

Making the implementation of the Multi-Forestry Business (MUK) policy work in Indonesia

Mangarah Silalahi¹, Dodik R. Nurrochmat², Rhett D. Harrison³, Irdika Mansur⁴, Thomas A. Walsh⁵

¹Doctoral Program of Forest Management Science, Faculty of Forestry and Environment, IPB University, Dramaga, Bogor, West Java, Indonesia

²Department of Forest Management, Faculty of Forestry and Environment, IPB University, Dramaga, Bogor, West Java, Indonesia

³CIFOR-ICRAF, Lusaka, Zambia

⁴Department of Silviculture, Faculty of Forestry and Environment, IPB University, Dramaga, Bogor, West Java, Indonesia

⁵Burung Indonesia, Komplek Barangan Siang Indah, Jalan Jatiluhur C8. No.9 B. Bogor, Indonesia

Abstract. Multi-forestry business (Multi Usaha Kehutanan. MUK) is Indonesia's new paradigm for forest management, focusing on maximizing forest values and ensuring a sustainable production forest. MUK policy is a response to addressing the failures of production forest management. Consequently, all forest companies, including Ecosystem Restoration Concessions (ERC), are required to adopt the MUK paradigm. Ten of 16 ERC licenses officially implemented the MUK framework in 2021 through their approved Ten-Year Plan, designed to optimize revenues from valued commodities and potential forest utilizations. This paper examines the concept, opportunities, policy gaps, and challenges associated with implementing MUK in ERCs. The study employs a qualitative, ex-post, and inductive analysis approach combining quantitative E-survey and statistical analysis. The research reveals that MUK presents an opportunity for forest companies to develop their businesses based on the most profitable commodities and one-bundle rights, enhance forest productivity, protect biodiversity, resolve conflicts, and improve community livelihoods. We propose several measures to support the MUK policy and its challenges, such as creating a specific MUK policy tailored to the needs of ERCs, ensuring clear and clean concession areas, streamlining regulations, fostering a shift in the conduct of the bureaucracy, and reducing administrative burdens.

1 Introduction

Since the 1970s, forest management based on single timber has failed to sustain existing forests due to high exploitation, neglect of sustainability aspects, and decreased state revenue [1]. The wood-based forest management paradigm overlooks non-timber and ecosystem service businesses, which have a potential of 95%. It is estimated that the actual value of Indonesian wood-based forests is only IDR 400/m²/year [2]. This value would double if the

agroforestry or multi-business concept were implemented, reaching IDR 48,000/m²/year. If the Production Forest (HP) area is 43 million hectares (ha), the MUK' potential value amounts to IDR 20,640 trillion [2]. Timber-based management has also failed to alleviate poverty and has caused many conflicts [3]. This is evidenced by the decline of the total forest area in Indonesia from 147.02 million ha in the 1980s to 120.5 million ha in 2020 [4]. Of these, only 86.9 million hectares of forest area have forest cover [5]. The highest deforestation occurred in the two decades from 2001 to 2020, totaling 27.7 million ha [6], with open access covering an area of 38.8 million ha [4]. Ironically, this vast and rich forest area cannot provide welfare for the community. This is due to the land and forest tenure inequality that causes conflicts and prolonged poverty. This inequality has led to thousands of forests and land tenure conflicts.

In addition, bureaucratic behaviour, corruption, high-cost administrative/bureaucratic systems, too many regulations, weak law enforcement, unclear forest tenure systems, and community rights exacerbate forest damage, especially in Production Forests (HP), and result in economic, social, and ecological losses [3,7]. Trends in production forest management include developing monoculture plantations and converting forests to other use areas [7]. Given the issues and complexities, single-timber-based production forest management has proven unsuccessful, necessitating the development of new forest management strategies.

With high levels of forest destruction and low state revenues since the early 2000s, an ERC initiative proposed by the Birdlife Consortium was welcomed by the Ministry of Forestry (MoF), which issued the Ecosystem Restoration Concession (ERC) policy (IUPHHK-RE, now PBPH-RE) for forest restoration and enhancing forest productivity. The initiative recognized that forests are complex, rich in resources, and subject to various interests; therefore, forest management should adopt an adaptive and multi-functional approach. This aligns with Maryudi and Sahide's assertion that diverse methods cultivate, manage, and protect forests and other land uses [8]. Complex factors and community groups' interests, spanning social, economic, and political dimensions, influence the formulation of forest management policies.

Many parties have criticized timber-based forest management for its inability to sustain forests and contribute significantly to state revenues. The Minister of Finance, Sri Mulyani, acknowledged this in her opening remarks at the VII Forestry Congress in Jakarta on 28 June 2022 when she stated that the contribution to state revenue from the forestry sector was "nothing." Indeed, the forestry sector only contributes 0.06% of the GDP, even though forests make up around 66% of Indonesia's total land area [7].

In response to the escalating issues of deforestation, production decline, and biodiversity loss in production forests, the Ministry of Forestry (MoF) granted Ecosystem Restoration Concession (ERC) licenses (IUPHHK-RE) pursuant to Regulation No. 159/2004, which seeks to restore ecosystems in Production Forests. As a result, Production Forests can be managed not only for timber but also for forest restoration, biodiversity conservation, forest productivity, and multi-functionality promotion.

In 2021, MUK was established as a policy with the publication of Government Regulation (GR)/PP No. 23/2021 concerning forestry management, in accordance with the Job Creation Law No. 11/2020 and MoEF Regulation No. 8/2021 on forest planning and management. The Ministry of Forestry sought to enhance forest productivity while preserving biodiversity and advancing community welfare with these initiatives. After approximately four years of implementation, we assessed the efficacy of the policy in facilitating the attainment of its objectives, specifically sustainable forest production management.

This study aimed to assess the idea, opportunities, and policy deficiencies of the new policy, MUK, as well as the obstacles associated with its implementation in ERCs (*Perizinan Berusaha Pemanfaatan Hutan-Restorasi Ekosistem /PBPH-RE*). The study offers

recommendations to the MoF to ensure the effective and optimal implementation of the MUK strategy.

The policy review encompassed Omni Bus Law No. 11/2020 regarding Job Creation, in conjunction with Law No. 6 of 2023 pertaining to the enactment of Government Replacement Law No. 2/2022 on Job Creation, Government Regulation (GR)/PP No. 23/2021 on forestry administration and its ancillary policies, MoEF Regulation No. 8/2021 on forest arrangement and management plans, and DG PHPL Decree No. P.1/PHL/SET/KUM1/5/2021 outlining the procedures for application, assignment, and implementation of the MUK model for timber forest utilization license holders in production forests. We also focused on the ERC holders that have implemented the MUK approach, with specific reference to PT Restorasi Ekosistem Indonesia (REKI), which adopted it in 2021.

2 Method

The research was carried out over a period of seven months, from September 2023 to March 2024, based on the stages illustrated in Figure 1, which include content analysis, ex post analysis, descriptive analysis, and statistical analysis.

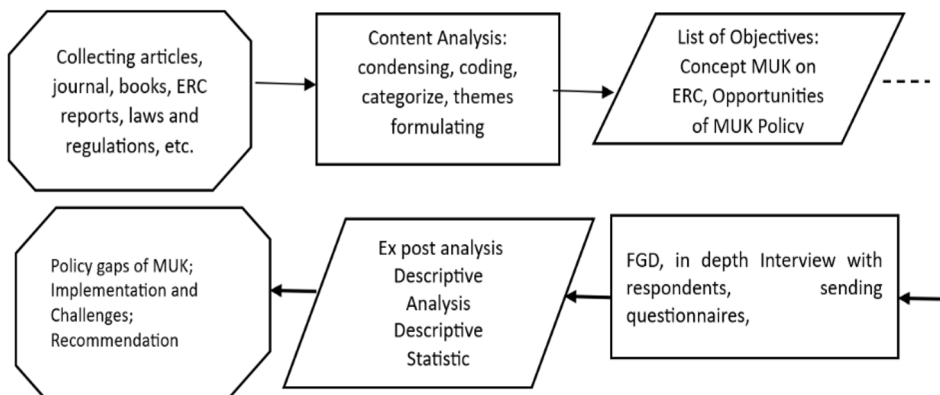


Fig.1. The stages of research and analysis used

The research stages involved initially gathering forestry policies and regulations, followed by tracing information and articles about MUK in newspapers, magazines, and books, and subsequently assessing the data using content analysis. The MUK discourses underwent analysis and summarization to pinpoint themes and issues [9]. This analysis aimed to identify themes and concerns related to the MUK policy and then explore how it was implemented in the context of ERC operations. Additionally, we conducted interviews, Focus Group Discussions (FGD), and surveys with 14 respondents from ERC companies to gather information regarding the potential and problems in implementing MUK policies in ERCs. Based on these data results, we conducted an ex-post, descriptive analysis [10] and a descriptive statistic. Finally, we formulated conclusions and recommendations for improving MUK policies for the MoF.

2.1 Data collection

The data was gathered from September 2023 to December 2023 and was comprised of both secondary and primary sources. Secondary data was obtained from regulations pertaining to MUK and production forest management, as well as from books, news articles, scientific

journal publications related to MUK and the research topic, reports from PT REKI, and other reports from ERC companies. Primary data were collected through in-depth interviews, focus group discussions, and surveys. An in-depth interview was conducted with 15 key informants, including staff from the Ministry of Forestry and Provincial Forestry Agency (6), academicians (2), company representatives (5), a forest association member (1), and NGO representatives (2). In September 2023, we conducted Focus Group Discussions (FGDs) with 12 participants, including 10 representatives from the ERC Company and 2 from an NGO. Furthermore, a survey was conducted with 14 respondents from ERC companies using an electronic form (Google Form) to gather information regarding their understanding of the MUK Policy, its implementation status, challenges faced in its implementation, and their suggestions for strengthening the MUK policy. The survey respondents included individuals from various company levels: 1 advisor, 2 directors, 6 managers, 4 coordinators, and 1 staff member.

2.2 Data analysis

As shown in Figure 1 above, content analysis starts with collecting and studying material from news reports, journals, rules, and regulations that form the background to the multi-forestry business discourse. News was sourced from six mainstream national newspapers and magazines accessed online, namely Kompas, Mongabay, Jakarta Post, Detik, Forest Digest, and Media Indonesia, during 2022-2023. Meanwhile, journals, rules, and regulations are investigations of news content, so they are not tied to the year of publication. We then tabulate news, journals, rules, and regulations through stages of condensation, coding, categorization, and theme formulation [9]. We applied the ex-post analysis and descriptive analysis [10] to the data collected from the in-depth interviews and FGDs. The descriptive statistical analysis was employed to scrutinize the data obtained from the questionnaires.

3 Results and discussion

3.1 The current understanding of MUK in ERCs?

According to Article 1, paragraph 28 of MoEF (now MoF) Regulation No. 8/2021, Multi-forestry Business refers to the implementation of various forestry enterprises, encompassing the utilization of forest areas, timber and non-timber forest products, and/or environmental services, aimed at maximizing the production value of forest areas in Protected Forests and Production Forests [11]. The concept of MUK has sparked debate regarding Production Forest management in Indonesia. Diverse stakeholders anticipate significant outcomes from this policy, which is projected to enhance forest productivity, foster enterprises with varied commodity potentials, contribute to conflict resolution, and preserve biodiversity in Production Forest areas.

A total of 404 condensations were produced from news sources, interviews, journal articles, and rules and regulations. In the context of regulations, there were 18 condensations identified in GR No. 23/2021 (6) and MoEF regulation No. 8/2021 (12). The discourse encompasses 36 issues categorized into 9 groups (Table 1 below).

Table 1. List of categories and issues

No	Category	Issue/coding
1.	Performances & Policy	Opportunities, Chance, Efficiency, Business Certainty, Barriers,
2.	Governance	Enforcement, Accountable, Transparent, Incentive, Consensus-oriented,
3.	Forest Land Use	Land use, Suitable,
4.	Productivity And Type of Business	Non-Timber Forest Product, Timber, Ecosystem Services, Forest Utilization.
5.	Economic Impact	Investment, State Revenue, Market, GDP, Feasibility
6.	Social Impact	Food, Community, Employment, Livelihood Improvement, Conflict Resolution, Participatory Manner.
7.	Environmental Concern	Forest Cover, Degradation, Deforestation, Restoration
8.	Conservation	Biodiversity, Soil & Water Conservation
9.	Ecosystem Services	Ecotourism, Carbon, Payment Ecosystem Services

The MUK concept is already established in the ERC, as outlined in GR No. 6/2007 article 33. This article specifies that IUPHHK-RE/ERC holders are permitted to engage in businesses involving Non-Timber Forest Products (NTFP), Ecosystem Services (ES), and Forest Utilization Area (FAU) prior to achieving biological balance, and Timber Forest Products (TFP) after achieving biological balance. Nevertheless, the three forestry businesses remain ambiguous due to the various interpretations arising from Article 36, paragraph 3 of GR No.6/2007, which states that IUPHHK-RE “*dapat diberikan*” (often translated as ‘can’) cultivate NTFPs, ES, and FAU prior to achieving ecosystem balance. The term “*dapat diberikan*” has two interpretations: either these three businesses were granted automatically, or they were required to reapply for permits. Once the ecosystem balance is attained, timber harvesting can commence in the ERC.

Following the enactment of Law No. 11/2020 concerning Job Creation, accompanied by GR.No.23/2021 concerning forestry arrangement and MoEF Regulation No.8/2021, all forestry companies were required to develop a minimum of two types of business. The MUK calls for the implementation of several forestry businesses in the form of utilization of forest areas, wood, and non-timber forest products, and/or environmental services to optimize the production value of forest areas in Protected Forests and Production Forests [11] (Article 1 paragraph 28: KLHK Regulation N0 8/2021). The MUK policy encourages: "Optimizing the use of space and land through two or more business activities and land-based commodities so that an increase in forest value can be achieved, which can be monetized and the benefits felt by all parties [7].

The umbrella policy (UUCK 11/2020) already incorporates the MUK concept [12]. The PBPH license holder is given flexibility and opportunities for various businesses contingent upon the forest inventory results, forest conditions, and attributes of its primary business. The survey indicates that all respondents (100%) stated that MUK offers solutions for increasing forest value and productivity, preserving biodiversity, and mitigating forest conflicts. For instance, PBPH-RE PT. Rimba Raya Conservation (PT.RRC) presents promising opportunities for carbon initiatives and biodiversity offsets, leading MUK to concentrate on these two business areas. PT. REKI seeks to protect forests and biodiversity, specifically the Sumatran elephant and tiger, by creating non-timber forest products (NTFP) and a planned carbon business [13]. In another example, PBPH-HA/logging concessions are encouraged to develop NTFP businesses or ES such as carbon projects alongside timber logging to diversify and potentially increase the company's revenue. To improve PBPH-HT's income, they may

produce timber, bioenergy, cultivate crops, engage in cattle fattening, or implement intercropping.

3.2 Opportunities arising from MUK policy

The definition and enforcement of the MUK are articulated in the overarching rules (Omnibus Law 11/2020, GR No. 23/2021, and MoEF Regulation No. 8/2021). The umbrella policy offers legal assurance for PBPH license holders to cultivate diverse enterprises centered on the most lucrative commodity.

The MUK policy is integral to the streamlining of permissions and is integrated with the management permit. Upon acquiring a PBPH permit, all forestry business permissions are consolidated as a “bundle of rights”. The development of a production facility requires approval from the Director General of Sustainable Forest Management, MoF as it does not significantly affect the environment. The filing of a company proposal and annual plan via Online Single filing (OSS) minimizes in-person interactions and mitigates excessive transaction expenses. The permission duration is 90 years, which constitutes the maximum timeframe for operating the business.

With this MUK as a new paradigm, forestry companies with a core business must develop other businesses based on the potential of their respective areas. The MUK policy ensures a flexible commodity as long as we can justify that the combination of commodity types meets the definition of a forest. Some NTFP business products are agarwood, resin, rubber, coffee, chocolate, and essential oil. Ecosystem Services business models are ecotourism and carbon capture, and forest utilization business are agroforestry and silvopastura. Some commodities that are prohibited from being implemented in forest areas are allowed, such as coffee, cacao, paddy rice, potatoes, vanilla, patchouli, cajuput, etc. PT REKI has obtained special dispensation from the MoF to plant vanilla in Hutan Harapan [14].

In addition, under the MUK policy, forest companies must manage all of their concession areas, including blocking, based on an annual plan similar to HPH. However, like ERC, the company also manages its concession area to mitigate threats (such as forest fires, encroachment, and illegal logging) and develop its business. Furthermore, MUK’s policy allows forest companies to generate additional benefits from carbon credits or biodiversity offsets. If carbon and biodiversity are the most profitable, forest companies should focus on maintaining forests and biodiversity. Thus, MUK policy encourages the management of all concession areas to protect valuable forests and biodiversity.

Finally, MUK policy allows for forest companies to develop forest agreements through social forestry with the community and as part of conflict resolution. MUK is also a win-win solution to resolve the economic and ecological function of oil palm that has already been planted in the ERC concessions. Enriching the oil palm with dog fruit (*Pithecellobium jiringa*) in Kunangan Jaya Area of PT REKI as part of a win-win solution between economy and ecology is giving higher value of economic, socio, and ecological benefits. In conclusion, the MUK concept and policy is a new paradigm of production forest management, encouraging more than one business based on the respective areas and high-value commodity, managing the forest of the whole concession instead of only the timber blocks, optimizing the forest and land value in the landscape, protecting biodiversity, and reducing

forest conflicts as well as improving livelihood. MUK can be concluded as a new approach to improve the productive socio-ecological value of forest at the landscape (Figure 2).

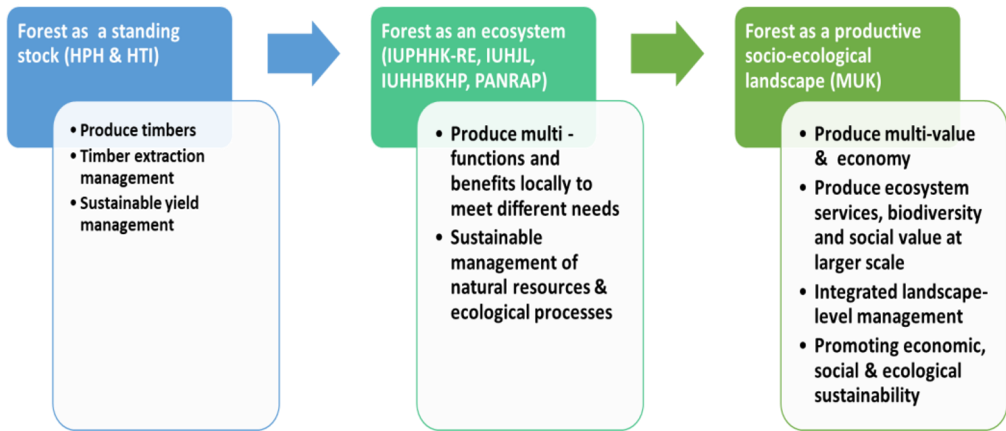


Fig.2. Changing paradigm of the forest production management in Indonesia: From timber-based management to productive socio-ecological landscape management (MUK).

3.3 MUK's policy gaps

There are several MUK policy gaps identified: a) absence of Ecosystem Restoration terminology, b) lack of involvement in ERC and adoption of restoration in the policy dialogues, c) technical guidance to ensure business certainty is not addressing, d) existing MUK technical regulations have not yet adopted businesses outside of timber, e) some technical guidance is still rigid, bureaucratic, and allows no room for improvement, f) absence of incentives for ERCs while the activities can support National Determined Contribution (NDC), protect biodiversity and contribute to FOLU NET Sink 2030, and g). lack of policy consistency/harmony.

The term “*Restorasi Ekosistem* or Ecosystem Restoration” in UUCK No.11/2020 and PP. 23/2021 and MoEF Regulation No. 8/ 2021 do not exist, even though ERC concept and policies can support multi-functional forests, contribute to the future of natural production forests, the achievement of NDC, and FOLU Net Sink 2030. This shows that the Minister-Siti Nurbaya did not support ERCs and restoration. It can be seen from the evidence that the deletion of *Restorasi Ekosistem* in government policy, and there have been no further ERC licenses issued since 2016.

The MUK policy formulation process above seems rushed and less accommodating towards the ERC companies' interests. This can be seen from the fact that although the survey results show that 63.6% of ERC companies involved in policy discussions and included 3 ERC locations visited by experts to be pilots for MUK policy development, but the interest of the ERC company is not accommodated (Figure 3). Policy formulation was only to stimulate production and was dominated by the thoughts of developmentalism/timber business actors, while conservationists and eco-policers are less accommodated.

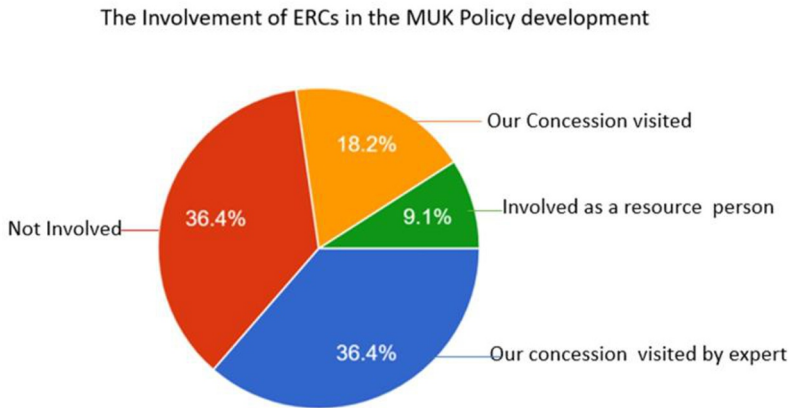


Fig. 3. Involvement of ERC companies in the MUK policy process

MUK policies do not address and resolve “unclear and unclear” forest areas. On average, $\pm 60\%$ of the PBPH License area is in conflict and encroached. The PBPH should resolve its problems without support from the MoF. In addition, the MUK concept outlined in the umbrella policy was not immediately accommodated in the technical regulations. In the business planning of NTFPs, ES, and FAU, the main obstacle are that the technical regulations are still geared toward timber-based forestry, and the policies are still wood-oriented because, from planning to an evaluation of the schemes and formulas prepared, it is still wood-based, and other businesses are not yet available [11].

Besides, existing technical guidelines of MUK from planning to evaluation are still too rigid, highly technical-administrative, and have not (yet) opened up room for improvement of business actors. The return of conditions and administration creates high costs, such as *Ganis* (Technical Personnel) requirements, *Ganis Canhut*, *Ganis Binhut*, *Ganis Keling*, *Ganis Social*, *Ganis Sap*, etc. The certificate must be renewed every five years, with an annual refresher training required to maintain compliance. It was quite strange because the technical staff with graduate and master's degrees in forestry were defeated by the GANIS, who had only been trained for two weeks, even though they had graduated from high school. Then, reporting must be done monthly, which takes time and energy.

In the ERC policy, efforts to protect biodiversity in restoration are regulated clearly and firmly and are, therefore, binding. Meanwhile, according to the omnibus law and MUK Policy and its derivatives, PBPH has no obligation to protect endangered wild animals in PBPH concession areas. Even though production forests have been overlogged, they still have high biodiversity [15]. The direct impact will be further loss of biodiversity in production forests. Forest restoration efforts before UUCK were the main activities of ERC apart from business development and improving community welfare. With the Omnibus Law, MUK policy, and its derivative products, forest restoration is part of the ES business. For PBPH-RE, ecosystem restoration should be integrated with the businesses being developed and not limited to ES business—for example, restoration of open areas for developing fruit agroforestry businesses.

Transformation of bureaucratic behavior is in place, especially in the MoEF, but is not yet optimal at the provincial level. The EIA process for PBPH companies wishing to add businesses with environmental impacts takes an average of 2 years and raises high transaction

costs. At the provincial level, getting a recommendation to propose a PBPH license is very slow and transactional. These matters will slow down the development of MUK in PBPH.

From existing regulations, aspects of sanctions, from administrative sanctions to revocation of PBPH permits, are regulated in full. However, there are no incentives specifically for PBPH-RE, even though PBPH-RE is still investing a lot of money and supporting the government's work in protecting forests to achieve the Folu Net Sink 2030. Payment of obligations ranging from PBPH-RE license fee and tariff, land and building tax, non-tax state revenue (PNBP), and others are the same as other PBPHs. In addition, there is a lack of consistency and harmony between MUK policies and PBPH-RE performance objectives. With the Omnibus law and MUK policy, national strategic projects such as mines, mining roads, roads, and food estates can trump the interests of PBPH-RE even if the activities are contrary to the objectives of PBPH-RE.

3.4 Opportunities and challenges for implementing MUK policy

Currently, there are 16 ERC permits held by 12 companies with a total area of ± 623.000 ha with different types of forest. Harrison reported that these ERC companies have different business types [13] which are Wild NTFP (8 companies), carbon (6), ecotourism (5), ecosystem services (3), plantation NTFP (2), NTFP processing (2), timber (2), fishing (1). Only Restoration Ecosystem Riau (RER) business and PT.KEN are supported by its parent company's pulp and paper (APP and APRIL). Therefore, ERC companies have previously implemented MUK and pioneered the MUK policy. This is supported by the survey results that 50% of ERC companies until now are still running a similar business (Figure 4).

Is there any difference in the current business from previously?

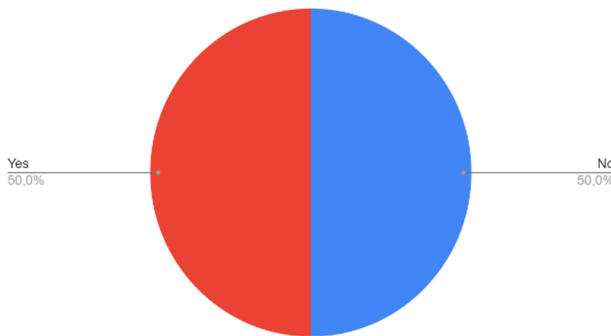


Fig. 4. The percentage of ERC companies that are still running the same business

Their business models have also been influenced by their shareholders' mission. For example, PT REKI is supported by the Birdlife consortium, which has the long-term goal of protecting the remaining rainforest for birds and biodiversity. PT RHOI conserves the habitat of the Orangutan, and PT ABT protects the Sumatran Elephant. In contrast, PT RMU and RRC focus on carbon business, while they are protecting Orang Utan. The long-term goal of RER Group and PT KEN are to protect the environment in support of their core pulp and paper business.

Ten of 16 ERC companies have obtained MUK-based RKU. Out of 119 PBPH licenses and the remaining have not been proposed yet (Figure 5). PT REKI, which has two licenses, was the first to obtain an MUK-based RKU. There are several additional PT REKI businesses

in the new MUK-based RKU, namely Vanilla agroforestry, Patchouli agroforestry, and carbon. Thus, PT REKI's experience in implementing MUK is an important lesson learned.

ERC Companies who obtained an MUK-based RKU?

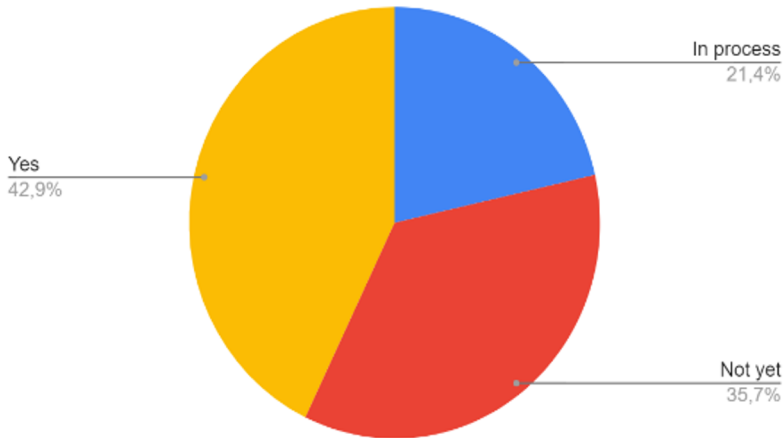


Fig. 5. ERC Companies that obtained an MUK-Based RKU

The MUK have several opportunities, which are: but not limited to (a) ensure various business in the forest area as the MUK stated in the umbrella policy, (b) opens to develop multi-forestry business for potential commodities and areas, (c) opportunity to manage and develop business based on different land uses, (d) mandate to the MoF to develop information system to facilitate business process. (e) simplification of the process and license for establishing a product processing, making self-evaluation criteria for performance, and (f) plants of PBPH can be a bank collateral.

It opens various forestry business opportunities for PBPH based on existing potential and forest cover conditions [7]. Whereas in the previous policy, only timber business was allowed for HPH/HTI, now limited forest commodities-based business can be developed by ERCs. The change in business type from timber-based forest management to MUK-based forest management can be seen in Figure 3. MUK policy also provides the opportunity to manage the different land uses in the landscape to optimize productivity, as shown in Figure 6. For example, in degraded areas, forest companies can plant combined cash, medium, and long-term crops. In the encroached area, a company can develop community business partnerships as part of a win-win solution. The forested areas with high conservation value and carbon stocks can be protected and developed into a carbon business. MUK is one of the promising solutions to increasing the economic value of forests, saving biodiversity, and reducing conflict [7, 10, 13].

The Omnibus law mandated the MoF and the Director General of SFM to establish information systems such as the Forest Product Administration Information System (SIPHH), Geospatial Information System (SIGAP), SIPUH, and SICAKAP. The Annual Year Plan publication also uses an information system and self-approval. All of these systems are an attempt to speed up the business process, reduce face-to-face interactions, simplify complicated processes, and cut costly bureaucracy.

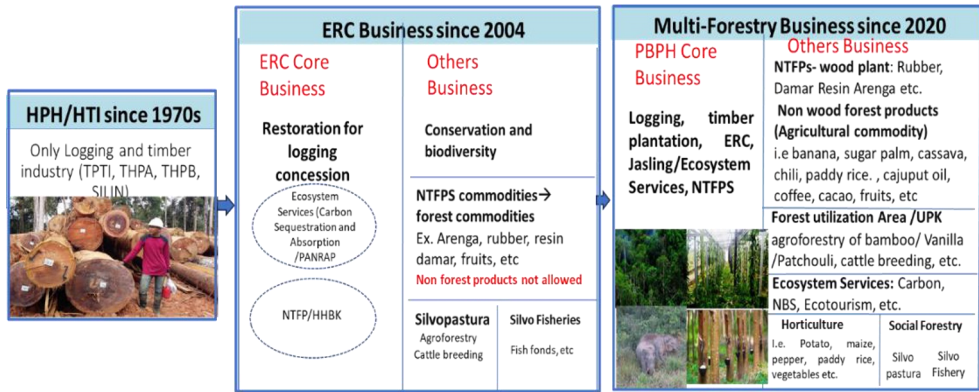


Fig. 6. The difference in business types between HPH/HTI, ERC, and PBPH-MUK, as well as the business opportunity of PBPH MUK in the forestry sector

Although PBPH-REs have adopted some business types before the MUK Policy was issued, they should revise their RKU to adopt MUK since 2021. If additional business will not impact the natural landscape significantly, they do not need to have an environmental impact assessment (EIA/AMDAL; Article 136-137, PP 23/2021). This policy supports the adoption process of MUK-based RKU faster and easier for PBPH-RE to propose additional businesses. Because obtaining an AMDAL at Ministry of Environment takes an average of two years.

However, challenges do exist in the implementation of MUK policy within PBPH-REs, particularly in PT. REKI. Five ERC companies identified that they have land conflict and boundary issues. Approximately 30–40% of ERC concessions encounter land and forest conflicts, along with other illegal activities. As a result, a good portion of resources and funding is allocated to conflict resolution and boundary demarcation. For example, PT REKI allocates nearly 20% of its budget to address these issues that could be used on restoration or business development activities [3]. According to the MUK policy, it is the responsibility of concessionaires to resolve land and forest conflicts as well as boundary disputes. Resolving such conflicts including boundary conflict cannot be done by ERC holders alone, but the MoF must be involved. Similar to individuals who lease a retail space for selling goods, any issues regarding ownership and claims of the property should be addressed by the property owner rather than the tenant.

Secondly, to date, there are no instances of a successful ERC company producing NTFPs that can cover its operational expenses. Identifying high-value commodities is challenging. Two commodities presently hold significant value: vanilla and carbon. Nonetheless, vanilla cultivation in the PT REKI and PT Alam Bukit Tigapuluh (ABT, another ERC company) necessitates substantial capital inputs and skilled human resources. The carbon sector holds significant value and represents a promising opportunity for companies. PT RMU and PT RRC's entry into the international market was suspended by the Minister of Forestry, as carbon sales internationally could not be utilized for domestic emission reductions. The domestic carbon trading market has been initiated; nonetheless, it remains sluggish and unappealing to ERC holders in Indonesia.

Some other NTFP commodities developed by ERC companies, such as honey, resin, rubber, and freshwater fish, have not been able to produce large quantities and are widely cultivated. NTFP economic activities, especially with the community, are not economically important but are more of an effort to empower the community as a part of community development.

In addition, survey results identified challenges in implementing the MUK in PBPH-RE and especially in PT REKI, including business certainty, a viable business plan, product identification and product processing, qualified human resources, and marketing. There are still 6 ERC licenses that are working on their business plan or obtaining MUK-based RKU. This is due to the administrative process and the difficulty in obtaining high-value commodity types. Furthermore, with the separation Ministry of Forestry and the Environment, the MUK should have an Environmental Impact Assessment (EIA) approval from the Ministry of Environment, which takes so long, and all commodities besides timber are to be agricultural products. Thus, all of the non-tax revenue contributions will not account for forest areas.

There are no incentives for PBPH-RE, and it is difficult to obtain soft loans from banks or the government for multi-business development. Most of the 16 ERC licenses still depend on donors or parent companies. For PT REKI, because it is based on ecosystem restoration, the choice of business type and investment sources is minimal due to the criteria of shareholders. In business development, PT REKI cannot collaborate with companies that destroy forests or violate human rights. According to interviews and surveys, the majority of ERC companies encounter challenges in sourcing high-value commodities, processing and packaging products, and identifying buyers.

4 Conclusion

MUK represents an innovative approach to the management of production and protected forests, aimed at optimizing forest benefits according to land uses and enhancing the value of forest products [7], while safeguarding biodiversity and improving livelihoods at a landscape level. The MUK policy facilitates the administration of forest regions for economic, social, and ecological objectives. Economically, forest companies have developed all forestry business types (timber, NTFP, environmental services, and area utilization). Ecologically, forests can be managed for emission reductions and biodiversity protection, as well as generating revenues through the carbon markets and biodiversity offsets. Socially, degraded forests can be enriched with various commodities to develop community business partnerships as part of conflict resolution initiatives. These initiatives have already been granted and implemented by IUPHHK-RE, albeit with some restrictions. Therefore, IUPHHK-RE serves as a transitional policy under MUK. MUK can be called a productive socio-ecological landscape approach or a “Green Policy Paradigm.

The MUK policy presents several opportunities, including: the provision for diverse business development in forest areas as stated in the umbrella policy; the acquisition of comprehensive rights by PBPH for all business types; the potential for PBPH to cultivate enterprises based on valued and adaptable commodities; the management of forests by PBPH through a land use and landscape approach rather than a blocking method; the availability of an information system to facilitate multi-business processes, albeit requiring enhancement; the simplification of processes and licenses for self-approval of annual plans and product processing establishment; and the allowance by MoF for PBPH license holders to establish performance criteria for corporate evaluation.

Nevertheless, the MUK policy exhibits several deficiencies and obstacles. The MUK policy omits the terms ecosystem restoration, pro-production and is weak from both ecological and social viewpoints, failing to offer legal certainty for businesses, particularly in the resolution of forest and boundary disputes. Furthermore, the MUK's technical regulations currently fail to address the planning of enterprises beyond the timber sector; many technical regulations remain inflexible and bureaucratic, without opportunities for improvement, and the absence of an incentive framework for PBPH-RE.

Given the challenges and obstacles with MUK implementation, we suggest reformulating government regulation on MUK, creating a specific MUK technical regulation

for PBPH-RE, having the government help resolve conflicts and set clear boundaries, encouraging more carbon businesses, and creating technical policies that include various industries beyond just timber. Simplify technical regulations and provide incentive schemes for PBPH, particularly PBPH-RE, as it aids the government in attaining emission reduction targets and biodiversity conservation while ensuring policy consistency and designating PBPH-RE as a national priority program. Finally, optimizing administration, expediting the AMDAL process, altering bureaucratic conduct, and formulating rules that encourage PBPH-RE to establish new enterprises are imperative.

References

1. J.T. Erbaugh, D.R. Nurrochmat, Paradigm shift and business as usual through policy layering: Forest-related policy change in Indonesia (1999-2016). *Land use policy*. **86**, 136-146 (2019)
2. D. R. Nurrochmat, It's time for Multi-forestry Business in Production Forest. *Forest Diggest*, April 2020. (<https://www.forestdiggest.com/detail/1514/politik-multiusaha-kehutanan>)
3. H. Kartodiharjo, I. Heryansyah, M. Silalahi, K. Zaini, A. Ayat, A.B. Utomo, Asmui, Andiansyah, Y. Cahyadin, A.S.Putri, A. Tampubolon. *Pengelolaan Usaha Pemanfaatan Restorasi Ekosistem: Kondisi Terkini, Tantangan, Kesempatan dan Arah kebijakan/Business Management of Ecosystem restoration Concession: current condition, challenges and opportunities and policy direction*, (Burung Indonesia, unpublished, Bogor 2019).
4. KLHK--Kementerian Lingkungan Hidup dan Kehutanan. *State of Forest (SOFO) 2020*. (2020). <http://ppid.menlhk.go.id>
5. P.D. Susetyo, Berapa Luas Hutan Indonesia yang Benar?/ What is the correct size of Indonesia's forests?, *Forest Diggest*, Edition *Kabar Terbaru* 06 August 2022 <https://www.forestdiggest.com/detail/1905/lebar-hutan-indonesia>.
6. V. B. Kusnandar, Indonesia Lost 27.7 million Ha of Forest Cover in 2 Decades (2021). <https://databoks.katadata.co.id/lingkungan/statistik/fd4b9a32ddadf78/indonesia-kehilangan-277-juta-hektare-tutupan-pohon-dalam-2-dekade>.
7. D. R. Nurrochmat, B. Hendroyono, Suryanto. *Multiusaha Kehutanan: Konsep dan Implementasi Bisnis Kehutanan Berkelanjutan (Multi-forestry Business: Concept and Implementation of Sustainable Business Forestry* (Bogor. IPB Press, 2021)
8. A. Maryudi, M.A.K. Sahide. Research Trends: Power analyses in polycentric and multi-level forest governance, *For. Pol. Econ.* **81**, 65-68 (2017). <https://doi.org/10.1016/j.forpol.2017.05.003>
9. C. Erlingsson, P. Brysiewicz, A hands-on guide to doing content analysis. *Afri. J. Emerg. Med.* **7**, 3. (2017). doi: 10.1016/j.afjem.2017.08.001.
10. D.R. Nurrochmat, D. Darusman, M. Ekayani. *Kebijakan Pembangunan Kehutanan dan Lingkungan (Forest and Environment Development Policy)*, (IPB Press, Bogor, 2016)
11. KLHK—Kementerian Lingkungan Hidup dan Kehutanan (Ministry of Environment and Forestry/MoF). *MOF regulation No.8 tahun 2021 on Forest Administration and Preparation of Forest Management Plans, and Forest Utilization in Protected and Production Forests* (2021)
12. *Undang-Undang Cipta Kerja/Omnibus law No.11/2020 Tentang Cipta Kerja/on Job Creation* (2020).
13. R. D. Harrison, T. Swinfield, A. Ayat, S. Dewi, M. Silalahi, I. Heriansyah. Restoration concessions: a second lease on life for beleaguered tropical forests. *Fron. Ecol. Envir.* (2020). <https://esajournals.onlinelibrary.wiley.com/doi/10.1002/fee.2265>.

14. PT. REKI—Perusahaan Terbatas Restorasi Ekosistem Indonesia. Rencana Kerja Usaha PT REKI Jambi 2020-2024/The Ten-Year Plan of PT REKI 2020-2024 (2021).
15. E. Meijaard, D. Sheil, R. Nasi, D.M. Augeri. Life After Logging: Reconciling Wildlife Conservation and Production Forestry in Indonesia Borneo (CIFOR, Bogor, 2005).