Oil palm plantation inside forest area?

Yonariza* and Yurike
Integrated Natural Resources Management Field of Study Graduate Program, Universitas Andalas, Padang, 25163 West Sumatra, Indonesia

*E-mail: yonariza@agr.unand.ac.id

Abstract. The problem of land-use competition continues despite the availability of cadastral technology such as remote sensing and land use mapping technology including the usage of global or geo-positioning system tool to avoid such competition. This happens mainly in state forest where forestland use permits issued by the government to use the forest for large-scale agriculture i.e., oil palm plantation overlap with other forest use permits. This illegal expansion is known as overshooting or land grabbing. In Dharmasraya District, West Sumatra Province, a private oil palm plantation overshoot 2,000 ha of state forest intended for industrial forest plantation area. This paper raises the following questions; 1) why forest land use permit overlapping, 2) once it identified what solution and negotiation taken by stakeholders; government agencies and private sectors, and 3) what is the land use result. This case study is within a working area of the production Forest Management Unit (KPHP) of Dharmasraya Dharmasraya District, West Sumatra, where industrial plantation area overlaps with oil palm plantation. At the end, the industrial forest plantation area was taken by the oil palm plantation area and make it a legal occupancy. The land use permit overlap happens because of two reasons; first, local government issues oil palm plantation permit while central government issues forest use permit. Second, the oil palm company began their land clearing outside its permitted area and overlap with industrial plantation area. One this discovered; the two companies negotiated and resulted in the sale of forest industrial plantation permits to oil palm Plantation Company; the price is magnificent. But, local people follow forest land grabbing resulting in accelerated deforestation. The study suggests that one map policy is essential, but more importantly, that map and other cadastral technologies must be utilized to monitor land use and to enforce forest protection law.

Keywords: land use conflict, indigenous people, production forest, overlapping land use

1. Introduction
Fuller wrote about tropical forest monitoring; he was asking whether remote sensing is a new era of transparency in forest governance [1]. He was quite sure with the answer that the use of satellite imageries and the creation of a national monitoring system for tropical forest conversion is needed to create a transparent and reliable source of information about the condition of forest cover. He convinces that satellite imagery at various temporal and spatial resolutions could be used effectively to increase transparency in the forestry sector by revealing the rate and extent of deforestation each year and identifying potential areas of illegal logging. But he forgets to ask when the data made available what would happen to the forest. In fact, deforestation continues despite real-time data made available
by satellite. On the ground, satellite images may not explain the deforestation process. Ground-level action is needed to curtail the deforestation.

At field level and despite existing forest classification by its function into conservation, protection, and production forest, Indonesia continues to lose her forest. Deforestation continues at an alarming rate. Forest degradation happens in all forest functions; conservation forest, protection forest, and the worst is production forest where 89% of production forest is degraded, converted into a plantation, or other land uses. There seems to be a problem of forest monitoring by authority or lack of authority to monitor the forest, despite the availability of remote sensing technology. It also seems a problem in using those remote sensing for forest cover monitoring. It can also be a lack of forest law enforcement that provokes less transparency in forest governance.

The deforestation rate in Indonesia is the second highest compared to tropical countries [2]. The deforestation rate reported by FAO from 1990 to 2005 (1.87 Mha yr\(^{-1}\)) [3]. Kim \textit{et al.} calculate changes in forest area from Landsat-based 1990-2000 and 2000–2010, it is found out that in Indonesia deforestation over these two time periods were \(-653,000\) and \(-842,000\) ha per year respectively [4]. While FAO report much higher, that is \(-1,914,000\) and \(-497,500\) ha per year, respectively FRA [5]. Sumatra and Kalimantan have lowlands of more than 70% of a total forest clearing in Indonesia; this lowland forest was cleared more than 40% from 1990 to 2005. These were mostly production forests. Overall, in the early stages of logging closure, in 2000, post-extraction secondary forest-covered around 23 million ha, or about 55% of the total concession area [6]. It is no wonder if some scholars doubt REDD+ projects in Indonesia [7]. Besides, the integration and deregulation of the global economy have resulted in reduced state control. This is what happens in the ground.

Indonesia has once adopted a forest exploitation policy by assigning a huge area as a production forest. Although silviculture called the Indonesian Selective logging system was promoted, but this was not well monitored. Consequently, the production forest rapidly degraded. By the end of the 20\textsuperscript{th} century, when most of the forest concessions ended, these concessionaires caused 16.57 million ha of degraded production forest by 1998 [8]. Under this condition, Fuller argues that “The widespread availability of digital data and rapid dissemination through the Internet means that official estimates of national forest cover may now be independently verified and challenged by actors outside government agencies.” More importantly, it must be used to monitor the forest condition [1]. “Both the wealth of satellite imagery available and the rising concern over deforestation, satellite-based monitoring of forests is still a relatively new activity and varies in quality and consistency depending on the commitment of government and non-governmental actors” [1]. He suggested that the new satellite imaging and mapping techniques combined with fast delivery via the Internet should usher in a new era of global transparency in the forestry sector as in other environmental sector.

Lack of forest monitoring is apparent. Given the availability of technology to monitor forest conditions, there should not be a problem controlling 129 M ha of forest. By management, this area is divided into 17 BPKHs (Regional Forest Area Consolidation Offices). Remote sensing is available at cheap cost, and real-time data is accessible using cheap software. But, in the field, deforestation continues unabated. Land use and land cover change are the main problems for tropical forest management in Southeast Asian countries. As admitted by Prasetyo \textit{et al.}, land use issues and land cover changes were rarely discussed in Indonesia's forest management policies even after the collapse of the Soeharto regime and so-called regional autonomy or decentralization in 1999 [9].

Deforestation seems not only to happen due to legal forest conversion, i.e., legally converting former timber concession area into plantation or other use but also due to overlap of forest use and land use permit. Ministry of forestry issues permits for forest use and forest conversion into the plantation. All of which is carried out using the map. A Digital map is applied; a ground check is also carried out using user-friendly tools and equipment such as GPS. Unfortunately, areas of some forest land use permit overlap. Technically speaking, forest maps can be overlaid with some free earth monitor soft wares such as Google Earth, SAS Planet to show land cover and land use clearly. But, without explicit action in the ground, that information useless.
In Indonesia, Fuller argues, to create a transparent and reliable source of information on forest cover and conditions, it is necessary to create a national monitoring system for tropical forest conversion [1]. He further argues that to uncover the rate of deforestation annually and identify potential areas of illegal logging to increase transparency in the forestry sector can effectively use satellite images of various temporal and spatial resolutions. Unfortunately, the satellite images are rarely used as a tool to monitor the forest area and to enhance law enforcement. Fuller stressed that increased monitoring of forest cover itself is unlikely to produce behavioral changes unless it is linked to research, policies, and forest management and assessment. Here is a good point on Indonesia's case; information made available by various sources have not been used to make a decision to stop deforestation. In Fuller’s word ‘information can influence public opinion, it can exert pressure on policymakers in democratic societies to strengthen enforcement and tighten regulations to improve forest management and protection.’ But, it is not the case in Indonesia [1].

Production forest probably the most dynamic forest management in Indonesia and the most serious damage forest. Once a forest area declared as a production forest, timber concession firstly exploits this forest; the period of timber concession is 30 years and can be extended. Unfortunately, most timber concessions in Indonesia last maximally 30 years. Following logging concession termination, most production forests became logged over the forest. Depending on its classification, the destiny of the production forest area can be conversion forest, limited production forest, permanent production forest. Conversion forest is aimed to change forest area into non-forested land, i.e. plantation and other land use. Limited production forest will be maintained as forest areas with limited output, while permanent production forest will be maintained as forest areas for timber and non-timber products. If it is kept as a production forest, the destiny of these logged over forests will go through forest rehabilitation by way of enrichment, a forest plantation, forest restoration, and the like. The government rehabilitated the production forest by issuing a new forest use permit. As such, areas of various permits are in proximate to each other. The conversion forest area is an indirect border with forest area. The conflict between forest use and agricultural use happened if monitoring is not well performed.

In many cases, monoculture plantation grabs forest areas. Besides, there is vacant management between closing logging permits and issuing new forest use permits. When forest official is not presented in the field, forest areas become open access, forest encroaches. In many cases, it leads to overlapping forest areas and the monoculture plantation area. An official from the Ministry of Environment and forestry admits capacity and technology gap in forest monitoring at field level [10].

Forest law enforcement cannot be effective under the legal pluralism situation. This situation poses a threat to Indonesia forest management. Although satellites reveal forest encroachment, no proper treatment can be taken to follow up the information. Hence, deforestation continues unabated. Besides, although satellite images provide real-time data to monitor forest conditions and the fact that deforestation continues despite reforestation and forest rehabilitation effort.

The process of deforestation at ground level can be complex. It involves many stakeholders. Hence, remote sensing is not enough to protected forests. Based on a case study in FMUP Dharmasraya, this paper raises the following questions; 1) why forest use permits and other land use permits overlap. 2) once it identified what solution and negotiation have taken by stakeholders; government agencies and private sectors? And 3) what is the land use result?

The paper argues that the availability of tools to monitor forest conditions would only have an impact if monitoring is carried out, followed by law enforcement. The result of surveillance must be followed up by concrete action to further slowdown deforestation; otherwise, those tools will only be tools. In addition, there are many gaps in land use permit that leads to natural resources management chaos where some area fall under unmanaged land. This condition accelerates deforestation. This is the case in Dharmasraya Forest Management Unit.
2. Methodology
This study employed a case study method. The production forest in Dharmasraya District is a case in point. This area is the remaining production forest in the district that has been decided by the Ministry of Forestry as a Production Forest Management Unit Model since 2013 through a ministerial decree No.SK.695/Menhut-II/2013, date of 21 October 2013 covering an area of 33,550 Ha. This is an indication its status as a state forest by law. Unfortunately, FMU has not been able to work properly since the area has a complex overlap forest use permit. In addition, this area has tenure conflict involving local community, local government, national, private forest company, state forest company, as well private plantation company. The tenure conflict is due of overlap tenure claim by local community on state forest as their ancestral land. This exacerbated by weak local government who is not capable in forest protection. Author connection with FMU management made this case uncovered.

Land use permit overlap was discovered during the process of FMU planning preparation. The study used the following data collection techniques. Primary data were collected by interviewing key informant and field observation. Among key informants were; officials at Forestry Department of Dharmasraya District, Representatives of Private Oil Palm Plantation companies, consultant of private plantation company, former director of private forest plantation company, people in nearby forest areas who clear up the forest land, Central Office of Forestry who explain the status of state Forestry company in charge of forest rehabilitation, Small scale logging operator, head of FMU, and forest land seller and buyer. Field observation was carried out from June 2014 – February 2015.

Forest condition in last fifteen years was assessed from four land sat images, each with five year time span. These are; Landsat Image year 2000 as baseline data to show intact logged over secondary forest, Landsat Image year 2005, Landsat Image year 2011, and Landsat Image 2014.

Overlap of forest permit and plantation permit was discovered when plantation map and forest map were overlaid as shown from recent forest map produced by Regional Forest Area Consolidation Offices (BPKH I Medan). Forest and Plantation service at District of Dhamasraya provided Oil Palm Plantation maps surrounding forest.

Field observation was carried out to check forest boundary and forest land use. In addition, collected secondary data included forest concession permits and FMU Management Planning Document. The data were analyzed descriptively by comparing various maps and images. From these maps, overlap is found. Further clarification was made to the relevant stakeholders to determine cause, result and solution to overlap permit.

3. Result and Discussion
3.1. Study area
Dharmasraya District is one of the new administrative area in West Sumatra, it was established in 2004 as a result of Law No. 38 year 2004. Much of forest management policy happened during previous administrative unit of Sawahlunto Sijunjung District and the current Dharmasraya District Government forest management is legacy of previous administration. However, deforestation inclines during current administration.
The area of Production Forest Management Unit (KPHP) Dharmasraya District, West Sumatra, a 33,500 ha, is a remaining low land forest in the district. It was a 66,000 ha production forest granted to PT. Ragusa a logging concession in 1972. Once concession ceased in early 2002, half of the production forest were converted into oil palm plantation granted to 3 oil palm companies, PT Incasi Raya (6,900 ha) PT SMP (6,066 ha) and PT AWB (8,500 ha) (see Figure 1 oil palm plantation map). The remaining half of production forest were divided into two parts; Limited production forest (LPF) and Regular production forest (RPF). The remaining RPF was granted to a private industrial timber forest concession PT. Dara Sylva 15,000 ha, and LPF was granted to a state company PT Inhutani for enrichment of Dipterocapaces species under scheme of Program Model Pengembangan Meranti in 2003, 15,000 Ha. The remaining 3,550 ha has no forest use permit, left in vacant management.

Continues forest encroachment either by oil palm plantation company (PT SMP) and local people caused these two concessions to stop their operation. PT.DS had been complaining to Ministry of Forestry about status of its concession area. PT SMP and its maiden group of IR realized that their plantation area has enter other concession area.

There was a period of management vacant after logging concession closure and prior to issuance two forest concessions. Local people began to cleared the forest for small holder plantation mainly planted with rubber or oil palm in early 2000. To encounter forest encroachment, Ministry of Forestry issued decree No. 10182/Kpts-II/2002, deciding working area of Dipterocarpacea enrichment model program (PMUMHM) with an area of ± 15,000 Ha. This was one among four Dipterocapacea enrichment program in Indonesia. The other half was granted to PT DS to run industrial forest plantation (HTI). These two concessions intended to rehabilitate logged over forest.

Unfortunately, the two forest concessions failed to manage the remaining forest area. As consequence, logger over forest severely degraded. Forest land encroachment continues until this very moment. As of 2013, Ministry of Forestry issued decree No. SK.695/Menhut-II/2013. 21 Oktober 2013 deciding the establishment of Production Forest Management Unit to handle the forest management at field level. According the law, PMU will supervise current forest concession, empower local people, and do forest rehabilitation. Unfortunately, KPHP Model Dharmasraya encounters operation problem due to overlapping claim over forest land tenure.

The people mainly belong to Minangkabau ethnic where their social organization has been advance, the property rights attached to the social unit called the nagari and suku (clan). Land including forests is traditionally considered as communal property with varying degrees of ownership.
arrangement between the nagari and the clan. In the study area, all forests in FMU Dharmasraya are considered as the land of the clan. A dominant clan called Melayu is widely recognized as the land owner where their concerns must be paid to when dealing with forest land in the site. The forest falls into low land forest, elevation ranges from 400 feet to 1200 feet above sea level. Topographical condition consists of rather steep only 11.76%, flat land 48.19% and sloping 40.04% [11]. These ease access to the forest and lower investment cost.

3.2. Overlapping forest land use

Given the availability of cadastral technology such as geo-positioning system, satellite images, transparency in land use management can be enhanced. However, case of Dharmasraya reveals forest use and agriculture use permit overlap also if agriculture encroach forest area, such land use changes are observable. However, the forest use permit and land use permit surrounding FMU Dharmasraya reveals two main things; overlap permit, blank permit, and encroachment. These led to further deforestation. It is not only about land use permit overlap, but also forest encroachment. This part reveals the cause of land use permit overlap, vacant management land, and forest encroachment.

As mentioned earlier, the former timber concession areas of PT Ragusa, 66,000 ha had been split into four large-scale plantation companies and two large-scale forest concessions. One problem with this approach is that the boundaries of many concessions are not well defined and, in some cases, errors may be several kilometers [1]. "Until demarcation of concession boundaries increases, it will still be difficult, though not impossible, to show precisely illegal logging within certain timber concessions using satellite imagery." Monitored in the field by local and international NGOs [1]. Destiny of this forest is shown in Table 1.

| Time Line | Forest Concession                                      |
|-----------|--------------------------------------------------------|
| 1972      | PT RAGUSA 66,000 ha, Timber concession                 |
| 2002      | Forest concession                                      |
|           | Plantation                                             |
|           | PT INHUTANI 15,000 ha                                  |
|           | PT DARA SYLVA 15,000 ha                               |
|           | PT SMP 6,066 ha                                       |
|           | PT 8,500 ha                                           |
|           | PT INCASI 8,500 ha                                    |
|           | PT MSP 8,500 ha                                       |
|           | Encroachment by Small holder plantation                 |
| 2013      | FMU Dharmasraya                                        |
| 2014      | PT TR 1,000 ha                                        |

Table 1. Destiny of ex PT Ragusa Timber Concession Forest
As Figure 2 shows, there are three forest use permit found in the site; these are; 1) PT Inhutani which in charge of Maranti Enrichment Program, 2) PT Dara Silva Lestari which in charge of Industrial Forest Plantation (HTI), and 3) PT Bukit Raya Mudisa which in charge for industrial forest plantation. There are also four oil palm plantation permits found in surrounding areas or in direct border with remaining forest area. These are; 1) PT. Incasi Raya, 2) PT SMP, 3) PT AWB, and 4) PT MSP. Many players are in the field and there are overlap working area, i.e; PT SMP and PT DS, PT TR and PT Inhutani, PT DS and Small Holder Plantation, and PT Inhutani and small holder plantation. However, PT Inhutani was only active for five years, acted as contractor to Ministry Forestry to rehabilitate Dipterocarpaceae forest. As of now, most of its working area is vacant management. While concession areas has been handed over to PT SMP.

As of 2013, Central government by way of Local government initiated Forest Management Unit (FMU) Dharmasraya Production Forest. By law, FMU acts as operator of forest management, providing forestry service and forest protection, by way of synchronizing two role of forest; environmental service for the general public and goods for private. Forestry law stipulates that all

Figure 2. Various land uses and forest uses permit in FMU Dharmasraya (insert ideal working area of FMU)
forest areas is divided into regional units of a management scale in the form of FMUs (Article 17 of Law No. 41/1999). The present of FMU adds to already complicated tenure and forest use to which it is expected to manage at field level. Forest management activities carried out by the FMU must include: 1. Forest use planning and preparation of forest management plans, 2. Forest utilization and use of forest areas in terms of monitoring and controlling permit holders, 3. Forest utilization in particular areas [areas not included in the interests of third parties], 4. Forest rehabilitation and reclamation, and 5. Forest protection and nature conservation [12].

The presence of KPH as a new actor brings an interest of local government unit. Negotiation is going on to enlarge empowerment block, which is now only 3,500 ha and this area is mostly occupied by large scale plantation company or small holders. Central government through Ministry of forestry would not terminate the two forest concession as their mandates still valid for 30 years.

This bring an overlapping operation area among permit holders. Satellite images show that oil palm company expanded inside production forest. Small holders took over majority of forest area. Satellite images shows that 10,311.61 ha or 30.74% of forest has been converted into oil palm. Current forest cover of KPHP Dharmasraya is presented in Table 2.

| No | Land cover                          | Area (ha) | %     |
|----|------------------------------------|-----------|-------|
| 1  | Secondary forest                   | 9,903.94  | 29.52 |
| 2  | Industrial forest plantation       | 219.36    | 0.65  |
| 3  | Shrub                              | 4,693.75  | 13.99 |
| 4  | Plantation                         | 10,311.61 | 30.74 |
| 5  | Open land                          | 5,908.75  | 17.61 |
| 6  | Mix Dry land farming and shrub     | 2,427.81  | 7.24  |
| 7  | Dry land farming                   | 84.78     | 0.25  |
|    | Total                              | 33,550.00 | 100   |

Source: BPKH I Medan, Pelaksanaan Inventarisasi Biogeofisik Wilayah KPHP Model Dharmasraya 2013

As Table 2 shows, one third of forest areas has been converted into plantation, mostly oil palm, 2000 ha of them belong to an Oil Palm Private company whose plantation is bordering with forest land. Hence, overlap is obvious and can be detected from satellite images and from freely available software like google earth, SAS Planet. If the forest area is overlaid with SAS Planet or google earth, it shows that aside from plantation area, oil palm processing unit is installed inside forest area including employee housings.

FMU is interested to change the status forest concession area due to high ulayat claim into forest area with special use mainly because empowerment block in FMU plan is very small and these blocks have been occupied either by large scale company or small holders’ plantation. Community Empowerment of Dharmasraya Production FMU Block can be expanded. FMU is expected to be operator of forest management at field level. Forest area than is designed for various purposes. The forest land without forest use permit can be assigned for community based forest management called blok pemberdayaan

3.3. Possible cause
One may ask why land use permit overlap and why forest encroachment goes unchecked? There might be several reasons. Forest land use planning in Indonesia is based on digital map. Most of forest areas have not been well delineated on the ground. Digital map is based on digitizing process and those who digitized the map may not have enough ground level information since this office locates in far away from the forest. Furthermore, plantation map is produced by district government using ground
check. Wrong digitizing map, forest map, plantation map, and forest concession map, all mismatches forest area and forest permit, this creates *terra nullius*, the land without management. In addition, weak public governance is a major obstacle to effective implementation and with repeated uncertainties with land ownership and increased conversion by small farmers in and around oil palm and pulpwod plantations [13].

Second cause is encroachment by large plantation companies into forest area. This encroachment, although seem to be detected by forestry official, they did not take necessary action. The company, on the other hand, seem to clear forest area to install its processing palm oil unit. It also seems that there is a negotiation in the field among involved stakeholders.

### 3.4. Stakeholder negotiation

Once overlap discovered what solution and negotiation taken by stakeholders? Given multi stakeholders nature of forest users and agricultural land user, competition for land use seem unavoidable. After the closure of logging concession in early 2000, the forest uses permit successors have been in constant conflict. It is PT DS, a private company granted with industrial forest plantation permit who firstly discovered that their permit areas has been illegally taken over by private oil palm plantation company. PT DS had also complaining about its concession area occupied by local people. PT SMP then also realized that its oil palm plantation areas had entered forest area where forest conversion is illegal. PT DS and PT SMP came to a negotiation. PT DS agreed to handed over its Forest Industrial Plantation permit to PT SMP. The transfer involved enormous amount of money.

Once it took over HTI permit, PT SMP realized that it cannot implement annual work plan mainly due to forest encroachment by local people who claim forest land as their *ulayat* land. The only area could be managed by PT SMP as successor of PT DS is as small as 500 ha out of 15,00 ha where it plan rubber inside forest area considering rubber included as forest plant. At the same time HTI area also encroached by local people and non locals by appropriating forest land using traditional transfer of land ownership.

### 3.5. Resulting land use

Deforestation is a global threat as it triggers climate change brought by greenhouse gas effect. At the same time, agricultural commodity production is a major driver of global deforestation [13]. It is no doubt that deforestation in tropical country become global attention. The loss of forest cover is mainly due to the production of agricultural commodities, which are produced by corporations or smallholders [13]. But the process at ground level can be complex. As Dharmasraya show, deforestation caused by several condition including vacant management or lack of forest management, lack of monitor, lack of law enforcement, lack of forest protection by forest use permit owner or absence of them.

Forest cover change from year 2000 until 2014 shows a tremendous decline in forest cover as shown by Figure 2 – Figure 5. Forest cover change tabular data is presented in Table 3.

| Land cover change in FMUP Dharmasraya 2000-2014 |
|-----------------------------------------------|
| **Land cover** | **2000** | **2005** | **2011** | **2014** |
| Secondary forest | Ha | 28971 | 24,092.50 | 13,423.19 | 6,333.43 |
| % | 86.35 | 71.81 | 40.01 | 18.89 |
| Plantation | Ha | 3,436.2 | 7,920.50 | 17,750.02 | 19,780.06 |
| % | 10.24 | 23.61 | 52.91 | 59.00 |
| Open land (ha) | Ha | 1,143.6 | 1,537 | 2,376.79 | 3,312.09 |
| % | 3.41 | 4.58 | 7.08 | 9.88 |
| Mix farming | Ha | - | - | - | 4,039.92 |
| % | - | - | - | 12.05 |
| Shrub | Ha | - | - | - | 62.02 |
| % | - | - | - | 0.18 |
| Total | ha     |
|-------|--------|
|       | 33,550.00 | 33,550.00 | 33,550.00 | 33,550.00 |

**Figure 3.** Forest cover 2000

**Figure 4.** Forest cover 2005

**Figure 5.** Forest cover 2011

**Figure 6.** Forest cover 2014
Table 3 shows that forest cover decline from 86.35% to 18.89% in last fifteen years, rate of deforestation increases from 2.42% to 5.30% per year. This study suggests that gap in forest and land use permit may have contributed to forest decline. More importantly over lap forest use permits accelerates deforestation.

Indonesia has made a deforestation free commitment. However, this commitment may not reach smallholders and the impact of these commitments on smallholders is still poorly understood but may prove substantial, both directly and indirectly. Indeed, deforestation-free commitments are far more suitable for large companies that have the capacity and can rely on economies of scale, to go through the process [13]. Meanwhile, smallholders are increasingly interested in clearing the forests for annual crops, because of the high prices of oil palm and rubber and the high demand for logs [9].

As seen from Figure 1 – 4, forest area continues to decline. It is easily observable from remote sensing map. Private Oil Palm Plantation Company has entered far inside remaining land declared as forest area.

Community on the other hand also contribute a lot to deforestation. After land clearing was made, individual sell the land to third parties. Conversion of forest is commonly practiced and forest land transaction become rampant. This process of deforestation seem goes uncheck. Hence, the case show that deforestation in Indonesia need to be seen from below to complete what seen from above.

4. Conclusions and Implications

4.1. Conclusions

1. Overlapping land use permit mainly because government did not use the same map. Forest use permit is issued by ministry of forestry while plantation permit is issued by local government. In addition, plantation permit owner or the company clear the land outside its permitted area. This was not monitored by authority although they have access to various monitoring tools.

2. Once the overlapping discovered, parties negotiated in order to cover this from authority, forest use permit was transferred underground. Local government did not take clear action against this transaction.

3. He result of overlapping land use permit brought about serious deforestation, more forest land is encroached by local people, land transaction increased.

4.2. Implications

Forest Management Unit (FMU) is adopted in Indonesia as efforts to overcome the growing concern of Indonesian forest condition, which is characterized by increasing rate of forest degradation, underdevelopment of forestry investment, the low progress of forest plantation establishment, less controlled forest area, decline in community economic in and around forests, and increasing unmanaged forest area. FMU is expected to be done through strategic efforts in the form of deregulation and de-bureaucratization of forestry with the multi-stakeholder approach [14]. However, as Dharmasraya case reveals, FMU would only operates well if its working area is secure. Securing the working area is the work of BKPH. BPKH is decentralized body of Ministry of Environment and Forestry. Its office a thousand miles a away. BKPH has capacity to monitor forest cover, identify encroachment, and other forest conversion activity. Unfortunately, BPKH has no organ at field level which in charge of following up those information. As the paper argues, forest monitoring need further action to use the information for forest protection. The gap is no one takes this activity, forest user or government nor community.

Dysfunction of FMU Dharmasraya is not an isolated case. As also found in FMU Banjar District where people in the study site as one of the key stakeholders who have a strategic function in this FMU policy implementation was not aware of FMU presence. In addition, problems of incomplete and unclear land status [15] add to dysfunction of FMU. Stakeholder analysis shows that direct and powerful stakeholders in “KPH” establishment are “BPKH” [16]. A different result found by
Possumah et al. in FMU Model Dampelas Tinombo where communities had high understanding on the planning of forest production management [17].

Encroaching production forest ex concession area by local people is common phenomena in Indonesia as reported also by Survey Team of Forestry Department, Muhamaddiyah University Palembang where there was a indication that land encroachment had occurred by people in Muara Merang and Kepayang Village in Lalan Production Forest, but out of MRPP areas [18]. Commonly, land that was tilled by people including 1 to 10 hectares to grow rubber or oil palm. Dharmasraya and other similar cases in Indonesia clearly show that forest monitoring tools including satellite images were not utilized to enhance forest management.

Acknowledgments
Author thanks DIKTI for the research grant provided through PMDSU scheme to which this paper based on. Thank also to FMU Dharmasraya for map and data provided, the same also goes to BPKH Wilayah I Medan.

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