Implementation of Musim Mas
Sustainability Palm Oil Policy

2018 Diagnostic Report on
Musim Mas Site Verifications in
Central Kalimantan Province – Indonesia

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Foreword

This report presents results of the Rainforest Alliance auditor's evaluation of company systems and performance in Central Kalimantan against the applicable standards.

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Executive Summary

Musim Mas announced its sustainability policy in December 2014 to bring benefits to the community; to promote positive environmental impacts; to fully comply with local, national, and international laws; and to establish a traceable supply chain. This policy became applicable immediately to the company's operations. Musim Mas requires supplier mills and their suppliers of fresh fruit bunch (FFB) volume to meet Musim Mas' policy commitments, but recognises that compliance requires a process of constructive engagement with mills and their parent companies. An important component of this engagement is the performance of mill-level verification assessments.

Musim Mas assigned Rainforest Alliance to conduct a mill-level verification assessement programme. This programme verified the performance of identified high-risk mills against Musim Mas' policy commitments, both to highlight areas where improvement was needed to close compliance gaps and to inform an engagement strategy at the level of the supplier company group. A third objective of the programme was to help identify common sustainability challenges that inform the planning of interventions Musim Mas aims to roll out across priority landscapes.

Musim Mas has selected six POMs in four Musim Mas priority regencies of Central Kalimantan: Gunung Mas, Kotawaringin Barat, Kotawaringin Timur, and Seruyan for assessment.

This diagnostic report provides some recommendations to enable Musim Mas to develop a strategic approach to address issues raised at a landscape level. The report combines findings from the verification assessments with knowledge of complementary initiatives in Central Kalimantan as the basis for planning interventions. Findings are presented in three parts:

1. Analysis of POM-level compliance related to Musim Mas' Sustainability Palm Oil Policy Indicators, based on the Rainforest Alliance verification assessment of six POMs.
2. Analysis of key landscape-level challenges to compliance identified by the verification results to date.
3. Brief review of existing initiatives in priority provinces relevant to addressing the identified challenges.

The objective of site verification is to record each mill's compliance level with the Musim Mas sustainability policy requirements. This activity is not an audit nor an assessment with a pass-or-fail result but rather a tool intended to provide recommendations for reducing compliance gaps and achieving better performance.

Field verification results on the six POMs show that the Musim Mas sustainability policy, in the form of policy documents and questionnaires, had been distributed to mills' management headquarters. Because the mill head offices distributed Musim Mas' sustainability policy to mill field offices right before site verification, only one POM showed good understanding of the policy (POM A) and two POMs (POM E and POM F) showed significant lack of understanding, suggesting that insufficient physical distribution of the Musim Mas sustainability policy is one root cause of non-compliance. While other mills (POM B, POM C and POM D) were quite familiar with the Musim Mas' sustainability policy, Musim Mas needs to improve its delivery of the policy by directly communicating with suppliers' managers, who are responsible for implementing the policy, so they can better understand sustainability principles and develop programmes to support compliance of sustainability standards, including but not limited to the

Musim Mas' sustainability policy. Communication should be encouraged to go both ways by encouraging Musim Mas' supplier sustainability staff to learn from Musim Mas' experience in implementing sustainability programmes.

This diagnostic report offers a solid foundation for Musim Mas' future involvement with its suppliers regarding implementing critical requirements for sustainability. Verification findings are presented in sequence order from highest to lowest non-compliance percentage for the eight principles of Musim Mas' sustainability policy: (1) greenhouse gas (GHG) emissions, (2) deforestation, (3) environmental impacts management, (4) land tenure and legislation, (5) peat management, (6) social compliance, (7) supply chain and (8) use of fire.

Non-compliance percentages were found to be highest in the three principles of GHG emissions, deforestation, and environmental impacts management for FFB suppliers' performance (diagram 02). To address major non-compliances and broader challenges at the landscape level, Rainforest Alliance provides key recommendations. Musim Mas shall consider which recommendations are better addressed by the company alone and which are better implemented through collaboration with existing landscape-level initiatives implemented by civil society organisations (CSOs) or the government of Indonesia. Collaborative opportunities include the following:

1. Musim Mas can work with the Earth Innovation Institute (EII), which has a joint programme with the Central Kalimantan government, to obtain support in developing monitoring plans of GHG emission and high conservation value (HCV) and high carbon stock (HCS) identification for each mill's third-party FFB suppliers, including bigholders and smallholders. Through its Jurisdictional Certification Approach, EII may also support Musim Mas third-party suppliers, especially smallholders, to empower them in implementing palm oil sustainable production.

2. Musim Mas can work with Inovasi Bumi (INOBU) through its joint programme with the Central Kalimantan government; Sistem Informasi dan Pemantauan Kinerja Perkebunan Berkelanjutan (SIPKEBUN) or the Information and Performance Monitoring System for Sustainable Plantations may support Musim Mas by sharing its database of 4,000 smallholders, their land areas, and smallholder mapping including HCS and HCV areas. This collaboration will help Musim Mas select third-party suppliers by clarifying land boundaries, which has been a challenge at the landscape level and identifying risk levels of third-party FFB. INOBU and Musim Mas can work together, as well as with government, other organizations and local communities, to exchange database content and develop strategy, thereby actively bridging some gaps in mapping.

3. Musim Mas may want to explore the opportunity to work with local NGOs or institutions to offer workshops or trainings to mill staff and third-party suppliers to increase their environmental impact knowledge. Later, Musim Mas could support mill staff and suppliers to adopt the knowledge into company policy, and address mills that lack an action plan to meet requirements identified in corporate policy commitments.

4. Musim Mas may engage with local experts and collaborate with INOBU to conduct in-depth study and develop written procedures on peat area development and water management to develop traceability of supply chain systems to all suppliers by employing a barcode system capable of describing the suppliers' FFB traceability system, such as oil palm field operation (OPFO).

The priority intervention recommendations and brief overview of landscape-level initiatives in Central Kalimantan Province discussed in this diagnostic report are intended to support Musim Mas' engagement with its current third-party suppliers and contribute to an intervention plan to be executed in a priority landscape. Musim Mas shall identify existing landscape-level initiatives that the company can actively contribute to in pursuit of addressing some of the sustainability challenges described in this report. This report identifies two specific initiatives that merit serious consideration: the Earth Innovation Institute's Jurisdictional Certification Approach and INOBU's Sistem Informasi dan Pemantauan Kinerja Perkebunan Berkelanjutan, also known as the Information and Performance Monitoring System for Sustainable Plantations.

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1. Introduction

Rainforest Alliance has been supporting Musim Mas to conduct verifications since early 2016. At first Rainforest Alliance partnered with the Consortium of Resource Experts (CORE) and has delivered Riau Province Diagnostic Report published in 2017, it provides an overview of Riau Province, and in 2017 Rainforest Alliance works directly with Musim Mas to deliver South Sumatera Province Diagnostic Report, published in 2018. This is third diagnostic report of Rainforest Alliance focuses on Central Kalimantan Province. This diagnostic report offers recommendations for Musim Mas to develop a strategic approach for solving some problems identified at the landscape level based on mill verification results from Rainforest Alliance verification completed in 2017 - 2018.

1.1 Background

Musim Mas (MM) announced its Sustainability Palm Oil Policy in December 2014, at which time the policy became immediately applicable to all MM operations and its third-party suppliers. The policy consists of five main commitments, as quoted from MM's website:

1. Bring benefits to the community
2. No deforestation of high conservation value (HCV) areas and high carbon stock (HCS) forest
3. No development of peatland regardless of depth
4. Fully comply with local, national and international laws
5. Establish traceable supply chains

Musim Mas requires supplier mills and their suppliers of FFB to meet these policy commitments, but recognises that compliance will require a process of constructive engagement with mills and their parent companies. An important component of this engagement is delivery of a programme of mill-level verification assessments.

Critical to Musim Mas' policy implementation strategy is its transformation objective, that is, taking a landscape-level approach to implementation and focusing effort in places where impact can be achieved.

1.2 Objectives and Progress to Date

The verification assessment programme verifies the performance of identified high-risk mills against Musim Mas' policy commitments, both to highlight areas where improvement is needed to close compliance gaps and to inform an engagement strategy at the level of the supplier company group. A tertiary purpose of the assessments is to help identify common sustainability challenges to help to inform the planning of interventions that Musim Mas aims to roll out across priority landscapes. Rainforest Alliance developed the Central Kalimantan diagnostic report from the results six site verifications. Three site verifications were completed in 2017, and three three more were completed in 2018. This report provides some recommendations to help Musim Mas develop a strategic approach for addressing issues at the landscape level, combining findings from

the verification assessments with knowledge of complementary initiatives in Central Kalimantan Province as a basis to plan interventions. As an initial step, this report presents analysis of the findings from Central Kalimantan Province to nurture a deeper understanding of palm oil mill sustainability challenges and awareness at the landscape level about related sustainability initiatives and programmes in the province.

2. Methodology

2.1 Risk Assessment

Risk assessment is an essential element of supplier engagement methodology, as understanding variation in risk factors helps to (a) identify the regencies where priority groups are clustered for engagement to advance landscape transformation aims, (b) inform which mills to select as part of the mill verification programme, and (c) increase visibility on group-level risk profiling and monitoring of progress. Specifically, the mills within each key company group have been classified into risk categories, and on this basis Musim Mas has identified which mills to include as part of the verification programme.

2.2 Selection of Mills for Verification

Mill selection was conducted by the Musim Mas team with an approach that focused on:

- Engaging with clusters of mills in priority landscapes, with an emphasis on regencies in Central Kalimantan Province
- Prioritizing mills owned by plantation company groups that are key suppliers to Musim Mas, based on total volume and strategic commercial partnerships

On this basis, the list of mills selected for verification assessment, together with the site verification dates, is as follows:

No	Date of Site Verification	Regency	Mill ID
1	14 – 16 March 2017	Seruyan	POM A
2	18 – 20 July 2017	Kotawaringin Timur	POM B
3	3 – 5 October 2017	Seruyan	POM C
4	6 – 8 March 2018	Gunung Mas	POM D
5	16 – 19 April 2018	Seruyan	POM E
6	2 – 5 May 2018	Kotawaringin Barat	POM F

To complete this diagnostic report, Rainforest Alliance conducted verification assessment in six POMs between 13 March 2017 and 6 May 2018. All mills are located in Central Kalimantan Province.

2.3 Mills' Supply Base Overview

The mills' supply bases varied: mills sourcing from their own plantations, scheme smallholders, or other companies' plantations; independent smallholders operating in farmer groups or as individuals; cooperatives; and FFB agents or traders. The mill base proportion table below shows the traceability risk per supplier category from the lowest risk (mills that own their own plantation) to the highest risk (mills that source from agents).

POM	Proportion of Total Supply Base (%)					
	Own Plantation	Scheme Smallholders	Plantation Companies	Independent growers	Cooperatives	Agent
A	93.70%	1.45%	3.91%	0.94%	-	-
B	55.22%	-	22.67%	0.10%	1.01%	21.00%
C	-	-	-	99.63%	-	0.37%
D	60.12%	-	33.71%	-	6.17%	-
E	40.86%	46.94%	-	-	-	12.20%
F	54.06%	38.35%	-	-	-	7.59%
Percentage*	**55.98%**	**15.60%**	**12.81%**	**7.26%**	**1.78%**	**6.57%**

*** Data in the final row of table represents each type of supply base's percentage of total volume of FFB from six POMs**

Traceability level for each supply category in order, from low risk to high risk:

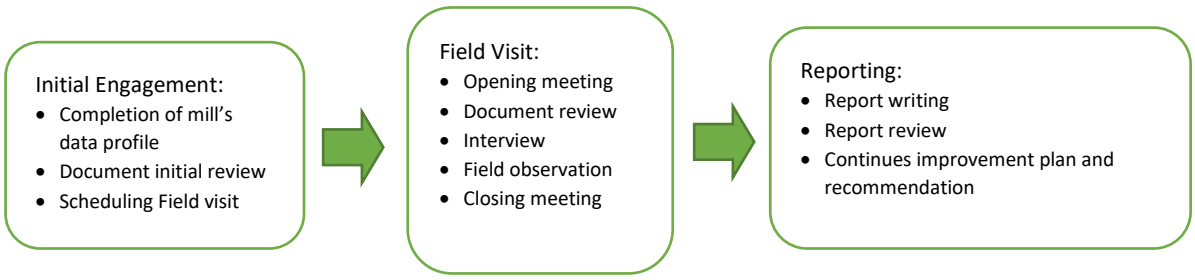
1. Owned plantation: FFB came from managed plantation owned by organization
2. Scheme smallholders: FFB came from smallholders who have an agreement with organization for plantation nursing and/or replanting programme
3. Plantation company: FFB came from another company that owns plantation
4. Independent grower: FFB came from large plantation or smallholders
5. Cooperative: FFB came from a group of farmers joined in an autonomous, voluntary association to meet common economic, social and cultural needs
6. Traders/ Agents FFB came from middleman who purchases FFB from different source (e.g., farmers, cooperatives or other plantations) and delivers the FFB it to mill

The results of this supply base analysis for the six POMs in Central Kalimantan Province show that the highest proportion of FFB supply comes from mill-owned plantations (55.98%), followed by supply from scheme smallholders (15.60%), supply from plantation companies (12.81%) supply from independent growers (7.26%), supply from agents (6.57%), and supply from cooperatives (1.78%). Most of the FFB supply comes from mill-owned plantation, indicating that the FFB supply

in the assessed six POMs are traceable and carries low risk of insufficient FFB traceability. Five out of six mills have their own plantations, and mill management could manage FFB supply as management occupies better bargaining positions than do mills with FFB supply heavily dependent on third-party suppliers. One mill that does not own plantation supply depends on FFB supplies from independent growers and agents.

2.4 Site Verification Process

Mill-level verification is a site-based assessment of the performance of a palm oil mill and its FFB supply base against one set of indicators. This third-party verification process is summarized in the diagram below:



The objective of site verification is to record each mill's compliance level with the Musim Mas Sustainability Policy requirements. This activity is not an audit nor an assessment with a pass-or-fail result but is a tool intended to provide recommendations for reducing compliance gaps and achieving better performance.

The site verification process starts when the mill provides a mill profile and some information about operation. This information is reviewed by the verification team before the field visit. The field visit starts with an opening meeting and ends with a closing meeting at the mill; all relevant staff and management representatives are expected to attend these meetings. The verification team uses three different approaches to confirm their observations: document review, interview with staff, and field observation. The results of the preliminary observation are presented and discussed in the closing meeting. The verification team then prepares a verification report that presents observation results and a recommended action plan for improvement.

The verification indicators used in this diagnostic report were developed from the Musim Mas Sustainability Policy's eight principles in the following manner:

No	Principle	Indicator
1	Land tenure and legislation	7 indicators
2	Deforestation	6 indicators
3	Development on peat lands	3 indicators
4	Use of fire	1 indicator
5	Management of environmental impacts	3 indicators
6	Greenhouse gas (GHG) emissions	2 indicators
7	Social compliances	14 indicators
8	Supply chain	5 indicators
	TOTAL	**41 indicators**

2.5 Categorisation of Site Verification Results

The initial output from the verification process was a report that covered all the observations from the verification visit. The site verification process at the mill resulted in a set of findings that categorised compliance with each indicator using the following classification system.

Compliance	• Compliance with indicator
Minor non-compliance	• Has the potential to decrease performance against this indicator over time; and/or • Repeated non-compliance at low level that can result in impacts or tendency to result in impacts to overall mill performance and the suppliers; and/or • Can be solved immediately
Major non-compliance	• Non-compliance with legal requirements; and/or • Systemic non-compliance repeated on higher level that can result in impacts or tendency to result in impacts to overall mill performance and the suppliers; and/or • Dangerous to life and health directly

2.6 Regency-level Initiative Mapping

Musim Mas has selected six POMs in four Musim Mas priority regencies of Central Kalimantan: Seruyan, Kotawaringin Timur, Gunung Mas and Kotawaringin Barat. Besides the site verification programme described above, Rainforest Alliance also conducted a desk review of initiatives and ongoing and planned programmes in the four Musim Mas priority regencies. This desk review was conducted by collecting information available from public domain sources, NGOs, and the Internet.

This review identifies collaboration opportunities for addressing sustainability issues in the region but should not be considered a complete list of all possible collaboration opportunities in the field, as several local initiatives and programmes are not described here. The collaboration opportunities that are identified must be explored further by Musim Mas to evaluate whether they meet Musim Mas' needs.

3. Diagnostic

The diagnostics are divided into three analysis sections:

1. Analysis of the level of compliance of the palm oil mills (POMs) related to Musim Mas' Sustainability Palm Oil Policy indicators based on the Rainforest Alliance verification assessment of six POMs
2. Initial analysis of key landscape-level challenges identified from desktop review
3. Brief review of existing initiatives in priority regencies relevant to addressing the identified challenges

In appendix B, the three analyses are combined to identify recommendations for policy implementation activities for further consideration by Musim Mas.

3.1 Verification Results

The verification results summary synthesizes observation results from the six POMs visited by the Rainforest Alliance team. The analysis was developed based on two approaches:

In the first approach, the analysis was based on non-compliance to the indicators related to Musim Mas' eight sustainability principles. The mill performance assessment began with dividing the mills's work into two operational scopes, namely palm oil mill operations and supply-base management operations (including mill-owned plantations and third-party suppliers).

The following diagram presents a summary of the mills' compliance with the eight principles in the verification checklist. Because the number of indicators for each principle varies, the

compliance or non-compliance number is converted to a percentage to simplify the comparison. Detailed calculations are presented in appendix B, which shows the level of conformity by each of the six POMs with each principle. Some of the identified non-compliance issues can be addressed at the mill level, while other non-compliances should be approached through initiatives aimed at a wider landscape level.

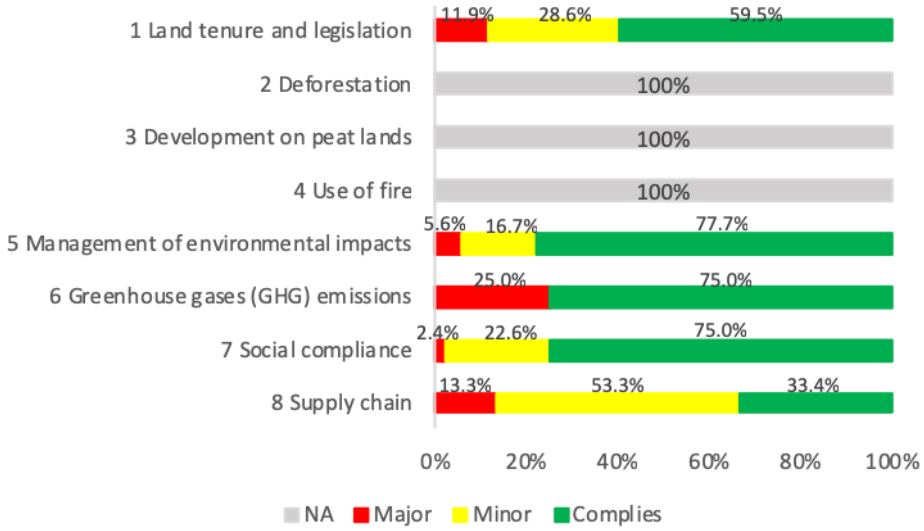


Figure 1. Mill performance analysis on each principle

Figure 1 represents palm oil mill operations' performance against the compliance indicators grouped by principle. Indicators in principle 2 (deforestation), principle 3 (development on peat lands) and principle 4 (use of fire) are not applicable to palm oil mill operations.

Overall, the compliance performance of palm oil mill operations related to management of environmental impact (principle 5), greenhouse gas emissions (principle 6), and social compliance (principle 7) was above 70%; the mills' compliance on land tenure and legislation (principle 1) was 60%; and the mills' performance on supply chain (principle 8) was low, at 33%. The mills' non-compliance in each principle will be discussed at the end of section 3.1.

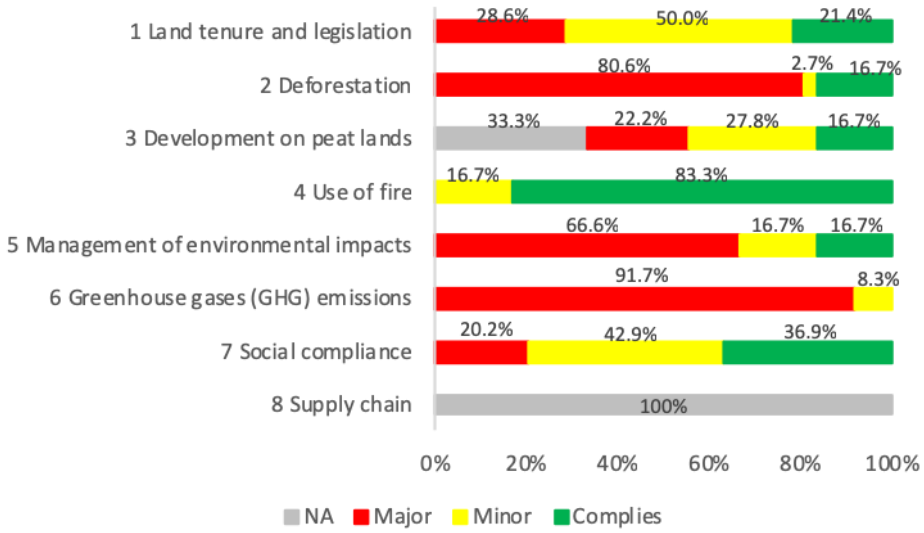


Figure 2. FFB supply base performance analysis on each principle

Figure 2 represents supply-base management operations performance, including the supply from a mill-owned plantations, scheme smallholders (plasma) and other third-party suppliers, such as cooperatives, plantation companies and FFB agents and traders. All indicators in principle 8 (supply chain) cannot be applied in the scope of supply-base management operations because supply-chain management is the responsibility of each mill. Around 33% of peat-related indicators cannot be applied because two out of six visited mills were not located in peat areas.

Compliance among the supply base was highest in use of fire (principle 4), followed by social compliance (principle 7), but overall, almost all other principles in the Musim Mas' field checklist were at a critical point of compliance, especially the principles related to environmental sustainability: principle 6 (greenhouse gas emissions), principle 2 (deforestation), and principle 5 (management of environmental impacts). Principle 1 (land tenure and legislation) was also becoming a concern, following by principle 7 (social compliance).

In the second approach, the analysis was based on identifying compliance and non-compliance at each mill. The diagram below shows the results for each mill for compliances and major and minor non-compliances on each indicator assessed against the eight principles of the Musim Mas verification checklist. This analysis allows clear comparison of the overall performance of all mill operations, and it aims to highlight which mills need immediate attention and support from Musim Mas.

The scope of this second analysis can be divided into:

1. Mill performance related to palm oil mill operations by exempting indicators in principle 2 (deforestation), principle 3 (development on peat lands), and principle 4 (use of fire)
2. Mill performance related to supply-base management operations by exempting indicators in principle 8 (supply chain)

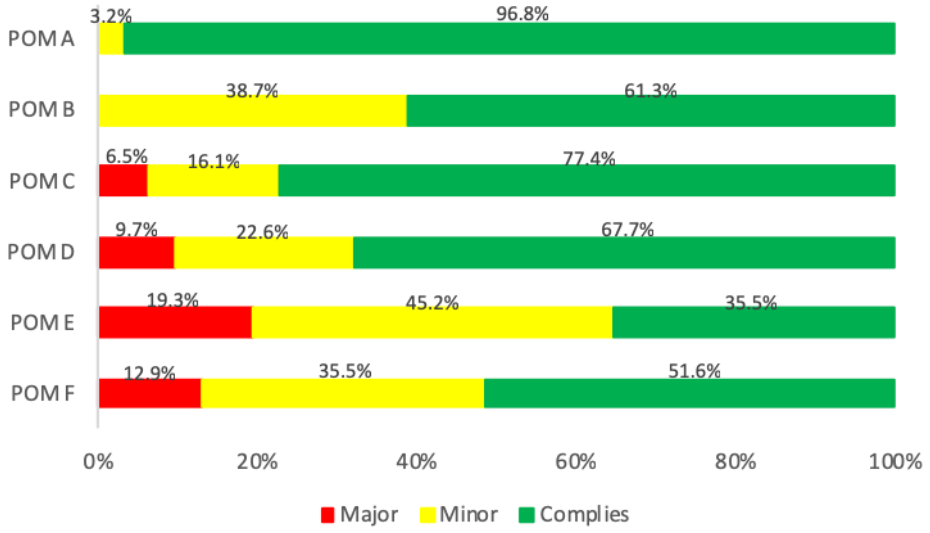


Figure 3. POM performance related to mill operation

Figure 3 shows that POM E's compliance (about 35%) was the lowest of all the mills', followed by POM F with 52% compliance. POM B, POM D and POM C showed compliance rates of 61%, 68% and 77%, respectively. POM A showed the highest percentage of compliance, about 97%, with a minor non-compliance score of 3%.

These overall results indicate that POM E and POM F, which both showed major non-compliances and minor non-compliances that could become major if action is not taken, are top priorities for engagement and support to create a corrective action plan. Most of the mills visited had attended to ISPO certification. Two (POM A and POM D) had ISPO certificates, but the others had not finished the certification process completely. One of the mills that had completed ISPO, ISO 14001 and OSHAS 18001 certification (POM A), showed good performance with no major non-compliance and only 3% minor non-compliance. The other, POM D, showed somewhat less effective performance. POMs B and E had passed the first stage of ISPO certification and were moving into the the second stage; the other two mills (POMs C and F) had passed the second stage of ISPO certification but had not received the final decision from the ISPO committee. The main obstacle to ISPO certification for the other mills was that part of the POMs' consession areas is still in the process of getting cultivation rights titles. These POMs must complete the titling process and revise documents to comply with ISPO's requirements.

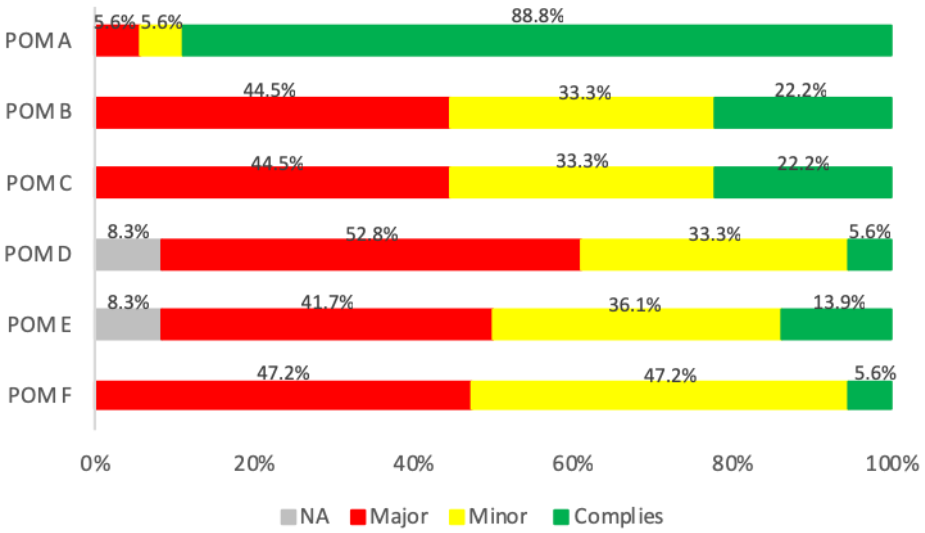


Figure 4. POM performance related to FFB supply-base management

In terms of improving POM performance related to FFB supply-base management operations, POM D and POM F were top priorities, as shown by their low percentage of compliance (6%), followed by POM E (14%). POM B and POM C showed the same percentage of compliance (22%).

POM A showed high compliance because there is no agent within its supply chain, and the mill has direct engagement with plantation management staff along their supply chains, including scheme smallholders, company plantation staff and independent growers. POM A communicated the Musim Mas sustainability policy directly to partners in their supply chain.

Thematic Issues Related to Non-Compliance with Musim Mas' Sustainability Principles

In the analysis of mill management and the supply base, the highest non-compliance is found in greenhouse gas emission (principle 6), followed by non-compliances in deforestation (principle 2), environmental impacts management (principle 5), land tenure and legislation (principle 1), development on peatland (principle 3), social compliance (principle 7), supply chain (principle 8) and use of fire (principle 4).

Based on the verification assessments conducted in the six POMs, the main thematic issues related to non-compliance with MM's eight sustainability principles are as follows:

(i) Greenhouse Gas (GHG) Emissions – Principle 6

Non-compliance of mill operations and their supply base is highest relative to greenhouse gas emission indicators. The percentage of non-compliance in GHG policies on palm oil mill operation was 25%, while the non-compliance percentage on supply-base management operations was 92%. This high rate of non-compliance at the level

of supply base was due to all third-party suppliers not yet having identified GHG emissions. Five out of six mills have identified GHG emissions on their own plantations, but mill-owned plantations are considered part of each POM's supply base; therefore even with good GHG compliance on the mill-owned plantations, the overall supply-base management operations non-compliance scores were high. More specifically, field verification results indicated that compliance with GHG emissions is high for POM and mill-owned plantations, but GHG emission was not yet a concern for third-party suppliers, including company plantations, cooperative and independent growers. Four out of six mills had developed action plans to reduce greenhouse gas emissions on their plantations and in their operations.

(ii) Deforestation – Principle 2

The indicators included in Musim Mas' deforestation sustainability principle are not applicable to the scope of palm oil mill operations. Rather, assessment and observation are only applicable to supply-base management operations, including operations by mills that own and manage a plantation or engage third-party suppliers. Non-compliance on deforestation indicators are related to the identification and assessment of HCV and HCS area that had not been completed by most of own plantations management and third-party suppliers. Several mills have not yet conducted HCV and HCS identification in their own plantations and their parent companies' plantations, but they intended to conduct such identifications and assessements later as part of completing their sustainability certification programme. Most non-compliance on deforestation indicators existed among smallholders, including those involved in cooperatives or farmer groups or who are individual. Limited deforestation knowledge and funding for replanting are a constraint for third-party suppliers that cause planting activity to be done without considering important points in deforestation indicators.

Among mills that had already identified their HCV, one mill had not conducted HCV management and monitoring in the field to protect the designated areas; thus there are HCV areas that included planting areas of scheme smallholders.

Of the assessed mills that perform new planting, only one POM implements RSPO's New Planting Procedure (NPP), which has been approved by RSPO and has been through a process of public consultation.

(iii) Management of Environmental Impacts – Principle 5

The POM non-compliance with environmental impacts management in mill operation is very low compare to supply-base management operations. Major non-compliance was observed in only one POM, related to storage of medical waste from a clinic. Some mills had not yet implemented waste management that followed the companies' own SOPs or government regulations consistently.

Third-party suppliers were not yet prioritizing environmental impacts management. Limited knowledge and resources on managing environmental impact are the key challenge to this category of stakeholder.

(iv) Land Tenure and Legislation – Principle 1

Almost all visited POMs were not familiar with the Musim Mas sustainability policy and had not yet adopted it into their company policies (e.g., they had not yet included their commitment to RSPO principles and criteria, or to business ethics). Moreover, several mills did not yet have an action plan to complete requirements identified in their corporate policy commitments.

The mills assessed generally met the land ownership and mill legislation indicator requirements, and mill compliance with local and national laws and regulations was positive, although some mills had not been able to fully meet compliance on this indicator. Within the scope of the supply-base management operations, some plantations managed by mill management (mill-owned plantations) had not obtained cultivation rights (Hak Guna Usaha) for certain plantation areas despite palm oil plantation operations within the areas. This non-compliance has led to delayed ISPO certification.

Among third-party suppliers, most smallholder suppliers do not have ownership certificates; rather, they have Land Loss Certificates (Surat Keterangan Ganti Rugi Tanah) or Land Certificates issued by administrative villages or sub-districts. Non-compliance with land tenure and legislation indicators can also be linked to weak supply chain traceability, as the source of FFBs cannot be identified.

(v) Development on Peatland – Principle 3

Two of the visited mills are not located in peat areas. Four mills are in peat areas, and two of these have peat areas within mill-owned plantations. Both of these mills have yet to conduct an in-depth study of their peat areas; therefore, information on peat depth, peat maturity level and organic matter content is unknown. Both mills implemented water management systems via canal with an open-loop system, but no written procedures related to water management are specifically developed for plants on peatlands.

One of the remaining two mills has peat area in its mill-owned plantation, but the peat area has been changed so there are no implemented peat management practices. The other mill has no peat area within the mill-owned plantation.

Non-compliance in this indicator is primarily related to the weakness of supply chain traceability, as source of FFBs could not be identified. Such lack of transparency increases the risk of non-compliance in peatland development.

(vi) Social Compliance – Principle 7

Several mills created social programmes based on social impact assessments conducted in villages adjacent to mill locations and areas affected by the mill's operation. However, most mills provided social support based on requests or proposals from the head of the village in the absence of formal social impact assessments or participatory communication with village officials and surrounding communities.

There are three mills that have not applied free prior and informed consent (FPIC) principles completely, while one mill has incorporated FPIC principles into its company policy and assessed their implementation and two mills have completely incorporated and applied the FPIC principles.

Most of the mills showed high compliance on employment-related indicators. One mill needed to improve employment practices regarding fulfillment of workers' rights; in the last couple months the wages payments were not paid ontime.

Most mills applied SOPs on occupational health and safety (OHS) and followed government regulations consistently, provided OHS facilities and provide personal protective equipment (PPE). One mill provides only an initial set of PPE; when the equipment breaks, the workers must replace it themselves.

(vii) Supply Chain – Principle 8

Only one out of six mills had a barcode system able to provide a description of its FFB traceability system . This mill's programme is called OPFO (Oil Palm Field Operation), which describes the origin of the fruit allows it to be clearly traced in the mill. The system also gives information about the origin of the fruit from mill-owned plantation, the name of the harvester and the volume required for the calculation of harvesting costs and labor costs. The other mills were not able to describe a FFB traceability system from source to smallholders or third-party suppliers. FFB traceability reaches only to the registered supplier in a mill system (i.e., suppliers who have the delivery order, or DO). Most mills obtain FFB from third-party suppliers and from FFB agents, who carry the highest risk in FFB traceability. Those mills had not provided a mechanism to ensure third-party suppliers impose a ban on illegal purchases of FFB. Most of the mills also could not provide a programme to support smallholders in complying with the requirements of sustainable supply chain principles.

(viii) Use of Fire – Principle 4

The use of fire sustainability indicator is only applied in supply-base management operations. Compliance was found to be quite high because management of both mills-owned plantations and third-party plantations understood the ban on the use of fire as stipulated in district regulation.

Each mill's commitment level to sustainability depends on whether the mill is committed to a certification programme that includes sustainability principles, such as ISPO or RSPO. As it is

mandatory for all mills in Indonesia to have ISPO certification, management must demonstrate corporate commitment through recruitment and/or improving its human resources capacity, as well as through investing in policy development and building programmes to create an environment where palm oil management activities align with sustainability principles.

3.2 Landscape-level Issues Identified

3.2.1. Profile of Regencies

The profile below is the outcome of a desktop assessment on Musim Mas priority regencies from 2017 to 2018. This assessment was conducted by obtaining information from public domain sources, NGOs, and Google searches. The purpose of this regency profile is to provide an overview of Seruyan, Kotawaringin Timur, Gunung Mas and Kotawaringin Barat.

Central Kalimantan Province

Central Kalimantan covers 15.3 million ha of land or 8% of Indonesian total area, making it the second largest Indonesian province after Papua.[1] Its main economic activity comes from the agricultural sector, employing 560,594 people, or 52.7% of the workforce as of August 2013.[2] As of 2010, 302 oil palm plantation licenses had been issued, covering 3,775,000 ha. Of this area, approximately 35% had been planted by 2013. Production of crude palm oil has increased dramatically in recent years, from some 1.7 million tons in 2009 to nearly 2.8 million tons in 2012. Palm oil currently contributes approximately 25% of the province's regional GDP and dominates the plantation agricultural sector. Palm oil covers 8% of Central Kalimantan, accounting for 11% of Indonesia's oil palm production.[3]

While oil palm is the province's most important driver of economic growth and socio-economic development in Central Kalimantan, it is also a leading cause of deforestation and environmental degradation, including water pollution, sedimentation, pesticide overload and impoverished soils. The rapid expansion of the oil palm industry has thus been accompanied by substantial external environmental costs.[4] Forest fires and peat decomposition are the largest drivers of emissions in the province.[5]

Recognizing both the strategic economic importance of oil palm and the associated risk of negative social impacts and environmental degradation, Central Kalimantan legislators passed the Provincial Regulation No. 5 (2011) on Sustainable Management of Plantation Businesses.[6] In 2011, the province was selected to be Indonesia's pilot REDD+ province, under a bilateral agreement with Norway focused on reducing Indonesia's emissions. In 2011, as part of the wider efforts to reduce

[1] BPS Kalimantan Tengah (2015)
[2] Central Kalimantan Green Growth Report (2015)
[3] Climate Policy Innitiative (2015)
[4] Central Kalimantan Green Growth Report (2015)
[5] Earth Innovation Institute (accessed April 2018)
[6] Central Kalimantan Green Growth Report (2015)

emissions from deforestation, the provincial government placed a two-year moratorium on new logging permits for primary forest and peatlands.[7]

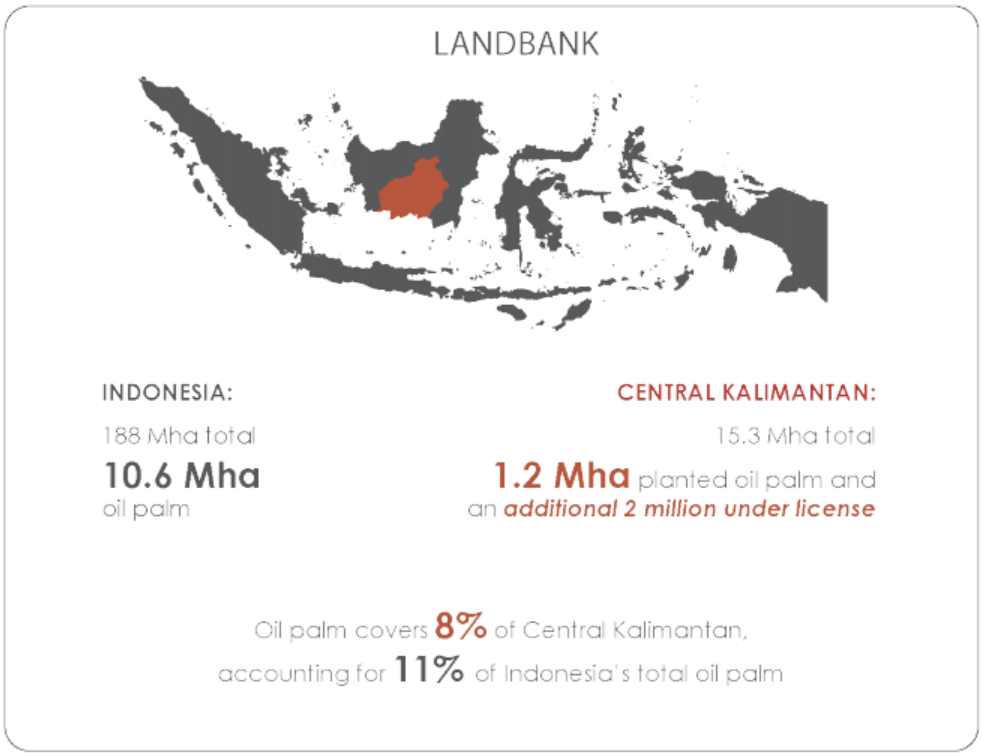


Figure 5. Map of Central Kalimantan (red zone) with palm oil area estimation[8]

[7] Earth Innovation Institute (accessed April 2018)

[8] Climate Policy Initiative (2015)

Gunung Mas Regency

Gunung Mas regency covers 1,080.40 ha of land, or 7.04% of Central Kalimantan's total area. With a population of 109,947,[9] the regency consists of 12 districts, including Damang Batu, Miri Manasa, Kurun, Manuhing, Manuhing Raya, Rungan, Rungan Barat, Rungan Hulu, Sepang, Mihin Raya, Tewah and Kahayan Hulu Utara. Based on Indonesian forestry minister's decree number SK.965/Menhut-II/2013 (27 December 2013), forest authority (KPHP) in Gunung Mas Regency (Unit-XVI) covers 294,735 ha, consists of 57,337 ha of protected forest, 187,291 ha limited forest concession (Hutan Produksi Terbatas) and 50,107 ha of full forest concession (Hutan Produksi Tetap). All of the FMUs are located in Kurun District, Tewah District, Kahayan Hulu Utara District, Damang Batu District and Miri Manasa District[10].

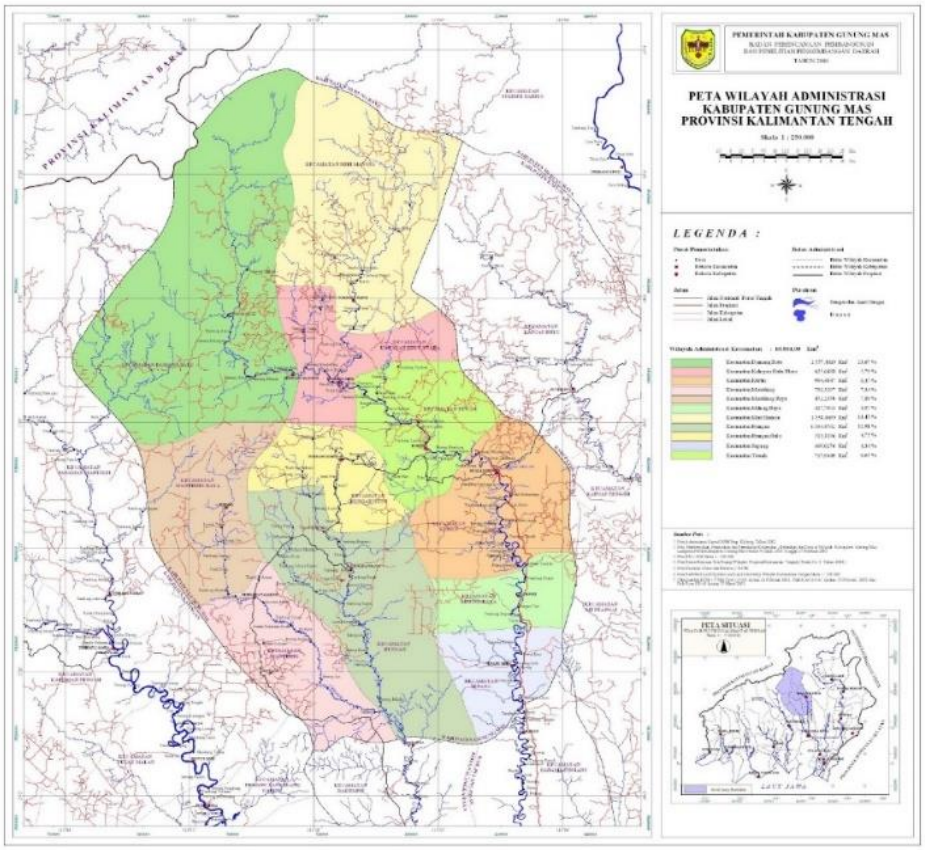


Figure 6. Gunung Mas' Land-use Map[11]

[9] Badan Pusat Statistik (2015)

[10] Menteri Linkungan Hidup dan Kehutanan (accessed April 2018)

[11] Pemerintah Kabupaten Gunung Mas (2006)

Seruyan Regency

Seruyan regency covers 1,640,400.05 ha or 11.6 % of Central Kalimantan's total area, with a population of 146,914. It covers ten districts, including Seruyan Hilir, Danau Sembuluh, Hanau, Seruyan Tengah, Seruyan Hilir Timur, Seruyan Raya, Suling Tambun, Danau Seluluh, Batu Ampar and Seruyan Hulu.[12] Seruyan's key economic resources are processed wood, oil palm, rattan, and patchouli distillation.[13] Seruyan's plantation area covers 11,479 ha of oil palm plantation yielding 30,217.20 tons, 18,072.12 ha of rubber yielding 8,693.12 tons, 5,991.00 ha of coconut yielding 3,415.08 tons, 158 ha of coffee yielding 42.40 tons, 214 ha of pepper yielding 33.60 tons, and 205 ha of cashew yielding 21.83 ton.[14] Seruyan's protected forest covers 39,347.63 ha of land.[15]

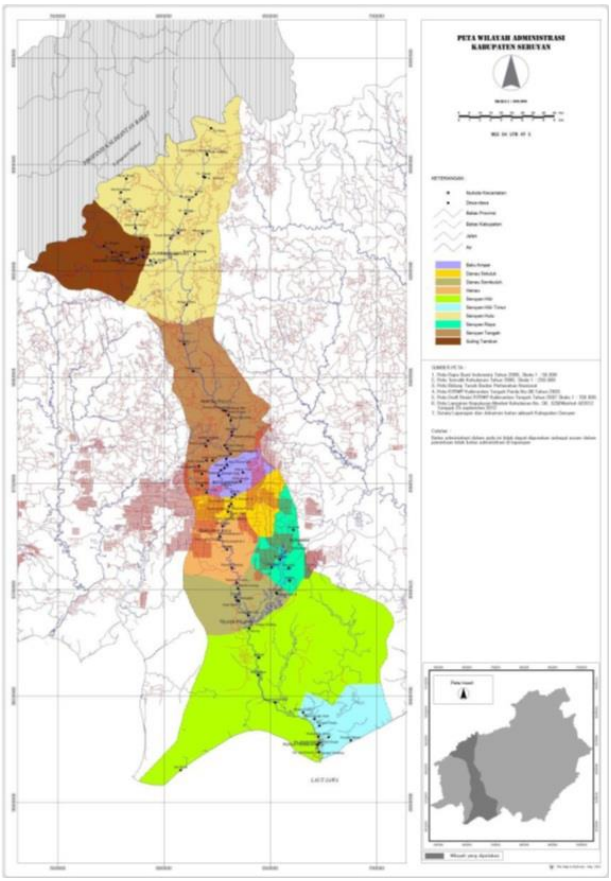


Figure 7. Seruyan's Land-use Map[16]

[12] Pemerintah Kabupaten Seruyan (accessed April 2018)

[13] Pemerintah Kabupaten Seruyan (accessed April 2018)

[14] Pemerintah Kabupaten Seruyan (accessed April 2018)

[15] Pemerintah Kabupaten Seruyan (accessed April 2018)

[16] Kabupaten Seruyan Website (accessed April 2018)

Kotawaringin Timur Regency

Kotawaringin Timur covers 1,649,600 ha of land,[17] with a population of 436,276.[18] It manages protected forest up to 17,421.89 ha, production forest up to 132,515 ha, limited production forest up to 453,474,316 ha, and permanent production forest up to 245,270,373 ha.

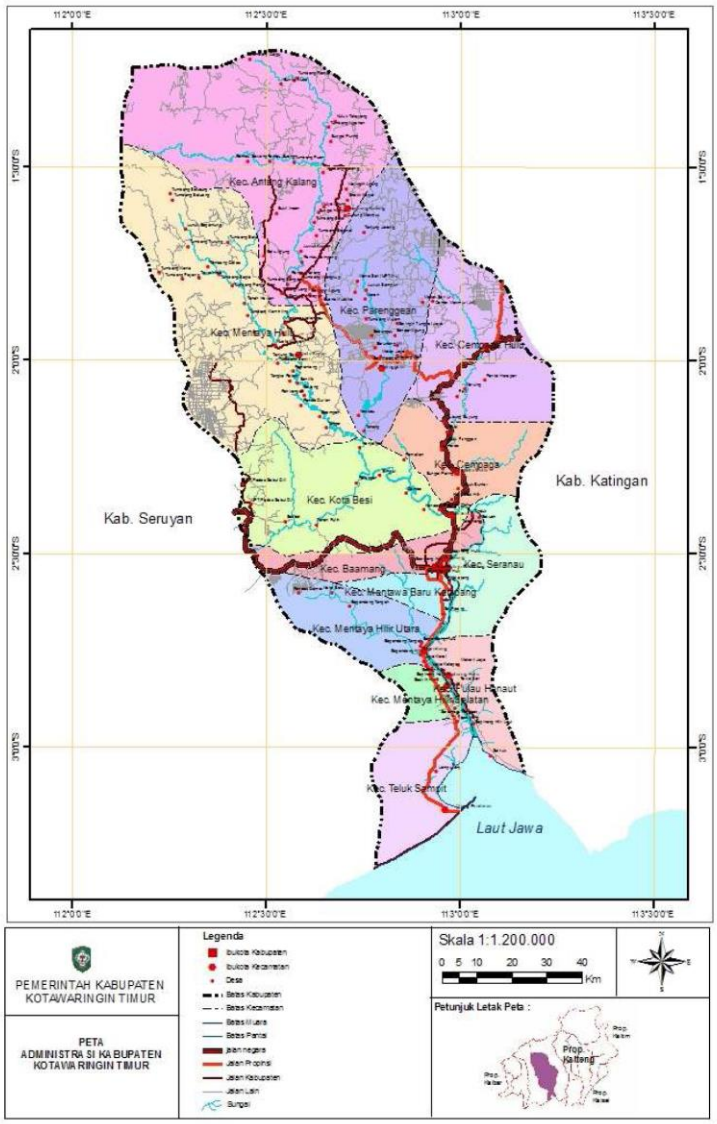


Figure 8. Kotawaringin Timur's Land-use Map[19]

[17] Kabupaten Kotawaringin Timur (accessed April 2018)

[18] BPS Kotawaringin Timur (2016)

[19] Pemerintah Kotawaringin Timur (accessed April 2018)

Kotawaringin Barat Regency

Kotawaringin Barat regency covers 1,075,900 ha of land, with a population of 286,714.[20] Swamp area in Kotawaringin covers 18,755.50 ha, primary dryland forest up to 15,103.67 ha, secondary dryland forest up to 113,995 ha, primary mangrove forest up to 278.40 ha, secondary mangrove forest up to 42.54 ha, swamp forest up to 54.38 ha, secondary swamp forest up to 47,461.86 ha, plantation forest up to 2,234.19 ha, plantation up to 35,648.31 ha, mining up to 192.04 ha, dryland farming up to 5,337.93 ha, dryland farming up to 12,450.33 ha, bushes up to 39,739.19 ha, fish pond area up to 498.54, and open land up to 5,141.67 ha.

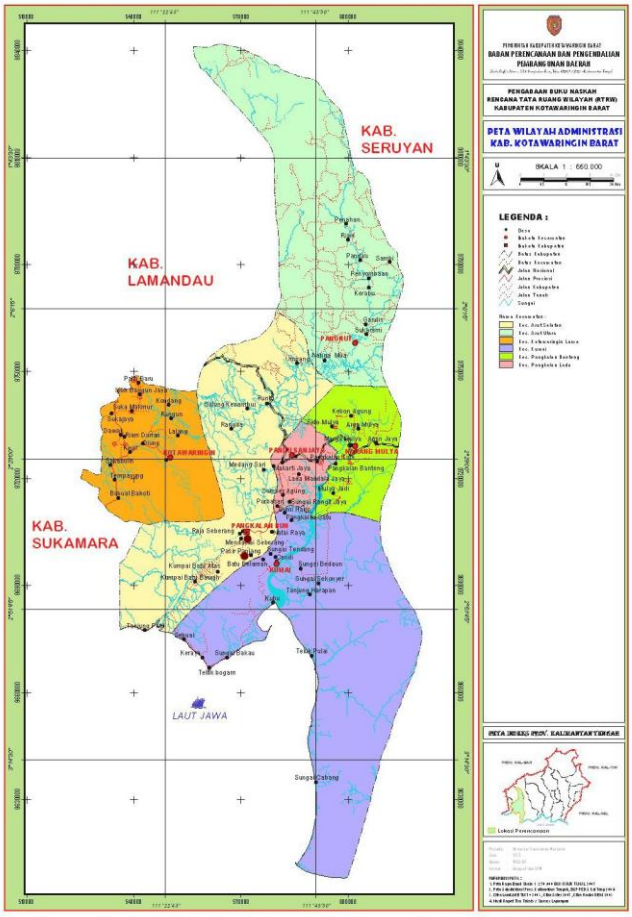


Figure 9. Kotawaringin Barat's Land-use Map[21]

[20] Pemerintah Kotawaringin Barat (accessed April 2018)

[21] Pemerintah Kotawaringin Barat (accessed April 2018)

3.2.2. Mills' Non-Compliances Related to Landscape Issues

Non-compliance issues were identified in the mill's verification analysis results, and landscape review, including challenges faced by each mill, was assessed through desktop assessments per district. Some of the major themes that emerge when considering both mill verification and verification of the supply base can be summarized as follows:

(i) Ecology

- Greenhouse gas emission is a crucial issue in Central Kalimantan, like in many other provinces in Indonesia. Southern Central Kalimantan has a large annual burned area that exceeds 45,000 ha inside one-pixel area (0.25°), generating CO2 emissions more than 25 Tgin one-pixel area (0.25°).[22] Forest fires and peat decomposition are the largest drivers of emissions in Central Kalimantan. This issue has raised global concern as the REDD+ pilot program to reduce Indonesia's emissions has been located in Central Kalimantan since 2011.[23] Non-compliance of GHG emission is highest in mill operations and their supply bases. Only four out of six mills have developed action plans to reduce greenhouse gas emissions on their plantations and in their operations.

- Deforestation in Central Kalimantan is often associated with palm oil production,[24] and some areas, such as Gunung Mas, face high forest disturbances (e.g., forest encroachment, shifting cultivation, and illegal logging).[25] Deforestation non-compliance by mill-owned plantation management and third-party suppliers are related to the absence of HCV and HCS identification. Moreover, non-compliance on deforestation indicators is also identified among smallholders.

- In Seruyan, land rehabilitation is still a challenge, and governmental budgets for land rehabilitation have been project-based and insufficient to address the total land area that needs to be rehabilitated.[26]

(ii) Land tenure and legislation

Most of the regencies have similar situations where land boundaries are not clear, thus affecting land issues and creating conflict between communities and companies. Based on data gathered from field visits, non-comformity on production forest status is a serious challenge faced by most of the assessed palm oil mills in Central Kalimantan (POM B, C, D, E and F). This non-compliance made several companies ineligible for completing the ISPO process.

[22] A Pribadi and G Kurata. 2017. Greenhouse gas and air pollutant emissions from land and forest fire in Indonesia during 2015 based on satellite data. IOP Conf. Ser.: Earth Environ. Sci. 54 012060.

[23] Earth Innovation. Central Kalimantan (no date).

[24] Earth Innovation. Central Kalimantan (no date).

[25] Kesatuan Pengelolaan Hutan Webpage. KPHP Gunung Mas (accessed April 2018)

[26] Kesatuan Pengelolaan Hutan Webpage. KPHP Seruyan (accessed April 2018)

- In Seruyan, there are different perception between companies who have obtained business license right and community about the rights for utilization of wood forest products in production forest (IUPHHK-HTI) and surrounding community area. Because the community does not completely understand the status of its land area, the community claims some of the area which are included in business license right. There is also no win-win solution yet to be found that serves government and community equally. [27]

- Forest function in Gunung Mas' forest authority area is generally still at the appointment stage, and there are not yet boundary arrangements or the inauguration of function limits and outer boundaries of FMU Gunung Mas Regency. Thus there is uncertainty about forest status and function, which creates overlaps between area functions (utilization vs. settlement), activities inside production forest areas (plantation vs. agriculture activity), and activities in the IUPHHK-HA natural forest concession area (the business license for utilization of wood forest products).

  Gunung Mas is one of districts in Indonesia with an afforestation fund and forest resources provision (Provisi Sumber Daya Hutan/PSDH). However, the district government has struggled to spend the fund due to inaccurate or no data on forest potential, social and economic conditions, cultural conditions of communities surrounding the FMU area, and other information needed to plan and implement forest and land rehabilitation activities. In addition, the rehabilitation possibilities are also limited by the existence of concession permit for utilization and use of forest area.[28]

  According to the Kesatuan Pengelolaan Hutan webpage,[29] economic conditions of the nearby community are poor because the FMU allows communities no avenues for involvement in forest management, including permits, or direct involvement with community-based schemes such as community agroforestry (Hutan Tanaman Rakyat), community forest (Hutan Kemasyarakatan), or village forests (Hutan Desa). Communities are not able to be optimally involved with usage of non-timber forest product, environmental services or ecotourism. To date, there is no allocated forest area that is managed by community.[30]

- In Kotawaringin Timur, some companies paid a compensation fee to a community when it was found the companies were using land they believed they owned but did not. However, the community still suspects companies are utilizing illegal land, and has asked for some proper audit of the companies' land ownership.[31]

- As there is no boundary arrangement in the forest area in Kotawaringin Barat, the local community has partial use authorization inside the forest area. This situation means legal action to straighten out use rights cannot be taken. Moreover, there is no support from the head of the district on Kotawaringin Barat's FMU, which makes it difficult for FMU

[27] Kesatuan Pengelolaan Hutan. Seruyan. (accessed April 2018)
[28] Menteri Linkungan Hidup dan Kehutanan (accessed April 2018)
[29] Kesatuan Pengelolaan Hutan Webpage. KPHP Gunung Mas (accessed April 2018)
[30] Kesatuan Pengelolaan Hutan Webpage. KPHP Gunung Mas (accessed April 2018)
[31] Borneo News (2018)

operationalization increases the FMU's difficulties in accessing regional funding for FMU activities.[32]

- Some supply-base management operations have not obtained cultivation rights (Hak Guna Usaha) for some of its plantation areas.
- Among third-party suppliers, most smallholder suppliers do not have ownership certificates; rather, they have Land Loss Certificates (Surat Keterangan Ganti Rugi Tanah) or Land Certificates issued by administrative villages or sub-districts. Non-compliance with land tenure and legislation indicators can also be linked to weak supply chain traceability, as source of FFBs cannot be identified.

3.3 Known Landscape-level Initiatives

Based on desktop assessment results from information gathered from the public domain, several relevant initiatives at the landscape level were identified to address challenges described above. A brief overview is given below.

The first and most well-suited landscape-level initiative to be considered is the combination of programmes run by the Earth Innovation Institute (EII) in Central Kalimantan. EII collaborates in various programmes with the Central Kalimantan government. The programme most relevant to Musim Mas' sustainability initiatives is the Jurisdictional Certification Approach, a farmer/smallholder empowerment programme that is especially suitable for addressing non-compliance issue among Musim Mas' third-party smallholders and addressing non-compliance in land tenure and legislation. This programme is empowering smallholders to achieve sustainable production under guidance from the Central Kalimantan government. Collaborating with the Jurisdictional Certification Approach could also help Musim Mas surmount sustainability risks such as legality and traceability, as sustainability would no longer be the sole responsibility of one or two parties, such as plantation companies or buyers in the palm oil supply chain, but would become the responsibility of all parties engaged in the supply chain and the government. In the Seruyan district and the Kotawaringin Barat district, the programme to empower the farmers ihas already started by mapping independent farmers at the village level, with the target of mapping all farmers in the two districts within the next one to two years.[33]

Moving forward with this programme, discussions regarding how to develop the methodology itself are still in the initial phase. EII has approached the government to strengthen its work defining the areas that may and that may not be used for expansion of the palm oil commodity production, with the aim to protect HCV and HCS areas, as well as peat land. EII interprets and implements the FPIC principles in the development of oil palm plantations and in the mediation processes as well as in the settlement of social conflicts. This programme can support Musim Mas to address non-compliance not only on principles of land tenure and supply chain but of deforestation and GHG emission. Another project worth considering is Sistem Informasi dan Pemantauan Kinerja Perkebunan Berkelanjutan (SIPKEBUN) or the Information and Performance

[32] Kesatuan Pengelolaan Hutan. KPHP Kotawaringin Barat (Access on June 2018)

[33] Earth Innovation Institute, Jurisdictional Certification Approach.

Monitoring System for Sustainable Plantations by INOBU, EII's sister organization. An online monitoring system that can be accessed by government, companies, communities and the general public, this system integrates information on oil palm growers—from industrial-scale plantations to independent smallholder farmers. For the first time, the Indonesian government will be able to electronically monitor all oil palm growers, introducing a powerful foundation for the creation of performance incentives to make palm oil sustainable in Indonesia.[34] SIPKEBUN may help Musim Mas identify HCS and HCV area for the operations that have not yet been fully reviewed. Moreover, SIPKEBUN offers database content may help Musim Mas assess status of land and relevant regulations, and to support traceability improvement with data about suppliers or FFB sources. As INOBU is EII's sister organization, if Musim Mas joins both the Jurisdictional Certification Approach and SPIKEBUN, EII may be able to give comprehensive information and support for Musim Mas.

Rainforest Alliance recommends additional follow-up work in all Musim Mas sites in Central Kalimantan to obtain a fuller picture of landscape initiatives in this region.

The profiles of all initiatives or programmes identified in this diagnostic report are summarized in the following tables.

Project	**Partners**	**Goals & Progress**
Programmes of Earth Innovation Institute in Central Kalimantan	Earth Innovation Institute (EII) and INOBU	Earth Innovation Institute (EII) engages private sector actors, such as palm oil companies, in the transition to low-deforestation development by identifying and communicating the corporate advantages of this engagement, such as greater efficiency. It identifies opportunities within government programmes and policies to foster good land management through proper planning and land classification, a plantation licensing process, environmental monitoring and law enforcement. Indigenous communities' participation in economic activities is secured through certainty of land tenure and assistance for the local communities to participate in commercial activities. Companies and

[34] SIPKEBUN

		smallholders located within a district progressing to zero deforestation should have better access to both markets and financing, facilitated by proper infrastructure. EII is working with the provincial and district governments of Central Kalimantan, palm oil companies and civil society organizations to develop a provincial “roadmap” to reduce or end deforestation by increasing the productivity of existing palm oil plantations and by redirecting expansion of new plantations onto lands that are already cleared and below their productive potential. The roadmap seeks to achieve the transition to a zero-deforestation palm industry, an 80% reduction in deforestation below the historical average, and an increase in smallholder production of palm oil from 11% to 20% of the province total by 2020. EII and its sister organization, INOBU, Unilever, the Packard Foundation, Norad, and IKI-Jerman work in three districts in Central Kalimantan—Gunung Mas, Kotawaringin Barat and Seruyan—to pilot jurisdiction level certification of palm oil. Kotawaringin Barat and Seruyan have also been selected as pilot sites for the Roundtable on Sustainable Palm Oil (RSPO) initiative for jurisdictional certification, strengthening collaboration

		and outcomes.[35]
Sistem Informasi dan Pemantauan Kinerja Perkebunan Berkelanjutan (SIPKEBUN) or the Information and Performance Monitoring System for Sustainable Plantations	INOBU, Director General of Plantations at the Ministry of Agriculture and regents from the districts of Gunung Mas, Kotawaringin Barat and Seruyan (Central Kalimantan)	SIPKEBUN is the product of close collaboration between INOBU and the government of Central Kalimantan. Through geo-referenced data inputted into SIPKEBUN, governments now have easy access to information such as independent smallholders, statistical data and analysis for the plantation sector; basic company information, including plantation business assessment; environmental performance conditions, such as fires, deforestation, degraded lands; and regulatory compliance. Social data is overlain to show legality, tenure, community complaints and conflicts. SIPKEBUN provides a structure for traceability – where buyers can trace the supply chain and compliance with sustainability requirements.[36]
The Rungan Orangutan Conservation Programme	Borneo Nature Foundation and the Muhamadiyah University of Palangkaraya	"The Rungan Orangutan Conservation Programme takes a landscape approach to conservation of the Rungan River watershed, with the aim to protect this rich forest and its large resident Bornean orangutan population. The landscape includes over 150,000 hectares of peat-swamp, freshwater-swamp and dry lowland rainforest, including substantial patches of tall ulin-dominated forest,

[35] Programmes of Earth Innovation Institute in Central Kalimantan

[36] SIPKEBUN

		and large populations of endangered species are thought to occur here. This project aims to build a foundation for forest and biodiversity conservation in the Rungan River Landscape, through partnerships with communities, industry and government stakeholders across this large and important area. This is a collaborative, multi-partner, multi-stakeholder approach aimed at building momentum, identifying co-management opportunities and implementing in-situ actions to maintain forest cover. Activities include ground surveys of biodiversity throughout the forest, aerial drone surveys to map forest cover, building a research station in partnership with the Muhamadiyah University of Palangkaraya, establishing a community forest management unit, implementing programmes of environmental education and sustainable development and supporting the local village's quest to create a protected community forest."[37]
Barito Ulu Project	Borneo Nature Foundation, a collaborative conservation network with local community groups, NGO's, government, industry and academic bodies.	Launched in 2018, the Borneo Nature Foundation aims to conserve the spectacular and highly diverse forests of the Barito Ulu region, in Borneo's geographic center.

[37] The Rungan Orangutan Conservation Programme (accessed May 2018)

		The Borneo Nature Foundation aims to rebuild and reignite research at the Rekut Research Station. Through this effort, it support a collaborative conservation network with local community groups, NGOs, the Borneo government, industry and academic bodies to promote sustainable development, habitat and wildlife protection across the wider Barito Ulu region.[38]
Local Patrol Unit	Borneo Nature Foundation and CIMTROP	"900 Patrol Team was formed in 2002 in response to a wave of rampant illegal logging that was threatening to destroy the Sabangau ecosystem before it was even protected. It was formed by young, committed people from the neighboring village of Kereng Bangkerai who wanted to stop the continued exploitation of their forest heritage and instead protect it for the benefit of the community. They succeeded in stopping illegal logging in the northern Sabangau within two years, quicker than the Indonesian authorities managed in the rest of the forest, a prime example of how grassroots efforts can make a huge conservation difference."[39]
The Central Kalimantan Orangutan Reintroduction Programme at Nyaru Menteng	Borneo Orangutan Survival Foundation	The Central Kalimantan Orangutan Reintroduction Programme at Nyaru Menteng was established in 1999, specifically to provide care and

[38] Barito Ulu Project
[39] Local Patrol Unit

		rehabilitation to displaced or orphaned orangutans rescued from areas of habitat loss through human development activities. Located in Nyaru Menteng Arboretum, about 30 kilometers from downtown Palangka Raya, the programme's main activities at Nyaru Menteng include orangutan rescue and translocation, the provision of welfare and healthcare, rehabilitation and reintroduction. The organization believes conservation of habitat and wildlife can only be achieved through collaboration with local communities and other stakeholders, hence in all areas of the work the programme is fully engage with local communities and schools on community development activities and outreach conservation education.[40]

3.4 Recommendations for Musim Mas' Intervention Priorities

The verification in Central Kalimantan was conducted as planned, with an objective of reviewing suppliers' commitment to the Musim Mas sustainability policy. Field verification results on the six POMs show that the Musim Mas sustainability policy, in the form of policy documents and questionnaires, had been distributed to mills' management headquarters. Because the mill head offices distributed Musim Mas' sustainability policy to mill field offices right before site verification, only one POM showed good understanding of the policy (POM A) and two POMs (POM E and POM F) showed significant lack of understanding, suggesting that insufficient physical distribution of the Musim Mas sustainability policy is one root cause of non-compliance. While other mills (POM B, POM C and POM D) were quite familiar with the Musim Mas' sustainability policy,. Musim Mas needs to improve its communication methods to deliver the Musim Mas sustainability policy by directly communicating with Musim Mas' suppliers' managers, who are responsible for implementing the policy, so they can better understand sustainability principles

[40] The Central Kalimantan Orangutan Reintroduction Programme at Nyaru Menteng

and develop programmes to support compliance of sustainability standards, including but not limited to the Musim Mas sustainability policy. Communication should be encouraged to go both ways, that is, by encouraging supplier sustainability staff to learn from Musim Mas' experience in implementing sustainability programmes.

This diagnostic report offers a solid foundation for Musim Mas' involvement with its suppliers in 2019 and beyond regarding implementing critical requirements for sustainability. Verification findings are presented in sequence order from highest to lowest non-compliance percentage for the eight principles of Musim Mas' sustainability policy: (1) greenhouse gas (GHG) emissions, (2) deforestation, (3) environmental impacts management, (4) land tenure and legislation, (5) peat management, (6) social compliance, (7) supply chain, and (8) use of fire.

Non-compliance percentages were found to be highest in the three principles of GHG emissions, deforestation and environmental impacts management for FFB suppliers' performance (diagram 02). To address major non-compliances and broader challenges at landscape level, Rainforest Alliance provides key recommendation. Musim Mas shall consider which recommendations are better addressed by the company alone and which are better implemented through collaboration with existing landscape-level initiatives implemented by CSOs or the government of Indonesia.

1. Despite almost full compliance with GHG emission indicators among the palm oil mills operations, not all third-party suppliers are yet identifiying GHG emission in their own operations. The absence of GHG emission identification by third-party suppliers may be a consequence of knowledge limitation that Musim Mas can address by working with Earth Innovation Institute's joint programme with the Central Kalimantan government (see landscape initiative section). EII can support Musim Mas to achieve outcomes among each mill's third-party suppliers—both bigholders and smallholders—such as monitoring GHG emission and HCV and HCS identification,. Through its Jurisdictional Certification Approach, EII may also support Musim Mas third-party suppliers, especially smallholders, to empower them in implementing palm oil sustainable production.

2. Databases offer an important tool for accessing information and developing strategy to overcome many issues, particularly Musim Mas' need to oversee FFB farms' risk level related to non-compliance with corporate policy principles for GHG emission, deforestation, environmental impact management and land tenure and legislation. INOBU has been working with the Central Kalimantan government to develop SIPKEBUN (where it is also working closely with EII), recording more than 4,000 smallholders, their land areas and smallholder mapping including HCS and HCV areas. This collaboration will help Musim Mas select third-party suppliers by clarifying land boundaries, which has been a challenge at the landscape level, and identifying risk livels of third-party FFB. INOBU and Musim Mas can work together, as well as with government, other organizations and local communities, to exchange database content and develop strategy, thereby actively briding some gaps in mapping. INOBU appears to be developing its system over time and apart from SIPKEBUN, but INOBU also provides other technology development programmes, such as mobile device applications for

smallholder mapping in Central Kalimantan, which offers an opportunity for Musim Mas to improve its own diagnostic analysis.

3. Limited knowledge on environmental impacts among third-party suppliers is common; it becomes problematic when third-party suppliers cannot meet Musim Mas' sustainability policy because they lack understanding. Therefore, Musim Mas might want to explore the opportunity to work with local NGOs or institutions to offer workshops or trainings to mill staff and third-party suppliers to increase their environmental impact knowledge. Later, Musim Mas could support mill staff and suppliers to adopt the knowledge into company policy, and address mills that lack an action plan to meet the requirements identified in corporate policy commitments.

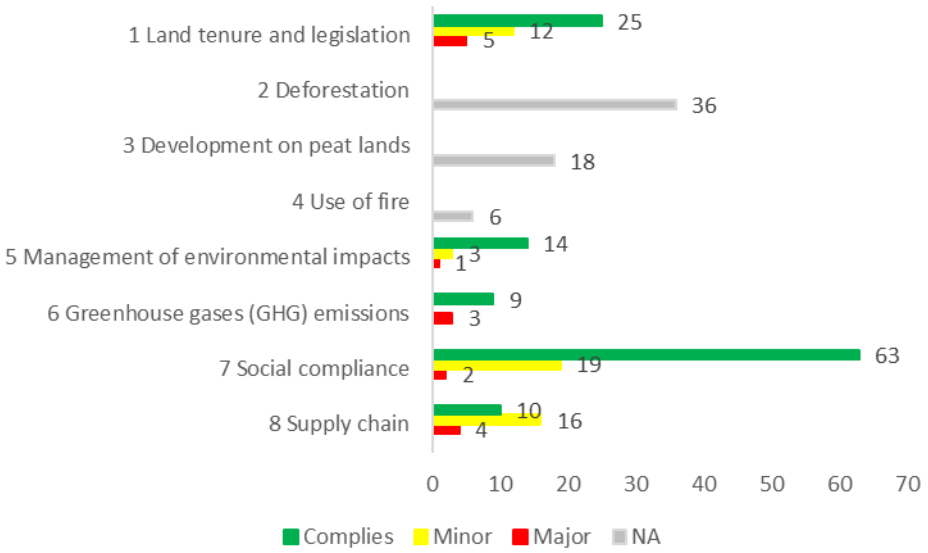
4. Musim Mas may engage with local experts and collaborate with INOBU to conduct in-depth study and develop written procedures on peat area development and water management, including obtaining information on peat depth, peat maturity level and organic matter. content.

5. To develop traceability of supply chain systems to all suppliers by employing a barcode system capable of describing the suppliers' FFB traceability system, such as oil palm field operation (OPFO), which allows tracking of the origin of the fruit, the name of the harvester, the volume required for the calculation of harvesting costs and labor costs.

Detailed technical recommendation for the implementation of Musim Mas' sustainability policy in 2019 and beyond are provided in appendix B.

Appendix A: Details of the Verification Observation

(i) Detailed data from the results of analyzing palm oil mill operations performance on each principle.

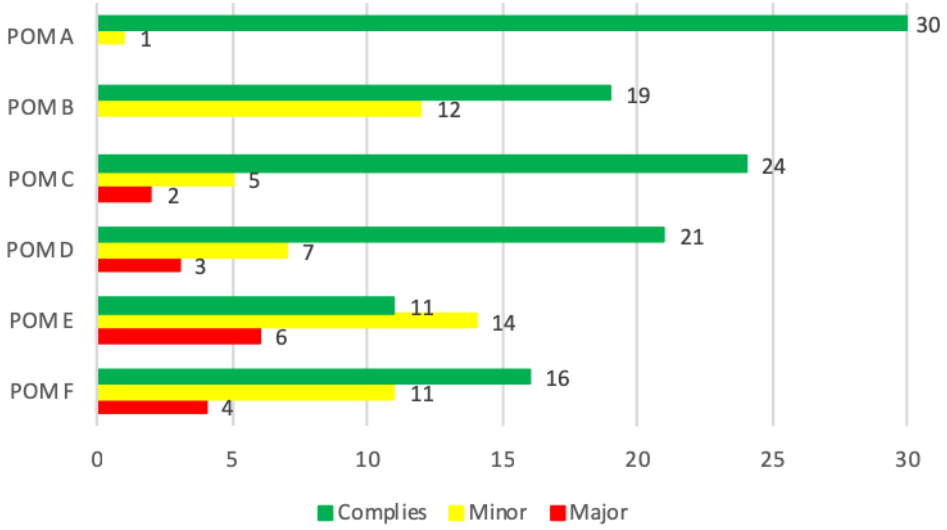


Principle	Compliance				Indicator Total
	NA	Major	Minor	Complies	
1. Land Tenure and legislation		5	12	25	42
2. Deforestation	36				36
3. Development on peat land	18				18
4. Use of fire	6				6
5. Management of environmental impacts		1	3	14	18
6. Greenhouse gas emissions		3		9	12
7. Social compliances		2	19	63	84
8. Supply chain		4	16	10	30
Grand Total	**60**	**15**	**50**	**121**	**246**

(ii) Detailed data from the results of analyzing supply-base management operations performance on each principle.

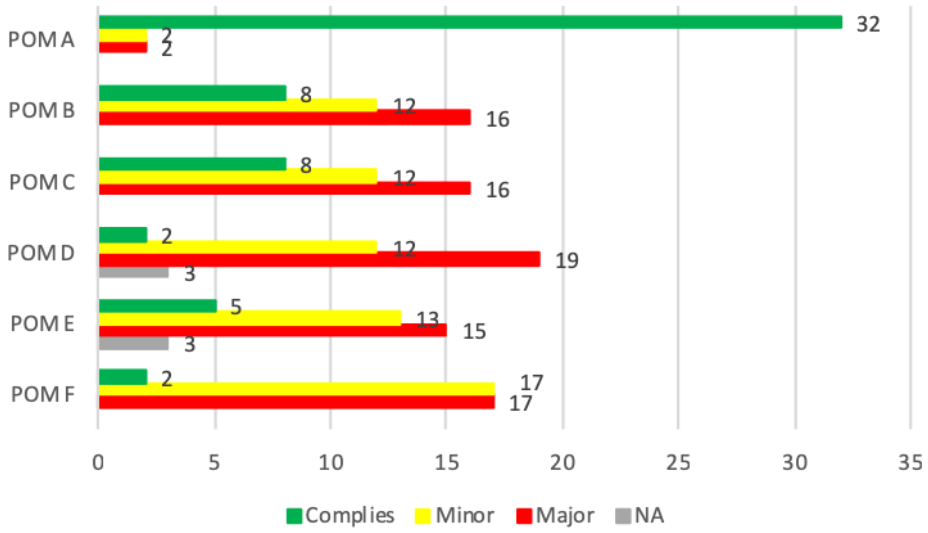
Principle	Compliance				Indicator Total
	NA	Major	Minor	Complies	
1. Land Tenure and legislation		12	21	9	42
2. Deforestation		29	1	6	36
3. Development on peat land	6	4	5	3	18
4. Use of fire			1	5	6
5. Management of environmental impacts		12	3	3	18
6. Greenhouse gas emissions		11	1		12
7. Social compliances		17	36	31	84
8. Supply chain	30				30
Grand Total	**57**	**85**	**68**	**36**	**246**

(iii) Detailed data from the results of the mill performance analysis related to palm oil mill operations by exempting indicators from principle 2 (deforestation), principle 3 (development on peatland) and principle 4 (use of fire).



Mill ID	Compliance			Indicator Total
	Major	Minor	Complies	
POM A		1	30	31
POM B		12	19	31
POM C	2	5	24	31
POM D	3	7	21	31
POM E	6	14	11	31
POM F	4	11	16	31
Grand Total	**15**	**50**	**121**	**186**

(iv) Detailed data from the results of the mill performance analysis related to supply-base management operations by exempting indicators from principle 8 (supply chain).



Mill ID	Compliance				Indicator Total
	NA	Major	Minor	Complies	
POM A		2	2	32	36
POM B		16	12	8	36
POM C		16	12	8	36
POM D	3	19	12	2	36
POM E	3	15	13	5	36
POM F		17	17	2	36
Grand Total	**6**	**85**	**68**	**57**	**216**

Appendix B: Recommendations from Consolidated Verifications

The recommendations in appendix B arise from the consolidations of the six mill-site verifications described above. Appendix B recommendations supplement the "recommendations for Musim Mas' priority intervention" presented in section 3.4, which covers recommendations at the landscape level. The recommendations in 3.4 were developed to address thematic issues at the mill level that mill management will take responsibility for improving. However, efforts at larger scale, such as intervention at the landscape level, are needed to fully address section 3.4's thematic issues. Appendix B is presented to provide considerations for Musim Mas when developing intervention programmes for the mill level.

Mill-level recommendations in the table below are classified as short-term actions (in bold) and long-term actions. The goal here is to help mills identify immediate actions that can be taken in the short term while developing measures for long-term action.

Principle/Section	Mill Corrective Action
Greenhouse gas emissions	• Identify and calculate the GHG emissions emitted by the third-party suppliers using a GHG calculator developed by either ISPO or RSPO. • Create a mechanism/procedure to develop action plans to reduce and monitor GHG emissions in the plantation, in the mill and among all third-party suppliers.
HCV and deforestation	• Implement NPP RSPO for new plantings. • Identify HCS and HCV based on HCV RN standard, improve HCV management and incorporate it into mill's sustainability policy, include its HCV implementation and monitoring mechanism. • A mill needs to complete HCV report by providing public consultation and peer review with expert(s) registered in the HCV RN report. • A mill also needs to conduct HCS identification to understand the status of the entire plantation area that is utilized. The identification should be conducted by an independent party using HCV RN guidelines. HCV RN is developing integrated guidelines for HCV and HCS identification to be used as the main reference in conducting HCV and HCS identification when a sustainability policy (such as Musim Mas') refers to the guidelines. • Some mill need to develop an implementation plan and a monitoring plan to HCV, especially related the reservoir and Kasai watershed. The management plan and monitoring of those two sites should not be separated from other HCV management and monitoring plans. • Some mills need to synchronize HCV and environmental impacts analysis data, regarding the finding of the *Eusideroxylon zwageri* tree in the plantation area. In this case, the tree was mentioned in the HCV document but not in the environmental impacts analysis data. • Some mills need more intense socialization and monitoring about education about and monitoring of protected trees in plantation areas, such as the *Eusideroxylon zwageri*. Remnants of logging activity on this tree in a conservation area may

	be due to lack of understanding about the importance of this tree as a protected species.
Land tenure and legislation	• Develop action plans to handle key observations regarding to policy and legality, such as the need to obtain certainty on plantation area status that has not attained cultivation rights. • A mill needs to extend expired permits, such as Izin Tempat Usaha (business-site permit) Daftar Perusahaan (registration), izin Memasang Reklame (commerical showcase permit), etc. • A mill needs to develop more concrete actions regarding the plan and completing process on cultivation rights for its own plantation and mill area. This is relevant with land legality assurance for plantation and mill area. Moreover, cultivation rights is ISPO requirement. Although cultivation rights permit is not necessarily controled by the mill, it is good idea to appraoch the National Land Agency (BPN) to get more valid and necessary information regarding the cultivation rights permit. • Conduct an active communication with local community to avoid any misunderstanding of land release and HGU status. in 1 assesment, still found there are community members' perception that they only lend their land to the mill until 2022.
Development on peatland	• A mill needs to measure peatland water surface on a regular basis. Moreover, one mill needs to conduct soil tests in plantation area that may be located on peatland to create best management practices (BMPs). If the soil test result shows the area is definitely peatland, solutions should be offered to reduce peatland degradation through good management practices, such as water management and ground cover.
Use of fire	• There was fire in one of the scheme smallholders in 2015, but the causal cannot be confirmed whether it was because of landclearing or natural event. Low traceability factor is also becoming a part of this principle since the FFB source cannot be traced including the history of the land area where the FFS source come from.
Management of environmental impacts	• Some mills need to build more intensive communication with local government to ensure the most update information regarding everything that relates to legality and regulations, such as mill responsibility to report implementation of environmental impacts analysis every six months to relevant governmental body, and to obtain information about licensed medical waste management in Central Kalimantan so the mill can manage its medical waste properly.

	• Conduct training on domestic waste management and waste landfill as well as the monitoring of waste. Moreover, RA recommends developing incentive programmes for inorganic waste management, either recycling or reselling it so it does not end up buried in the ground.
Social compliance	• Some mills need to re-assess overtime work as there is incompability between company regulatiosn and government regulation. • A mill needs to develop a more effective grievance mechanism. The mechanism should be written, created in consulation with the third-party supplier and mutually agreed upon. Each grievance should be delivered to mill management and documented thoroughly for evaluation. • A mill needs to create action plans to address observation results on occupational health and safety in plantations and mills. The action plan should include methods to ensure monitoring of fire extinguisher expiration dates, first aid kit availability, domestic waste separation and mill noise (such as from boiler, sterilizer and power house) limit. • A mill also needs to improve OHS monitoring systems, including chemical handling, MSDS application, chemical storage repair and PEE usage. • The monitoring should be done based on the OHS procedure. • A mill needs to comprehensively and consistently conduct monitoring and evaluation of the OHS implementation programme based on the applicable laws and regulations. Applicable OHS procedure and regulation should be communicated to workers on regular basis, and education should be documented. • A mill should document working agreements in writing. • Some mill need to more comprehensively adopt and incorporate sustainability principles, including compliance with P&C RSPO, etiquette code and integrity, and and anti-discrimination and anti-harrassment policies. • A mill needs to re-assess their strategies of providing PPE and working equipment to all workers, not limited only to permanent workers, sprayers or maintainance workers. • A mill needs to develop and implement participatory CSR programme with their local communities. The CSR programme

	should be long-term, measurable and tangible to improve community prosperity. • A mill needs to ensure thorough documentation of negotiation and conflict with communities and other stakeholders. • Some mills need to develop an action plan and evaluate their database systems to increase ease of tracing documents and obtaining information when no matter which staff members are available on a given day.
Supply chain	• Some mills need to create a mechanism to trace FFB source from the third-party supplier or smallholders to mills. The mills can create a contract with the third-party suppliers that supplies additional information on land legality and business permits. • Some mills needs to more intensively educate and assist their suppliers to ensure they meet sustainability requirements. These efforts must be recorded and documented. • Some mills need to create programmes to support smallholders through training and technical assistance to increase production capacity and implement sustainable management practices. Moreover, mills can support smallholders with fertilizer, seedlings and financial assistance based on the needs. • Some mills need to create supply chain maps for each supplier and support their suppliers in recording FFB for easier tracing. • All mills should intensively and regularly communicate Musim Mas' sustainability policy to every third-party suppliers, especially to make sure the FFB source is both legal and policy compliant. • Some mills need to re-evaluate the requirement of business contracts between mill and suppliers to ensure the FFB comes from known and legal resources. • Some mills should develop a programme to support third-party suppliers to conduct HCV peer review by a competent expert.