

# New land governance models and management scenarios: Fitting Forest Management Units (FMUs) for forested landscapes outside forest zones in Indonesia

Muhammad Haidar Daulay <sup>1,2</sup>, Fitria Dewi Susanti <sup>2</sup>, Dwi Laraswati <sup>2</sup>,  
Erliza C. Arthalina <sup>2</sup>, Ahmad Maryudi <sup>2,3,\*</sup>

## AFFILIATIONS

- <sup>1</sup> Faculty of Agriculture, Universitas Riau, Pekanbaru, Indonesia
- <sup>2</sup> Sebijak Institute (Research Center for Forest Policy & History), Faculty of Forestry, Universitas Gadjah Mada, Yogyakarta, Indonesia
- <sup>3</sup> Center for Population & Policy Studies, Universitas Gadjah Mada, Yogyakarta, Indonesia

\*Corresponding author:  
ahmad\_maryudi@ugm.ac.id

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## ABSTRACT

Many parts of non-forest zones (*Areal untuk Penggunaan Lain/APL*) in Indonesia are forested but are however under intense pressure from unsustainable practices and conversion. To help preserve forested APL zones, the Ministry of Environment of Forestry is envisioning the integration of forested APL areas into the operational activities of the Forest Management Units/ FMUs (*Kesatuan Pengelolaan Hutan/KPH*), a management arm of the forest administration. Under the current governance arrangements, FMUs are not tasked to manage the areas. In this paper, we developed new governance arrangements and management scenarios that permit management of forested APL by FMUs based on iterative processes and intensive consultation with related stakeholders. We developed three plausible broad scenarios: 1) the handing over forested APLs to FMUs, 2) co-management, and 3) FMUs to provide technical assistance for preserving forested APLs. We further detailed the three scenarios into five different models. Our scenarios of institutional arrangements and management models are by no means prescriptive and readily operationalized on the ground. Instead, the processes by which the scenarios and models were developed can be adopted when the FMUs intend to develop more detailed scenarios that reflect specific situations and conditions.

## KEYWORDS

Fragmented governance; Land governance; Governance innovations; Forest management; KPH; Landscape approach.

## 1. INTRODUCTION

Land governance in Indonesia is fragmented and complex, characterized by ambiguities and overlapping or even competing regulation frameworks and institutions, at both the central and local levels (Brockhaus et al., 2012; Ardiansyah et al., 2015; Maryudi, 2015; Sahide & Giessen, 2015). In general, governance of land in the country is shaped by the interplays between two main regimes, that is, ownership or tenure arrangements and utilization systems. In terms of the tenure systems, the current legal frameworks adopt a clear division between state control and private ownerships (Maryudi, 2015). In addition, diverse customary and traditional land rights that have existed and practiced in many regions of the country have, in recent years, been significantly mainstreamed as a new category in the formal tenure systems (Riggs et al., 2016; Myers et al., 2017; Fatem et al., 2018; Simarmata, 2019). There are various informal claims/ governance systems that often conflict with the formal systems (Zhu & Simarmata, 2015; van der Muur, 2018; Berenschot & van Klinken, 2018; Sirajuddin et al., 2022). There are unresolved problems related to recognition and registration of informal land claims (McCarthy et al., 2018). Although some claims have recently been legitimized, exclusion of informal claims in the official tenure systems continues (Sahide et al., 2020a). Adding to the complexity of the country's land governance system is the impact of the socio-political dynamics, i.e., in the context of policies for decentralization-

centralization policy (Barr et al., 2006; Bae, 2016; Sahide et al., 2016a).

In the formal context, the land governance is further shaped by the dual utilization regimes, i.e., forest and non-forest allocations (Sahide & Giessen, 2015). This was started in the 1980s, when the government introduced the so-called Consensus-Based Forest Land Use Planning (*Tata Guna Hutan Kesepakatan*, TGHK) (Peluso, 1995; Brockhaus et al., 2012). The developments led to the diverse sectoral arrangements in forestry, agriculture, mining, and several others. Because they do not necessarily correspond with the biophysical conditions, the utilization regimes became multi-faceted. For instance, the state forest zones are not covered with adequate vegetation reflecting a forest ecosystem. In contrast, many parts of non-forest zones (*Areal Penggunaan Lain*, APL) across the countries are forested and are characterized by high biodiversity levels (Ekawati et al., 2014; Timmins, 2017). It is estimated that forested APL zones in total amount to as much as 7.2 million hectares (MoEF, 2020). In contrast to forest zones that are under the sectoral jurisdiction of the Ministry of Environment and Forestry (MoEF), the forested APL zones feature complex tenure systems, e.g., state, private, customary, and diverse utilization arrangements, thus embracing numerous sectors and government institutions.

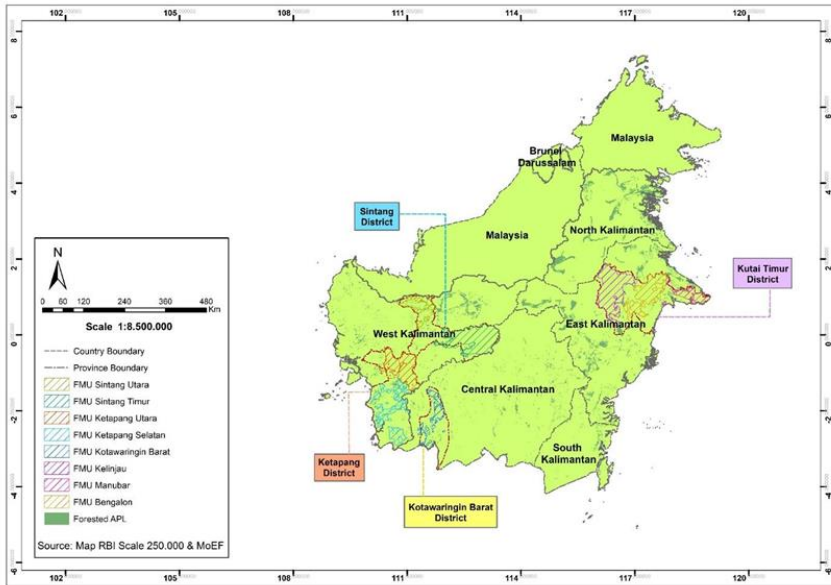


**Figure 1.** Examples of forested APL (Source: Kalfor Project Documentation)

Over the past decades, forested APL areas have been under intense pressure from unsustainable practices and land conversions (Austin et al., 2019) since they have not been dedicated for biodiversity conservation and ecosystem protection. Hence, there have been growing calls to promote preservation and conservation of forested APL zones (see Ekawati et al., 2014; Timmins, 2017). The MoEF has also pushed this agenda of preserving and conserving non-forest zones onto the top of its policy priorities. With the support from the Global Environment Facility of the United Nations Development Program (UNDP), the Ministry is currently experimenting with the Kalimantan Forest (KalFor) Project under the program entitled “*Forest Area Planning & Management in Kalimantan.*”

More specifically, the project encourages an integration of forested APL areas into the operational activities of the Forest Management Unit/ FMUs (*Kesatuan Pengelolaan Hutan/ KPH*) (UNDP Indonesia, 2020). Over the past few decades, FMUs have been envisioned as a policy strategy to achieve more wise and responsible forestry in Indonesia. However, policies to establish FMUs have only been operationalized over the past decade (Sahide et al., 2016b; Budiningsih et al., 2022). An FMU is designed as a more localized (on-site level) institution responsible for the holistic technical forest activities, from planning to implementation and monitoring, from utilization to reforestation/ rehabilitation (Kim et al., 2016; Budiningsih et al., 2022). It is also tasked with implementation of national and local forest-related policies (Kartodihardjo et al., 2011). The FMU model is touted to offer a better approach than the concession/ permit model which has been increasingly perceived to have failed in fostering sustainable forest management due to its core focus on forest utilization (*ibid.*). An FMU may cover

the existing permit/ concession, both business-oriented and social forestry, and different types of forest function, i.e., production, protection, and conservation (Sahide et al., 2015; Maryudi, 2015). It is operationalized under the provincial government where it is located (Kim et al., 2016).



**Figure 2.** Indicative maps of forested APL in KalFor Project area

Approximately 600 FMUs are to be established nation-wide, 565 of which, according to the online data management of the MoEF (MoEF, 2022), have been established by the mid of 2022. In the current government arrangements, FMUs are only mandated to manage areas gazetted as forest zones. Thus, integrating APL zones within the operational management of FMUs, as envisioned in the KalFor Project, requires new governance models/ regulatory frameworks. We home in on this as an area to depart. In this paper, we seek to engage discussions on governance innovations that encourage fluid networks and partnerships with multiple actors, processes, and structures in managing forested areas outside the forest zones.

More specifically, we sought to develop types of governance arrangements and management scenarios that can be potentially adopted to facilitate the integration of forested APL into the managerial operations of FMUs. In developing the new governance arrangements and management scenarios, we adhered to the procedures provided by Hengeveld et al. (2017), considering multiple factors, from biophysical to social and policy aspects (detailed in Section 3). In the following section we will first briefly describe the landscape approach considered to facilitate the fluid and integrated governance models in the fragmented and complex institutional frameworks.

## 2. INTEGRATED LANDSCAPE BRIDGING SECTORAL BOUNDARIES: A THEORETICAL CONSIDERATION

The institutional arrangements for forest and land governance in Indonesia usually follow the classical approach based on sectors. This approach is regarded as “closed and self-referential social systems” and “autonomous decision-making structures” (Hog1, 2002). It is created with clear boundaries to maintain differences between

themselves and their environment (Giessen & Krott, 2009). In practice, an institution is usually established with a clear mandate with the ability to enforce decisions to govern the sector (Balint et al., 2011).

As previously mentioned, integrating non-forest zones into FMU operationalization is unlikely to be facilitated by the sectoral approach. It is hence more feasible when both forest and forest APL zones are seen as an integrated landscape, which comprises both ecological (biophysical) and social systems (Axelsson et al., 2011). A landscape is hence considered as mosaics of land cover types for the multiple needs of diverse stakeholders (Sandker et al., 2010). Over the past few years, the integrated landscape approach has been offered as a mechanism to bridge land system differences based on how it views a landscape as an integrated ecosystem (Arts et al., 2017). It is commonly described as an approach for allocating and managing a land with diverging goals i.e., social, economic, and environmental. Its basic principle is putting various land uses together within an integrated system (Sayer et al., 2013, Milder et al., 2014, Harvey et al., 2014). Sayer et al. (2017) adds that the landscape approach is a multifaceted integrated strategy that aims to bring together multiple stakeholders with different interests and priorities on land in geographically defined areas.

Freeman et al. (2015) further argues that landscape approach can be used as social-ecological integrative systems at the various landscape scales, as resource management tool with environmental goals consideration, and as an application of the multifunctionality concept to achieve multiple objectives. Thus, the landscape approach can be the innovative way to accommodate diverging interests such as forest conservation, agriculture, mining, and other competing sectors within land uses (Sayer et al., 2013). To facilitate integration of forested APL areas into FMU-related operations, mutual synergy of land use allocation is important. This, in turn, requires the principles of multifunctionality, multi-stakeholders, clarification of rights and responsibilities, participatory and user-friendly monitoring, negotiated and transparent change logic, and strengthened stakeholder capacity (Sayer et al., 2013).

The integrated landscape approach has started gaining attention in forest and land management in Indonesia. In fact, it is embraced in the recent policy called Essential Ecosystem Area (EEA). Specified in Regulation No. 108/ 2015, EEA embraces governance models beyond classical sectoral and rigid public-private divides (Sahide et al., 2020b). It promoted EEA new conservation areas beyond conventional arrangements under the administration of the central government (Tropenbos, 2019). Thus, integrating forested APL into FMU management has been made possible in the current forest and land management policies in Indonesia. Nonetheless, there are some fundamental pre-conditions and requirements for its operationalization. Reed et al. (2020) points out the importance of identifying relevant and interested stakeholders considering who undertakes the management tasks based on their respective capacities and resources. Alternatives for the management strategies of the forested APL should also be developed from the outset (Ros-Tonen et al., 2018).

### 3. METHODS

#### 3.1 Developing Governance and Management Scenarios

Scenarios have become an important tool in the forest sector to support strategic decision-making amidst future uncertainties. They are used as instruments to deal with the irreducible uncertainty inherent in the future due to the complexity of the system (Schüll & Hoogstra-Klein, 2017). To develop new governance arrangements and management scenarios to incorporate forested APL areas into the management of FMUs, this paper adopts the Forest Landscape Development Scenario (Hengeveld et al.,

2017), as follows:

- Identification of key factors

Key factors refer to those facilitating the inclusion of forested APL into FMU operations, covering the intrinsic features of both the forests and the FMUs, and the external environment. For initial identification, we conducted literature reviews and two focus group discussions (FGDs) with related stakeholders at the central and local levels (see Section 3.2 for details). The key factors identified from the forest within non-forest zones include: 1) forest conditions, 2) types of tenure arrangements or property rights, including potential tenure conflicts, 3) current land use allocation, and 4) their proximities to FMUs.

There are eight FMUs in Kalfor project area (Table 1), all of which operationalized for production purposes (production FMUs). We considered their managerial capacities in terms of budgeting and human resources, which forms an important factor since Indonesia only recently adopted the policy of establishing FMUs (Sahide et al., 2016b). In the long run, all FMUs in the country are expected to become self-financed and service-oriented management units at the local level (*Badan Layanan Usaha Daerah*, BLUD) and not wholly reliant on state budgets from the central and local governments. However, to date, only a few FMUs in Indonesia have been able to fully transform themselves into BLUD which may be explained by how newly established FMUs may not be well-positioned to take on extra responsibilities, i.e., managing APL areas.

Regarding the external environment, development priorities of the local governments as outlined in their strategic plans, and potential support from other stakeholders including international financing, were identified as the key factors in facilitating the inclusion of forested APL into operations of FMUs. Ranking in the initial list of key factors was based on the greatest to the least importance through another FGD, from which the final key factors were selected. They include: 1) FMU budgeting; 2) FMU human resources; 3) potential support from other stakeholders; 4) development priorities of local governments; 5) proximity to FMU; 6) forested APL condition; and 7) type of property rights.

**Table 1.** Description on the characteristics of FMUs in Kalfor Project

No.	FMU	Year of establishment	Location (province)	Forest area (Ha)	Budgets (US\$/ year / Ha)	Forest conditions (intact/ degraded)	Type of property rights of APL in proximities	Number of personnel
1.	FMU Bengalon	2019	East Kalimantan	672,921	1.16	Mostly intact (only 2.16% categorized as very critical and critical land)	Community-owned land	38 (28 civil servants/ permanent employee, 10 non-permanent employee)
2.	FMU Kelinjau	2019	East Kalimantan	950,235.39	1.39	Mostly intact (only 1.55% categorized as very critical and critical land)	Plantation concession area	43 (23 civil servants/ permanent employee, 20 non-permanent employee)
3.	FMU Ketapang Utara	2019	West Kalimantan	258,733	2.32	Mostly intact (44.76% categorized as very critical and critical land)	Unencumbered by utilization permits	23 (20 civil servants / permanent employee, 3 non-permanent employee)
4.	FMU Ketapang Selatan	2016	West Kalimantan	172,827	2.36	Mostly intact (only 5.59% categorized as very critical and critical land)	Unencumbered by utilization permits	34 (29 civil servants / permanent employee, 5 non-permanent employee)
5.	FMU Kotawaring in Barat	2017	Central Kalimantan	318,553	4.62	Mostly intact (39.86% categorized as very critical and critical land)	Forests managed by customary communities, but not yet recognized as customary law communities	20 (18 civil servants/ permanent employee, 2 non-permanent employee)
6.	FMU Manubar	2019	East Kalimantan	240,603.63	4.57	Mostly intact (only 1.27% categorized as very critical and very critical land)	Plantation concession area	39 (30 civil servants / permanent employee, 9 non-permanent employee)
7.	FMU Sintang Timur	2016	West Kalimantan	960,432	0.26	Mostly intact (22.60% categorized as very critical and critical land)	Unencumbered by utilization permits	26 (20 civil servants / permanent employee, 6 non-permanent employee)

Source: Processed from primary data (2022)

- Combinations of key factors

Interrelated factors were aggregated and clustered into broader and more generic issues as compared to the individual key factors (Hengeveld et al., 2017). For example, FMU’s budgets and human resources could be subsumed under the category FMUs ability. The next step was to make stratification from each combination of factors by describing them according to a common structure to keep them comparable.

**Table 2.** Clustering key factors and their stratification for analysis

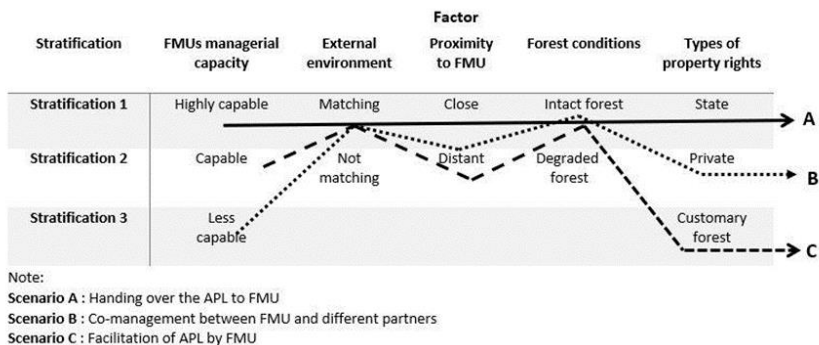
Key factors	Clustered factors	Stratification
FMU budgeting	FMUs managerial capacity	Highly capable; capable; less capable
FMU human resources		
Potential support from other stakeholders	External environment	Matching; not matching
Development priorities of local governments		
Proximity to FMU	Proximity to FMU	Close, distant
Condition of APL areas	Condition of APL areas	Intact forest; degraded forest
Type of property rights	Types of property rights	State, private, customary forest

- Selection of driver scenarios

Potential scenarios were selected by narrowing down the number of all possible combinations to the most coherent and consistent ones (Figure 2). The selection was based on assessment of experts, namely the heads of the eight FMUs located in KalFor Project (Manubar, Kelinjau, Bengalon, Kotawaringin Barat, Sintang Utara, Sintang Timur, Ketapang Utara, and Ketapang Selatan). We then developed three plausible broad scenarios for managing forested APL zones accordingly to the degree of management intervention by an FMU, namely:

1. Scenario A- Handing over a forested APL to an FMU

Scenario A is proposed to be implemented in APL areas unencumbered by utilization permits and are characterized by dense forest cover, high potential carbon uptake, containing endemic species, and within close proximity to an FMU. Scenario A is to rely on high FMU capabilities in terms of budgets and human resources, sound vision of the local government to protect the forested APL areas, and strong support from other stakeholders.



**Figure 3.** Illustration of scenarios

2. Scenario B- Co-management of a forested APL by an FMU and different partners

The scenario is proposed to be implemented in an intact forested APL (similar conditions as of the Scenario A) but is already encumbered with utilization permits given to a company or community. The co-management scenario also fits an under-

resourced FMU. The implementation of this scenario is possible when a financial incentive mechanism for the landowners or permit holders to preserve the forested APL areas exists since the areas are already designated for other uses.

### 3. Scenario C- Technical assistance by an FMU for conserving forested APL

Scenario C entails the lowest FMU intervention in areas with potentially high tenure conflicts, such as the land being under customary rights. An FMU, whenever adequately resourced, provides technical assistance whenever the landowners or permit holders can be persuaded to conserve the forested APL areas. The technical assistance may include facilitation toward the recognition of customary forests.

## 3.2 Collection of Empirical Data and Information

We employed a qualitative approach to investigate the empirical details (Bryman, 2016) and applied triangulation procedures to ensure validity and reliability (Kumar, 2014). Data were collected from primary and secondary sources. Primary sources included interviews with key informants: Head chairperson of the eight FMUs located in KalFor Project. Semi-structured interviews were conducted in November 2020. The focus was to validate the predetermined key factors as presented in Section 3.1. In addition, interviews with the FMUs' heads were aimed at identifying unique forested APL sites and management models that are currently initiated or implemented by the respective FMUs.

FGDs were conducted, primarily to obtain stakeholders' views relating to the incorporation of forests outside forest zones into FMU operation. The following stakeholders were invited to the FGDs: different directorates within MoEF (Directorate of Sustainable Production Forest Management, Directorate of Forest Protection and Nature Conservation, Directorate of Planning Bureau, Directorate of Macro Forestry Plan, Directorate of Forest Protection and Prevention); the National Development Planning Agency (Directorate of Forestry and Water Resources Conservation), Natural Resources Conservation Center (Central, West, and East Kalimantan); Provincial Forest Services (Central, West, and East Kalimantan); FMUs (Sintang Utara, Sintang Timur, Ketapang Utara, Ketapang Selatan, Kotawaringin Barat, Kelinjau, Manubar, Bengelon); and three APL experts from Universitas Gadjah Mada, IPB University, and University of Indonesia.

Secondary sources included policies, reports, documents, and literature that are related to FMUs and non-forest zones (Rahayu et al., 2019; Laraswati et al., 2020). To develop viable scenarios, data were collected by employing two different methods: content analysis of key policy documents and expert interviews. In content analysis, we analyzed the documents by filtering for all statements relevant to our study that explain clear formal tasks and responsibilities. These legal documents were obtained from official government websites (*Jaringan Dokumentasi dan Informasi Hukum*) or other trusted sites (e.g., *Hukum Online*).

## 4. THE NEW INSTITUTIONAL ARRANGEMENTS AND MANAGEMENT SCENARIOS

We identified five governance and management models under the three broad scenarios that could be adopted by the FMUs located in the studied provinces (Table 3).

### 4.1 Scenario A - Handing Over Forested APL to an FMU

Scenario A entails a high intervention of FMUs for managing forested APL zones. It is particularly proposed for forested APL areas unencumbered by utilization permits and characterized by dense forest cover within close proximities to an FMU. This scenario is only viable for highly resourced FMUs. Of the eight FMU cases, we found that none is self-financed and possesses adequate human resources. All FMUs remain heavily



dependent on the state and regional budgets. Nonetheless, Scenario A can still be adopted following “the adjustment period.” We specifically observed that three FMUs, namely: Sintang Utara, Sintang Selatan, and Ketapang Utara can potentially adopt this scenario in the next few years. In fact, the three FMUs, as outlined in their strategic management plans (*Rencana Pengelolaan Hutan Jangka Panjang*, RPHJP) have identified potential third-party funding mechanisms. They have gradually enlarged their human resource bases.

The district of Sintang and Ketapang, where the three FMUs are located, have aligned their development visions to preserve forested APL zones and pledged their commitments to support the FMUs in terms of budgeting and staffing. The local governments have also committed to limit expansions of oil palm plantations. In fact, the Mayor of Sintang is a recipient of a national award for protecting forests under their jurisdiction, covering an area of 865 thousand hectares in both forest and APL zones. Similar strong visions and commitments on preventing deforestation were also found in Ketapang District.

From the interviews and FGDs, some densely forested APL zones near the FMUs are unencumbered by utilization permits, reflecting the low potential tenure (sectoral) conflicts. More specifically, we proposed two general models for managing the forested areas, i.e., Scenario A1 (Land swap) and Scenario A2 (EEA), explained below.

- Model A1 – Land allocation swap

The model proposes exchanging forest-intact APL areas with degraded forest zones. The current regulatory frameworks only stipulate land allocation swaps from forest into non-forest uses, instead of the reversed scheme. Therefore, establishing the land swap regulatory frameworks for conservation purposes is essential. The model has implications for land control. In the current land governance arrangements, forest zones are under the central government (MoEF), while APL is under local governments. This model is potentially highly viable, therefore, if local governments can provide high degrees of commitments on forest conservation.

- Model A2 - EEA

EEA is a new conservation category beyond MoEF’s conventional institutional arrangements. Its regulatory frameworks are under preparation within MoEF. Nonetheless, local governments (provinces and districts) are eligible to gazette and establish EEAs within their respective jurisdictions and mandate FMUs to manage their conservation areas since they are aligned and vertically responsible to the local Forest Service. More specifically, areas with high conservation values, wetland ecosystems, biodiversity parks, and wildlife corridors are the priorities of EEA establishment. Under this model, the priorities need to be placed on EEAs located in the same landscapes as the FMU’s working area to allow integrated planning and management (Kartodihardjo, 2017).

We identified that the EEA model is very likely to be aligned in FMU Ketapang Utara and FMU Ketapang Selatan. In fact, the local governments have shown their commitments to establish EEAs. In November 2017, the Governor of West Kalimantan issued Decree No. 718/ 2017 stipulating the establishment of EEA in Ketapang and Kayong Utara Districts that consist of High Conservation Value Areas in the land under the oil palm plantation permits of PT Kayung Agro Lestari, PT Gemilang Makmur Subur, and PT Damai Agro Sejahtera. The areas function as a conservation corridor for orangutans connected to Gunung Palung National Park and Gunung Tarak Protection Forest (Tropenbos, 2019). Similarly, the government of Ketapang District has also issued Regional Regulation No. 2/ 2015 concerning Regional Conservation Areas, to support the preservation and enhancement of the environment-carrying capacity of the local region.

**Table 3.** New governance and management models identified in KalFor Project sites

Scenarios and models	Factor					APL location	Potential adopter
	FMUs managerial capacity	External environment	Proximity to FMU	Forest condition	Type of property rights		
<b>Scenario A</b>	<b>Highly capable</b>	<b>Matching</b>	<b>Close</b>	<b>Intact forest</b>	<b>State</b>		
Land allocation swap	Local government are able to fund forester services ( <i>Bakti Rimbawan</i> )	There is support from regent in protecting forest in APL; committed to reducing permits in APL that have potential to clear forests	Intersect with FMU work area	Primary dry land forest, primary swamp forest, primary mangrove forest	Unencumbered by utilization permits	Sintang District	FMU Sintang Utara & FMU Sintang Timur
Essential Ecosystem Area (EEA)	Potential funding from third parties (donors, NGO)	There exists an EEA initiative by the local government	Intersect with FMU work area	Area of high conservation value; wetland ecosystem; biodiversity park; wildlife corridor	Unencumbered by utilization permits	Ketapang District	FMU Ketapang Utara & FMU Ketapang Selatan
<b>Scenario B</b>	<b>Less capable</b>	<b>Matching</b>	<b>Distant</b>	<b>Intact forest</b>	<b>Private</b>		
Reducing emissions from deforestation and forest degradation (REDD +)	Limited human resources	Donor support for REDD + funding	Distant, not possible to monitor area regularly	High carbon uptake	Community-owned land or permit holder	Kutai Timur District	FMU Bengalon
High conservation value (HCV) management	Limited funding	Local government support for sustainable land-	Distant, not possible to monitor area regularly	High conservation value area	Plantation concession area	Kutai Timur District	FMU Manubar & FMU Kelinjau

Scenarios and models	Factor					APL location	Potential adopter
	FMUs managerial capacity	External environment	Proximity to FMU	Forest condition	Type of property rights		
		based business management					
Scenario C	Capable	Matching	Distant	Intact forest	Customary forest		
Technical assistance for local communities	Experienced in community empowerment activities	Recognition of customary land ownership by local governments	Distant, not possible to monitor area regularly	Dense forest cover	Forests managed by customary communities, but not yet recognized as customary law communities ( <i>Masyarakat hukum adat</i> )	Kotawaringin Barat District	FMU Kotawaringin Barat

Source: Processed primary data (2022)

## 4.2 Scenario B - Co-Management of Forested APL

Our interviews with various stakeholders, principally heads of FMUs, and FGDs, pointed out that three FMUs, namely Manubar, Bengalon, and Kelinjau that are located in Kutai Timur District (East Kalimantan) are highly unlikely to fully manage forested APL zones near their respective management areas. The FMUs are newly established and far from self-sufficient in terms of budgets and human resource bases. At the same time, the three FMUs have been mandated to manage vast forest zones. FMU Manubar was officially split from FMU Bengalon in February 2020. Its budgets and staff are still sourced from the old FMU. During the interviews, the head of FMU Manubar was concerned about additional burdens for extended responsibilities on forested APL zones. Similarly, instead of immediately agreeing to manage forested APL areas, which are outside of its responsibilities, FMU Kelinjau wants to first solicit support from local communities to execute relevant operational activities within forest zones. Therefore, the co-management scenario is the highest possible intervention the FMUs can likely make in forested APL zones. It is also more viable in the case of forested APL areas covered by fragmented tenurial rights, e.g., community-owned land and land under permits. From the three FMUs, we identified two co-management models, detailed below.

- Model B1 - REDD+ on community-owned land

In Indonesia, private ownerships are generally entitled to carry out utilization activities according to owners' interests. Owners are not specifically obliged to pursue conservation goals. To encourage the conservation of the forested APL under private tenures, the owners might be persuaded by financial incentives comparable to the economic values of the current utilization patterns. Over the past few years, REDD+ mechanism, which can be implemented by the three FMUs, has been touted as a viable option for promoting conservation. The National REDD+ Strategy Document states that REDD+ can be implemented in both forest zones and APL areas. In fact, the province of East Kalimantan has been selected by the central government as a REDD+ pilot location, and it has been promised a maximum of US\$ 110 million in financial incentives. FMUs are envisioned by the government as forming a key institution for implementing REDD+ at the site level (Directorate General of Climate Change MoEF, 2018). However, some local communities are not sufficiently informed about REDD+ program. Thus, FMUs can play important roles in persuading the communities to implement co-management of REDD+ in forested community-owned land.

- Model B2 - Co-management of HCV in plantation concessions

Approximately a tenth of the 2.3 million hectares of forested APL in Kalimantan are under non-forest permits, mostly oil palm plantations (KalFor, 2018). Over the past few years, oil palm concessions have been increasingly encouraged to promote sustainable palm oil production practice (Brandi et al., 2015), in terms of certification of sustainable plantations, which usually require good management of High Conservation Value Areas. East Kalimantan Province obliges concessions to allocate at least 10% of the concession areas as HCV. With technical forestry expertise, the FMUs in the province might use this as an entry to propose co-management of the HCV areas as conservation zones. Our interviews and FGDs showed that FMU Manubar and FMU Kelinjau have the potential to successfully adopt this co-management model. Near the administrative area of the FMU Kelinjau, there are ecosystems for orangutans within plantation concessions. Several plantation companies around FMU Manubar have also pledged their commitments on good management of HCV areas within their concessions, as obliged by the provincial government.

### 4.3 Scenario C - Technical Assistance by An FMU for Conserving Forested APL

Scenario C exhibits the least FMU intervention on forested APL zones. As outlined in the previous section, it is proposed under the limited supporting factors for integrating forested APL into FMU operations. While limited FMU capabilities and external support are important considerations, our interviews and FGDs underlined the crucial factors of potential tenurial conflicts specifically in forested APL areas with diverse tenure arrangements, including customary land rights and practices. Under this scenario, FMUs may only offer technical assistance for local communities in obtaining formal recognition of their land rights while promoting ecologically-sound land practices to the communities. As stipulated under MoEF Regulation No. 17/2020, forests located both in forest zones and APL areas can be proposed as customary forests if formally recognized by the local governments. Between 2016 and 2018, customary forest rights have been granted to indigenous peoples with a total area of 17.243 hectares, 63% of which is in APL areas (Ramdhaniaty, 2019). Recognition of customary forests is crucial since they are vulnerable to being converted to oil palm plantations through the land use rights scheme.

We specifically identified FMU Kotawaringin Barat as the potential successful adopter of the scenario. From our interviews and FGDs, the FMU was said to have practiced community empowerment and collaborated with local nongovernmental organizations (NGOs) to facilitate recognition of customary land rights. Its activities were also supported by the provincial government (Central Kalimantan), which has issued Governor Regulation No. 13/2009 j.o. No. 4/2012 regulating formalization of customary rights, principally the rights of Dayak indigenous people. The FMU's strategic management has also outlined activities relating inventory and recognition of customary rights and institutions.

## 5. CONCLUSIONS

Forests are important resources, providing humans with livelihood and various services. They are also a necessary element, helping in maintaining the balance of the Earth's systems. Forests are also important in mitigating climate change. Amidst the rapid pace of deforestation and degradation, conservation of the forested ecosystem is more important than ever before. The MoEF Republic of Indonesia has recently promoted conservation of the vast amounts of forested ecosystems outside the forest zones (APL) by integrating their management into the FMUs' operations.

The efforts have nonetheless faced several governance challenges and obstacles. How land use is governed and how forest use has changed is affected by the mode of governance. Forested APL zones in Indonesia are characterized by co-existed tenure systems, practices and claims, both formal and informal. In many cases, they overlap and compete for recognition and legitimization. This might not be easy to be resolved by an institutionalized decision that this paper aims to explore. With these complexities, this paper limits the focus on the formal governance arrangements instead. Even so, the formal arrangements governing land in Indonesia are characterized by diverse utilization allocations and embrace numerous sectors and government institutions. APL is outside FMU's sectoral jurisdictional boundaries, thus integrating forested APL into its operations is not supported by the existing land governance arrangements. In this paper, we developed and proposed new governance innovations and managerial scenarios that allow fluid interplays among different tenure-utilization systems based on the integrated landscape concepts and intersectoral coordination principles.

More specifically, we developed three broad scenarios that potentially allow FMUs to manage and conserve forested APL zones, based on several factors: biophysical,

social demographic, and external environment. In developing the scenarios, we also involved multi-stakeholders to test their reliability and whether they reflect conditions at the site levels. From this process, we propose three (3) possible scenarios for integrating forested APL into FMU management: the handing over of a forested APL zone to an FMU, co-management of a forested APL zone with an FMU, and the providing of technical assistance by an FMU for conserving a forested APL zone. In this paper, we do not intend to offer prescriptive-generic scenarios that are readily operationalized at the ground. Our study is only a reflection of potential governance models based on investigation of facts and empirical evidence in the field. Nonetheless, the approach and processes by which the scenarios and models were developed can be adopted when the FMUs intend to develop more detailed scenarios that reflect the specific situation and conditions.

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