

**TOWARDS PROSPERITY AND SUSTAINABILITY:  
THE PROGRESS OF SOCIAL FORESTRY IMPLEMENTATION IN INDONESIA**

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**Paper prepared for presentation at the  
“2019 WORLD BANK CONFERENCE ON LAND AND POVERTY”  
The World Bank - Washington DC, March 25-29, 2019**

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## **ABSTRACT**

Social Forestry (SF) in Indonesia has embarked on a new phase when the Ministerial Regulation No. P.83/2016 was enacted. Under this regulation, five SF schemes are regulated, namely Community Forest (HKm), Village Forest (HD), Community Plantation Forest (HTR), Partnership (Kemitraan), and Customary Forest (HA). Although SF in Indonesia has been initiated before 2016, a robust evaluation framework to see the progress of SF program in achieving the intended goals, i.e. 1) tenurial conflict resolution, 2) welfare improvement and 3) forest protection, remained absent. Our research in two SF locations in Sumatra show that SF implementation could protect the forest from threats while also improving communities' welfare through forest-based income and environmental services. Yet, overlapping boundaries between the proposed and approved maps remained and both communities and the authority did not seem to notice. Therefore, a stronger commitment from all stakeholders are required to further advance the achievement of SF program in Indonesia.

**Key Words:** community-based forest management, community forest, impact evaluation, social forestry, village forest.

## **BACKGROUND**

Social forestry (SF) is a form of community-based forest management (CBFM), in which communities living around and inside forest are given the rights to manage the forests. A new phase of SF in Indonesia started with the issuance of the Ministerial Regulation No. P.83/2016, which regulates five SF schemes, namely Community Forest (HKm), Village Forest (HD), Community Plantation Forest (HTR), Partnership (Kemitraan), and Customary Forest (HA). These schemes are targeted to cover as many as 12.7 million hectares of state forest areas by 2019. Prior to this regulation, SF has been primarily implemented since 1970s via a state owned forestry enterprise called Perhutani. SF then gained more momentum over the next few decades as other schemes such as HKm and HD started to appear until finally these schemes were regulated under a single umbrella, the Ministerial Regulation No. P.83/2016.

Yet, two years after the enactment SF regulation in 2016, the government decided to slash the target to be 4.3 million hectares by 2019. By December 2018 SF achievement had only reached 2.53 million hectares or 59% of the 2019 target. Despite this minimal achievement, there have already been many communities benefiting from the program. According to the statistics from the website of the Directorate General of Social Forestry and Environmental Partnership within the Ministry of Environment and Forestry (MoEF), approximately 2,715 SF groups are operational as per February 2019.

Although SF groups have been formed and their permits have been granted, there has been no comprehensive evaluation which assess the impact of SF both at the national level and at the site level. Ideally, both types of evaluation analyze progress against the backdrop of intended goals of SF, namely 1) tenurial conflict resolution, 2) welfare improvement, and 3) forest protection. To fill this gap, especially the lack of evaluation at the site level and the associated methodology to measure achievement (or lack thereof) of a particular SF group, WRI Indonesia has developed an evaluation framework as a reference for SF stakeholders, especially the Ministry of Environment and Forestry, to assess whether SF implementation at a particular site has been delivering its intended goals. In this vein, this working paper is aimed at providing an insight on how social forestry implementation in Indonesia has been progressing based on two ‘best practice’ case studies.

## **METHODS**

### **Study Area**

This study is conducted in two social forestry areas, namely HKm Beringin Jaya in Tanggamus District of Lampung Province and Hutan Nagari (HN) Simancuang in South Solok District of West Sumatra Province. Note that HN is synonymous with HD. These two SF locations have won MoEF’s ‘Wana Lestari’ award in 2017 and 2016 respectively. Land use in HKm Beringin Jaya has experienced multiple conversion episodes, from tea plantation in the 1940s to coffee plantation in the 1970s. The area was also designated for restoration in the late 1970s, until the locals regained access informally in 1998 and formally in 2012 with a HKm permit. With forest areas totaling 871 ha, HKm Beringin Jaya is utilized by as many as 561 households mainly for coffee plantation and planting high-canopy trees, especially for agroforestry purposes.

On the other hand, HN Simancuang was given the SF permit in 2010 with the aims to not only give legal access to manage the forest, but more importantly to protect water sources within the HN. With total areas reaching 650 ha under the designation of watershed protection forest, HN Simancuang is meant to provide stable water supply to its 210 household members and others residing along the Simancuang River. The members of HN Simancuang are spread in two sub-villages (*Jorong*), namely *Jorong* Simancuang and *Jorong* Karang Hitam Simancuang.

### **Data Collection**

We collected primary data in the two study sites (HKm Beringin Jaya, Lampung and HN Simancuang, West Sumatra) through random household surveys to a total of 269 households, 19 in-depth interviews, and two focused group discussions (FGDs). More specifically, the household samples represent 28% and 53% of

total households in HKm Beringin Jaya and HN Simancuang, respectively. In addition to local communities, we also interviewed local stakeholders, including forest management units (KPH), village heads and local figures who were prominent in their respective communities. Shape files of these social forestry locations were obtained from their respective local facilitator, i.e. Konsorsium Kotaagung Utara (KORUT) at HKm Beringin Jaya and KKI-Warsi at HN Simancuang. These shape files were developed via participatory mapping in 2009 when these facilitators initiated the establishment of SF groups for permit purposes along with the locals.

### **Data Analyses**

We employed mixed methods for analyzing the progress of SF implementation in HKm Beringin Jaya and HN Simancuang. With the qualitative, quantitative, and spatial data that were gathered from various sources, we then performed a comparative analysis on the progress of HKm Beringin Jaya and HN Simancuang in achieving SF goals. In doing so, we referred to Baynes et al. (2015) study on key factors that influence community forestry group (CFG), including (1) socio-economic status and gender-based inequality; (2) secure property rights; (3) intra-CFG governance; (4) government support; and (5) material benefits to community members. In addition, we also refer to a study done by Pagdee et al. (2017) in which they identified three success factors for community-based forest management (CBFM), including (1) well-defined property rights; (2) effective institutional arrangements; and (3) community interests and incentives.

The qualitative data was summarized in various forms, including diagrams and tables. The quantitative data was processed to generate descriptive trends, including socio-demographic information, tenurial arrangement, household income, and perceptions. More specifically, household income data was aggregated to measure average income level, distribution and disparity. As such, descriptive statistics was used in performing economic analysis. Additionally, we also performed spatial analysis to assess potential border overlaps and to calculate tree cover loss in both locations. Tree cover loss data from Hansen et al. (2013) was used to measure the trends from 2001 to 2017 and assess how the forest cover changed over time.

## **RESULTS**

We categorized the findings into three groups, namely 1) tenurial conflict resolution, 2) economic welfare and 3) forest conservation. Each of these categories represents social forestry's overarching goals as outlined in the Ministerial Regulation on SF No. P.83/2016.

### **Tenurial Conflict Resolution**

Ideally, all tenurial conflicts in social forestry locations should be fully addressed during the participatory mapping process, before the permit is granted. During this process, all farmers who have cultivated forest lands participated in determining the borders. When mismatches occurred, some form of conflict resolution shall take place.

#### Land-Use in HKm Beringin Jaya and HN Simancuang

HKm Beringin Jaya and HN Simancuang have different forest occupation histories. In HKm Beringin Jaya, the forest area was only converted into coffee plantation in the 1970s from tea plantation previously. The locals were then prohibited from entering the forest during the forest rehabilitation period in the 1980s until finally they worked on getting their HKm permit in 2009 onwards. Upon receiving the permit, HKm Beringin Jaya farmers started managing the forest again with some rules that must be followed, including 1) designating 10% of HKm area as a protection zone, 2) tree-cutting prohibition and 3) high canopy tree planting requirement. Other than the area designated as a protection zone, the rest of HKm Beringin Jaya areas has been managed by the locals as coffee plantations.

Meanwhile, the history of land occupation in HN Simancuang was rather smooth as land conversion only occurred in the flat alley just down what is now known as HN Simancuang. The land clearing of this alley occurred gradually since 1974, initiated by five Durian Tigo Capang's landless farmers who were looking for suitable lands for rice planting. Although the alley was then cleared to make ways for rice fields and settlements, the locals fully understood that HN Simancuang forest needs to be preserved to maintain its function as a water catchment area. Formalizing HN Simancuang's forest through village forest scheme (*hutan nagari*) has protected the forest from threats, especially from illegal logging activities and further land clearing. As a result, only limited parts of HN Simancuang areas are now managed as plantations, leaving the majority of its areas intact.

#### Conflict Management

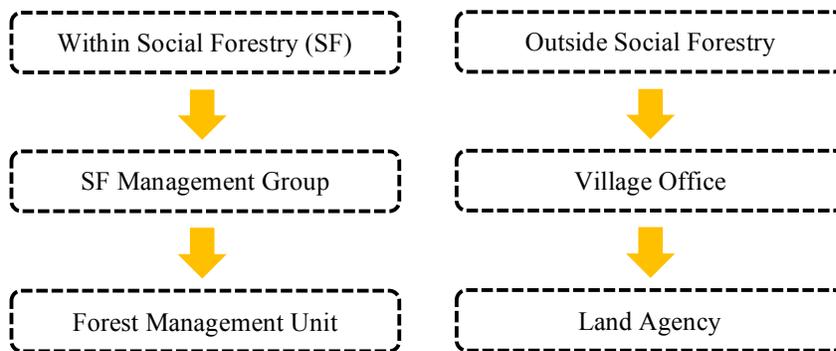
Analyzing the long history of land occupation in both HKm Beringin Jaya and HN Simancuang is important to better understand how the lands were divided and how the communities determined their management rights arrangement. Ethnically, HKm Beringin Jaya is dominated by third or second generation of migrants from the island of Java and other parts of Sumatra. Patrilineal arrangement was observed in the area. Here land ownership status was held mostly by the men while women played some role in supporting land management. There is also a commonly-held perception among the communities that stay-at-home women are better off than those who help the husband in the field, which limits the role of women mainly to light harvesting jobs and post-harvest processing. On the contrary, land-ownership status in HN Simancuang is held by the women due to the matrilineal system in the '*Minang*' or West Sumatra culture (see for instance

Kato 1982). Even though the men do not hold land-ownership rights, they have the rights to manage the lands owned by the women, e.g. their mother and wife.

In both sites, tenurial conflicts had occurred. We noted some common types and drivers of tenurial conflicts, such as ownership changes through land-selling (HKm Beringin Jaya) and land collateral or *Padang Gadai* (HN Simancuang). While the former is quite straight forward, the latter is related to the Minang culture in which the land owners (i.e. women) could use the land as a collateral for quick cash. Given that social forestry does not give land-ownership status to the permit holders, land-selling and land collateral indicate incompliance issues. Further, our household surveys also showed that some conflicts had occurred in both locations after social forestry permits were granted (3 conflicts in HKm Beringin Jaya and 10 conflicts in HN Simancuang), although the conflicts have already been resolved,

In addressing potential tenurial conflicts that may arise in the future, social forestry management teams had developed ways to resolve them (Figure 1).

Figure 1. Tenurial Conflict Management

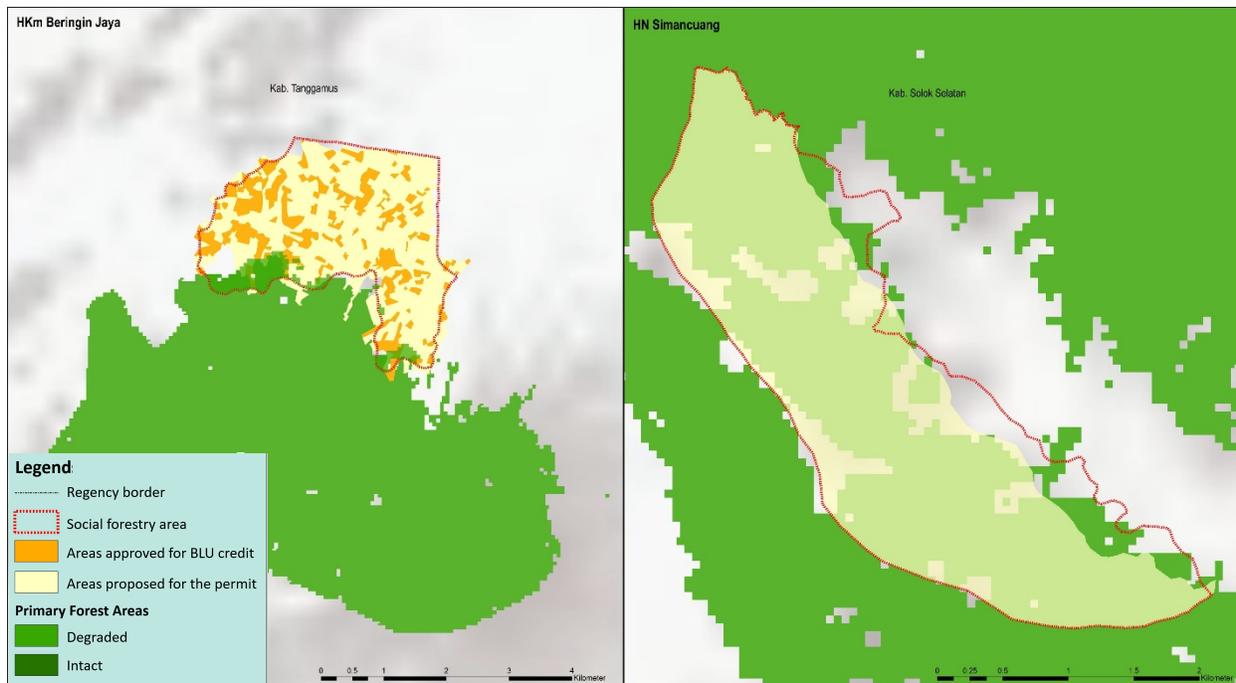


Source: FGDs and interviews

In general, conflict management in both locations were quite similar in that tenurial issues concerning social forestry areas were addressed directly to the respective social forestry's management group. Meanwhile, tenurial issues occurring outside of social forestry areas are under the purview of national agrarian agency (ATN-BPR), thus requiring a different troubleshooting mechanism, i.e. via village office. As such, having an established tenurial conflict resolution mechanism in all social forestry's management teams is central to prevent further escalation (see Agrawal 2007).

Interestingly, our spatial analysis indicated potential tenurial conflicts in the future. Upon overlying and comparing the proposed and approved social forestry areas' polygons, we found major border mismatches in both locations (Figure 2).

Figure 2. HKm Beringin Jaya (Left) and HN Simancuang (Right) Areas



Source: Margono et al., KORUT (2009), KKI-Warsi (2009), processed by WRI Indonesia

In both locations, some areas proposed for social forestry were apparently not included in the approved areas. This had left some farmers' lands outside the approved territories. Based on our group discussions and in-depth interviews, such discrepancies did not seem to be an issue among farmers and social forestry's management teams. Rather, they perceived that they had solved all tenurial conflicts in their areas when the participatory mapping was completed.

### **Economic Wellbeing**

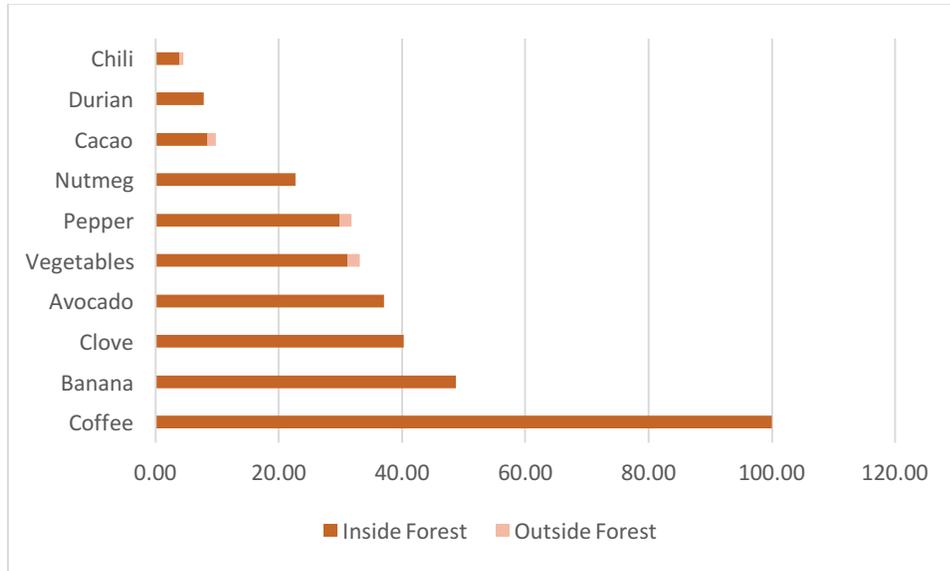
Various academic literatures have discussed how social forestry yields economic benefits for local communities (see Kuncoro et al. 2018; Ojha, Persha, and Chhatre 2009). Such benefits stem particularly from the way the SF communities manage their forests. Given that local communities in HKm Beringin Jaya and HN Simancuang have different approaches in managing the forests, their dependence on forest resources also differs. For HKm Beringin Jaya, forest has long been managed for agriculture purpose, i.e. coffee plantation. Meanwhile, HN Simancuang communities utilized the forest for the ecosystem services it provides, i.e. for watershed protection.

### Agricultural Production

Given the contrasting purposes of social forestry establishment in HKm Beringin Jaya and HN Simancuang, the types of agricultural production also differ in both locations. In the more agriculture-intensive forest

management of HKm Beringin Jaya, we found at least 21 agricultural commodities that support communities' income (Figure 3). Approximately 98% of these commodities are planted inside the forest.

Figure 3. Top 10 Commodities Grown in HKm Beringin Jaya



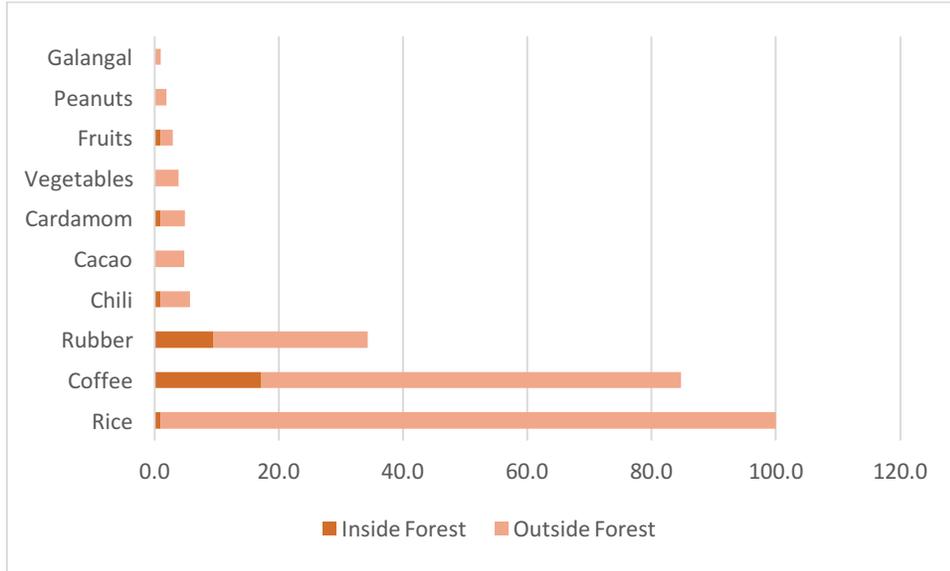
Source: Household survey data (2018), processed by WRI Indonesia

HKm Beringin Jaya's land conversion history affects its present-day landscape which is dominated by coffee plantations. Although all respondents mentioned that they grow coffee and to some extent rely on coffee planting for their income, many have started planting other tree types between their coffee trees, including banana and clove. The respondents said that their decision to grow certain commodities is based on market opportunities. It is therefore unsurprising that banana comes second after coffee because Lampung is a banana-producing province with established market networks.

In addition, nutmeg is predicted to have an increasing share among the tree crops in the next few years. Currently around forty percent of the community members obtain soft-loans from the ministry's general affairs bureau (BLU) to plant nutmeg trees. They view that nutmeg has a higher price as well as the ability to provide shed to the coffee trees, therefore promoting a better agroforestry practice.

Further, we have identified ten commodities that were grown by the community members at HN Simancuang. Given that the primary aim of HN Simancuang establishment was to preserve its main function as a watershed protection forest, only a small portion of the forest has been converted to agricultural fields. Of those ten commodities, only 30% were planted in the forest areas while the rest were planted outside (Figure 4).

Figure 4. Commodities Grown in HKm Beringin Jaya



Source: Household survey data (2018), processed by WRI Indonesia

In South Solok Regency, the matrilineal ‘*Minang*’ culture influences the commodities planted by the locals. Rice cultivation is the center of the ‘*Minang*’ culture, in which paddy fields owned by the women provide security for the nuclear family (see for instance Kato 1982). It is, therefore, unsurprising to see paddy/rice dominating the share of commodities in the area of HN Simancuang. Virtually all respondents expressed that they cultivated rice. Since rice is not a forest product, its cultivation in HN Simancuang is done outside forest areas, in flat-contoured locations and with flowing water from irrigation. Given the high water dependency of paddy fields (see Bouman 2009), rice cultivation in the vicinity of HN Simancuang requires the ecosystem support from HN Simancuang as a watershed protection forest.

Apart from its cultural backdrop, HN Simancuang’s steep contour has also prevented the locals to cultivate the area when the first settlers first arrived. From our direct observation, the plantations located inside the forest were mainly located on the edge of the forest area, where the slope is rather less steep. This has allowed the locals to regularly maintain their plantations while protecting the forest. Further, in general only a small portion of HN Simancuang has been converted into plantations, mainly for coffee and rubber. High market access potential was mentioned by the respondents as the reason for growing these commodities.

### Income Generation and Distribution

Community members living in HKm Beringin Jaya and HN Simancuang are mostly farmers. Most of their income is generated from agricultural productions, while some also have other sources of income, including

from formal and informal works. As such, we incorporated all sources of income to view the general picture of community welfare (Aji et al. 2015). We also assessed the income structures, including agricultural income (both from within SF areas and non-SF areas) and non-agricultural income. We used Gini coefficient as a means to understand the role of SF-based income in lessening the discrepancy between members (see Todaro and Smith 2012).

Located in a coffee-producing province, access to market for HKm Beringin Jaya's coffee production was relatively easy, especially because there are several local traders living the village. Besides, because all HKm Beringin Jaya's members managed the forest for agriculture, if not agroforestry, all agricultural production from HKm Beringin Jaya contributed to approximately 99% of their income. In nominal terms, average income of HKm Beringin Jaya reached IDR 20.4 million or 25% below the regional minimum wage. Since some of their basic food needs were produced from the social forestry area, this lower income level did not necessarily mean a lower living standard. With an average price of IDR 21,665 (USD 1.5/kg), coffee contributed up to 72% of their average income. The rest of their income came from producing other commodities or from other sources.

In contrast, most of HN Simancuang's farmers did not have access to agricultural lands inside the forest as they understood the role of HN Simancuang forest for water conservation, which is crucial for the rice cultivation outside of the forest. Only approximately 24% of the respondents expressed that they managed forest area for agricultural purpose, mainly in the less-steep areas. As a result, direct use of HN Simancuang forest for agriculture only contributed about 34% of their annual total income (IDR 20,4 million). Their total income is 23% lower than the regional minimum income in South Solok Regency. Again, in a self-sufficient community, this income does not necessarily translate to lower living standard as the majority of their food supplies are self-produced.

HKm Beringin Jaya and HN Simancuang have different types of forest management, with the latter having less direct dependence on forest for agricultural production. As such, income distribution is more varied in HN Simancuang compared to HKm Beringin Jaya. In HKm Beringin Jaya, community members have a more homogenic source of forest income, i.e. coffee production. When both groups are compared, it appears that HKm Beringin Jaya has a lower Gini coefficient (0.42) than HN Simancuang (0.65).

If the income generated from social forestry is taken out of the calculation, HKm Beringin Jaya's income disparity widens by 0.17 point as reflected by a Gini coefficient of 0.59 compared to HN Simancuang's 0.64 Gini coefficient (0.01 point lower due to the small portion of population who managed the forest for agroforestry). This indicates that social forestry's impact on the income of farmers goes in line with the level of their dependency on the forest as a source of income. In other words, the more economic activity

occurs in the forest, such as through agriculture and eco-tourism that may benefit all social forestry members, the narrower the income disparity will be.

### **Forest Conservation**

We ran tree cover loss analysis in both locations by overlaying various spatial data on Indonesia primary forest (Margono et al. 2014), global tree cover data (Hansen et al. 2013), HKm Beringin Jaya polygon (KORUT 2009), and HN Simancuang polygon (KKI-Warsi 2009). A loss in tree cover is defined as the loss of tree with a height of 5 meters in 30 meters of spatial resolution (Hansen et al 2013). The polygons from HKm Beringin Jaya and HN Simancuang were developed in 2009 during the permit process with participatory approach.

Using the latest data on global tree cover change in 2001-2017 developed by Hansen et al (2013), it is evident that HKm Beringin Jaya and HN Simancuang have different tree cover loss patterns (Table 1).

Table 1. Tree Cover Loss Rate Before and After Permit (Ha/Year)

<b>Location</b>	<b>Before Permit</b>	<b>After Permit</b>
HKm Beringin Jaya	4.31	1.59
HN Simancuang	0.74	2.00

*Source:* Margono et al. (2014) Hansen et al. (2013), KORUT (2009), KKI-Warsi (2009)

Tree cover loss in HKm Beringin Jaya decreased drastically from 4.31 ha per year before the permit to only 1.59 ha per year after the permit was granted (Table 1). Interestingly, the decrease in tree cover loss rate at HKm Beringin Jaya started to appear during the permit proposal period between 2009 and 2012. This was likely in part because of the nature of land use in HKm Beringin Jaya, which had been mostly converted to coffee plantation by then.

During the participatory mapping completed in 2009, the whole HKm Beringin Jaya areas were divided into individual plots; each managed by a registered household. Given that coffee plantation requires regular maintenance especially approaching the harvest season, farmers need to come and check their coffee plants regularly during this time. During the lean season, farmers usually shift their attention to their rice fields and check on their coffee trees once a week. Such pattern allows the communities to perform two functions, i.e. maintaining their coffee plants and protecting HKm areas from threats at the same time.

A different story emerges in HN Simancuang. Based on the spatial data analysis, the tree cover loss rate in HN Simancuang increased almost three-fold after the permit was granted (Table 1). Most of the tree cover loss occurred in the primary forest with reasons ranging from degradation to land conversion, such as dry land farming and rice field. Local villagers started to clear up the valley to make ways for rice fields and

settlements around forty years ago. Only a small portion of HN Simancuang areas had been converted for plantations, including coffee and rubber.

The increase in the rate of tree cover loss at HN Simancuang after the issuance of the SF permit in 2012 was baffling, because the HN's permit was aimed at maintaining HN Simancuang's function as watershed protection forest, based on HN Simancuang's management team (LPHN Simancuang) documents. However, through a focus group discussion and in-depth interviews, we found out at least three potential causes of the increase in tree cover loss rate. First, in the first few years since LPHN Simancuang had just been established for the purpose of getting social forestry permit, its conservation policies were yet to be fully understood by all HN Simancuang members. Second, areas around HN Simancuang are known to host gold mining potentials, therefore inviting threats from potential miners. Third, geographically, HN Simancuang's landscape is dominated by steep slopes which made it more prone to the natural causes of tree cover loss. In fact, most of the tree cover loss occurred deep in the forest and less so in areas nearby settlements.

## **DISCUSSION**

The HKm Beringin Jaya and HN Simancuang were established with different purposes in mind: agroforestry for the former while water protection for the latter. Such different approaches then led to different results. In both case studies, communities protected the forest because forest plays a huge role in generating their income, be it directly (in HKm Beringin Jaya) or indirectly (in HN Simancuang). Moreover, both cases also show positive human-forest relations as the communities understood that forest played a big role in providing them with water sources necessary for their agriculture and daily use.

Besides, both cases also showed a relatively strong institutional arrangement that provides assurance to the group members on their legal status to manage the forest. This is particularly the case for HKm Beringin Jaya's farmers, who have long struggled with gaining legal status to manage coffee plantation inside the forest. Upon receiving the permit, the major tenurial security issue was officially solved. Clear demarcation was marked and respected by the farmers, although some border overlaps from the spatial point of view is yet to be resolved. The sense of tenurial security has brought a sense of responsibility for each HKm farmer to at least secure their lands, making a collective action for protecting the forest possible (see Agrawal 2007, 2003). As a result, the tree cover loss in HKm Beringin Jaya can be managed relatively well.

However, this has not been the case with HN Simancuang; only a small portion of their members managed the forests for agroforestry. Instead, the tenurial arrangement in HN Simancuang offers an interesting point of view. Since water protection has laid the foundation for HN Simancuang's establishment, all community members agreed to collectively protect the forest from degradation. However, an increased tree cover loss

is still observed in HN Simancuang's rather steep contour. Given that only a small portion of its areas are being managed for agroforestry, a stronger measure is needed by the Simancuang communities to protect the forest, such as through regular patrol.

The existing achievements of HKm Beringin Jaya and HN Simancuang indicate that these SF groups have been progressing towards welfare improvement among their members while protecting the forest from potential threats. Referring back to Baynes et al. (2015) and Pagdee et al. (2017), both HKm Beringin Jaya and HN Simancuang have also shared some of the success factors, including economic benefits from agricultural production and water supply, strong institutional arrangement, and tenurial security, which brings forth a sense of responsibility to protect the forests.

## **CONCLUSIONS**

The long social forestry implementation in Indonesia has been lacking robust and regular evaluations, which could comprehensively and sufficiently capture how the program affects community welfare and forest protection at the site level. The enactment of an umbrella social forestry regulation in 2016 has laid the foundation for a unified SF implementation, although monitoring and evaluation still becomes one of the major bottlenecks. Our study indicates how sufficient data collection from the communities who are both actors and beneficiaries of the SF program could potentially provide a real picture of the program implementation in Indonesia, especially to assess progress towards achieving the intended goals of SF. There are two major lessons captured in the case studies of HKm Beringin Jaya and HN Simancuang. On the one hand, direct forest management for agroforestry or environmental services could kill two birds with a stone, i.e. communities may not only benefit from forest products and services, but it can also serve as a means of community-based forest protection. On the other hand, even when the majority of a certain SF scheme is not managed as agroforestry, managing the forest for water conservation effectively holds some potential to ensure the success of the SF program.

## **ACKNOWLEDGEMENT**

This paper is part of WRI Indonesia's research to develop an evaluation framework for social forestry program in Indonesia. Primary data was gathered through random household surveys, in-depth interviews and focused group discussions (FGDs) between January and April 2018. The co-authors, Adelina Chandra and Fadhilla Husnul Khatimah worked at WRI Indonesia during that period and were involved in the whole research process, including data gathering, analyses and report writing. Currently, the authors are developing a manuscript on social forestry's evaluation framework which will include some of the analyses in this paper with greater details.

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