Forest and plantation land uses, and the influence in RIMBA corridor, Sumatra

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Abstract

Indonesia is one of the largest globally distributers of pulp and paper. This is all produced on timber plantations, what causes deforestation and loss of biodiversity. The local communities living near such a plantation could have a disadvantage of these plantations by the loss of non-timber forest products (NTFP). The WWF Indonesia is establishing a reserve in central Sumatra that connects smaller reserves, the RIMBA corridor. Here timber plantations are also present. So what kind of influence do these plantations have on their surrounding area, how sustainable are they and how do the local communities circumvent with the impacts caused by the timber plantations? These questions were addressed through questionnaires for managers, employees of timber companies and local communities living near timber companies. However in the field, it became clear that the local communities had also a large influence on the natural forest, by converting it into all sorts of plantations. The timber companies and their management were almost unreachable and unfortunately not much information became available through them. The majority of the people use NTFP and are willing to increase sustainable forest management. One of the companies can have potential as an example of sustainable forest management and of one company the concession might be used for different purposes.

Preface

As a master student of Environmental Biology I am greatly interested in biodiversity and conservation of the tropics. Together with Dr. Pita Verweij of the Copernicus Institute of Sustainable Development and mas Thomas Barano Siswa Sulistyawan MSc, of the WWF Indonesia, I conducted my major research internship (of 51 ec) over a just established project in Sumatra, Indonesia. Here I spent three months in the field, a beautiful area, collecting data and experienced living in the tropics. This made me want to contribute to the project of the WWF Indonesia and inspired me to write this thesis!

During the fieldwork I was assisted by, personal translator Rian Erisman BSc, contact person in the field mas Yudi Agusrin, colleague student Dipl.-Kfm. Junadi Susantio and of course our beloved driver bang Syah Bendri. Thank you guys for joining me everywhere I went, translating everything I said and making it easier with the culture differences!

In our "hometown" in Dharmasraya I would like to thank drs. Rahmadian, the Head of Dharmasraya's Environmental Agency (Badan Lingkungan Hidup – BLH) and his staff for providing us with internet and a place to work. And in Kuantan Singingi I would like to thank Pak Sariman and his family for the accommodation and accompanying us in the field. I am also grateful for the local government in Dharmasraya, Sinjunjung, Tebo, Kuantan Singingi and Pekanbaru. For helping to get in contact with the timber companies, providing with extra information and helping with my visa extension.

During my short stay in Jakarta I would like to thank Ernawati Apriani BSc, and the entire team of the RIMBA project, you all supported me and helped with the language difficulties. I am also much obliged to Prof. Dr. Budy Resosudarmo from the Australian National University for giving me advice. And so many other people who supported me and joined me in the field, whose names are too many to mention.

And of course I would like to thank my mother, without you this all would not have been possible!

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1 Introduction

Most of the natural forests in Sumatra, Indonesia, have been converted to plantations; e.g. palm oil, rubber and timber. Even in reserves many different plantations are present, plantations that are privately owned or that are part of global organizations. In central Sumatra the WWF Indonesia is executing a baseline research on a corridor that connects several smaller reserves to each other, the RIMBA corridor. In RIMBA timber concessions are part of the corridor and thereby part of the migration route of some wildlife species crossing RIMBA corridor. For this thesis I conducted an own Master Major Research at the RIMBA corridor, about the timber companies in RIMBA and how the local communities use the forests.

1.1 Global timber industry

Paper, a globally used and produced timber product. Over the past 20 years the productions has been growing rapidly, from 1990 to 2013 the paper production has increased with 34% (based on data provided by FAOstat, 2015). North America is the top consumer of paper, and used to be also the top producer of pulp and paper, however other continents, for example Asia, are now in competition for number one pulp and paper producer (FAO, 2014).

The timber industry is nowadays an important item on the political agenda, worldwide. This because of the impact timber companies can have on the environment, e.g. loss of biodiversity through destruction of natural habitats, increasing CO_2 emission due to deforestation on swamps, soil erosion what can lead to flooding or extreme droughts, wildlife habitat destruction, sedimentation load in streams may increase and water returning from the plantations can contain a higher salinity due to fertilization (FAO, 1992; Forest Monitor, 2006). The influence of the forest sector is increasing due to the global growth of the middle class populations and the increasing demand of natural resources (FAO, 2014; Nikolakis & Innes, 2014).

1.1.1 Indonesian timber industry

In Asia, Indonesia is a large supplier of pulp & paper, 4% of the global production, and paper & paperboard, 3% of the global production (FAO, 2014). Since the 1980s, the number of Indonesian pulp and paper producers have grown rapidly and due to this, Indonesia is now part of the top 10 producers of the world (Obidzinski & Dermawan, 2012).

1.2 Conventional timber companies

Being that Indonesia is part of the top 10 of worldwide producers, a large percentage of forest cover is needed for the timber industry. Almost 34% of the entire forest cover (over 50 million Ha) of Indonesia is used as forest concession (Effendy & Hardono, 2001). All of this land is natural forest converted to a forest plantation, plantations that can have a huge impact on the environment, the impacts are mentioned above.

A solution to the impacts of timber companies can have on the environment could be sustainable forest management, this method enables timber companies to work more environmental friendly, socially responsible and economic viable (Nikolakis & Innes, 2014). A company with an

unconventional forest management, can be on a transition towards a more sustainable forest management and cause less environmental impact (Clark & Kozar, 2011). Be that as it may, what is the difference between conventional and unconventional timber companies?

Pearce et *al*. (2003) describes conventional timber companies as "companies which pay little attention to maintaining long-term timber supply". Also the bigger companies started to use more heavy machinery for logging after the second world war, and this approach still is used nowadays (Fox, 1968, Bertault & Sist, 1996).

Unconventional logging also known as Reduced Impact Logging, Sustainable timber management or sustainable forest management. A more sustainable way of logging then conventional logging. What is sustainable logging? Projects like forest restoration, reforestation, payments for land-based actions and gas emission through deforestation, selective logging, using skilled workers and cooperation with the local communities (Pearce et *al*., 2003; Bertault and Sist, 1996; Holmes et *al*., 2000).

There are three different concessions for the timber companies, selective logging, forest plantations and forest restoration. Most of them use forest plantations with acacia trees and are sustainable by reforestation.

Definition of conventional logging: *"A timber company that operates with a former, already known way of working, which is usually accepted by the local people, has no long-term interest and it's (usually) cheaper than a new, more innovated way of working."*

(Pearce et *al*., 2003; Fox, 1968; Bertault & Sist, 1997)

1.3 Indonesian and European Timber Regulation

Sustainable forest management for timber companies could be useful to create a more sustainable timber industry. Through regulations and maybe laws, national and international governments could activate more timber companies to be environmental friendly.

In the EU and the US, all companies are inclined to report their payments to the governments, so that the overall accountancy is more transparent. Their reports must include (small) extractive projects that they have besides their main activity, this can also be activities outside of Europe or the US, e.g. in Indonesia. Unfortunately some countries in the EU have different laws, which make it illegal for companies to disclose their payments. (Kaufman, 2011) This is part of the laws for European timber companies. But most of the timber and timber based products in Europe are imported from Asia or Africa (FLEGT, 2007).

In 2003 the European Union established the Forest Law Enforcement, Governance and Trade (FLEGT, 2007). The main goal is to reduce illegal logging by strengthen sustainable and legal forest management, improving governance and promoting trade in legally produced timber. FLEGT focusses on the timber producing countries, such as Indonesia, and activates them to produce more legal timber products by making Voluntary Partnership Agreements (VPAs). (FLEGT, 2007) As mentioned before, Europe is one of the most important importers of the forestry products from Indonesia. These VPAs have led to an agreement with the Indonesian government, to help to define and set the

laws in their country concerning the legality of forestry. And later on to help them to control these laws. (FLEGT, 2011)

To build on this agreement Indonesia began in September 2010 with the Indonesian Timber Legality Assurance System (Indonesian TLAS or in Indonesian Sistem Verifikasi Legalitas Keyu, SVLK) (FLEGT, 2011). The main principles of this are representativeness, governance and credibility. TLAS or SVLK is based on Indonesian law: MOF of RI Decree No. P.38/Menhut-II/2009 i.e. guidance of sustainable production forest management and timber legality verification on license holder, DG of FPM Decree No. P.6/VI-Set/2009 i.e. evaluation guidance of production forest management and timber legality verification and DG of FPM Decree No. P.02/VI-BPPHH/2010 i.e. guidance of performance evaluation of sustainable production forest management and timber legality verification (MoF SVLK PowerPoint, 2009).

In October 2010 a new EU timber regulation became affected in the European Union, this regulation prohibits the sale of illegally harvested timber and timber based products. Timber and timber products that are already regulated by FLEGT do not need any more EU regulation. The initial proposal was to instate FLEGT licensing on January 2013 (FLEGT, 2011), however the actual agreement was signed later in September 2013 (Official Journal of the European Union, 2014).

Indonesia uses the TLAS/SVLK set up with FLEGT for all their export of timber and timber based products. So the timber and the timber based products that are harvested in Indonesia and sold in the EU, are legally harvest by Indonesian law. This timber is defined as “timber which has been harvested, transported, processed and traded in accordance with all relevant Indonesian laws” (FLEGT, 2011; Official Journal of the European Union, 2014).

To prevent fraud with these products, the FLEGT does independent monitoring to make the legal forestry more transparent (Schally, 2010). The Indonesian government has yet to make a separate control to verify the legality of the timber and its products for own usage (FLEGT, 2011; Official Journal of the European Union, 2014)

1.3.1 Sustainability certificates

Besides the SVLK and FLEGT control on legal logging, timber companies also have sustainability control by the providers of these certificates.

For sustainable development there are several non-government organizations (NGO) and/or non-profit organizations that attend to what timber companies are doing, i.e. the treatment of their employees and local communities, set aside almost 10% of their concession for forest conservation and how they produce the timber (FSC, 2015). If a company want a sustainability certificate it should abide the rules for sustainability, then they can apply for a sustainable certificate, what, according to FSC (2015), is an effective way to get public awareness of your company and it can expand their market.

Globally there is the Forest Stewardship Council (FSC) and Programme for the Endorsement of Forest Certification (PEFC). These organizations try to promote responsible forest management worldwide. Indonesia has its own organizations, besides global organizations, that keep track of the forest management. For example the Indonesian Ecolabelling Institute (LEI), a non-profit organization that develops forest certification systems that support sustainable forest management (Heart of Borneo

Initiative, 2015), and the Borneo Initiative, a NGO working together with several other NGOs and Indonesian ministries, that provides timber companies with grants so that they can invest in sustainable targets needed for certification (Rizki Permana, 2014 personal communication; The Borneo Initiative, 2015).

Although certifications as FSC and PEFC can be good initiatives, unfortunately it is difficult to track the timber sources (PEFC Nederland, 2011). For example according to a report from Forest trends (2015) over 30% of the wood used by the certificated companies in Indonesia comes from illegal logging.

1.4 Permits in Indonesia

As mentioned before at 1.3 Indonesian and European timber regulation, Indonesia has a SVLK licence to control legal logging. If a timber company wants to apply for a logging permit in Indonesia, a SVLK licence is mandatory, so the company demonstrates that it has zero risk of illegal logging.

The SVLK system has two different certificates; S-LK i.e. Indonesia for legality statement, for Industrial Plantations operating for less than five years and S-PHPL i.e. Indonesia for sustainable forest management, for forest plantations operating longer than five years (MoF SVLK powerpoint, 2009).

For a SVLK licence a company must respect the local communities and their way of living. Fragile sites and protected species must be identified during the forestry inventory, environmental impact assessments must be conducted, the company must be registered and have all the obligatory licences (e.g. timber processing, import, export, harvesting). Preliminary studies have been conducted, a ten years plan must been made, annual working area is delineated on a map and in the field, a 100% inventory has been made and the trees have been marked according to MoF regulation, access roads are built in compliance with operating standards and timber species are authorized by the forestry administration plans (Ministry of Forestry of the Republic of Indonesia, 2010).

Besides SVLK license the Indonesian government also issues three permits per timber concession; IUPHHK-HTI, IUPHHK-RE and IUPHHK-HA. For industrial forest plantations (HTI) the license is granted for 60 years and can be extended only one time for 35 years. The Ministry of Forestry does an evaluation every 5 years. IUPHHK-HA is for timber companies in natural forest. There is also an IUPHHK-RE license for companies that do ecosystem restoration. The area they use is in unproductive production forest that is designated for planting forest. (MoF, 2010)

To get an IUPHHK license the company has to apply to the Ministry of Forestry. Besides MoF there are five other government institutions involved; namely:

1. Director General of Forest Production
2. Head of Forest Planning Agency
3. Head of Forestry Office responsible in forestry matters at provincial level
4. Head of Forestry Office responsible in forestry matters at district/city level
5. Bureau of Forest Area Consolidation

1.5 Timber companies in Indonesia

In total there are approximately 100 logging companies in Indonesia, with 1.7 million Ha of timber plantations what is appointed by the ministry. Most of these companies possess several concessions, with a maximum of 100000 Ha per provinces and 400000 Ha in the whole country. When a timber company buys the right of the concession, the concession right last for 35 years and can be extended, only for the concession holder, if the management of the concession was good. (Effendy & Hardono, 2001; FAO, 2014)

1.5.1 The two leading companies

Of the 100 timber companies, most belong or supply to Asia Pulp and Paper (APP) or Asia Pacific Resources International Limited (APRIL), the two leading companies in south-east Asia. Almost half of the companies are so called Industrial Plantation companies, or in Indonesian Forest Hutan Tanaman Industri (HTI) (Obidzinski, 2009).

Both APP and APRIL committed to do Best Management Practices companies, a term describing water pollution control; i.e. induce the effect of logging on soil erosion, streamflow and water quality (Arthur et *al*., 2007).

1.6 Non timber products

A high percentage of natural forest is converted to plantation, of which a great amount is used for logging. In the natural forests illegal logging takes place, however the natural forests and plantations can be used for many more products, i.e. fuelwood, religious purposes, vegetables dyes, food (FAO, 2015).

1.6.1 Non-Timber Forest Products

Besides the timber companies, local communities also use the natural forest. This is mostly non timber forest products (NTFP). This can include many different products as; food (fruits, game, fish, honey), medicinal plants, fibres (bamboo, rattan). This could be an (main) income for some of the poor people living in the tropics near a forest and governments and NGOs usually try to encourage the marketing and sales for them (CIFOR, 2014).

NTFPs can be used to understand and manage socio-economic environments, because some can have a cultural value, while other NTFP can be a sole income of some people (CIFOR, 2014). Sustainable harvesting of these products is necessary for the people that are completely depending on them as income and for the conservation of species (Ticktin, 2004).

1.6.2 High Conservation Value Area

These non-timber products are (usually) from non-plantations, such as natural forests. Certain areas can be of ecological value (FAO, 2003).

High conservation Value Area (HCVA) are areas with a high ecological, economic, social and/or cultural value. These areas are considered of high importance on a national, international or global level. Besides the values mentioned above, HCVAs also possess some conservational values, as endemic plant or animal species, sacred site or a natural resource harvesting site for local communities (WWF, 2004).

This concept also indicates a project for long term decision making concerning these areas. The first step is to indicate which areas are HCVA, then a threshold per value that needs management can be calculated specifically for that area. The development of management guidelines is the next step and the mapping of the values, so it can be tracked if there is a change. These are the four steps that according to the WWF needs to be done for a HCVA process (WWF, 2004).

A HCVA process can attract investors, encourage collaboration of several NGOs and give a guideline for local governments (Heart of Borneo Initiative, 2015).

1.7 Sumatra, Indonesia

Sumatra is the biggest island of Indonesia, which is completely part of Indonesia, and the sixth largest island in the world (Barber et *al.*, 2005). On Sumatra already more than half of the entire forest cover is converted to plantations (WWF, 2012). Besides the deforestation, the island is known for its gold, and sometimes is called island of gold. The Dutch East India Company was aware of this and used the gold from Sumatra as one of their most important export products of the East Indies (Hussin, 2007).

1.7.1 Sumatra geographic

Sumatra is located on the equator, stretches from latitude 6° N, longitude 95° E to latitude 6° S, longitude 106° E and in total the island is 1760 km long and 40 km wide, see figure 1 (Barber et *al.*, 2005; UNESCO, 2004). This area is part of the ring of fire, and three different tectonic plates come together here. Indonesia is part of the Malayan archipelago, and this entire area is known for its tectonic activity (Bellwood, 2007). The most famous volcanic island of Sumatra is the Krakatau. This small island exploded in 1883 and afterwards the closest islands were cleared of their biota (Corlett, 2014).

Sumatra is part of the Greater Sunda Islands. At the last glacial period, 110000 until 12000 years ago, the sunda shelf was widely sub aerially exposed (Hanebuth et *al*., 2000). Sumatra was at that time connected to the other Sunda Islands and to Eurasia (Whitten et *al.*, 2000).

Around Sumatra many smaller island are present. In the west are the Mentawai islands, in the eats the Banka or the ”Tin” islands and near Borneo the Riau islands. In the east of the main island a backbone is located, formed by the Barisan Mountains. This backbone extend the whole length of Sumatra in a narrow belt, parallel to the South West coast and sometimes only a few kilometers away from the coast, see figure 1 (Barber et *al*., 2005).

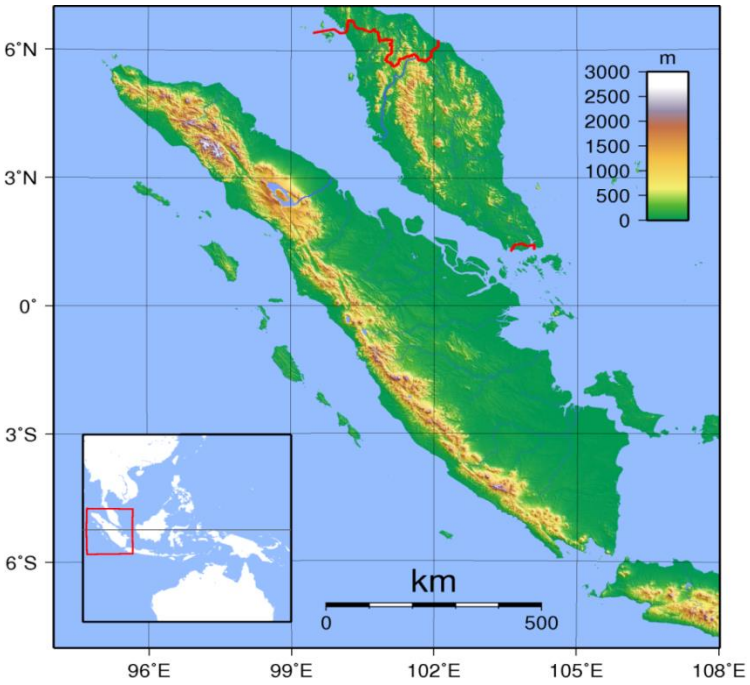


Figure 1 The island Sumatra. East of the Malayan Archipelago and the biggest island of the Republic of Indonesia. In the east of the island the mountainous backbone is located. Source Wikipedia

1.7.2 Sumatra ecology

Several scientist have described the Malayan Archipelago as one of the most interesting places in the world, because of the long history, the tectonic activity and the high biodiversity;

6 of the 25 worldwide hotspots are found in the Malayan archipelago (Krupnick & Kress, 2003; Yuan et *al.*, 2005; Van Welzen et *al.*, 2011). Sumatra was for a long time part of Eurasia, the flora and fauna found on Sumatra are more related to the flora and fauna of Malaysia, Borneo and Java. Other Indonesian islands like New Guinea have more similar flora and fauna with Australia. (Whitten et *al*., 2000)

Sumatra is a large island close to the mainland, according to The Theory of Island Biogeography it can host many organism (MacArthur & Wilson, 1967; Cook et *al.*, 2002). The larger animals present on an island like Sumatra have less predators and competition then on the mainland (Whitten et *al.*, 2000).

Besides all the similarities of flora and fauna with the Sunda Islands, Sumatra itself houses rare plant and animals' species that that cannot be found elsewhere in the world and some of them are endangered. Krupnick & Kress (2003) predicted the percentage of endemic plant species in Sumatra by estimating the total number of species based on the presents of 7 plant families. They calculated the Sumatran montane rain forest endemic percentage at 21.1%. The rest of Sumatra is between 0 – 5% endemic. Two famous plant species are the *Rafflesia arnoldii*, the largest flower in the world, and the *Amorphophallus titanium*, the tallest flower in the world (RIMBA Integrated Ecosystem; Whitten et *al*., 2000).

The vegetation composition of the island varies a lot by region. The East of Sumatra consist of peat swamps, a high carbon reservoir (Corlett, 2014). The west side of the island has mountainous area

with volcanoes, see figure 1. The coastal areas at the east have mangrove forests (Whitten et *al.*, 2000).

UNESCO is certain that still not all the species occurring in Sumatra have been discovered or recognized (UNESCO, 2004). Most of the island natural forest has been cleared for other land use. Over the last quarter century, Sumatra almost lost 50% of its forest. The province Riau even suffered a greater loss, 4.2m Ha (65%) of forest and peatland have been cleared over the last 25 years. (Uryu et *al*., 2008) This is a huge amount and the animals are forced to live in a smaller habitat and if they want to move they have to cross human area. This can cause conflict with the local communities.

1.8 Relevance and objectives

Indonesia covers around 181.2 million ha of land which is spread over 17000 islands. Of this area around 70% (133.6 million ha) is covered in natural forest (Muhtaman et *al*., 2000; FLEGT, 2011). Timber and timber based products is one of the main exported products of Indonesia and 46% of all the forest is pre-set for production purposes. Over the last five years the Indonesian export of timber has increased, from US$ 8.3 billion to US$ 9.7 billion per annum. The timber products that Indonesia exports, is ranging from pulp and paper products to furniture and other handmade products. Most of these products are exported to Europe (MoF SVLK PowerPoint, 2009; FLEGT, 2011).

Because the forest industry is important for the socio-economic status, good forest management is needed for economical, ecological and cultural needs, see figure 2. Many people are economical depending on forestry or agriculture. But also on the natural products they find in the forest. So for them a balance needs to be found between the forest industry and the (natural) biodiversity (Muhtaman et *al*., 2000; Trading Economics, 2014). According to CIFOR (2000) NTFP can increase the household income and is an economic importance for some families. However not all studies conclude this, Godoy et *al.* (1995) found that when the socio-economic status rises, the knowledge of NTFP rises and the use of NTFP increases.

Figure 2 also shows the connection between plantations and NTFP, an increase of plantation area leads to an increase of deforestation and by that a decrease of NFTP. In Indonesia 46% of the forest is pre-set for timber production and since the late 1980s the exploitation and conversion of the peat swamp forest has increased dramatically. This is a huge amount of forest and peat swamp exploitation, and in these areas the wildlife is forced to live in a smaller habitat and if they want to move they have to cross human area. Sumatra has a rare and extraordinary ecology. Animals like the Sumatran tiger, Sumatran elephant and the Sumatran Ground Cuckoo (*Carpococcyx viridi*) cannot be found anywhere else on earth (IUCN red list, 2014). Besides the loss of (rare) animals, the deforestation of peat swamps is also a big threat to Sumatra and the global environment. Due to the high level of CO_2 trapped in peat swamps, burning (a popular method of land clearing) these forest down, leads to release of the CO_2 and thereby increasing CO_2 emission (Wetlands International, 2014; Miettinen et *al.*, 2011).

Especially in Riau the pulp and paper companies (timber companies) and palm oil plantations are the main drive behind the deforestation (Uryu et *al*., 2008). For the larger pulp and paper producing companies, the production in Riau on peat lands is very profitable on short term. The negative effects, high carbon emission, biodiversity loss and social conflicts, are not part of their balance

sheets (Wetlands International, 2014). The individual farmer only own a small piece of land and do not have such a large negative effect. The province Riau has almost 900000 Ha of “waste” lands where new plantations could be developed, so that there is no need to cut down more natural forest (Uryu et *al*., 2008).

Another great threat for the natural forests is illegal logging (McCarthy, 2002). The precise number of illegal logging is unknown, however the estimate is that 80% of all the logging in Indonesia is done illegally. This form of land clearing is driven by companies or local farmers with the intention to use the land for plantations, or by other individuals who sell the wood abroad. The method most used is the “slash and burn” method, cutting the trees and the usage of “controlled” fires to clear the land, a technique that works efficient and is cheap (Uryu et *al*., 2008).

Sumatra being an island with an high biodiversity and many rare and (already) endangered species, it should be prevented that this island ever gets in a state that it is so corrupted that many species cannot return and/or get extinct. The timber industry could have a big impact on the remaining natural forest. Instead of cutting trees in natural forest or using only heavy machinery or burning using the “slash and burn” method, the companies now have three plantation concessions, forest restoration/reforestation, forest plantations and selective logging (Project identification form, 2013).

The main objectives of this research are:

- To indicate how much the timber companies influence their surrounding areas and local communities
- To make an overview of the different companies moving towards a more sustainable way of working
- To identify what the local people use from the forests and how (economical) important are these products
- To find if the local communities are willing themselves to play a part in the conservation of these forests

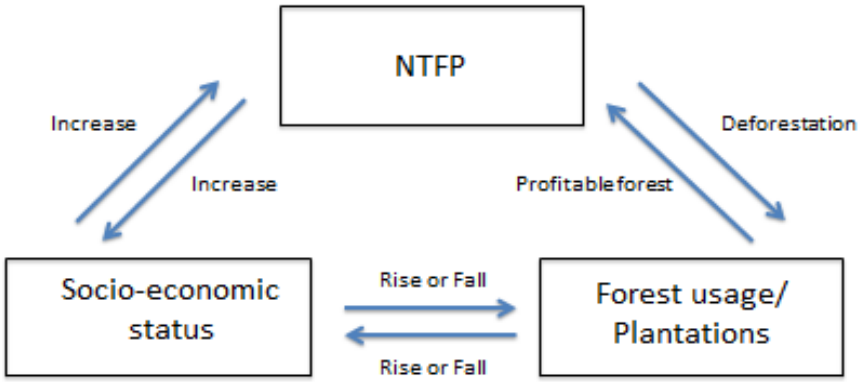


Figure 2 The connection of two of the main objectives in this thesis. Based on a report of CIFOR (2000), these mayor subjects can have an influence on each other. If the Socio-economic status increases, the use of NTFP increases due to more knowledge of NTFP increases your status. Depending on which cultural heritage a local community has, an increase of socio-economic status can cause a rise or fall of the number of plantations, while an increase of plantations leads to deforestation.

1.9 Research questions

The timber companies are difficult to contact and it is challenging to get an insight of their production and methods they use, so research on the companies terrain is almost impossible. Since 2014 the companies should have a mandatory SVLK permit (MoF SVLK PowerPoint, 2009). This permit forces the companies to be more sustainable then before. But still not all companies have this permit. Many timber companies in Sumatra are located in reserves and corridors, and have wildlife, like the Sumatran elephant, roaming through their plantations.

Before fieldwork it was useful to make an own map of all the timber companies located in RIMBA corridor to answer the questions

- Where are the timber companies in RIMBA located?

The companies are expected to reduce the biodiversity and increase forest degradation and land use change at their plantations, but is that also happening outside their area? That leads to the second research question:

- What is the influence (forest degradation, land use change, deforestation) of the different timber companies on the surrounding areas (where the local communities live)?

To get the mandatory SVLK permit companies have to make some changes in their way of working. Some have to make the transition from non-sustainable to sustainable, or during the RIMBA workshop (2014) people mentioning conventional companies going unconventional.

With the definition of conventional timber companies, see 1.2 Conventional timber companies, the transition of the timber companies towards a more sustainable method can be better understood. And with this definition and a checklist made from the definition, I want to answer the third research question:

- Some companies are still on the transition towards the mandatory SVLK permit, how sustainable are they and what more is needed to become a more sustainable company?

The WWF Indonesia is conducting their own larger scaled research of economic assessment in RIMBA corridor. A part of this is the economic importance of the natural forest for the local communities, for example the products the people use from the forests and how this improves their livelihood, for the connection between all this see figure 2. The products used from the forest can be Non Timber Forest Products (NTFP) this can include food, medicine, rotan, honey, etc., products that are for primary use or for selling, besides timber products. (CIFOR, 2014).

- What kind of Non Timber Forest Products do the local communities (living near a timber company) use, and if they sell the products how much do they get paid for the NTFP?

If the forests are so economic and cultural important to the people, this leads to the final research question:

- How willing are the local communities, living near a timber company, to pay a specific amount to support the natural forests?

1.10 Report outline

This writing assignment starts with a description of the study area, the RIMBA corridor and some concept important for this project. Chapter three describes the methods used, and in chapter four the results are presented. Chapter five covers the discussion, and chapter six the conclusion and recommendations. And after the references, the appendices contains an example of questionnaires used, photos taken and reports and interviews from meetings with employees of timber companies.

2 Study area

2.1 Riau, Jambi and Sumatera Barat

Central in Sumatra the three provinces Riau, Jambi and Sumatera Barat are present, see figure 3. Here the WWF Indonesia works together with partners GEF, MCAI and UNEP are working on RIMBA corridor, a project that will connect several smaller reserves and HCVAs in central Sumatra. Besides UNEP and GEF, the WWF Indonesia also cooperates with NGOs (for example Eyes on the Forest) to protect the wildlife and other delicate flora and fauna in collaboration with the local communities (RIMBA factsheet).

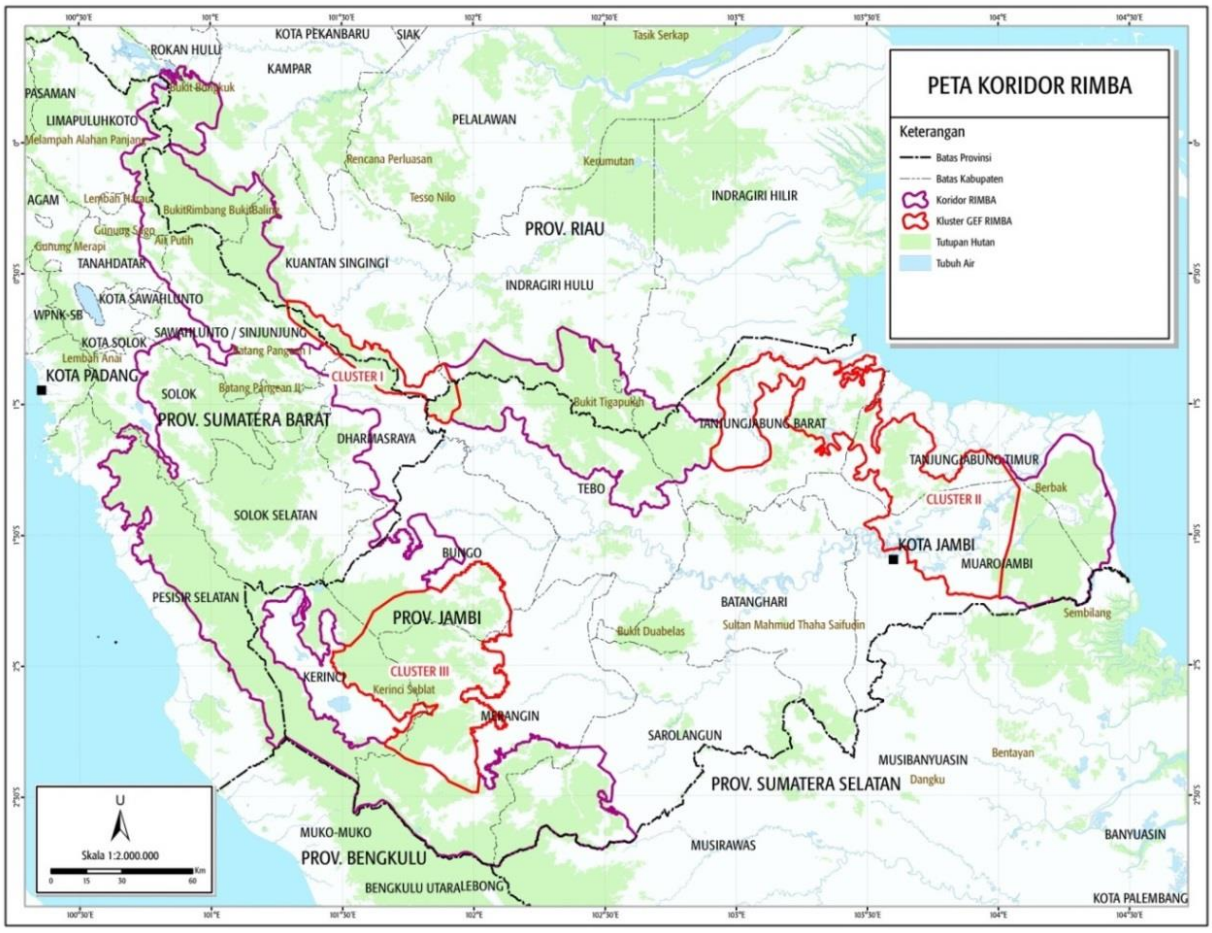


Figure 3 RIMBA corridor located in the middle of Sumatra in the three provinces Riau, Jambi and Sumatera Barat. Red indicates the three clusters. Source: Institutional & Programs Development of GEF RIMBA Corridor

2.2 RIMBA project

RIMBA supports the Sumatran roadmap or Sumatra Vision 2020 and the presidential decree no 13/2012; to strengthen and greening the spatial plan in RIMBA corridor and other corridors in Sumatra (RIMBA workshop, 2014). For RIMBA project WWF Indonesia works together with UNEP, GEF and MCAI. The project objective is to protect biodiversity and to increase carbon stocks across the RIMBA critical landscape of Sumatra by enhancing forest ecosystem connectivity through green economic development (Project identification form, 2013).

In the RIMBA area poverty is also present. The government implemented a new Green Prosperity Project, with a budget of 230 million dollars, to improve the productivity and employment, reduce the reliance on fossil resources and to reduce land-based greenhouse gas emission, all to alleviate poverty on a green and sustainable way. The government has requested the RIMBA-project to join this project (Project identification form, 2013).

To accomplish the project objective WWF had three components and there are five programs that have been developed by the Indonesian government.

The three components from the WWF:

- Establishing institutional sustainability and replication for RIMBA Green Economy
- Large-scale demonstration of the RIMBA Green Economy for forests – water, carbon and biodiversity
- Landscape wide monitoring and evaluation of GE practices in RIMBA

The five programs from the Indonesian government:

- To restore damaged natural forest
- Forest carbon payments
- Payment and programs for watershed services
- Best management practices for forestry
- Best management practices for plantations

Right now a baseline research is in progress, there are no final results yet available. For the socio economic side of the baseline research the WWF Indonesia is collecting data concerning the economic activities in the three clusters (see below). Which ethnic group(s) are the main actors, original communities, settlers or immigrants. What kind of agricultural skills do they have and use, how is the livelihood and is this specific ethnic group declining or increasing. With agricultural focus on rubber, land use, palm oil, mining and other commodities.

2.3 Green Economy

As mentioned above the objective of RIMBA project is to increase carbon stocks and protect biodiversity by enhancing forest ecosystem connectivity through green economic development (Project identification form, 2013). United Nations Environmental Programme (UNEP, 2011) has a Green Economy initiative and describes the Green Economy as: “an economy that results in improved human well-being and social equity, while significantly reducing environmental risks and ecological scarcity”.

For the RIMBA project there is still no strong definition of the Green Economy yet. Until so far the description in the RIMBA identification form (2013) is, a green economy is an economy that results in improved human well-being and social equity, whilst significantly reducing deforestation and biodiversity loss, and increasing carbon storage and habitat connectivity. Quite similar to the UNEP definition.

The RIMBA project Green Economy includes Facilitating forum on consultation, local government adaption of green economy, conflict resolution and participatory planning. In a green economy, growth in income and employment are driven by public and private investments (Cubbage et *al.*, 2009) that reduce carbon emissions and pollution, enhance energy and resource efficiency, and prevent the loss of biodiversity and ecosystem services (UNEP, 2011).

The goals of RIMBA for the green economy is to establish local energy processing, economic development and enhance welfare by this for the local communities. Because poverty is a cause for forest lost and forest lost causes to maintain or sometimes even increase poverty (Angelsen & Wunder, 2003). The idea behind the Green Economy is that the local communities process their own energy and so increase the economic opportunity in that region, and so poverty and forest conservation can be addressed. And RIMBA does this with the focus on three components water, carbon and forest resources. (RIMBA identification form, 2013)

The green economy has been described by UNEP several times. According to UNEP (2011) the green economy came to an existence due to a bad economy.

Other projects have already experienced with it and up until now the conclusion of UNEP is that there is now substantial evidence that the greening of economies neither inhibits wealth creation nor employment opportunities. To the contrary, many green sectors provide significant opportunities for investment, growth and jobs. For this to occur, however, new enabling conditions are required to promote such investments in the transition to a green economy, which in turn calls for urgent action by policy makers. (UNEP, 2011)

2.4 RIMBA corridor ecology

Rimba is the Malayan word for forest, but also a combination of the three provinces. In this area many flagship species, species that raise public awareness and financial support (Walpole & Leader-Williams, 2002), are present, like the Sumatran tiger (*Panthera tigris sumatrae*), Sumatran elephant (*Elephas maximus sumatranus*) and the Sumatran agile gibbon (*Hylobates agilis*) (Project identification form, 2013).

To protect these species smaller areas are connected to each other so that the animals can easier move from one place to another. Smaller isolated groups can travel and reduce the change of inbreeding and extinction (Simberloff et *al.*, 1992).

In the west part RIMBA corridor is limestone forests and lowlands evergreen forest present. This is not common in the rest of Sumatra (Whitten et *al.*, 2000; Bhagabati, 2012). In the east part there are peat swamps and mangroves present. This makes the RIMBA corridor a diverse area with many different flora and fauna (RIMBA Integrated Ecosystem, 2011; Uryu et *al*., 2008).

From these precious and extraordinary natural forests already 50% over the past 25 years have been cut in Sumatra, and in Riau province, part of RIMBA corridor, 65% of forests have been cleared. And sinve the late 1980s the peat swamp forest cover in Jambi dropped from 78% in 1990 to 29% in 2010 and in the province Riau the peat swamp cover dropped from 81% to 36% (Miettinen et *al.*).

Forest fragmentation, shifting cultivation and agriculture are processes that influence the biodiversity (Gillison and Liswanti, 2004). But not only the biodiversity suffers, most of the local inhabitants are reliant on the natural forests. They get their food, drinking water, medicines and many other products from this (RIMBA Integrated Ecosystem Area in Sumatra).

By controlling the sustainable management in this area, RIMBA corridor tries to reduce carbon emission and protect the threatened and endemic biodiversity.

2.5 Three clusters

There are three different green economy approaches in RIMBA corridor. All three of them are tested in a different cluster. The clusters are indicated with a red line in figure 3.

Cluster one, located in Dharmasraya (Sumatera Barat), Tebo (Jambi) and Kuantan Singingi (Riau). Green economy programme: responsible mining, forest restoration project, apply sustainable production and consumption scheme (with wild life conflict management), ecosystem services (like eco-tourism) and land use access and security. The ground contains much mineral oil and lots of palm oil plantations.

Cluster two, located in Mauro Jambi, Tanjabar and Tanjatim (all in Jambi). Green economy programme: apply sustainable production and consumption scheme (with wild life conflict management), POME, aquaculture, wetland restoration project, payment ecosystem services (PES) and land use access and security. This cluster lies on peatland and has a high carbon stock.

Cluster three, located in Merangin and Kerinci (all in Jambi). Green economy programme: apply sustainable production and consumption scheme (with wild life conflict management) watershed management, payment watershed mechanism, watershed restoration, renewable energy of micro-hydro, PES and land use access and security. This area is dominated by mountains.

These clusters have different ground types and diverse range of ecological and socio-economic conditions. All three clusters also have forest protection and specific development challenges, and they are each of them, (globally) important for the environment, biodiversity and carbon stock (RIMBA identification form, 2013).

2.6 Timber companies in RIMBA

In RIMBA of the many timber companies, not all of them are active. Inactive timber companies are companies that have a license and concessions but are currently not active. This can mean that they are temporarily not active but also that they are "dead", meaning that they will never produce timber again. Why they are currently inactive can have several reasons, like corruption, or not attending the law.

2.6.1 Permits and RIMBA

In the RIMBA project identification form (2013) the description of permits "Presidential Instruction on the Moratorium on the Provision of New Permits and Improvement of Primary Forests and Peatland Governance" (2011). This moratorium supports local, national and international stakeholders to reverse forest, peat and biodiversity loss, including in Sumatra

The RIMBA project identification form (2013) also describes a goal in which they want to achieve restoration of 3290 ha of forest by using HCVF (High Conservation Value Forest). This idea uses the precautionary value, which means when a value might exist management must assume that it is present. Logging is possible, if it's done on a sustainable way like selective logging. HCVF can only advise which areas have high value, but it cannot save these areas, that is up to governmental and financial influences. Indonesia already uses this on a national base. Although most pulp and paper companies are disqualified for the FSC certification, they do apply for HCVF because it helps their image. And it also help them on the international market (HCVF, 2014).

3 Methodology

3.1 Study area

The study was conducted at RIMBA corridor, a central located reserve in Sumatra, see chapter 2. The corridor consists of many different ecological sites, limestone forests, evergreen forests, (peat) swamps, mangroves, grasslands, mountainous area as well as low land and many different plantations (Whitten et *al*., 2000; Bhagabati, 2012). In total RIMBA covers 3,850,000 hectares over 19 districts (project identification form, 2013).

3.1.1 Site selection

Over the entire RIMBA reserve timber companies are present. Due to a time limit of two months, the target timber companies included all companies of cluster one, see figure 4. At this cluster both APP and APRIL companies were present and other smaller companies. Cluster one was also chosen in consultation with WWF Indonesia.

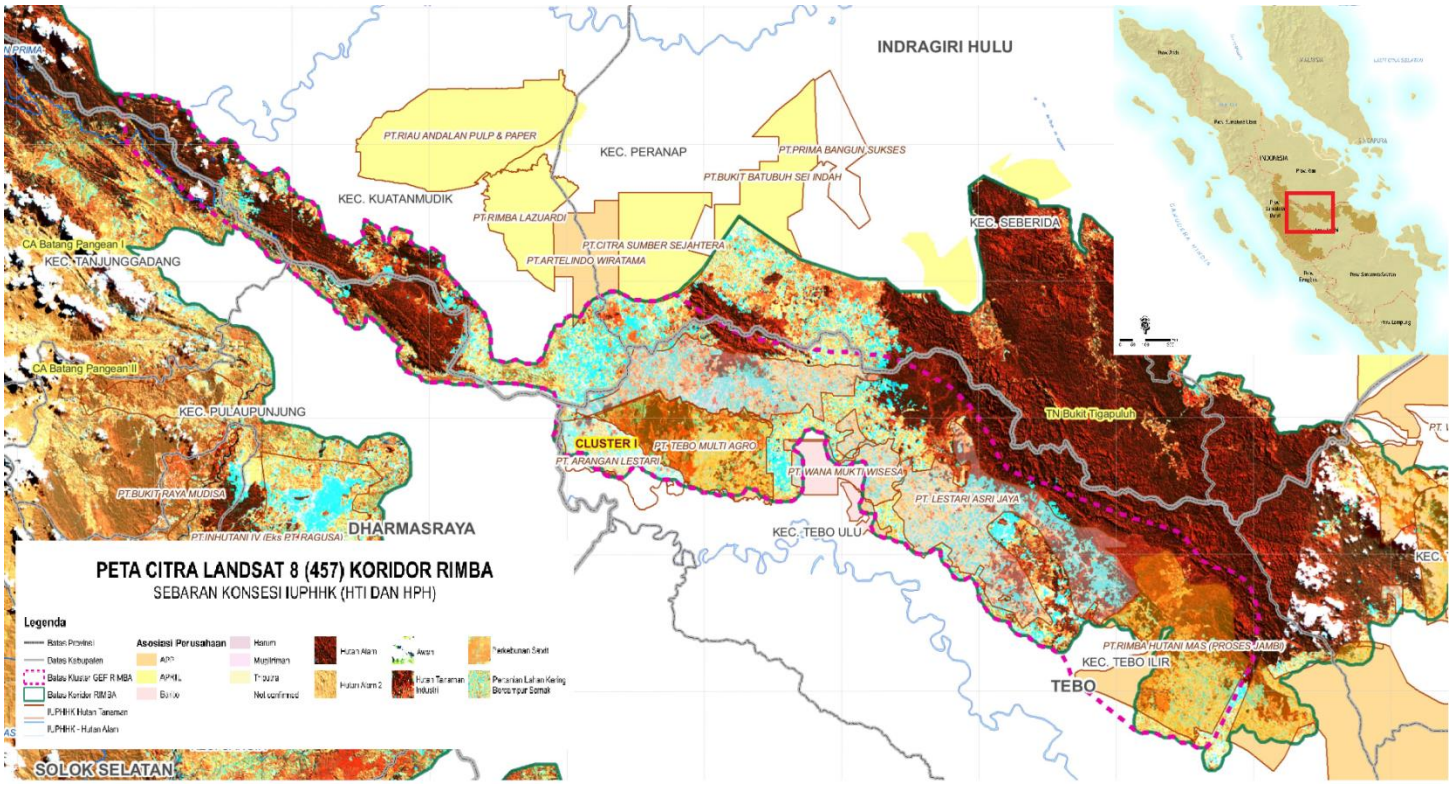


Figure 4 Cluster one, located in West Sumatera (districts Dharmasraya, Sijunjung), Jambi (district Tebo) and Riau (districts Kuantan Singingi, Indragiri hulu). Companies from APRIL are coloured yellow and from APP orange. The dark red-brown coloured areas are natural forests and the multi coloured areas are agriculture areas. Source: WWF Indonesia, personal communication

3.2 Timber companies overview

Where in RIMBA are the timber companies located? With spatial GIS data; layers of RIMBA area, Sumatra and different timber companies, provided by the WWF Indonesia, a basic vector map in ArcGIS was created.

3.3 The influence of timber companies on the area

To answer the first research question about how the timber companies work and what is their influence on the surrounding area, questionnaires were handed out to the local communities, this because research inside the company's concession was too difficult. Employees of the companies also got a questionnaire, however it was expected that they were biased towards their own company. In total there were four different questionnaires. Questionnaire A for local communities with an own forest, questionnaire B for local communities without an own forest. Questionnaire C for people/local communities working **with** the timber company and questionnaire D for people working **for**/employees of the timber company. Questionnaire A is used as an example in appendix 1.

Closed questions were chosen in order to avoid complicated questions for the local communities and employees. However, the people who were interviewed could still give their opinion on how conventional the company is and how the company works (the methods they use, the concession they have). Questionnaires A and B had three extra questions about the surrounding area of the timber company, the area the local communities plausible lived.

Some of the questions had a difficult vocabulary (as innovative and sustainable) and these were explained to the people by a personal translator and pictures with definitions (appendix 2). Besides the illustration, of for example sustainability, all the questions were personally explained to the people and not more than two people were interviewed at the same time; this to prevent chaotic and random answers and being able to help explain the questions one on one or one on two (Taylor, 1999). As an extra control whether all the questions were understood, some questions were formulated differently and the answers were compared.

The target was at minimum per company 20 interviews, and in total a target of 200 interviews. When there was more time for fieldwork left, the research area could be expanded to companies from cluster two and three could be included in the research.

During fieldwork it became clear that most of the people owning their own forest, converted the land in plantations. The initial idea for the two different questionnaires A and B, proved not to be necessary, so in the results questionnaires A and B were treated the same.

Besides the questionnaires, the other approach to answer this research question was to use a checklist based partly upon the definition for conventional companies. Some of the questions of this checklist were asked to the manager, and some parts were studied by driving through the company's concession.

Checklist for the company:

- Transparency, does the company have an open policy towards me and the government
- SVLK certification (Timber Legality Verification System), these certificates are mandatory since 2103 or 2014
- Other certification, like FSC or PEFC
- Concession, does the company have any concession like Selective logging, Reforestation, Forest restoration
- How do they harvest the trees
- Conservation area, does the company have any natural forest left and how much is this
- Agroforestry, does the company have anything else besides the timber plantation and is this done on a sustainable way
- Corruption
- Cooperation with local communities or conflict
- Treatment of the employees, are their enough (medical)facilities for the employees and do they have a fair contract
- What was present on the area before the plantation,
- How do they maintain the forest, with heavy machinery or not

3.4 The company's transition towards becoming more sustainable

To answer the second research question online research has been done to look up the types of permits and certificates the timber company has (SVL, FSC, PEFC). Part of the questions asked in the questionnaires was about the sustainability and deforestation of the company, see appendix 1. These questions were based on definitions of sustainability and the concessions used in RIMBA corridor (Project identification form, 2013; hcvf.net; Bertault and Sist, 1996; Pearce et *al*., 2003; Holmes et *al*., 2000; Perez et *al*., 2005; FLEGT 2007, 2011). Further the answers from the checklist used for the first research question given by the management over the permits, was also used to answer this research question.

The information obtained in the fieldwork was compared with the information available online about these companies. Some of the questions asked were stated differently, as a safety precaution that the people understood the questions.

3.5 Non-Timber Forest Products

Part of the questionnaires used for both questions one and two (appendix 1), is about the products the local people use from the forest. These are open questions with a top 5 of personal most used non-timber products. This because of all the possibilities of products that can be used from a forest (Godoy et *al*., 1993). The other questions are about how much they get out of the forest per product they mentioned before and if they sell them, how much do they get paid per product, both questions are in kilogram, this because it is a universal used unit.

The term with some examples was explained to the people.

3.6 Willingness to pay

To answer the fourth research question about the willingness to pay, there needs to be a value on the forest. Because it is almost impossible to value a forest in a currency, the contingent valuation method (CVM) is used. This method is direct, based on hypothetical scenario and can be used in questionnaires. From the answers people give an overview can be made what can give the information if people are willing to pay to protect their forests or use the forest more sustainable (Vankatachalam, 2004).

In the questionnaires the part of Green economy is about the willingness to pay. Here the people could give their own opinion if they were willing to pay themselves for a sustainable forest management or maybe as a community. There were four different willingness to pay hypothetical scenarios between the four types of questionnaires (local communities with own forest, local communities without own forest, people working with the company and employees), with the willingness to pay amount adapted to the income of the local communities. Per province there is a different minimum wage (gajimu, 2013);

- Minimum wages in Sumatera Barat: 1,490,000 Rp per month
- Minimum wages in Riau: 1,700,000 Rp per month
- Minimum wages in Jambi: 1,502,300 Rp per month

So in the questionnaires it starts with a low 10000 Rp, version 2 has an option for 25000 Rp, version 3 50000 Rp and version 4 asks if the people are willing to pay 100000 Rp per month individually or as a community. The example questionnaire in appendix 1 the question if the people are willing to pay the smallest amount of 10000 Rp per month is asked. Every scenario had the option to make up your own amount. The different scenarios were handed out randomly.

If the people were not willing to pay any amount of money, they could also choose for that and they could explains themselves why they were not willing to pay something.

The CVM is part of a larger research the WWF Indonesia is conducting, to calculate the cost benefit of RIMBA.

4 Results

The results are presented per research question or subject. Some results are based on the results from the questionnaires, and some results are based on my own observation in the field.

4.1 Timber companies overview

Figure 5 shows all the timber companies in RIMBA. The companies located on the border of RIMBA corridor are not clearly visible. The active and inactive companies are both visible, only not named which one is active and which is not. This because of the difficulties to communicate with the companies. Only visiting all the companies in the field or contacting the local government gives more information if a company is active or inactive.

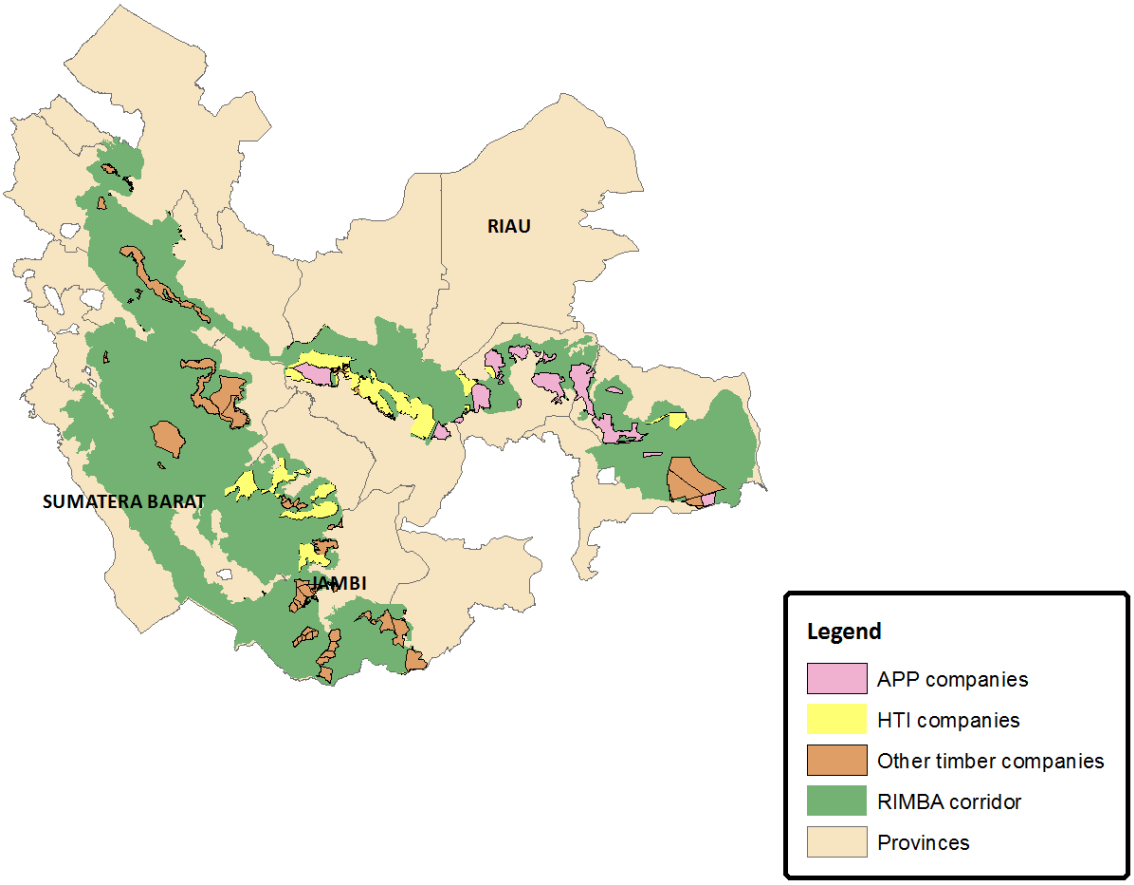


Figure 5 The timber companies in RIMBA corridor. Most of the HTI (Industrial timber production) companies belong to the big companies APP and APRIL. The pink APP companies can be industrial or with a different concession. This figure was made with ArcGIS.

4.2 Timber companies

During the fieldwork period of two months, I had the opportunity to visit and communicate with six timber companies. Of these six companies, with only one a meeting with the manager and some employees could be arranged.

Four of the six companies visited were located in cluster one, the research area, and these four companies are discussed in the results.

4.2.1 PT. Bukit Raya Mudisa

PT. Bukit Raya Mudisa is located in the districts Dharmasraya and Solok (Suamatera Barat). It is an HTI company (industrial timber company) and uses Acacia plantations with *Acacia mangium* (see figure 6), and Eucalyptus (*Eucalyptus spp.*). The concession is reforestation; after the harvest of the trees the company immediately, a maximum of 14 days (MoF report PT. BRM, 2013), replants the area with Acacia or Eucalyptus (see figure 7). Harvesting differs between 6 to 10 years.

PT. BRM has the Forest Timber Product Utilization-Industrial Plantation Forest (IUPHHK-HTI) licence, what will expire on 04 June 2015. The company also has a MUTU certification of Sustainable Production Forest Management according to the Director General of Forestry Business Development's Regulation Number: P.8/VI-BPPHH/2011. And a certificate of recognition of the mother company APRIL for increasing the Recovery rate from 53.5% to 65% with Acacia. According to the management the mother company APRIL has a FSC certificate.

The local government of Sumatera Barat does inspections on the timber companies in their province, including PT. BRM. The government compares the management plan of the company with the monitoring plan of the ministry. So PT. BRM is controlled by the government on a regular basis.

Part of the management plan is the environmental plan. This plan of PT. BRM describes that after harvesting the area cannot be open for longer than 14 days. And land clearing is done without fire. The company's environment management plan also has an Environmental Impact Assessment implementation procedure. They do this in the 14 days before they replant the plantation. To protect the wild life living on the land owned by the company, the company has placed no hunting signs and patrol the conservation area. The patrolling is also meant to locate illegal logging. Because the local people sometimes cross the borders of the company to cut down trees. To prevent this, the company states in their environmental plan that they give environmental education to the local communities. Especially to elementary school students, so that when they grow up they know the value and importance of the environment.

The environment monitoring plan of the government is made on the environment management plan of PT. BRM. What the company states in their plan, the government checks of they stick to it. The local government also monitors the protected areas and at the same time they monitor the wild life living there. Until so far the local government was able to work on a report about the water quality and pollution in and around this plantation.

Figure 6 One of the *Acacia mangium* forest from BRM.

Because PT. BRM has a positive connection with the local government of Sumatera Barat it was possible to meet with the manager and employees and hand out questionnaires to them. The manager of PT. BRM was fairly open about his company and this made the company quite transparent.

During the meeting with the general manager of PT. BRM, the manager of interactions with the local communities joined. Both of them see the company as sustainable and in a good relationship with the local communities. PT. BRM help the local communities with their plantations and building mosques. Of the concession of PT. BRM at least 10%, according to the managers, is conservation area, this could be HCVA, and these areas are located near rivers. In appendix 3 the report of this meeting is available.

After the meeting, the four employees that were present, were allowed to fill in the questionnaires. During this the manager stayed present and afterwards checked the questionnaires. The local communities near PT. BRM that were interviewed had no criticism on PT. BRM. The head of the village told us, and he would like to maintain the good relationship with the company.

Figure 7 The reforestation of BRM. This is a new *Acacia mangium*, planted two weeks after the harvesting.

4.2.2 PT. Aranagan Hutani Lestari

PT. AHL has a different plantation approach as the other companies. This is because of a strange history the company has with its land and the local communities. When visiting the area of the company, three villages near it have a contract with the company. They use the land, but do not work with PT. AHL, but work with them.

The company started in Tebo in 1996, back then the concession was owned by the HASCO group. In total the company owns 9400 Ha and the original plan was to plant Sengon (*Albizia chinensis*) on the entire area. PT. AHL executed this plan, but in 1997/1998 because of the monetary crisis in Indonesia the company had to leave the land. In 2012 the company, (under a new ownership, SAMCO (Sampoerna Hasco) group) returned to the plantation. Since the company left the concession, the local communities took the land for their own use. The local people cut down almost all the Sengon trees and planted rubber trees, and created palm oil plantations.

The government is the legal owner of the land, which the company has an agreement (cultivation rights) so that they can use it until 2037. When the company returned to their land, they found rubber plantations and only Sengon trees left around their basecamp, around 21 Ha (see figure 8). To prevent conflict with the local communities, they made an agreement with them, see appendix 4. The local communities can keep their rubber plantations and sell the rubber. Only they have to pay the company 15% of their total profit. Already 16 community groups have this agreement with the company. They have now three community centers where the “employees” have meetings. In total these 16 communities use 400 Ha of land. With the other local community groups (that use around

9000 Ha of ground) there is no agreement. These community groups are invited to also make a legal agreement with the company.

According to the Provinsi Jambi, PT. AHL has the IUPHHK-HT permit. And the company has sustainable forest concession. (IUPHHK-HT activity in Jambi, Provinsi Jambi)

Figure 8 Sengon tree plantation at the area that is still owned and planted by PT. AHL.

4.2.3 PT. Artelindo

PT. Artelindo is part of APP and located in Kuantan Singingi, Riau. The company is known for its conflict with the local communities and environmental NGO's. The area that they use for the plantation is in the middle of an elephant trail and other big wild animals like the Sumatran tiger and the marbled cat (*Pardofelis marmorata*) (Eyes on the Forest, 2013). PT. Artelindo is located in a reserve, Bukit Tigapuluh landscape. Besides the trees that they plant, they also cut down tropical rainforest. Most of this is not sent to pulp mill that is registered due to that there is no permit issued by the Forestry Service of Province and District level (Eyes on the Forest, 2013; Eyes on the Forest, 2012).

The management of the company does not exist, or there is no way to contact them. The employees claimed that they were part of APRIL instead of APP. During the interview with them it became clear that the employees were ignorant about most if the things that the company did or is doing. Also they were terrified that people from the mother company (APP or APRIL) would find out that they were cooperating with the interview. For that reason they also did not want to fill in a questionnaire.

The interview can be found in appendix 5. What became clear is that the company uses Acacia (*Acacia spp.*), see figure 9, and Eucalyptus (*Eucalyptus spp.*) trees and their concession is

reforestation. The employees encountered wild life like elephants, they say that they do not hunt them; they just run away because they are scared of them. The harvesting is done with heavy machinery and the company has some natural forest left on the terrain, the employees did not know how much, but it is located near the rivers.

Figure 9 The Acacia plantation of PT. Artelindo. The straight thin trees are most likely Acacia.

4.2.4 PT. Multikarya Lisun Prima

The management of this company could not be contacted. The local government of Sijunjung, Sumatera Barat, had the plans of this company available.

The land that the company owns is still natural forest. Their concession is selective logging, and they made a plan from 2010 until 2044 about which area they want to clear, see appendix 6. The official permits of this concession is still not clear, because the company never pushed them through. The local government is ignorant of the activities of the management of PT. Multikarya. The company never returned to the area they own, never finished their administration and never started with their plan in 2010 up till now.

The company also never made a road towards the concession area. There is a small off-road path made by the local communities for the illegal logging. The local government knows that illegal logging is present there, but does not undertake any action against it because that is the business of the company that owns that area.

4.3 The influence of timber companies on the area

For questionnaires A and B the first part, section B, C and D, existed of yes or no questions about how the timber company works and what is their influence on the surrounding area. For the questionnaires C and D these yes or no question were in part B and C. The local communities have answered three more questions than the people working with the timber company and the employees. These questions are about the surrounding area of their villages.

The first three questions (Tables 1, 2 and 3) have almost the same pattern. The local communities from PT. AHL are divided. Half of them answered the questions with yes and the other half with no. The people from PT. Artelindo most of them answered with yes, question one: 6 of 7, question two: 6 of 7 and question three: 5 of 7. And the communities near PT. BRM generally answered with no, question one: 6 of 9, question two: 5 of 9 and question three: 7 of 9.

For the other six questions (table 4 to 9), there is not a pattern. With most of the questions the local communities from PT. AHL and PT. Artelindo gave in general a divergent answer than the local communities from PT. BRM, the people working with PT. AHL and the employees of PT. AHL and PT. BRM.

According to the QQ plots the data compared to the age has a normal distribution.

All 6 questions were not significantly depending on age, gender or education level.

Table 1 In total 22 people answered this question, and it is equally divided. Ten people answered with yes, ten with no and two did not answer the question.

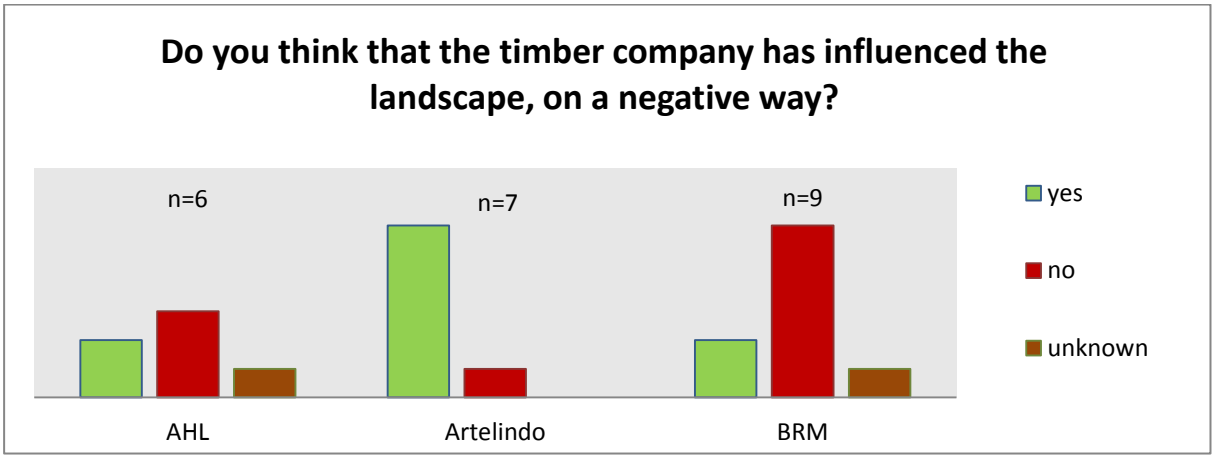


Table 2 In total 22 people answered this question. A small majority answered with yes. Two people did not answer this question.

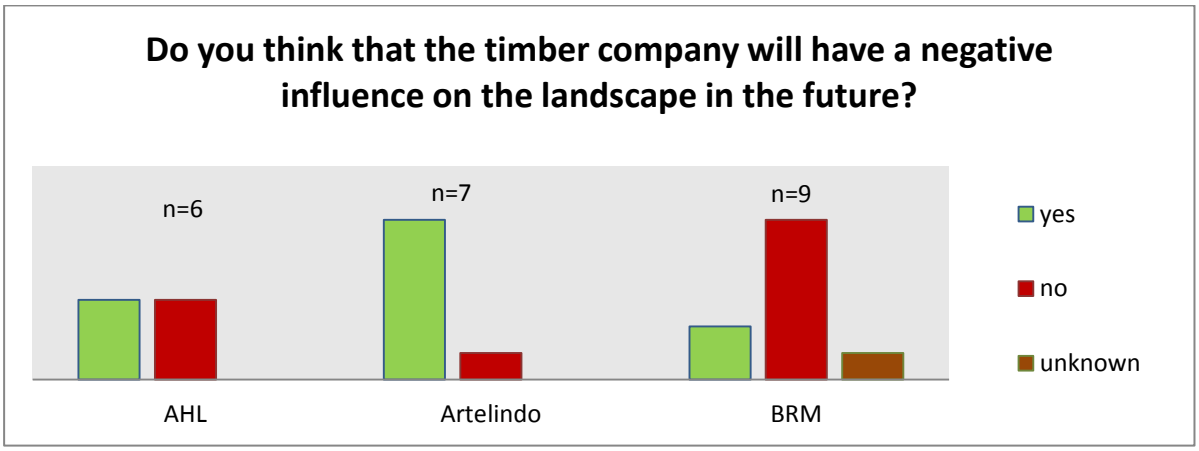


Table 3 In total 22 people answered this question. A small majority answered with no. And one person did not answer the question.

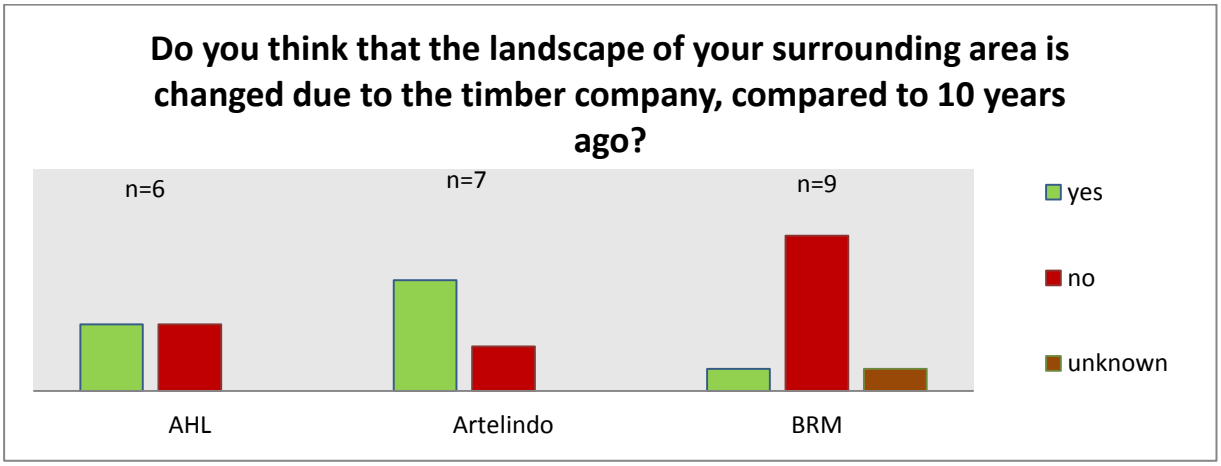


Table 4 In total 46 people answered this question. The majority answered this question with yes. Only most of the local communities near AHL answered the question with no. The people working with and for the timber company AHL are more divided.

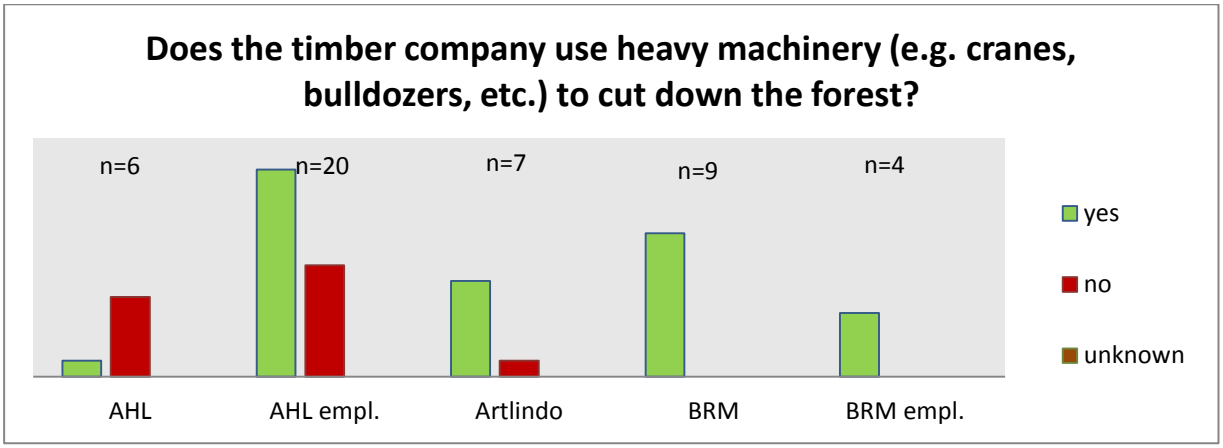


Table 5 In total 46 people answered this question. The local communities of AHL, BRM and the employees of BRM almost all answered with yes. In the questionnaire innovation was explained as new methods that a company uses that do not threaten the environment.

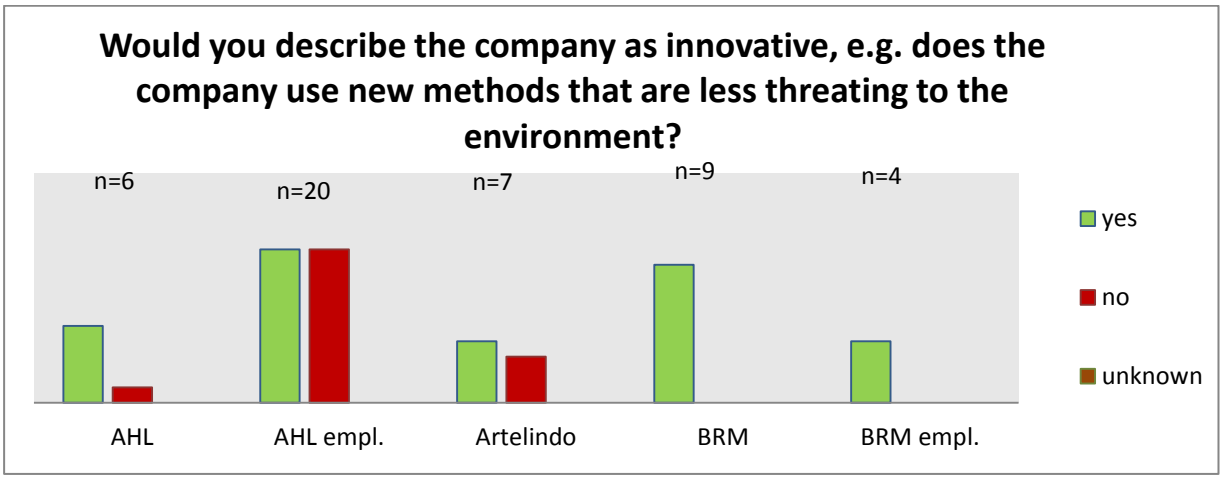


Table 6 In total 46 people answered this question. The local communities near AHL and Artelindo most of them answered with no. The employees of AHL (in dark red) all answered with yes. The local communities working with AHL were divided. All the people near and working for BRM answered with yes. Only one person did not answer the question.

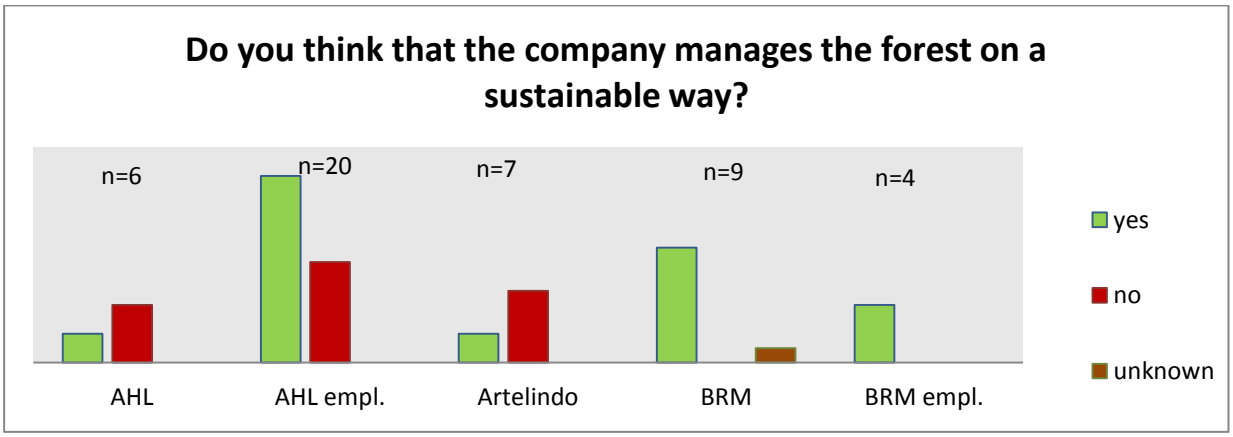


Table 7 In total 46 people answered this question. Most of the local communities of AHL answered this question with no. Of the other people that were interviewed, the majority answered with yes. And two people from AHL questionnaire C and D did not answer.

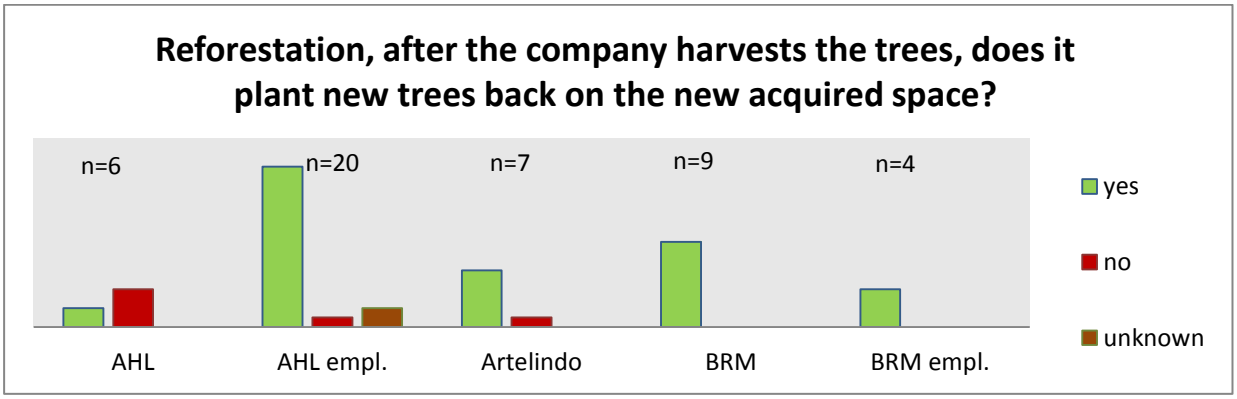


Table 8 In total 46 people answered this question. The majority answered this question with no. Only the majority of the local communities of AHL and Artelindo answered with yes. One person working with AHL did not answer the question.

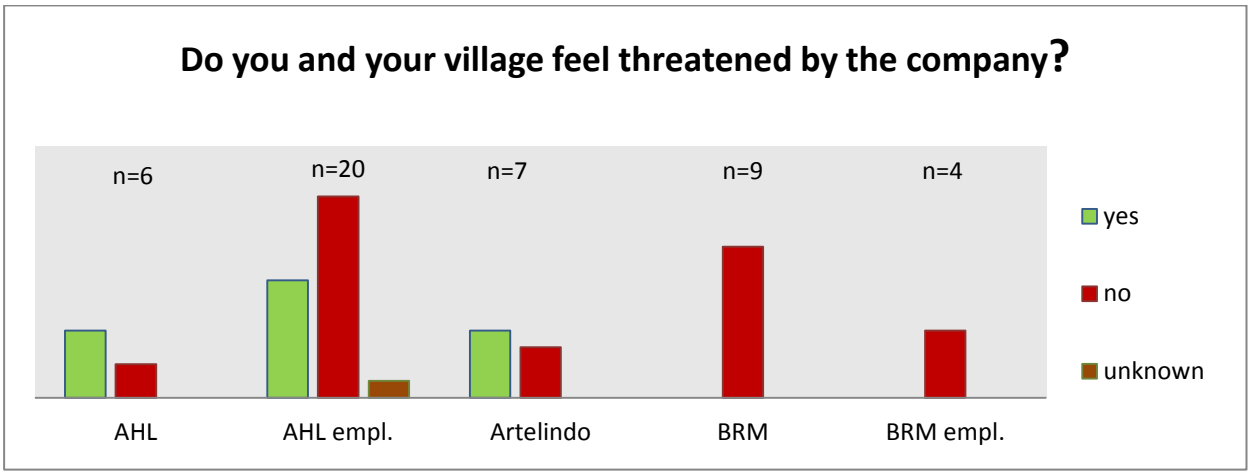
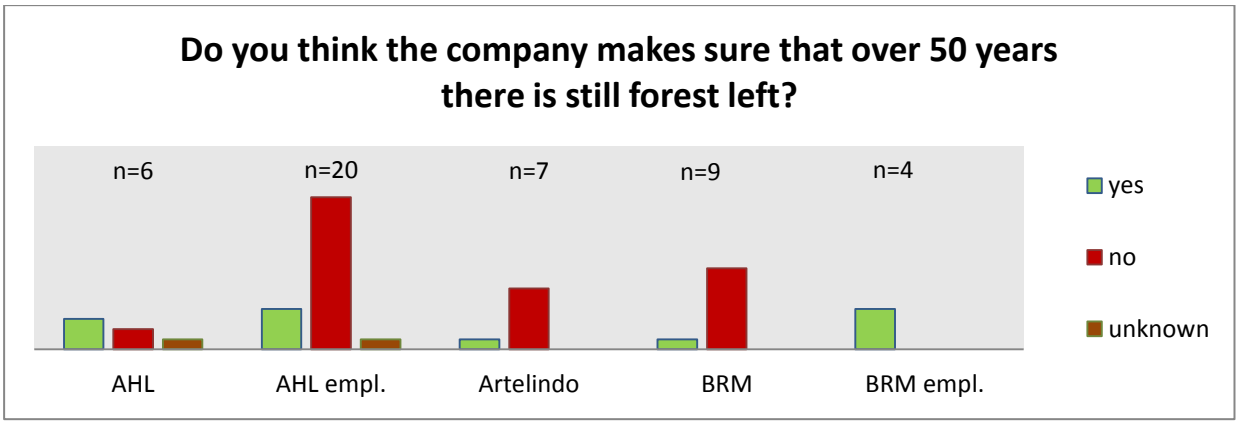


Table 9 In total 46 people answered this question. The majority answered this question with no. The local communities of AHL are divided and the employees of BRM all answered with yes. One person working with AHL did not answer the question.



The first three questions are about the influence the timber company has on the surrounding area. Most of the people who answered this question are divided if whether or not the company influenced their surrounding area, table 1, 2 and 3. The majority of people living near Artelindo answered with yes, while the majority of people living near BRM answered with no. The communities near AHL were divided.

The other questions were mostly answered with yes, except for the questions “Do you and your village feel threatened by the company?” and “Do you think the company makes sure that over 50 years there is still forest left?”. On average the communities and employees agree on that the companies are sustainable and innovative, however most of them do not expect that there will be any forest on the companies concession left over 50 years.

4.4 The company's transition towards becoming more sustainable

Most of the companies have a SVLK permit. Since 2014 this a mandatory for timber companies in Indonesia. However, not all the companies have this mandatory permit yet. This is possible because SVLK is part of an agreement with the EU (FLEGT, 2007). So for production of timber and timber based products meant for Indonesia self, the company can still produce wood without this permit.

Besides the SVLK license, there are three permits in Indonesia for companies that want to produce timber. IUPHHK-HTI, IUPHHK-RE and IUPHHK-HA, see 1.4 Permits in Indonesia (MoF, 2010).

Besides licenses of the Indonesian government, there are also independent agencies that give certificates to Indonesian companies, e.g. PT. BRM, has a MUTU certificate. MUTU international is an agency that checks and certificates Indonesian companies. They see themselves as an independent body that does independent testing, inspection and certification. They do this on a general field of interests. So their specialty is not environment (mutucertification, 2014). Many like these companies exist.

For most of the companies that are located in RIMBA corridor it is difficult to trace what kind of permits and license they have. Besides the challenge to contact the management, unfortunately on the internet there is also not much information about the particular companies.

4.5 Non-timber forest products

In total 34 people named their top 5 of NTFPs with a total of 29 different NTPFs, see figure 10. The majority of the interviewed people uses NTFPs, with Rattan (rotan) and rubber as the most used products. Of the people that use NTFPs, most sell their products or partly sell their products, so they can support their families with the money they can make from the NTFPs. The majority of people that sell their NTFPs are unaware of how much kilo per NTFP they get out of the forest and if they sell it, for how much they can sell it per kilo.

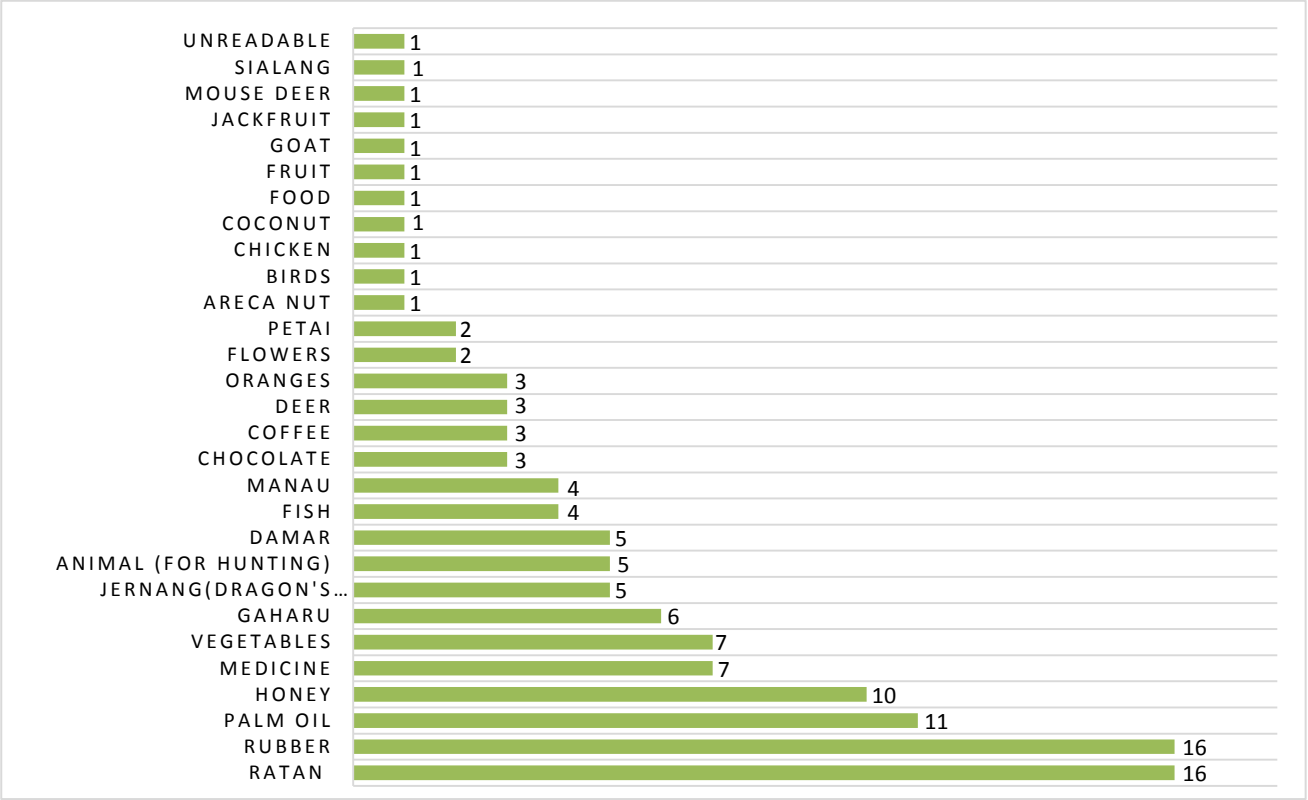


Figure 10 The results from the non-timber forest products. Rattan and rubber are the most used non-timber products, both products are in the top five of 16 people. Only one product was unreadable

4.6 Willingness to pay

Table 10 shows the willingness to pay as an individual. In total 22% of the people were not willing to pay anything for a more sustainable forest management. Most of the people are willing to pay as an individual between the 0 and 24000 Rp per month. Some people answered that they are willing to pay, but they do not have enough money, so they are not able to pay. These people are named under willing to pay but no amount or no money.

Table 10 The results from the willingness to pay as an individual. Most people are willing to pay a (small) amount of money per month for more sustainable forest management. 10 of the 46 people are not willing to pay, and 9 of the 46 people are willing to pay, however they forgot to fill in an amount or are not able to pay.

Rupiah (Rp) per month	People	Percentage (%)
Rp 10000 (Rp 0 – 24000)	17	36
Rp 25000 (Rp 25000 – 49000)	4	9
Rp 50000 (Rp 50000 – 99000)	4	9
Rp 100000 (Rp 100000 >)	2	4
Willing to pay but no amount or no money	9	20
Not willing to pay	10	22
Total	46	100

Table 11 is about the willingness to pay as a community. 22% is not willing to pay at all. While the majority, 43% is willing to pay a small amount per month. Most of the people that got a questionnaire with a high scenario amount (Rp 100000 >) filled in that they are willing to pay, but a smaller amount.

Table 11 The results from the willingness to pay as a community. The majority is willing to pay a small amount per month. 20% is willing to pay, but has not enough money so they did not fill in how much they are willing to pay. 10 of the 46 people are not willing to pay, and 9 of the 46 people are willing to pay, however they forgot to fill in an amount or are not able to pay.

Rupiah (Rp) per month	People	Percentage (%)
Rp 10000 (Rp 0 – 24000)	20	43
Rp 25000 (Rp 25000 – 49000)	2	4
Rp 50000 (Rp 50000 – 99000)	3	7
Rp 100000 (Rp 100000 >)	2	4
Willing to pay but no amount or no money	9	20
Not willing to pay	10	22
Total	46	100

6 Discussion

For this Master thesis I established five research questions with the aim to learn the influence of the timber companies, where they are located, the transition of the timber companies towards a more sustainable way of working, to identify what kind of NTFP local communities use and to find whether the local communities are willing to pay for conservation. In the discussion these four of these five questions and objectives are divided into five sections and discussed per subject. The conclusion and recommendations will follow in the next chapter.

6.2 The influence of timber companies on the area

Questionnaires A and B were intended for local communities with an own forest and local communities without an own forest, and whether there was a different view between both groups. In the field however most people that owned an own forest or piece of land already cut down everything growing there to replace it with a plantation of palm oil or rubber. Between both questionnaires there was no (significant) difference in the way of answering.

The first three questions were only answered by local communities living near Pt. BRM, PT. AHL and PT. Artelindo, these questions are about the influence on the surrounding area of the company and the opinion of the local communities about this. Table 1, 2 and 3 show the answers to these questions, which are divided. Ten of the people that were interviewed think that the timber company operating near their village has influenced the landscape and ten disagree. Most of them do not think that the company has influenced the landscape over the past ten years, but will influence the landscape in the future.

The majority of the local communities living near PT. Artelindo answered the three questions with yes, while the majority of the people living near PT. BRM answered with no. The local communities near PT. Artelindo have been in strive with the company for many years and this could influence the more negative tone towards the company from the local communities (Eyes on the Forest, 2013).

The local communities living near PT. BRM were the experimental group for the questionnaires. After them the questionnaires were adjusted, to make some definitions more clear, the pictures with definitions (appendix 2) were added, and a personal translator joined to give a more precise explanation of the questions. Due to these adjustments after PT. BRM, the people living near PT. BRM did possibly not have a good explanation of the questions and just answered most of them with no.

Being the local communities answered the question so divided, there is no clear answer to this question. The influence the timber companies can have might differ between the companies, at which PT. Artelindo would influence their surrounding area on a more negative way than PT. BRM. Unfortunately there is no data available over the area around the companies, so there is no possibility to compare the area from ten or twenty years ago with the present day. And because the companies are from different districts, the local communities can have a different perception on what is a negative influence.

Another observation during fieldwork was that the timber companies did not have an immense influence on their surrounding area as was expected, the local communities in contrast did. Most of the natural forest that was privately owned, was converted to plantations. The majority of the converted plantations have come to existence with the "slash and burn" method. These "controlled" fires serve as a natural fertilizer for short term plantations, however for permanent plantations, this method is high risked and does not produce a fertile plantation for a long term (Uryu et *al*., 2008; CIFOR, 2014).

6.2 The company's transition towards a green economy

The second research question is about transition of the timber companies towards a green economy, from where did they came and how sustainable are they now. For this question a checklist with an own definition of conventional companies was used, and eight questions of the questionnaires covered the transition of the timber companies. Of these eight questions some were differently formulated to create an extra check if the local communities understood the questions, and all three questions concerning the sustainability of the company, was answered almost exactly the same.

For the checklist, see 3.3 of the methodology, a definition of conventional timber companies mentioned in the introduction was used. A good division between conventional and unconventional companies is difficult to make. Especially in the field the difference between a conventional or unconventional company is problematic to find. Some companies have a SVLK permit, which would describe them as sustainable. They can use reforestation as their concession, but the cut down forest area is replanted with new plantation trees, that will be cut down over six to ten years. This has little or no influence on the recovery of the biological diversity (Lamb, 1998).

The term reforestation also indicates that a company would be interested in a long term solutions that have a positive effect on the environment. But this is already difficult with *Acacia mangium* (used by most of the forest plantations), according to research done by Otsamo et *al*. (1995) *A. mangium* needs intensive treatment with plowing, herbicides' and fertilization. If this species need such intensive land use, a sustainable plantation might not be so environmental friendly.

As mentioned before, SVLK is a mandatory permit since 2014. That means that every timber company must have such a permit. But it is known that many companies that do not export their products, do not have such a permit. Also through corruption, some companies have the permit but do not apply its rules. (Anti Forest-Mafia Coalition, 2014) So does SVLK really works and does the European consumer buy illegal wood? Indonesian companies are moving towards a greener economy with more certificates, but who is controlling this?

It was difficult to get in contact with the management or the timber companies. Most of them did not respond to any sort of contact. Questions asked were kept unanswered and email addresses turned out to be fake. Most of the known certificates per company comes from other NGOs, for example Eyes on the Forest. The ministry is sometime also not aware of a company's business. For example the local government of Sjinjunjung did not know where the company PT. Multikarya Lisum Prima was and why they did not yet start with their concession.

Besides the local communities living near the timber companies, some employees also filled in the questionnaires. The employees of PT. BRM gave almost all the most positive answer possible about their own company. However during the interview the manager was constantly present and afterwards he reviewed the answer the employees filled in. Perhaps the employees were aware that the manager would check them and therefor did not answer the questionnaire truthfully.

The exception are the employees of PT. AHL. Just as the local communities working with PT. AHL they are divided. Most of them answered the questions “Would you describe the company as innovative” and “Do you think that the company makes sure that over 50 years there is still forest left?” with no.

Also for the question “Reforestation, after the company harvests the trees, does it plant new trees back on the new acquired space?” the answers are divided. This could be because PT. AHL has a different structure than the other timber companies used for this study. The actual plantation of the company is only a small part of the entire concession. The majority of the plantation is used by the local communities as rubber or palm oil plantations and it is possible that the employees and the people working with PT. AHL did not know what to fill in. Whether it is meant for if the company uses selective logging or the communities using the land.

The majority of the employees of PT. BRM and the local communities near PT. BRM and PT. Artelindo answered the question “Does the company use heavy machinery (e.g. cranes, bulldozers, etc.) to cut down the forest?” with yes. Only the majority of the AHL local communities and employees answered with no. This could also be due to the confusing situation of the AHL plantation.

Almost all the employees of PT. BRM and the local communities living near PT. BRM who were interviewed thought that the company works sustainable. It is also discussed above for the first three questions, that the local communities near PT. BRM are positive towards the company, and mentioned before that it was expected that the employees of a company have only a positive attitude towards the company they work for. NGOs as Eyes on the Forest have no further information about PT. BRM.

According to the questionnaires the three companies, PT. AHL, PT. Artelindo and PT. BRM, all are sustainable. As mentioned before, many different aspects can have an influence on how the local communities answered the questionnaires. With the information available it is hard to indicate whether or not these companies are really sustainable and if they are changing into a more sustainable company. As an alternative the checklist has been used. Unfortunately only one manager, of PT. BRM, was interviewed and has given enough background information to use the checklist. This is insufficient material to include in the research.

The first point of the checklist used for this question was transparency. Of all the companies visited PT. BRM was the most transparent. They had a good contact with the local government and the manager answered the questions. PT. Artelindo however is a good example is no transparency or cooperation with local communities, or good treatment of the employees. The local government was unaware of what the company is doing, the company is undetectable, online or through the employees and most of the employees acted as if they were intimidated by the company. Also the surrounding area was burned and it looked as if there was a harvest of trees a few months ago. And most of the people living in that area were there for 2 years or shorter and nobody knew what happened before that time.

To answer the research question “Some companies are still on the transition towards the mandatory SVLK permit, how sustainable are they and what more is needed to become a green economy company?” more monitoring and research needs to be done.

6.3 Non-timber forest products

The majority of the people that were interviewed use NTFPs. Figure 10 shows all the most frequently used NTFPs from the top 5 of what the people answered. Rattan (rotan), rubber and palm oil are the most popular. Only palm oil and rubber usually come from plantations and not originally from natural forests. However, most of the forests where the local communities live nearby consist of palm oil and rubber trees.

Most of the products are sold on a local market and what the people keep for themselves they use it for fire, food, building a house and ornaments (like birds).

The people that use NFTPs explained personally that they go into the forests and grasp what they can use. Nowadays because of the increasing population, the amount of NTFPs that are used might increase and it is not known of this has an impact on the environment. Explaining this to the people using these natural products might help them to understand the importance of working more sustainable (CIFOR, 2014; Ticktin, 2004).

As most of the people sell or partly sell their NTFPs, this could be for importance for their household income. However the more NTFPs are used without sustainable harvesting, this can lead to forest degradation (Banerjee & Madhurima, 2013). Agroforestry might be a solution to this. The concept combines different plantations, but can also combine plantations with natural forest products. Banerjee & Madhurima (2013) studied agroforestry in India and their results showed that the forest products gained with the use of agroforestry. This might also be a solution for the immense palm oil plantations in Sumatra.

6.4 Willingness to pay

The results of the willingness to pay, tables 10 and 11, show that the majority of people are willing to pay for more sustainable forest management. Though most of them only want or can spend a small amount of their money. The same amount of people that are not willing to pay as an individual and as community. This are however not the exact same people.

Paying more than 24000 Rupiahs per month is more often chosen as an individual then as a community. This could be because as an individual you have to take the full responsibility for the amount you are willing to pay, but as a community you can easily, as individual, pay less but still pay a big amount all together.

Per province there was a difference in what the people were averagely willing to pay. People (employees and local communities) from the province Riau were willing to pay at average more than people from the provinces Jambi and Sumatera Barat. Riau is the province with the highest minimum wage compared to the other two provinces. Maybe the people from Riau have a better income than the other people and it could be that therefor they are more willingly to share. Of course the data is

from all the province and not from the rural areas, where there might be no differences in the minimum wages.

6.5 PT. Mutlikarya Lisun Prima

This company was supposedly to start in 2010, see map with concession in appendix 6. However they never started. Four years after the initiated starting date, the concession was still natural forest, see figure 11, with only a mud road leading to it. The local government had no idea or more information about why the company never used their concession or what they were doing. Because the concession of MLP is selective logging, the terrain is natural forest. This natural forest is now used by illegal logging while it could serve as part of the RIMBA corridor.

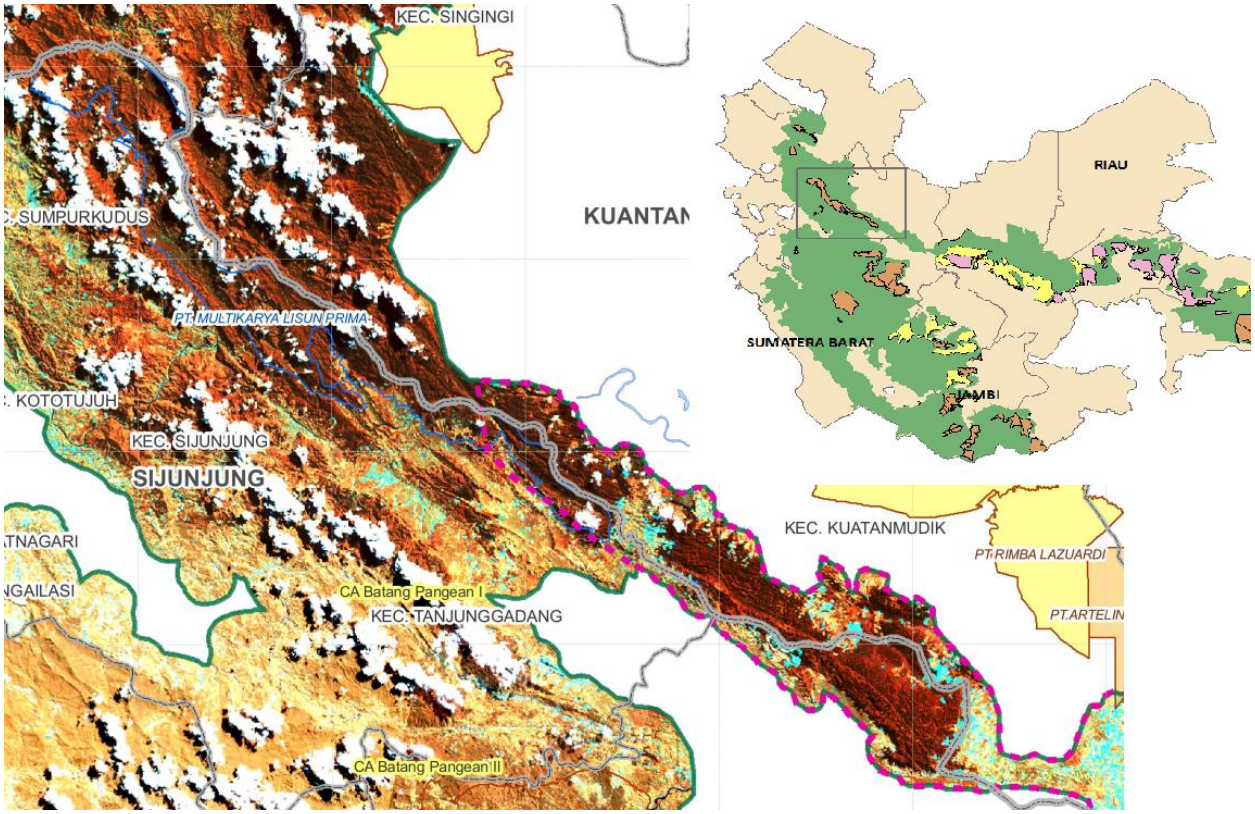


Figure 11 A combination of figures 3 and 5, in the grey square in the upper right corner, PT. Multikarya Lisun Prima is indicated. The left figure shows the vegetation present in this area of MLP. Dark red brown indicates natural forest (figure 3).

7 Conclusions and Recommendations

It is difficult to answer any of the research questions properly. So many different aspects have an influence on the methods used in this study that a clear and final answer is impossible to give.

The main challenge was the timber companies, this because there is not much information available and extreme difficulty to get in contact with the companies. Except for PT. Bukit Raya Mudisa. PT. BRM could serve as an example for transparency and cooperation. Not all the questions were answered with complete honesty and the manager controlled everything, but on averagely they are the best example for other companies.

Besides the challenge of the timber companies, the government was also not always aware of what was happening in their own district. For example why PT. Multikarya Lisun Prima did not yet start with their concession, the local government of Sinjunjung could not tell.

This however could be a great opportunity for the WWF to keep that part of natural forest logging free. As figure 11 shows, the company's concession is near a "bottle neck" of the corridor and completely surrounded by natural forest. To buy or rent such an area with natural forest from PT. MLP, WWF could keep it in this state and use it for the tigers and elephants roaming through this area without coming across human territory.

As long as people worldwide need timber and timber based products, the forest industry will exist. And although natural forest is the best resource to grow in RIMBA corridor, the companies are needed. And for harvesting trees, heavy machinery is needed. But more efficient work and an increase of the amount of conservation area could compensate the conventional way of logging and maybe increase more sustainable logging. Strict rules and regulation made and maintained by the (local) government of Indonesia could be the best solution. They can make laws to work more sustainable and prevent illegal logging, what besides the agriculture has a huge impact on the biodiversity.

The WWF Indonesia can help by keeping track of the timber companies in RIMBA corridor. There are 21 companies present of which most of them it is unknown what their concession is, what the companies structure is or how much natural forest is still left on the plantation. Collaboration of NGO's as Eyes on the forest and local governments could also lead to a better overview and insight of these companies. The knowledge of a company's field activity and keep a record of its trading, can lead to a more sustainable company (Schroeder-Wildberg & Carius, 2005).

The local communities has no idea how important the natural forest is for them. If they own a piece of land they just cut everything down and make a plantation there. Because they can! More education about the importance of the natural forest could improve their attitude towards the forests. This is also important for the local government. Most of the people who work for the government have also no idea how important nature is. The head of the environmental agency of Dharmasraya, drs. Rahmadian, has progressive ideas to turn Dharmasraya into a green village. Supporting ideas and people like him can improve and maybe even save forests.

So as a final recommendation: involve local communities more. They can be the future for more sustainable forest management.

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1. Questionnaire A

The sustainability of Timber companies in the RIMBA corridor

A questionnaire about how the big timber companies maintain the forests and other natural resources.

Made by Tessa Driessen, BSc

Student of Utrecht University

This questionnaire is made to support research for the sustainable forest management of timber companies in the RIMBA corridor. Through this questionnaire we can get a better insight on the de- and reforestation of natural forests. A more sustainable way of logging includes selective logging, reforestation and forest restoration. Selective logging makes sure that a natural forest stays diverse and healthy. Reforestation, the replanting of the former forest, this can be a natural forest but also plantation forest. Forest restoration is the reinstatement of natural forest which can lead to full ecological functioning and a high level of biodiversity.

A sustainable forest management is important for the biodiversity and livelihood (to continue the normal way of living) of people. Countries like the United States, Australia, Germany, The Netherlands, Great Britain, etc. are only willing to buy timber that has been produced on a sustainable way. Without a certificate for sustainability these countries are not willing to buy the timber products from Indonesia. And this has a negative effect on the (local) economy of Indonesia.

Also most local communities get more products from the forest than just wood. Products and activities like hunting, fishing, medicines, food and rotan can get less due to the deforestation. So deforestation can have a direct effect on the local communities and their way of living.

Besides the sustainability of timber companies, we are also interested in the opinion of the people living near a timber plantation and/or working with a timber company. Employees and local communities can have different views on the methods that the timber company is using. And we are interested for what kind of other resources the forest is used. Because what you can get out of the forest reflects its diversity and how healthy a forest is.

We want to have a more sustainable way of logging so that we can preserve, create and protect nature and its resources. We would really appreciate it if you would like to cooperate with us and help us get further in our research. Thank you in advance!

Questionnaire for local communities with or without own forest, not working for the timber company

Personal

Name	
Age	.... years
Sex	Male/Femal
Kota	
Highest education level?	
Near which company do you live?	
Does the company own the forest near your village?	
Do you work with a timber company?	
Are you and your family directly dependent on natural resources?	

Land-use change and deforestation

Do you think that the timber company has influenced the landscape?	Ya/Tidak
Do you think that the timber company will have influence on the landscape now and in the future?	Ya/Tidak
Do you think that the landscape of your surrounding area is changed due to the timber company, compared to 10 years ago?	Ya/Tidak

Deforestation of company

How does the company handle the plantation and harvest all the wood.

Does the company use heavy machinery (e.g. cranes, bulldozers, etc.) to to cut down the forest?	Ya/Tidak
Would you describe the company as innovational?	Ya/Tidak
Do you think the company works environmental friendly (on a good and natural way maintaining your and the villages surrounding area)?	Ya/Tidak
Do you think the company works sustainable?	Ya/Tidak
Do you think that the company manages the forest on a sustainable way?	Ya/Tidak

Sustainability of company

Does the company put extra time, money and effort in an environmental friendly approach?

Reforestation, after the company harvests the trees, does it plant new trees back on the open space?	Ya/Tidak
Do you and your village feel threatened by the company?	Ya/Tidak
Do you think the company makes sure that over 50 years there is still forest left?	Ya/Tidak

GREEN ECONOMY (WTP)

Financial

Would you be willing to pay for a sustainable forest management? That means to pay to keep the forest in your surrounding area healthy.	Ya/Tidak

If yes as an individual, willing to pay

Are you willing to pay 10000 rupiahs per month for a sustainable forest management?	Ya/Tidak
If yes, how much the maximum rupiah you are willing to pay per month for a sustainable forest management?	Rp …….
If no, how much the maximum rupiah you are willing to pay per month for a sustainable forest management?	Rp …….

If yes as a community, willing to pay

Are you willing to pay 10000 rupiahs per month as a community for a sustainable forest management?	Ya/Tidak
If yes, how much the maximum rupiah you are willing to pay per month as a community for a sustainable forest management?	Rp …….
If no, how much the maximum rupiah you are willing to pay per month as a community for a sustainable forest management?	Rp …….

If no, not willing to pay

Why not?	

NON-TIMBER FOREST PRODUCTS

Besides timber from the company, do you personally have other forest products that you use? (e.g. hunting, medicine, rotan, food, etc.)	Ya/Tidak

If yes

Could you name a top 5 of your personal most used non timber products?	1. 2. 3. 4. 5.
How much in kilogram (or if you don't know the weight) how many items of these products do you (as individual) get out of the forest?	Produk 1) Produk 2) Produk 3) Produk 4) Produk 5)
Can you make an estimate of how much money you get for these products?	Produk 1) Produk 2) Produk 3) Produk 4) Produk 5)
Do you use these products for yourself or do you sell them?	

Did the amount of non-timber products became less over the last 20 years?	Ya/Tidak
If yes, do you think the company is responsible for the loss of non-timber forest products?	Ya/Tidak

If no

How do you get your products? From for example the local market, supermarket, first hand seller.	

TIMBER PRODUCTS

Do you sometimes use the wood or rubber you get from your plantation for own use? Or do you sell everything?	Yes I use some for my own/No I sell everything.
If yes, for what kind of purpose do you use it?	

2. Picture explaining sustainability

Source: http://tunza.eco-generation.org/resourcesView.jsp?boardID=forum1311843134&viewID=1287

Sustainable logging, measuring the breast height of the tree, only trees old en big enough can be cut down. Trees that are still young and thin should be able to grow on and support the biodiversity.

Source: Own picture

Unsustainable logging, burning land down. Environmental unfriendly and not good for the biodiversity.

Source: http://waterworksvalley.com/wp-content/uploads/2010/10/Logging-machine.jpg

Unsustainable logging, the usage of big and heavy machinery. It affects the biodiversity by destroying more than just trees and is environmental unfriendly.

3. PT. Bukit Raya Mudisa Report

Report meeting PT. Bukit Raya Mudisa

Date and location: 12 March 2014, Dharmasraya

Present: The interview was done with the manager of staff and four employees of which the manager of interactions with the local communities. Bang Martin and Bang Sanda of the Ministry of Forestry were present. As translator and personal assistant Mbak Mami was present and Tessa Driessen, intern of WWF and student Utrecht University.

The meeting started with the explanation that I am a student of Utrecht University and doing research for my master. The research is about the sustainability of timber companies. We did not mention that I am doing an internship for the WWF Indonesia.

According to the report of the Ministry of Forestry BRM company is environmental friendly. What does that mean and how do they make sure that they are environmental friendly, aka what is it that they do?

They describe their environmental friendly approach as reforestation. After they have cut down the forest for the pulp or paper they immediately replant the area. Only they replant this with new Acacia forests that they will cut down over six to ten years. In the report on the chard they have a few carry over area's also described as environmental friendly. These areas are made into plantations of palm oil, other main (profit) plantations and community area. The plantation areas are for the local communities, they can keep the palm oil and wood and they don't need pay fees over these products. If something is appointed as carry over area next year it is a plantation.

The wood that they use for the pulp and paper is: Acacia manjun, Jabon and Eucalyptus. The timber plantations usually grow for six to ten years, than the trees are big enough to be cut down. Sometimes as we saw on our way to the meeting a plantation is not potential and a forest of acacia trees will be cut down after four years and it will be replanted. These trees will not be used.

10% of the entire company's area is reserved for conservation. This is land mainly located near a river. Before the company bought the land to use for a timber plantation, it was used by local communities and their plantations. It is not clear of some area of natural forest has been cut down. But the local communities got new land from the company at the edge of the company's terrain. Here they can live and have their plantations. As the company manager and the manager of the local communities told us several times, they do not have to pay for this land and the profit of their crops is for them and completely for them. The company does not ask for a fee are percentage of the profit.

The people sometime do agroforestry. The company knows this, but they said it is not on their area.

The company invests in the local communities. They train them to do some agriculture like honey beans and red sugar. Besides agriculture they also support activities as sport and building a mosque. The last activity is also supported by the Muslim Party. They main goal from the company by doing this is that the communities can be self-supportive.

The BRM Company has SLVL, S-PHPL, certificate. The main, big office in Riau also has FSC certificate. The manager was talking about an OLB certificate.

About the finance the company would not say or show anything. They did tell that it is depending on the topography, production and how far the plantation is from the mill.

The companies terrain is over 28000 Ha. We only saw the plantations next to the road on our way to the office and from the office to the local communities. The first part of the plantation was Acacia forest, with had, according to BRM, no potential. The trees were thin and the company wants to cut the forest early down and replant the area in the hope that the new forest will do better. The Eucalyptus plantation we saw on our way to the office, was a healthy forest **according** to the company.

The way from the office to the local communities we passed a river with the conservation area. This forest had a higher biodiversity, but still not as good as it's supposed to be. The community we visited had no conflict with the company and talked positive about the company. This could also be because of the head being present and he wanted to maintain a good relation with the company.

4. Agreement between PT. Arangan Hutani Lestari and local communities using the land

AHL agreement with local community

1. The company has a logging concession (IUPHHK-HTI), industrial forest concession. The government decision, number 660/Kpts-II/1995, second decision of the government, number 681/Kpts-III/1999, both governmental permits for using the forest. They state that the government gives the companies 9400 Ha of area located in Kecamatan 7 Koto Kabupaten Tebo, province of Jambi.
2. The permit described above at point 1 is part of the government forest of 4187000 Ha of governmental forest area. That was made on the governmental decision number 767/Kpts/UM/10/1982. The governmental area is reduced on 29-10-1991 to 2947200 Ha of ground based on decision number 46/Kpts-II/87.
3. The company has a permit from the government that they can use the area in whatever way they want to use it.
4. Inside the area mister "Selamat" can have its own plantation, only this is illegal, but according to point three the company can accept this. And this is where conflict appears on both sides.
5. The company solves the problem, the conflict, by working together and all use the land. As an individual you can use 36.6 Ha of land and in total for all the community groups the company offers them 7971 Ha of land. For this they use the trust principal, everything is based on mutual trust, respect and opportunity.

Chapter 1

The aim of the cooperation; between the company and the local communities

- The company wants improve the local community's livelihood.
- Opportunity from the cooperation by giving the local communities access to the land. To take a part in making an eternal forest.

Chapter 2

Cooperating forest

- The local communities have limited time to work on their land. The deal is made personally.
- If something is changed from the agreement, the company will discuss this with the communities and try to make a new agreement.
- If the communities or individuals will break the law, the agreement will be invalidated by the government.

Chapter 3

Object of the cooperating forest

The object is the plantation forest by using silviculture (taking care of the forest) for the rubber. This is based on the 10 year business plan, decided by the ministry of forestry. The communities take care of the rubber plantations until the rubber trees are old and are cut down.

The object is rubber trees and if the communities want to do something with agroforestry they have to discuss this first with the company.

Chapter 4

Location of the forest

See point five.

Chapter 5

The system of the benefits for both sides

- There is a contract and people should keep to it.
- The planning and research of the company to see if the communities are capable if keeping and maintaining the land. Because the company is the investor.
- The communities can keep 85% of their total profit.
- Everything that comes off the land the communities have to sell to the company. So the company buys the rubber, palm oil and whatever else there is on the land, and also the old trees that are cut down.
- Also of the old trees that are cut down, the company gets 15%.
- Also of non-timber forest products the communities have to pay a part of the total profit, but they will make a personal deal.

Chapter 6

General plan of the cooperating forest

- There is a general plan and a year plan.
- The company wants to improve the life of the local communities.

Chapter 7

Obligation

- Obligation for the company

5. PT. Artelindo Wiratama report

Date and location: 04-04-2014, Kuantan Singingi

Present: The interview was done with six employees and two security guards. Also present Pak Sariman representative of the Kuantan Singingi local government, Rian Ersiman translator, Syah Bendri the driver of the WWF team and Junandi Susantio and Tessa Driessen WWF interns.

There was no official meeting, just an interview with some employees of PT Artelindo Wiratama. The office moved in 2010 to Pekanbaru and some part, according to the employees, to the sister company PT Cirta Sumer Sejahtera. The sister company is part of APRIL, while Artelindo is part of APP. The employees also claim that the company is part of APRIL. Since the office moved, Artelindo is only a plantation with employees in charge of the maintenance of the Acacia and Eucalyptus forest.

The WWF team showed the employees the questionnaires and explained the goal of them, for research of the Utrecht University. Only three employees read the questionnaire and decided not to fill them in. The WWF team showed them pictures of other employees from PT. Bukit Raya Mudisa who filled in the questionnaires. And the WWF team promised the employees that they could fill in the questionnaires anonymous. The employees still refused to fill in the questionnaires, but they did agree to answer some question.

- How do you maintain the forest?

  “We cut the wild grass by hand, so that the forest has all the space to grow.”

- How does the land clearing take place?

  “We use big machinery to cut all the trees and the rest of the forest down. We use bulldozers and crane machine, no chainsaws.”

- What do you do if you come across big animals like elephants?

  “We run away and do nothing. We are scared of animals like elephants and we don’t want to harm them and just leave them alone.”

- Do you know something about the certification of PT. Artelindo? Like SVLK or FSC.

  “No we have no idea.”

- Do you have contact with the local communities and help them improve their lives?

  “Yes we do. We have a good relationship with them. We try to help them, and we play sports with them. We also have a competition between villages and employees. We use CSR.”

- According to data there is still natural forest left here. Where is it located and do you know how much, in percentages or Hectares, this is?

  “Yes that is right, there is still natural forest left. This can be found around the rivers, I (and all the other employees present agreed with this) don’t know how much this is.”

- After cutting down the forest, do you use reforestation? And what kind of trees do you have?

  “After cutting the forest we immediately replant the forest. We have Acacia and Eucalyptus plantations.”

- Do you know how much the company get payed for all the trees, or per tree?

  “No we do not know that.”

- Do you know what was here before the Artelindo plantation?

  “No we do not know that.”

- The final question, non-timber forest products, products you get out of the forest besides timber, like birds, deer, fish, rotan, damar. Do you get these products out of the forest? And do you use these for yourself or do you sell them?

  “We sometimes fish in the river, but that is only as sport. We do eat the fish ourselves, but we do not need it because we have a canteen. For the rest we do not get anything else out of the forest. That is illegal.”

6. Multikarya Lisum Prima plan