situation and problems that arise from implementing forest management at the site level.

In a theoretical perspective, policy formulation can be seen as a process that produces and tests alternative conceptualizations of problem conditions. formulation issue includes four interconnected phases, namely: recognizing the problem, examine the issues, define problems, and specifies the problems [11]. In the context of FMU development, different perceptions, interests, conflicts, and overlapping programs and policies between stakeholders (KLHK, PEMDA, KEMENDAGRI, and BAPPENAS) in forest management at the site level are obstacles in realizing the FMU development goals mentioned. Scott (2008), states that the institution or institution in addition to understanding the institution/organization or hardware, also includes software such as rules of play, norms, cultural-cognitive, work mechanisms, as well as the magnitude and distribution of authority and authority that runs [12]. Therefore, the issue of managing forest resources, in this case, FMU, is not only a technical problem, but a more complex problem, so it must be seen from a variety of approaches, one of which is the institutional approach.

Peters (2000) describes there are four approaches used in understanding the institution [13]. The four approaches are the normative approach, rational choice, history, and empirical. The normative approach looks at institutions from three aspects, namely the values adopted, the culture developed, and the cultural process created and maintained, whereas the rational choice approach defines an institution as a set of rules and incentives. Members of an institution act in response to these rules and incentives. However, basically, these individuals already have a set of preferences that cannot be changed by their involvement in an institution.

Approach to history ( historical institutions ) argues that " the policy and structural choices made at the inception of the institution will have a persistent influence over its behavior for the remainder of its existence " or selection policies and structures created at the beginning of an institution would have a continued influence on behavior as long as the institution exists [13]. The empirical approach (empirical institutionalism ) defines an institution as a formal structure of governance. This approach examines whether institutions make changes in policy choices or political stability. This approach focuses on differences between presidential or parliamentary structures.

The role of the institution is very important in regulating interdependence between people with something, condition or situation, through the innovation of property rights, jurisdiction boundaries, and rules of representation. Institutions are always accompanied by sanctions (formal-informal) agreed upon and their enforcement.

#### 4. Conclusions and Suggestions

Based on the results of studies in eight FMU areas, illustrates that the development of FMUs at the site level still faces various challenges and problems. Some of the main problems faced are focused on three main aspects, namely related to regional stability including clarity of boundaries and tenurial conflicts, institutional aspects concerning political support and institutional capacity in supporting the operation of FMUs and planning aspects concerning bureaucratic chains and the stability of the FMU development platform at the site level.

Some findings from this study urge improvement in governance in the implementation of FMU-based forestry development. relating thereto researchers gave some advice that is important to immediately followed up include:

- a. It is necessary to settle a boundary process that accommodates the interests of all parties including the community in accordance with the mandate stipulated in article 68 of Law Number 41 of 1999 concerning Forestry ;
- b. The importance of encouraging a policy at the national level that is able to accelerate the FMU-based forest management process. For example in the form of devolution of authority to implement the RPHJP approval, licensing and FMU-based forestry partnerships ;
- c. Building a process of communication and strong coordination between the Regional Government and the FMU, especially in terms of planning, management, and evaluation of its management, is intended to ensure operationalization and avoid misunderstandings and overlapping programs in nature to encourage the optimization of forest resource management (PSDH).
- d. Establish a mechanism in the form of investment standard operating procedures (SOP) that accommodate the interests of the parties, both the Government, the public, and the private sector, to ensure justice, security, and the benefits of each party.
- e. Urged the relevant ministries (KLHK, Home Affairs, Kemenpan-RB, Bappenas, Ministry of Finance, and other institutions) to perform coordination and synchronization mechanisms associated with the allocation of resources human resources, programs, and budgets to ensure the operationalization of the FMU in the field.

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