Introduction

As one of the largest players in the palm oil industry, we believe that the best strategy to ensure our continued success is to be the leading sustainable and responsible company.

VISION

A fully integrated palm oil corporation renowned for quality people and products.

MISSION

Driven by a passion for excellence and commitment to continuous improvement, we strive to be the leader in the palm oil industry, producing all our palm products in an economically viable, socially responsible and environmentally appropriate manner, in full compliance of all relevant legal requirements.
About this report

This is the second sustainability report from Musim Mas Group (‘Musim Mas’ or the ‘Group’) that provides updates and insights into the Group’s sustainability performance. The purpose of this report is to reiterate the commitments we made in our 2014 Sustainability Policy and provide more detail around our Policy Implementation Plan released in 2018. The first four sections of the report detail what we have achieved for our own operations while the remaining sections focus on our supply chain engagement approaches.

While it was previously stated that our sustainability reports would be published biennially, we believe that more frequent accountability is needed in light of the rapid evolvement of the issues under discussion and we will release sustainability reports or impact updates annually.

SCOPE AND BOUNDARIES

While this report covers performance data for the calendar year 2018, historical figures are provided where available as well as information about any significant milestones in 2019. More specifically, the report covers the following:

Musim Mas-owned operations: The first four sections of this report showcase impacts within our own organisational boundaries. Unless otherwise stated, operational data presented covers all upstream operations controlled by Musim Mas as at 31 December 2018, and some 2019 updates have been provided where significant. This includes data from our plantations and mills in Sumatra and Kalimantan, but does not include data from our downstream business or joint ventures. While Musim Mas holds land in Papua, there has been no work in these areas, and there are no plans to develop them. Therefore, our Papua holdings have not been included in the scope of this report.

Musim Mas supply base: Given the heightened focus on responsible supply bases in the palm oil industry, we have dedicated an entire section of the report to supply chain engagement detailing material aspects relating to our third-party suppliers, including smallholders. This last section of the report content covers data for the calendar year 2018. However, due to the timing of this report, we provide details on progress made from January to September 2019 against our commitments, as well as planned activities towards 2020. We also furnish stakeholders with targets from our recently published No Deforestation, No Peat, No Exploitation (NDPE) Roadmap towards a responsible supply base, outlining our targets beyond 2020.

MATERIALITY, STAKEHOLDER INCLUSIVENESS AND SUSTAINABILITY CONTEXT

We have reviewed the major topics discussed in this report through various forums and engagements. In this report, we have included feedback from interviews and e-mail correspondence with stakeholders from the social non-governmental organisation (NGO) sector, partner technical consultancies, and our customer base. We have also carried out local engagement at site level through our operational teams, and international and sector-wide engagement through organisations such as the Roundtable on Sustainable Palm Oil (RSPO), the Palm Oil Innovation Group (POIG), the High Carbon Stock Approach (HCSA) Steering Group and other multi-stakeholder platforms. We have looked to leading standards and benchmarks, including the Zoological Society of London’s (ZSL) Sustainability Policy Transparency Toolkit (SPOTT) initiative and the Forest Heroes Green Tigers Index, to ensure that we are responsive to the themes and aspects that are of critical importance to stakeholders. The extent to which these themes are directly relevant to our business has guided us in balancing report content and the depth of data provided. Throughout the report, we have sought to provide an appropriate context for our performance, particularly in relation to the unique social and environmental landscapes in Sumatra and Kalimantan.

For this report, several issues have been evaluated as significantly important both for Musim Mas and for our external stakeholders. Especially noteworthy are the conservation and management of high conservation value areas and high carbon stock forests, supplier engagement and verified NDPE progress, smallholder engagement and traceability. Since our last report, some themes – such as certification (in light of POIG verification), community rights, traceability to plantation, transparency, government engagement and occupational safety and health – have increased in importance, while other topics have attracted less attention. New specific topics such as human rights, grievances, and capacity and resource have been added to the list of material factors. Some indicators have also been updated or merged since the last report.

ASSURANCE

We have not engaged third-party assurance for this report as we believe our multiple certification audits provide adequate assurance on our performance to our stakeholders. We welcome feedback from all stakeholders.
Chairman welcome

DEAR STAKEHOLDERS,

I am pleased to introduce the 2018 Musim Mas Sustainability Report. It is our second such annual document and I hope readers will find it a comprehensive, detailed and transparent overview of our business and our on-going sustainability efforts.

2018 was another ground-breaking year for Musim Mas. Just as we were pioneers when we became the first company with major operations in Indonesia to achieve Roundtable on Sustainable Palm Oil (RSPO) certification, we have achieved a new milestone in 2019 as the first palm oil major to be verified against the Palm Oil Innovation Group (POIG) Charter, which sets the highest standards for responsible palm oil, and is initiated and overseen by some of the most rigorous civil society organisations in the palm oil landscape.

POIG verification is a stringent process that has required us to improve on a number of our standard procedures. It also allowed us to identify opportunities, and implement plans that actualise NDPE impact on the ground. As one of three POIG-verified palm oil producers, we are now in a prime position to meet the ever-increasing demands of markets that require adherence to strict sustainability standards.

Musim Mas continues to be a staunch supporter of the RSPO. We have been working to complete 100% RSPO certification of all our wholly-owned plantations and mills, and I am pleased to report that we are on track to achieve this by 2020. Our remaining mill with plantation is scheduled for certification by the end of that year. We successfully completed the first five-year cycle of RSPO Principles and Criteria (P&C) certification for eight mills in 2017. In 2018, another two mills received their RSPO P&C certification. In October 2019, one of our mills was successfully audited against the latest RSPO P&C that was adopted in November 2018 – the first mill in the world to do so.

Although we are an international company and seek to meet the standards of the global market, it remains our priority to be a positive contributor at home. As an Indonesian-based company, it is critical that we lead the way in environmental protection and meet the highest national standards. I am proud to announce that 11 of our subsidiaries were honoured with Green PROPER (Program for Pollution Control, Evaluation, and Rating) Awards in 2018. Presented by Indonesia’s Ministry of Environment, these accolades recognise excellence in adhering to the country’s environmental protection standards, and attest to our efforts to meet and exceed the regulations in place.

In the social development context, we are also supporting Indonesia’s national agenda. Given the complex nature of the industry, we are forging partnerships with others to align with national aspirations. We expect the landscape in Indonesia to become more conducive to smallholder initiatives, as Indonesia’s President Jokowi has been serious about making smallholder empowerment and productivity one of the defining elements of his presidential legacy. We are supporting government initiatives that facilitate the issuance of land titles to smallholders, and assist second-generation smallholders with their replanting efforts. To maximise our impact, we have also launched collaborative landscape initiatives that help improve the lives of smallholders. One such effort was the expansion of our Extension Services Programme (ESP) to Aceh and Riau in 2018.

The year also saw the emergence of the National Action Plan (NAP) on Sustainable Palm Oil championed by Forum Kelompok Swakarsa Perkebunan Indonesia (FoKSPB) – a multi-stakeholder partnership led by the Ministry of Agriculture – and aiming, among other things, to improve smallholders’ capabilities and Indonesian Sustainable Palm Oil (ISPO) certification uptake. We will use these developments and the resulting political momentum to promote sustainable practices and to boost the capacity of our smallholders.

Although I believe we have been bold and forward-looking, I recognise that 2020 will be a critical year as many of our markets and customers have set this deadline to convert to 100% sustainable palm oil. The entire industry and individual companies will be under intense scrutiny, thus exposing the best and the worst practices. To strengthen our position as an industry leader – and to cement our commitment to environmental stewardship—we have invested considerable human and financial capital in increasing our capacity to monitor and support our third-party supply chain. We have also published a new Roadmap to Responsible Palm Oil beyond 2020 with our key aspirations and targets for 2025, with a special focus on group supplier engagement and independent smallholders.

This renewed Roadmap will lay a strong foundation for Musim Mas for the decade ahead, as we continue to embrace sustainability and strive to be an inspiration to our peers in the industry.

BACHTIAR KARIM
Executive Chairman

Chairman welcome

KEY HIGHLIGHTS

<table>
<thead>
<tr>
<th>Year</th>
<th>Highlights</th>
</tr>
</thead>
</table>
| Before 2018 | - Published the Musim Mas Sustainability Policy  
- Achieved 100% traceability to mill  
- Committed to High Carbon Stock Approach (HCSA) as the leading methodology for land development  
- Published in the Earthworm Foundation (previously TFF) Acet-Away Priorities Transformation (APT) programme for Leuser Ecosystem  |
| 2018 | - Published inaugural Sustainability Report  
- Released Sustainability Policy to Group Membership with commitment to a group-level supplier engagement approach instead of an individual mill approach  
- Received 11 Green PROPER (Program for Pollution Control, Evaluation, and Rating) awards  
- Certified all crushing plants as GMP+, Food Safety Assurance (FSA) compliant  
- Achieved compliance with Italian National Sustainability Certification System (IT SNC) for all existing mills  
- Completed phase-out of two pesticides (benfluralin and permethrin) in all our plantation operations  
- Launched the Musim Mas Self-Assessment Tool (SAT) for suppliers to self-declare their sustainability measures and progress  
- Published all suppliers’ GPS coordinates on corporate website  |
| 2019 | - Became first Southeast Asian company to achieve Palm Oil Innovation Group (POIG) verification  
- First palm oil mill successfully audited against the 2018 RSPO Principles and Criteria (P&C)  
- Completed group-level supplier profiles for all supplier groups  
- Ensured that all primary supplier groups are covered by roadmaps leading to the implementation of milestones towards No Deforestation, No Peat, No Exploitation (NDPE) commitments  
- Engaged 40% of all supplier groups on NDPE through workshops  
- Received commitment from 64% of supplier groups to abide by NDPE principles  
- Received completed SATs from 45% of supplier groups  
- Ensured that 100% of supply base is monitored via satellite imagery for deforestation and peatland development  
- Achieved 85% traceability to the Group’s supply base of independent smallholders  
- Achieved 54% traceability to supplier groups’ plantations  
- Engaged and trained 22,391 independent smallholders under the Indonesian Palm Oil Development for Smallholders programme  
- Engaged two supplier groups in an Extension Services Programme (ESP)  
- Joined landscape programme in Siak with a coalition of companies and the Siak district government  |

OUR TARGETS

<table>
<thead>
<tr>
<th>MUSIM MAS OPERATIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Year</td>
</tr>
<tr>
<td>2019</td>
</tr>
</tbody>
</table>
| 2020 | - Obtain RSPO certification for all operations | Two new mills achieved RSPO certification in 2018, bringing the total to 12 out of 13 mills certified.  
- The remaining ceritfiable mill is expected to receives certification in 2020. |
| 2021 | - Phase out 10 pesticides prohibited by POIG | Two pesticides successfully phased out by December 2018. Plans in place to phase out two by December 2019, two by December 2020, and three by December 2021. One pesticide is only used in cases of emergency with pre-approval sought from the POIG Organising Committee. |
| 2025 | - Reduce greenhouse gas (GHG) emissions by 5% compared to 2000 baseline | As at December 2018, we recorded GHG intensity of 3.49 MTCO₂e/Mt CO₂ in overall emissions. In September 2019, a 15% methane capture facility was completed. |

* On track  
** Target achieved

1 Unless otherwise stated, traceability refers to the volume of crude palm oil (CPO) traceable to plantation.  
2 While Musim Mas owns and operates 16 mills in total, only 13 mills have plantations and are eligible to obtain RSPO P&C certification.  
3 While data is calculated and reported for our 2018 RSPO audit cycle, data covers 2017 figures.

Highlights and targets

Table: | Year | Highlights |
|------|------------|
| Before 2018 | - Published the Musim Mas Sustainability Policy  
- Achieved 100% traceability to mill  
- Committed to High Carbon Stock Approach (HCSA) as the leading methodology for land development  
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- Certified all crushing plants as GMP+, Food Safety Assurance (FSA) compliant  
- Achieved compliance with Italian National Sustainability Certification System (IT SNC) for all existing mills  
- Completed phase-out of two pesticides (benfluralin and permethrin) in all our plantation operations  
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| 2019 | - Became first Southeast Asian company to achieve Palm Oil Innovation Group (POIG) verification  
- First palm oil mill successfully audited against the 2018 RSPO Principles and Criteria (P&C)  
- Completed group-level supplier profiles for all supplier groups  
- Ensured that all primary supplier groups are covered by roadmaps leading to the implementation of milestones towards No Deforestation, No Peat, No Exploitation (NDPE) commitments  
- Engaged 40% of all supplier groups on NDPE through workshops  
- Received commitment from 64% of supplier groups to abide by NDPE principles  
- Received completed SATs from 45% of supplier groups  
- Ensured that 100% of supply base is monitored via satellite imagery for deforestation and peatland development  
- Achieved 85% traceability to the Group’s supply base of independent smallholders  
- Achieved 54% traceability to supplier groups’ plantations  
- Engaged and trained 22,391 independent smallholders under the Indonesian Palm Oil Development for Smallholders programme  
- Engaged two supplier groups in an Extension Services Programme (ESP)  
- Joined landscape programme in Siak with a coalition of companies and the Siak district government  |
Highlights and targets

MUSIM MAS SUPPLY BASE

<table>
<thead>
<tr>
<th>Year</th>
<th>Target</th>
<th>Progress</th>
</tr>
</thead>
<tbody>
<tr>
<td>2019</td>
<td>Cover 100% of primary supplier groups with an implementation roadmap towards NDPE commitments</td>
<td>As at September 2019, roadmaps have been developed for 100% of primary supplier groups.</td>
</tr>
<tr>
<td>2019</td>
<td>Ensure 90% of supplier groups complete the SAT</td>
<td>As at September 2019, 45% of supplier groups have completed the SAT.</td>
</tr>
<tr>
<td>2019</td>
<td>Achieve 100% traceability to the Group’s supply base of independent smallholders(^4)</td>
<td>As at September 2019, 85% traceability to the Group’s supply base of independent smallholders has been achieved. (Achieved December 2019 target of 85% traceability)</td>
</tr>
<tr>
<td>2019</td>
<td>Engage 25,000 independent smallholders under the Indonesian Palm Oil Development for Smallholders programme</td>
<td>As at September 2019, 22,391 independent smallholders have been trained under the programme. (Achieved December 2019 target of 20,000)</td>
</tr>
<tr>
<td>2019</td>
<td>Support a minimum of 2,000 independent smallholders in achieving sustainable palm oil certification under the Indonesian Palm Oil Development for Smallholders programme</td>
<td>As at September 2019, 705 independent smallholders have undergone RSPO audits.</td>
</tr>
<tr>
<td>2020</td>
<td>Engage a total of five supplier groups in an Extension Services Programme (ESP) at their mills(^5)</td>
<td>As at September 2019, two supplier groups have been engaged in an ESP at their mills. (Achieved December 2019 target of engaging two supplier groups)</td>
</tr>
<tr>
<td>2020</td>
<td>Ensure that four priority landscapes are recognised by multi-stakeholder platforms</td>
<td>Multi-stakeholder platforms now recognise the following sustainable priority landscapes: Aceh Tamiang, Aceh; Musi Banyuasin, South Sumatra; Siak and Pelalawan, Riau; Sambas, West Kalimantan.</td>
</tr>
<tr>
<td>2025</td>
<td>Engage 90% of supplier groups on NDPE</td>
<td>As at September 2019, 40% of all supplying mills have been engaged on NDPE.</td>
</tr>
<tr>
<td>2025</td>
<td>Receive commitment from 90% of supplier groups to abide by NDPE principles</td>
<td>As at September 2019, 54% of the supplying mills have made commitments to abide by NDPE principles.</td>
</tr>
<tr>
<td>2025</td>
<td>Achieve 100% traceability to supplier groups’ plantations</td>
<td>As at September 2019, 54% of total supply base volumes for third-party mills is traceable to plantation.</td>
</tr>
</tbody>
</table>

\(^4\) Unless otherwise stated, all traceability targets refer to the volume of crude palm oil (CPO) traceable to plantation.

\(^5\) Target revised from previous sustainability report to be supplier-focused instead of targeting the number of smallholders engaged.

### About Musim Mas

Headquartered in Singapore, Musim Mas Group is a private limited company with presence in 13 countries. We operate across every link in the palm oil supply chain, managing 198,837 hectares of plantations in Indonesia – including 7,320 hectares of infrastructure – as well as milling, refining and manufacturing sites across Asia-Pacific and Europe. An extensive fleet of storage tanks, vessels and tugboats supports our operations, enhancing both our reach and our logistical capabilities.

The Group’s global marketing activities are undertaken by a separate entity, Inter-Continental Oils and Fats (ICOF), which is managed by Musim Mas Group. Also based in Singapore, ICOF oversees the marketing and distribution of palm oils, lauric oils and derivative products globally.

Musim Mas was the first company to open a palm oil refinery in Indonesia in 1970, its first plantations in 1988, and its first palm oil mill in 1991. Today, we operate a total of 16 palm oil mills, three of which are independent of plantations. With a multinational workforce of more than 37,000 people, Musim Mas is one of the largest players in the global palm oil sector.

### FINANCIAL HIGHLIGHTS

In 2018, our revenue was USD 7.5 billion, a slight increase compared to the previous year. This figure reflects depressed crude palm oil (CPO) prices, which hit their lowest point since 2015 towards the end of 2018.

#### Revenue (billion USD)

- **2018**: 7.5
- **2017**: 7.3
- **2016**: 5.5
- **2015**: 5.0
OUR PRESENCE

GLOBAL PRESENCE
While our main operational base is in Indonesia and Malaysia, we maintain a presence in strategic locations worldwide to serve the needs of our customers.
About Musim Mas

OPERATIONAL PRESENCE
Our operations cover our plantations, mills and refinery businesses. A listing of our operations can be found at our website, www.musimmas.com/about-us/operational-presence.

AS AT DECEMBER 2018, MUSIM MAS MANAGED

Total concessions: 198,837 hectares
2.86 million tonnes of fresh fruit bunches (FFB)

CONCESSIONS
Sumatra: 66,598 hectares
Kalimantan: 132,239 hectares

PLANTED AREAS
Total concessions: 198,837 hectares
2.86 million tonnes of fresh fruit bunches (FFB)

121,968 hectares of total planted area
89% made up of mature plantings
117,344 hectares of planted nucleus estates
4,624 hectares of planted scheme smallholder area

SUMATRA
Medan
Padang

KALIMANTAN
Pontianak
Malinau
Palangkaraya

SULAWESI

INDONESIA

JAVA
Jakarta
Bandung
Surabaya

JAVA

MALAYSIA
Johor Bahru
Sabah

INDIA
Chennai (Madras)

SPAIN
Huesca
La Coruña

ITALY

NETHERLANDS

CHINA
Tianjin
Zhenjiang

VIETNAM

PAPUA

INDONESIA

JAVA

MALAYSIA
Johor Bahru
Sabah

INDIA
Chennai (Madras)

SPAIN
Huesca
La Coruña

ITALY

NETHERLANDS

CHINA
Tianjin
Zhenjiang

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SPAIN
Huesca
La Coruña

ITALY

NETHERLANDS

CHINA
Tianjin
Zhenjiang

VIETNAM

PAPUA
Operational overview

- **14** Oil palm plantations
- **16** Palm oil mills (including 3 independent mills)
- **9** Kernel crushing plants
- **17** Refineries
- **8** Biodiesel plants

**DRIVING CHANGE THROUGH FULL VERTICAL INTEGRATION**

Our vertically integrated business model supports our work as we produce all our products in an economically viable, socially responsible and environmentally sustainable manner, in full compliance with all legal requirements. As a vertically integrated company, we have a role at each point in the palm oil supply chain: from upstream oil palm plantations and downstream refining, manufacturing operations and the production of value-added palm products, all the way to the marketing and shipping of our products to global destinations. Our business model enables us to manage a segregated supply chain of sustainable palm oil that is certified under the Roundtable on Sustainable Palm Oil (RSPO) standard, and to enhance accountability and traceability at every step. Learn more about our approach to traceability on page 58.

**CORPORATE AND SUSTAINABILITY GOVERNANCE**

The Musim Mas Board of Directors (‘Board’) is led by our Executive Chairman and Chief Executive Officer, and comprises four members, including one woman. The primary functions of the Board are the pursuit of continual growth of shareholder value, and the management of the Group in a manner that serves the best interests of shareholders and stakeholders.

The Board is committed to sustainability, and considers our commitments to environmental stewardship, human rights and community partnerships as the core of our corporate integrity. When developing business strategies and operations, the Board ensures that material environmental, social and governance factors identified for the Group are taken into serious consideration. The Head Office in Medan is certified in line with the ISO 9000 standards, underscoring our systematic, focused and structured operations.

Sustainability management is integrated into the Group’s functioning and management structure and is overseen by the Board. Senior management meetings led by our Executive Chairman discuss ongoing sustainability matters: policy standards and compliance, sustainability management, labour, health and safety, traceability, and stakeholder engagement. We also provide monthly reports on these critical components directly to the Board. Our Director of Sustainability oversees the execution and implementation of the Group’s Sustainability certification. In early 2019 we brought on board a senior strategic advisor on sustainability. In July, we welcomed a new Director of Sustainable Supply Chain, who leads the implementation of our sustainability policy for third-party suppliers – including independent smallholders – and also reviews the Group’s Sustainability Policy and strategy.
Conducting business ethically

Our Sustainability Policy and our membership of the Palm Oil Innovation Group (POIG) and the High Carbon Stock Approach (HCSA) Steering Group commit us to conduct business in a fair and ethical manner and prohibit all forms of corruption and bribery. These commitments apply and are shared with governance body members, all employees and those working on behalf of Musim Mas. Specific commitments and requirements are set out in our Code of Business Conduct and our internal Anti-corruption Policy, which are shared with all Musim Mas employees in Bahasa Indonesia together with other company policies. We also have in place a Supplier Code of Business Conduct that all external parties who supply to Musim Mas must abide by, which includes adhering to the commitments in our Sustainability Policy. Among other requirements, these parties must, at a minimum, adhere to legal regulations on ethical business practices.

OUR OPERATIONS

PALM OIL PLANTATIONS AND MILLS

Musim Mas owns and manages 14 plantations across Sumatra and Kalimantan making up 66,598 hectares and 132,239 hectares respectively.

In 2018, there were six new plantings in Kalimantan of about 300 hectares. All of our new plantings have adhered to the RSPO New Planting Procedure (NPP), which includes High Conservation Value (HCV) assessments and Free, Prior and Informed Consent (FPIC) process. We have also undertaken HCSA assessments to identify plantable areas and areas for conservation.

Our plantation operations comprise a total of 121,968 hectares of planted area, 117,344 hectares belonging to nucleus estates and 4,624 hectares belonging to scheme smallholders. About 89% of this total planted area is made up of mature plantings. Together, these operations produced a total of 2.86 million tonnes of fresh fruit bunches (FFB) in 2018.

Since 2015, our own FFB production has been at an all-time high, with an 18.7% increase in 2018 compared to the previous year. Of our total FFB volumes produced in 2018, 3.8% was sourced from scheme smallholders. All FFB is processed into crude palm oil (CPO) and palm kernel (PK) at our mills. Of our 16 mills, three are independent of plantations and process FFB from independent smallholders. In 2018, just over one million tonnes of FFB sourced from independent smallholders was processed at our mills, contributing to 26% of our production base. The other 13 mills mainly source from our own plantations.

6 Total land area including planted and unplanted areas.
7 These new plantings occur within the balance of unplanted areas of our existing concessions.
**About Musim Mas**

**Palm Oil Refineries and Plants**

Musim Mas is one of the largest palm oil refining and oleochemicals companies in the world. The scale of our operations ensures a reliable supply of raw materials, control over quality, as well as an optimised logistical capability to deliver on all supply chain needs. These refineries have a combined annual capacity of 10 million tonnes, while our kernel crushing plants – which process palm kernels into palm kernel oil (PKO) and palm kernel meal – have a combined annual crushing capacity of 2.5 million tonnes. We also operate a copra (coconut) crushing factory that processes dried copra into crude coconut oil and copra meal expeller, as well as biodiesel, oleochemicals and specialty fats plants. A list of our refineries and plants can be found on our website at www.musimmas.com/about-us/operational-presence.

**Marketplace**

Our production facilities manufacture a wide range of industrial food and non-food products for everyday needs, from biofuels to personal care items.

<table>
<thead>
<tr>
<th>Year</th>
<th>FFB processed (MT)</th>
<th>Nucleus FFB</th>
<th>Scheme smallholders FFB</th>
<th>Independent smallholders FFB</th>
</tr>
</thead>
<tbody>
<tr>
<td>2015</td>
<td>3,073,392</td>
<td>842,662</td>
<td>749,137</td>
<td>473,510</td>
</tr>
<tr>
<td>2016</td>
<td>2,781,096</td>
<td>625,163</td>
<td>576,048</td>
<td>318,306</td>
</tr>
<tr>
<td>2017</td>
<td>3,341,946</td>
<td>967,260</td>
<td>1,044,448</td>
<td>453,090</td>
</tr>
<tr>
<td>2018</td>
<td>3,615,403</td>
<td>1,001,338</td>
<td>1,272,841</td>
<td>724,228</td>
</tr>
</tbody>
</table>

Our yield includes our mature FFB and third year immature plantings ready for harvest. We are also pleased to report a recovery in our yearly FFB yield after it plummeted in 2016 due to the effects of El Niño. In 2018, the yield from our plantations increased by 13% compared to 2017, while the yield of our scheme smallholders remained at an impressive 27%.

**FFB Yields and Extraction Rates**

<table>
<thead>
<tr>
<th>Year</th>
<th>FFB yield – own plantation (MT FFB/ha)</th>
<th>FFB yield – scheme smallholders (MT FFB/ha)</th>
<th>CPO extraction rate (%)</th>
<th>PK extraction rate (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2015</td>
<td>28.0</td>
<td>5.8</td>
<td>25.4</td>
<td>5.7</td>
</tr>
<tr>
<td>2016</td>
<td>23.1</td>
<td>5.8</td>
<td>20.5</td>
<td>5.7</td>
</tr>
<tr>
<td>2017</td>
<td>25.4</td>
<td>5.7</td>
<td>20.7</td>
<td>5.7</td>
</tr>
<tr>
<td>2018</td>
<td>27.0</td>
<td>5.8</td>
<td>27.0</td>
<td>5.8</td>
</tr>
</tbody>
</table>

For a full list of our products, see our website: www.musimmas.com/products/product-listing.
Our approach to sustainability

Our Sustainability Policy, which sets out our commitments to environmental stewardship, human rights and partnerships with communities, is at the heart of our sustainability efforts. Published in December 2014, this Policy sets out a framework for the specific commitments we have made to No Deforestation, No Peat, No Exploitation (NDPE). The Policy covers the global operations of Musim Mas and our suppliers.

To demonstrate how we intend to meet our 2020 goals, we published our Policy Implementation Plan in June 2018, which articulates our strategy to meet these goals and reflects the latest developments in best practices.

To actively engage with industry stakeholders and drive change, we focus on three key areas:

1. Policy compliance in our internal operations, covering all Musim Mas mills and plantations.
2. Supplier engagement with tailored solutions and direct technical assistance for key suppliers to drive momentum, build capacity and provide support for change.
3. Intervention with independent smallholders in the wider palm oil sector through landscape-level and industry initiatives.

We will support concrete achievements by 2020 to deliver the following impacts:

A video overview of our current Policy Implementation Plan has been made available for our stakeholders and can be found [here](#).

Our approach to sustainability

<table>
<thead>
<tr>
<th>OWN SUPPLY</th>
<th>GROUP SUPPLIERS</th>
</tr>
</thead>
<tbody>
<tr>
<td>• RSPO certified</td>
<td>• Engage actively and directly with all suppliers</td>
</tr>
<tr>
<td>• POIG verified</td>
<td>• Monitor and review key issues through supplier self-assessments</td>
</tr>
<tr>
<td>• 100% verified compliance with Sustainability Policy commitments</td>
<td>• Develop and implement roadmap based on gap analysis</td>
</tr>
<tr>
<td>• Traceability to plantation</td>
<td>• Monitor performance against commitments</td>
</tr>
</tbody>
</table>

SMALLHOLDERS

Independent smallholder suppliers (direct and indirect)
• Enable them to comply with our NDPE commitments
• Support smallholders’ sustainability and livelihoods
• Track smallholders’ progress over time

LANDSCAPE APPROACH

• Collaborate with stakeholders within physical landscapes to support change on the ground
• Implement Extension Services Programme (ESP) as a key component
• Map initiatives, analyse risk and mobilise suppliers and customers in our priority landscapes

INDUSTRY APPROACH

• Collaborate with stakeholders to support sector-wide change on thematic issues, including human rights and labour challenges

Making an impact by actively engaging with industry stakeholders
Our approach to sustainability

The following section covers the way we implement sustainability within our own operations through certification, verification and the adoption of innovative methods to improve yield sustainably. The section also highlights our industry collaborations and our responsibility to keep stakeholders informed. The subsequent sections address our commitments and measures taken within our operations in matters of environmental protection, human rights and labour rights.

To read about how we are effecting change through engaging our suppliers and our interventions in the wider palm oil industry, see the section on Engaging suppliers to drive change.

SUSTAINABILITY CERTIFICATION AND VERIFICATION

Compliance with the leading certification schemes and benchmarks in our industry is a top priority and we strive to align our Policy practices and sustainability efforts with the most progressive principles and standards. Our Policy Implementation Plan outlines our strategy towards compliance with the Roundtable on Sustainable Palm Oil (RSPO) and the Palm Oil Innovation Group Charter for our directly-owned and -managed operations.

RSPO

Policy Implementation Approach
We will adhere to the principles of the Roundtable on Sustainable Palm Oil (RSPO) by:

- Maintaining 100% RSPO certification of our mills and plantations.
- Striving to achieve RSPO certification within three years, for newly acquired operations.
- Adhering to the RSPO New Planting Procedure (NPP) for any new development.
- Supporting the process and outcome of the RSPO Complaints System.

As at December 2018, 130,824 hectares of Musim Mas plantations are RSPO-certified. Two new mills received RSPO certification in 2018, one in Riau and one in Kalimantan, bringing the total number of certified mills to 12 of the 13 mills with plantations we operate8. The remaining mill in Kalimantan, was commissioned in 2016 and will be certified in 2020, pending the approval of its operations permit (Hak Guna Usaha (HGU)). Two mills have undergone their third RSPO audit cycle in 2018.

Scheme smallholder operations affiliated with Musim Mas have been RSPO certified under our smallholder cooperative programme, Kreed Koperasi Priner Anggota (KKPA). The KKPA was the first smallholder scheme in Indonesia to comply with RSPO certification requirements, in 2010. These smallholders strictly adhere to RSPO standards, undertaking a main audit every five years and four annual surveillance assessments. As at December 2018, 75% of the scheme smallholders and the Village Development Programme (VDP) under KKPA are RSPO certified, making up 3,484 hectares of our total RSPO-certified area.

Our plantations, scheme smallholders and the areas under VDP total 139,318 hectares of certified RSPO area, making up 70% of our total area. Combined, these operations have an annual certified sustainable palm oil (CSPO) production capacity of 671,883 tonnes and 169,334 tonnes of certified sustainable palm kernel oil (PKO). This represents about 5% of all RSPO-certified palm oil in the market.

We are working with our independent smallholders through partnerships and programmes to assist them in becoming RSPO certified. This includes building the capacity of independent smallholders enrolled in our Indonesian Palm Oil Development for Smallholders programme to achieve RSPO certification by 2020.

Read more on scheme and independent smallholders under the section, Working with smallholders.

A total of 38 sites (which include refineries and downstream facilities) have been certified against the RSPO Supply Chain Certification Standard (SCCS). Combined, these sites handled, traded and processed approximately one million tonnes of RSPO-certified palm oil and oil palm products in 2018. By adhering to this scheme, Musim Mas is able to supply palm oil products under the segregated, mass balance and book and claim supply chain models. Our facilities in China and India are currently undergoing the certification process and are expected to be SCCS certified by 2021.

RSPO

Musim Mas was one of the first companies to undergo the Indonesian Sustainable Palm Oil (ISPO) certification process, an Indonesian regulatory initiative. As at December 2018, a total of four Musim Mas mills have obtained ISPO certification, two of which were the first mills in Indonesia to meet the standard.

In 2018, one additional mill was audited against ISPO standards, which means that 12 Musim Mas mills with plantations have undergone audits for ISPO certification. While all plantations under the Musim Mas Group have undergone Penalties Kelas Kebur, a pre-requisite assessment for ISPO certification audits, the remaining mill with a plantation will be audited in 2020. The Group’s independent mills have also undergone ISPO audits.

RSPO CERTIFICATION TIMEBOUND PLANS

<table>
<thead>
<tr>
<th>Company name</th>
<th>Location</th>
<th>Facility</th>
<th>P&amp;C certification</th>
<th>SCCS certification</th>
<th>Certification target date</th>
</tr>
</thead>
<tbody>
<tr>
<td>North Continental Oils and Fats</td>
<td>Thanh Hoa, Vietnam</td>
<td>Refinery</td>
<td>Achieved</td>
<td>Achieved</td>
<td>2019</td>
</tr>
<tr>
<td>Sarana Esa Cita</td>
<td>West Kalimantan, Indonesia</td>
<td>Mill</td>
<td>On track</td>
<td>On track</td>
<td>2020</td>
</tr>
<tr>
<td>South India Krishna Oils and Fats</td>
<td>Andhra Pradesh, India</td>
<td>Refinery</td>
<td>On track</td>
<td>On track</td>
<td>2021</td>
</tr>
<tr>
<td>Tuvcu Oils and Fats</td>
<td>Tamil Nadu, India</td>
<td>Refinery</td>
<td>On track</td>
<td>On track</td>
<td>2021</td>
</tr>
<tr>
<td>Musim Mas (Dongguan) Oils and Fats</td>
<td>Guangdong, China</td>
<td>Refinery</td>
<td>On track</td>
<td>On track</td>
<td>2021</td>
</tr>
<tr>
<td>Musim Mas (Tianjin) Oils and Fats</td>
<td>Tianjin, China</td>
<td>Refinery</td>
<td>On track</td>
<td>On track</td>
<td>2021</td>
</tr>
<tr>
<td>Musim Mas (Zhenjiang) Oils and Fats</td>
<td>Jiangsu, China</td>
<td>Refinery</td>
<td>On track</td>
<td>On track</td>
<td>2021</td>
</tr>
</tbody>
</table>

8 Musim Mas operates a total of 16 mills, however three of these mills are independent of plantations and are not eligible for RSPO P&C certification.
Our approach to sustainability

ISCC
Musim Mas is committed to the International Sustainability and Carbon Certification (ISCC), an international certification programme for sustainable biomass and bioenergy production applicable to European markets. The certification requirements include criteria on greenhouse gas (GHG) emissions savings, sustainable land use, protection of natural biomes and social sustainability. As at January 2018, all mills have achieved ISCC certification. In particular, all have been certified against the ISCC waste and residue programme, while 12 have achieved full ISCC European Union certification, which includes all types of agricultural and forestry raw materials, waste and residues, biogas and algae.

POIG
Musim Mas joined the Palm Oil Innovation Group (POIG) in 2015, formalising our commitment to the POIG Charter. Since August 2016, Musim Mas has worked diligently with POIG and relevant third parties to become verified. We successfully achieved verification status in February 2019, becoming the first Southeast Asian company to do so. Today, Musim Mas is able to supply POIG-verified oil from our plantations, alongside other POIG grower members.

Journey towards POIG verification for Musim Mas

A few remaining issues were identified around High Carbon

Policy Implementation Approach
We will adhere to The Palm Oil Innovation Group Charter (POIG) by:

- Achieving 100% verification against POIG indicators for our own mills and plantations.
- Striving to comply with the POIG charter for traders and processors.

From February to April 2018, Rainforest Alliance carried out a verification audit at four mills as a sample for the ten under the scope of the audit. This is part of the annual verification audit, which also checks compliance with the action plan developed by Musim Mas in response to the non-conformities identified in an earlier report. It concluded that Musim Mas made significant improvements in the implementation of best management practices associated with the POIG Charter, specifically addressing the issues on water consumption and the development of required policies.

Highlight: What it means to be POIG-verified
Musim Mas expects to be able to supply around 700,000 metric tonnes of POIG-verified and RSPO segregated palm oil to the market in 2020, in the form of crude palm oil, palm oil kernel, as well as a range of palm oil fractions and derivatives. A full product list is available at http://poig.org/further-resources/poig-product-list/

For buyers, POIG-verified palm oil assuages that products are third-party verified against more stringent standards and best-in-class NDPE policies. While the 2018 RSPO PAC brought in a wide range of improvements, POIG remains the only standard which requires:

- Identification of critical peatland ecosystems by independent, third-parties and through engagement with local governments.
- Phasing out the use of paracetamol and pesticides prohibited by the World Health Organization Class 1A or 1B schedules, the Stockholm and Rotterdam Conventions, the Forest Stewardship Council’s ‘Highly Hazardous’ list, and the Sustainable Agricultural Network (SAN) prohibited pesticide list.
- Musim Mas has implemented a staggered phase-out plan from 2019-2021. Carbosulfan will only be used in emergencies, with prior POIG approval.

Highlight: What it means to be POIG-verified
Musim Mas also adheres to the Italian National Certification System for Biodeuts and Biokerts (IT SNC). The main aspects of the verification process include traceability and mass balance systems and GHS emissions components. All of our mills have achieved compliance with IT SNC as at April 2018.

GM+ FEED SAFETY ASSURANCE
Good Manufacturing Practices Plus (GM+) standards harmonise requirements for feed in order to ensure quality and safety throughout the entire feed chain. The largest module within the GM+ certification scheme is GM+ Feed Safety Assurance (FSA) certification and integrates ISO 9001, Hazard Analysis and Critical Control Point (HACCP), feed safety limits, traceability monitoring, prerequisite programmes, and early warning system components. As at January 2018, all of our crushing plants comply with GM+ FSA certification.

IMPROVING PRODUCTIVITY AND ENHANCING YIELD
We constantly invest in enhancing FFB quality, increasing yield per hectare and improving oil extraction rates for long-term economic viability to address growing global demand. One of our first steps was ensuring the implementation of good agricultural practices on our plantations. We also use our expertise to offer technical support and training for our

Stakeholder partnerships and collaborations
Base data
GPR Index
Glossary

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Our approach to sustainability

scheme and independent smallholders. Our strong focus on compliance with leading sustainability certifications further supports these efforts.

Key activities:

- Through research and development: Developing recommendations for scientifically based agricultural best practices related to fertilizer use optimization, soil and water conservation, soil fertility and soil organic matter preservation, ground cover management and integrated pest and disease management with an emphasis on biological control.
- At estates: Ensuring the timely and efficient application of all inputs, minimising losses in the fields and implementing efficient crop recovery methods.
- At mills: Minimising losses during processing activities and investing in new technology and advanced equipment.

Our CPO production per hectare has remained higher than the industry average. Due to recent intensive improvement programmes, we have seen higher yields compared to global figures. In 2016, our CPO production per hectare was 57% higher than the global average. In 2018, it increased to 77%.

As part of our improvement plans, we are also working to further intensify our land use by increasing our oil yield per hectare. Our plant breeding station – also known as the Genetic Research Centre – will provide the most advanced genetic material. Genetic improvements are suitable in different environments, thus ensuring we can further intensify our land use by increasing our oil yield per hectare. Our plant breeding station – also known as the Genetic Research Centre – will provide the most advanced genetic material. Genetic improvements are suitable in different environments, thus ensuring we can make landscapes resilient for forests, wildlife and people.

CPO production compared to global average (MT/ha)

<table>
<thead>
<tr>
<th>Year</th>
<th>Global</th>
<th>Musim Mas</th>
</tr>
</thead>
<tbody>
<tr>
<td>2014</td>
<td>5.15</td>
<td>5.00</td>
</tr>
<tr>
<td>2015</td>
<td>5.68</td>
<td>5.54</td>
</tr>
<tr>
<td>2016</td>
<td>6.00</td>
<td>5.94</td>
</tr>
<tr>
<td>2017</td>
<td>6.25</td>
<td>5.90</td>
</tr>
<tr>
<td>2018</td>
<td>6.00</td>
<td>5.75</td>
</tr>
</tbody>
</table>

Source of global data: www.statbcs.bpp/palm-oil-palm-r.

Our sustainability improvements are underpinned by the development of our Genetic Research Centre, which aims to increase our genetic material's oil content and improve our oil yield per hectare. We have also made significant progress in this area, with our CPO production per hectare increasing to 77% in 2018.

To step up our efforts on the environmental front, Musim Mas is also involved in wider partnerships on supporting the development of policies and initiatives aimed at reducing deforestation and improving biodiversity protection, such as the HCSA Steering Group and Tropical Forest Alliance 2020. These initiatives aim to protect forests and natural resources, and support the development of sustainable land use practices.

Our performance in these areas has also been benchmarked and rated against leading sustainability certifications. In 2018, we achieved a score of 87% on the Zoological Society of London’s Sustainable Palm Oil Transparency Tool (SPOTT), which assesses the transparency and accountability of palm oil producers and traders.

In 2018, we also scored 85.5 on the Forest Heroes’ Green Tigers Index, ranking us first out of the 22 companies assessed. These scores reflect our commitment to improving our sustainability practices and reducing our environmental impact.

Keeping our stakeholders informed

It is important that Musim Mas maintains an open dialogue with our stakeholders and constructively take feedback to improve our operations, as well as industry standards, and to ensure that we communicate proactively and are responsive to this feedback.

Communication platforms and materials:

- Sustainability reports: produced annually to keep stakeholders informed on material environmental and social issues relevant to our sustainability governance.

These reports reflect our past sustainability journals and progress reports.

- Musim Mas website: provides comprehensive information about our activities for broader audiences through a dedicated sustainability section.

We also ensure our materials are suitable for wider stakeholders by providing easy-to-follow fact sheets and a series of videos on our sustainability journey.

- Annual Communication of Progress (ACP): we submit ACPs to the RSPO detailing our progress against the standard and the PSC.

- Grievance system: all external grievance cases are lodged through our online grievance mechanism, and a grievance list is publicly available on the Musim Mas website.

- RSPO Jurisdictional Approach Working Group, the Aceh Tamiang Working Group, and the Coalition of Sustainable Livelihoods, which is a platform exploring alternative livelihoods for smallholders through innovative approaches such as agroforestry and organic fertiliser.

ACADEMIC PARTNERSHIPS

While sustainability is an integral part of our business, we understand that there are many questions left unanswered related to conservation and environmental protection. We believe that academic exploration and research are important to improving knowledge in these areas, hence we work with academic partners and support programmes and collaborations with universities, government agencies and UN bodies for research and studies.

A partial list of our 2018 stakeholder collaborations and partnerships can be found on page 72, and a full list of our collaborations can be found on our website at www.musimmas.com/sustainability/stakeholder-collaboration.

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Environmental, social and governance ratings and sustainability rankings

As a large palm oil company, we are subject to significant public scrutiny on the environmental and social impacts of our business. Public assessments provide us with a valuable opportunity to identify areas where we have done well and areas where we need to improve.

In 2018, we achieved a score of 87% on the Zoological Society of London’s Sustainable Palm Oil Transparency Tool (SPOTT), which assesses the transparency and accountability of environmental, social and governance issues. This is a 19.2-point increase compared to our 2017 score, placing us fourth out of 70 palm oil producers in the world. In 2018, we also scored 85.5 on the Forest Heroes’ Green Tigers Index, ranking us first out of the 22 companies assessed. These scores reflect our commitment to improving our sustainability practices and reducing our environmental impact.

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Our sustainability improvements are underpinned by the development of our Genetic Research Centre, which aims to increase our genetic material’s oil content and improve our oil yield per hectare. We have also made significant progress in this area, with our CPO production per hectare increasing to 77% in 2018.

Our performance in these areas has also been benchmarked and rated against leading sustainability certifications. In 2018, we achieved a score of 87% on the Zoological Society of London’s Sustainable Palm Oil Transparency Tool (SPOTT), which assesses the transparency and accountability of environmental, social and governance issues. This is a 19.2-point increase compared to our 2017 score, placing us fourth out of 70 palm oil producers in the world. In 2018, we also scored 85.5 on the Forest Heroes’ Green Tigers Index, ranking us first out of the 22 companies assessed. These scores reflect our commitment to improving our sustainability practices and reducing our environmental impact.

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Promoting positive environmental impacts

We are a major player in the palm oil sector and play a significant role in promoting sustainable palm oil production in our industry, thus contributing to the protection of critical ecosystems and biodiversity in and around the landscapes where we operate. We are deeply committed to environmental stewardship and continuously strive to minimise and mitigate the impacts of our operations. We are also committed to enhancing the state of the natural environment, where possible, and identifying areas where we can make a difference.

NO DEFORESTATION AND CONSERVATION COMMITMENTS

Our 2020 no deforestation targets are aligned to the commitments set out in the New York Declaration on Forests. We do not permit any clearance of land classified as high conservation value (HCV) area or high carbon stock (HCS) forest. This ensures that land development is carried out responsibly and sustainably. We are also committed to the conservation of these areas and to maintaining their biodiversity, including the protection of rare, threatened and endangered (RTE) species.

Being POIG-verified means that all Musim Mas-produced oil, which makes up 10% of our total supply, is verified deforestation-free. The remaining 90% of our oil supply comes from third-party suppliers, who are subject to a strict sourcing policy that traces and eliminates deforestation within our supply chain. We also work with our consultants, Aidenvironment, and their proprietary database and information platform to monitor deforestation in the concessions of these third-party suppliers. Via our supplier workshops, we also make clear our strict no-deforestation requirements and the need to implement the HCS Approach (HCSA).

While every effort is made to exclude controversial palm oil, care is also needed to ensure that such exclusion will not adversely affect the palm oil produced by smallholders and impact their livelihoods. We recognise the challenges faced by independent smallholders in meeting the HCV or HCS requirements in our Sustainability Policy and provide assistance where we can.

More about how we address deforestation gaps within our supply chain can be found in the Engaging with suppliers to drive change section of this report.
In 2018, we carried out a consolidated analysis of the implementation of our HCV management and monitored all Group concessions. Findings showed that there are several positive environmental factors that promote the presence of wildlife throughout our concessions. However, external factors beyond our control, such as haze and smoke from wildfires outside of our areas of operation, can negatively impact the presence of wildlife. Due to these factors as well as wildlife migration, the presence/numbers of wildlife is not an absolute indicator of how well we manage our HCV areas.

To prevent illegal development within forest and conservation areas, we conduct ground patrols and monitor encroachment by analysing satellite images (Landsat) of mapped areas. In 2018, we have received no grievances regarding illegal or non-compliant deforestation in our operations. The hunting of RTE species and species protected by law is prohibited at all our concessions and within our supply chain. We reiterate this requirement and share how to manage HCV areas through our supplier engagement approach when socialising our Sustainability Policy.

We strictly prohibit workers and families from keeping wildlife in captivity and engage with surrounding communities on the importance of conservation. We further support the protection and survival of the identified species with action plans, namely by installing signboards inside and outside the concession area, and by regularly engaging with the community, either ourselves directly or through agents of the Indonesian Nature Conservation Agency (Bali Konservasi Sumber Daya Alam). We also do not operate within nationally designated protected areas. An inventory of the fauna identified in the Group’s areas of operation that fall under the International Union for Conservation of Nature (IUCN) Red List of Threatened Species can be found on page 80.

The protection of landscapes within our areas of operation that have unique characteristics – such as the presence of high-value ecology and biodiversity – is crucial to our supply chain transformation objectives. We feel it is important to safeguard these jurisdictions due to the high-risk issues they face, or risk facing. Some of these areas have been subject to deforestation and clearance of peat and may face encroachment from expanding agricultural activities. Some of these areas are especially prone to forest fires during dry seasons, and many are home to protected wildlife, including rare and endangered species. We therefore engage in key environmental and conservation initiatives to help minimise potential damage to at-risk landscapes in areas like Aceh, Riau, Sumatra and West Kalimantan.

More on our work on landscape initiatives can be found on page 68.

OUR ZERO-BURN POLICY
Musim Mas operates a strict zero-burning policy for all new development and replanting, and this is expected of all of our suppliers.

Within the landscapes where we operate, we take measures to ensure that we can quickly and effectively respond to any fire outbreaks. We maintain teams of highly-trained firefighters at each of our plantations, which also assist district and provincial governments. We provide all operations with firefighting equipment, ensure all factories are equipped with early warning and firefighting systems, and work with local government fire safety centres to carry out regular training for our workers.

We also monitor fire incidences and affected lands using satellite data from sources like the World Resources Institute’s Global Forest Watch Fires platform, an online forest monitoring and fire alert system. If a fire is detected outside one of our concessions, it takes a longer time to dispatch our teams and reach the area in question. Furthermore, the areas where fires are detected can be difficult to access, which can cause delays in extinguishing the blaze. To combat these difficulties, our control crews monitor fire activity in an area extending three kilometres beyond our concession boundaries daily. Crews take action at the first sign of an outbreak and report to headquarters immediately. This also ensures that we update the RSPO on any fire activity promptly.
Musim Mas is a founding member of the Fire Free Alliance (FFA), a multi-stakeholder platform supporting the Indonesian Government’s commitment to a haze-free ASEAN region by 2020. Under this agreement, all company members have implemented the Fire Free Village Programme (FFVP) as a means to engage local communities in protecting forests from fire. For Musim Mas, this is done through Masyarakat Bebas Api (MBA), a programme that covers 73 villages spanning across 496,117 hectares in Indonesia as at December 2018. In 2018, 157 trainings were carried out with communities on agronomic best practices and alternative methods of land clearances, along with socialisation on the risks of using fire for land preparation. Village heads and community members are regularly reminded to be vigilant in preventing fires. Everyone is also provided with firefighting and monitoring resources, such as fire extinguishers, safety uniform and shoes.

We further incentivise villages that remain fire-free by awarding them equipment and services to build or repair community infrastructure. In 2017, 41 villages were rewarded for successfully keeping their villages fire free and in 2018, 40 villages received rewards despite severe dry seasons. In 2018, a significant increase in the number of fires and the total area affected was reported compared to 2017. There were 18 recorded fire incidences within our operations, resulting in 48 hectares being burnt. A total of 109 fires were recorded in areas within a three-kilometre radius of our concessions, affecting 796 hectares. Despite similar rainfall averages in Kalimantan and Sumatra compared to 2017, the months of July to September saw significantly hotter weather with the lowest amount of rainfall in July of 95 millimetres. The majority of these fires, which mostly occurred in Kalimantan, can be attributed to the dry weather during these months.

In addition, we have found that some fires were caused by community members, for example, by people disposing of lit cigarette butts on concession land, causing significant harm to areas consisting peat. We take such matters seriously and regularly emphasise our no burn policy, and the adverse environmental impacts of peat catching fire. We also reiterate that smoking should take place outside of plantation areas and that members must dispose of cigarette butts at the designated bins we have made available.

From 2017 to 2019, we worked with Universitas Riau (UNRI) on a composting model that can be adopted by nearby communities. Three villages near our concession in Riau participated in the project, and community members were taught how to compost organic waste such as leaf litters around farms and scrub. As a result, these villages are now successfully ensuring that their lands are being kept fire-free.

**PROTECTION OF PEATLANDS**

Musim Mas does not conduct any new plantings on peatlands, regardless of depth. Prior to any new development, these areas are identified through HCV and RSIC assessments, and national laws are adhered to during development. Since 1 January 2008, there have been no new plantings or developments on – nor any new draining of – conserved peat areas at any of our operations. We also make clear our peat commitments to our suppliers during our engagements with them.

For plantations that currently exist on peat, we ensure that we apply best peat management practices in accordance with local regulations, and follow requirements set out in the sustainability standards we have adopted. This includes putting into place a network of water control structures to regulate water levels and maintaining water tables according to best practice in order to reduce greenhouse gas emissions. To ensure the long-term viability of drainage, we carry out the necessary drainability assessments prior to replanting.

**Emissions by source (%)**

### Musim Mas has worked with the Indonesian Environmental and Forestry Ministry, Kementerian Lingkungan Hidup dan Kehutanan (KLHK), to evaluate our existing plantings on peat and identify critical areas for restoration. In 2018, we engaged an independent peat expert to review the critical areas identified and to explore the options for a peatland restoration mechanism where results have shown that there is no critical peat area in our operations. The peat maps have been submitted to KLHK for their follow-up action recommendations and further guidance. Maps of our peatlands and planted peat are available on page 83.

### REDUCING OUR CARBON FOOTPRINT

We have made great strides towards minimising greenhouse gas (GHG) emissions in our operations. This includes employing best management practices such as installing methane capture facilities at our palm oil mills, improving yield and optimising integrated pest management approaches and precision agriculture. We recognise the significant contribution of peat within our operations on our overall net GHG emissions and strive to apply best management practices to these areas.

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12 Musim Mas has installed methane capture facilities at each mill to capture methane emissions from POME. We also use the methane captured to generate electricity, which is sent to workers’ housing and national grid. This electricity generation provides credits that further reduce the emissions of our mill operation.
Promoting positive environmental impacts

**GHG emission sources and sinks (MT CO\textsubscript{2}e)**

<table>
<thead>
<tr>
<th>Source</th>
<th>2017</th>
<th>2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>Palm oil mills</td>
<td>2,140,927</td>
<td>2,745,453</td>
</tr>
<tr>
<td>Peat</td>
<td>980,713</td>
<td>2,699,337</td>
</tr>
<tr>
<td>Fertiliser</td>
<td>53,841</td>
<td>103,189</td>
</tr>
<tr>
<td>Others</td>
<td>346,207</td>
<td>1,106,790</td>
</tr>
</tbody>
</table>

**Note:**
- Data calculated and reported for our 2018 RSPO audit cycle. Data covers 2017 figures.
- GHG emissions for peat show an increase as a result of double-counting. This figure is due to the commissioning of a new mill in Sumatra that shares the same supply base with another mill in the vicinity, which has an existing all-peat plantation. The calculations follow RSPO PalmGHG requirements.
- We share our experiences of leading GHG reduction and monitoring practices through collaborative platforms as Co-chair of the RSPO Emissions Reduction Working Group as well as Co-lead of the ISPO GHG Working Group.

**Methane recovery**

We have in place certain measures to most appropriately and effectively treat the POME produced from processing FFB. For example, we use anaerobic digestion in deep open lagoons designed to significantly reduce organic compounds. All mills are equipped with solid decanter units, which enable them to produce dried decanter mass that can be used as organic fertiliser, thus reducing pollutants.

As at December 2018, 14 out of our 16 mills are equipped with methane capture facilities that harness methane from POME treatment to fuel the generation of electricity and redirect it to power our mills, estates and workers’ housing. In 2018, this contributed to the reduction of 395,733 MT CO\textsubscript{2}e in overall emissions. In September 2019, the construction of a 15th methane capture facility was completed.

Musim Mas has also been exporting surplus electricity generated by ten of our mills to the national grid, Perusahaan Listrik Negara (PLN). We share our experiences of leading GHG reduction and monitoring practices through collaborative platforms as Co-chair of the RSPO Emissions Reduction Working Group as well as Co-lead of the ISPO GHG Working Group.

**For more on our methane recovery methods, see page 44 of our Sustainability Report 2017.**

**Holistic waste management**

Our mills operate holistic waste management systems that aim to achieve “zero discharge” and reduce our environmental impact. These systems either minimise waste or harness it for use as inputs in other operational processes. The specific waste management solution adopted at each mill depends on factors such as seasonal inputs, local site conditions, energy requirements, mill design and crop type variations.

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WATER ACCOUNTABILITY AND FOOTPRINT

Musim Mas recognises the importance of water as an essential and finite global resource. We strive to manage its use and to minimise the impact of our operations on this precious commodity. We have adopted a comprehensive water management plan to maintain the quality and availability of surface water and groundwater for our business and surrounding communities. Within our operations, we monitor both the water we use, i.e. what is withdrawn from its sources, and the water we consume, i.e. the portion that is not returned to the original water source.

WATER USED AND WATER CONSUMED

In 2018, we used 4.62 million cubic metres (m³) of water across our plantation and mill operations, a 5% increase compared to 2017. Water usage at the plantation level fell by 0.49 m³ but increased by 0.72 m³ at mill level in 2018 compared to 2017. This is largely due to the two new mills commissioned in 2018. As these mills were established in May and July 2017 respectively, data was not available for a full year previously. Moreover, due to higher processing volumes of fresh fruit bunches (FFB) in West Kalimantan in 2018, there was an increase in water usage at one of our mills. Overall, our water usage intensity was 1.23 m³ per tonne of FFB produced (m³/MT FFB), a slight increase from our 2017 figure of 1.19 m³/MT FFB.

Water consumption (m³)

Water usage at mills (m³/MT FFB)

We calculate our water consumption using the Water Footprint Network methodology. In 2018, our operations registered a blue water footprint of 9.85 m³/MT FFB, a green water footprint of 1.55 billion m³ and a grey water footprint of 387.78 million m³. A water balance analysis is conducted annually to compare the amount of water received by our plantations from rainfall against our total water consumption. The 2018 results show a net positive water balance.

We take measures to optimise water usage and consumption. Green water is outside the scope of our control because it is largely dependent on the local climate. Hence, our water reduction programmes are targeted at reducing blue and grey water consumption in our plantations, mills and residential areas. These efforts include programmes for recycling water at facilities for sludge cleaning, collecting water to wash equipment and scheduling fertiliser application to coincide with the dry season to reduce fertiliser runoff. Due to higher grey water consumption, we are more vigilant about our water and soil conservation practices. We target to reduce grey water consumption levels by 2.75% if fertiliser usage is 10% below 2016 levels, 5.5% if fertiliser usage is 20% below 2016 levels, and 8.25% if the fertiliser usage is 30% below 2016 levels.

Safeguarding water quality and managing effluents

All effluent is either discharged through watercourses or applied to land as fertiliser.

This effluent is treated before it is released into local rivers. The Kalimantan mill received a license for discharge in November 2018. We maintain biological oxygen demand (BOD) levels below 100 milligrams per litre (mg/L) and COD levels below 350 mg/L, to avoid any impact on groundwater and nearby water sources, according to acceptable regulatory thresholds.

For other mills, we repurpose POME and apply it to plantation land to provide moisture, nutrients and organic matter that enhance the soil. Due to new mills in Kalimantan and Sumatra, there has been an increase in FFB processed and therefore higher volumes of treated effluent were discharged for land application in 2018.

We also monitor phosphorus and nitrogen levels in watercourses. Since our first Palm Oil Innovation Group (POIG) verification audit, we have reviewed the number and location of water monitoring points at our operations, and have added new ones to better reflect inlet and outlet positioning. In cases where elevated phosphorus and nitrogen levels are identified, we have implemented measures to reduce these levels by adjusting fertiliser rates and procedures.

Land application BOD levels at mills by region (mg/L)

Land application COD levels at mills by region (mg/L)

15 The Water Footprint Network methodology categorises water consumption under three categories: “green water” for rainwater consumption, “blue water” for consumption of water from fresh surface or groundwater (water withdrawn from rivers, lakes and municipal water sources), and “grey water” for the amount of water used to dilute pollutants. Source: https://waterfootprint.org/en/water-footprint/what-is-water-footprint/ accessed 12 August 2019.

Note: Indonesian Government regulations require COD levels to remain below 350 mg/L.

Riparian zone management

Riparian zones serve as a buffer between natural waterways and land used for agricultural development. As such, they can help prevent soil erosion and minimise surface runoff. Buffer zones also help maintain and enhance biodiversity.

Following legal requirements pertaining to land development for oil palm cultivation, we maintain 50-metre riparian buffer zones for small rivers and 100-metre buffers for wide rivers. In addition to adhering to legal requirements and other voluntary codes, we have also strengthened our monitoring process by regularly evaluating water quality. As part of our focus on biodiversity, we also conduct surveys on the presence of birds, butterflies, reptiles and small mammals in riparian zones.

Stakeholder partnerships and collaborations

Promoting positive environmental impacts

MAKING OUR MARK

Land application COD levels at mills by region (mg/L)

Land application BOD levels at mills by region (mg/L)

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Promoting positive environmental impacts

Riparian buffer restoration and remediation project in PT Musim Mas

In 2007, we embarked on a restoration and remediation project at one of our plantations in Sorek, Riau. During the restoration of the river buffer, the first row of oil palms on either side of the waterway was removed and replaced with jungle trees. The oil palms in the second to the fifth rows were left untouched, and no fertilisers or pesticides were applied to enable the undergrowth to grow out naturally. We also carried out the introgression of jungle saplings under the oil palms and set aside a riparian buffer when replanting the old palms.

Reducing chemical use

Optimising and reducing reliance on chemical fertilisers and pesticides is important to Musim Mas, and we are constantly looking for organic substitutes where possible. We have adopted international standards and best practices for guidance on the exclusion of certain chemicals, such as those classified as Class 1A or 1B pesticide hazards by the World Health Organization, and those listed on the Stockholm or Rotterdam Conventions, the Forest Stewardship Council’s Highly Hazardous list, or the prohibited pesticide list published by Rainforest Alliance’s Sustainable Agriculture Network.

Since 2011, we have banned the use of paraquat at all Musim Mas-owned plantations. To protect the health and safety of our workers, we have implemented policies detailing the requirements and procedures on utilising personal protective equipment (PPE) during pesticide application. All workers handling chemicals attend regular training as well as free regular medical check-ups.

We track the use of pesticides applied at each of our operations regularly and monitor toxicity levels to ensure health and safety requirements are being met. From 2015 to 2018, toxicity levels of pesticides in use have remained comparable to industry standards, and we believe our current range of 320-520 toxicity units per hectare is largely aligned with best practices within the palm oil industry.

Toxicity per hectare by region

In November 2018, Musim Mas carried out an independent review to assess the effectiveness of pesticides used at one of our plantations in Riau. The review evaluated our pesticide management approaches against POIG requirements and included proposals for alternatives with timebound plans for their phase-out where necessary. Musim Mas received approval from the POIG Organising Committee exempting the limited use of the few remaining POIG-prohibited pesticides during a phase-out period while our R&D department works diligently to eliminate the use of – and reliance upon – these chemicals as we switch to alternatives. By December 2018, Musim Mas successfully ended the use of two of these pesticides with plans to phase out the rest by December 2021.
Promoting positive environmental impacts

Musim Mas pesticide phase-out plan

<table>
<thead>
<tr>
<th>Active ingredient</th>
<th>Type</th>
<th>Toxicity-rat mg/kg LD₅₀</th>
<th>Expected phase-out date</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brodifacoum</td>
<td>Rodenticide</td>
<td>0.4</td>
<td>Phased out</td>
<td>–</td>
</tr>
<tr>
<td>Permethrin</td>
<td>Insecticide</td>
<td>430-4,000</td>
<td>Phased out Dec 2018</td>
<td>–</td>
</tr>
<tr>
<td>Benomyl</td>
<td>Fungicide</td>
<td>&gt;5,000</td>
<td>Dec 2019</td>
<td>Mainly used to control fungal pathogens in oil palm nurseries and used alternately with other fungicides to prevent resistance to fungal disease. Musim Mas is carrying out a fungicide trial to screen for alternatives.</td>
</tr>
<tr>
<td>Glufosinate- ammonium</td>
<td>Herbicide</td>
<td>2,000</td>
<td>Dec 2019</td>
<td>Musim Mas will immediately phase out this pesticide if a promising alternative is found.</td>
</tr>
<tr>
<td>Cypermethrin</td>
<td>Insecticide</td>
<td>240-4,150</td>
<td>Dec 2020</td>
<td>A widely used synthetic pyrethroid insecticide to control numerous types of insect pests. Musim Mas is currently in the process of evaluating several pesticides to screen for alternatives and will immediately phase out Cypermethrin if a promising alternative is found.</td>
</tr>
<tr>
<td>Mancozeb</td>
<td>Fungicide</td>
<td>&gt;5,000</td>
<td>Dec 2020</td>
<td>Mainly used to control fungal pathogens in oil palm nurseries and used alternately with other fungicides to prevent resistance of fungal diseases. Musim Mas is carrying out a fungicide trial to screen for alternatives and will immediately phase out Mancozeb if a promising alternative is found.</td>
</tr>
<tr>
<td>Chlorpyrifos</td>
<td>Insecticide</td>
<td>135-163</td>
<td>Dec 2021</td>
<td>There is currently no alternative to Chlorpyrifos, which is presently used to treat termites. Musim Mas is conducting a trial to screen for alternatives (see next page). Musim Mas will immediately phase out Chlorpyrifos if a promising alternative is found.</td>
</tr>
<tr>
<td>Coumatetralyl</td>
<td>Rodenticide</td>
<td>16.5</td>
<td>Dec 2021</td>
<td>An alternative has been identified and is waiting for Indonesian Government approval. Musim Mas will immediately phase out Coumatetralyl once approved.</td>
</tr>
<tr>
<td>Warfarin</td>
<td>Rodenticide</td>
<td>186</td>
<td>Dec 2021</td>
<td>An alternative has been identified and is waiting for Indonesian Government approval. Musim Mas will immediately phase out Warfarin once approved.</td>
</tr>
<tr>
<td>Carbosulfan</td>
<td>Insecticide</td>
<td>250</td>
<td>For emergency use only</td>
<td>There is currently no alternative to Carbosulfan, which is an insecticide/nematicide used to control red stripe weevils and red ring disease. Musim Mas will seek approval from the POIG Organising Committee if emergency use is required. As at July 2019, there have been two instances of Musim Mas seeking and receiving POIG approval to use Carbosulfan to curb the outbreak of red stripe weevils affecting young palms at one of our estates.</td>
</tr>
</tbody>
</table>

Trialing of Hexaflumuron to reduce use of Chlorpyrifos

Until an alternative is found, Chlorpyrifos is still needed to protect infested palm from being killed by termites in the field. In September 2018, Musim Mas began a trial to evaluate the effectiveness of Hexaflumuron (a slow-acting chitin synthesis inhibitor) within a baiting system. Hexaflumuron is expected to reduce the colonies of termite pests in the field and is widely used elsewhere for termite control. To be conclusive, this trial will need two to three years to completely eradicate all termite colonies in the field. With this alternative, we expect the usage of Chlorpyrifos to decline by 70% every year. The aim is to eliminate the use of Chlorpyrifos as it will not be required should this trial succeed.

MAINTAINING SOIL HEALTH AND STRUCTURE

Unsustainable agricultural activities can contribute to the long-term deterioration of soil health and soil structure. It is therefore vital that we follow good agricultural practices that sustain our future productivity and safeguard our environment.

We promote topsoil fertility by maintaining appropriate levels of organic matter for specific soil types. To do this, we reuse cleared vegetation, including cut fronds from harvesting or pruning, to return nutrients to the soil. Waste biomass from our mills – including boiler ash and dried decanter solids – are applied to enhance soil quality. We further protect soil health by planting legume cover crops following the clearance of old palms.

The growth of moss, soft grasses and ferns is encouraged under older palms. This type of ground cover inhibits the growth of weeds and helps to minimise the depletion of soil organic matter from exposure to sunlight and erosion.

In hilly regions, where the angle of slopes falls within limits defined by legal or voluntary codes, we plant oil palms in terraces to trap rainwater, reduce surface runoff and minimise soil erosion.
Making it count by protecting human and labour rights in our operations

1. Capped overtime hours at 14 hours a week and three hours a day; ensuring all overtime is voluntary and paid in accordance with legal standards; reviewed rotation system to address work-life balance; and limited the number of off days workers may choose not to take.

2. Formalised temporary workers through short-term employment contracts and insurance. Upon compliance with the employment terms, these workers are recruited as permanent workers.

3. Provide unrestricted menstrual leave to female workers in accordance with applicable laws; recognise female workers as heads of families for housing entitlement as verified in the Family Card; Gender Committees engaged with third parties to better understand gender issues.

4. Studied water consumption patterns in the household to derive a new water distribution system to ensure equitable supply of free clean water to all households.

We are committed to the United Nations (UN) Universal Declaration of Human Rights, the International Labour Organization (ILO) Declaration on Fundamental Principles and Rights at Work, the UN Declaration on the Rights of Indigenous Peoples, the Food and Agriculture Organization’s Voluntary Guidelines on the Responsible Governance of Tenure, and the UN Guiding Principles on Business and Human Rights. Musim Mas seeks to respect, protect and, if necessary, restore the human rights of our employees. Since 2015, we have worked on aligning our policies and practices with the Free and Fair Labor in Palm Oil Production Principles. In 2016, an independent labour audit was conducted in collaboration with Verité to assess the situation at our operations. Since then, we have used these findings to take active measures that address overtime hours, protect the legal rights of undocumented workers, strengthen policies to ensure benefits are equally delivered regardless of gender, and strengthen housing policies in line with international standards where Indonesian legal standards are unclear.
We are also committed to building sustained, long-term relationships with communities, thus ensuring that they all have access to the benefits of a sustainable model of oil palm development. Prior to commencing any new development, we adhere to the Roundtable on Sustainable Palm Oil (RSPO) New Planting Procedure (NPP), and undertake social and environmental impact assessments (SEIA) to review social conditions and implement Free, Prior and Informed Consent (FPIC) with affected communities. We then develop and implement management and monitoring plans in line with the outcomes of these findings. Our operations are also in alignment with the Social Requirements outlined under the HCBSA toolkit, namely 11 of the 14 Social Requirements that were formally adopted by the High Carbon Stock Approach (HCBSA) Steering Group in November 2018.

We recognise that in this labour-intensive industry, there is a risk that human rights abuses and violations can occur within the supply chain. To ensure that the rights of local and indigenous communities impacted by the production of palm oil are not violated within our supply chain, we emphasise the ‘No Exploitation’ pillar of our No Deforestation, No Peat, No Exploitation (NDPE) policy to our suppliers and third-party suppliers. Recognising the complexities and challenges across the industry, we also actively work with peers in the landscapes and sectors we operate to improve the livelihoods of local communities.

In March 2018, Musim Mas joined forces with four other major players in the industry under the umbrella of the Decent Rural Living Initiative (DRLI). The aim of this pre-competitive collaboration is to provide practical and meaningful recommendations to help rural workers secure their long-term ability to thrive, regardless of gender. In June 2019, two collaborative pilot projects were announced: one around developing contracts to minimise the instability associated with casual and flexible work, and one on strengthening gender committees on estates. DRLI members are hopeful that the platform and pilots will announce: one around developing contracts to minimise the instability associated with casual and flexible work, and one on strengthening gender committees on estates. DRLI members are hopeful that the platform and pilots will

We want to ensure that every employee is empowered to succeed in a safe, progressive work environment with access to equal or better standards compared to the wider oil palm industry. Each employee should expect to be treated with dignity and respect, to be adequately and fairly compensated for overtime, and to have access to a fair and accountable grievance system.

**WAGES, BENEFITS, WORKING HOURS AND CONDITIONS**

At our plantation and mill operations, we monitor local economic developments to make sure that pay and working conditions at Musim Mas not only comply with legal or industry minimum standards, but also that these are sufficient to provide a decent living wage. All salaries and opportunities are based on merit without discrepancy between genders. Hence, the ratio of the minimum wage paid to male and female workers is 1:1. Maintaining transparent and reliable records of all working hours and wages is also mandatory. All workers receive copies of their contracts, and it is our policy that all workers retain control over their identity documents. Workers are informed when their collective work agreement is made publicly available four months in advance of any change. Pocketbooks have been created to improve understanding of our personnel policies.

**Musim Mas (lowest) monthly wage (IDR)**

<table>
<thead>
<tr>
<th>Region</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
<th>2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kalimantan</td>
<td>1,736,000</td>
<td>1,854,600</td>
<td>2,895,000</td>
<td>2,458,000</td>
</tr>
<tr>
<td>Sumatra</td>
<td>1,615,000</td>
<td>1,800,750</td>
<td>1,949,285</td>
<td>2,289,228</td>
</tr>
</tbody>
</table>

Note: Lowest monthly wages differ regionally and within provinces. Wages listed above are the lowest paid within each respective province. A full breakdown of all minimum wages in each region of Indonesia is available.

In addition to monetary compensation, Musim Mas provides workers with free facilities such as health care, child care, housing (including electricity and water), education and transport. These in-kind benefits are valued at an equivalent of 70% more than the minimum wages set by local governments. In 2018, 12,944 Musim Mas-owned houses were made available to employees in Sumatra and Kalimantan. Parental leave and retirement provisions are provided according to national law, and workers are insured for work-related risks and hazards, including disability and invalidity due to occupational hazards.

We work together with workers’ unions and local government offices to conduct annual living wage surveys to ensure that wages, including in-kind benefits provided, are sufficient to cover workers’ and staff living costs. Musim Mas will also be aligning our methodology with the guidelines published by RSPO in ‘Decent Living Wage’ Guidance, which was released in June 2019.

We endeavour to ensure our workers are equipped for the workplace through relevant training and awareness sessions. Beyond this, we provide work development opportunities by investing in capacity building and technical skills programmes. These programmes include occupational safety and health specialists training to operate heavy equipment, job-specific training and sustainability workshops.

We further support the welfare of our workforce through substantial investments in infrastructure development, including roads, housing, water supplies, medical facilities, schools and other amenities. We pay special attention to ensure that our workers and residents in surrounding communities are provided access to clean, safe water in their homes. We regularly organise interactive programmes and events across our operations to maintain two-way communication with all employees.

**Improving working hours**

Since 2017, we have focused our efforts on overtime restrictions. Following the assessment and recommendations put forward by Verité, Musim Mas reviewed the number of workers needed annually and the requirements for different job scopes and types. Through continuous dialogue with union representatives and government bodies, we have agreed upon maximum permissible overtime by taking into account applicable laws and have made this part of our workers’ collective agreement. We now cap overtime at 14 hours a week and three hours a day.

During extraordinary periods, for instance, peak crop season, certain work such as maintenance is scheduled for Sundays to ensure minimal disruptions to our operations and the timely processing of fruit bunches. These extra hours are recorded as rest-day work and/or overtime and are paid a premium. Employees who choose to work overtime do so voluntarily.

Musim Mas also conducts motion studies collaboratively with workers to determine harvesting targets. This process includes the systematic recording and critical examination of existing practices and is built into workers’ performance assessments. We then create and adopt more efficient and effective methods, both to the workers and for the company, to carry out the work required.

**NO CHILD, SLAVE OR FORCED LABOUR**

Musim Mas does not allow the use of forced or trafficked labour, and we do not employ child labour in our operations. Our recruitment policy prohibits the employment of any...
Social Responsibility

individual under the age of 18, and all job applicants are
verified against minimum age requirements. We recently
improved our documentation system for personnel files
in our recruitment procedures, as well as ensured that all
records are up to date. Our policies and procedures are
regularly shared with our employees and workers unions
through workshops and briefings, to eliminate risk of workers
bringing family members under the age of 18 to help them in
the field or be physically present on the premises. To
bolster this, we emphasise the importance of education and
provide schools and childcare facilities for children living in
and around plantations. For information on our schools and
childcare facilities, please refer to the section on Protecting
children's rights and providing access to education on page
48.

NO HARASSMENT AND ABUSE, NOR UNLAWFUL OR
UNETHICAL DISCRIMINATION

Musim Mas does not tolerate discrimination or harassment
in any form and has implemented measures that allow
employees to lodge complaints anonymously. All
complaints and grievances are managed to ensure that
there is no risk of reprisal. A Gender Committee has been
established at each of our operations to review and uphold
policies and issues pertaining to human rights and equality,
with a focus on vulnerable groups such as women and
children. This includes promoting discussion of gender-
related issues, knowledge-sharing, and socialising our
human rights and equality policies among our workforce
and communities. These committees are responsible for
establishing appropriate measures to address concerns
such as menstruation leave and breastfeeding. Committee
members are also trained by external experts to address
and facilitate the resolution of sexual assault and domestic
abuse cases. Each committee is made up of men and
women who were elected by staff and works under the
status of temporary workers through short-term contracts,
are formally recognised, we officialise the employment
term contract workers. To ensure that all workers' efforts
are recognised and rewarded, we regularly discuss matters of concern to members, such as
time and variety of work available, work-life balance and menstruation leave.

TEMPORARY WORKERS

We respect the rights of all contract, temporary and migrant
workers, regardless of gender. As at December 2018, 5% of
workers at Musim Mas are considered temporary or short-
term contract workers. To ensure that all workers' efforts
are formally recognised, we officialise the employment
status of temporary workers through short-term contracts,
as well as provide them with insurance. This provides
flexibility to those who opt for temporary work instead of
total-time employment. Some women prefer short-term and
temporary work because such arrangements allow them to
better manage other domestic responsibilities. Workers
hired under short-term contracts can become eligible for to
be recruited permanently, as long as they have worked for
three months under the contract.

EQUAL OPPORTUNITIES

Musim Mas has policies in place to ensure that workers are
employed and promoted based on their competency,
capability and experience, regardless of gender, race,
nationality, religion, age or union affiliation. We are
committed to support the inclusion of women across
our operations, including addressing barriers they may
face such as access to resources (e.g. finance, training,
technology). We treat all employees equally and reward
them fairly based on merit. Of a total 21,943 employees
across our plantations and mills, 80 are managers at middle
and senior levels. Women account for 23% of our overall
staff and 27% of workers at mill- and plantation-level.

Housing facilities are also provided to the heads of
families under their registered Family Cards16, regardless of
gender.

Number of female staff and workers of total
workforce by region 2018 (%)

<table>
<thead>
<tr>
<th>Region</th>
<th>Female staff</th>
<th>Female workers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kalimantan</td>
<td>26%</td>
<td>26%</td>
</tr>
<tr>
<td>Sumatra</td>
<td>23%</td>
<td>23%</td>
</tr>
</tbody>
</table>

Number of workers by contract type

<table>
<thead>
<tr>
<th>Year</th>
<th>Permanent workers</th>
<th>Temporary workers</th>
</tr>
</thead>
<tbody>
<tr>
<td>2015</td>
<td>19,045</td>
<td></td>
</tr>
<tr>
<td>2016</td>
<td>17,856</td>
<td></td>
</tr>
<tr>
<td>2017</td>
<td>18,917</td>
<td></td>
</tr>
<tr>
<td>2018</td>
<td>19,859</td>
<td></td>
</tr>
</tbody>
</table>

16 Family Cards are official documents required by the government office to prove residency and family relationships.

FREEDOM OF ASSOCIATION, UNIONS AND COLLECTIVE BARGAINING

We respect the right of all workers regardless of employment
status to join workers' unions. Currently 80.5% of our workers
belong to unions. Our collective labour agreements are in
line with government regulations and has been registered with
the local manpower offices. This agreement is valid for
all employees, whether they are unionised or not, and
currently covers all staff. Members are free to meet during
working hours to discuss any issues without the presence of
management representatives.

The Group's management and workers' unions representing
our employees maintain positive relationships and meet
regularly to discuss matters of concern to members, such as
overtime and compensation, working hour policies based on
type and variety of work available, work-life balance and
menstruation leave.

WORKER COMPLAINTS AND ACCESS TO GRIEVANCE MECHANISM

We are committed to ensuring that all permanent and
temporary workers have access to a transparent and
accountable grievance mechanism. Employees can raise
complaints through anonymous whistleblowing lines,
suggestion boxes located around our operations, grievance
logbooks at administrative offices, over the phone to our
Public Affairs Department (Kubungan Masajukat) and through the workers' union.

Recognising the distances between estate offices and head
offices, we developed a centralised system in 2018 to
consolidate and review grievance cases. Complaints
filed with supervisors are escalated to their managers,
and all grievances are either processed within a week or
raised during regular management meetings for discussion
and resolution. Management regularly recaps and provide
updates on all complaints filed.

Musim Mas respects and ensures the anonymity of all
complainants. Their data is protected to avoid any conflict
with other affected parties. Internal complaints are handled
within the organisation.

Addressing workers complaints/grievances

To address workers complaints and grievances, we endeavour to:

1. Communicate the complaint/grievance procedure to stakeholders/workers at least once a year.
2. Assist illiterate parties in submitting their complaints/grievances.
3. Respect and ensure the anonymity of complainants, human resource departments, community spokespersons and whistleblowers, and to protect all parties conveying complaint/grievances.
4. Record all complaints/grievances in a complaints/grievance book.
5. Coordinate with management heads and follow-up on all complaints/grievances submitted within agreed-upon timeframes.
6. Coordinate with an independent party or mediator regarding a complaint/grievance, if needed.
Social Responsibility

7. Resolve the complaint/ grievance as soon as possible with a solution that benefits both parties while still considering the legal position or the laws and regulations applicable in Indonesia.

8. Record wholly and accurately all phases of the complaint/ grievance resolution process, including a record of parties involved.

OCCUPATIONAL SAFETY AND HEALTH

Guided by International Labour Organization (ILO) core conventions and national laws and regulations, our occupational safety and health (OSH) policy ensures a safe and healthy workplace for all our employees. The goals, performance and programme of the OSH management system are overseen at the Group level, setting out clear objectives for improvements across our mills and estates.

Safety, Health and Environmental Quality committees enforce health and safety protocols in working environments, including identifying potential hazards and ensuring the availability and optimal condition of safety equipment. These committees meet quarterly to discuss safety issues and concerns, and meeting outcomes are reported to the Indonesian Ministry of Manpower. The chair of each committee is the highest-ranking person responsible for the safety of company personnel.

We conduct regular training and safety exercises, including basic safety, first aid and emergency response training, fire-fighting drills and material data safety sheet socialisation on chemicals. We also institute the habit of donning appropriate PPE, such as gloves, helmets, boots, masks and safety clothing. To further encourage a safety mindset, we included built safety criteria in our employees’ personal performance system.

As at December 2018, there are 25 clinics and 2,043 first aid kits strategically located across our plantations to ensure easy access for workers that require first aid or other forms of medical attention. Workers who handle herbicides and pesticides are given monthly medical check-ups to ensure their continued wellbeing. We maintain records on employee illnesses, which are summarised in monthly reports. Dominant health issues are analysed so that action plans are prepared to limit their occurrence or prevent these illnesses from spreading further. Information on health issues is made known to all workers as a preventive measure.

As a result of our concerted safety efforts, we are pleased to report a reduction of 43% in the total number of accidents reported at our operations compared to 2017 figures. The majority of these injuries stem from activities near oil palm trees, where there is a significant risk of cuts due to the presence of fronds and thorns. Other sources of injuries are a result of working tool accidents and motorcycle accidents. However, in 2018, the severity of the accident cases doubled compared to the previous year. One of these cases was the result of a worker fracturing his leg during a car accident, while other incidents occurred when exiting a truck or while walking.

We take this rise in severe cases seriously and carry out and review a hazard and identification risk assessment after each incident. We are also conducting refresher workshops for all workers on our OSH policies and measures.

It is with great sadness that we report one fatality in 2018, which was due to a truck accident on the road. To minimise chances of such incidents recurring in future, we have emphasised safe driving rules to all workers, regularly carry out safety training and ensure that signboards and speed bumps are installed on all roads.

Lost time accident rate (Frequency rate) per 200,000 working hours

<table>
<thead>
<tr>
<th>Year</th>
<th>Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>2015</td>
<td>3.34</td>
</tr>
<tr>
<td>2016</td>
<td>1.76</td>
</tr>
<tr>
<td>2017</td>
<td>5.68</td>
</tr>
<tr>
<td>2018</td>
<td>5.38</td>
</tr>
</tbody>
</table>

Note: Lost time accident rate (Frequency rate) measures the productivity lost due to accidents and is calculated as follow: number of accidents x 200,000 man-hours divided by total man-hours worked.

SEVERITY RATE

<table>
<thead>
<tr>
<th>Group</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
<th>2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>17.16</td>
<td>19.63</td>
<td>25.21</td>
<td>43.50</td>
</tr>
</tbody>
</table>

Note: Data is based on Indonesia’s Ministry of Manpower’s guidelines on the number of days lost for severe cases such as loss of body function (e.g., lost finger, broken leg, etc.); and not the actual days of absence or medical leave taken by the employee.

Palm oil production is a powerful engine for rural development and has the potential to raise millions out of poverty. Through the multiplier effects that the sector has created, the livelihoods of around 50 million people in Indonesia are directly or indirectly dependent upon palm oil and its derivatives. In tandem with generating significant revenues, the sector also contributes towards eradicating poverty and promoting economic growth in the country.

Musim Mas uses every means at our disposal to support rural communities including, but not limited to, providing jobs, basic amenities, medical services and education. Through long-term partnerships with communities and civil society organisations, we take to heart and work to address issues that are important to the communities in the areas where we operate. At every point of contact, we respect and uphold all human rights, including the rights of indigenous and local communities, families, and other tenure holders.

We also invest in building shared value that allows both our communities and our organisation to reap the benefits of sustainable palm oil production.

Throughout the FPIC process, we continuously try to achieve an optimal balance between community needs, the conservation of natural values, and economic benefits. There are currently no open or outstanding conflicts with communities in our existing operations.

Prior to any new development or expansion, participatory mapping is conducted to gather an understanding of social culture, land use, village boundaries, religious values and important issues for the community, including food security issues. This process involves direct participation from local communities. It includes focus group discussions and feeds into land-use plans. In 2018 we began and completed a participatory mapping exercise across all our operations in Sumatra and Kalimantan, covering 66 villages and communities. Even more is being done through our integrated HCV-HCSA assessments.

All information and proposed development plans are shared with local communities. Information is openly available, including impact assessments, proposed benefits and legal arrangements. This includes the identification and management of high conservation value (HCV) areas and high carbon stock (HCS) forests. It is important that Musim Mas maintain a constructive and mutual dialogue with all stakeholders to ensure open and transparent communication. All consultations between growers and millers and local communities are facilitated by a neutral third party. Potential community development projects always involve both village heads and villagers, and our standard operating procedures ensure we work at bilateral and joint consultative committee meetings. We maintain documentation of all negotiations concerning any compensation for loss of legal or customary rights, as well as all other complaints and grievances.

As part of our commitments to the HCBA and to be PODG-verified, we have been working on Integrated Conservation Land Use Plans (ICLUPs), which are management plans that integrate the findings of HCV, HCS, past areas and input from community consultations. As the HCSA Steering Group is still working on defining the ICLUP methodology, Musim Mas is taking an interim, precautionary approach by setting aside these areas, with the consensus of the local communities and input from relevant village heads or chiefs. We recognise that ICLUP should not be a one-off effort, but part of ongoing community engagement. Hence, conservation and land use planning have been integrated into our existing community programmes such as Fire Free Village Programme, HCV Management Programme, and other programmes (Kredit Koperasi Primer Anggota, our Village Development Programme, and our HCV management and monitoring protocol).
PROTECTING CHILDREN’S RIGHTS AND PROVIDING ADEQUATE EDUCATION

As at December 2018, there are 12,822 children below the age of 18 living on our plantations. As we believe that education is the key to development and better livelihoods, we provide free education for all employees’ children. Due to the geographical remoteness of plantation areas where families have limited alternatives, it is critical that the young children of parents who work at estates have access to childcare facilities. Musim Mas has established childcare centres at each estate and its services are available to the workers for free. This allows workers to tend to their work knowing that their children are provided with healthy and nurturing environments for their formative years and that their developmental needs are tended to. At the age of five or six, children start their formal education at kindergartens.

We have also built and funded nine schools within our plantations in Sumatra and Kalimantan. Rated as the top educational institutions in each of their respective regions, our schools provide elementary education to 5,148 children of Musim Mas employees and children from the surrounding communities. We also provide free transport for students who attend other neighbouring secondary schools. Beyond basic education, all students have access to computer classes and extra-curricular activities such as sport, music and leadership programmes. Through the Anwar Karim Foundation, we provided 6 scholarships in 2018 for underprivileged elementary students in support of equal education opportunities. In collaboration with Gerakan Nasional/Oang Tua Asih (GNOTA), Musim Mas also provides uniforms and books to students living in the communities surrounding our plantations every school year.

We are also active in programmes that involve sharing our best practices with other stakeholders to provide a better understanding of children’s rights at plantations. In 2018, Musim Mas spoke at clinic sessions in seminars organised by the RSPD to introduce the provisions of the Children’s Rights and Business Principles to all relevant stakeholders based in Indonesia. These sessions looked at findings and practices from a pilot project conducted between August 2017 and June 2018 at RSPD members’ oil palm plantations on respecting and protecting children’s rights. The key points discussed during the seminar centred around initiatives targeting maturation protection and breastfeeding, childcare, health and nutrition, water, sanitation and hygiene, access to education, child protection, child labour and young workers, as well as their impact on children living on plantations.

COMMUNITY HEALTH AND FOOD SECURITY

Musim Mas provides free healthcare to all workers and local communities through 25 medical centres. The service includes medical check-ups and routine vaccinations for infants. Supported by the Anwar Karim Foundation, free health programmes have also been established through polyclinics in Medan and Surabaya. To ensure that all employees and community members have access to the national health insurance plan, all medical centres also partner with Badan Penyelenggara Jaminan Sosial (BPJS) Kesahatan, the Indonesian Social Insurance Administration Organisation.

At each of our facilities, we have implemented various programmes to maintain and/or strengthen food security. Through these, we also strengthen the local’s food production system by diversifying its food source. Free food is provided to children under five through our integrated family planning service centre.

We also provide all our plantation workers with enough land to cultivate fruit and vegetables. As at 2018, the land area provided for this purpose totalled 19 hectares. We also require community members that sell land to the company to confirm that they have retained enough land to meet their own needs.

While some basic goods can be purchased at local stores, local communities depend on cultivation and garden produce to fulfill basic dietary needs and as a source of income. As part of our participatory mapping exercises, we assess current land-use patterns and identify potential garden plots and farmlands in concessions and surrounding community areas. The results of this mapping exercise are to be fine-tuned during the pilot stages. These units improve village food security as water bodies. These units improve village food security as there are limited alternatives, it is critical that the livelihoods of the underprivileged. The Foundation also supports national efforts to tackle the impact of natural disasters, such as despatching food and other necessities to the areas affected after the 2018 earthquake and tsunami in Sulawesi. Other community projects include the construction of wells, road repairs, medical aid, and financial assistance for local community projects. These programmes create employment and increase income levels across the communities we operate in.

Supporting systems to provide access to clean water

Access to clean water is limited in some parts of Indonesia. To address this issue, we frequently inspect employee housing and worker households as a source of staple food – like bananas and chilli – and also help reduce healthcare costs. Through these, we also strengthen the locale’s food production system by diversifying its food source. Free food is provided to children under five through our integrated family planning service centre.

One of the key concerns arising is the lack of access to safe drinking water. As at December 2018, 16 villages are part of the programme, six in Sumatra and ten in Kalimantan. In 2018, these villages generated a combined income of IDR 1.06 billion, which is about 15% higher than the income generated in 2017.

OTHER ONGOING CSR PROGRAMMES

In addition to our community programmes, we operate a long-standing outreach initiative through the Anwar Karim Foundation. The Foundation, Musim Mas, runs programmes that address needs like economic development, and community facilities and infrastructure.

In 2018, about 77% of CSR funding was allocated to Yayasan Anwar Karim (YAK) schools established for the children of Musim Mas staff. Each YAK school has 15 to 20 classrooms, and is equipped with support facilities such as computer labs, libraries, places of worship e.g. mosques, school clinics, canteens, and buses.

Other outreach initiatives include providing shelter for orphans and the elderly in Surabaya, and contributing to the livelihoods of the underprivileged. The Foundation also supports national efforts to tackle the impact of natural disasters, such as despatching food and other necessities to the areas affected after the 2018 earthquake and tsunami in Sulawesi. Other community projects include the construction of wells, road repairs, medical aid, and financial assistance for local community projects. These programmes create employment and increase income levels across the communities we operate in.

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Basic schematic of a Safe Water Garden unit

17 According to WHO, between 50 and 100 litres of water per person per day are needed to ensure that most basic needs are met and few health concerns arise. Source: United Nations, Office of the High Commissioner for Human Rights (OHCHR), United Nations Human Settlements Programme (UN-HABITAT), World Health Organization (WHO), (This) Right to Water, Fact Sheet No. 35. 2010. Available at https://www.un.org.

18 Palm oil and Chilli in Indonesia. Exploring the sector’s impact on children’s rights. UNICEF, 2016. Many toddlers in lower-income households feature a traditional soak pit – a porous-walled chamber that allows water to leach into the ground. As it would otherwise pollute groundwater or neighbouring water bodies. These units improve village food security as water bodies. These units improve village food security as there are limited alternatives, it is critical that the livelihoods of the underprivileged. The Foundation also supports national efforts to tackle the impact of natural disasters, such as despatching food and other necessities to the areas affected after the 2018 earthquake and tsunami in Sulawesi. Other community projects include the construction of wells, road repairs, medical aid, and financial assistance for local community projects. These programmes create employment and increase income levels across the communities we operate in.

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Engaging suppliers to drive change

Making a change with traceable and transparent operations

Our Sustainability Policy outlines NDPE commitments for our own operations, and extends to our third-party suppliers. Third-party suppliers represent 90% of our palm oil procurements. We invest significant resources in improving traceability and in supporting our suppliers to ensure their adherence to our Policy requirements. To drive real transformation on the ground and deliver the desired impacts, we recognise the crucial need for industry leaders to look beyond the immediate suppliers to the broader palm oil sector. We actively engage independent smallholders (supplying – or not – to our mills and our suppliers), in collaboration with other stakeholders, to increase their awareness of sustainability and improve their practices.

Our Policy Implementation Plan specifies how we aim to meet our 2020 goals, and articulates our strategy to achieve the desired impacts. This plan guides our approach to commitments made for our directly owned and managed operations, third-party suppliers, as well as broader landscape-level and industry-wide interventions. In early 2019, Musim Mas developed a phased approach to scale up our smallholder outreach. In September 2019, we also launched an NDPE Roadmap outlining our targets to support a responsible, deforestation- and exploitation-free supply base beyond 2020. This roadmap covers milestones pertaining to traceability, our engagement with supplier groups, impacts on primary and secondary supplier groups, and our smallholder outreach.

We will be revising our Sustainability Policy, articulating our aspirations and targets beyond 2020, with a special focus on group suppliers and independent smallholders.

Supply base overview (January to December 2018)

- **Certified supplier mills**: 598
- **Suppliers groups**: 263
- **No. of third party mills that source from Own Plantation**: 41%
- **No. of third party mills that source from Third-party Plantation**: 59%
- **Total volume sourced from supplier mills that come from Own Plantation**: 49%
- **Total volume sourced from supplier mills that come from Third-party Plantation**: 51%
- **CPO supply base**: 94% from Indonesia, 5% from Malaysia, 1% from other countries
- **Top supplying provinces**: 23% from Riau, 21% from North Sumatra, 12% from Central Kalimantan, 11% from South Sumatra, 6% from Aceh, 5% from West Kalimantan

<table>
<thead>
<tr>
<th>Type of Certification</th>
<th>No. of third party mills</th>
<th>Percentage of total number of third-party mills</th>
</tr>
</thead>
<tbody>
<tr>
<td>RSPO</td>
<td>136 (28 supplier groups)</td>
<td>23%</td>
</tr>
<tr>
<td>ISPO</td>
<td>197 (71 supplier groups)</td>
<td>33%</td>
</tr>
<tr>
<td>ISCC</td>
<td>67 (20 supplier groups)</td>
<td>10%</td>
</tr>
</tbody>
</table>
## Engaging suppliers to drive change

### NDPE Roadmap Towards a Responsible Supply Base Beyond 2020

**Category/Indicator** | September 2019 | December 2019 | December 2020 | December 2025
---|---|---|---|---
**Traceability**<sup>20</sup> milestones | Achieved 85% traceability to independent smallholders supplying to the Group’s mills | Trace 80% to the Group’s supply base of independent smallholders | Achieved 100% traceability to Musim Mas Group’s concessions as at 2015 | Trace 95% to supplier groups’ plantations
| Achieved 54% traceability to supplier groups’ plantations | Trace 80% to supplier groups’ plantations | Trace 100% to supplier groups’ plantations | Trace 80% to supplier groups’ plantations | Trace 60% to supplier groups’ plantations
| Trace 43% to supplier groups’ independent smallholders using risk-based traceability<sup>21</sup> | Trace 43% to supplier groups’ independent smallholders using risk-based traceability | Trace 95% to supplier groups’ independent smallholders using risk-based traceability | Trace 30% to supplier groups’ independent smallholders | Trace 30% to supplier groups’ independent smallholders

### Engagement with supplier groups

**Engagement with supplier groups** | Engaged 40% of supplier groups on NDPE | Engaged 60% of the supplier groups on NDPE | Engaged 90% of the supplier groups on NDPE | Engaged 80% of the supplier groups on NDPE
| Received commitment from 94% of supplier groups to abide by our NDPE principles | Receive commitment from 60% of the supplier groups to abide by NDPE principles | Receive commitment from 90% of the supplier groups to abide by NDPE principles | Receive commitment from 85% of the supplier groups to abide by NDPE principles
| Received completed SATs from 45% of the supplier groups | Ensure 45% of the supplier groups complete the SAT | Ensure 90% of the supplier groups complete the SAT | Ensure 80% of the supplier groups complete the SAT

### Primary supplier groups

**Primary supplier groups (100% of the Musim Mas supply base: 15% from plantations and 15% from smallholders)** | 100% of primary supplier groups are covered by a roadmap | Ensure 100% of primary supplier groups are covered by roadmap | Achieved | Achieved

### Outreach to smallholders

**Outreach to smallholders** | Engaged 22,391 independent smallholders under the Indonesia Palm Oil Development for Smallholders programme | Engaged 20,000 independent smallholders under the programme | Engaged 25,000 independent smallholders under the programme | Engage two supplier groups to adopt ESP at their mills<sup>22</sup> Achieved | Engage two supplier groups to adopt ESP at their mills

### Category/Indicator

**Secondary supplier groups**<sup>20</sup> | Received commitment from 52% of supplier groups to abide by our NDPE principles | Ensure secondary supplier groups making up 20% of total volumes are covered by a roadmap | Ensure 100% of secondary supplier groups are covered by a roadmap | Verify systems and processes put in place by secondary supplier groups making up 5% of total volume

To maintain our position as an industry leader, we are continuously strengthening our team to support and monitor our third-party supply chain, by dedicating more resources and identifying new tools, partners, and initiatives enabling us to progress.

In this report, we expand on the components within the Policy Implementation Plan, provide details on our progress and map out our planned activities to meet our 2020 targets. We also highlight the targets outlined in our NDPE Roadmap. Where possible, we share examples of best practices, challenges and lessons learnt from our efforts. To read about how we implement sustainability in our operations, see the sections on Our approach to sustainability, Promoting positive environmental impacts, and Social responsibility.

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<sup>20</sup> Unless otherwise stated, all traceability targets refer to the volume of CPOG traceable to plantation.

<sup>21</sup> Risk-based traceability is a Musim Mas approach to map smallholders’ villages against a landscape map and prioritize risk areas for traceability.

<sup>22</sup> We have revised this target to be supplier-focused instead of targeting the number of smallholders engaged. This is because we ultimately engage with smallholders through suppliers and smallholder numbers can vary between suppliers and agents.
Engaging suppliers to drive change

OUR APPROACH TO SUPPLIER ENGAGEMENT

Policy Implementation Approach
We believe in actively engaging our suppliers by providing them with the support they need to drive change and enhance their performance, thus moving them towards sustainable and responsible practices. We have categorised supplier engagement for the following groups:

1) Primary suppliers
2) Secondary suppliers
3) Independent smallholders

Out of the volume we procure, one third comes from primary suppliers (those who supply key volumes to Musim Mas and are typically large- or medium-sized companies), and two-thirds come from secondary suppliers (those who supply limited volumes to Musim Mas and are typically medium- or small-sized companies). About 40% of the total volume originates from smallholders.

We tailor our engagement approaches to help our suppliers on their sustainability journey. Each individual supplier has a different starting point to engagement, but the following outlines our engagement strategy:

Overview of supplier engagement process

- We conduct desktop research to develop supplier profile
- Supplier agrees to commit to our Sustainability Policy
- Supplier completes Self-Assessment Tool
- We develop customised roadmap for each supplier
- We verify supplier’s management systems and processes

Our suppliers have been made aware of and have pledged to uphold our NDPE commitments. In 2019, we have communicated more details on our Sustainability Policy and the practical implications of adhering to its commitments. We want to ensure that our suppliers and us are on the same path towards a responsible supply chain. To aid this process, our recently published NDPE Roadmap provides clear targets towards achieving a responsible supply base beyond 2020.

Tailored supplier roadmaps and progressive engagement

No two suppliers are the same. They vary in resources and are faced with obstacles that are unique to them and their surroundings. Therefore, it can be challenging to expect a standardised approach to supplier compliance with our NDPE policy. To address this issue, we have adopted a systematic and tailored approach to ensure that each supplier receives adequate attention that will enable them to work towards meeting our requirements, beginning with the identification of key material issues for each supplier.

Through desktop research using publicly available information and using information provided by our suppliers, we develop supplier profiles that outline the different stages of each supplier’s sustainability journey. These profiles detail company operations and potential sustainability risks, and provide entry points for the creation of roadmaps. Once engagement begins, suppliers must agree to comply with the main elements of our Sustainability Policy. We then engage and train suppliers to complete the Self-Assessment Tool (SAT), a means of self-declaring operational information against our sustainability indicators.

Throughout the engagement process, we maintain an open dialogue with suppliers, and progressively educate them on the components of the Policy. We seek to bridge any gap towards compliance through avenues such as workshops, the SAT and bilateral discussions. We also continuously seek feedback from suppliers to make our due diligence process more accessible.

Based on our desktop research and responses to the SAT, we would carry out a gap analysis of each supplier against our Policy commitments. In partnership with our suppliers and consultants, we then assemble tailored roadmaps with time-bound plans enabling each supplier to achieve the mutually agreed NDPE requirements. These roadmaps provide benchmarks and milestones that demonstrate suppliers’ compliance and allow us to monitor their progress.

In 2018, we initiated the process of assembling group-level supplier profiles. We began this undertaking for 23 supplier groups, or 8% of our supply base. As at September 2019, we have completed this exercise for 100% of the supplier groups currently supplying Musim Mas and this process is now part of the actions we take for all new engagements. As at September 2019, we have achieved our target of covering all primary supplier groups by roadmaps. We aim to have secondary suppliers making up 20% of total supply base volumes covered by roadmaps by 2020, and 100% by 2025.

NDPE ROADMAP: SUPPLIER ENGAGEMENT ACHIEVEMENTS AS AT 30 SEPTEMBER 2019

<table>
<thead>
<tr>
<th>End target</th>
<th>Achievements as at 30 September 2019</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engage 50% of supplier groups on NDPE by December 2025</td>
<td>Engaged 40% of supplier groups on NDPE</td>
</tr>
<tr>
<td>Receive commitment from 90% of supplier groups to abide by NDPE principles by December 2025</td>
<td>Received commitment from 54% of supplier groups to abide by NDPE principles</td>
</tr>
<tr>
<td>Ensure that 50% of the supplier groups complete the SAT by December 2020</td>
<td>Received completed SATs from 45% of supplier groups – December 2019 target achieved</td>
</tr>
<tr>
<td>Ensure that 100% of primary supplier groups are covered by a roadmap by December 2019</td>
<td>100% of primary supplier groups are covered by a roadmap – Target achieved</td>
</tr>
</tbody>
</table>
Engaging suppliers to drive change

1. ENGAGING SUPPLIERS
   As of September 2019, 40% of our supply base has successfully been engaged on NDPE. Our suppliers have undergone training, including on our SAT and grievance process. Our target is to engage and receive a firm commitment to our Sustainability Policy implementation from 60% of our suppliers by December 2019, 80% by December 2020, and 90% by the end of 2025.

   Workshops are the mainstay of our programme. It is an opportunity for our supplier engagement team to communicate the key point of our Sustainability Policy, and to engage in interactive sessions. The main items discussed are:
   - Environment – protecting HCD areas and HCS forests, no burning, protecting peatlands including applying best management practices.
   - Governance – adhering to required national and local laws and regulations and conducting business ethically that is free from corruption or bribery.
   - Workplace human rights – including zero tolerance for child and forced labour, implementing proper policies and practices to prevent harassment and discrimination, and to have in place measures for safe and healthy work environments for employees.
   - Community rights and social issues – socialising the concept of Free, Prior and Informed Consent (FPIC) where operations may affect the rights of indigenous people and local communities and how to be fair and inclusive of smallholders and outgrowers in the supply chain.
   - Traceability – achieving traceability to plantation within the supply chain, using the risk-based approach.
   - SAT – teaching suppliers how to understand, fill-in and submit our SAT form.
   - Certification – recognising that certification may not always be feasible for suppliers in the short-term, we encourage our suppliers to achieve certification, and assist them wherever possible.

   For more detail, see our Sustainability Policy.

From January to September 2019, three workshops have been carried out for 28% of 285 supplier groups24. Participation in the workshops has been high and active. The direct engagement between our suppliers and our teams is valuable to both sides, increasing the knowledge of our suppliers and our understanding of where success and challenges lie. We have two more workshops planned in Q4 2019. To meet our NDPE Roadmap commitments, we will continue building capacity not just through supplier workshops, but will also hold focus group discussions to assist suppliers with limited capacity in developing their roadmaps.

2. SUPPLIER COMMITMENT
   In 2018, we drafted an agreement letter between Musim Mas and our suppliers that provides a written statement of their adherence to our Sustainability Policy, and also indicates their implementation of sustainable best management practices to the best of their ability, all the while allowing our team to verify the systems and processes that they have put into place in accordance with the roadmaps.

   As of September 2019, we have received commitments from 54% of all suppliers towards a goal of 60% by the end of 2019. We are aiming to secure commitments from 80% of supplier groups by December 2020, and from 90% of suppliers by December 2025.

3. SELF-ASSESSMENT TOOL
   In 2018, we developed the Musim Mas Self-Assessment Tool (SAT) that allows suppliers to self-declare information about their operations and identify potential risk areas at the mill level. As at September 2019, 45% of our supplier groups have completed their self-evaluations, achieving our December 2019 target ahead of schedule. We will continue working towards having 90% of all supplier groups reporting their SATs by 2020.

   From January to September 2019, we have identified 610 third party mills under 285 supplier groups25.

   Three-party verification refers to verifications carried out by an organisation independent of the supplier and Musim Mas with whom it has no vested interest in either parties’ operations, ensuring the credibility of the assessments.

   24 Musim Mas adopts a supply-shed approach to identify high-risk mills, and does not consider all mills in a particular landscape to be high risk, unless those who represent 100% by the end of 2025.

   25 Musim Mas engages third party consultants to verify the performance of all high-risk mills against our policy commitments, in specific landscapes. The verification highlights gaps and challenges that mills may face towards being compliant with our NDPE commitments. It also helps us identify the engagement strategy to adopt for the priority landscapes, through understanding the common and broader sustainability challenges for those landscapes.

4. CUSTOMISED ROADMAPS
   Based on our desktop research and remote monitoring, we develop Group-level supplier profiles that detail our suppliers’ operations and outline potential sustainability risks. These profiles, coupled with our SATs, help us identify the entry points on each of our suppliers’ roadmaps.

   As individual suppliers are generally at different stages in their sustainability journeys, each of their entry points, action plans and associated timelines varies. We therefore develop a customised roadmap with implementation milestones for each supplier, which serves as the basis of our engagement efforts and provides the framework for a time-bound plan demonstrating their compliance to our Policy provisions.

   We have achieved our December 2019 target of ensuring that 100% of primary supplier groups are covered by a roadmap. We will begin the process for secondary suppliers in 2020 and are aiming to cover those who represent 20% of total volumes by the end of 2020 and those who represent 100% by the end of 2025.

5. SUPPLIER VERIFICATION
   Since 2016, we have engaged third party consultants to perform the verification of all high-risk mills against our policy commitments, in specific landscapes. The mills assessed may not necessarily supply Musim Mas but is representative of the Group’s supply base within the high-risk areas. The verification activities

   We review the recommendations from the verifier and evaluate those that could be best addressed by the supplier, and those that would be better implemented through collaboration with existing landscape-level initiatives implemented by civil society organisations (CSOs) or the Indonesian government. Assessments have been completed for a total of 20 mills from 2016 to 2018 in critical landscapes, namely Riau, South Sumatra and Central Kalimantan, and is representative of the 46 mills that supply to Musim Mas within these areas.

   Using this information, in 2020, we will begin group-level verification of the systems and processes that our suppliers have implemented according to their roadmaps to meet the commitments they have made. Previously we targeted the verification of a specific number of primary supplier groups, but this has been revised to reflect percentages to track progress more meaningfully. Our target is now to verify 10% of our primary supplier groups and secondary supplier groups who make up 5% of total volumes by December 2020.

   24 Third-party verification refers to verifications carried out by an organisation independent of the supplier and Musim Mas with whom it has no vested interest in either parties’ operations, ensuring the credibility of the assessments.

   25 Musim Mas adopts a supply-shed approach to identify high-risk mills, and does not consider all mills in a particular landscape to be high risk, unless they are located in areas with landscape characteristics such as the existence of protected nature reserves or highly biodiverse zones.

Engaging suppliers to drive change

Aside from active engagement, our team also carries out remote monitoring of suppliers’ concessions via satellite imagery for evidence of deforestation, be it land-clearing or fire. Since 2018, we have a partnership with AidEnvironment to augment our monitoring work. If any activity is detected, Musim Mas is alerted, and we engage our suppliers to verify the possibility of potential breach of our Sustainability Policy.

Our sustainability team also stays current with all issues through active media monitoring on sustainability issues related to our suppliers. In 2018, we recorded 255 media mentions related to our suppliers, of which 124 were positive. These mentions were collected via platforms such as Chain Reaction Research, Mongabay, Forests and Infaust, and highlighted topics pertaining to sustainability, legality, social issues, labour and the environment. We continue to monitor issues and address them with our suppliers through engagement.

TRACEABLE SUPPLY CHAIN

Our efforts are geared towards achieving full traceability to plantation. As of December 2018, 80% of CPO is traceable to plantation for our operations, while 56% traceability has been achieved for our total supply base (own operations and third-party suppliers). For independent smallholders that supply our mills, we can trace 85% of the CPO to plantation level as of September 2019, surpassing our December 2019 target of 80%. We aim to achieve 100% traceability by the end of 2020.

From January to December 2018, we have identified 598 individual third-party mills that belong to 263 parent companies. 94% of our third-party supply base comes from Indonesia, 5% comes from Malaysia, and less than 1% comes from other countries. As of September 2019, we can trace 54% of CPO originating in supplier groups’ plantations, targeting 60% traceability by the end of 2019, 80% by December 2020 and 100% by December 2025. To achieve these targets, we will continue to pursue our efforts to assist our suppliers’ mapping and traceability activities.

Ideally, we would like to trace all the CPO that comes from fresh fruit bunches (FFB) back to the plantation and to the individual smallholders. One method we have used to address this is engaging with key suppliers at the group level, creating an avenue to receive information from their suppliers, as well as independent smallholders.

Early in our traceability journey, we realised the main challenge is about independent smallholders who may also sell FFB through local agents. Their numbers, small size, as well as lack of reliable land titles or of a village-level land register are stumbling blocks for traceability. To tackle these obstacles, we developed an approach to map smallholders’ villages in a landscape corresponding to a mill’s supply shed and prioritise risk areas. This risk-based traceability methodology is approximately three times faster to implement and costs about 13 times less than a full field accounting, which is labour-intensive and requires frequent updates. The main advantage of this traceability approach is that it focuses on the areas most at risk of deforestation. Halting deforestation is an overarching priority.

Using this “risk-based traceability” approach, we aim to trace 30% of CPO from independent smallholders that sell to our supplier groups by the end of 2019 and are raising this target to 43% by 2020, and 95% by 2025.

Lists of our CPO and PK suppliers, as well as our third-party suppliers’ GPS coordinates have been made available since 2018 on the Musim Mas website and can be accessed at http://www.musimmas.com/sustainability/traceable-supply-chain/supply-chain-map.

ENCOURAGING SUPPLIERS TO PUBLISH DATA ONLINE

It is the Group’s current practice to make all wholly owned and subsidiaries’ concession maps publicly available through online platforms. In September 2018, Musim Mas joined industry peers in making a joint appeal to third-party supplier groups to adopt the same practice. We also support initiatives to ensure full transparency in the palm oil supply chain.

A transparent supply chain will enable us to more efficiently monitor suppliers’ efforts to ensure compliance with our Sustainability Policy and address environmental and social risks. Since we define our third-party suppliers at the group level i.e. palm oil companies with related ownership, we also approach them at the group level to support them in improving their management systems. Defining “group” ownership can sometimes be complicated, in particular for family-owned companies. When assessing relationships between companies, we review all information available to us, starting from what is shared by our suppliers. In specific cases, for example of small, crossed shareholding due to family ties, we can also take into consideration the principle of “arm’s length” (the companies must demonstrate they operate independently of each other in all aspects).

NDPE ROADMAP: TRACEABILITY ACHIEVEMENTS AS AT 30 SEPTEMBER 2019

<table>
<thead>
<tr>
<th>Metric</th>
<th>Target</th>
<th>Achievement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trace 100% to Musim Mas Group’s supply base of independent smallholders by December 2020</td>
<td>Achieved 85% traceability to Group’s supply base of independent smallholders – December 2019 target achieved (80%)</td>
<td></td>
</tr>
<tr>
<td>Trace 97% to supplier groups’ plantations by December 2020</td>
<td>Achieved 54% traceability to supplier groups’ plantations</td>
<td></td>
</tr>
</tbody>
</table>

Note: Unless otherwise stated, all traceability targets refer to the volume of CPO traceable to plantation.

Risk-based traceability approach

1. Musim Mas and our suppliers’ traceability team gathers data from agent/CO holder – who the suppliers are and where they came from, down to the village level.
2. Musim Mas traceability team maps location of villages around each mill in supply chain.
3. The villages are mapped against protected areas and nature reserves. Villages that overlap with protected areas are prioritised as high-risk areas.
4. FFB originating from the high-risk areas will be rejected at Musim Mas and our suppliers’ mills (or from agents/trucks supplying from those areas).

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Engaging suppliers to drive change

GRIEVANCES

Guided by international standards that include the UN Guiding Principles on Business and Human Rights, our grievance mechanism empowers internal and external stakeholders to report concerns about our operations and our supply chain. Our grievance mechanism is an integrated one that incorporates our Controlled Purchase Protocol, which in turn enables us to set up incentives for third-party suppliers based on their progress in resolving specific grievances.

We provide access to independent expert advice for the affected parties and maintain a list of experts at all our operations, including in independent legal and technical experts and local government and community representatives. Our grievance process obliges us to respect and protect the anonymity of the complainants to prevent any potential conflict or reprisal. Stakeholders may provide information anonymously using a form on our website, by e-mail, phone text, phone call or in writing. We communicate the availability of these complaints channels on signs at our plantations and mills.

Internal grievances

We have implemented a site-level grievance mechanism for internal complaints to ensure that employees and workers have access to a transparent and accountable avenue for addressing grievances without fear of reprisal or dismissal. Incorporated into this mechanism is our whistle-blowing policy, which is communicated to all employees. For more information on our internal grievance procedures and how they are addressed, see page 46.

External grievances

We make public our external grievances, which are divided into two main categories: compliance grievances and dispute grievances. Compliance grievances may involve breaches of our Sustainability Policy, the RSPO Standards and/or the Palm Oil Innovation Group (POIG) Charter. Dispute grievances may involve conflicts between two or more parties. Under each of these categories, grievances are further divided into complaints against Musim Mas and complaints against our third-party suppliers. The category under which each grievance is filed determines the approach we use to assess it.

For open complaint cases within the RSPO related to our suppliers, we respect and refer to the RSPO Complaints Panel processes.\(^\text{27}\) We look forward to improvements of the RSPO Complaints system, bringing more transparency in the monitoring of action plans.

A full list of grievances submitted by external parties, as well as details about each case, is available at: http://www.musimmas.com/sustainability/grievance/grievance-list. We are continuously looking for ways to make our grievance reporting more comprehensive to ensure stakeholders remain informed and welcome any feedback for improvement.

Since 2015, a total of 41 complaints have been submitted by external stakeholders through our grievance mechanism. The majority of these cases have concerned deforestation, but a few of these have also focused on social conflict. All cases received thus far, except for one, were complaints against our third-party suppliers. The case directly relating to Musim Mas was filed in 2017 and closed in 2018.

In 2018 alone, six grievances were filed against third-party suppliers, and all pertained to concerns around deforestation and/or development on peat. Three of these have been closed to date, and we are working diligently to address the remaining open cases. In 2019, as at September, six new complaints have been filed: three about deforestation and three about peat clearance. No matter the circumstance, we endeavour to address and provide updates on all open cases within three months of the filing of a grievance.

We share our stakeholders’ concerns that our third-party suppliers need to adhere to the commitments laid out in our Sustainability Policy, especially to the rules about committing to transparent milestones in their transformation efforts. We take breaches of the Policy and continued non-activity seriously, and both can lead to a cessation of business relations. We recognise, however, that in some instances, our influence can be limited if we act alone and, for this reason, we try to work with other buyers to push for transformation on the ground.

In cases where we do suspend business activities with suppliers, we continuously work with them to remain updated on progress in open cases, and to provide support in finding tailored solutions and developing action plans to resolve the grievances. Read more on how we manage Policy breaches on the next page.

For open complaint cases within the RSPO related to our suppliers, we respect and refer to the RSPO Complaints Panel processes.\(^\text{27}\) We look forward to improvements of the RSPO Complaints system, bringing more transparency in the monitoring of action plans.

A full list of grievances submitted by external parties, as well as details about each case, is available at: http://www.musimmas.com/sustainability/grievance/grievance-list. We are continuously looking for ways to make our grievance reporting more comprehensive to ensure stakeholders remain informed and welcome any feedback for improvement.

Managing Policy Breaches

Policy Implementation Approach

We shall not knowingly source from suppliers who refuse to comply with our policy commitments or are found to be in breach of our Sustainability Policy. Should any incidents be uncovered, we will take the following steps:

1) Engage with the supplier
2) Initiate a grievance procedure
3) Activate our Controlled Purchase Protocol (CPP)

Building on our Policy Implementation Plan, the revised CPP includes the requirement for a stop-work order in selected cases. If the supplier has no intention of working towards a resolution, Musim Mas will issue a ‘cessation of business’ notification.

For those who demonstrate their intent to change with us, we have established the Controlled Purchase Protocol (CPP), a systematic process linking grievance resolution milestones to target-driven purchases. Established in 2015, the CPP is based on conditional progress, and is not a guarantee that full, pre-grievance purchasing will resume, as the ‘cessation of business’ remains a possibility until all set conditions are fulfilled.

The following principles guide our CPP:

1. Willingness to engage: The supplier shows intent and a willingness to engage in further understanding and addressing the root cause of the grievance.
2. Positivity to act: The supplier allocates adequate resources towards addressing the grievance and demonstrates commitment from the highest management level.
3. Demonstrating progress: The supplier issues progress reports that prove action has been taken towards achieving the agreed-upon milestones and criteria.

Supplier Engagement Through the CPP

The CPP allows Musim Mas to link the management of grievances to the way we conduct business with our suppliers. Our approach to supplier engagement encompasses three main workstreams:

1. Grievance Management: Our grievance procedure outlines our process for managing grievances, this automatically results in the cessation of business relations with the supplier. For more on grievances, see page 60.
2. CPP: The CPP describes how we link the progressive resolution of grievances to a gradual resumption of business. Suppliers only exit the CPP process once they have met and implemented all conditions resolving the complaint.
3. Supplier Engagement: Continuous monitoring of suppliers is essential to ensuring overall group-level progress towards our NDPE policy compliance and to proactively safeguard against major NDPE violations within our supply chain. We support our suppliers’ engagement through regular meetings, workshops and direct support for the drafting and reviewing of critical documents.

Musim Mas does not knowingly source from suppliers who refuse to comply with our policy commitments or are found to be in breach of our Sustainability Policy. Yet immediate cessation of business (“suspension”) is not the best solution to transform the supply base. Our experience has demonstrated that maintaining engagement with our suppliers goes a long way in seeking behavioural change and for a powerful relationship with our suppliers – the type that can be trusted to endure and to transform business practices.

We believe in building long-lasting relationships with our suppliers. The buying and selling of palm oil are the most concrete expressions of these relationships and are crucial for the implementation of our commitments. We engage actively with all our suppliers, promote open exchanges and stand by suppliers who demonstrate their willingness to participate and work towards a sustainable palm oil industry. In cases where suppliers are proven to have committed egregious violations of our policies and commitments, show no intention of changing or fail to deliver on agreed-upon improvements, they will be subject to a ‘cessation of business’ notification.
Engaging suppliers to drive change

How the CPP functions within the grievance procedure and supplier monitoring

**SUPPLIER ENGAGEMENT**

- Normal Business Relations
  - Unrestricted volumes traded
    - Regular monitoring of existing suppliers, including roadmap, remediation action plans
    - New suppliers admitted after successful screening/due diligence

**GRIEVANCE PROCEDURE**

- Grievance raised related to breaches of MUSIM MAS NDPE commitments
  - MUSIM MAS grievance procedure
  - Public campaigns
  - Monitoring through specialised platforms

- Confirmation of information
  - Internal analysis
  - Supplier engagement
  - Stakeholder engagement

- Confirmed grievance

- Critical grievances
  - New deforestation/new development on peatland
  - Critical legal violation
  - Withdrawal/termination of RSPO membership

- Cessation of grievance

- Poor supplier progress
  - Reduced volumes
- Continued supplier progress
  - Increased volumes

- CPP components completed
  - All criteria/milestones are implemented

**CPP PROCESS**

- Enter controlled purchase protocol (CPP) process

- Grievance resolution plan development
  - Engagement & discussion with supplier
  - Specific volume purchases linked with agreed criteria/milestones for demonstrating progress

- Monitoring implementation
  - Of grievance resolution plan

- Repeated failure to meet agreed milestones

**REVISED CONTROLLED PURCHASE PROTOCOL**

The CPP formalises our approach towards suppliers who are allegedly involved in deforestation, development on peat, or exploitation issues and the revised version will come into force in January 2020. Suppliers who have been proven to engage in these activities will automatically be subject to the Protocol, at the group level.

Activated after a grievance has been raised and verified, the CPP links resolution milestones to purchase volumes. All purchases from a supplier will be put on hold unless they meet certain conditions and resolve the specified issues. The Protocol is designed to motivate suppliers to engage positively with us, for example, by allocating time and resources towards the resolution of a grievance, by demonstrating their commitment to an action plan, or by making progress towards the agreed-upon milestones.

- Ceasing business relations
  - A ‘cessation of business’ notification will be issued in the following situations:
    1. Critical grievances:
       - Verified cases of new deforestation/new development on peatland: Cases of new deforestation and new development on peatland that have been verified by the findings of third-party platforms and have been confirmed through an internal verification.
       - Critical legal violations: Verified and confirmed cases of severe human or labour rights abuse, including the systemic use of child or forced labour, and any sentence or order pronounced by a court in the supplier group’s country of jurisdiction demonstrating a breach of our NDPE commitments. Where necessary, Musim Mas will conduct an internal verification of the case and/or seek support from third-party experts. This process might require some time, during which new purchases will not be possible.
       - Termination or withdrawal of RSPO membership: Once made public, the termination of the RSPO membership of one of our suppliers will be considered a critical grievance and will lead to a cessation of business. The self-withdrawal of RSPO membership will also be considered as a critical grievance, except if it is endorsed by the RSPO, so that self-withdrawal cannot be used to avoid a sanction from the RSPO. This rule will equally apply to our customers who are RSPO members. Termination of RSPO membership of one of our customers will lead to a cessation of business.

- Unwillingness to engage
  - The supplier fails to allocate adequate resources towards addressing the grievance and cannot demonstrate commitment from the highest management level.

- Poor supplier performance
  - The cessation of business will occur should a supplier repeatedly and consistently fail to achieve the milestones and meet the criteria specified within the resolution plan that was developed jointly with Musim Mas and was agreed upon by the supplier.

As at September 2019, we have ceased sourcing from a total of 14 suppliers due to non-compliance.

**STAKEHOLDER COLLABORATION AND ENGAGEMENT**

A sustainability policy is only as effective as its implementation. This is why we continuously invest significant time and resources to understand and plan how both internal and external stakeholders can implement our sustainability commitments. We work closely with industry experts and our consultants – such as AidEnvironment, Daemeter and Proforest – to fine-tune our engagement with suppliers.

We work with industry peers, civil societies, customers and local governments on (i) landscape initiatives and (ii) industry approaches. Through these approaches we ensure we are active contributors to transforming the wider palm oil industry.

Musim Mas has identified four priority landscapes, based on their importance to our supply base, or for their situation in terms of deforestation risk:
- Aceh Tamiang, Aceh
- Musi Banyuasin, South Sumatra.
- Siak and Pelalawan, Riau.
- Sambas, West Kalimantan.

**STAKEHOLDER COLLABORATION AND ENGAGEMENT**

Engaging suppliers to drive change

- Normal Business Relations
  - Unrestricted volumes traded
    - Regular monitoring of existing suppliers, including roadmap, remediation action plans
    - New suppliers admitted after successful screening/due diligence
Engaging suppliers to drive change

Policy Implementation Approach
It is essential to contribute to the transformation of the wider palm oil industry to complement our policy implementation. We approach this strategy through:

1. Landscape initiatives
2. Industry approaches

We will also draw on our experience and knowledge to support the Indonesian government with additional perspectives from the private sector.

Independent smallholders make up approximately 40% of Indonesia’s total palm oil production each year. By 2030, smallholder farmers account for roughly 40% on working with these stakeholders to drive change in the industry.

WORKING WITH SMALLHOLDERS
Smallholder farmers account for roughly 40% of Indonesia’s total palm oil production each year. By 2030, they are expected to manage 60% of all palm plantings.28

Smallholders have a pivotal role to play in the implementation of our Sustainability Policy to achieve our business goals. We recognise our corporate responsibility to empower smallholders to improve their sustainability practices, livelihoods, and access to the growing sustainable palm oil market. See page 47 to read about the work we do with communities.

We support both scheme and independent smallholders through tailored programmes and initiatives.

Scheme smallholders
We reach out to our scheme smallholders in two ways. One is through our smallholder cooperative Koperasi Perum Perhutani (KKPA), tailored to families that own a plantation. The other is through our Village Development Programme (VDP), a community-based approach designed for villages that collectively manage plantations. Both programmes were initiated voluntarily, well before the 2007 establishment of Indonesian regulations requiring companies to facilitate the creation of plasma smallholder schemes for the benefit of surrounding communities.

The KKPA is tailored to family units who own two hectares of land or less, and provides smallholders with practical support, including bank loan guarantees, agricultural training, and the transfer of quality seeds and fertilisers. Launched with 762 smallholders in 1996, the KKPA now comprises 2,423 smallholders cultivating a total planted area of 4,624 hectares as at 31 December 2018, inclusive of the smallholders under the VDP. The smallholders under the KKPA scheme in PT Agrowiratama achieved compliance with the RSPO certification requirements in 2010, making it the first smallholder scheme in Indonesia to meet the criteria of the Indonesian National Interpretation of the RSPO Principles and Criteria.

The KKPA scheme continues to increase in both productivity and income, although total income for 2018 was inevitably affected by the depressed global CPO prices.

SCHEME SMALLHOLDER FFB PRODUCTION AND INCOME

<table>
<thead>
<tr>
<th>Year</th>
<th>Production (MT)</th>
<th>Income (billion IDR)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2015</td>
<td>92,162</td>
<td>85.68</td>
</tr>
<tr>
<td>2016</td>
<td>87,510</td>
<td>98.55</td>
</tr>
<tr>
<td>2017</td>
<td>101,845</td>
<td>127.83</td>
</tr>
<tr>
<td>2018</td>
<td>110,039</td>
<td>112.17</td>
</tr>
</tbody>
</table>

For information on the Village Development Programme, see page 48.

Independent smallholders
We support independent smallholders that supply to both our own and third-party mills through multiple projects and initiatives. While all FFB harvested by scheme smallholders is purchased by the Group, independent smallholders are not bound to any specific mill and are free to sell FFB to the highest bidder.

As their operations are of a relatively smaller scale (typically with a planted area of below 25 hectares), independent smallholders tend to be disadvantaged by limited financial resources and limited access to technology and best operational procedures, resulting in low yields and unsustainable practices that make it difficult and costly for them to achieve RSPO or ISPO certification.

For our work in a free market and can sell to the buyer of their choice. However, they usually face barriers to entering the sustainable palm oil market, despite competitive prices. Unfortunately, smallholders who do not wish to or are unable to prioritise sustainable production may end up selling their FFB to the ‘leakage market’ thereby contributing to the growth of a less sustainable supply and market.

To address these obstacles, we work closely with independent smallholders through partnership programmes and initiatives to help them bridge the gap between current practices and those that are more efficient and sustainable. To ensure our engagement continues creating positive impacts across the industry, Musim Mas has developed a three-phased approach to scale up our smallholder efforts.

INDONESIAN PALM OIL DEVELOPMENT FOR SMALLHOLDERS PROGRAMME
A 2014 baseline study by the International Finance Corporation (IFC) found that 97% of smallholders had not received formal farming training recently, that 99% are unaware of sustainability certifications, and that the majority face issues with formal land certificates. The study also revealed that smallholders are employing archaic or inefficient methods of farming, resulting in a productivity rate lower than companies.

Musim Mas and IFC launched the Indonesian Palm Oil Development for Smallholders programme in 2015. The programme supports independent smallholders in meeting the same efficient farming standards as industrial plantations and empowers smallholders to produce sustainably. This programme provides agronomic training, financial support and access to global markets. We also educate smallholders on legal requirements, such as terminating all use of parajat and good agricultural practices. These components are designed so that smallholders can work towards compliance with our NDPE policy.

NDPE ROADMAP: INDEPENDENT SMALLHOLDER ACHIEVEMENTS AS AT 30 SEPTEMBER 2019

<table>
<thead>
<tr>
<th>End target</th>
<th>Achievements as at 30 September 2019</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engage 25,000 independent smallholders under the Indonesian Palm Oil Development for Smallholders programme</td>
<td>Engaged 22,391 independent smallholders under the Indonesian Palm Oil Development for Smallholders programme</td>
</tr>
<tr>
<td>Engage five supplier groups to adopt the Extension Services Programme (ESP) at their mills</td>
<td>Engaged two supplier groups to begin the ESP at their mills – December 2019 target achieved</td>
</tr>
</tbody>
</table>

28 Palm Oil:AnAgribusinessStrategyPolicyInitiative (PAKRI), Source: Presentation by Prof. Dr. B. Burganegara, N. E., PAKRI, last accessed 03 October 2019.

Locations of Musim Mas scheme and independent smallholder programmes

![Map of locations](Image)

NDPE ROADMAP: INDEPENDENT SMALLHOLDER ACHIEVEMENTS AS AT 30 SEPTEMBER 2019

<table>
<thead>
<tr>
<th>End target</th>
<th>Achievements as at 30 September 2019</th>
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</tr>
</tbody>
</table>
Engaging suppliers to drive change

Training modules for independent smallholders under the programme

EXTENSION SERVICES PROGRAMME

We understand that a majority of our third-party suppliers lack the sustainability knowledge, skills and resources to meet our NDPE commitments. To set them on their certified sustainable palm oil journey, Musim Mas decided to apply what we have learnt from the Indonesian Palm Oil Development for Smallholders programme to the independent smallholders who sell to our third-party suppliers.

In July 2017, the Musim Mas Extension Services Programme (ESP) was launched. The curriculum of ESP mirrors that of the IFC programme, with a strong emphasis on good agricultural practices to assist independent smallholders in improving their yields.

The ESP combines on-field training with informal theory sessions. Field assistants follow up with one-on-one sessions to tailor the programme to each smallholder's needs, as every smallholder is at a different farming stage and relies on different farming materials.

As at September 2019, 22,391 smallholders have been engaged under this programme, exceeding our target to reach 20,000 smallholders by the end of 2019. This programme is structured on a regional basis, hence our outreach has extended beyond our supply base of independent smallholders, roughly by 48%. Through this engagement, we are building the capacity of 2,000 smallholders to achieve RSPO certification by 2020 in North Sumatra and Riau. We are on track to achieving this target with over 700 having undergone RSPO auditing as of September 2019.

In May 2019, independent smallholders around our PT Mandiri Labuhanbatu mandiri (MLB) successful formation of a farmer association, independent smallholders. This was achieved via the Sawit Agency (Indonesian Government’s Palm Oil Fund Management Agency’s Indonesian Palm Oil Development for Smallholders programme with IFC for smallholders associated with our own mills.

We have therefore developed a strategy for different ways to scale up smallholder programmes to increase their magnitude and reach:

1. The presence of a neutral party can help accelerate and facilitate engagements.
2. Consolidated effort is needed to prevent overlapping smallholder programmes and engagement fatigue experienced by smallholders and suppliers.
3. Scaling up the smallholder programme geographically encourages holistic planning for the livelihoods of smallholders and the community.

We have therefore developed a strategy for different ways to scale up smallholder programmes to increase their magnitude and reach:

1. Consolidated effort is needed to prevent overlapping smallholder programmes and engagement fatigue experienced by smallholders and suppliers.
2. Scoping up the smallholder programme geographically encourages holistic planning for the livelihoods of smallholders and the community.
Engaging suppliers to drive change

Smallholder Hubs
We are working to establish Smallholder Hubs that will serve as a common platform where palm oil companies can pool resources and share their expertise to train independent smallholders regardless of whom they sell to, within a specific district. Musim Mas is currently in talks with NGOs to discuss how the Smallholder Hub concept can be integrated into their existing multi-stakeholder programmes, which would involve government and private sector collaboration at the district level.

Ultimately, we acknowledge the limitations of what a single company can do to address NDPE concerns. We are wary of the delicate balance between economic prosperity, developing the community and conserving the environment. Therefore, to make Smallholder Hubs a reality, we are working with stakeholders who share common goals, including provincial governments, government departments, buyers, NGOs and civil society organisations (CSOs), growers, mills, consultants and, of course, smallholders.

Landscape initiatives
Concurrent with our vision to establish and benefit from Smallholder Hubs, we are also involved in projects that target specific geographic areas, provinces and landscapes that are deemed to be of high risk.29 The four priority landscapes are Aceh Tamaring (Aceh), Musi Banyuasin (South Sumatra), Siak and Pelalawan (Riau), Sambas (West Kalimantan).

Identifying priority landscapes forms part of our approach to engaging with third-party suppliers, but is also key to our strategy for forming and participating in collaborative initiatives with key stakeholders. These landscape projects, which involve working with peer companies, NGOs, CSOs and the government, create an interesting dynamic where competing companies band together to develop and implement projects that generate long-term change on the ground.

We initially targeted engagement with the stakeholders in each of these priority areas through multi-stakeholder initiatives by 2020, but were able to formalise these initiatives in 2019 due to the support of the industry and local actors.

Independent smallholders trained under the Indonesian Palm Oil Development for Smallholders programme (as at September 2019)

<table>
<thead>
<tr>
<th>Province</th>
<th>District</th>
<th>Musim Mas’ mill</th>
<th>Mill name</th>
<th>Start date</th>
<th>No. of smallholders trained</th>
<th>Estimated total no. of smallholders</th>
</tr>
</thead>
<tbody>
<tr>
<td>North Sumatra</td>
<td>Riau</td>
<td>PT Selingango</td>
<td>April 2015</td>
<td>7,844</td>
<td>6,000</td>
<td></td>
</tr>
<tr>
<td>Riau</td>
<td>Pelabawan</td>
<td>PT Sinar Agro Raya</td>
<td>Oct 2016</td>
<td>4,072</td>
<td>5,300</td>
<td></td>
</tr>
<tr>
<td>Riau</td>
<td>Rokan Hilir</td>
<td>PT Bahana Nusa</td>
<td>Oct 2016</td>
<td>5,284</td>
<td>4,900</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Rokan Hulu</td>
<td>PT Indomakmur Sawit</td>
<td>Dec 2016</td>
<td>5,091</td>
<td>4,900</td>
<td></td>
</tr>
</tbody>
</table>

Independent smallholders trained under ESP (as at September 2019)

<table>
<thead>
<tr>
<th>Province</th>
<th>District</th>
<th>Musim Mas’ mill</th>
<th>Mill name</th>
<th>Start date</th>
<th>No. of smallholders trained</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aceh</td>
<td>Aceh Tamiring</td>
<td>PT Pati Sang</td>
<td>April 2018</td>
<td>3,187</td>
<td></td>
</tr>
<tr>
<td>Riau</td>
<td>Indragiri Hilir</td>
<td>PT Erintung Idamkara</td>
<td>Dec 2018</td>
<td>319</td>
<td></td>
</tr>
<tr>
<td>Central Kalimantan</td>
<td>Kelairan</td>
<td>PT Multiparada Garangan</td>
<td>Apr 2019</td>
<td>136</td>
<td></td>
</tr>
<tr>
<td>South Sumatra</td>
<td>Musi Banyuasin</td>
<td>PT Bantar Olah Sawit</td>
<td>Dec 2017</td>
<td>385</td>
<td></td>
</tr>
</tbody>
</table>

Overview of landscape initiatives Musim Mas is involved in

**Aceh – Leuser Ecosystem**

**Priority landscape:** Aceh – Leuser Ecosystem

Programme focus and aims: Empower third-party suppliers and independent smallholders in Aceh Tamiring, Aceh Tamiang and Tesso Nilo to produce oil palm sustainably and work towards an M4EP certification. This includes: training smallholders in good agricultural practices, and working on red land legally. In addition, we aim to build the capacity of the government at the district level to implement a Smallholder Hub.

Progress in 2019:
1. Conducted assessments across five mills in Aceh Tamiring, Tamin and Tesso Nilo.
2. Completed a feasibility assessment and programme with our third-party supplier in Aceh Tamin.
3. Supported one mill in achieving traceability to plantation.
4. Built relationships with sub-district government and village heads in Singkil.
5. Designed an implementation plan to limit forests encroachment at the Leuser Ecosystem.

**Activities planned for 2020:***
1. Expand the reach of the programme to all nine supplier mills in Aceh Tamiring, Tamin and Tesso Nilo.
2. Work with IDH to engage growers and buyers across Tamiring and Tamin to establish a district-level programme.
3. Establish a Smallholder Hub in Tamiring in within IDH’s Centre of Excellence.
4. Establish a pilot programme to train smallholders on good agricultural practices and to make them ready to engage with the districts.

**Stakeholders involved:**
- Acehnese families
- Independent smallholders trained under the Indonesian Palm Oil Development for Smallholders programme
- Aceh government
- Aceh-APT-TFT programme
- private sector
- IDH

**Programme focus and aim:**
- Develop a new district-level programme with IDH that will enable buyers (mills and traders) to identify the public cause of deforestation in Indonesia starting with a pilot project in Singkil.

**Activities planned for 2020:**

**Priority landscape:** Riau – Siak

**Priority landscape:** Riau – Siak and Pelalawan

Programme focus and aims: Part of WRAP’s Hati programme, which helps train smallholders to register and digitally track FFB from plantation to mill. This would enable buyers (mills and traders) to identify and assess the legality of the FFB originated.

**Activities planned for 2020:**
- Pilot a digital traceability tool in 45 selected mills around Riau and Siak regency.

**Stakeholders involved:**
- Smallholder hubs
- Independent smallholders
- Margosigal Agrowisata
- IDH
- Golden Agri Resources
- Mondelez International
- DSM

**Priority landscape:** South Sumatra – Musi Banyuasin

**Priority landscape:** South Sumatra – Musi Banyuasin

Programme focus and aims: Working with Apical Group to build Smallholder Hubs in Musi Banyuasin, Siak and Pelalawan. We are also involved in a number of other initiatives with stakeholders in this province.

**Activities planned for 2020:**
- Support the smallholder programme with Apical Group.
- Work with the local government to build a traceability system.

**Stakeholders involved:**
- Independent smallholders
- IDH
- Golden Agri Resources
- Mondelez International
- DSM

**Priority landscape:** West Kalimantan – Sambas

**Priority landscape:** West Kalimantan – Sambas

Programme focus and aims: Working with Aidenvironment to formalise landscape initiatives by 2020, but were able to formalise these initiatives in 2019 due to the support of the industry and local actors.

**Activities planned for 2020:**
- Facilitate land registration for 500 farmers, by working with the local Ministry of Development and Planning, Administrative and other stakeholders.

**Stakeholders involved:**
- Aidenvironment
- Aceh-APT-TFT programme
- private sector
- local government.

29 These high-risk areas were selected based on various factors, including operational presence and leverage, as well as landscape characteristics such as the existence of protected and/or highly biodiverse areas.
Engaging suppliers to drive change

Engaging independent smallholders and third-party suppliers in Aceh

We have established landscape initiatives in Aceh to address the imminent risks of encroachment into the Leuser Ecosystem, and we closely engage with our third-party suppliers in three priority areas: Timur, Tamiang and Singkil. After carrying out scoping studies and mill assessments with local partners, we realised that, even though mills in these areas may be interested in sustainable production, they might not have the capacity, resources or know-how to engage the independent smallholders from whom they source. To address the gap between knowledge and action, we have developed tailored supplier engagement approaches. We reach out and assist our third-party suppliers, including the smallholders who supply them, and work towards sustainable production. To date, we have achieved the following with three suppliers:

PT Ensem Sawita, Aceh Timur: In partnership with another palm oil company, Musim Mas engaged with PT Ensem Sawita, as well as the agents and smallholders who supply them. PT Ensem Sawita achieved 100% traceability to plantation in 2019 through multiple traceability trainings and by educating the mill’s suppliers on the importance of conserving the Leuser Ecosystem and the land on which they operate. We are providing further support to them to ensure the implementation of proper standard operating procedures to monitor the FFB received from smallholders.

Mopoli Raya, Aceh Timur: Since 2015, Musim Mas has been actively engaging with Mopoli Raya to improve the mill’s sustainability policy and practices, including a requirement that they implement the same policies and practices for their own suppliers. Our engagement with the mill continued even though we put on hold our purchases from them. In March 2019, Mopoli Raya proved their strong commitment to sustainability by publishing the following documents on their website:

1. Environmental Policy, Social Policy, Corporate Social Responsibility Policy, and a Policy on Child Labour.
2. A declaration in the form of a ‘Letter of Commitment’ addressed to Musim Mas and declaring that an area of 1,382 hectares within the PT Aloer Timur concession (a subsidiary of Mopoli Raya) is now designated HCV and HCS and will not be developed in the future.
3. HCS Assessment and Pre-HCV Assessment Reports conducted in PT Aloer Timur.

As part of our Controlled Purchase Protocol, we resumed business relations with them in April 2019. We are also exploring the possibility of extending our smallholder programme to Mopoli Raya. More on our engagement with Mopoli Raya can be found here. Their progress was also commended by Rainforest Action Network here.

PT Pati Sari, Aceh Tamiang: In 2015, we worked with third-party supplier PT Pati Sari to better understand their supply base and procurement practices. We also ensured that they were complying with legal and operational requirements and conducted awareness and compliance training on our Sustainability Policy. Since 2018, we have engaged with independent smallholders supplying PT Pati Sari under our Extension Services Programme, which empowers our third-party suppliers to engage their independent smallholders. To date, our two-parson team has provided training and support to 179 smallholders on improving market access, increasing yields through good agricultural practices, replanting efforts and confirming the legality of their land titles. We are also in talks with mills in Timur and Singkil to develop and localise the Extension Services Programme.

For more information about our landscape projects in Aceh, see our 2019 progress report or visit our website for updates: http://www.musimmas.com/sustainability/landscapes/engagement-in-aceh.
<table>
<thead>
<tr>
<th>Stakeholder partnerships/ collaboration</th>
<th>Nature of platform</th>
<th>Role of Musim Mas</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Multi-stakeholder platforms &amp; initiatives</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aceh-APT-TFT (Leuser Ecosystem)</td>
<td>Multi-stakeholder working group under Areal Prioritas Transformasi (APTs) in Aceh Tamiang and Aceh Singkil</td>
<td>Member of Aceh-APT Working Group since 2017, Working with the programme for the Musim Mas landscape initiative in Aceh</td>
</tr>
<tr>
<td>China Sustainable Palm Oil Alliance</td>
<td>Platform to promote sustainable Palm Oil in China</td>
<td>Member of the Alliance since December 2018</td>
</tr>
<tr>
<td>Conservation International’s Coalition for Sustainable Livelihoods</td>
<td>Initiative focused on collective action to drive economic development, reduce poverty and improve natural resource management in the Indonesian provinces of North Sumatra and Aceh</td>
<td>Working with the programme for the Musim Mas landscape initiative in Aceh</td>
</tr>
<tr>
<td>Consortium of Resource Experts (CORE)</td>
<td>Environmental risk assessments at the landscape-level, implementation of intervention programmes for smallholders and suppliers, overall implementation of Sustainability Policy</td>
<td>Implementation partnership, Working with CORE to meet Musim Mas’ commitments on sourcing sustainable palm oil</td>
</tr>
<tr>
<td>Decent Rural Living Initiative</td>
<td>Improving the protection of human and labour rights in agriculture by delivering practical and realistic recommendations to help rural workers secure their long-term ability to thrive</td>
<td>One of five companies participating in the initiative</td>
</tr>
<tr>
<td>Fire Free Alliance (FFA)</td>
<td>A voluntary, multi-stakeholder platform that contributes to the development of land and forest fire solutions in Indonesia</td>
<td>Founding member of FFA since 2016</td>
</tr>
<tr>
<td>High Carbon Stock Approach (HCSA) Steering Group</td>
<td>A methodology supporting no deforestation</td>
<td>Member of the HCSA Steering Group since 2015 and member of its Executive Committee (HCSA decision-making body), Member of Working Groups/Committees on: - Social Requirements - High Forest Cover Landscapes (HFLC) - Protection - Membership</td>
</tr>
<tr>
<td>Indonesia Sustainable Palm Oil (ISPO)</td>
<td>Indonesian government regulation and certification for sustainable palm oil production</td>
<td>Co-lead of ISPO’s Greenhouse Gas (GHG) Working Group</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Stakeholder partnerships/ collaboration</th>
<th>Nature of platform</th>
<th>Role of Musim Mas</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Multi-stakeholder platforms &amp; initiatives</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>International Finance Corporation (IFC)</td>
<td>Assistance to independent smallholders in the areas surrounding Musim Mas operations in Indonesia</td>
<td>Sole Indonesia-based partner with International Finance Corporation (IFC), a member of the World Bank</td>
</tr>
<tr>
<td>Palm Oil Innovation Group (POIG)</td>
<td>Multi-stakeholder initiative focused on responsible palm oil production verification and innovation</td>
<td>Member of POIG since 2015, Member of the POIG Organising Committee (POIG decision-making body), Chair of the Traders &amp; Processors Working Group, having led the development of the POIG Traders &amp; Processors Charter, Member of Working Groups on: - Verification - Retailers &amp; Manufacturers - Communications</td>
</tr>
<tr>
<td>PONGO Alliance</td>
<td>Management and protection of orangutan and other wildlife habitats within oil palm landscapes. New focus with Government of Sabah on Kinabatangan region</td>
<td>Founding member of the PONGO Alliance since 2017</td>
</tr>
<tr>
<td>Roundtable on Sustainable Palm Oil (RSPO)</td>
<td>Sustainable palm oil production certification and multi-stakeholder initiative</td>
<td>Member of the RSPO since 2004, Substantive member of the P&amp;C Review Task Force, Alternate member for Indonesian Growers in RSPO Board of Governors, Substantive member of various Working Groups: - Smallholders - Biodiversity and High Conservation Values - Human Rights - Emissions Reduction (Co-Chair) - Peatland - P&amp;C 2018 Indonesian National Interpretation - No Deforestation Taskforce - Remediation &amp; Compensation Taskforce - Standards &amp; Certification Standing Committee - Assurance Taskforce</td>
</tr>
<tr>
<td>Sustainable Landscapes Working Group (IDH)</td>
<td>Multi-stakeholder working group focused on priority landscapes in Indonesia</td>
<td>Sustainable Landscapes Working Group (IDH)</td>
</tr>
<tr>
<td>Tropical Forest Alliance (TFA) 2020</td>
<td>Organisation promoting responsible growth without depleting natural capital</td>
<td>Member of the Alliance since December 2018</td>
</tr>
</tbody>
</table>
Stakeholder partnerships and collaborations

<table>
<thead>
<tr>
<th>Stakeholder partnerships/collaboration</th>
<th>Nature of platform</th>
<th>Role of Musim Mas</th>
</tr>
</thead>
<tbody>
<tr>
<td>Helsinki University, Universitas Riau (UNRI) and Institut Pertanian Bogor</td>
<td>Research projects with communities</td>
<td>Social impact and management in oil palm</td>
</tr>
<tr>
<td>National University of Singapore</td>
<td>Sustainability research/projects</td>
<td>Musim Mas Professorship Fund</td>
</tr>
<tr>
<td>Oxford University</td>
<td>Academic partnership</td>
<td>Master programme on High Conservation Values (HCV) management</td>
</tr>
</tbody>
</table>
| Princeton University | Conservation and biodiversity research | • Monitoring winged species in HCV areas  
• Doctorate project on aqua biodiversity |
| UNICEF | Academic research | Collaboration for children’s rights and development |
| Crops for the Future Research Centre and University of Nottingham Malaysia Campus | Training programme | Doctoral Training Partnership Programme |

Base data

<table>
<thead>
<tr>
<th></th>
<th></th>
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<th></th>
<th></th>
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<tbody>
<tr>
<td><strong>ECONOMIC</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Income statement</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Revenue</td>
<td>US$ billion</td>
<td>7.5</td>
<td>7.3</td>
<td>5.5</td>
<td>5</td>
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<td><strong>LAND AND PRODUCTION</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total titled land area</td>
<td>ha</td>
<td>198,837</td>
<td>194,204</td>
<td>193,729</td>
<td>193,497</td>
</tr>
<tr>
<td>Planted area</td>
<td>ha</td>
<td>121,968</td>
<td>121,494</td>
<td>119,994</td>
<td>116,280</td>
</tr>
<tr>
<td>Mature</td>
<td>ha</td>
<td>108,035</td>
<td>101,621</td>
<td>97,348</td>
<td>95,118</td>
</tr>
<tr>
<td>Immature</td>
<td>ha</td>
<td>13,933</td>
<td>19,873</td>
<td>22,646</td>
<td>21,162</td>
</tr>
<tr>
<td>Nucleus planted area</td>
<td>ha</td>
<td>117,344</td>
<td>116,076</td>
<td>115,405</td>
<td>111,971</td>
</tr>
<tr>
<td>Mature</td>
<td>ha</td>
<td>103,780</td>
<td>97,526</td>
<td>93,493</td>
<td>91,886</td>
</tr>
<tr>
<td>Immature</td>
<td>ha</td>
<td>13,564</td>
<td>19,349</td>
<td>21,911</td>
<td>20,105</td>
</tr>
<tr>
<td>Scheme smallholder planted area</td>
<td>ha</td>
<td>4,624</td>
<td>4,620</td>
<td>4,589</td>
<td>4,308</td>
</tr>
<tr>
<td>Mature</td>
<td>ha</td>
<td>4,255</td>
<td>4,095</td>
<td>3,855</td>
<td>3,252</td>
</tr>
<tr>
<td>Immature</td>
<td>ha</td>
<td>369</td>
<td>524</td>
<td>734</td>
<td>1,056</td>
</tr>
<tr>
<td><strong>Production and productivity</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total FFB</td>
<td>MT</td>
<td>3,815,493</td>
<td>3,341,046</td>
<td>2,781,095</td>
<td>3,073,391</td>
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<tr>
<td>FFB production – own plantation</td>
<td>MT</td>
<td>2,703,918</td>
<td>2,272,841</td>
<td>1,944,448</td>
<td>2,138,567</td>
</tr>
<tr>
<td>FFB production – scheme smallholders</td>
<td>MT</td>
<td>110,036</td>
<td>101,845</td>
<td>87,510</td>
<td>92,162</td>
</tr>
<tr>
<td>FFB volume purchased from third parties</td>
<td>MT</td>
<td>1,001,538</td>
<td>967,260</td>
<td>749,137</td>
<td>842,662</td>
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<tr>
<td>Crude palm oil</td>
<td>MT</td>
<td>862,295</td>
<td>754,568</td>
<td>629,794</td>
<td>703,397</td>
</tr>
<tr>
<td>Palm kernel</td>
<td>MT</td>
<td>220,853</td>
<td>191,371</td>
<td>158,484</td>
<td>177,856</td>
</tr>
<tr>
<td>FFB yield – own plantation</td>
<td>MT FFB/ha</td>
<td>25.9</td>
<td>22.7</td>
<td>20.5</td>
<td>23.1</td>
</tr>
<tr>
<td>FFB yield – scheme smallholders</td>
<td>MT FFB/ha</td>
<td>27.0</td>
<td>27.0</td>
<td>25.4</td>
<td>28.0</td>
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<tr>
<td>Extraction rate – crude palm oil</td>
<td>%</td>
<td>22.6</td>
<td>22.6</td>
<td>22.7</td>
<td>22.9</td>
</tr>
<tr>
<td>Extraction rate – palm kernel</td>
<td>%</td>
<td>5.8</td>
<td>5.7</td>
<td>5.7</td>
<td>5.8</td>
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</tbody>
</table>
### Base data

<table>
<thead>
<tr>
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<th></th>
<th></th>
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<tbody>
<tr>
<td><strong>ENVIRONMENT</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Water usage</strong></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Plantation</td>
<td>m³</td>
<td>0.65 million</td>
<td>1.14 million</td>
<td>1.01 million</td>
<td>1.00 million</td>
</tr>
<tr>
<td>Mill</td>
<td>m³</td>
<td>3.97 million</td>
<td>3.25 million</td>
<td>2.82 million</td>
<td>2.50 million</td>
</tr>
<tr>
<td>Water usage per tonne of FFB processed – mills</td>
<td>m³/MT FFB processed</td>
<td>1.23</td>
<td>1.19</td>
<td>1.24</td>
<td>0.99</td>
</tr>
<tr>
<td><strong>Water consumption</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Blue water</td>
<td>m³</td>
<td>9.85 million</td>
<td>7.92 million</td>
<td>7.85 million</td>
<td>N/A</td>
</tr>
<tr>
<td>m³/MT FFB</td>
<td></td>
<td>3.45</td>
<td>3.29</td>
<td>3.97</td>
<td>N/A</td>
</tr>
<tr>
<td>Green water</td>
<td>m³</td>
<td>1.55 billion</td>
<td>1.55 billion</td>
<td>1.53 billion</td>
<td>N/A</td>
</tr>
<tr>
<td>m³/MT FFB</td>
<td></td>
<td>543.63</td>
<td>642.64</td>
<td>737.05</td>
<td>N/A</td>
</tr>
<tr>
<td>Grey water</td>
<td>m³</td>
<td>387.78 million</td>
<td>342.38 million</td>
<td>459.68 million</td>
<td>N/A</td>
</tr>
<tr>
<td>m³/MT FFB</td>
<td></td>
<td>135.64</td>
<td>142.12</td>
<td>221.98</td>
<td>N/A</td>
</tr>
<tr>
<td><strong>Effluents</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BOD levels river discharge – Sumatra</td>
<td>mg/l</td>
<td>55</td>
<td>66</td>
<td>77</td>
<td>77</td>
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<tr>
<td>BOD levels river discharge – Kalimantan</td>
<td>mg/l</td>
<td>29</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>BOD levels land application – Sumatra</td>
<td>mg/l</td>
<td>49</td>
<td>48</td>
<td>52</td>
<td>73</td>
</tr>
<tr>
<td>BOD levels land application – Kalimantan</td>
<td>mg/l</td>
<td>29</td>
<td>36</td>
<td>46</td>
<td>65</td>
</tr>
</tbody>
</table>

---

31 In the 2017 Sustainability Report, HCV area was partially double-counted as it was included in the HCS area calculations. Any overlaps in HCV and HCS areas have been reflected under HCV figures.

32 Blue water consumption data using the Water Network Methodology for 2016 and 2017 have been restated as we have revised the assumptions we use for calculating blue water consumption figures in 2018.

---

### Phosphorus and nitrogen in water courses

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>P-level inlets – Sumatra</td>
<td>mg/l</td>
<td>0.88</td>
<td>0.18</td>
<td>N/A</td>
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<td>P-level outlets – Sumatra</td>
<td>mg/l</td>
<td>0.26</td>
<td>0.17</td>
<td>N/A</td>
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<tr>
<td>P-level inlets – Kalimantan</td>
<td>mg/l</td>
<td>0.06</td>
<td>0.06</td>
<td>N/A</td>
<td>N/A</td>
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<tr>
<td>P-level outlets – Kalimantan</td>
<td>mg/l</td>
<td>0.04</td>
<td>0.06</td>
<td>N/A</td>
<td>N/A</td>
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<td>N-level inlets – Sumatra</td>
<td>mg/l</td>
<td>2.97</td>
<td>1.02</td>
<td>N/A</td>
<td>N/A</td>
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<td>N-level outlets – Sumatra</td>
<td>mg/l</td>
<td>1.23</td>
<td>0.93</td>
<td>N/A</td>
<td>N/A</td>
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<tr>
<td>N-level inlets – Kalimantan</td>
<td>mg/l</td>
<td>2.46</td>
<td>0.81</td>
<td>N/A</td>
<td>N/A</td>
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<tr>
<td>N-level outlets – Kalimantan</td>
<td>mg/l</td>
<td>1.83</td>
<td>0.57</td>
<td>N/A</td>
<td>N/A</td>
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### Herbicide usage

<table>
<thead>
<tr>
<th>Category/Indicator</th>
<th>Measurement unit</th>
<th>FY2018</th>
<th>FY2017</th>
<th>FY2016</th>
<th>FY2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>Toxicity per hectare planted – Sumatra</td>
<td>toxicity/ha</td>
<td>519</td>
<td>484</td>
<td>474</td>
<td>400</td>
</tr>
<tr>
<td>Toxicity per hectare planted – Kalimantan</td>
<td>toxicity/ha</td>
<td>326</td>
<td>430</td>
<td>440</td>
<td>400</td>
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</tbody>
</table>

### GHG emissions

<table>
<thead>
<tr>
<th>Category/Indicator</th>
<th>Measurement unit</th>
<th>FY2018</th>
<th>FY2017</th>
<th>FY2016</th>
<th>FY2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total carbon emissions at mill</td>
<td>MT CO₂e/MT CPO</td>
<td>3.49</td>
<td>3.39</td>
<td>3.33</td>
<td>3.15</td>
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</table>

### Fire incidents

<table>
<thead>
<tr>
<th>Category/Indicator</th>
<th>Measurement unit</th>
<th>FY2018</th>
<th>FY2017</th>
<th>FY2016</th>
<th>FY2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hotspots within concession</td>
<td>no.</td>
<td>69</td>
<td>35</td>
<td>90</td>
<td>433</td>
</tr>
<tr>
<td>Fires within concession</td>
<td>no.</td>
<td>18</td>
<td>4</td>
<td>14</td>
<td>89</td>
</tr>
<tr>
<td>Area burnt within concession</td>
<td>ha</td>
<td>47.91</td>
<td>4.74</td>
<td>107.75</td>
<td>1,472.25</td>
</tr>
<tr>
<td>Hotspots surrounding concession boundaries</td>
<td>no.</td>
<td>269</td>
<td>130</td>
<td>15</td>
<td>41</td>
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<tr>
<td>Fires surrounding concession boundaries</td>
<td>no.</td>
<td>159</td>
<td>33</td>
<td>6</td>
<td>26</td>
</tr>
<tr>
<td>Area burnt surrounding concession boundaries</td>
<td>ha</td>
<td>795.51</td>
<td>125.90</td>
<td>21.46</td>
<td>643.92</td>
</tr>
</tbody>
</table>

---

33 The high number of fires and area affected in 2015 were attributed to the lower rainfall compared to following years. The efforts of Musim Mas through the FPA and FFVP also contributed to the significant drops in fire in 2016 compared to 2015.
### SCOPE 1 & 2 EMISSIONS BY REGION 2017

<table>
<thead>
<tr>
<th>Region</th>
<th>Scope 1 (tCO₂e)</th>
<th>Scope 2 (tCO₂e)</th>
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</thead>
<tbody>
<tr>
<td>Indonesia (other than Indonesia)</td>
<td>2,983,745</td>
<td>182,597</td>
</tr>
<tr>
<td>Asia</td>
<td>35,697</td>
<td>16,015</td>
</tr>
<tr>
<td>Europe</td>
<td>47,896</td>
<td>13,738</td>
</tr>
<tr>
<td>America</td>
<td>0</td>
<td>44</td>
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### EMPLOYEES

#### Employees at Group-level

<table>
<thead>
<tr>
<th>Group total</th>
<th>FY2018</th>
<th>FY2017</th>
<th>FY2016</th>
<th>FY2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>No.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Indonesia</td>
<td>36,156</td>
<td>36,495</td>
<td>28,301</td>
<td>N/A</td>
</tr>
<tr>
<td>Malaysia</td>
<td>661</td>
<td>440</td>
<td>390</td>
<td>N/A</td>
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<tr>
<td>Singapore</td>
<td>345</td>
<td>295</td>
<td>256</td>
<td>N/A</td>
</tr>
<tr>
<td>Other countries</td>
<td>1,133</td>
<td>927</td>
<td>802</td>
<td>N/A</td>
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</tbody>
</table>

#### Employees at plantation- and mill-level

<table>
<thead>
<tr>
<th>Region</th>
<th>FY2018</th>
<th>FY2017</th>
<th>FY2016</th>
<th>FY2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>No.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sumatra</td>
<td>9,144</td>
<td>8,956</td>
<td>8,853</td>
<td>9,227</td>
</tr>
<tr>
<td>Kalimantan</td>
<td>11,676</td>
<td>10,939</td>
<td>10,093</td>
<td>9,755</td>
</tr>
<tr>
<td>Total staff (permanent only)</td>
<td>961</td>
<td>978</td>
<td>991</td>
<td>1,087</td>
</tr>
<tr>
<td>Male</td>
<td>738</td>
<td>737</td>
<td>757</td>
<td>837</td>
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<tr>
<td>Female</td>
<td>223</td>
<td>241</td>
<td>234</td>
<td>250</td>
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### HEALTH AND SAFETY

<table>
<thead>
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</thead>
<tbody>
<tr>
<td>Lost time accident rate</td>
<td>(Frequency rate) (per 200,000 working hours)</td>
<td>Total</td>
<td>1.76</td>
<td>3.34</td>
<td>5.08</td>
</tr>
<tr>
<td>Severity rate</td>
<td>(average days lost per accident)</td>
<td>Total</td>
<td>43.50</td>
<td>25.21</td>
<td>19.63</td>
</tr>
<tr>
<td>Fatalities</td>
<td>No.</td>
<td>1</td>
<td>4</td>
<td>3</td>
<td>2</td>
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### SOCIAL AND COMMUNITY

#### Support for smallholders

<table>
<thead>
<tr>
<th></th>
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<th></th>
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</thead>
<tbody>
<tr>
<td>Scheme smallholders</td>
<td>No.</td>
<td>2,423</td>
<td>2,423</td>
<td>2,423</td>
<td>2,304</td>
</tr>
<tr>
<td>Scheme smallholder programmes</td>
<td>No.</td>
<td>7</td>
<td>7</td>
<td>7</td>
<td>7</td>
</tr>
<tr>
<td>Trainings provided to scheme smallholders</td>
<td>No.</td>
<td>121</td>
<td>99</td>
<td>85</td>
<td>57</td>
</tr>
<tr>
<td>Total income of scheme smallholders</td>
<td>Billion IDR</td>
<td>112.2</td>
<td>127.9</td>
<td>98.6</td>
<td>85.7</td>
</tr>
<tr>
<td>Independent smallholders covered by programmes</td>
<td>No.</td>
<td>15,394</td>
<td>9,652</td>
<td>3,178</td>
<td>539</td>
</tr>
</tbody>
</table>

---

34 Scope 1 and scope 2 figures reported in the previous Sustainability Report reflected the data submitted for the 2018 CDP submission cycle. This data is for 2017 submission (covering the year of 2016).
35 2017 data has been restated.
### FAUNA INVENTORY UNDER IUCN RED LIST OF THREATENED SPECIES

<table>
<thead>
<tr>
<th>IUCN status</th>
<th>Scientific name</th>
<th>Common name</th>
<th>Species</th>
</tr>
</thead>
<tbody>
<tr>
<td>Critically Endangered (CR)</td>
<td>Alcedo euryzona</td>
<td>Raja Udang Kalung Binu</td>
<td>Javan Blue-banded Kingfisher</td>
</tr>
<tr>
<td></td>
<td>Predbys chrysomelas</td>
<td>Sunli Serawak</td>
<td>Bornean Banded Langur</td>
</tr>
<tr>
<td></td>
<td>Bats graphite</td>
<td>Bluku/Tontong Sungai</td>
<td>Southern River Terrapin</td>
</tr>
<tr>
<td>Endangered (EN)</td>
<td>Mycteria cinerea</td>
<td>Bangau Blauwok</td>
<td>Yellow billed Stork</td>
</tr>
<tr>
<td></td>
<td>Clonemia stromi</td>
<td>Bangau Strom</td>
<td>Storm's Stork</td>
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<tr>
<td></td>
<td>Phycous asylycanus</td>
<td>Cucak Rawak</td>
<td>Straw-headed Bulbul</td>
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<tr>
<td></td>
<td>Nasalis Ianthus</td>
<td>Bekantan</td>
<td>Proboscis Monkey</td>
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<tr>
<td></td>
<td>Hylobates moloch</td>
<td>Owa Jawa</td>
<td>Silver Gibbon</td>
</tr>
<tr>
<td></td>
<td>Hylobates alibarbis</td>
<td>Owa Kalimantan</td>
<td>Bornean Agile Gibbon</td>
</tr>
<tr>
<td></td>
<td>Hylobates agilis</td>
<td>Owa Ungko</td>
<td>Agile Gibbon</td>
</tr>
<tr>
<td></td>
<td>Hylobates syndactylus</td>
<td>Siamang</td>
<td>The Siamang</td>
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<tr>
<td></td>
<td>Tapir indicus</td>
<td>Tapir Asia</td>
<td>Malayian Tapir</td>
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<td></td>
<td>Heoemys spinosa</td>
<td>Kura-kura Duri</td>
<td>Spiny turtle</td>
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<tr>
<td></td>
<td>Orycto borneaensis</td>
<td>Kura-kura Sunai Kalmant</td>
<td>Malayian Giant Turtle</td>
</tr>
<tr>
<td>Vulnerable (VU)</td>
<td>Clonemia episcopus</td>
<td>Bangau Hitam</td>
<td>Asian Woollyneck</td>
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<td>Leptopithecus javanicus</td>
<td>Bangau Tongtong</td>
<td>Lesser Adjutant</td>
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<td>Chloropsis sonnerati</td>
<td>Cica Daun Besar</td>
<td>Greater Green Leafbird</td>
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<td>Spheetus nanus</td>
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<td>Wallace's Hawk Eagle</td>
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<td>Acridotheres javanicus</td>
<td>Kerai Kerbau</td>
<td>Javaen Myna</td>
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<td>Arborica orientalis</td>
<td>Puyuh Gonggong Biasa</td>
<td>White-faced Partridge</td>
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<tr>
<td></td>
<td>Melanopterus riger</td>
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<td>Black Partridge</td>
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<td></td>
<td>Sus barbatus</td>
<td>Babai Berjanggot</td>
<td>Bornean Bearded Pig</td>
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<td>Berang-Berang Calak Kecil</td>
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<td>Sambar Deer</td>
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<td>False Gharial</td>
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<td>Ular Kohta/Ular Anang</td>
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<td>Cuora amboinensis</td>
<td>Kura-kura Batok</td>
<td>Southeast Asian Box Turtle</td>
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<tr>
<td></td>
<td>Pelodiscus sinensis</td>
<td>Kura-Kura Tempurung Lunak</td>
<td>Chinese Softshell Turtle</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>IUCN status</th>
<th>Scientific name</th>
<th>Common name</th>
<th>Species</th>
</tr>
</thead>
<tbody>
<tr>
<td>Near Threatened (NT)</td>
<td>Malacopteron affine</td>
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<tr>
<td></td>
<td>Napeothera macrocnemis</td>
<td>Berenice Besar</td>
<td>Large wren-babbler</td>
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<td></td>
<td>Psittacula alexandri</td>
<td>Betet Biasa</td>
<td>Red-breasted Parakeet</td>
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<td>Psittacula longicaudata</td>
<td>Betet Ekor Panjang</td>
<td>Long-tailed Parakeet</td>
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<td>Diacema everetti</td>
<td>Cabal Tungr Coklat</td>
<td>Brown-backed Flowerpecker</td>
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<td>Megalopithes uktisi</td>
<td>Caladi Badok</td>
<td>Buff-necked Woodpecker</td>
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<td>Megalopithes tristis</td>
<td>Caladi Blatu</td>
<td>White-rumped Woodpecker</td>
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<td>Cica Daun Sayap Binu</td>
<td>Javaen Leaffbird</td>
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<td>Green Lora</td>
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<td>Fluffy-backed Tit-babbler</td>
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<td>Pyconosus auritius</td>
<td>Cucak Dum Blau</td>
<td>Puff-backed Bulbul</td>
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<td>Elang Ikan Kecil</td>
<td>Lesser Fish-eagle</td>
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<td>Chrysophaga cholaetius</td>
<td>Elang Ikan Kepala Kalau</td>
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<td>Rhodotomus cristatus</td>
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<td>Wrinkled Hornbill</td>
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<td>Anthracocerus malayensis</td>
<td>Kangkaren Hitam</td>
<td>Black Hornbill</td>
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<td>Argusianus argus</td>
<td>Kusu Raja</td>
<td>Great Argus</td>
</tr>
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<td>Harpactes kasumie</td>
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<td>Anthreptes rhodolaemus</td>
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<td>Red-throated Sunbird</td>
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<td>Nuri Tana</td>
<td>Blue-rumped Parrot</td>
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<td>Chequer-throated Yellownape</td>
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**Peat maps**
Peat maps

PT. MAJU ANEKA SAWIT

PT. MULIA INDAH

PT. MUSIM MAS

PT. SARANA ESA CITA

PT. SUKAJADI SAWIT MEKAR

Note: Survey based on grid sampling and delineation method.
The Global Reporting Initiative (GRI) is a multi-stakeholder standard for sustainability reporting, providing guidance on determining report content and indicators. GRI is the first and most widely adopted global standard for sustainability reporting and has been designed to enhance the global comparability and quality of information on environmental and social impacts, thereby enabling greater transparency and accountability of organisations. Sustainability reporting based on the GRI Standards should provide a balanced and reasonable representation of an organisation’s positive and negative contributions towards the goal of sustainable development. This report has been prepared in alignment with the GRI Standards: Core option.

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Glossary

Annual Communications of Progress (ACOP)  
Annual Communications of Progress (ACOPs) are mandatory reports submitted by Ordinary and Affiliate RSPO members to gauge their progress towards 100% RSPO certified sustainable palm oil.

Biodiversity  
The diversity (number and variety of species) of plant and animal life within a region.

Biological Oxygen Demand (BOD)  
The amount of oxygen used when organic matter undergoes decomposition by micro-organisms. Testing for BOD is done to assess the amount of organic matter in water.

Book & Claim  
An RSPO supply-chain model providing tradable certificates for RSPO certified palm oil to the palm oil supply base. The supply base may then offer these certificates on a web-based transaction system to end users who choose to support specific volumes of RSPO certified palm oil and/or their derivatives.

Carbon dioxide equivalents (CO₂e)  
Carbon dioxide equivalents provide a universal standard of measurement against which the impacts of releasing (or avoiding the release of) different greenhouse gases can be evaluated.

Chemical Oxygen Demand (COD)  
The measurement of the oxygen required to oxidise soluble and particulate organic matter in water. COD testing involves using a strong chemical oxidising agent to chemically oxidise the organic material in a sample of wastewater under controlled conditions.

Effluents  
Water discharged from one source into a separate body of water, such as a mill process water.

Extension Services Programme (ESP)  
A programme developed to address the challenges of independent smallholders who supply indirectly to Musim Mas through our third-party suppliers.

Extraction rate  
The amount of oil extracted from oil palm fruit at a mill. Crude palm oil (CPO) is extracted from the flesh; palm kernel oil (PKO) from the nut.

Family cards  
Official documents required by the government office to prove residency and family relationships.

Free, Prior and Informed Consent (FPIC)  
Principle that a community has a right to give or withhold its consent to proposed projects that may affect the lands they customarily own, occupy or use.

Global Reporting Initiative (GRI)  
A multi-stakeholder standard for sustainability reporting, providing guidance on determining report content and indicators.

Good Manufacturing Practices Plus Food Safety Assurance (GM+)  
Standards that have been developed to harmonise requirements for feed in order to ensure quality and safety throughout the entire feed chain. GM+ FSA certified companies must demonstrate that they meet all requirements and conditions for the assurance of feed safety.

Greenhouse gas (GHG) emissions  
Gases in the atmosphere that absorb and emit radiation within the thermal infrared range. The primary greenhouse gases in the Earth’s atmosphere are water vapour, carbon dioxide, methane, nitrous oxide, and ozone. Scope 1 GHG emissions are those released into the atmosphere as a direct result of an activity, or series of activities, at a facility level. Scope 2 GHG emissions are those released into the atmosphere from the indirect consumption of an energy commodity.

High Carbon Stock Approach (HCSA)  
A global methodology used in agricultural land development planning that is currently being applied in fragmented tropical landscapes on mineral soils in the humid tropics. The methodology distinguishes HCS forest areas for protection from degraded lands with low carbon and biodiversity values that may be considered for development.

High Conservation Value (HCV)  
The HCV concept was originally developed by the Forest Stewardship Council (FSC) with the aim to standardise the definitions and evaluation approaches for a natural forest that should be set aside for conservation. There are six possible HCVs that can be identified, covering environmental and social aspects of a natural forest.

Identity Preserved  
An RSPO supply-chain model wherein sustainable palm oil from a single identifiable certified source is kept separate from ordinary palm oil throughout the entire supply chain.

Integrated Pest Management (IPM)  
IPM is the careful consideration of all available pest control techniques and subsequent integration of appropriate measures that discourage the development of pest populations and keep pesticides and other interventions to levels that are economically justified and reduce or minimise risk to human health and the environment. IPM emphasises the growth of a healthy crop with the least possible disruption to agro-ecosystems and encourages natural pest control mechanisms.

International Labour Organization (ILO)  
A tripartite world body representative of labour, management and government, and is an agency of the United Nations. It disseminates labour information and sets minimum international labour standards called “conventions”, offered to member nations for adoption.

International Sustainability and Carbon Certificate (ISCC)  
A global biomass and bioenergy certification scheme.

Introgression  
Introgressive hybridisation (introgression) is the genetic modification of one species by another through hybridisation and repeated backcrossing. Introgression is essential in the evolution of flowering plants and is also important in plant breeding where a desirable trait can be transferred from wild to crop species.

Integrated National Certification System for Biofuels and Biobelots (IT SNC)  
Under the EC Renewable Energy Directive, this Italian national action plan gives an overview of national policy concerning renewable energies, its goals and main strategic lines of action. The certification guarantees the reliability of information demonstrating compliance with the biofuel and bioliquid sustainability criteria, and that the information given by the economic operators belonging to the production chain of said products is independently verified.

IUCN Red List  
Based in Switzerland, the International Union for Conservation of Nature and Natural Resources (also known as The World Conservation Union) is an organisation involved in the preservation of natural resources. IUCN publishes the Red Data Book, which lists the endangered species of every nation.

Kredit Koperasi Primer Anggota (KKPA)  
A smallholder primary cooperative credit scheme, voluntarily initiated by Musim Mas in 1996, that provides smallholders with practical support to acquire the skills and technology needed to undertake palm oil cultivation.

Mass Balance  
An RSPO supply-chain model that allows the mixing of RSPO-certified and non-certified palm oil at any stage in the supply chain provided that overall company quantities are controlled. The Mass Balance model is constructed in such a way that volumes of RSPO-certified product shipped will never exceed volumes received by the end-user.

New Planting Procedure (NPP)  
The RSPO NPP consists of a set of assessments and verification activities to be conducted by RSPO grower members and certification bodies prior to a new oil palm development, in order to help guide responsible planting and ensure that social and environmental requirements have been met. The NPP report goes through a 30-day public consultation andplanting and associated development can only begin once the NPP is complete and RSPO approval is granted.

Non-governmental organisation (NGO)  
Used in this report to refer to grassroots and campaigning organisations focused on environmental or social issues.

PalmGHG  
The RSPO PalmGHG is a tool that calculates the emissions generated and sequestered from activities and processes engaged during agricultural and mill stages. Refer to detailed scope and boundaries at [https://www.rspo.org/certification/palmghg/palm-ghg-calculator](https://www.rspo.org/certification/palmghg/palm-ghg-calculator).
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Palm Oil Innovation Group (POIG)
A multi-stakeholder initiative that strives to achieve the adoption of responsible palm oil production practices by key players in the supply chain through developing and sharing a credible and verifiable benchmark that builds upon the RSPO, and creating and promoting innovations.

Palm oil mill effluent (POME)
A by-product of processed fresh fruit bunch (FFB).

Peat
An accumulation of partially decayed vegetation matter. Peat forms in wetlands or peat lands, variously called bogs, moors, muskegs, pocosins, mires, and peat swamp forests.

Program for Pollution Control, Evaluation, and Rating (PROPER)
Indonesia’s national public environmental reporting initiative that uses a colour-coded rating scheme to grade factories’ performance in pollution control against regulatory standards.

Risk-based traceability
A Musim Mas approach to mapping smallholders’ villages against a landscape map and prioritising risk areas for traceability.

Roundtable on Sustainable Palm Oil (RSPO)
A multi-stakeholder organisation based in Kuala Lumpur, Malaysia, that has developed a certification scheme for sustainable palm oil. All RSPO members must comply with the RSPO Principles and Criteria (P&C), a set of stringent standards for the production of sustainable palm oil.

Sustainable Supply Chain Certification (SCCS)
An RSPO standard with auditable requirements designed for use by organisations in the palm supply chain to demonstrate implemented systems for the control of RSPO-certified palm oil products.

Scheme smallholders
Smallholders operating under a programme initiated by the Indonesian Government to encourage the development of smallholders’ plantations, where plantation companies (the nucleus) assist and support the surrounding community plantations.

Segregated
The segregated supply chain model assures that RSPO-certified palm oil and its derivatives delivered to the end-user come only from RSPO-certified sources. It permits the mixing of RSPO-certified palm oil from a variety of sources.

Self-Assessment Tool
A Musim Mas developed tool for suppliers to self-declare operational information against Musim Mas sustainability indicators.

Social and Environmental Impact Assessment (SEIA)
A process for predicting and assessing the potential environmental and social impacts of a proposed project, evaluating alternatives, and designing appropriate mitigation, management and monitoring measures.

Stakeholders
Any group or individual who is affected by – or can affect – a company’s operations.

Sustainability
A term expressing a long-term balance between social, economic and environmental objectives. Often linked to sustainable development, which is defined as “development that meets the needs of current generations without compromising the needs of future generations”.

Toxicity
Toxicity measures the degree to which a substance is harmful to living organisms. Toxicity in agricultural chemicals is measured using the LD50 methodology, i.e. the toxicity units corresponding to a lethal dose for 50% of a population of rats.

Village Development Programme (VDP)
A programme developed for scheme smallholders and tailored to villages where plantations are community-managed rather than individually owned.

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