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An Overview to the History of Social Forestry in Overcoming Poverty and Forest Conservation in Java's Colonial Period

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Abstract

The Dutch colonial government introduced social forestry at the end of the 19th century with a commitment to controlling forest resources in the Dutch East Indies. This program was a response to the rampant deforestation which had resulted in forest degradation and poverty of the population around the forest. This study examined the practice of social forestry in the late colonial period which had not been done much. From a historical perspective, social forestry practices in Indonesia before independence could be explained more comprehensively. This study uses a historical method which includes four stages: heuristic, source criticism, interpretation, and historiography (composing historical stories). Sources of information were explored through studies of archival documents and contemporary artefacts, especially official colonial government reports and contemporary newspapers/magazines. Data from various sources are then compared and tested for validity to obtain data validity. The next stage is to build facts based on data obtained and then interpreted using the social science theories. Finally, compiling a historical (historiographical) story about social forestry during the late colonial period. The results showed that colonial forestry during the colonial period was still limited in terms of area and method, namely in the area of teak forest and involving villagers through the intercropping system. Farmers involved in these activities are called *pesanggem* who earn income from forest land being rejuvenated. However, the relationship between *pesanggem* and the forestry service has not been well institutionalized, consequently the *pesanggem* is often disadvantaged. Including certainty of ownership and ownership of forest land never gained clarity and even became a source of conflict.

Key Words: social forestry, forest degradation, poverty, *pesanggem*, colonial period

Introduction

For centuries, forests have been providing a source of income for people living in the surrounding area. Forests become economic, social and cultural resources which play an important role in the survival of surrounding communities (Shanley et al. 2016). However, the ability of forests to provide food and livelihoods is increasingly limited due to degradation and deforestation led by various factors (Miyamoto 2020). Rapid population growth, uncontrolled forest exploitation, and simultaneous changes in ecosystems have a devastating effect on the forest environment (Angelsen and Wunder 2003; Bauhus et al. 2010). Forests not only decrease in quality and quantity, but also continue to decrease or even disappear due to the conversion of forests in expanding agricultural land, plantations, settlements,

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and other physical development (Duguma et al. 2019).

Forest inhabitants are increasingly vulnerable to their livelihoods because of the economic pressures caused by the forests' lack of ability in providing sufficient economic resources (Angelsen and Wunder 2003). This situation increasingly demanded people because the State's policy restricts the access of forest villagers exploiting the forest and all its resources. Before the modern state was established, the forest area was under the authority of indigenous peoples who lived communally. They are free to use the forest to collect forest products directly or to cultivate forest land for agricultural activities. They see the forest as a legacy that can be used together to meet subsistence needs. These traditional rights are finally forced or even lost when the State claims that forest resources are controlled by the State on the grounds for the common interest/welfare of all citizens (Blaikie 1985; Domínguez and Luoma 2020).

The process of forest degradation has actually been going on for a long time, especially when forests in Java were controlled and managed by the Dutch colonial government. Being under the traditional royal system, forest tenure was under traditional leaders with local communities (*vorst-domein*). However, after the authority of the native leader was replaced by the Dutch Colonial Government, all forest resources were controlled by the colonial state (*staatsdomein*). Then came the concept of "State forest" which was enforced based on positive law (Warto 2011). Since then massive exploitation of forests has been committed so that forest destruction is inevitable. Especially since the end of the 19th century specifically at the time of forest capitalism (Warto 2010) began to be practiced in the Dutch East Indies, forest entrepreneurs exploited the forest without good control and supervision, which in a short time had caused considerable damage to a large number of forests on Java.

This article aims to reveal the practice of social forestry in

Table 1. Review of related studies

Authors	Summary
Blaiki (1985)	The presence of the modern state has urged the traditional rights of the people in utilizing the forest.
Boomgaard (1988; 1989), Peluso (1992), Warto (2011)	The concept of "state forest" was established in Indonesia in the mid-nineteenth century under Dutch colonial rule, which was based on positive Western law.
Cordes (1881), Perhutani (1977)	The formation of positive forest laws in Indonesia began with the enactment of the forestry regulation (Boschreglement) in 1865.
Warto (2010)	The advent of the domineering notion of forests in the 19th century paved the way for forestry capitalism, which resulted in exploitation and forest destruction.
Alfitri (2005)	Introducing the concept of "marga forest," a social forestry model that includes the community and local government in the forests of Kerinci National Park in Sumatra.
Silaban (2014)	Social forestry is a science and art that integrates aspects of reforestation with community social, economic, and cultural aspects.
Muhammad (2012)	The social forestry program is carried out by planting gaharu trees, which are operated by a local community group named "Kemagahan" in partnership with non-governmental organizations (NGOs).
Sahide et al. (2018)	Social Forestry is a sustainable forest management system that uses the local population as the primary agent to improve the welfare and balance of the ecosystem.
Herawati et al. (2017)	Introducing the PPA Model to resolve problems with stakeholders who have different goals and interest in social forestry application in Lampung.
Simon (1993; 2004), Warto (2011)	Efforts to revitalize the forest in partnership with the community, which eventually developed into a social forestry model, have been ongoing since the colonial era (late nineteenth century) through contracts with local residents (*pesanggem* farmers).
Warto (2021)	In this article, we describe the history of community forest management in Indonesia, as well as several social forestry models used to alleviate poverty among people living near forests.

the colonial period as an effort to improve and preserve forests. In contrast to post-independence social forestry practices that have been extensively studied by a number of previous researchers (Tichelman 1987; Alfitri 2005; Muhammad 2012; Silaban 2014; Herawati et al. 2017; Sahide 2018), social forestry studies before independence remains relatively few in number. Studies by Simon (1993; 2004) and Warto (2011) briefly discussed forest rejuvenation efforts carried out along with communities during the colonial period, especially in teak forest areas in Java. The social forestry program is closely related to the concept of forest land tenure and its management. The Dutch East Indies Government as a representation of the modern State presents the concept of the State forest which in some ways is contrary to customary law. According to Blaikie (1985), in environmental (forest) management in the colonial period, there were four developing trends of thought: (1) Environmental problems are seen as problems apart from the social problems, thus the government does not concern the interests of people living around the forest; (2) local people are considered unable to manage and maintain the environment which drives the government to provide lessons on "good ways of environmental management" to the population; (3) overpopulation is considered as the main cause of forest destruction and environmental degradation; and (4) the subsistence economic system is a driving factor to environmentally unfriendly agricultural activities (Blaikie 1985; Domínguez and Luoma 2020).

The following provides information about the previous relevant studies, each study data is elaborated in the Table 1.

The information about various works carried out on forestry, forest sustainability and social forestry have been discusssed so far, among others; the conflicts underlying legislations governing forest eco-tourism industry (Zhang and Park 2009), the economic, social, and environmental impacts of community-based forest management implementation activities (Fajar and Kim 2019), social and economic effects of forest management certification (Lee et al. 2012), and the latest is the study on social forestry development in Indonesia (Pambudi 2020) the study came with a conclusion that Social forestry is built on how society perceives the success or failure of forest management.

Social forestry is a national program aimed at forest preservation covering the aspects of social, economic, and cultural society. Its management is carried out by combining the roles, rights, and obligations of the residents with various parties managing forest resources for protection, poverty alleviation, and the goal of sustainable production for the welfare of the concerned society (Woo and Choi 2009). Being viewed from the social aspect, social forestry affects people's livelihood strategies, social capital, conflict resolution, and empowerment. The social life similarly affects economic prosperity and investment. The relationship between social and economic aspects of the society has an impact on the forest preservation itself (Silaban 2014). Meanwhile, according to Sahide et al. by local communities or customary law communities as the main actors in improving people's welfare, environmental balance and socio-cultural dynamics in the form of *Hutan Desa* (HD) [Village Forest], *Hutan Kemasyarakatan* (HKM) [Community Forest], *Hutan Tanaman Rakyat* (HTR) [Community Forest Plantation], *Hutan Adat* (HA) [Customary Forest], and *Kemitraan Kehutanan* [Forestry Partnership] (Sahide 2018). Village forest is state forest where its management is given to village institutions, residents forestry, which is state forest held as an effort by the government to empower local communities, residents plantations, namely plantations in production forests developed by residents groups to increase the potential and quality of forest, *adat* or customary forest production, namely forests located within the territory of indigenous forest peoples, and forest partnership systems, namely residents collaboration with forest management, holders of business use permits (IUP) of forest, forest service, lease-to-use forest area permit or primary forest product business permit holder (Ardiansyah et al. 2017).

This paper explains how the social forestry program was applied in the late nineteenth and early twentieth centuries. The description begins with explaining and structuring forest areas in the Dutch East Indies, exploiting the driving factors of forest degradation, local residents' participation in social forestry through contracts, and descriptions on how social forestry affects the economy of the population and forest sustainability. Reforestation programs serve two important objectives, which are to restore degraded forest areas and to provide livelihood opportunities for disadvantaged people living in the forest's vicinity. The gov-

ernment must ensure that the locations designated as social forestry areas are compliant with its objectives, and that permit recipients are members of underserved communities. The objective of position verification is to ensure that the selected areas are in compliance with the function of the purpose of social forestry, while permit recipient verification ensures that they are the community in need. The government must restrict the number of group members that will be granted approval in order to allow verification of the group's recipients.

Materials and Methods

This study was designed with a historical method which covers four steps. Beginning from the heuristic stage, which is to trace and gather contemporary historical sources either documents/archives, artefacts or historical traces in the material physical form, as well as historical actors. At this stage of data collection, information gathering from books and magazines and newspapers covers information about forest problems in Java generally and social forestry practices particularly. The next step is to criticize the sources in testing the authenticity and credibility of the sources, one of which is by comparing one source with another so that the validity of the data is guaranteed. The next stage is to establish the data into historical facts and then interpreted through the help of other social science concepts beyond the discipline of history. The final step is to explain the history of each variable raised in the research question and then present it in a narrative or historical story.

This study takes the case of Rembang Residency in the 19th and early 20th centuries. Its territory includes the districts of Rembang, Tuban, Blora, and Bojonegoro which are the central regions of teak forests in Java (Warto 2009). The establishment of the Forestry Bureau in the colonial period was first intended to manage forest resources in this area. Thus, many forestry archives discuss this area.

This study drew on a range of archive sources including the Plantation Archive No. 1103, *Indisch-Staatsblad* 1897 No. 271, and *Kolonial Verslag*, 1895-1900. All of them is stored in the Jakarta National Archives. In addition, this study also used the report called *Mindere Welvaart Commisie, IX* 2b of 1914, stored in Sono Budaya Jogyakarta. Additionally this also used the position handover report or Memorie van Overgave (*M.v.O*) in microfilm and KITLV Leiden collection form. Likewise, the forestry files collected in *Verslag de Dienst v/h Boschwezen*, is stored in the Lanbouw Archive, Bogor. In addition to the archives, this study also utilizes periodicals, specifically the Tectona magazine which published the Forestry Bureau in the early 20th century (Fig. 1).

Fig. 1. 'Overzichtskaart van de Djatibosschen in de Residentie Rembang, Java' (Map of the Djati (teak) Forests in the Rembang area, Java).

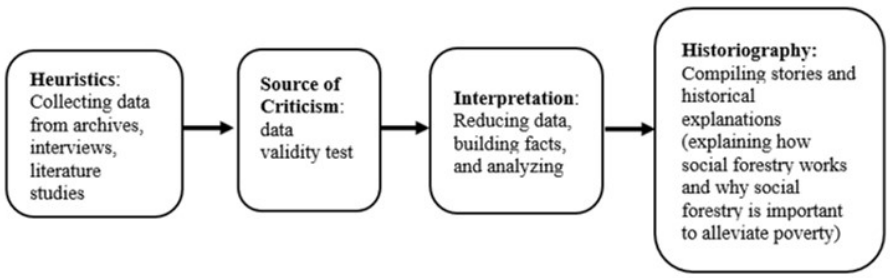

Fig. 2. Flow chart of the study.

Historical methods

The initial phase of this study begins with finding and collecting data (heuristics), which originate from colonial forest archives, interviews with forest residents, and observing the location of the forest areas. The data in the colonial archive is in the form of official documents, both written and microfiche, as well as contemporary newspapers. The next phase is to verify the collected data by examining the authenticity of existing archives and comparing their contents between data sources. The final phase involves compiling or reducing data, establishing facts based on the collected data, and then analyzing it to create historical stories. The data was organized into one narrative unit related to the research theme using certain principles/ theories. The final phase is historiography, which involves compiling facts into historical stories and following them with specific explanations or explanations (explanations) about the phenomena under research. In other words, the study results are thoroughly explored in order to draw conclusions (Fig. 2).

Findings

This provides an overview to the history of social forestry, as well as issues and observations, in the sense of Indonesian national development planning. The ecological harmony between humans and nature contributes to the consideration of the social forestry value as a program that should be continuously encouraged by the government, as well as the optimisation of economic aspects in the sustainable development principle.

Forest structuring

Data on forest area in Java during the colonial period is difficult to ascertain, bearing in mind at that time forest mapping was not carried out systematically and comprehensively. The following Table 2 presents the area of forests in Java in the three decades of the 20th century, although this data has somewhat doubtful accuracy.

For example, until the middle of the 19th century, the area of teak forests in the Rembang Residency was not known with certainty. One source suspects that the area of teak forests in the Rembang Residency in 1840 was around 2,797 km^2, scattered in around *afdeeling* Rembang (225), Tuban (472,5), Bojonegoro (961,5), and Blora (1138) (Plantation Archive No. 1103, ANRI). The forest area was only somewhat clearer after the measurements and mapping were carried out in several forest areas. In 1860 the Government established the Teak Forest Measurement Commission which worked until mid-1871. The Commission succeeded in making detailed maps of teak forests in each of the Residency areas on a scale of 1:10000 and 1:25000. Map scale for all Java teak forests 1:1000000. In mapping the forest, additionally determined the names of forest areas that are already known by inhabitants. The first mapping and measurement of teak forests was carried out in Rembang, that is why at the end of 1863 the area of teak forests was known (Cordes 1881). From the results of preliminary measurements, the area of teak forests in Java in 1871 was reported to be around 6,000 square kilometers, and almost half were in the Rembang, Madiun and Semarang residences. The report of measurement results during 1861-1863 mentioned that the area of teak forests in Rembang was 2,845 square kilometers or around 47.42 percent of the total teak forests in Java.

A few years later, especially after the massive exploitation committed by private companies, the Rembang forest suffered a setback. The acceleration of forest destruction as a result of logging continues to expand, where this was actully imbalance with the rejuvenation efforts made for it. Some of the good enough teak forest centers as many found in Blora and Bojonegoro have gradually turned into vacant or diminished land. This is evident, in 1897 the area of teak forests in the Rembang region was recorded at around

Table 2. The coverage data of forests in Java

Year	Forest (in ha)	
	Teaks	Others
Before 1891	40.855	7.014
1891-1900	36.471	4.985
1901-1910	52.761	4.574
1911-1920	60.583	15.323
1921-1930	71.047	33.614
1931-1939	93.986	53.648
Total	355.703	119.158
% Total forest area in Java	43.7	6.3

Source: A. Jonkers (1948) in Penders (1984, p.10).

238,100 hectares (around 2,381 km^2), most of them are natural teak forests (73.12%) and the rest are rejuvenated teak forests (5.88%). Similarly, teak forests in the Rembang Residency reach almost 34.72 percent of the area. Compared to all teak forests in Java (655,904 Ha), the area of teak forests in Rembang reached 36.30 percent.

In 1897 the teak forests in Rembang Residency were divided into seven forest district areas, among which were the districts of Randublatung, Blora, Todanan, Tudir, Kedewan, Tuban, and Bojonegoro (*Indisch-Staatsblad* 1897 No. 271 and *Kolonial Verslag* 1898). Throughout Java, there are 21 teak forest districts, stretching from the area of Priangan-Krawang-Banten in the western part of Java to Probolinggo-Besuki in eastern Java. Forest management as part of new forestry management changes continues to increase its area coverage, both in the region teak forest and jungle. One of its main objectives is to provide certainty and business guarantees for logging companies. Employers need accurate data support regarding the area and volume of wood in the forest before binding a work contract. Another objective of forest management is that it facilitates management and supervision. Teak forest structuring includes definitive measurement, mapping, and installation of forest boundaries. In its management, teak forests that have not been structured are submitted to the local Regional Government (Resident/Regent), while the forests that have been structured are under the supervision of the Forestry Bureau. The first forest area is called Forest District and the second is called *Houtvesterij* (Forest Round Area).

The regulation of forest areas followed by large-scale exploitation has a double impact: degradation of the forest environment and also presents new opportunities. On one hand, forestry policies implemented during the late 19th and early 20th centuries have led to a loss of residents' access and traditional rights to use forests. However, forestry policy also creates new opportunities for forest villagers. Logging, rejuvenation, structuring, and forestry infrastructure development have at least opened up new employment opportunities outside the agricultural sector. One of the new opportunities is forest rejuvenation activities involving local residents through the contract system.

Pesanggem farmers

Forest rejuvenation carried out by the Dutch colonial government through a contract system with villagers. This system is often called the "tegal-kontrak" system. Farmers who were willing to work in forest rejuvenation activities are called "*pesanggem* farmers". The emergence of *pesanggem* farmer groups marked an important change in forest village communities in the late 19th and early 20th centuries. *Pesanggem* is the label given to a group of farmers who obtained a source of livelihood through a work contract with Forestry Bureau. Their main concern and activity are to rejuvenate the forest, which includes preparing the land to maintain young plants to a certain age. Their work organization is organized by Forestry employees under the supervision of a foreman. The work contracts are not carried out collectively at the village level, but individually according to their respective abilities. In this connection, the village head was almost never involved in a contractual agreement with the Forestry Bureau. The contract-contract system undertaken by *pesanggem* farmers is more similar to the free labor system. Farmers are free to determine for themselves whether they wish to transform into *pesanggem* or not; Likewise, the area of land to be worked on also varies according to their ability to bear the burden of their obligations.

At the prior stage of the contract-implementation system, each person works on one hectare of rejuvenation land. As compensation, the residentsgets the remaining wood left behind by paying a small fee. However, in its development, due to the increasingly limited land area and the number of *pesanggem* continues to increase, the contract-tegal system has changed. The width of the shared area of each *pesanggem* no longer reaches one hectare for the land continues to be divided into more narrow again to accommodate new *pesanggem*. This method is done so that all the poor or even all population groups. Thus the area of land that can be cultivated by *pesanggem* was different, ranging between ¼, ½, and ¾ hectares, depending on one's ability. The method of "dividing poverty" developed by *pesanggem* farmers in this area is similar to what Geertz once addressed about 'agricultural involution' in Java (Geertz 1976). The difference is, rice farmers, try to accommodate as many workers as they continue to grow, while *pesanggem* farmers reduce the area of arable land to be given to other farmers who do not yet have land. However, the point re-

mains the same, accommodating excess labor.

The width of the contract area, additionally, depends on the land quality and the amount of wood remaining that is useable from the logged-over land. The rest of the wood can be used for small industrial materials or used as firewood and charcoal. The result is partly sold to the market. Furniture and wheelbarrow handicrafts in Tuban, for example, are mostly obtained from logging plots, mostly from "tegal-kontrak"farmers. In each logged-over land, there is still left over wood that can be collected by *pesanggem* by paying a low levy. This type of wood is usually very substantially old, and although it is small in size, it is quite suitable for making carts and furniture ("Economie van de Desa") (Koleksi ANRI 1914). Another leading factor is the narrowing of the arable land of *pesanggem* due to the increasing number of people living around logging plots. In areas with large populations, the wholesale price per hectare turns to be cheap and the width of shares, therefore, turns narrow; while the area is sparsely populated the wholesale price of forest rejuvenation is quite expensive. However, the wholesale price per hectare is set at 20-30 guilders.

In addition, they also receive wages for land clearing and processing, the amount of which depends on the area and fertility of the land being worked on. In fact, when *pesanggem* farmers are difficult to obtain, "*tumpangsari kontrak sapi*" [a cow contract intercropping] experiment was carried out (Simon 2004), ie at the beginning of the year, the farmer was given a calf as a bonus. However, if teak plants are kept in poor yield, in the second year the calf must be returned. This Tumpangsari model was forced to stop in 1933 due to an economic crisis. In addition, the Forestry Service offers other incentives to residents, ie., farmers are free to determine the width of shares to be taken according to their abilities; *pesanggem* are obliged to build working huts on their land by utilizing the remains of logged timber. Once good crop yields, in the second year the cottage can be demolished and taken home. Farmers are also facilitated with free tools in the form of machetes, gancos, and hoes.

Forest rejuvenation is an important part of efforts to preserve forests and contribute to creating employment for forest villagers. According to a forestry watchdog in Tuban, Boerigter, the area of rejuvenation of teak and jungle forests had been using Tumpangsari method (*waldfeldbau-methode*) from 1896 to 1905 as illustrated below in Table 3.

Table 3 shows the forest expansion activity in Tuban area in 1896-1905 which covered a fairly large area. Around 3,425 hectares of land had been successfully rejuvenated by involving thousands of residents (Koleksi ANRI 1914). Supposed that each *pesanggem* works on ¼ - ¾ hectares contract-field, then the number of farmers involved in forest rejuvenation reached 4,566-13,700 people.

In working on their duties, *pesanggem* farmers are grouped into small groups according to the location of the land being worked on. The basis of this group is not a village or hamlet unit, but rather, the name of the forest where the rejuvenation took place. The rejuvenation and maintenance of young plants only lasts a few years. Likewise, Tumpangsari or intercropping farming activities only last 1-2 years somewhere. Farmers must find or work on land elsewhere after the first contract expires. This semi-permanent farming activity resembles "shifting agriculture" as a

Table 3. The width area of forest rejuvenation in Tuban, 1896-1905 (in hectares)

Districts	1896	1897	1898	1899	1900	1901	1902	1903	1904	1905*
Rembes	-	-	27	30	45	109	114	113	110	60
Jenu	-	-	-	-	-	-	-	-	-	50
Rengel	-	-	-	-	-	10	11	41	40	107
Jatirogo	98	110	153	149	174	179	87	154	130	83
Bancar	-	-	-	-	35	-	-	10	57	65
Singahan	101	72	37	51	38	72	144	199	100	260
Total	199	182	217	230	292	370	356	517	437	625

Source: "Economie van de Desa", MWC 1914, pp. 76.
*According to the strategical plan.

nomadic residentsdoes.

Technical aspects of forest management

As previously explained, forest rejuvenation is carried out by contract with local residents (*pesanggem*). The amount of wages is adjusted to the quality of soil fertility that will be carried out by *pesanggem*, which is between f 60 (in the regional areas of Bekutuk, Ngliron)-f 5 per hectare (Grobogan forest district), or an average of f 30-f 40. The method of payment of contract wages in some areas is to give out cattle breeds (cattle contracts) (Anonymous 1917), i.e., in Madiun, Saradan Selatan, Randublatung, Ngliron, Bekutuk, Padangan. *Pesanggem* farmers in addition to obtaining a plot of plantable land for food crops for more than 2 years, they also get wages for cleaning and preparing land to be planted with young teak. In between the young teak plants, planting of food crops was carried out (*tumpangsari*). In addition to being paid and entitled to work on forest land for planting food crops within a certain period through the intercropping system, they were also allowed to take other forest products such as *rencek* [firewood], grass, teak leaves, and others. In addition, they were permitted to take the remaining or *tonggal* teak wood (*bonggol, enthon*).

Technically, the rejuvenation of teak forests is carried out in two ways, one of which is planting young teak seedlings in logged-over land and the other is maintaining shoots growing from teak stems. The first method is usually carried out by *pesanggem* farmers who bind a contract with the Forestry Bureau. The logged land is cleared of the remnants of wood leftovers, then processed and prepared (*gebrus*) to plant young teak after the rainy season comes, young teak seedlings begin to be planted according to field officers' instructions. The distance of plants from one another greatly determines the following teak growth. Likewise, the quality of land highly influences the development of teak plants. The forest rejuvenation pattern or system chosen also influences farmers' interest to take part in becoming *pesanggem*. The implemented land fertility and rejuvenation systems are the very concern when a person wishes to become *pesanggem* since it will affect the yield of food crops obtained later. The second way, for forest rejuvenation, it is unnecessary to prepare land and young teak seedlings, however, it is sufficient to maintain the growing buds from the already cut down teak stake (*sogolan*). If the shoots grow a lot, then some of them need to be pruned so they grow big. The second method is relatively inexpensive but the results are less good than the first method.

Forest rejuvenation is carried out in line with technical instructions provided by field officers. After the land is cleared, it is then planted with teak seeds at a set distance. This work was precisely carried out in August-December. The growing teak plants should be maintained in accordance with the provisions. In between the teak plants, farmers cultivate food plants (*tumpangsari*) like palawija [crops] and rice or *padi gaga* where the result is their right. As reported by Klopproge, paddy *gaga* (rice) planted on forest rejuvenation yielded an average of 10 *pikul* or load (1 load=62.5 kg) per *bau* (1 bau=0,75 Ha). Average rice yields in the rainy season an average of 16 loads (dry rice) per *bau*; corn averages 8 loads per *bau*; *singkong* [cassava] about 60-100 loads per *bau*, and sweet potatoes (*bataten*) where the productions increadibly high, between 30-100 loads per *bau* (*M.v.O. Klopproge* 1927; Warto 2011).

Although being a *pesanggem* farmer is open to all villagers, the fact is that *pesanggem* farmers generally come from underprivileged or poor communities who do not own paddy fields. This includes the blandong (loggers). According to the Regent of Tuban, RT Ario Kusumodikdo, the number of residents (families) of Tuban, especially those who do not own their own arable land (*aantal werkbare mannen niet in't bezit van grond*) during 1903 considerably much. Outside of small landless farmers, the amount of landless is also inevitable. This group is commonly the *pesanggem* farmers in state forests. In 1890 in Rembang, their number was 16,967 and in 1903 it was 18,194. Meanwhile, for the other three *afdeeling* during 1903, there were Tuban: 21,834, Bojonegoro: 23,157, and Blora: 13,764. Total number of landless people during 1903 was 76,949.

In Bojonegoro, ie., In 1905 a rejuvenation of 800 ha of state forest was carried out, involving 1,000 families or benefiting around 5,000 people. A farmer can bind a contract with their Forestry Bureau to obtain several benefits: (1) Everyone (preferably the poorest but healthiest) receives a share of land of 0.7-0.9 ha; (2) They are required to plant and maintain young teak according to instructions for 1.5 years. The farmer is additionally obliged to plant padi gaga or rice between the young teak and palawija plants accord-

ing to his choice; (3) During October-February each *pesanggem* receives one bag of rice per month from the government-owned barn for food supplies. In fact, during March they still received one load, and in April they had already harvested rice; (4) Every grower who needs money, ie, to buy agricultural equipment, buy clothes, pay taxes, slametan fees, and planting costs is allowed to borrow from the forest supervisor (*boschopziener*); (5) Anyone borrows 2 gulden, at harvest time *pesanggem* must return one bag of paddy-gaga to the Government granary (*gouvernementsloemboeng*); for the needs of rice seeds, *pesanggem* farmers receive it for free; (6) If a crop failure is not due to negligence, the *pesanggem* is not required to return the borrowed money or rice; (8) wood left on logged-over land belongs to him; (9) to eradicate Imperata on crop land, the *pesanggem* receive a loan of 5-6 guldens per person and return it after harvest (Koleksi ANRI 1914).

The offered various incentives and facilities are expected to attract Rembang farmers to join *pesanggem*. Each piece of land, for example, can produce about 15-10 loads of rice and twice harvest crops. Almost every year there is a shortage of rice seeds. Many farmers are indebted to Chinese, pilgrims, or village heads, with a cosiderably high interest system. Ie., when one borrows to a Chinese rice seeds as much as one load, after harvesting he has to return 2-3 loads. Shortage of seedlings occurs because the stock is consumed when there is crop failure and food insecurity. The crisis-stricken villages could no longer afford to buy rice seeds in cash. Additional village granaries are no longer able to provide the seeds needed.

Results and Discussion

Social forestry has long been known to Indonesian society from the colonial period to the present, although it uses different terms. To counter forest destruction and degradation caused by overexploitation of state forests, social forestry was introduced. Efforts to mitigate forest damage using a social forestry model can be carried out consistently and on a wide scale by involving local people. When poor people's access to forest services is restricted or reduced, they gain new job opportunities.

Social forestry, as a forest management model, is well suited for use in Indonesia. This social forestry model, which includes local communities and the government, aims to restore forest ecosystems that were destroyed by over-exploitation since the Dutch colonial era in the nineteenth century and beyond. On the one side, once the forest area is designated as a state forest, forestry entrepreneurs can begin major logging. Forests provide significant benefits to both public and private sector businesses. Forest destruction, on the other hand, is inevitable and creates a threat to the survival of the poor who live nearby. Similarly, introducing social forestry as a forest management model is significantly vital for overcoming forest destruction by incorporating social, economic, cultural, and environmental aspects. Social forestry provides resources for the poor to raise their life conditions while still working with the government and other parties to rejuvenate forests. For all parties involved in the forest, social forestry is basically a win-win situation. Forest management communities will certainly have their own responsibility and ownership for this precious resource.

There are three important aspects of the social forestry program that are closely interrelated among which are land, business opportunities, and human resources (including their institutions). Social forestry takes place on logged-over land which is then planted with new trees. This activity takes place on state forest land, namely forest areas declared to be controlled by the state (domein understanding). Apart from the issue of forest land tenure, which originally belonged to communal villagers and was then taken and controlled by the state, social forestry was actually limited to regulating forest rejuvenation efforts involving local residents. Residents who lose their traditional rights to the forest are then involved in replanting logged-over forests. A "*pesanggem*" peasant group emerged, consisting of blandongs and other ordinary residents. This *pesanggem* group is not a farm owner but only works on forest land that is being rejuvenated. Forest land is still controlled by the state which is partly leased to forestry entrepreneurs. Asymmetrical relationship between *pesanggem* and Forest Bureau is created as a representation of the state. The practice of social forestry continues to expand and increase along with the widespread deforestation carried out by private entrepreneurs on the one hand and on the other hand an increasing number of residents who need employment opportunities.

The process of forest degradation has been going on for a long time, especially when the forest was under the control of the Dutch colonial government. In the 19th century, forest management and supervision in Java was intensively carried out. The Javanese forests are classified into three broad groups namely teak forest areas that have been structured, teak forest areas that have not been organized, and heterogeneous forest/jungle areas. The structuring and supervision carried out by forestry experts from the West under the Dutch colonial government actually first aimed to facilitate the exploitation of forests to bring the maximum benefit. However, after the forest degradation which continues to increase and uncontrollable, the colonial government tried to rejuvenate the forest on logged-over land. Restructuring of forests based on positive Western laws has actually eliminated the traditional rights of the population to forests. Poor residents around the forest lose access to and control of forest resources that they were previously free to use.

Introducing social forestry through contract fields opens new opportunities for villagers to meet their needs. With an intercropping system (growing food on the side-lines of young plants/trees), poor farmers receive additional income which is a pivotal alternative in meeting basic household needs. The forest rejuvenation and supervision system that involves the population around the forest in its development is called social forestry because the aim is not solely to restore the function of the forest, but also to improve people's lives. Although the results of forest rejuvenation have not been maximally felt because they have not been able to compensate for the rapid deforestation carried out on a massive scale, double-sided social forestry has contributed positively to the preservation of forest ecology and efforts to improve the lives of poor people. Social forestry with its various variations remains relevant to be used as an approach or model of forest management which integrates various ecological, economic, social, and cultural aspects of local residents. Among the issues that need to be overcome are related to tenure, more specifically the right to forest land that has not been completely resolved because each party, which is the government/state and the people feel most entitled to control and possess. This problem is increasingly sensitive when the symptoms of "land hunger" continue to occur bearing in mind the population continues to increase.

Conclusion

The practice of social forestry as part of efforts to rejuvenate and conserve forests has been going on since the late 19th and early 20th centuries. The extent of forest exploitation is directly proportional to the increasingly intensive influence of the Dutch government's power in regulating and controlling forest resources. When forest resources were controlled by a colonial state, the impact was very broad. In addition to residents losing access to forests, private entrepreneurs are given many opportunities to exploit forests. Then there was massive deforestation by involving local residents or *blandong*. To repair damaged forests the colonial government limitedly started to do forest rejuvenation in several places. This activity is carried out with communities around the forest through a contract system. Forest rejuvenation with this contract model gave rise to a new social class called *pesanggem* farmers, namely farmers who bind a contract with the Forestry Service to do forest rejuvenation. In return, farmers are given the right to grow food on forest land overgrown with young trees. This forest rejuvenation approach has a positive impact on both the population and the Forest Service since in addition to increasing income it also guarantees forest security. A symbiotic-mutualism relationship exists between farmers and the Forest Service in managing and conserving forests in a sustainable manner. However, the contract system actually still puts farmers in a subordinate position because they are very dependent on other parties (the government and forest entrepreneurs). Farmers do not have the right to control and have forest land because it is already controlled by the State. This state *domein* understanding eliminates the traditional rights of the population. Social forestry applied on State forest land still leaves a long tenure problem. Social forestry in the past did not try to seek for a solution to the problem of population rights to land and forest resources.

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