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Conflicts of Utilization and Sustainable Production Forest Management in Forest Management Unit of Meranti in South Sumatera

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Abstract

Utilization conflicts among users threatening the sustainability of forest management. This study is to determine the intensity of conflict and the sustainability of forest management in FMU Meranti by integrating the convergent parallel mixed method and Rapid Land Tenure Assessment. Data was collected through interviews with key informants, literatures, maps, documents, and histories studies; as well as focus groups discussions in eight villages around the FMU Meranti. The results showed that the people's bundle of right, the interaction and social capital, dispute against the coorporation's financial modal. Generally, the interaction and social capital elements are owned by the local community, while the financial modal is owned by the permit holder and the local elite. Based on the power analysis on each object, the power of both community and permit holders are equally strong. The conflict intensity is subdivided into three conflict categories, i.e.: open (31%), appear (44%), and latent conflicts (25%). The special area (wilayah tertentu) and open access area are highly prioritized, that need conflict resolution. The existence of the environmental damages, unclear ownership rights, lack of stakeholder supporting, and non-optimal institutional performance lead the sustainable forest management to bad category (40.6%).

Keywords: forest management unit, institutional, land claim, sustainable forest management, utilization conflicts

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Introduction

The expectation while establishing the forest management unit (FMU), based on Law Numbered 41/1999, was to improve the local community economy as well as to reduce the potential conflicts between communities, with their claimed lands and business owners and with their concession area (Kartodihardjo *et al.* 2011). Also, from social dimension perspective, there are problems since communities have been living there, and claiming that area as a customary forest. Negotiation to give the management rights to the community could be a better political decision to avoid the community conflicts (Scholtz 2006). The aforementioned claims are due to the lack of communities' role to govern and manage forest resources in the FMU Meranti (Karsudi *et. al.* 2010; Sylviani & Hakim 2014). This is due to no such clear definition of the unit level management within the law, so thus the current type of management is only from the government interpretation. Shultz & Dunbar (2012) and Julijati *et. al*. (2014) stated that the definition of managers should be clear and acceptable to all parties. Being based on the verdict of judicial review of the Law Numbered 41/1999, government is to govern (*bestuursdaad*) the issue related with the permission revocation (*vergunning*), license (*licentie*), and concession (*consessie*) (MK 2012; 2014). Thus, when the granted permission is resulting a conflict among the users, it is a form of policy failure (Ribot & Peluso 2003; Kartodihardjo 2008). We cannot deny that the forest management never involving communities from the right of forest concession (RoFC) to the industrial forest plantation (IFP) era. Local communities are not given a chance to decide the land users and their commodities as well as how the revenue sharing would be, which is the policy problem (Kartodihardjo 2007; 2013).

The dominant interests of the land owners and different view they use, causing rejection from other users or even government (Sudarmalik *et. al.* 2014). This condition incurring the conflict of interest to use the forest area (Hermosilla & Fay 2005; Gamin *et. al.* 2014; Fisher *et. al.*

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2017). Since the permission was granted, the government ignored the biophysical conditions that have been occupied due to the open access. The existence of the community access is also because of the lack of control and not disciplined forest service (Kartodihardjo 2008; Gamin *et. al.* 2014). This has made legal but non legitimated permittances (Sinabutar *et. al*. 2015). There are three categories of communities to use land within the forest area, as follows:1) indigenous people, 2) local migrants, e.g.: ex-employees and workers of the RoFC-era, and 3) trans and outside spontaneous migrants from other provinces. After the RoFC-era had ended, there were ex-employees and supporting workers became the new users of forest area and established rubber or oil palm plantations. During the IFP-era, various conditions of users resulting an overlap utilization, especially between companies and communities, that is causing land conflicts. The community refusal on concessions causes the conflict of forest utilization. The establishment of the FMU was initially expected to give a solution to govern assist with conflict resolutions between companies and communities, but it turned out to not optimally working. The FMU assessment of operation performance in 2015 showed that it is in adequate criteria because of the FMU supporting facilities, the rules, and also the budgets. Meanwhile, the supporting parties and institutional performance yet to be optimal and it still lacking in human resource capacity. That situation have been the reason why the investor, delay to utilize special areas of the FMU Meranti. This study aimed to find out the conflict intensity, as well as the sustainable forest management in the FMU Meranti.

Methods

This research used convergent parallel mixed method (CPMM). CPPM is a combination of quantitative and qualitative data to give comprehensive analysis (Creswell 2013). Data were collected through some focus group discussion (FGDs), involving 252 people from eight villages, and in-depth interviews by snowball sampling to 34 key informants (village leaders, Ministry of Environment and Forestry, District Forestry Service, Provincial Forestry Service, and managers of IFP). Perception data was utilized to assess forest sustainability on ecology, social, and economic dimensions (presented in percentage). Data collection included documents, histories, and land change maps.

This research used inductive analysis, which contains data interpretation (Marshall & Rossman 2006), and Rapid Land Tenure Assessment (RaTA) (Galudra *et. al.* 2010) to see overlapping land use. RaTA detects the position of users and history of land tenures. Identification result was expected to depict the cause of land overlapping, interest, and influence of all parties. An approach to conflict resolution analysis (Fisher *et. al.* 2001) and assessment of priorities to resolve conflicts in this research used categorical ratings referred from the Criteria and Indicators of Identification of Potential Conflict in Production Forest, regulated by the Directorate General Numbered P.5/2016 (PHPL 2016) as follows:

1 *Very high priority*, if the conflict is impacting the company's operational activities, damaging company's facilities, and meditations have not succeeded, or if the conflicts are damaging facilities and impacting employees.
2 *Priority*, if the impacts of conflicts are disrupting company's operational activities, damaging company's facilities, but the meditation is in process.
3 *Watchful*, if a party has protested and filed a claim for forest damages.
4 *Controlled*, if there is a conflict, and the conditions seem to overlap, but both parties have been able to resolve the problem. Assessment of conflict is shown in Table 1.

The assessment of sustainable forest management (SFM) production forest is a modified form of the Regulation of Directorate General of Sustainable Forest Management Numbered P.8/VI-BPPHH/2011 (PHPL 2011). Focus criteria and assessment indicators are production, social, and ecology dimension. The assessment of criteria and indicators are shown in Table 2.

Table 1 Assessment of priorities resolve conflicts

Criteria	%	Status
Very High	84–100	Very priority
High	68–83	Priority
Medium	52–67	*Watc hful*
Low	<52	*Controlled*

Source: Modified from Regulation Number 5/PHPL/2016 (PHPL 2016)

Results and Discussion

The conflict of utilization in forest area can be explained by describing the map of conflict, which is illustrated by defining:

1 the causes of conflicts or overlapping land use,
2 the interests of users and conflict objects
3 the typology of conflicts,
4 conflict intensities,
5 communal disputes,
6 assessment of conflict conditions (Fisher *et. al.* 2001; Furlong 2005; Gamin *et. al.* 2014).

Table 2 Criteria and indicator assessment of sustainable forest management

Aspect Assessment	Indicator (item)	Verifier (item)	Verifier assessment		
			bad	average	good
Eco logy	6	10	√	√	√
Social	5	12	√	√	√
Economic	6	8	√	√	√

Source: Modified from regulation Number P.8/VI-BPPHH/2011 (PHPL 2011)
assessment score: bad = 1 point, average = 2 point, and good = 3 point

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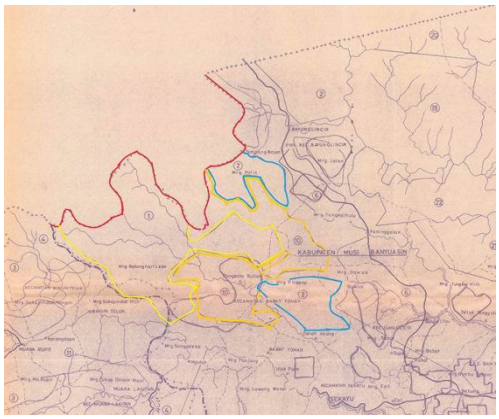
Overlapping utilization The results of the study discusses the forest changes from the RoFC era to the IFP era. Then, it is followed by the forest biophysical changes and the dynamics of land access, which are forest cover for plantations, settlements, and other usages. The land access dynamics are linked to both the expansion of the villages area and the area of newly forming villages. Mapping analysis between was done by comparing the current forest area and village administration with the RoFC-era to see the overlapping condition. The widened, overlapped area, which leads to the unclear boundaries has caused land claims among the users (Figure 1).

Total area for village administration is about 216,662 ha (2.164,64 km^2). The largest village is *Sako Suban* and the smallest is *Tampang Baru*. The average population growth is about 3.08 people km^{-2}(BPS MUBA 2013; 2014; 2015). If we compared the villages area to the community land ownership related to the overlapping area, the ideal land ownership is 1:66.33. It means, that a single household should have 66.33 ha land. While the fact based on the FGD results, there are only 57% of the households have about 1−1.5 ha, while only 1% of the total households have more than 10 ha. If we compared the land ownership to the income, there are 200 households (80% of the samples) that have monthly income below USD154. Furthermore, the households that earn monthly income more than USD385 are only 3 people (1%). The comparation between land ownership and household income are shown in Table 3 and Figure 2.

Based on the abovementioned explanation, 80% of the respondents are having low incomes, so there must be actors who have very large area. The results of in-depth interviews with community leaders in Talang Uluh Village revealed, that most large owners are from outside of the village, described as follows:

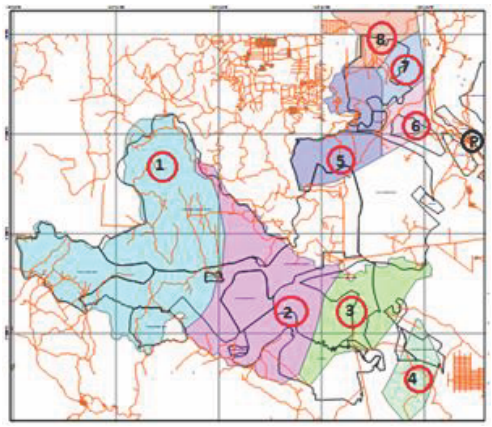
"The land here belongs to us all. The former head of Talang Uluh Village who lives in Palembang owns hundred hectares of rubber plantation area, and there are also police officials from Palembang, so thus many outside people (from Palembang) who owned the rubber plantation. I think the people who have money will be dominating the land"

HS (52) Village leader of Talang Uluh.



RoFC-era since 1969−1992/1998

PT Padeca (RoFC concession areas)
PT Wisma Lukita (RoFC concession areas)
PT Niti Remaja (RoFC concession areas)



Village development during 1825−2009 and IFP

Villages' number:
1. Sako Suban
2. Lubuk Bintialo
3. Pangkalan Bulian
4. Talang Uluh
5. Pagar Desa
6. Pangkalan Bayat
7. Bayat
8. Tampang Baru

Industrial forest plantation/IFP boundaries

Figure 1 Overlapping between concession and villages administration boundaries.

Table 3 Comparation between land ownership of household leader and plantation area

Villages	Forestry sector permits (hectare)	Rubber and oil palm plantation, settlement (hectare)	Household leader (person)	Ideal Ratio (household : hectare)
Sako Suban	57,596	18	298	1 : 193.28
Lubuk Bintialo	54,344	1,583	587	1 : 92.58
Pangkalan Bulian	47,481	7,940	540	1 : 87.93
Talang Uluh	4,494	5,600	110	1 : 40.85
Pagar Desa	8,050	1,750	239	1 : 33.68
Pangkalan Bayat	8,481	3,019	228	1 : 37.20
Bayat Ilir	10,996	2,504	298	1 : 36.90
Tampang Baru	6,873	1,327	834	1 : 8.24
Total	198,315	18,231	3,134	Average ± 1: 66.33

Sources: (BPS MUBA 2013; 2014; 2015)

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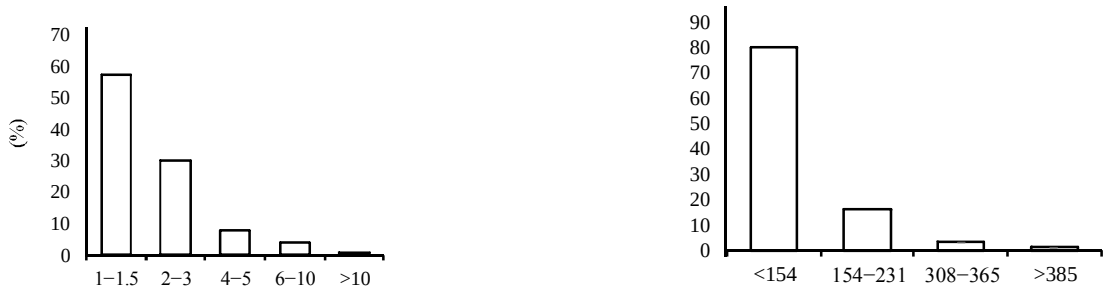

Figure 2 Comparation ownerships land and incomes per month (US$). Indonesian Bank Rate: 1 US$ = IDR13,000.

Table 4 Permits and forest utilized in Management area of FMU Meranti

User/ownership	Operational based law	Decree area (± ha)	Area on FMU (± ha)
Permits			
Restoration ecosystem areas	Minister decree	52.170.00	50,153.00
Industrial forest plantation	Minister decree	188.178.88	146,089.88
Community forest plantation	Minister decree	89.50	89.50
Coal mining	Minister decree	15,317.00	15,317.00
Oil and petroleum permit	Minister decree	213.75	213.75
Total		255,969.13	211,863.13
Utilization areas managed of FMU (*wilayah tertentu*)		35,641.00	35,641.00
Settlement and community plantation	Letter of land village	25,854.88	25,854.88
Oil palm plantation areas or four units permit non procedural	Region Decree	9,786.12	8,149.64
Total area		291,610.13	245,867.65

Source: Primary data processed (2016) and KPHP Meranti (2013)

The dominant owners of forest area are six IFP. The community owns a unit of community forest plantation (CFP), settlement, and community owned plantation, also four units of oil palm and rubber plantation. Total concession area of industrial forest plantation are about 196,784.59 ha (78.01%), while settlement and community owned plantation are about 25,854.88 (10.25%) and coal and oil mining are about 20,963.09 ha (8.31%). Meanwhile, oil palm and rubber plantation companies are covering 8,149.65 ha (3.23%). The analysis result of the dominant land use owners shown in Table 4.

The actor interests and object of conflict Based on the identification result, community's claims on occupied land in concession areas are very diverse. Generally, indigenous people claim a full ownership of an area for their economical purposes and to protect the environment from degradation. The interest of the community are: 1) ability to own land, 2) ability to take timber logs, and 2) ability to obtain the CSR and compensation from community cultivation funding (*ganti rugi tanam tumbuh*). Being based on the result identification, actors are divided by two: 1) their interests, and 2) origin of the communities and villages (local, spontaneous migrants, and transmigration). Furthermore, based on their non-procedural permits, actors can be grouped into 31 categories with total claimed area about 94,016 ha. The claimed area can be differentiated from the actor's interests and origins. The aforementioned condition raises the bundle of rights in the industrial plantation area, which is causing unclear ownership rights and conflicts of utilization. The result of actor identification, their interest, and potentially claimed area are presented in Table 5.

The conflict object within the working area of the Meranti FMU is distinguished by the location of the ecosystem restoration (ER) and IFP permittance. Meanwhile, all of the conflicted characters in each location can be explained as follows:

1 In the ER working area, conflicts are spread in some area with total 2,500 ha land claims. Previously, the area area mostly managed by local indigenous people, but now 52,170 ha of the area are occupied by newly created non-procedural transmigration villages (formed by former village heads and participants). Sako Suban Village is an adjacent to the ER area. Currently, there are also migrants from Jambi and Lampung Province, Musi Rawas Regency, Muratara District, and causing various land claims and conflict dynamics.
2 The IFP area also encountered various utilization conflicts, such as new non-procedural transmigration villages (illegal villages), illegal land clearing and logging activities, and tenurial-related claims. Based on the land segmentation, community claims can be divided into four characters as follows: 1) recognized but not managed, 2) recognized and has been self-managed, 3)

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recognized but managed by the IPF companies, and d) recognized but managed by the plantation companies. The spatial map of the object of utilization conflicts in the Meranti FMU is shown in Figure 3.

Typology of conflict The analysis of conflict typologies is carried out to describe conflicts, which can be seen from various forms of ownership rights, users, the scale of the IFP concession, and other permits of the non-forestry sector, as well as the origin of communities around the forest area. This study describes: 1) the influence of interests and actors in the unit of analysis, 2) appearing impacts from the role of partie's interests, and 3) ownership rights and their influence on the utilization of forest resources. The relationship between interests, rights, and influences within the game are related to the economic environment, user characteristics, rules and laws, legality, forest resource characteristics, and benefits gained in the institutional. Based on the above various factors, the typology of conflicts can be distinguished, as follows:

1 Community land use type

This typology is based on the origin of the community can be grouped into three, as follows:

1.1 local communities;
- a musi people, consist of Hilir Musi, Lakitan, and Ulu Batanghari Sembilan,
- b indigenous kubu people, consist of Kubu Sungai Merah, Kubu Bayat, Kubu Talang Uluh, and Kubu Sako Suban
- c komering people, and
- d palembang people

1.2 transmigrants communities; who come because of

Table 5 The actors and interesting

The actor	Interesting	Prediction Area (ha)
Village leader and participant	Collaboration business	
Ex-village leader and participant	Timber log and CSR	
Indigenous people and local community groups (Kubu people and Musi People)	Land full ownerships	2,500.00
Community of timber logger and participant	Timber logger	
Community of timber logger and participant	Land ownership and timber logger	
Spontaneous immigrants (Jawa people, Sunda people, Batak people, dan musi people etc.)	Land full ownership	
Dispute between of the JOB Pertamina Co. and BPP-I	Land full ownership	24.28
Dispute between of the SBB Co. and BPPI	Land full ownership	704.00
Community groups in Conoco P. Co. area	Land full ownership	73.22
Community groups in DSSP Co. area	Land full ownership	103.02
Community groups in MAL Co. area	Land full ownership	505.17
Community groups in NIP Co area.	Land full ownership	99.90
BP-DAS Office	Land full ownership	23.43
Community groups from Suak Buring Village, Pagar Desa Village, and Sei Bungkal Village	Land full ownership	926.00
Community groups from Pangkalan Bayat, Lubuk Mahangm, Kelobak, Lubuk Kumpo	Land full ownership	983.00
Community groups from Lubuk Kumpo, Lubuk Mahang, Kelobak, Sumpal, and Simp. Bondon	Land full ownership	2,193.00
Community groups from Pangkalan Bayat, Kelobak, and Simp. Bayat, Telang	Land full ownership	5,514.00
Community groups from Pulai Gading village	Land full ownership	1,549.00
Community groups from Mendis Harapan Baru	Land full ownership	9,625.00
Community groups from Kaliberau	Land full ownership	2,582.00
Community groups from Pagar Desa, Sei Bungkal	Land full ownership	113.15
Community groups from Air Jernih	Land full ownership	294.79
Community groups from Muara Lakitan	Land full ownership	995.98
Community groups from Bintialo Blok I	Land full ownership	10,294.00
Community groups from Bintialo and Sako Suban II.	Land full ownership	1,995.00
JAIZ groups and participant about 11 head of household	Land full ownership	100.00
Community groups from Ketapat and Air Bening village	Land full ownership	50.00
Community groups from Muara Bahar, and Bayung Lincir subdistrict	Land full ownership	1,000.00
Community groups in Medak from Jambi province	Land full ownership	55.00
Community groups from Babat Toman	Land full ownership	50.00
Community occupation spread in the other area (Ex-pakerin)	Land full ownership	16,022.06
Community groups from Guci Buring Semandai and Simp. Bodan, Bayat	Land full ownership	35,641.00
Total		94,016.00

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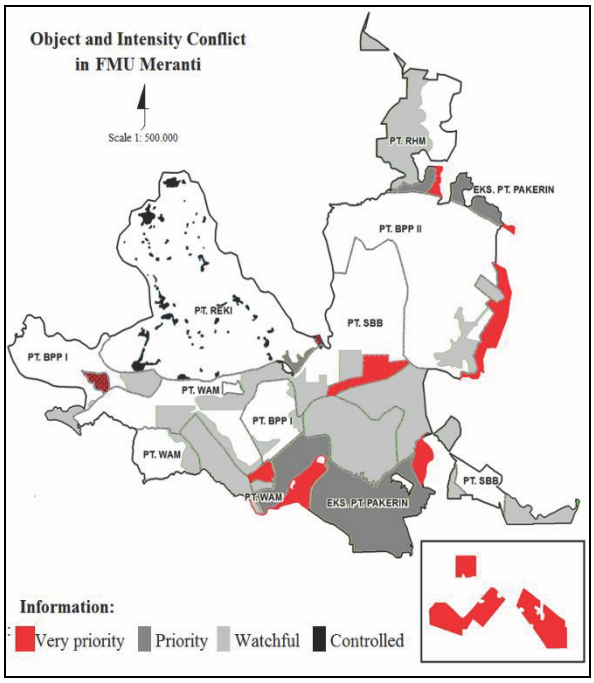

Figure 3 Map of object and intensity conflict in FMU Meranti.

the government's transmigration program, consist of people from West Java, Central Java, East Java, Bali, and other area, and

1.3 spontaneous immigrants who work in the FMU, consisting people of: Padang, Jambi (Sarolangun), Javanese, Bataks, Banjars, Bugis, Riau Malay, etc. The origin of communities in the Meranti FMU is presented in Figure 4.

2 Forestry sector concession type

The typology is based on the scale of the concession area The large-scale businesses have different typology with small businesses. Based on the observation, classification of scale businesses are: a) large scale companies: companies that have concession area more than 50,000 ha i.e.: REKI Co. (ER), BPP-I (IFP), RHM (IFP), SBB (IFP), and Ex Pakerin; b) medium scale companies: 10,000 – < 50,000 ha, i.e.: RHM (IFP), BPP-II (IFP), and the exceptional area managed by the FMU (wilayah tertentu), and c) small-scale companies: < 10,000 ha, i.e. WAM and community plantation (Table 6).

3 Conflict intensity

This analysis is to see actions and strengths of all parties while claiming the forest area. There are three types of conflict, open conflict, appearing conflict, and latent conflict. Open conflict category is occurred 14 times (31.56% of the total incidents). The appearing conflict category occurred 17 times (39.35% of the total incidents). This type of conflict characterized by the existence of agreement between parties to clarify disputes. The last is latent conflict, which occurred 12 times (27.91%). In general, community demands are to fulfill their economic needs and to prevent environmental degradation (Table 7).

4 Predicting utilization conflicts

Based on field observation, conflict in one place may affect other actors and locations, either directly or indirectly. The aforementioned situation is widening the available conflicts. The prediction the existing conflict within the forest areas are about 94,016 ha (38.53% of the total forest area). Based on the largest claimed area, there are about 35,641 hectares of potentially conflicting area within the Meranti FMU (14.6%). The second largest potential conflict, based on the observation, is an ex concession area of Pakerin, covering about 23,375 ha (9.57%). The estimation of the impacted area from the escalating tenurial-related conflicts are shown in Table 8. Meanwhile, potential of the escalating conflict from land use change and varying user interests are shown in Figure 5.

5 Assessing the conflict condition

The assessment of potential conflicts in production forest areas of the Meranti FMU explained the status and condition of various conflicts and locations and showing its conditions. This assessment is using indicators with values between 1–5, the maximum values are 234 points. The result shows, that the most prioritized location to be solved is the open access area of ex-Pakerin and the exceptional area of Meranti FMU, which many illegal selling activities take place. Another problem is the existence of perpetrators, who arrange the forest land selling from the outside. Moreover, oil palm and rubber plantation corporations within the forest area also give less attention to the community. In addition, the status of the IFP concession is 'watchful'. This is due to the previous mediations among users are failing. The assessment of potential conflicts in production forest areas is shown in Table 9.

The challenge of sustainable management The assessment of dimensional approach to the sustainable production forest management (SPFM) referred to the Directorate General Regulation Numbered P.8/VI-BPPHH/2011 (PHPL 2011). In this study, this assessment was to catch three-dimensional analysis: ecological, economic, and social dimension. The assessment was done by comparing the actual field conditions and the 2013–2014 Meranti FMU strategic plan.

1 Ecological dimension

This assessment is carried out by knowing who should be responsible to the restoration area of REKI concession, and to prevent more environment damages, especially from illegal logging activities. So, if illegal logging continues, the remaining secondary forest will be damaged. The abovementioned explanation shows that, beside of the illegal logging activities, problems are also caused by forest fires, non-procedural concessions, land clearing, and the existence of claims from structural relation access mechanisms (Ribot & Peluso 2003). These are also the cause of forest destruction. This assessment is shown in Table 10.

2 Social dimension

Understanding the social dimension is very important by knowing how individuals and communities able to access and utilize the forest area. The social dimension is greatly affected by the origin of local communities or

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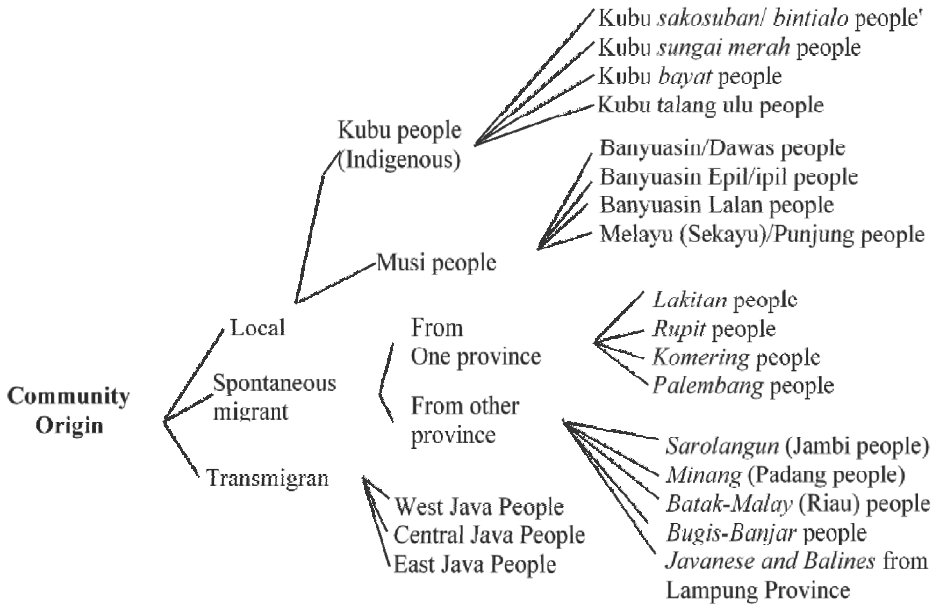

Figure 4 Origin of community on village.

Table 6 Business and the community origin type

Corporate/user	Permit area (ha)	Business Scale	Community original		
			Indigenous peoples	Trasmigran	Spontaneous migrant
REKI Co. (ER)	52,170	large		-	√
BPP-I Co. (IFP)	59,345	large		√	√
BPP-II Co. (IFP)	24,000	medium		√	√
RHM Co.(IFP)	67,100	large		√	√
SBB Co. (IFP)	55,055	large		√	-
Ex.Pakerin (IFP)	49,380	medium		√	√
WAM Co.(IFP)	6,290	small		√	√
Sarolangun (CFP)	88.89	small		√	√
Occupation area	35,000	medium		√	√

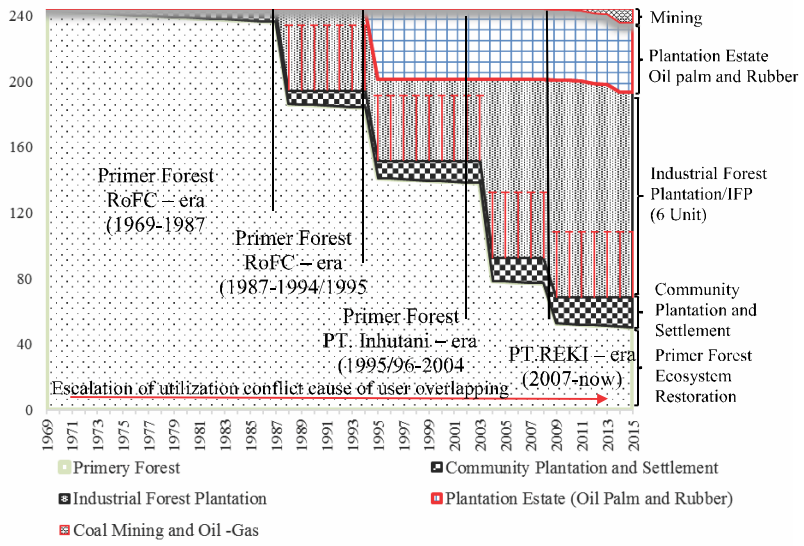

Figure 5 Position and transformation utilization conflict.

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Table 7 Intensity of conflicts utilization in arena

Object	Parties to the dispute	Intensity of conflict		
		Open	Appeared	Laten
REKI concession Arena (ER)	Agent illegal logging activity	-	-	-
	Village leader and participant, damage environment dispute	-	-	√
	Community groups, getting corporate CSR	-	√	-
	Community groups from spontaneous migrants	√	-	-
	Indigenous peoples (Kubu ethnic)	-	√	-
	Community groups, lose out corporate CSR	-	-	√
RHM (IFP	Community groups *Mandis*, Harapan village		√	-
BPP-I (IFP) concession	Corporate JOB Pertamina Co, oil and gas pipeline	-	-	√
	Corporate SBB Co. oil plantation land dispute	-	-	√
	Corporate Conoco P, Co. pipeline, land dispute	-	-	√
	Corporate DSSP Co. coal mining land dispute	-	-	√
	Corporate MAL Co. coal mining, land dispute	-	-	√
	Corporate NIP Co.	-	-	√
	BP-DAS	-	-	√
	Community groups from Suak Buring, Pagar Desa, Sei Bungkal, Sei Badak, claim land	-	√	-
	Community from Bayat Ilir, Lubuk Mahangm Kelobak, Lb.Kumpo, community plantation	√	√	-
	Community from *Lubuk Kumpo, Lubuk Mahang, Kelobak, Sumpal, Bondon* village, land dispute	√	√	-
	Community from *Pangkalan Bayat, Kelobak, Bayat, Telang village,* community plantation	-	√	-
	Community from *Pulai Gadin, Pagar Desa, Sei Bungkal, Mendis* village, lots forest land for Sale	-	√	-
BPP II Co. Areal	Community from *Bintialo* lots forest land for Sale	-	√	-
	Bintialo and *Sako Suban II* community plantation	√	√	-
SBB Co. Areal	Community Air Jernih, Muara Lakitan forest land for Sale	-	√	-
	Community evicted from the plantation area	-	√	√
	Former employee of a plantation company	-	-	√
WAM Co Areal	JAIZ groups and participant about 11 head of household	√	-	-
	Community from Ketapat and Desa Air Bening, claim land	√	-	-
ex Pakerin Co. open access area	Community groups from Muara Bahar, land claim dispute	√	-	-
	Community groups from Medak spontaneous migrants Jambi Province	√	-	-
	Community groups from Babat Toman	√	-	-
	Corporate SPR Co.	√	-	-
	Community groups from spontaneous migrants (suku Bali/Sunda/Jawa/Bataks and Musi)	√	-	-
Oil and Petroleum and mineral mining	Community groups from P. Bulian, Lubuk Bintialo, and Simpang Bondon Village	√	√	-
FMU Management Area	Community claim of ownership land, land dispute	-	-	√
	Corporate rubber plantation, land dispute	-	√	-
	Corporate BSS oil palm plantation, land dispute	-	√	-
	Corporate MBI oil palm plantation, land dispute	-	√	-
	Corporate PTPN VII and oil palm plantation	-	√	-
	Community Guci. Buring, Semandai village tower electric dispute	√	-	-

migrants. Different interests between local communities and immigrants makes this dimension really need to be understood in the field. The assessment is done by comparing the Long-Term Forest Management Plan (as known RPHJP) of the Meranti FMU with the real conditions. This strategy requires the local community to not establishing oil palm or rubber plantations, while ironically at the same time those activities are done by corporations. After all, the result found, that there are 12 unimplemented attributes of social activities in the field. Although not optimal, there are two implemented activities, i.e.: social problems mapping and holding a public consultation about plan management. The aforementioned lacking condition causes social problems for communities' business development activities, while oil palm and rubber plantations are not running well (Table 11).

3 Economic dimension

The assessment of the economic dimension is to illustrate the economic influence towards the sustainable

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Table 8 Spread of conflicts based on prediction of land claims

Corporate Permits	Minister decree	Area in decree (ha)	Area in FMU (ha)	Prediction (ha)	(%)
REKI Co.	293/Menhut-I1/2007	52,170	50,153	2,500	1.02
BPP – I Co.	337/Menhut-II/2004	59,345	38,187	4,300	1.76
BPP –II Co.	79/Kpts-II/2009	24,050	24,283	6,400	2.62
RHM Co.	90/Menhut-II/2007	67,100	12,131	9,600	3.93
SBB Co.	249/ Menhut-II/2009	55,055	53,639	10,200	4.18
WAM Co.	252/Menhut-II/2009	6,290	6,547	2,000	0.82
Ex-Pakerin Co.	226/Kpts-II/1998	43,380	23,375	23,375	9.57
Samhutani Co.	86/Kpts-II/1999	58.88	58.88	58.88	0.02
Occupation area	689/Menhut-II/2012	35,641	35,641	35,641	14.60
Area condition no permit/other utilization area			12,337	12,337	
Area total		343,089.88	244,014.88		
Total claim of land				94,016	38.53

Table 9 Position of potential conflict

Area Prediction	Score	Total score	Weight of criteria score	%	Category	Status Area
REKI	138	234	0.5872	58,72	Medium	Watchful
BBP-I	145	234	0.6170	61,70	Medium	Watchful
BPP-II	142	234	0.6297	62,97	Medium	Watchful
RHM	148	234	0.6042	60,42	Medium	Watchful
SBB	138	234	0.5823	58,23	Medium	Watchful
WAM	149	234	0.6340	63,40	Medium	Watchful
Ex Pakerin	205	234	0.8763	87,63	Very High	Very priority
Community Plantation	168	234	0.7165	71,65	High	Priority
Managed area of FMU Meranti	197	234	0.8382	84,00	Very high	Very priority

Table 10 Ecology attributes implementation

Attribute dimension	Attribute status	Field condition		
		I	PI	NI
Protection of natural forest potential	Main	-	-	√
Availability of structure and composition of regeneration plant	Main	-	-	√
Protection of biodiversity of flora fauna	Main	-	-	√
Protection of potential non-timber forest products	Main	-	-	√
Remains assured of potential environmental services	Support	-	-	√
Establishment/maintenance area conservation and education	Support	-	-	√
Rehabilitation critical forest land in concession area	Support	-	-	√
Prevention of forest damage caused by fire	Main	-	√	-
Prevention forest encroachment and illegal logging	Main	-	-	√
The establishment of conservation cadres	Support	-	-	√

I = Implemented, IP= Partly Implemented, and NI= No Implemented

forest management. This dimension becomes very important because there are tight competitions among users within the forest area. This assessment is carried out by knowing how the effort to economically improve the communities within the RPHJP is implemented by the FMU, whether or not it is in accordance with the facts. The result shows that the economic planning strategy to support community capacity building, and to develop their innovation and creativity are lacking. The economical dimension analysis also found that the short-term forest management plan is the main cause of forest degradation and fires. Based on the aforementioned explanation, the FMU has to build a new important strategy, which is to change the communities' motivations (Table 12).

Sustainable management assessment The result of analysis towards 10 attributes of the ecological dimension found that almost of the attributes are less than 50% limit, categorized as bad (41.02%). The abovementioned result shows that the MoE&F (Ministry of Environment and Forestry) must be present at the Meranti FMU to create alternative non-forestry livelihoods for the communities. The dependence towards oil palm and rubber plantations to

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increase the communitie's income must be changed. This is because of the current existing assumption amongst the community, that they have to enlarge their plantation area to increase their income. While, all they need is to use good quality seeds and processing technology, as well as, adequate fertilization to improve the yields. Thus, the role of the government to provide technical guidance for the cultivation of plants, maintenance, and procurement of high quality seeds is essential to reduce the rate of land clearing in forest areas.

The results of the social dimension analysis showed that the social dimension sustainability is categorized as bad, since its score is only 0.3778 points, or 37.78% out of 50%. Based on the analysis results of the 12 attributes of social dimension, there are 6 (six) main attributes and six supporting attributes, which are influencing the communal actions, whether to avoid or ignite conflicts. The economic aspect becomes the main motives related with the issue of land struggles. Based on the economical aspect, the value of maturity is 0.4393 out of 0.5, and categorized as "bad", which means the sustainability of the economic aspects does not affect the sustainability of management. The result of the economic attributes assessment shows, that six major economic aspects in the Meranti FMU (investment cooperation) are categorized as "medium", while five other major aspects are categorized as "bad". The aforementioned explanation shows, that the communitie's role within the FMU business plan is lacking compared with the owners of capital. Economic improvements are vital to reduce impacts, and to prevent illegal activities, i.e. illegal logging and land burning to establish mixed-garden. Thus, the economic attributes are very important in regards of dividing the society's role. The community dependency on forest area as their source of livelihood has never been seriously taken into account in the FMU working plan. Illegal activities including land burning and illegal logging, together with other destructive activities can also lead to conflict of utilization, which would badly affecting all of the parties.

The total value (TIFD) of social dimension assessment is very small, about 0.3777 or only 30.78% out of 50% limit. Meanwhile, the effect of social dimension towards the sustainable management of the Meranti FMU, as well as, towards the ecology dimension are about 33.42%, while towards economic dimension the value are 35.80 %. All of the abovementioned assessments are shown in Figure 6.

Based on Figure 6, there are only two economic dimensions, that factually implementable and compatible

Table 11 Social attributes implementation

Attribute dimension	Attribute status	Field condition		
		I	PI	NI
Community empowerment in creative effort	Main	-	-	√
Resolving conflicts of utilization	Main	-	-	√
Participatory mapping	Main	-	-	√
Facilitate forest management partnerships with communities	Supporting	-	-	√
Establishment of forest farmer group/KTH	Main	-	-	√
Community institutionalization in business determination	Supporting	-	-	√
Education and training of community around forest	Supporting	-	-	√
Building persuasive interaction in land claims area	Main	-	-	√
Socializa tion and implementation of the program	Supporting	-	-	√
Inventory of social problems	Supporting	-	√	-
Public consultation of the management plans	Supp orting	-	√	-
The existence of Corporate Social Responsibility (CSR)	Main	-	-	√

I = Implemented, IP= Partly Implemented, and NI= No Implemented

Table 12 Economic attributes implementation

Attribute dimension	Attribute status	Field condition		
		I	PI	NI
Timber production of softwood	Main	-	-	√
Cooperation with investor (3rd party)	Main	-	√	-
Performance monitoring of permit holder	Supporting	-	√	-
Reclamation and rehabilitation with annual and life crops	Supporting	-	√	-
The routine activities of the community economic improving	Main	-	-	√
The mutual funding sharing scheme	Main	-	-	√
Cooperation/partnership development of timber production / non-timber	Main	-	-	√
Cooperation in environmental services and carbon trading REDD+ activity	Main	-	-	√

I = Implemented, IP= Partly Implemented, and NI= No Implemented

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with the economic attributes number 3 and 4. These are not the main attributes, but supporting, and only workable in business as usual (BAU) conditions. Likewise, the assessment result of social dimension showe, that two supporting attributes to number 10 and 11, out of 12 in total, also share the same character. The activities on ecological dimensions showed, that forest protection from destruction is not optimal. The assessment result of the Meranti FMU sustainable management is shown in Table 13.

Bad program implementations and BAU activities has compromised the institutional performance of the Meranti FMU. The assessment result of all criteria and attributes in each dimensions, i.e. social, economic and ecology, revealed, that the accumulative score of sustainable forest management are 40.6%. Although the result of the sustainability value is about 40.6%, the actual condition is lower. It is in line with Yovi and Nurrochmat (2017), that the assessment rules based on a lot of the criterias and indicators are the only administrative requirement and inappropriate to the field conditions. The aforementioned score categorized the Meranti FMU as bad in the term of sustainable forest management, as shown in Figure 7.

Conclusion

The both claims of the community or the permit holders resulted the forest management is not optimal. The results explained the claims that arise are closely related to the cognition of each party and influencing of differences of view. Predicted land claims area causes of utilization conflict about 38.53% from the total area. This interpreted that almost half of the working area of FMU Meranti cannot be managed optimally due to the mutual squabble among both parties. The claim of land in forest area was triggered by economical improvement, protect form environmental degradation (disappearance of fresh water, forest fires, loss of local livelihoods, and living comfort), and land allocation injustice. Based on the intensity of the conflict, the government should focus in their activities on ex-Pakerin Co in open-access condition and area managed by FMU Meranti (*wilayah tertentu*) thus, there will be no greater conflict or violence which is caused by the open conflict. The results of conflict intensity showed the categories are open conflict about 31.56%, appeared conflict category about 39.35%, and latent conflict conditions about 27.91%. This result showed the performance related to the planning and implementation in the FMU Meranti was very poor. The government concept of forest management is focused only on the economic motive, through the companies permit to exploitation biophysics characteristic of forest resources.

Acknowledgments

Conflict of utilization causes the implementation of strategic planning/RPHJP of the Meranti FMU is not optimal. In addition, project realization is inappropriate because many activities are mere "BAU" and do not support conflict resolutions. Based on the assessment result of attributes of all three dimensions, the Meranti FMU is bad in term of sustainable forest management. Thus, recommendation to the government is more focuses on conflict resolution activities in accordance with the priority and intensity of the conflict. In essence, other activities are not optimal if conflict resolution is not prioritized. This BAU activities would

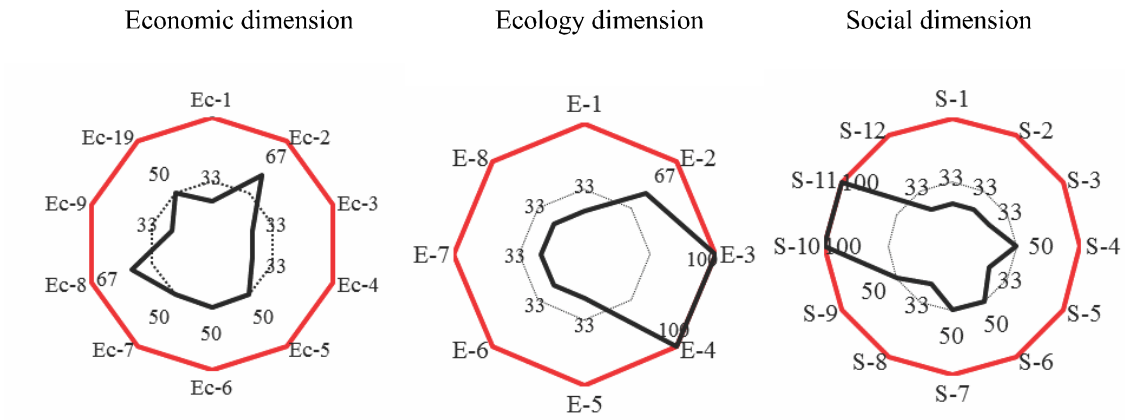

Figure 6 Implementation and compatible dimension

Table 13 Assessment Sustainable Forest Management in FMU Meranti

Dimension	Total VSF	TS	VD	VDM	IFD	Score SFM
Ecology	26	12	32	78	41.03	
Economic	22	11	29	66	43.94	40.60
Social	78	14	34	90	37.78	
Total	126	37	95	234		

VSF= Value Status Factor, TS= Total Score, VD = Value Dimension, VDM=Total Value Dimension Maximum, IFD= Total Impact Factor Dimension. SFM = Sustainable Forest Management.

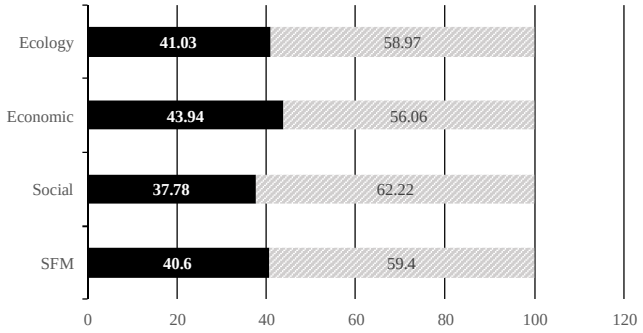

Figure 7 Assessment of sustainable forest management in FMU Meranti. SFM index (■).

absorb the budget but incapable of achieving institutional goals in forest area management.

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