



COLLABORATIVE PURSUIT

Sustainability Report 2022



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

We strive to be the world's preferred supply chain partner for palm oil and its derivatives.

◆ 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 products in an economically viable, socially responsible and environmentally appropriate manner in full compliance with all relevant legal requirements.

Our report focuses on the importance of **Collaborative Pursuit**, which is essential to achieving our shared objectives. We firmly believe that working together is vital to making a tangible impact and overcoming industry-wide challenges. This report highlights how we continue to engage with and learn from various stakeholders, including governments, peers, suppliers, and technical and knowledge partners. This collaborative approach has enabled us to address crucial issues such as deforestation, ensure our suppliers meet their No Deforestation, No Peat and No Exploitation (NDPE) commitments, integrate our smallholders into supply chains while enhancing their livelihoods, develop sectoral carbon reduction strategies, and define human rights due diligence.

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The Musim Mas Sustainability Pillars

Sustainability at Musim Mas means providing high quality and innovative palm oil products and derivatives in a responsible way.



Pillar 1



Improve the Lives of Smallholders, Workers, and Communities



Pillar 2



Deliver Positive Environmental Impacts



Pillar 3



Maintain Responsible and Enduring Relationships with Suppliers, Customers, and Stakeholders



Pillar 4



Drive Innovation in Sustainable Practices

About this report

[GRI2-2,2-3,2-5]

Welcome to the sixth Musim Mas Group ('Musim Mas' or the 'Group') report, updating the Group's sustainability performance for the 2022 calendar year. It has been prepared in accordance with the Global Reporting Initiative (GRI) Standards, including the GRI 13 Sector Standard for Agriculture, Aquaculture, and Fishing for the first time, and the Sustainability Accounting Standards Board (SASB) guidelines. GRI disclosures and SASB disclosures are included throughout the report and referenced under headings or sub-headings as GRI XXX-XX, GRI 13.X.X, and FB-AG-XXx.x. This report is designed to be read in tandem with the sustainability disclosures on our website.

» [SR2022 GRI Content Index](#)

» [SR2022 SASB Index](#)



Report scope and boundaries

This report covers the operations of the Musim Mas Group. It includes comprehensive data for our upstream operations in Sumatra and Kalimantan, as well as human resource, greenhouse gas (GHG) emission, certification, traceability and supply chain data for our mid-stream and downstream operations. Unless otherwise stated, performance data is from January 1 to December 31, 2022, and includes historical data where relevant and available. Given the timing of this report, we have also incorporated significant 2023 milestones. For the first time, we are reporting qualitative disclosure for our copra crushing plant in Sulawesi and will include data based on availability for future reports.

» [See also: Sustainability Performance Data 2018-2022](#)

Stakeholder inclusiveness and review

To ensure we are responsive to themes and topics important to all our partners, we consulted stakeholders within our customer base, a financial institution, a palm oil industry peer, our climate change consultant, a sustainable supply chain consultant, and a third-party disclosure platform. We also engaged with our operational teams at the local and site levels. We are guided by international and sector-wide platforms that we are members of, such as the Roundtable on Sustainability Palm Oil (RSPO) and its technical working groups, and the Palm Oil Collaboration Group (POCG).

We also refer to leading benchmarks, such as the Zoological Society of London's Sustainability Policy Transparency Toolkit (ZSL SPOTT), the CDP (formerly known as Carbon Disclosure Project), EcoVadis, and the World Benchmarking Alliance (WBA)'s Food and Agriculture Benchmark. We also referenced the WBA Nature Benchmark and the Global Child Forum Benchmark for the first time.

We engaged technical consultants from the Consortium of Resource Experts (CORE) to review and provide feedback on supply chain-related disclosures in this report, including materiality, responsiveness to stakeholder concerns, and sustainability issues.

Verification and assurance

The relevant certification bodies have audited the information and data in this report regarding their respective sustainability certification schemes. We also contracted Ernst & Young LLP (EY) to provide independent limited assurance on selected disclosures in this report, including the GHG emission calculations we submit to the RSPO.

» [Assurance statement](#)

Key Highlights



Governance, recognition, and assessments

Policies and strategies	Revised our Sustainability Roadmap See: Updated NDPE Roadmap	Launched new Sustainable Sourcing Strategy for coconut operations	Updated Sustainability Policy with commitments to United Nations Convention on the Rights of the Child (CRC) in 2023
Membership, recognition, and assessments	Joined the United Nations Global Compact (UNGC)	Received 2022 RSPO Award of Excellence for Smallholder Impact for outstanding contributions toward smallholder livelihoods	Awarded EcoVadis Gold Medal
	2022 CDP ratings: Forests (A-), Climate Change (B), Water Security (B)	Received new Blue PROPER rating for one of our mills	Assessed in Global Child Forum Benchmark in 2022



Certification progress

100% of mills integrated with plantations certified to RSPO P&C	100% of Indonesian kernel crushing plants and refineries RSPO SCCS certified	Our only refinery in Malaysia MSPO SCCS certified	25 units are ISCC-certified
100% PTs certified to ISPO as of July 2023			



Employees and communities

Employees	Launched new YouTube video series highlighting women at Musim Mas	Operating 48 childcare centres, 10 kindergartens and 13 schools	100% of employees in Indonesia covered by collective bargaining agreements	31% reduction in accident rates since 2018 75% reduction in severity rates since 2018
Communities	Contributed > IDR 30.2 billion to CSR	98% of workers' school-age children enrolled in schools		54 scholarships awarded to deserving students
	>30 ha allocated for workers' community gardens		Providing 26 clinics and >2,600 first-aid kits	



Smallholders

Scheme smallholders	100% of scheme smallholders covered by Musim Mas programs	IDR 390 billion (~USD 25 million) income generated from FFB sales	Conducted 210 scheme smallholder training sessions	86% of scheme smallholder land is RSPO certified
Independent smallholders	40,708 independent smallholders covered by Musim Mas programs	Successfully launched 2 new Smallholders Hubs : Sungai Linau and Sambas	Trained 347 Village Extension Officers (VEOs) , up from 177 in 2021	4,529 smallholders received training from VEOs, up from 1,051 in 2021 (>4x)
	3,537 smallholders RSPO certified and 1,600 ISPO certified with Musim Mas support to date			Smallholders have collectively earned ~USD1.3 million in RSPO credits to date

Key Highlights



Climate action and operational footprint

Launched Biodiversity And Climate Resiliency Action Plan 2022	Signed Agricultural Sector Roadmap to 1.5°C at COP27 to reduce emissions from land use change	Began life cycle assessment (LCA) pilot on selected downstream products	Developing Scope 3 emissions model based on GHG Protocol Guidance
In 2022, upstream GHG emission intensity reduced by 53% against 2006 baseline	Successfully commissioned 17th methane capture facility , 619,749 MT CO ₂ e avoided emissions from all facilities	>95% of upstream energy consumption from renewable sources	>26.5 million kWh of electricity exported to the national grid
Operating 100% zero waste mills			



Conservation, restoration and managing fires

Managing 28,460 ha of conservation area (>14% of total titled land)	Completed conservation impact assessment with SEARRP for biodiversity baseline	Musim Mas operations continue to be 100% deforestation-free
Covering 74 villages under the Fire-Free Village Program (>450,000 ha) Rewarded 46 villages for remaining fire-free		



Landscapes and partnerships

Continued Livelihood Funds (L3F) program partnership to advance regenerative agriculture for independent palm oil smallholders in Labuhanbatu	Continued ETH Zurich research program on how Musim Mas' Smallholders Hubs programs can drive and deliver on sustainability goals	Expanded AgriON platform program for financing solutions and training for smallholders; >300 farmers in the Rokan Hulu district received training to date	Supported and participated in landscape HCV-HCS indicative mapping for Aceh Timur and Aceh Tamiang
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Supplier progress on NDPE

Supplier NDPE progress and engagement	97%* of suppliers have NDPE commitments (including 100% of new suppliers)	93% of suppliers have now attended NDPE workshops	84% of suppliers completed the Musim Mas Self-Assessment Tool, up from 77% in 2021	89.1% of volumes are 'Delivering' on No Deforestation commitments, and 81.3% 'Delivering' on No Peat development commitments (based on NDPE IRF)
	Began FFB dealers engagement program with CORE in Malaysia	Hosted two supplier workshops in collaboration with Sinar Mas Agribusiness and Food in Aceh	Completed human rights baseline assessment with three types of suppliers in collaboration with Verité	
Traceability and risk assessment	Achieved 97% traceability to plantation See: Traceability		No high-risk supplier mills# identified based on NDP Risk Management Framework	
Coconut supply base	Began mapping, engagement, and traceability data collection for coconut supply chain		Completed 4 NDPE workshops for coconut suppliers	

EY has performed limited assurance procedures on these figures.

Targets and progress

This section outlines our progress against Musim sustainability targets and included the updated targets in our 2022 [NDPE Roadmap revision](#). While our target reporting is aligned to the focus areas of our four main pillars of our [Sustainability Policy](#), some targets are reported under other pillars for clearer reporting and is reflected in the relevant sections of this report. These pillars also show our primary contributions to the United Nations Sustainable Development Goals.



Pillar 1:
Improve the Lives of Smallholders, Workers, and Communities

2
ZERO HUNGER


4
QUALITY EDUCATION


6
CLEAN WATER AND SANITATION


8
DECENT WORK AND ECONOMIC GROWTH


Target	Year	Progress in 2022, unless otherwise stated	Status
Own operations			
New: Update sustainability commitments on protecting children's rights	2023	Strengthen commitments to protecting children's rights in line with the UN Convention on the Rights of the Child through an addendum to our Sustainability Policy in July 2023	Achieved in July 2023
New (NDPE Roadmap): Certify 100% of scheme smallholders	2025 ¹	Certified scheme smallholder area increased from 5,956 ha to 6,039 ha; 86% of scheme smallholder areas are RSPO-certified.	On track
New (NDPE Roadmap): Develop Human Rights Due Diligence (HRDD) strategy for Musim Mas operations	2022	Verite Southeast Asia assessment completed in 2022, and HCSA SR13 pilot project ongoing. Began trialing of revised standard operating procedures and strategy.	Progress made in 2022. Target revised to 2024
Roll out HRDD strategy at Musim Mas operations	2025		
Zero fatalities	Ongoing	We regret to report two fatalities at our Kalimantan operations.	Not achieved
Independent smallholders			
Revised (NDPE Roadmap): Improve independent smallholder livelihoods through Smallholders Hubs Training for Trainers	Ongoing	Established 2 new Smallholders Hubs, for a total of 6. Trained 347 VEOs, who have trained 4,529 smallholders.	Progress made
New (NDPE Roadmap): Increase number of smallholders compliant with NDPE requirements through certification training smallholder NDPE compliance	Ongoing	Supported a total of 3,537 smallholders with RSPO certification, and a total of 1,600 smallholders with ISPO certification.	Achieved

¹ This target year is for existing scheme smallholders. Target is subject to change with the inclusion of new scheme smallholders in future.

Targets and progress

Target	Year	Progress in 2022, unless otherwise stated	Status
Phase out 10 pesticides	2022	Phased out 6 pesticides as of December 2021, while 1 pesticide is reserved for emergency use. Increased the area for our commercial trial and trainings. Exploring alternatives as they became commercially available, and where practical.	Target will be revisited once options become available
Equip 17 mills with methane capture facilities	2022	Successfully commissioned 17 th methane capture facility.	Achieved
Develop Group-level emissions reduction targets in line with the Science Based Target initiative (SBTi)	2024	Mapped preliminary Scope 3 emissions for Group-level of our baseline year for the Group, to identify key GHG hotspots and develop reduction targets.	On track
Reduce GHG emission intensity by 55% against 2006 baseline at RSPO-certified upstream operations	2025	Reduced upstream emission intensity by 53% against 2006 baseline.	On track
Maintain mill water usage intensity below 1.2m ³ /MT FFB processed	Ongoing	Our average mill water use intensity was 1.17 [#] m ³ /MT FFB.	Achieved
New (NDPE Roadmap): Ensure 100% of Musim Mas refineries have completed NDPE IRF profiles		See pillar 3	
Supply chain traceability and deforestation-free targets		See pillar 3	

EY has performed limited assurance procedures on these figures.

Targets and progress



Pillar 3: Maintain Responsible and Enduring Relationships with Suppliers, Customers, and Stakeholders



Target	Year	Progress in 2022, unless otherwise stated	Status
(NDPE Roadmap): Achieve 100% overall traceability to plantation ²	2025	Achieved 97% traceability to plantation, up from 94% in 2021.	On track
New (NDPE Roadmap): Ensure 100% of supply chain is deforestation-free	2025	Developing a methodology to track and report deforestation-free supply based on our traceability and risk management frameworks.	On track
New (NDPE Roadmap): Maintain 100% completion of NDPE IRF profiles for Musim Mas refineries	Year-on-year	Maintain 100% completion of NDPE IRF for all refineries and have been made available on the Musim Mas website .	Achieved in 2022
New: Ensure 100% of supplier volumes are 'Delivering' on NDP commitments, based on the NDPE IRF framework	2025	89.1% of supplying volumes are 'Delivering' on No Deforestation commitments, up from 85.6% in 2021. 81.3% of all supplying volumes are 'Delivering' on No Peat commitments, up from 75.0% in 2021.	On track
New (NDPE Roadmap): Ensure suppliers progress towards implementing NDPE best practices	2025	Continued engaging suppliers on NDPE best practice. To track this, 97% [#] of suppliers have NDPE commitments (including 100% of new suppliers); 93% of suppliers have attended NDPE workshops; 84% of suppliers have completed the Musim Mas Self-Assessment Tool.	On track
New (NDPE Roadmap): Develop and implement Human Rights Due Diligence (HRDD) strategy for third-party suppliers	2025	Completed Verité Southeast Asia baseline assessment in 2022, which will guide the development of a strategy.	On track
New (NDPE Roadmap): 100% of grievances addressed	Ongoing	23 active supplier cases being addressed via our grievance system. The one case against Musim Mas on RSPO Case Tracker was concluded and dismissed by the Complaints Panel on 29 August 2023.	Progress made

² Traceability to plantation refers to traceability to place of production, e.g., a company's concession, or location of village in the case of FFB dealers and/or smallholders.

[#] EY has performed limited assurance procedures on these figures.

Targets and progress



Pillar 4: Drive Innovation in Sustainable Practices



Target	Year	Progress in 2022, unless otherwise stated	Status
New (NDPE Roadmap): Roll-out landscape strategies for key landscapes: Aceh, Siak Pelalawan, South Sumatra, and West Kalimantan	2025	To date, one key landscape strategy, for Aceh, has been launched.	On track
New (NDPE Roadmap): Increase support for independent smallholders through multi-stakeholder collaborations	Ongoing	We began new partnerships with: <ol style="list-style-type: none"> 1. Earthqualizer in Sambas, and 2. CORE, Nestle, PepsiCo, IFF, APP, Cargill and Yayasan Mitra Insani in Sungai Linau. 	Progress made



Cross-cutting Pillars: Sustainability Certification



Target	Year	Progress in 2022, unless otherwise stated	Status
100% of PTs in Indonesia ISPO certified	2025	15 of 17 PTs ISPO certified in 2022. In July 2023, all received ISPO certification.	Achieved in July 2023

Chairman Statement

[GRI 2-22]

Dear Stakeholders,

I am pleased to present our 2022 Sustainability Report. We continue to raise the bar in sustainable palm oil production and are expanding our responsible business practices to cover our coconut operations. Although coconut accounts for a smaller portion of the Group's turnover, we have implemented a Sustainable Coconut Sourcing Strategy and are disclosing against its provisions for the first time in this report.

Implementing our Sustainability Policy through our NDPE Roadmap

In 2020, we revised our 2014 Sustainability Policy, renewing and strengthening its provisions and improving our No Deforestation, No Peat, and No Exploitation (NDPE) commitments. We recognize the importance of regularly reviewing this policy to keep up with constantly changing sustainability standards. We will review and revise the policy every five years, with work to commence in 2024 on the 2025 revision.

Our Sustainability Policy is vital in guiding our strategic direction and priorities and is implemented and monitored through our NDPE Roadmap. In 2022, we renewed our 2019 NDPE Roadmap to incorporate the revised 2020 Sustainability Policy provisions, formalizing our strengthened commitments to achieving NDPE compliance in the supply chain. The Roadmap includes new targets to improve smallholder livelihoods, human rights due diligence and supply-chain carbon reduction plans – programs which we have built on in recent years.

Responding to evolving regulatory requirements

Our industry is experiencing changes in regulatory requirements. Although this is to be expected, these developments are progressing at an advanced pace and in several ways. An example of this is how the global financial community is introducing new reporting frameworks for environmental, social, and governance (ESG) performance, and regional financial authorities

are ensuring sustainability is gradually incorporated in financial disclosures.

Several countries and regional trading blocs are adopting new environmental regulations that will affect global trade. The newly launched European Union Deforestation Regulation (EUDR) will have the most significant impact on our industry. Although we agree with its underlying principles, we hope that open, honest dialogue will continue. The EUDR presents an opportunity for a “just transition” toward sustainable production and trade, and should avoid excluding smallholders at all costs. Their inclusion is crucial to the future of our industry, and they must be at the heart of any sustainable development initiatives.

Musim Mas is meeting regulatory changes with confidence, ensuring that we remain fully compliant with the laws of the countries where we do business. We are simultaneously assuring all our stakeholders by consistently demonstrating credible results in constantly evolving industry benchmarking schemes.



Chairman Statement

Collaboration will continue to bring change

The palm oil industry has repeatedly shown a willingness to adapt and work together. Collaboration with the Indonesian government, the palm oil industry, and companies like Musim Mas have resulted in a 65% decrease in deforestation in the country's primary forests since 2015. Since 2004, industry leaders have rallied around commonly understood NDPE commitments and continuously worked to strengthen the Roundtable of Sustainable Palm Oil (RSPO) international standards and embrace national schemes, such as the Indonesian Sustainable Palm Oil (ISPO) certification. Musim Mas was the first Indonesian company to join the RSPO when it was established. As of June 2021, 100% of our mills with plantations have been certified to the RSPO Principles and Criteria, and as of July 2023, we have now achieved ISPO certification for all our upstream entities.

To ensure that smallholders can access all markets, 86% of our scheme smallholder area is RSPO certified. We have also supported 3,537 and 1,600 independent smallholders to achieve RSPO and ISPO certification, respectively. As of June 2023, we have trained over 390 Village Extension Officers across six regions through these hubs. The dedication of local governments has been very encouraging, and we are grateful to them for inviting us to collaborate. We now plan to expand our training programs and increase our impact, including empowering women with household and financial management training. Our programs have been recognized by industry stakeholders for their positive impact on landscapes and jurisdictions, and we are proud to have received the RSPO Award of Excellence for Smallholder Impact in November 2022.

Musim Mas has been a member of the Palm Oil Innovation Group (POIG), the most advanced and strict standard in our industry. Now that its goal of elevating the RSPO standard to a higher level has been met, POIG members decided it was time to disband. However, we remain committed to the spirit of its POIG Charter and will continue to promote improving the RSPO standard and industry sustainability practices.

Accelerating our climate action

Although we are on track to reduce our upstream operations' greenhouse gas (GHG) emissions by 55% by 2025, we understand the need to do more. Our emissions reduction targets must align with the Intergovernmental Panel on Climate Change (IPCC) 1.5°C global temperature increase limit by 2050. We have started tracking emissions from our entire operations and, unsurprisingly, have found that most of our emissions are from supply chain emissions. We are analyzing our emissions sources to create a Group-level emissions reduction targets in line with the Science-Based Targets Initiative (SBTi).

In addition to individual company efforts, I want to stress the need for collective action. In 2022, Musim Mas and leading industry members adopted the Agriculture Sector Roadmap to 1.5°C, which aims to reduce emissions from land use change. Major soy and cattle industry players have also joined this initiative and are committed to meeting specific targets according to their goals and stage in the process. I commend this collective effort, and, as a show of our support, the agreed-upon targets for our sector have been incorporated into the Musim Mas NDPE Roadmap.



Our programs have been recognized by industry stakeholders for their positive impact on landscapes and jurisdictions, and we are proud to have received the RSPO Award of Excellence for Smallholder Impact in November 2022.



Concluding remarks

The pursuit of sustainability is a never-ending journey demanding constant improvement and leading by example. We should be proud of our progress, but a true measure of success lies in the journey ahead. To achieve lower emissions, our suppliers, their vendors, and the smallholders in our supply chain will need to be active participants in this shared journey. Although this may seem daunting, having a clear objective and a means to achieving it is crucial. We will update our future business model, ensuring that all parties play their part in this virtuous transition to lower emissions.

Executive Chairman and CEO

Musim Mas Group

About Musim Mas

[GRI2-1,2-6,3-3,201-1,13.22.2][SASBFB-AG-000.A,FB-AG-000.B,FB-AG-000.C]

Our business in brief

Headquartered in Singapore, Musim Mas Group (“Musim Mas” or the “Group”) is a private limited company and one of the world’s largest integrated palm oil companies, with a presence in 13 countries. We are engaged in every aspect of the palm oil supply chain, from upstream to downstream operations, including plantations, milling, refining, manufacturing, and commercial and consumer sales, with our primary operations in Indonesia. Our integrated business model allows us to produce diverse raw and processed palm-based industrial and consumer products catering to the global market. A small portion of our business is in copra and coconut oil, and this report is the first to include our sustainability strategy for our coconut operations.



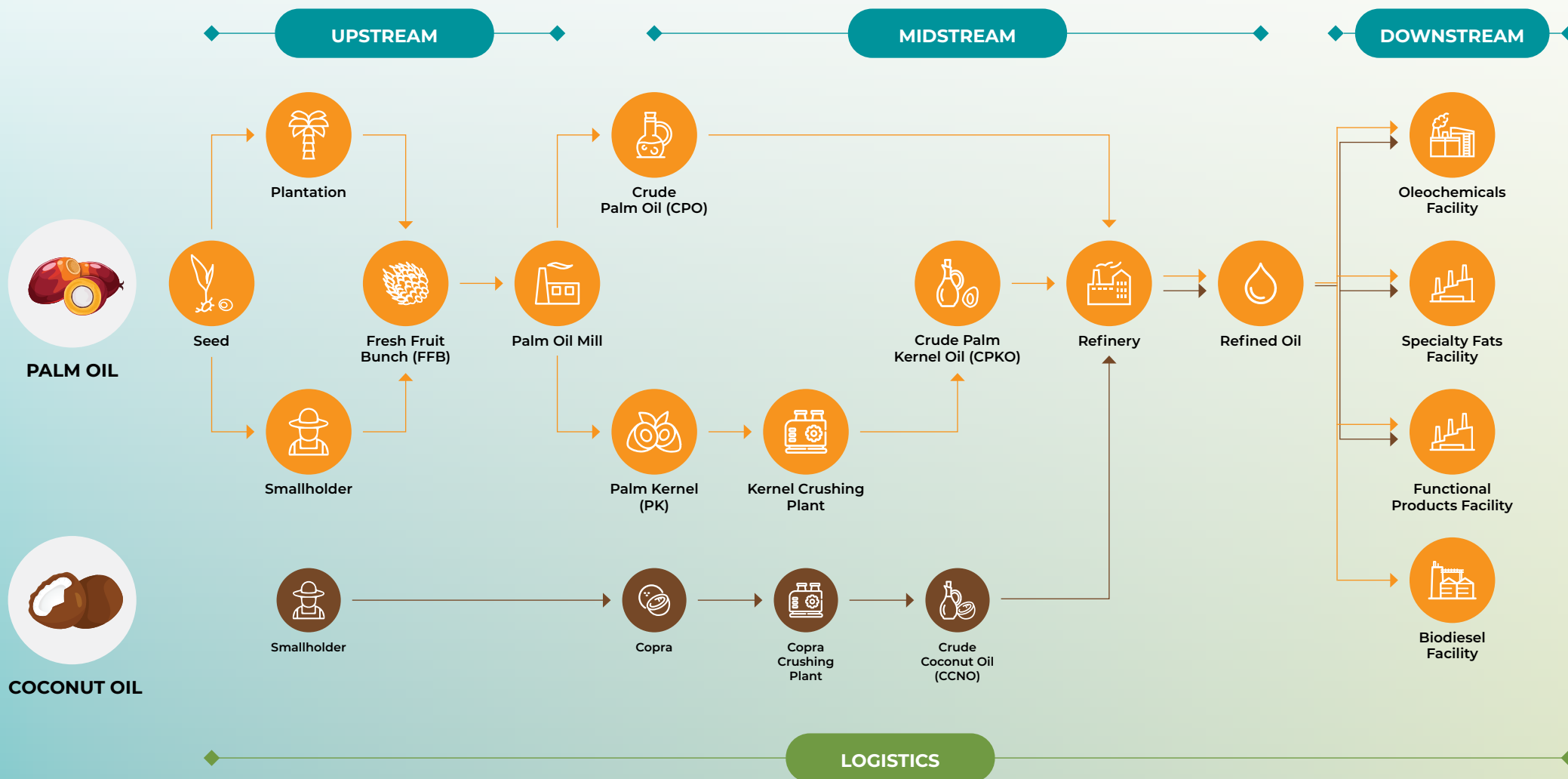
Global and operational presence

- » [Musim Mas' integrated business](#)
- » [Global presence](#)



About Musim Mas

MUSIM MAS' INTEGRATED BUSINESS

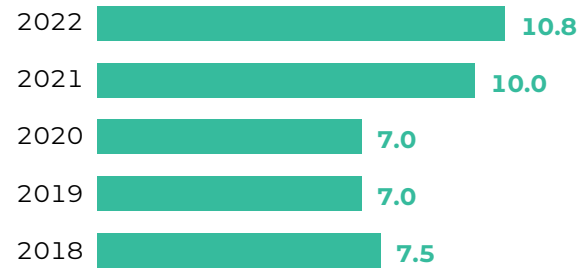


About Musim Mas

FINANCIAL OVERVIEW

The Group's 2022 revenues were USD 10.8 billion, our highest since we began reporting in 2017. While our total sales volumes were at their lowest in the last four years, our revenue growth can be attributed to the high market price of crude palm oil and palm-based products sold during the reporting year.

Revenues 2018 – 2022
(USD billion)

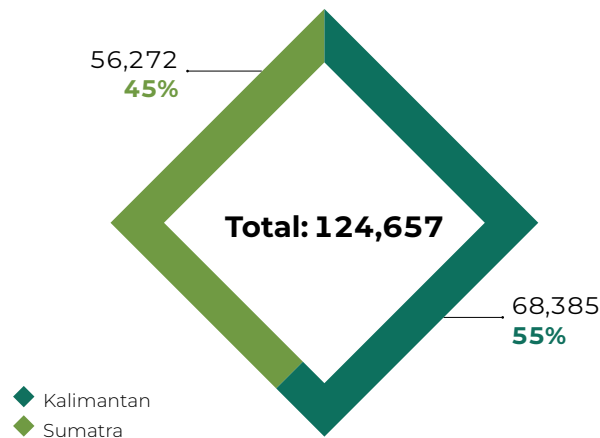


OPERATIONAL OVERVIEW

Upstream Operations

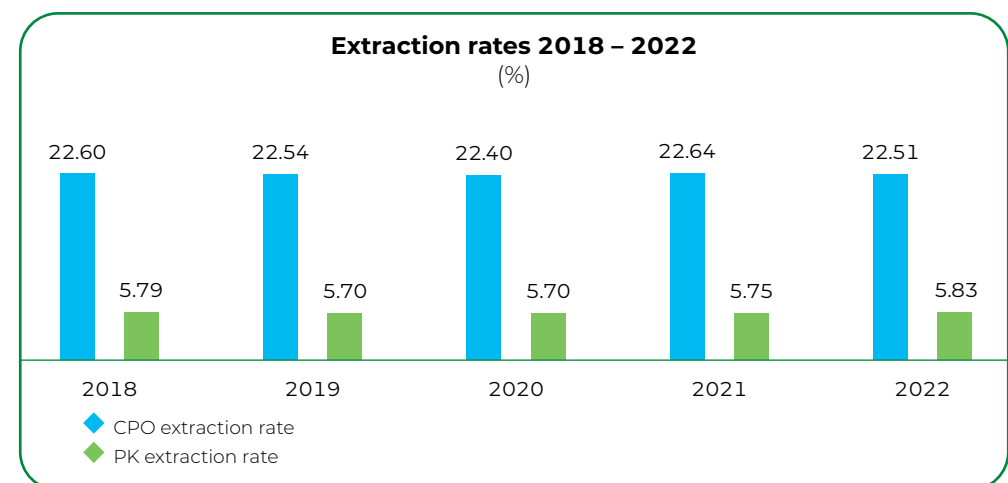
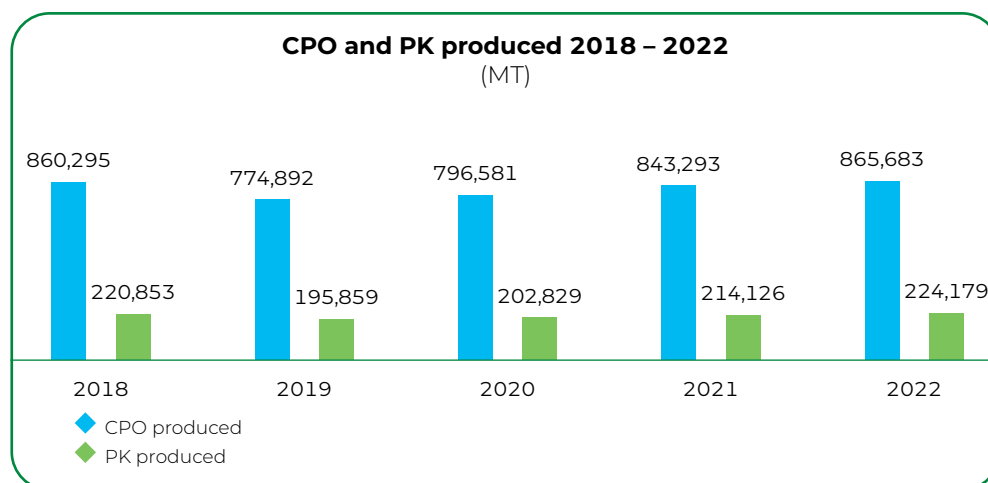
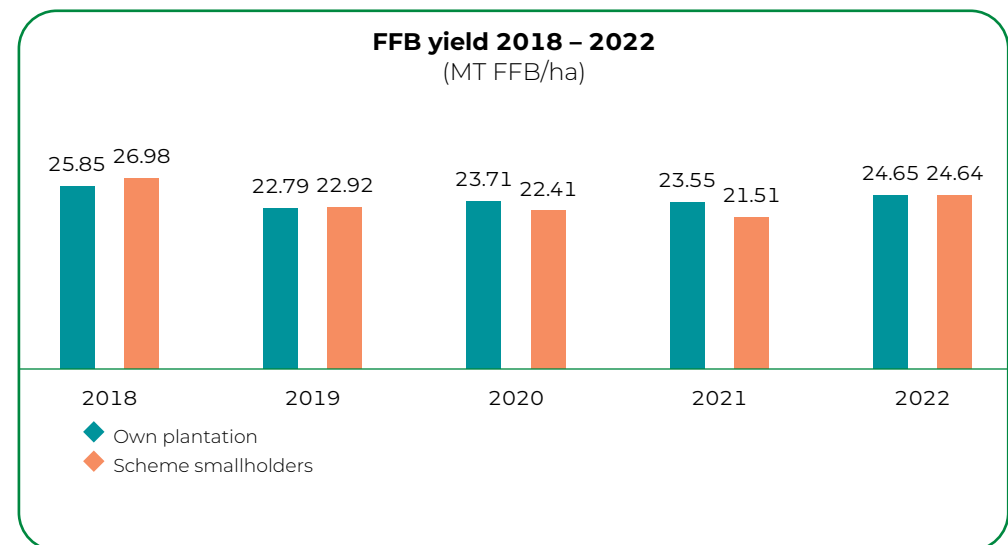
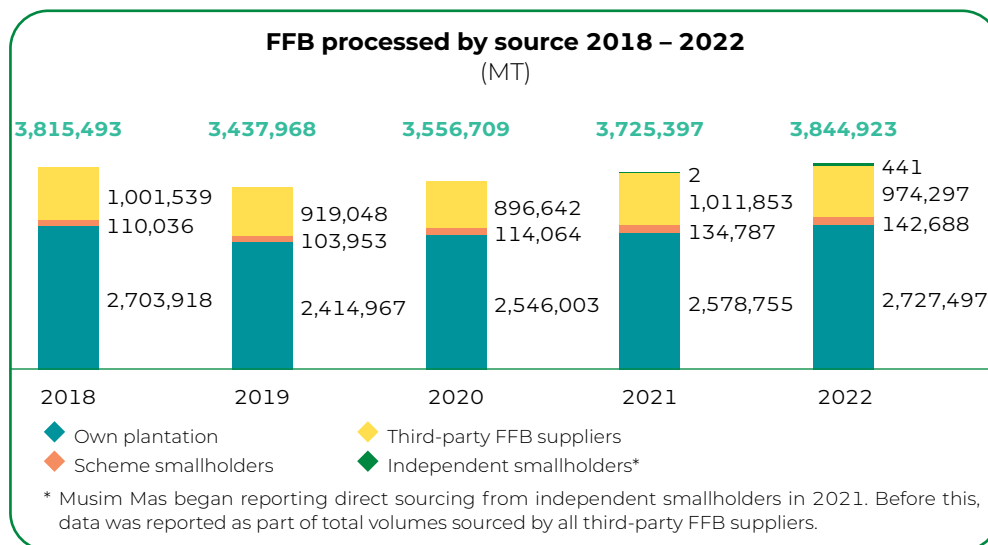
Musim Mas has a land bank of 199,379 hectares across Sumatra and Kalimantan, including 124,657 hectares of planted area.

Planted area by region 2022
(ha (%))



About Musim Mas

Over the past four years, production at our mills has steadily increased. In 2022, we processed over 3.8 million tonnes of fresh fruit bunches (FFB), yielding 865,683 tonnes of crude palm oil (CPO) and 224,179 tonnes of palm kernel (PK). FFB yield and extraction rates remain relatively stable at our operations.



About Musim Mas

Midstream operations

We are a fully integrated palm oil company and manage one of the industry's leading palm oil refinery networks. Our midstream operations include nine kernel crushing plants (KCPs) in Sumatra, Kalimantan and Sulawesi that process PK into crude palm kernel oil (CPKO). By-products of the KCP process, known as palm kernel expeller, are sold for various applications, including animal feed. We also operate one of the industry's largest palm oil refinery networks, with 23 refineries that further refine and process CPO into edible oils and other intermediate products.



We also operate a copra crushing plant in Madidir, Bitung, in the North Sulawesi region. It sources copra from independent smallholders. We send our crude coconut oil to our KIM II complex in North Sumatra for further refining. In addition to the coconut oil we produce, this refinery also source a small proportion of crude coconut oil from third-party copra crushing plants.

» [How coconut is processed from a plant into oil?](#)

Downstream operations

Our downstream operations include eight specialty fats facilities and 11 oleochemical facilities worldwide. These facilities produce high-quality palm oil-based and palm kernel oil-based products and coconut

oil-based oleochemicals and ingredients for diverse downstream consumer and industrial applications, including food and beverage, personal care and cosmetics, pharmaceuticals, and plastics. We produce packaged consumer goods under our own brands and manufacture private-label products for well-known brands. We also operate nine biodiesel plants that cater to the global demand for sustainable fuel.

» [Musim Mas brands and products](#)

Musim Mas products are sold and distributed worldwide via our extensive and efficient logistics network, comprising tankers, tugboats, and other vessels supported by our Singapore-based global marketing division, Inter-Continental Oils and Fats (ICOF), with satellite offices in Asia, Europe, the United States, and South America.

R&D

We own and operate two research and development (R&D) centers in Singapore and Indonesia. These state-of-the-art facilities harness advanced technologies and cutting-edge innovations, enabling us to stay ahead of market and product trends through the in-depth analysis of customer preferences and requirements. Our R&D centers also provide application expertise and technical support to customers worldwide.

» [Musim Mas R&D](#)

» [Driving innovation in sustainable practices](#)



Approach to Sustainability

[GRI2-23,2-24]

Our [2020 Sustainability Policy](#) guides our No Deforestation, No Peat and No Exploitation (NDPE) commitments and measures. It applies to all Musim Mas operations and the third parties we work with, including suppliers and contractors. Given the size and reach of our operations, we continually push the envelope in meeting these commitments and regularly review our policies to stay abreast of evolving issues and adapt to the ecosystems at our operations.

Our 2020 policy was a revision to our first Sustainability Policy, launched in 2014. Moving forward, the policy will be updated every five years. We will begin a review of our next policy in 2024 for launch in 2025.

UPDATED NDPE ROADMAP

Musim Mas is unwavering in our commitment to meeting and exceeding the strictest sustainability standards across our operations, with a focus on our extensive and complex supply chains. More than 87% of our crude palm oil (CPO) supply comes from external suppliers who source from large and small plantations, out-growers, smallholders, and fresh fruit bunch (FFB) agents. Our independent mills source directly and indirectly from independent smallholders. Because our suppliers are at different stages of their respective sustainability journeys, we use a combination of programs catered to their unique situations to engage with them on NDPE.

In 2019, we developed an NDPE Roadmap to guide our supply chain commitments. Over the years, we have learned from its implementation and the realities on the ground, leading to a revised NDPE Roadmap in 2022 that applies any lessons learned. All new and updated targets are reflected in this report's [2022 Summary Progress](#) and will be part of future sustainability reports.

» [Updated NDPE Roadmap to Responsible Supply Base 2025](#)



Approach to Sustainability

A FOCUS ON SUSTAINABLE COCONUT

Musim Mas' sustainability policy covers our global business operations. We have applied our long-standing NDPE commitments to our palm oil business and recognize we must extend it to our coconut oil facility and its supply chain. We have extended the commitments to our processing and refining of coconut oil in 2022, in line with the pledge made in our Sustainability Policy.

To develop a coconut-specific strategy, we completed a preliminary assessment of the risks, challenges, and opportunities facing the Indonesian coconut industry in 2022.

Musim Mas recognizes that the coconut industry is in the preliminary stages of developing a comprehensive sustainable production standard, so our sourcing strategy reflects the current reality of coconut oil production while leveraging our industry-leading palm oil sustainability expertise.

In 2021, we started engaging with suppliers by conducting workshops and collecting traceability information, while the Consortium of Resource Experts (CORE) supported us with desktop research on risks and sustainability issues in the copra supply base. In the next three years, we will expand our sustainable coconut sourcing efforts to our suppliers, partners, customers, and other key stakeholders; we will present our progress in future reports and on our website.

- » [Sustainable Coconut Sourcing Strategy](#)
- » [Working with coconut supply chains](#)



Approach to Sustainability

CONTRIBUTING TO THE SDGS

Musim Mas actively contributes to the United Nations' Sustainability Development Goals (SDGs). We recognize the role businesses play in ensuring the success of the United Nation's agenda and the importance of using a common language to communicate our sustainability progress.

As part of our 2022 materiality update and building upon our work from previous years, we mapped our material topics, program objectives, and downstream risks and opportunities to the SDGs, their targets, and the Musim Mas Sustainability Policy pillars. We define the SDGs we contribute to as "Primary SDGs" and "Secondary SDGs." The former are priority goals and targets we directly contribute to, while the latter are subordinate goals and targets we directly or indirectly contribute to. Their corresponding icons are displayed throughout this report. For more information, see [Musim Mas' contributions to the SDGs](#).



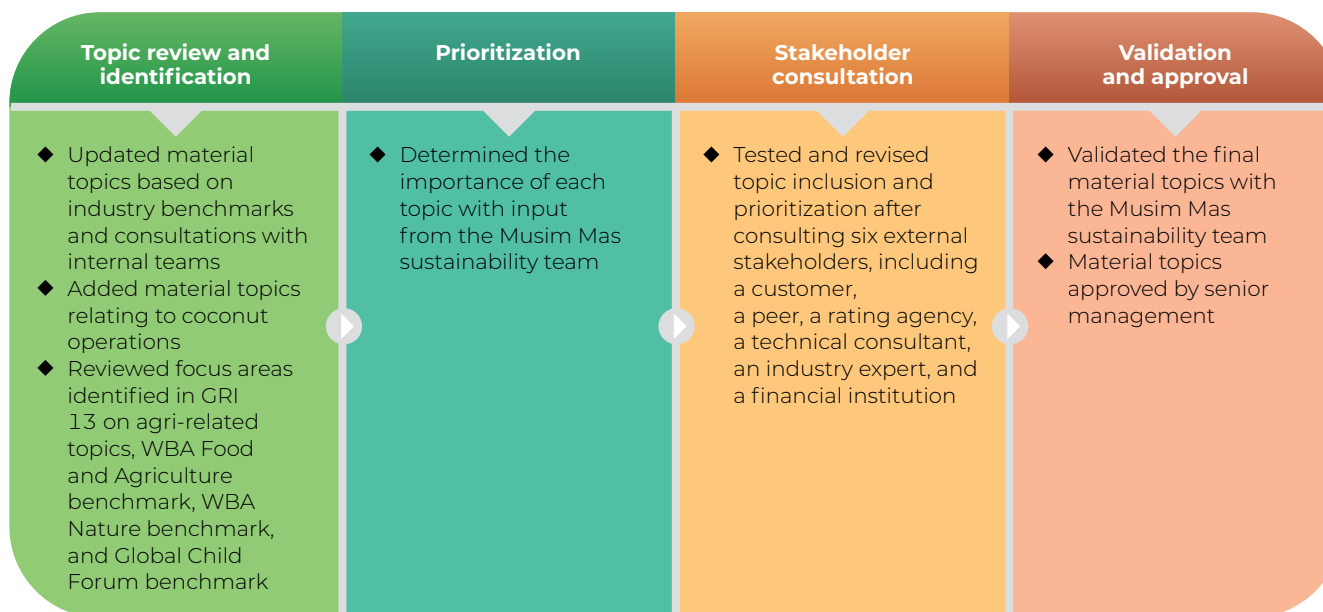
Approach to Sustainability

MATERIALITY

[GRI 2-14, 2-29, 3-1, 3-2]

This report covers the material topics most relevant to our business and stakeholders. These environmental, social, and governance (ESG)-related topics are updated annually based on Musim Mas’ actual and potential impacts. In Q1 2023, we updated our material topics to align with the expanded scope of this report, including our coconut operations. We have aligned key material topics with the four pillars of our Sustainability Policy and the SDGs. For an overview, see [Musim Mas’ contributions to the SDGs](#).

Materiality process



Overview of material topic changes

Revised topic names and scopes

- **Sustainability certification and compliance** updates “Sustainability certification,” reflecting sustainable coconut certification and new EU regulations/due diligence requirements
- **Stakeholder collaboration and reporting updates** “Stakeholder collaboration,” reflecting the evolving reporting landscape and heightened scrutiny of greenwashing
- Expanded scope of **Supply chain engagement and transparency; Smallholder engagement; Landscapes; Conservation and management of HCV, HCS, and peat areas; and Stakeholder collaboration and reporting** to reflect our coconut operations’ material topics

Changes in importance

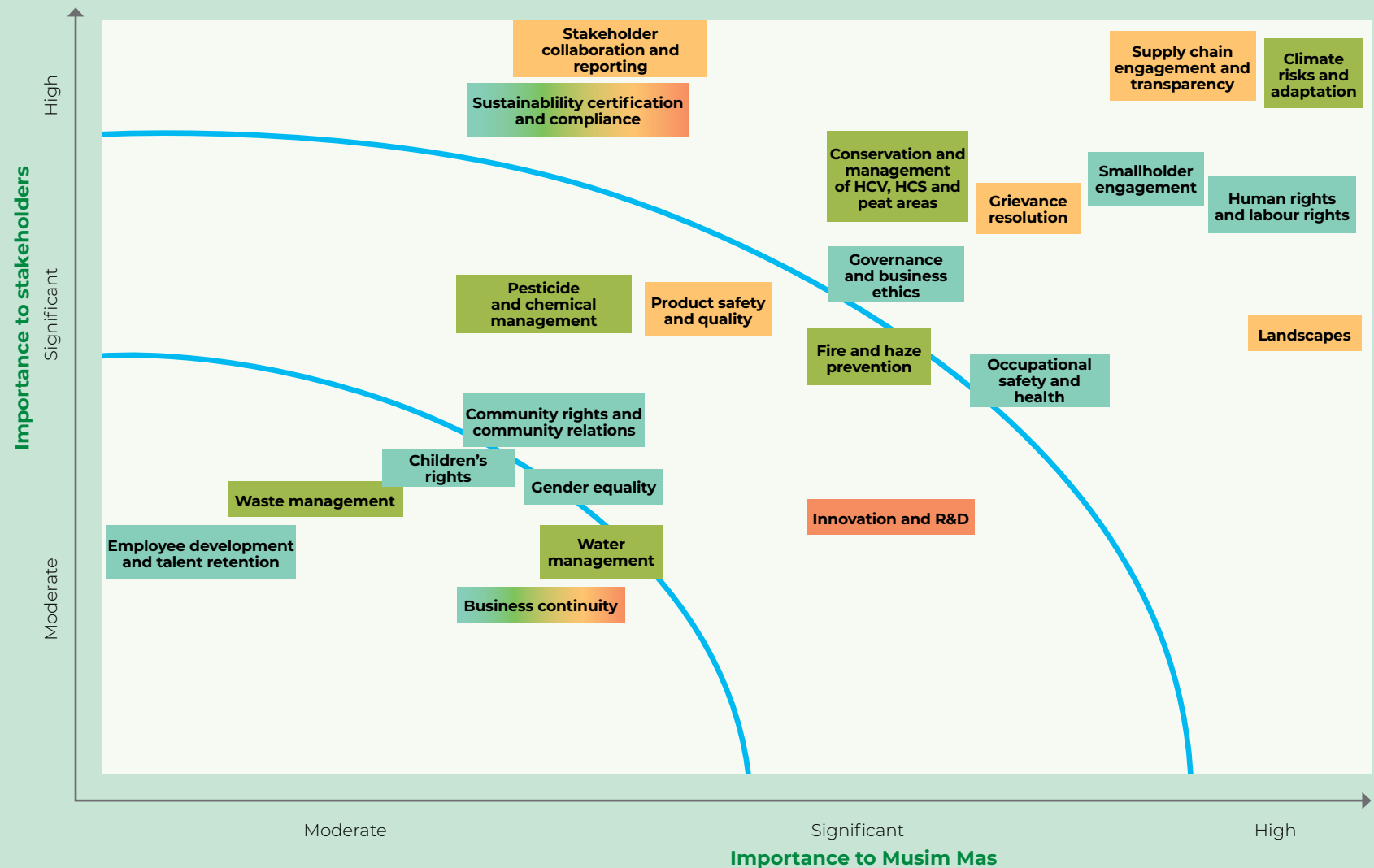
- | | |
|--|--|
| <ul style="list-style-type: none"> • Climate risk and adaptation • Conservation and management of HCV, HCS, and peat areas • Employee development and talent retention • Gender equality • Governance and business ethics | <ul style="list-style-type: none"> • Grievance resolution • Human rights and labour rights • Smallholder engagement • Stakeholder collaboration and reporting • Sustainability certification and compliance |
|--|--|

Approach to Sustainability

MATERIALITY MATRIX

Our materiality matrix for this report covers issues most important to Musim Mas and to our stakeholders. All topics are deemed important and are presented in this matrix based on relative importance.

- ◆ [Musim Mas Pillar 1:](#) Improve the Lives of Smallholders, Workers, and Communities
- ◆ [Musim Mas Pillar 2:](#) Deliver Positive Environmental Impacts
- ◆ [Musim Mas Pillar 3:](#) Maintain Responsible and Enduring Relationships with Suppliers, Customers, and Stakeholders
- ◆ [Musim Mas Pillar 4:](#) Drive Innovation in Sustainable Practices
- ◆ Crosscutting between pillars



Approach to Sustainability

CORPORATE AND SUSTAINABILITY GOVERNANCE

[GRI 2-9, 2-11, 2-12, 2-13, 2-14, 2-16, 2-24, 405-1, 13.15.2]

The Musim Mas Board of Directors (“Board”) considers sustainability a core component of our corporate identity, embedding ESG material issues into our business strategies and decisions. It oversees critical sustainability issues, including climate-related risks and opportunities, human rights (including child protection), NDPE strategies, and supply chain progress. The Board is led by our Executive Chairman and Chief Executive Officer (CEO) and comprises four members, including one woman.

The Board and senior managers, including department heads and directors, meet quarterly to address

sustainability and ESG matters and evaluate the Group’s sustainability performance. Our Executive Chairman leads these meetings. In the interim, the Board receives monthly reports that include key issues, grievances, and critical concerns raised by stakeholders.

Our Director of Sustainability oversees all sustainability matters, including management programs and action plans at the Group level, and reports progress to the Executive Chairman and the Board at least quarterly. Remuneration for the Director of Sustainability is linked to meeting sustainability-related key performance indicators (KPIs) that are aligned with our strategies, such as greenhouse gas (GHG) emissions reduction, compliance with sustainability regulations, standards, certifications, and guidelines, and sustainability-related awards and rankings. The Board also engages with an external sustainability advisor who serves as a

senior strategic consultant on NDPE and sustainability issues for the entire organization. Members of senior management sign off on our annual sustainability reports and other critical communication material on sustainability for our stakeholders.

Our sustainability team comprises over 150 employees in Indonesia, Singapore, and Europe. It is responsible for the daily implementation of our sustainability commitments, including on-the-ground training and outreach programs targeting smallholders, to ensure the dissemination of sustainable practices throughout our operations.

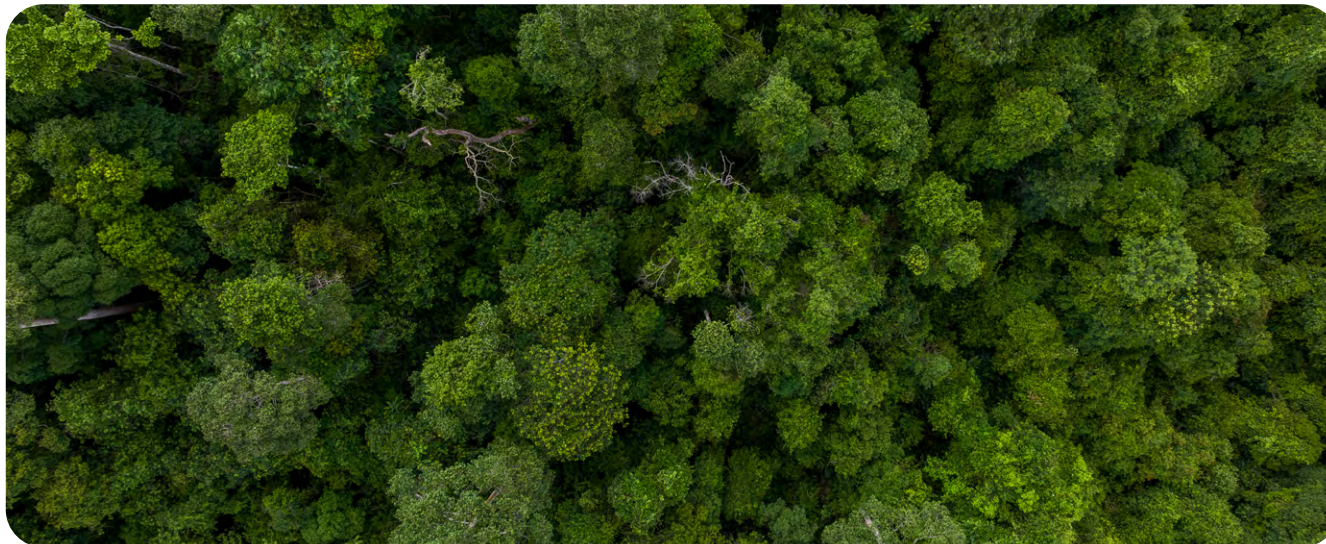
- » [Sustainability governance structure](#)
- » [Business ethics](#)

Grievance mechanisms

[GRI 2-25, 2-26]

Musim Mas provides all stakeholders with a transparent and accountable grievance mechanism that protects the identity of whistleblowers and complainants. All employees can file complaints without fear of reprisal or dismissal. The grievance mechanism is also open to external stakeholders to file complaints against Musim Mas – or our suppliers – on potential breaches of our sustainability policy and certification commitments. We ensure any grievances against the Musim Mas Group raised through external platforms, such as the Roundtable on Sustainable Palm Oil (RSPO) complaints process, are addressed promptly and follow the proper resolution procedures.

- » [Grievance mechanisms](#)
- » [Worker access to grievance mechanisms](#)
- » [Grievances](#)



Approach to Sustainability

CERTIFICATION AND COMPLIANCE

[GRI 3-3]



In addition to strict compliance with relevant regulations of our operating countries, we support and comply with leading voluntary industry sustainability certification and verification schemes.

Upstream certification

RSPO

After the RSPO was founded in 2004, Musim Mas was the first company in Indonesia to join the organization and continues to be an active member. Our 15 mills integrated with plantations are fully certified against the RSPO Principles and Criteria (P&C) standards. Approximately 152,963 hectares of our plantations, including scheme smallholder areas, are RSPO-certified (about 77% of our total land bank). We continue to work towards 100% certification of our plantations to the RSPO P&C.

In 2022, we produced 755,780 tonnes of RSPO-certified sustainable crude palm oil (CSPO) and 188,930 tonnes of RSPO-certified sustainable palm kernel (CSPK), accounting for 87% and 84% of our mill output, respectively.

ISPO

In addition, we adhere to the Indonesian Sustainable Palm Oil (ISPO) standard – the national certification scheme for sustainable palm oil in Indonesia. As of December 2022, 15 upstream entities (PTs) have obtained ISPO certification, while two more PTs completed audits and were awaiting certificates at the time. **We are pleased to report that, as of July 2023, 100% of all Musim Mas upstream PTs have achieved ISPO certification.**

ISCC

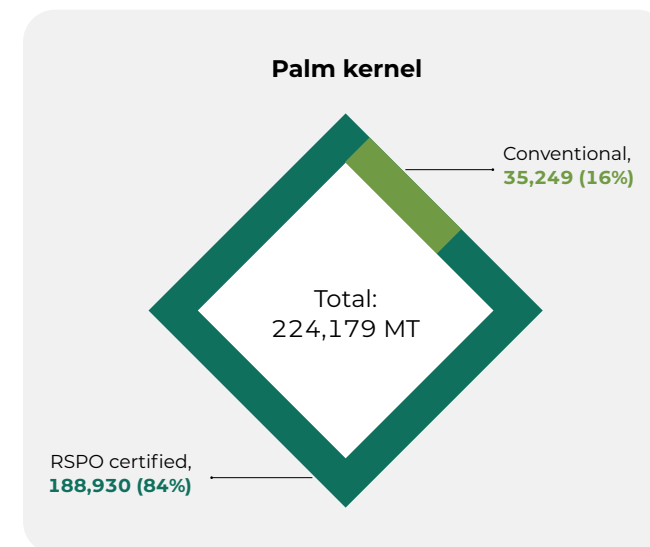
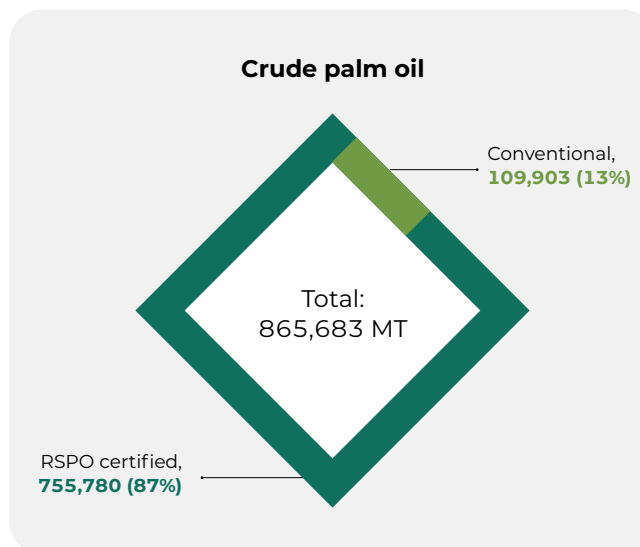
Twenty-five business units, namely all our mills, several supply bases, and scheme smallholders, are certified against the International Sustainability and Carbon Certification (ISCC) standard.

POIG

As part of our commitment to the highest sustainability standards, Musim Mas was verified against the Palm Oil Innovation Group (POIG) Charter in 2019 at a time when its indicators were stricter than the RSPO P&C. As of late 2022, all RSPO-certified mills are verified to the POIG charter.

However, the ratification of the stricter 2018 RSPO P&C revisions reflected POIG indicators and our commitment to this older standard. The POIG initiative will be discontinued in 2023, and we will no longer report on our POIG-verified status.

CPO and PK produced by certification status 2022 (MT (%))



Approach to Sustainability

Supply chain certification

Our certification efforts encompass our entire value chain. Our Indonesian refineries and our wholly owned refinery in Malaysia are all certified against the RSPO SCCS (Supply Chain Certification System). The latter is also certified against the Malaysian Sustainable Palm Oil (MSPO) SCCS standard. We are also seeking RSPO SCCS certification for our three independent mills.

The proportion of (SG) and Identity Preserved (IP) oil accounted for 5.9% of our total raw material sourced in 2022. We processed less RSPO-certified CPO and crude palm kernel oil (CPKO) at our refineries in 2022 than in 2021 due to government-mandated export controls in the first quarter of 2022.

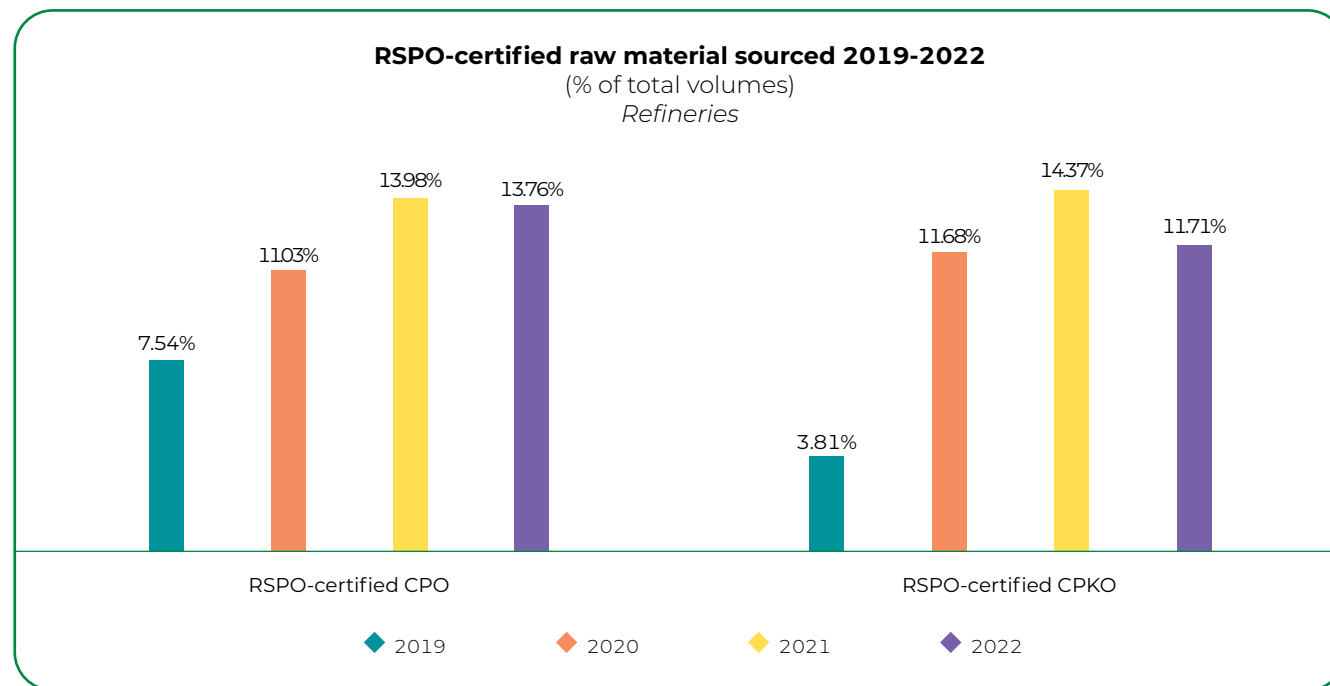
Meeting the new EU requirements

Beginning June 2023, the European Union Deforestation Regulation (EUDR) has come into force, and companies supplying selected agricultural commodities, including palm oil to the EU have 18 months to adapt to the new rules. The EUDR aims to minimize the risk of deforestation and forest degradation associated with products sold in or exported from the EU market.

Musim Mas commends the underlying EUDR principles, which are part of the more ambitious and visionary European Green Deal. However, we recognize the need for the EU to engage with suppliers in producing countries, particularly smallholder farmers who may lack the means to prove they are not a “deforestation risk” based on current definitions – especially those smallholders having land rights but lacking land titles and farm maps that demonstrate compliance.

Our smallholder programs are aligned with the principles now also reflected in the EUDR. We encourage smallholder inclusion in global supply chains by developing mutually beneficial implementation measures for Indonesian farmers and seeking common ground to align their objectives with ours, the EUDR, and other national and international standards.

Musim Mas continues to implement our NDPE priorities across our operations and supply chains to comply with Indonesian, international, and EU mandates.



About This Report

2022 Summary Progress

Chairman Statement

About Musim Mas

Approach to Sustainability

Improve the Lives of Smallholders, Workers, and Communities

Deliver Positive Environmental Impacts

Maintain Responsible and Enduring Relationships with Suppliers, Customers, and Stakeholders

Drive Innovation in Sustainable Practices

Assurance Statement

Appendices

◆ Overview

◆ Our workforce

◆ Sustainability with smallholders

◆ Community rights and support

Pillar 1

Improve the Lives of Smallholders, Workers, and Communities



Pillar 1: Improve the Lives of Smallholders, Workers, and Communities

Musim Mas continues to put our workers, communities, and smallholders first to meet our strategic and business objectives and contribute to sustainable development. We respect human, labour, and land rights and strive to create a lasting, positive legacy everywhere we operate.



New Human Rights Due Diligence strategy

[GRI 2-24, 13.20.1]

Musim Mas regularly assesses and monitors our operations to ensure we uphold the No Exploitation tenets of our No Deforestation, No Peat, No Exploitation (NDPE) commitments. In 2021 and 2022, we conducted two human rights assessments:

1. Verité Southeast Asia independently assessed labour practices at four Musim Mas mills with plantations in Central Kalimantan, West Sumatra, and South Sumatra.
2. We ran a pilot project at a Central Kalimantan plantation on applying the 13th Social Requirement (SR13) of the High Carbon Stock Approach (HCSA) to existing plantations. The project is still ongoing.

These studies will help us identify areas to improve in our existing management systems upholding

human rights commitments at Musim Mas operations. Human rights due diligence covers a broad spectrum of topics, and these studies narrowed our focus to improving labour rights and community land rights at and around our plantations, in line with industry priorities.

In 2022, we began developing a Human Rights Due Diligence (HRDD) strategy to augment our existing management systems.

At the time of publication, we are finalizing this approach and aligning it with the recommendations of the human rights assessments. We plan to trial the HRDD in 2023 and formalize the strategy once we have received feedback from operation teams on the ground and from our suppliers before rolling it out across all upstream sites by 2025.

Strengthening commitments on children's rights

Musim Mas is bolstering our efforts to support more than 12,700 children in our plantations. We included an [addendum to our Sustainability Policy in 2023](#) with firmer commitments to child protection and children's rights based on the United Nations Convention on the Rights of the Child (CRC).



Pillar 1: Improve the Lives of Smallholders, Workers, and Communities

OUR WORKFORCE

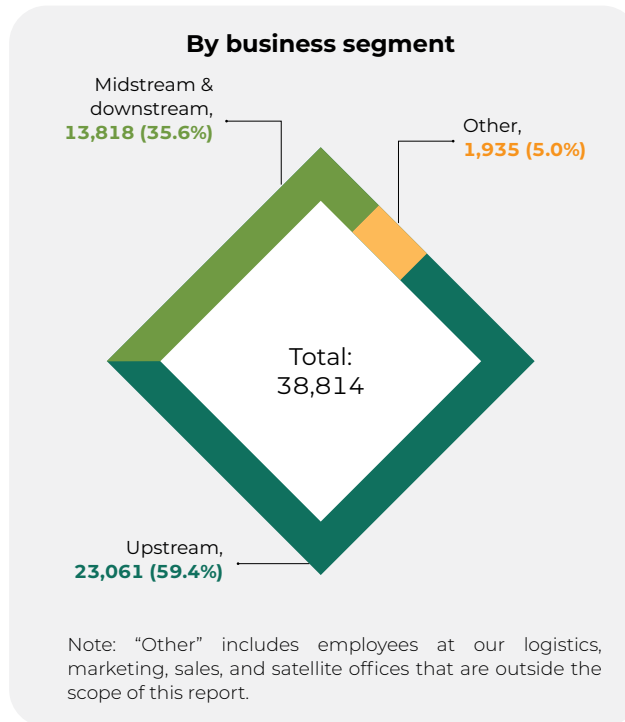
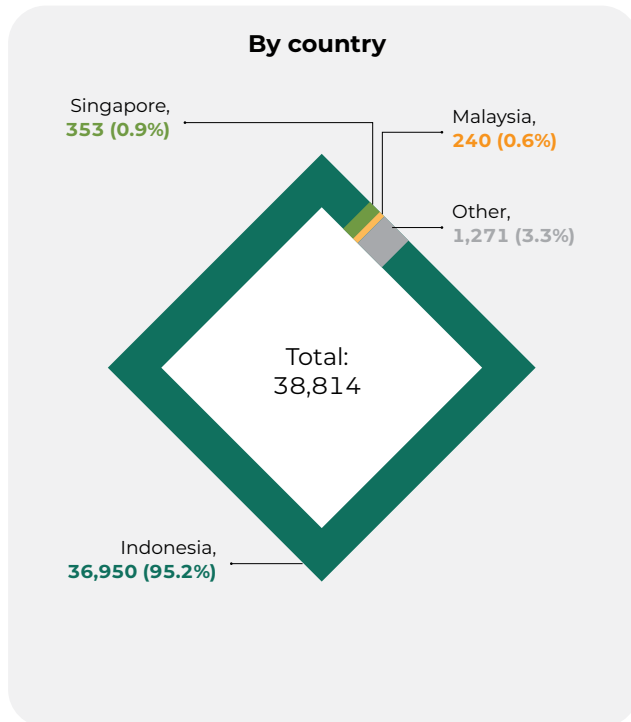


Employee overview

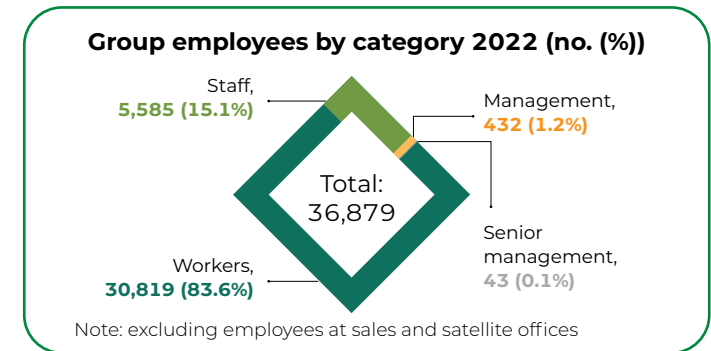
[GRI 2-7, 3-3]

Our workforce is the backbone of our business. We employ 38,814 people worldwide, with our Indonesian operations accounting for 95.2% of our workforce. Of the total, 59.4% of our employees work at our upstream operations in Sumatra and Kalimantan. Another 35.6% are employed at our midstream and downstream facilities across Indonesia, Malaysia, and other countries. The remaining 5.0% of our global workforce is employed at our sales and satellite offices.

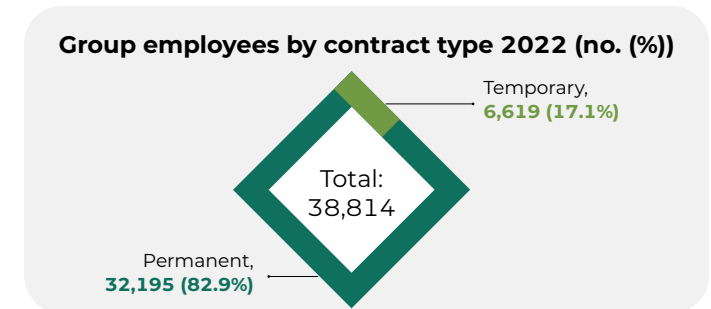
Employee overview 2022 (no. (%))



Workers comprise the bulk of our workforce at our upstream, midstream, and downstream operations, accounting for 83.6% of our employees – the rest account for staff, management, and senior management positions.



Most of our employees make up permanent, full-time positions, except in Indonesia, where we employ some temporary, short-term contract workers at our plantations and factories, including seasonal workers who support harvesting activities during peak periods. Temporary workers comprise 17.1% of our total workforce. Fewer than 500 workers at our upstream plantations hold temporary status, while the remaining are employed at our midstream, downstream, and other businesses.



Pillar 1: Improve the Lives of Smallholders, Workers, and Communities

Wages and working conditions

[GRI 3-3, 202-1, 401-2, 13.20.1, 13.21.1, 13.21.3]

Musim Mas staff and workers, including temporary workers, are paid at least the minimum wage in their respective regions, and their employment conditions comply with all local and national labour legislation. Male and female workers across Sumatra and Kalimantan receive equal entry-level wages regardless of gender. In 2022, entry-level salaries ranged from IDR 2.5 million to IDR 3.3 million, depending on the operating region, and were the same for men and women.

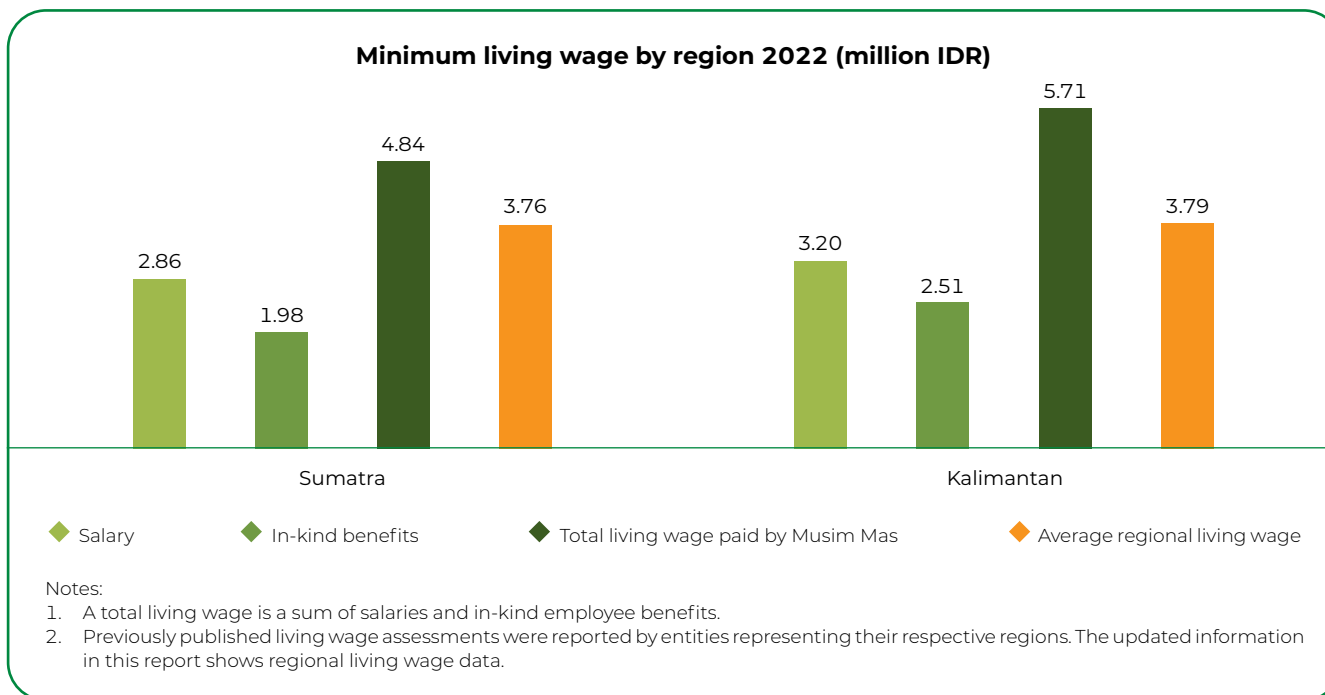
In addition, we provide workers at our upstream operations with in-kind benefits, including housing, healthcare, electricity, water, transportation, childcare, and education for school-age children. We annually assess living wages at our Indonesian operations, and workers' salaries and in-kind benefits are aligned with Roundtable on Sustainable Palm Oil (RSPO) and other living wage calculations.

In 2023, the Palm Oil Innovation Group (POIG) published a report on implementing living wages and living wage calculations in different contexts. It showcased Musim Mas' living wage approach, breaking down sample living wage calculations for families and single workers in Riau, Sumatra. The report is available [here](#).

The in-kind benefits at our midstream and downstream operations vary by region, in line with applicable local and national laws.

Encouraging employment of families

Musim Mas' family-friendly practices at our plantations and mills help working couples. We provide parental leave, on-site education for school-age children, scholarships for secondary school students, and childcare facilities. We support expecting and new mothers with healthcare education, prenatal and postnatal healthcare services, and breastfeeding stations at our facilities. We have enacted specific employment policies for women with infants.



Pillar 1: Improve the Lives of Smallholders, Workers, and Communities

Workforce diversity

[GRI 3-3, 202-1, 405-1, 405-2, 406-1, 13.15.1, 13.15.2, 13.15.3, 13.15.4]

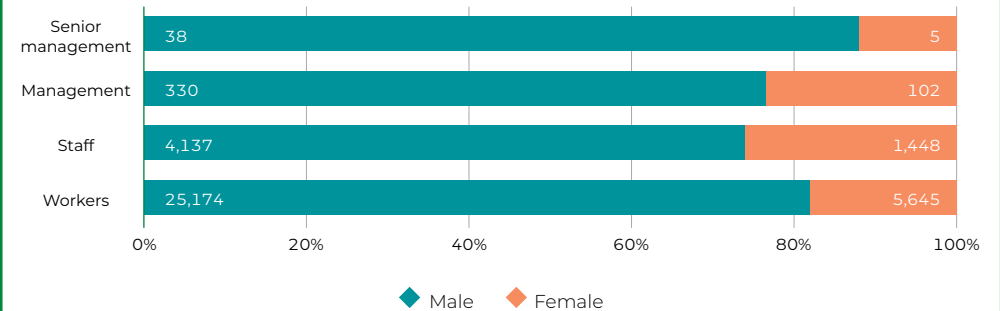


Employees are hired, promoted, and provided equal pay and opportunity based on merit, without any form of discrimination, and are trained on our no-discrimination policies. There were no instances of discrimination reported at our upstream operations in 2022.

Musim Mas employs 8,112 females across the Group, comprising 21% of our global workforce. This includes our sales and satellite offices.

Across our upstream, midstream, and downstream operations, five women hold senior management positions, representing 11.6% of our senior management team. Women also comprise 23.6% of our management positions and comprise 25.9% of our administrative staff worldwide. Females constitute 18.3% of the total workers at our upstream, midstream, and downstream operations. One woman sits on the Musim Mas Board of Directors.

Gender diversity by employee category 2022
(no. (%))



Note: Total of 7,200 women featured in the chart excludes employees at sales and satellite offices.

Promoting gender equality at plantations

Musim Mas promotes gender equality at our plantations, employing women and supporting their need to balance household responsibilities and childcare commitments with work. We provide working mothers with the necessary facilities, services, and support to meet their employment and family commitments and promote awareness of gender-related issues through the following initiatives:

Establishing Gender Committees at every estate

Issuing Family Cards* to household heads, regardless of gender

Providing breastfeeding stations and childcare centers at our operations

Conducting workshops and knowledge-sharing sessions with external parties, including provincial Women's Empowerment Offices

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

See our [YouTube channel](#) for a series of videos highlighting some of the women employed at the Musim Mas Group



Pillar 1: Improve the Lives of Smallholders, Workers, and Communities

Freedom of association

[GRI 2-30, 3-3, 402-1, 407-1, 13.18.1, 13.18.2, 13.21.2]

All employees are free to join the labour union of their choice and participate in union meetings. We maintain positive relationships between management and union representatives and hold regular meetings to discuss wages, benefits, leave, and other employment issues. We also support our employees in Indonesia by regularly collecting their feedback through bipartite cooperation committees or *Lembaga Kerja Sama (LKS) Bipartit*, comprising company representatives and workers. A total of 21,072 employees are labour union members.

We respect the right of our employees to engage in collective bargaining agreements (CBAs), and **100% of our employees in Indonesia are covered by CBAs** that adhere to government regulations.

Employees in Indonesia have access to transparent CBAs. We communicate the availability of CBAs during union meetings and morning briefings, distribute CBAs to field supervisors, and make them available at estate, mill, and union offices, so workers can access and consult them.

Some employees in other countries of operation are part of collective bargaining agreements or unions, depending on the country's legislation.

Ensuring no child or forced labour

[GRI 3-3, 408-1, 409-1, 13.16.1, 13.16.2, 13.17.1, 13.17.2, 13.20.1]

No child labour

We have zero tolerance for child labour at our operations. Our recruitment policy prohibits the employment of individuals under 18, and we screen all job applicants to ensure they meet minimum age requirements. We have incorporated age-verification measures into our recruitment process, including interviewing applicants to prevent underage workers from joining our workforce.

We have also established procedures for our upstream operations, outlining units' responses if children are found at our worksites. In such cases, we include parents in the remediation process and recovery actions and employ qualified experts to perform physical and mental health examinations and psychologically evaluate affected children. These policies and procedures are repeatedly communicated to our employees, including through labour unions.

Musim Mas provides schools and daycare centers for children living in and around our plantations so parents can work without worrying about their children's safety and education.

There were no reported incidents of child labour at our operations in 2022.



No forced labour

Musim Mas strongly opposes forced and trafficked labour. Our workers are free to move in and out of our estates. Our recruitment, selection, and hiring policies and procedures meet legal standards, and we incorporate strict controls to prevent forced labour, debt bondage, and discrimination.

Musim Mas does not employ foreign workers at our Indonesian estates. However, we understand the risk of forced labour in the palm oil industry is considered high due to the employment of migrant workers at plantations in some producing countries. When we employ workers from other provinces, we do not retain their identification and travel documents. We do not use third-party recruiters or labour agents and collect no fees from workers. Transportation fees incurred by prospective workers are fully reimbursable.

Worker access to grievance mechanisms

[GRI 2-25, 2-26]

Workers can access transparent and accountable grievance mechanisms without fear of reprisal or dismissal. We ensure all employees are made fully aware of grievance-raising channels. We train all workers on our internal grievance procedures and post notices on bulletin boards at all our sites. Employees can submit complaints through suggestion boxes in and around our operations and grievance logbooks at our administrative offices by contacting our Corporate Affairs Department (*Hubungan Masyarakat*) or through their labour union.

Pillar 1: Improve the Lives of Smallholders, Workers, and Communities

Safety and health

[GRI 3-3, 403-5, 403-8, 403-9, 13.19.1, 13.19.6, 13.19.9, 13.19.10] [SASB FB-AG-320a.1]

Musim Mas prioritizes the safety and health of our employees through our dedicated Occupational Safety and Health (OSH) policy. Our OSH management system covers all employees, both permanent and temporary. We equip all employees at plantations, mills, and factories with the necessary personal protective equipment (PPE) and train them in safety and health issues pertinent to their roles.

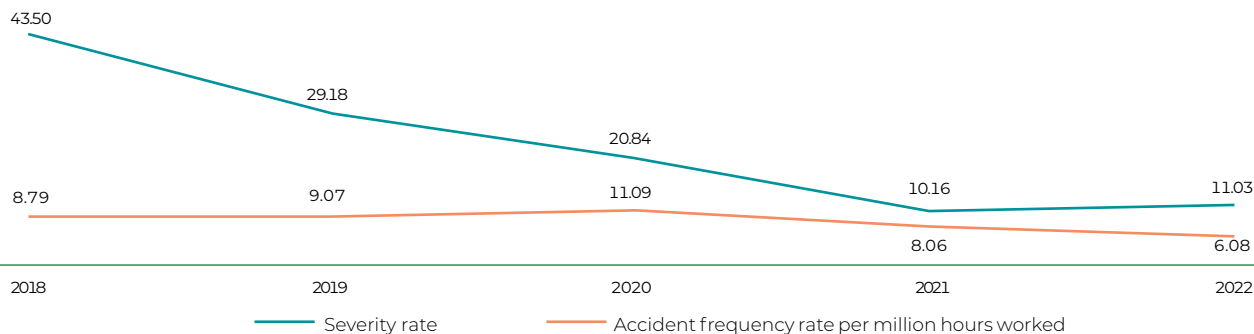
Upstream accidents

We strive to improve the accident rates at our upstream operations through our vigilance and strict health and safety measures. Most injuries are minor and result from activities in plantations, such as small cuts from oil palm fronds and thorns. Other causes of injuries include working tool accidents and motorcycle accidents. In 2022, our accident frequency rate (FR), which measures productivity lost due to accidents, decreased to 6.08, a 25% reduction from 8.06 in 2021.

However, the 2022 severity rate was 8.6% higher than in 2021, indicating more serious incidents during the reporting year. All cases have been reviewed, and we are working to address the risk of such injuries. Nevertheless, the overall severity rate has fallen by 75% since 2018, indicating a substantial reduction in severe injuries at our mills and plantations over the last five years.

Accident frequency and severity rate 2018-2022

Upstream operations



Notes:

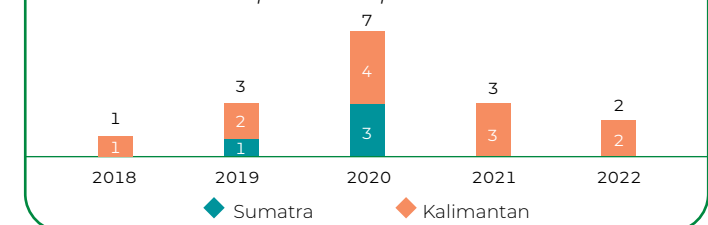
1. The accident frequency rate is the number of accidents divided by the hours worked multiplied by 1,000,000.
2. The severity rate is the number of days lost divided by the number of accidents.

Upstream fatalities

Despite our stringent health and safety measures, we deeply regret to report two fatalities at our upstream operations in 2022. One of these was a result of a road accident while the other was a result of a heart attack. We take every fatality seriously, investigate the cause of each incident, and report our findings to the appropriate regional Manpower Office (*Dinas Tenaga Kerja*). We have taken corrective action to minimize the risk of such accidents recurring, including improving road conditions and signage as well as raising employee awareness about road safety and the need for employees to attend regular medical checkups.

Fatalities by region 2018-2022 (no.)

Upstream operations



Employee development and talent retention

[GRI 3-3, 404-2]

We provide regular, relevant training to ensure our workers and employees can effectively fulfill their assigned roles. Additionally, we invest in capacity building and technical skills programs and offer professional development opportunities that allow employees to pursue their career goals while contributing to our company's overall progress. At our plantations, we engage in meetings and discussions with workers to establish harvesting targets integrated into their performance assessments, fostering a performance-driven approach.

Pillar 1: Improve the Lives of Smallholders, Workers, and Communities

SUSTAINABILITY WITH SMALLHOLDERS

[GRI 3-3, 203-1, 203-2, 413-1, 13.12.1, 13.12.2, 13.22.1, 13.22.3, 13.22.4, 13.23.4]



Smallholders, or individuals with farms smaller than 20 hectares, play a vital role in the Indonesian palm oil sector. However, smallholders face complex and interlinked barriers concerning yields, agricultural practices, land ownership, financial access, market access, and economies of scale. Given the new European Union regulations requiring deforestation-free palm oil supply, it is more important than ever for global players like Musim Mas to engage with smallholders.

Since commencing operations, we have made tremendous efforts to support smallholders within our supply chain. We run several programs for **scheme smallholders** (where plantation companies operate nucleus estates that assist and support surrounding community plantations) and **independent smallholders** (farmers who are self-financed, -managed, and -equipped).

Scheme smallholders

Musim Mas currently operates two programs for scheme smallholders. In 2022, we significantly expanded our outreach efforts to scheme smallholders in Kalimantan. **As of December 2022, Musim Mas operates 41 local initiatives under our scheme smallholder programs, covering 100% of our smallholders, who manage a combined 7,015 hectares of planted area.**³

KREDIT KOPERASI PRIMER ANGGOTA (KKPA)

- ◆ About: A smallholder primary cooperative credit scheme, voluntarily initiated by Musim Mas in 1996. It provides smallholders with practical support to acquire the skills and technology needed to undertake palm oil cultivation
- ◆ Operating since 1996
- ◆ Number of programs: 10# (↑1 in 2022)
- ◆ Number of smallholders: 4,144# (↑100 in 2022)
- ◆ Total scheme smallholder hectareage: 6,783 ha (↑337 ha in 2022)

VILLAGE DEVELOPMENT PROGRAM (VDP)/KEBUN KAS DESA

- ◆ About: A Musim Mas program for scheme smallholders tailored to villages where plantations are community-managed rather than individually owned
- ◆ Operating since 2000
- ◆ Number of programs: 31# (↑2 in 2022)
- ◆ Number of villages: 31# (↑2 in 2022)
- ◆ Total scheme smallholder hectareage: 232 ha (↑22 ha in 2022)

**COMBINED
HECTARAGE:
7,015 ha**

³ Our smallholder and Musim Mas concession maps are made available to the RSPO.

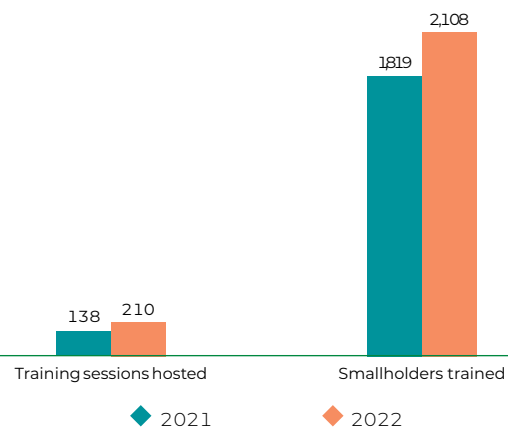
EY has performed limited assurance procedures on these figures.

Pillar 1: Improve the Lives of Smallholders, Workers, and Communities

Smallholder training

We have ramped up our scheme smallholder training programs covering agricultural practices, sustainability requirements, and other topics. **In 2022, we hosted 210 training sessions for Kredit Koperasi Primer Anggota (KKPA) and Village Development Program (VDP) or Kebun Kas Desa smallholders, attended by 2,108 farmers.**

Scheme smallholder training 2021-2022 (no.)



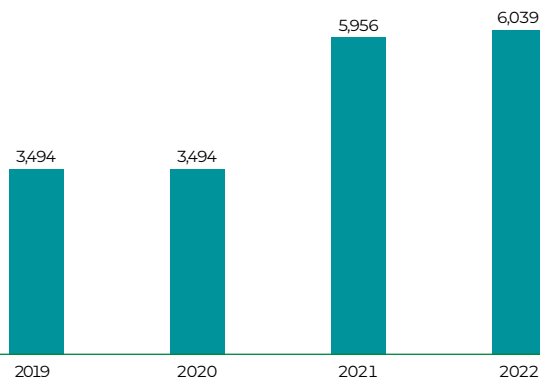
Production and income

In 2022, our scheme smallholders produced 142,688 tonnes of fresh fruit bunches (FFB), sold for a combined gross income of IDR 390 billion (~USD 25 million). We previously reported the combined net income of our smallholders but now report gross income to indicate earnings from FFB production before expenses.

Certified smallholders

We work with our scheme smallholders to help them obtain sustainability certification. **As of December 2022, 86% of the land belonging to scheme smallholders was RSPO certified, representing 6,039 hectares – 84 hectares more than in 2021.** Our certified scheme smallholders supplied Musim Mas mills with 130,820 tonnes of certified FFB, representing 92% of all FFB sourced from scheme smallholders.

RSPO-certified scheme smallholder area 2019-2022 (ha)



Pillar 1: Improve the Lives of Smallholders, Workers, and Communities

Independent smallholders

Since 2015, Musim Mas has continuously adapted and improved our independent smallholder programs to better integrate these suppliers into our palm oil supply chains. We engage with smallholders and assist them in adapting to efficient farming standards based on their capacity and resources, by providing training modules covering good agricultural practices (GAP) and NDPE commitments. Our programs utilize a landscape-level approach, establishing and running initiatives with local stakeholders. We have found this is the most effective approach for addressing smallholder barriers stemming from geographic and social dynamics conditions.



Program approaches

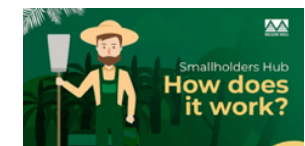
We have honed our engagement approaches over the years and have consolidated them into two main streams to improve the livelihoods of independent smallholders:

- 1. Training for smallholders:** directly training smallholders in the communities surrounding Musim Mas and third-party mills, including one-off collaborations wherever possible.
- 2. Training for trainers through Smallholders Hubs:** indirectly providing extended coaching to independent smallholders by training local government agricultural officials (Village Extension Officers [VEOs]) to scale up and extend the reach of various programs. Each Smallholders Hub partners with other actors in the local landscape to collectively address farmers' barriers.

District governments collaborate with our Smallholders Hubs, improving support to independent smallholders and their integration with broader government initiatives. The Smallholders Hubs can contribute to multi-stakeholders' jurisdictional and landscape initiatives. This precompetitive approach allows other palm oil companies operating in a region to share expertise, regardless of whom smallholders sell to, making the program more attractive to potential participants.



See our [YouTube video](#) for an overview of our Smallholders Hubs program

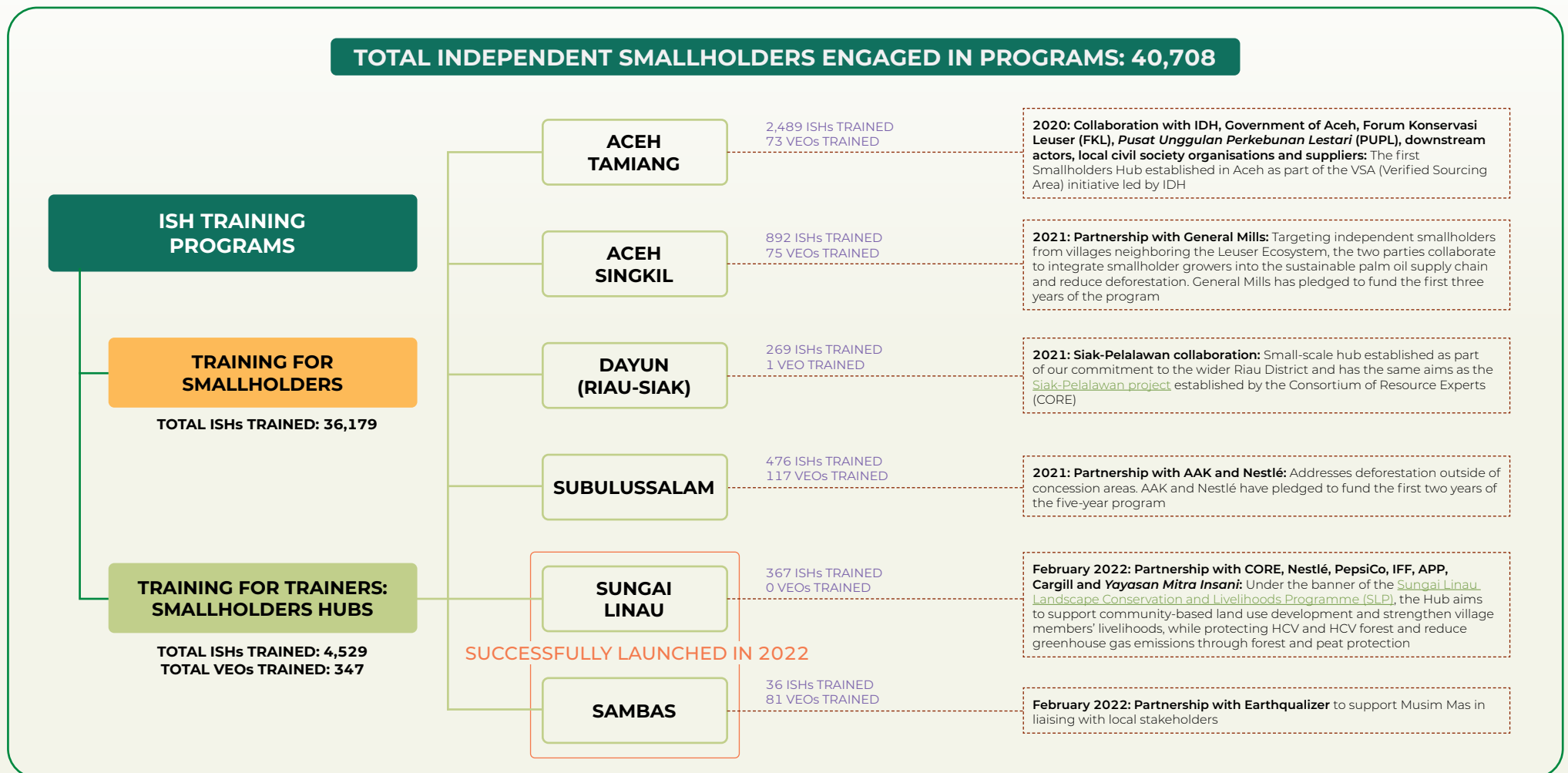


» [Comprehensive overview available here: Independent Smallholders](#)

Pillar 1:

Reach of smallholder programs

Our teams track smallholder training program activity and data monthly, reflecting our intensified focus on rolling out on-the-ground programs. **As of December 2022, 347 VEOs and 40,708 independent smallholders (ISH) have attended one of our training programs.**



*Note: Smallholders trained in Sungai Linau were successfully completed with the support of Musim Mas' field assistants. Government VEOs are still in training.

Pillar 1: Improve the Lives of Smallholders, Workers, and Communities

Increasing engagement through Smallholders Hubs

Thanks to our concerted on-the-ground efforts, engagement at our existing Smallholders Hubs is increasing. **We successfully launched two new Smallholders Hubs in 2022: Sungai Linau and Sambas.**⁴

The number of VEOs on the ground across all Hubs rose from 177 in 2021 to 347 in 2022, and the total number of trained smallholders more than quadrupled from 1,051 in 2021 to 4,529 in 2022. As of June 2023, this has risen to 398 VEOs and 41,954 smallholders.

VEOs and independent smallholders trained by hub 2021–2022 (no.)

	VEOs			Independent smallholders		
	2021	2022	2025 target	2021	2022	2025 target
Aceh Tamiang	73	73	40	495	2,489	1,500
Aceh Singkil	75	75	60	400	892	2,500
Riau-Siak, Dayun	1	1	20	156**	269	250
Subulussalam	28	117	60		476	2,000
Sungai Linau			20		367	300
Sambas		81	40		36	500
Total	177	347		1,051	4,529	

Notes:

* VEO data in **blue** is the maximum number that will be trained. A focus in the following years will remain on increasing smallholder engagement through the trained VEOs.

** Data has been restated.

Progress in Aceh

Our programs are most mature in Aceh province – namely Aceh Tamiang, Aceh Singkil, and Subulussalam. Aceh is home to unique biodiversity and history and is a priority landscape for Musim Mas. 87% of the Aceh-Leuser Ecosystem is in Aceh province. It continues to be a high-risk landscape due to the presence of protected areas and ongoing deforestation alerts we receive through monitoring systems. Since 2021, Musim Mas has implemented a dedicated landscape strategy for Aceh.

Aceh Tamiang

One of our earliest programs was working with IDH to promote Aceh Tamiang as a Verified Sourcing Area (VSA), and we established our first Smallholders Hub there in 2020. We have since trained 73 VEOs and are focused on increasing the number of

smallholders engaged each year. In 2022, almost 2,500 smallholders have benefited from our training programs – up from 495 in the previous year. A video on the VSA is [available here](#).

Aceh Singkil

Aceh Singkil is an ongoing success story for our Smallholders Hubs. Thanks to our partnership with General Mills and integrating Smallholders Hubs into our broader Aceh strategy, we have exceeded our training targets. **We initially envisioned training 20 VEOs a year but have trained 75 in the first two years, reaching the maximum number we aim to train ahead of schedule. We expected to engage with 1,000 smallholders as part of our initial partnership deal with General Mills but, as of February 2023, have already engaged with 1,050.** We will continue to enhance existing training

programs for maximum impact by engaging with the local government and participating in landscape initiatives, including the Strategic Planning for Aceh Singkil Landscape Program, the Landscape-based Natural Resources Management workshop, and the Regent Regulation on Establishment of Natural Resources Management Forum.

Subulussalam

We also surpassed VEO training targets in Subulussalam. Our partnership agreement with AAK and Nestlé required us to engage 40 VEOs. As of December 2022, 117 VEOs have received training. Having taken part in the Regional Action Plan on Sustainable Palm Oil Development in 2022, aimed at forming a working group to deliver on regional programs up to 2024, we will remain active in this landscape.

⁴ While we have presence in and have trained both VEOs and smallholders in Musi Banyuasin, our focus remains in the other districts.

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Smallholder program partnerships

To succeed, every Smallholders Hub partners directly with actors in its respective landscape. However, Musim Mas also operates additional programs to support our work on the ground.



Ongoing partnerships in key landscapes

Musim Mas continues to expand our smallholder outreach programs through our Smallholders Hubs in priority regions. Our achievements to date were made possible by collaborating with key partners to achieve collective smallholder inclusion goals.

» [See Reach of smallholder programs for a comprehensive overview of partnerships](#)



North Sumatra Livelihood Funds program

Since 2021, Musim Mas has partnered with the Livelihoods Funds For Family Farming (L3F), SNV, Danone, L'Oréal, and Mars Incorporated to advance regenerative agriculture among independent palm oil smallholders in Labuhanbatu, near Musim Mas' PT Siringo-Ringo mill in North Sumatra.

By promoting regenerative agricultural practices, these smallholders can improve soil conditions and minimize soil erosion, lessen the cost of palm oil cultivation, reduce greenhouse gas emissions, support biodiversity, and adopt other good agricultural practices.

The ultimate aim is to provide long-term viability of production while diversifying livelihood incomes and reducing pressure on forest ecosystems. The project will run for ten years and aims to facilitate 2,500 smallholders in supplying 100% deforestation-free FFB, including those part of cooperatives, groups, and associations.

» [See Livelihoods Funds For Family Farming \(L3F\)](#)



Research on safeguarding smallholder inclusion while reducing deforestation

Musim Mas, the top-ranked Swiss university *Eidgenössische Technische Hochschule Zurich* (ETH Zurich), the University of Cambridge, and Indonesia's *Institut Pertanian Bogor* are collaborating to better understand the conditions under which supply chain sustainability initiatives can lead to reduced deforestation in the palm oil sector in Indonesia while safeguarding producer inclusion. This joint research project will measure how Musim Mas' Smallholders Hubs programs can drive and deliver their sustainability goals.

The program began in 2021 and will run for five years. The partnership has developed a research methodology that we will apply in 2023 to train smallholders in Sumatra. The project will sample up to 80 villages and survey up to 1,600 non-industrial palm oil producers during this timeframe.



Digitizing finance for smallholders

Musim Mas is expanding our program aimed at increasing smallholders' financial literacy leveraging AgriON, a scalable and bank-agnostic digital payment and financing solution that supports sustainability across the agricultural supply chain.

The AgriON platform will complement Musim Mas' existing financial literacy classes with a comprehensive series of workshops, introducing independent smallholders to products aligned with their financial goals. The platform promotes digital banking, money management, and customized savings plans. As of 2022, we have offered financial training to more than 300 farmers from 10 villages in Rokan Hulu district, Riau Province.

MUFG Bank, Ltd. and Bank Danamon Indonesia Tbk have also been contributing to these efforts via AgriON.

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Supporting independent smallholder certification

Together with our industry and civil society partners, we support independent smallholders with accessing financing, assisting with land titles, and helping farmers' associations meet RSPO and ISPO certification requirements. This is achieved through the direct training we provide for smallholders. We have historically supported many smallholders that are not necessarily supplying to Musim Mas. However, our future efforts will focus exclusively on supporting suppliers who help us meet our RSPO commitments.

RSPO certification

We have supported 3,537 farmers in achieving RSPO certification for smallholders within and beyond our supply base. This is five times the number of the first group of 705 smallholders in 2019. This is the largest group of RSPO-certified independent smallholders in Indonesia, managing a combined 8,495 hectares of certified plantations. Our mills sourced FFB from 2,644 RSPO-certified smallholders in 2022.

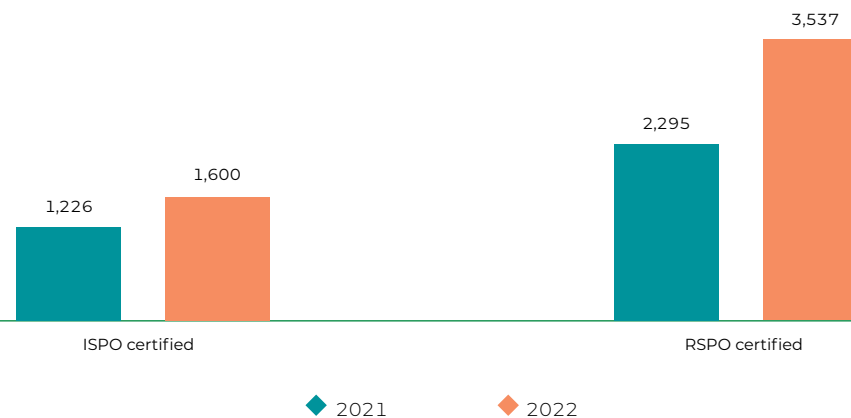
The success of our independent smallholder certification program has given farmers' associations direct access to the sustainable palm oil market, and

they have sold RSPO Independent Smallholder Credits to consumer goods companies Unilever, PepsiCo, and Nestlé. **To date, these smallholders have earned nearly USD 1.3 million selling their RSPO credits.**

ISPO certification

Our certification support programs have helped 1,600 independent smallholders that supply to us become certified against the mandatory Indonesian Sustainable Palm Oil (ISPO) Ministry of Agriculture Decree No.38 of 2020 (ISPO 38/2020) standard. These smallholder plantations comprise over 3,564 hectares of combined land.

Independent smallholders certified to the RSPO and ISPO standards 2021-2022 (no.)



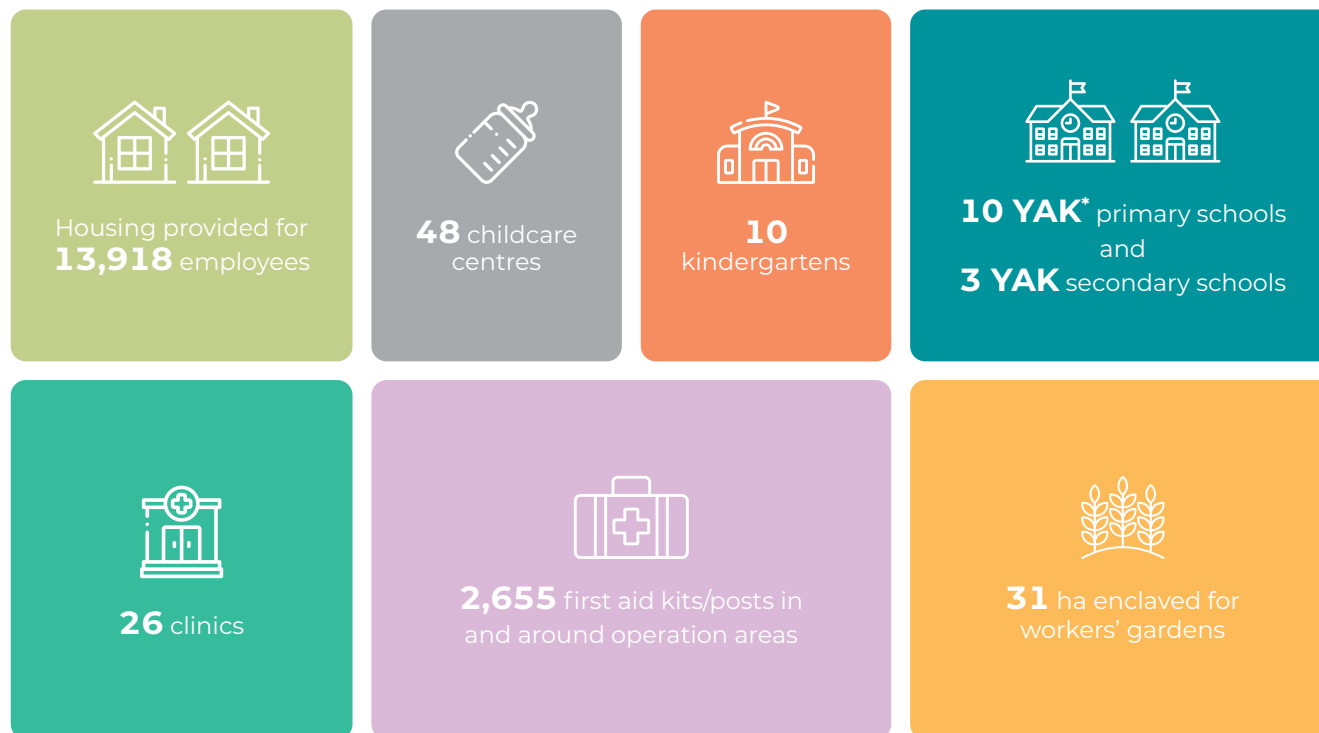
Pillar 1: Improve the Lives of Smallholders, Workers, and Communities

Community rights and support

[GRI 3-3, 203-1, 203-2, 413-1, 413-2, 13.12.1, 13.12.2, 13.12.3, 13.13.1, 13.13.2, 13.14.1, 13.14.3, 13.14.4, 13.22.3, 13.22.4]

Musim Mas supports the welfare and livelihoods of rural communities, providing employment opportunities and basic amenities like education and healthcare services. We have established long-term partnerships with communities and civil society organizations to address challenges that affect the well-being of communities in the areas where we operate.

Overview of infrastructure support in plantations



Upholding land and community rights

We respect and uphold the rights of all community members and obtain Free, Prior and Informed Consent (FPIC) before any new development or expansion of our operations on community land. We rigorously review all new developments against the RSPO New Planting Procedure and its requirements. We apply a comprehensive consultative approach based on the principle of FPIC and engage local communities in participatory mapping exercises, as detailed in our [HCSA](#) assessment reports.

This approach involves dialogue and focus group discussions, helping us map village boundaries and customary communal and private land and infrastructure. This helps us understand the concerns, needs, and aspirations of the communities we work with. It provides an insight into sociocultural, traditional, and religious values, land use, and how community members earn their livelihoods. This information helps us formulate our land use, development, monitoring, and management plans.

Our dedicated teams engage with stakeholders from neighbouring affected communities across our locations to minimize risk of disagreements and conflicts.

We negotiate compensation for lost benefits and the relinquishment of rights voluntarily and in agreement with any affected communities. We strive to address all issues and provide appropriate remedies through our dispute resolution mechanism.

» [Grievance mechanism: dispute flowchart](#)

* The Anwar Karim Foundation (Yayasan Anwar Karim [YAK]) represents Musim Mas' long-standing community outreach initiative.

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The Anwar Karim Foundation

Musim Mas operates a long-standing outreach initiative through the Anwar Karim Foundation (*Yayasan Anwar Karim* [YAK]) to organize and support various programs that contribute to the well-being of our surrounding communities. **In 2022, our monetary contributions exceeded IDR 30.2 billion.** The largest proportion was allocated to YAK schools, followed by infrastructure investments, sociocultural activities, environmental initiatives, local economic development, and public health.

A focus on education

About 58% of our CSR budget – or IDR 17,390 million – is allocated to schools. As of 2022, we have built and funded several educational

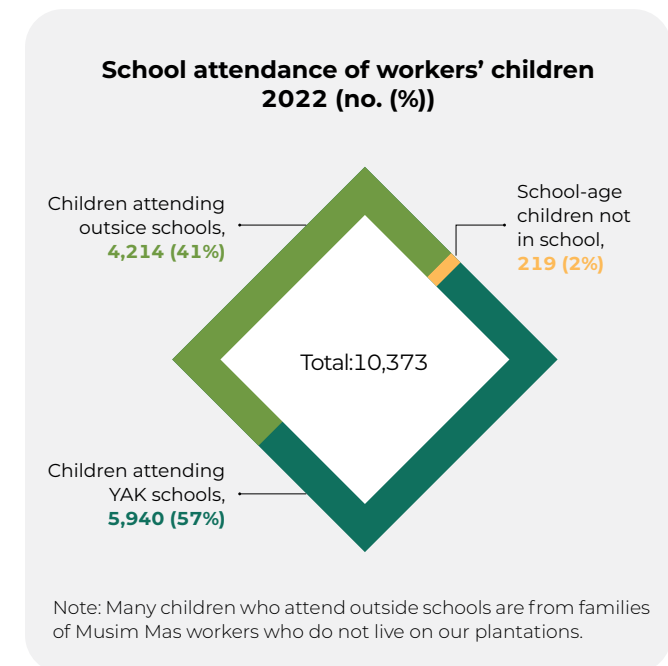
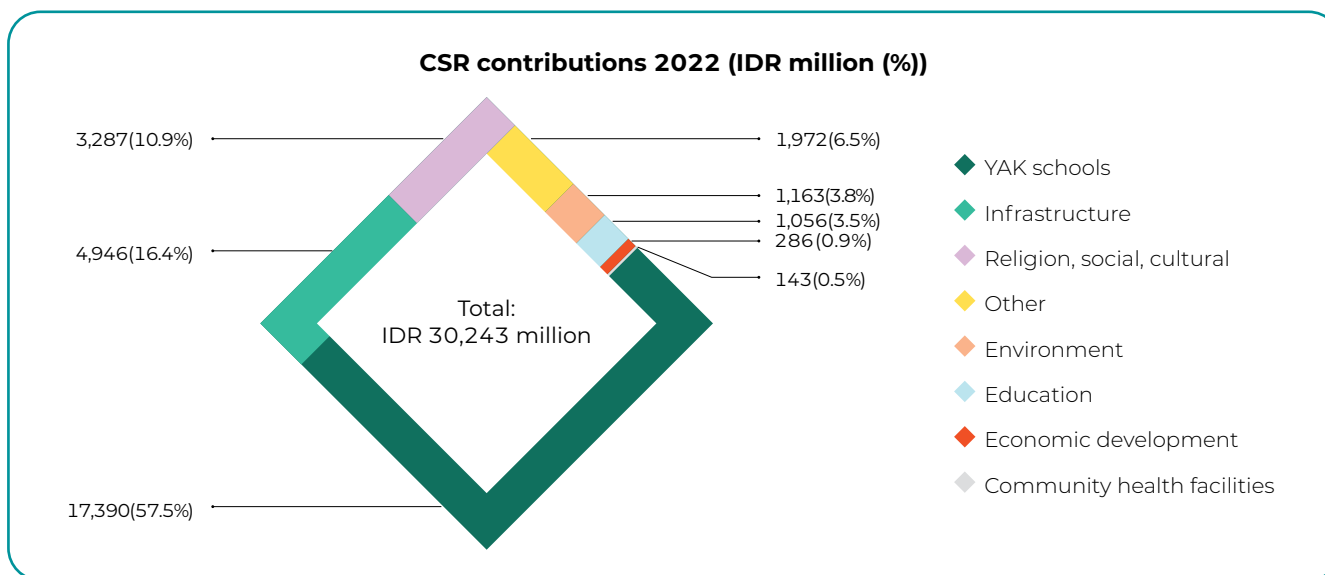


institutions to offer high-quality instruction and care, including ten YAK primary schools, three YAK secondary schools, ten kindergartens, and 48 childcare centers for toddlers of working parents at our plantations in Riau, West Sumatra, South Sumatra, Central Kalimantan, and West Kalimantan. These facilities provide access to education, prevent child labour, and support livelihoods in rural communities by providing employment opportunities for local teachers.

Our schools are primarily for the children of our workers living in and around our plantations. We encourage all parents to enroll their children, and we provide free transportation to our YAK schools and schools in the neighboring communities. These schools also welcome any students from surrounding communities.

Our annual survey revealed that 12,746 children of mill and estate workers under the age of 18 live on our plantations. Of this, 10,373 are of school-going age, and approximately 98% of school-age children attend one of our YAK schools or other nearby schools. An additional 34 children from surrounding communities attend YAK schools. The ratio of boys to girls attending YAK schools is almost evenly balanced, 48% of which are girls.

We award students who excel in their academic and extracurricular activities with YAK scholarships to pursue higher education, with 54 being recognized in 2022.



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Supporting infrastructure

To address every communities' unique needs, we maintain an open dialogue with local representatives, including village heads. Every year, we invite villages bordering our operations to submit proposals on how to best use our infrastructure development budget. Over the years, our infrastructure development initiatives have improved these communities' access to essential services, including water and sanitation.



Renovation of the Grand Mosque of Medan

In February 2022, Musim Mas donated IDR 2 billion to the Government of North Sumatra to renovate the Grand Mosque of Medan (Masjid Agung Medan). The mosque was built in 1909, is one of the largest and oldest in Medan, and is an iconic landmark with a unique architectural heritage. The donation will support the local community, preserve the mosque's historic architecture, and refurbish prayer facilities.

» [Musim Mas donates IDR 2 billion for the renovation of Masjid Agung Medan](#)



Construction of the Dumai Islamic Center

In March 2022, Musim Mas donated IDR 1.5 billion to the Government of Dumai to construct the Dumai Islamic Center in Riau. The donation is part of Musim Mas' PT Inti Benua Perkasatama's ongoing CSR program, supporting and improving lives in the local community. With a capacity of more than 500 people, the center will serve as a hub for Muslim community activities in Dumai. It will feature various amenities, including meeting halls and a library, creating an environment conducive to worship and other activities.

» [Musim Mas donates IDR 1.5 billion for the construction of the Dumai Islamic Center](#)

Pillar 1: Improve the Lives of Smallholders, Workers, and Communities

Business ethics

[GRI 3-3, 205-2, 205-3, 13.26.1, 13.26.3, 13.26.4]

Musim Mas conducts business fairly and ethically, strictly prohibiting any form of corruption or bribery. We are guided by our Code of Business Conduct and Anti-corruption Policy, which is effectively communicated to all Musim Mas workers. In 2022, we provided comprehensive training on our anti-corruption policies and procedures to more than 26,000 employees, including all workers.

We have established a whistleblowing mechanism that allows all stakeholders, including employees, to confidentially file complaints and report issues without fear of retaliation or dismissal.

We require all external parties supplying goods and services to Musim Mas to adhere to the same ethical business practices through our Supplier Code of Business Conduct.

» Corporate and sustainability governance

Update on legal proceedings against a Musim Mas executive

In 2022, a legal case was initiated against a Musim Mas executive for allegedly improperly obtaining export permits during the 2022 Domestic Market Obligation (DMO) program. The case is still ongoing at the time of this report's publication. Musim Mas Group complied with the prevailing laws and regulations at the time of the DMO program and fully supported its implementation.



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Deliver Positive Environmental Impacts

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Drive Innovation in Sustainable Practices

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- ◆ Waste management

Pillar 2

Deliver Positive Environmental Impacts



Pillar 2: Deliver Positive Environmental Impacts

Musim Mas is serious about the climate crisis and is firmly committed to minimizing greenhouse gas (GHG) emissions at our operations and supply chain. We uphold our No Deforestation and No Peat commitments and implement supplier and smallholder programs to tackle climate-related risks. Additionally, we mitigate the adverse impacts of our own operations on the environment and neighbouring communities, preserving their ecological integrity.



New action plan for biodiversity and climate resilience

Characterized by extended droughts, devastating fires, and intermittent floods, climate variability is increasing and threatening vulnerable protected areas, the species that occupy them, and the livelihoods of local rightsholders of protected areas. The industry must incorporate unpredictable scenarios into our

biodiversity and conservation management efforts (climate and community proofing). This is an ongoing challenge for Musim Mas and the entire industry.

In 2022, we published our [Biodiversity and Climate Resiliency Action Plan 2022](#), consolidating Musim Mas focus areas that revisited our first biodiversity protection commitments in 2007. It reframes our biodiversity conservation efforts in the context of global climate change and the needs of local communities.



A sectoral way forward on land-use change emission reductions

Land-use change is a critical focus area for the sector because it generates 10% of global emissions.⁵ **Recognizing this, Musim Mas and 13 other leading agribusiness companies set out to develop a shared roadmap in November 2022 for reducing emissions from land-use change: the [Agriculture Sector Roadmap to 1.5°C](#).**

This follows our COP26 commitments, hinges on existing No Deforestation, No Peat and No Exploitation (NDPE) commitments, and accelerates the sector's deforestation actions to align with global climate goals in a way that contributes to food security, economic development, and smallholder livelihoods. The roadmap

development was facilitated by the Tropical Forest Alliance, hosted by the World Economic Forum, and supported by the World Business Council for Sustainable Development.

The key to achieving this is to reduce GHG from land use change. Simultaneously, the sector will monitor the progress of NDPE in its supply chains using the NDPE Implementation Reporting Framework (IRF) to ensure palm oil volumes are "Delivering" on NDPE by 2025.

Also instrumental to sectoral transformation is through dialogue and collaboration with governments, other value chain actors and the finance sector. Musim Mas is already pursuing these strategies, and we will continue to channel our resources into accelerating a sector-wide transformation.

5 Masson-Delmotte, V., Otto Pörtner, H., Skea, J., Calvo Buendía, E., Zhai, P., Roberts, D., Shukla, P., Slade, R., Ferrat, M., Neogi, S., Pereira, J., Kissick, K., Connors, S., Haughey, E., Pathak, M., Vyas, P., Belkacemi, M., van Diemen, R., Luz, S., Petzold, J., Huntley, E., & Malley, J. (Eds.). (2019). *Climate change and land*. Intergovernmental Panel on Climate Change. Retrieved June 30, 2023, from <https://www.ipcc.ch/site/assets/uploads/2019/11/SRCCL-Full-Report-Compiled-191128.pdf>

Pillar 2: Deliver Positive Environmental Impacts

OUR CARBON FOOTPRINT

[GRI 3-3, 201-2, 305-1, 305-2, 305-3, 305-4, 305-5, 13.1.1, 13.1.2, 13.1.3, 13.1.4, 13.1.5, 13.1.6, 13.2.1, 13.2.2] [SASB FB-AG-110a.1, FB-AG-110a.2, FB-AG-440a.1]

Group emissions

In 2022, we engaged a technical consultant to map the carbon footprint (Scope 1, 2 and 3) of the entire Group, covering emissions of all upstream, midstream, downstream and other supporting facilities. While we have reported Scope 1 and Scope 2 Group emission data for several years, engaging a technical consultant has helped us reinforce our internal calculations. This will be crucial as we set Group-level baselines to identify key GHG hotspots and develop reduction targets in line with the Science-Based Targets Initiative (SBTi).

Scope 1 and Scope 2

Following the GHG Protocol guidance, the Group's 2022 net Scope 1 and 2 GHG emissions were 2,047,008 tonnes of carbon dioxide equivalent (MT CO₂e). Approximately 80% of the Group's emissions were from direct sources controlled by Musim Mas (Scope 1). The remaining 20% were indirect emissions from purchased electricity and steam, used to operate our facilities (Scope 2).

Our midstream and downstream operations generate 75% of our global Group emissions. Future reports will provide more details about our emissions measurements and reduction initiatives.

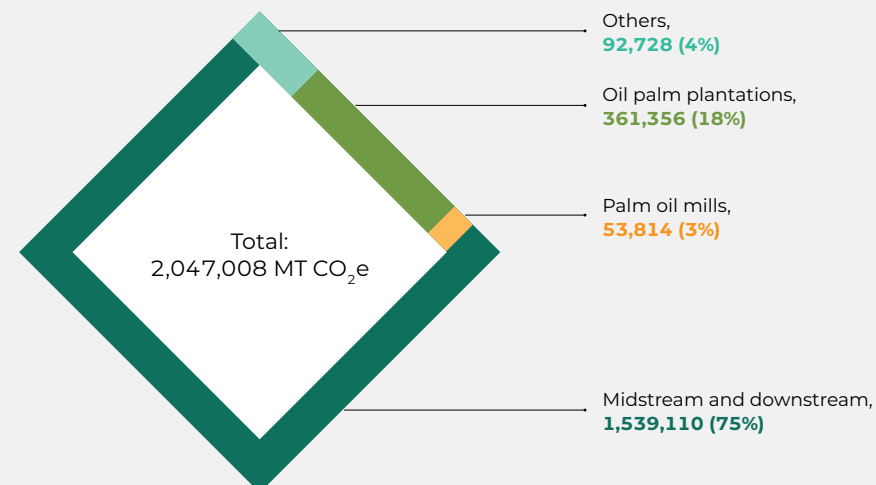
Group Scope 1 and Scope 2 emission by business activity 2022 (MT CO₂e)

Scope		Upstream		Midstream and downstream	Others	Total
		Oil palm plantations	Palm oil mills			
Scope 1	Direct emissions from owned or controlled sources	361,356	53,814	1,127,658	92,601	1,635,429
Scope 2	Indirect emissions from the generation of purchased energy	0	0	411,452	127	411,579
Total		361,356	53,814	1,539,110	92,728	2,047,008

Notes:

- Others include warehouses, logistics, and satellite offices.
- Scope 1 and Scope 2 are categorized based on the [GHG Protocol definitions](#).
- Figures may be updated in future reports after the completion of emission inventory with our technical consultant.
- Data is per our [CDP Climate Change 2022](#) submission, which covers our previous reporting cycle (2021 financial year).

Scope 1 and 2 GHG emissions by business segment 2022 (MT CO₂e (%))



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Scope 3 reporting

In many sectors, the majority of GHG emissions fall under Scope 3 emissions that are indirect emissions from a company's value chain stemming from upstream and downstream activities (e.g., emissions from suppliers, contractors, and their goods and services). These are beyond a company's operational control.

While these are sources where we would have lesser influence in emission management, we recognize that accounting for GHG emissions across our supply chain is a crucial step. Understanding our Scope 3 emissions will help us to identify significant hotspots, and this will lead to engagements with supply chain actors to enact sound reduction strategies that are critical for overall sectoral change.

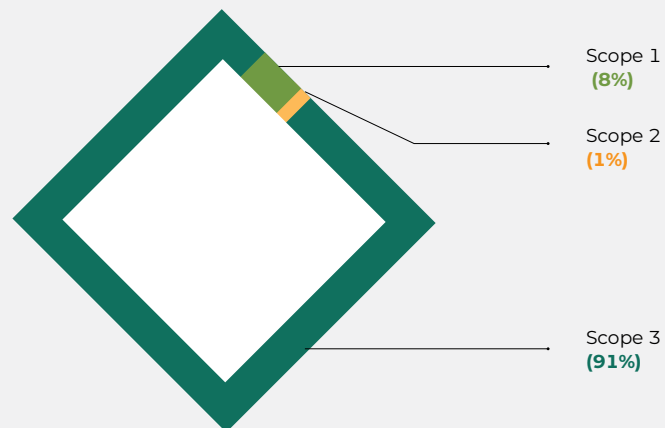
We model and account for our Scope 3 emissions following the [GHG Protocol guidelines](#). Based on the preliminary results of our baseline year, **a majority of Group emissions come from Scope 3 emissions, contributing to more than 90% of the total emissions**. At the time of this report's publication, we are in the process of finalizing our Scope 3 emissions for our baseline year and will provide further details in future reporting.

Group-level emission reduction roadmap

Achieving net zero⁶ is a monumental task that requires the industry to invest in monitoring and verifying deforestation-free supply chains, methane capture for palm oil mill effluent, and renewable energy alternatives while factoring in carbon removals via nature-based solutions and conservation set-aside areas. Collaboration is vital for meeting sector-wide goals.

Our 2022 and 2023 groundwork is instrumental to understanding focus areas to develop ambitious reduction targets. **In 2024, Musim Mas will develop reduction targets in line with the SBTi**. These targets will align with the Forest, Land and Agriculture Guidance (FLAG) and SBTi frameworks and contribute towards the 27th Conference of the Parties to the United Nations Framework Convention on Climate Change (COP27) and Agriculture Sector Roadmap commitments.

Baseline emissions by Scope 2022 (%)



Note: Emission scopes are categorized based on the GHG Protocol guidelines.



6 Following the definition of the Science Based Targets Initiative (SBTi), net zero is defined as:
 a). Reducing scope 1, 2 and 3 emissions to zero or a residual level consistent with reaching net-zero emissions at the global or sector level in eligible 1.5°C scenarios or sector pathways.
 b). Neutralizing any residual emissions at the net zero target date – and any GHG emissions released into the atmosphere thereafter. See [SBTi glossary](#).

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A focus on upstream emissions

Net emissions

In addition to employing the GHG Protocol at our global operations, we calculate emissions across our Roundtable on Sustainable Palm Oil (RSPO)-certified upstream operations using the RSPO PalmGHG v4 calculator. This covers all our 15 RSPO-certified integrated mills, which source from all Musim Mas plantations.⁷

Our primary emissions are from land-use change combining land conversion and peat oxidation. This was 3,134,737 MT CO₂e in 2022, accounting for 77% of our gross upstream emissions. Combining our other sources – and offset with sequestration (from palm trees and conservation areas) as well as from the sale of electricity generated from our methane capture facilities and palm kernel shells (PKS) – our net emissions amounted to about 2.5 million MT CO₂e across our mills and plantations in Sumatra and Kalimantan in 2022.

Upstream emission sources and sinks 2021-2022 (MT CO₂e)

RSPO-certified management units



⁷ Our three remaining mills are independent mills, and sources from third-party FFB suppliers.

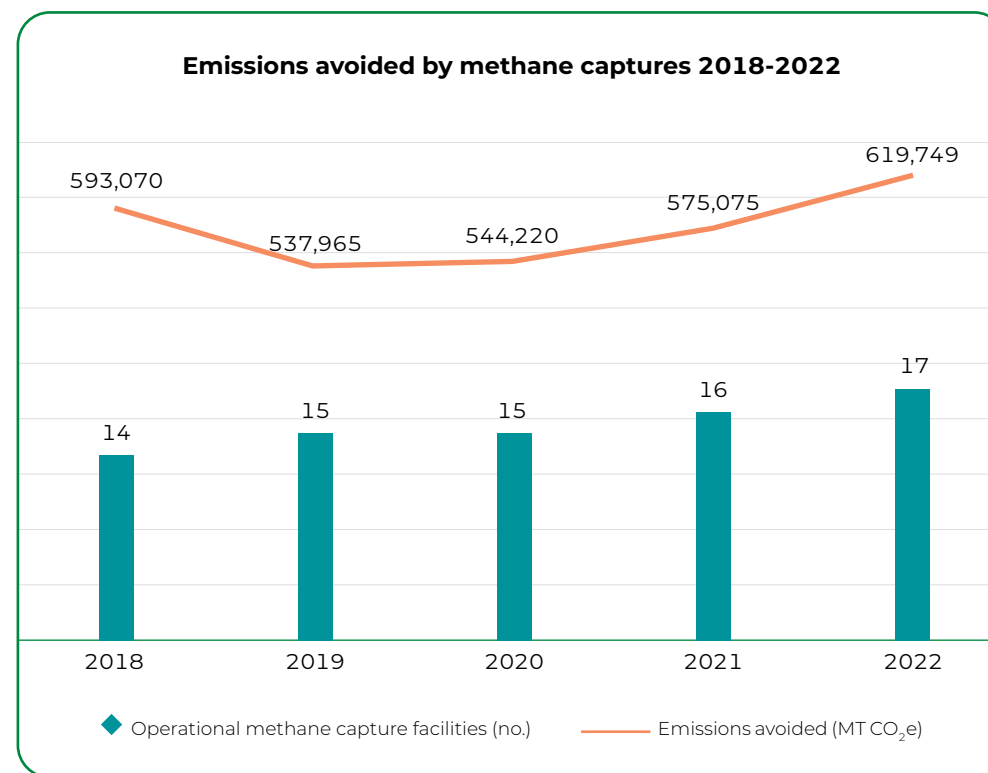
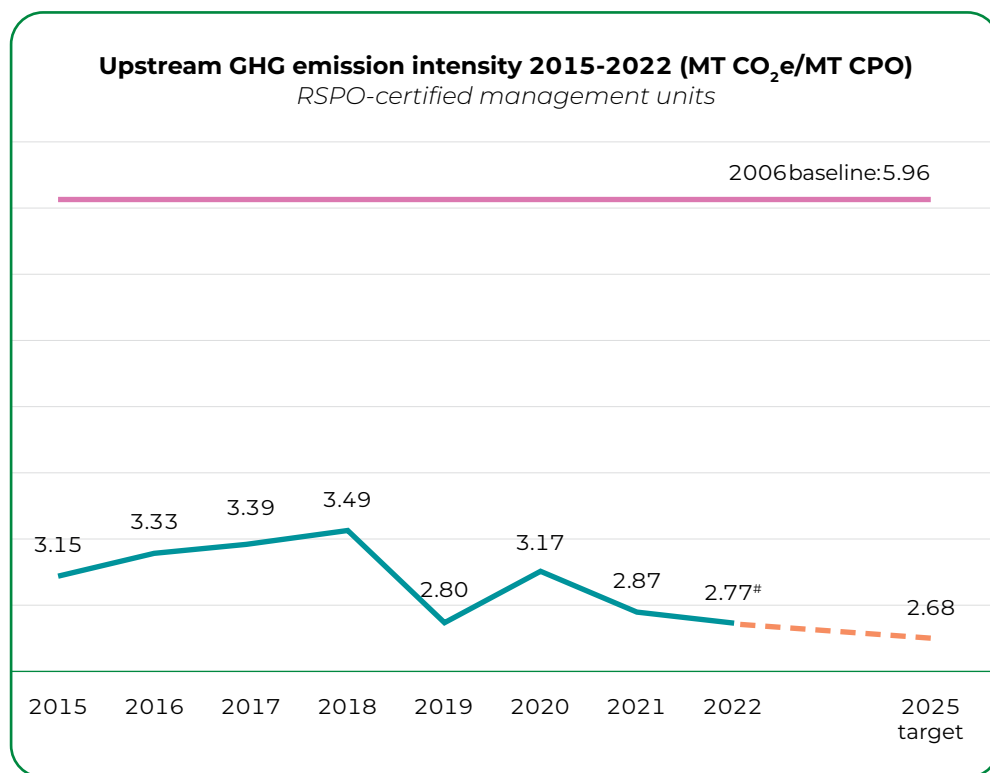
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GHG emission intensity

Despite business-as-usual practices and comparable emission levels to 2021, our mills produced more crude palm oil (CPO) in 2022. **Due to this higher CPO production and the commissioning of the 17th methane capture plant, our GHG emission intensity decreased by 3.5% in 2022 to 2.77[#] MT CO₂e per tonne of CPO produced (MT CO₂e/MT CPO). This figure is 53.4% lower than our 2006 baseline and puts us well on target to reach our 2025 target of a 55% reduction (2.68 MT CO₂e/MT CPO).**

Progress on methane captures

Installing methane capture facilities is a crucial strategy for reducing our upstream carbon emissions. These facilities prevent the release of methane-rich biogas generated by the treatment of palm oil mill effluent (POME) into the atmosphere. **We commissioned a 17th methane capture facility in 2022, meeting our target on schedule. Our methane captures have avoided the release of a combined 619,749 MT CO₂e into the atmosphere, with the captured methane converted into electricity that powers mills, estates, and workers' housing.**



EY has performed limited assurance procedures on these figures

Pillar 2: Deliver Positive Environmental Impacts

Life cycle assessment

Our products form ingredients for our customers' product manufacturing, making our emissions part of their Scope 3 emissions. Consequently, as part of global collective decarbonization efforts, there have been growing customer calls for a product carbon footprint (PCF).

In 2019, Musim Mas began overseeing a life cycle assessment (LCA) for our upstream products. In 2022, we piloted a project to conduct an LCA for selected downstream products. The evaluation follows the ISO 14040 and ISO 14044 standards with a cradle-to-gate approach. The LCA covers potential environmental impacts such as global warming potential (including PCF), eutrophication, acidification, and water consumption.

TCFD reporting

In May 2023, we engaged a consultant to assess our readiness against the Taskforce on Climate-related Financial Disclosures (TCFD) reporting requirements. As a private company we are not required by regulation to engage in TCFD reporting, however, we believe it is a useful standard to adopt that can provide valuable insights into our climate change opportunities and risks. It will also help us determine the financial impact on our overall risk management strategies so that we can better inform our internal and external stakeholders.

Once the readiness assessment is complete, we will develop a roadmap based on the TCFD recommendations, with a particular focus on piloting a climate risk assessment and conducting scenario analyses for selected Musim Mas sites.



Pillar 2: Deliver Positive Environmental Impacts

ENERGY MANAGEMENT

[GRI 3-3, 302-1, 302-3] [SASB FB-AG-130a.1]

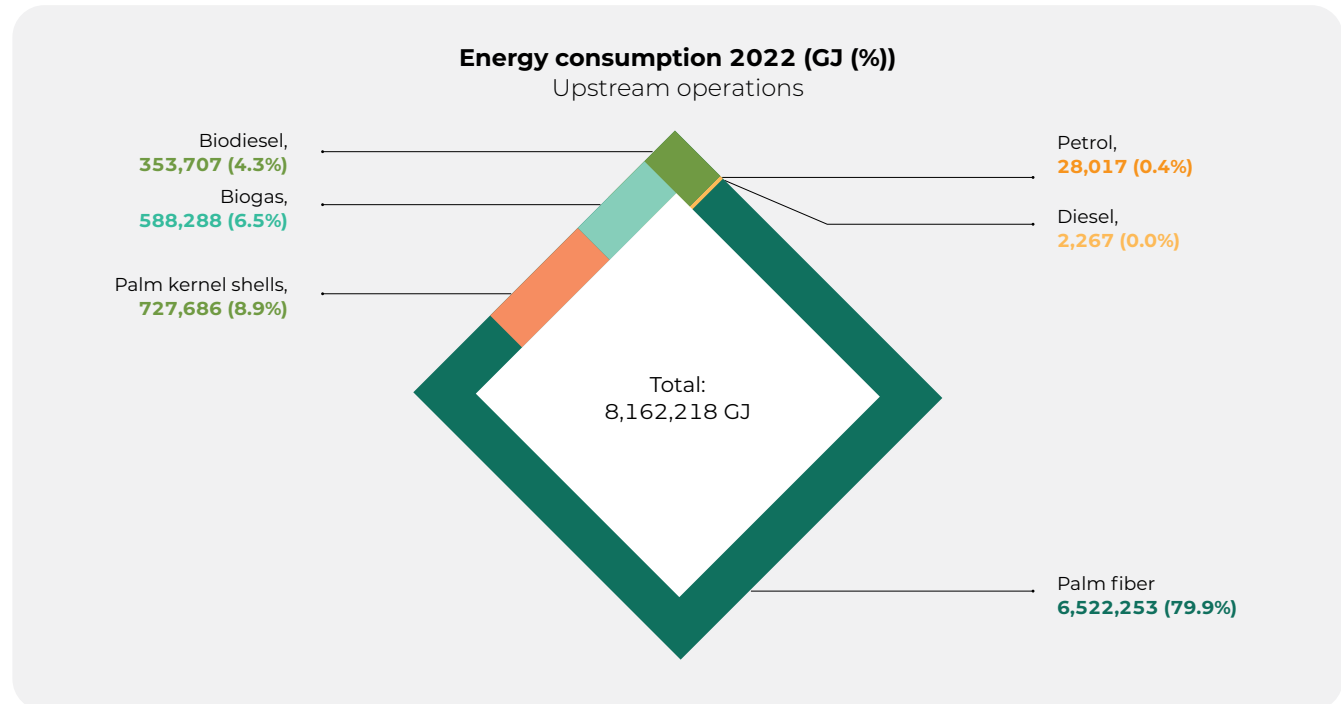
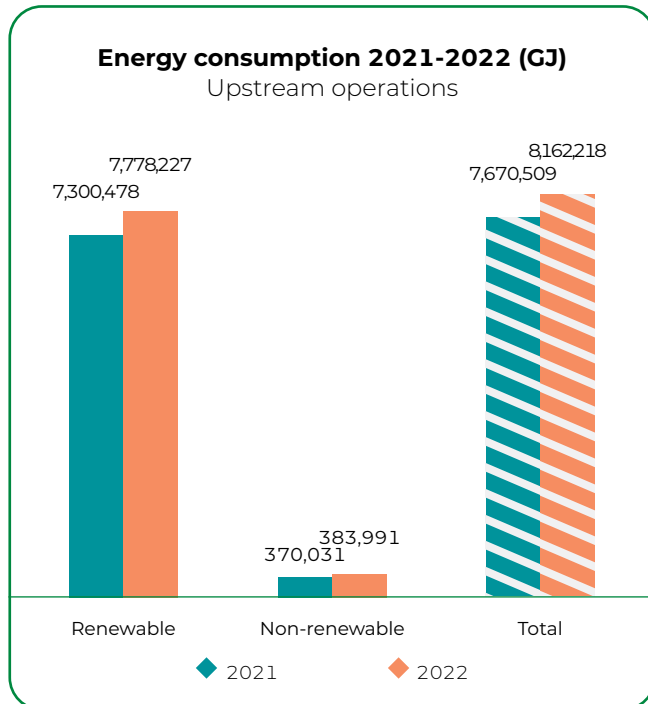
We continue to implement programs to reduce our overall energy consumption, promote the use of renewable energy, and drive efficiencies across our upstream operations. A tiny fraction (less than 5%) of our energy comes from non-renewable sources, such as diesel, and petrol. **More than 95% of our upstream energy is derived from renewable sources, primarily milling process by-products.** These include palm

kernel shells and fruit fiber used as boiler fuel at our mills and methane generated by POME that is captured and converted into electricity by our methane capture facilities. Whenever possible, surplus electricity generated by our methane capture is exported to the national grid.

In 2022, increased processed fresh fruit bunches (FFB) led to an increase in total energy consumption from 7.6 million gigajoules (GJ) in 2021 to 8.1 million GJ. **However, over 7.7 million GJ of our 2022**

consumption was derived from renewable sources at our operations (95%). In total, 26.5 million kilowatt hours (kWh) of surplus renewable electricity was exported to the national grid. Our energy intensity amounted to 7.49 GJ per tonne of CPO/PK produced (GJ/MT CPO/PK) in 2022.

Musim Mas understands that our refineries and factories are energy-intensive operations. Future reporting will provide more detail on their energy use and emissions reduction initiatives.



Pillar 2: Deliver Positive Environmental Impacts

CONSERVATION AND RESTORATION

[GRI 3-3, 304-3, 13.3.1, 13.3.4]

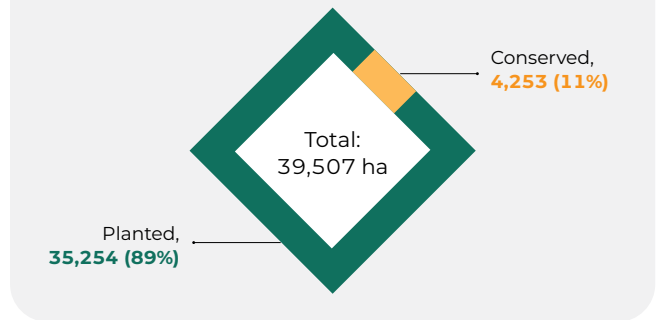


Musim Mas complies with all relevant national and international sustainability requirements on new developments and the expansion of plantation areas. Our commitments to zero conversion of natural ecosystems within our operations cover high conservation value (HCV) areas, peatlands, and high carbon stock (HCS) forests. We have maintained zero

deforestation at Musim Mas operations per our 31 December 2015 cut-off date.

Following the conclusions of High Conservation Value-High Carbon Stock Approach (HCV-HCSA) assessments, we maintain and conserve HCV and HCS areas. **As of December 2022, we manage 28,460 hectares of conservation area – representing more than 14% of our titled land.** This total includes 4,253 hectares of conserved peat. About 88% of our total conservation area is in Kalimantan, while 12% is in Sumatra.

Managed peat planted and conserved 2022 (ha,%)

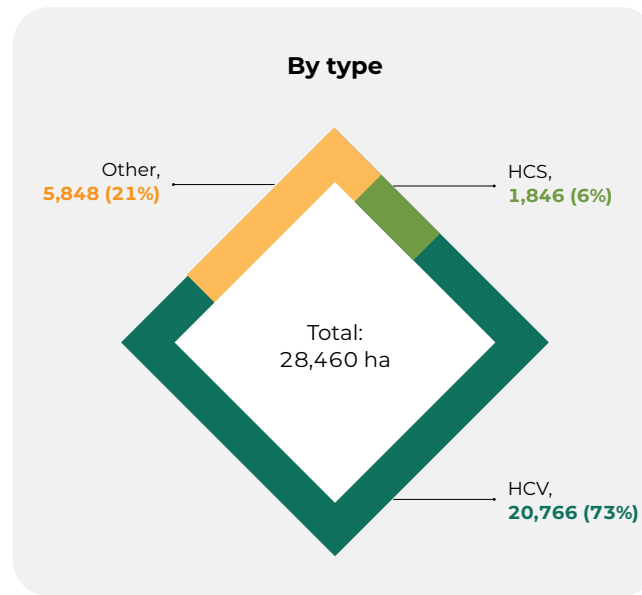
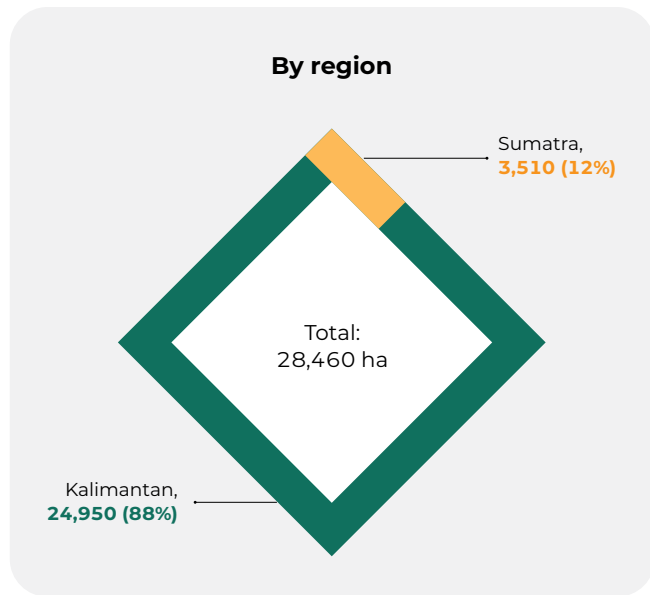


Musim Mas implements dedicated conservation and management monitoring plans in all our conservation areas, including the restoration of natural ecosystems within management areas affected by fire, deforestation, or conversion and/or non-compliance as per our 31 December 2015 NDPE cut-off.

We employ best practices that align with RSPO and legal requirements and, when required, seek expert advice for managing peatlands and fragile soils. Our approach includes consulting and engaging surrounding communities in the development and execution of our conservation management plans. In addition, our conservation teams regularly conduct monitoring and ground patrols to prevent illegal hunting. We also use satellites to monitor encroachment or land clearing of conservation areas.

We are committed to protecting biodiversity and in particular, rare, threatened, and endangered (RTE) species within our concession areas and at a wider landscape level. We are exploring ways of enhancing the connectivity of existing HCV/HCS areas (e.g. all biodiverse habitats) and the wider landscape by establishing wildlife corridors where feasible.

Conservation area 2022 (ha (%))



Notes:

- 1 Overlapping HCV and HCS areas are reflected in HCV figures.
- 2 "Other" includes steep areas, wildlife corridors, and riparian buffer zones not identified by HCV and HCSA assessments.
- 3 Data includes conserved peat areas conserved classified as HCV or Other.

Pillar 2: Deliver Positive Environmental Impacts

Conservation initiatives

Update on Musim Mas' biodiversity conservation impact study

In 2021, we partnered with the Sabah-based research facility, South East Asia Rainforest Research Partnership (SEARRP), and University of Oxford scientists to conduct an independent assessment to determine the effectiveness of our HCV monitoring efforts across our operations. This review referenced 12 years of archived data collected during monthly bird diversity surveys by Musim Mas monitoring teams at our operational units across Indonesia.

The program concluded in July 2022. It was followed by a final report and a workshop for our employees in October 2022, combining classroom and field sessions in the HCV areas at our Central Kalimantan concession, PT Sukajadi Sawit Mekar (SSM). Workshop participants analyzed the report's conclusions and recommendations to identify ways of improving our monitoring and data collection efforts.

Key Findings from SEARRP's Biodiversity Assessment



Bird species biodiversity

Bird species biodiversity varied across plantations, remaining stable in some, and rising or falling in others



The benefits of consistent and intensive wildlife management

The plantations with the most intensive, consistent wildlife management programs had the biggest impact on biodiversity



Benefits for RTE species

The number of RTE species reflected biodiversity in a given area: the more biodiverse, the greater the number of RTE species



Monitoring protocols

The best monitoring programs use consistent, stable protocols and regular data analysis to optimize their effectiveness

This project provided a biodiversity baseline for our HCV areas and will support our efforts to set measurable objectives to avoid species loss and improve biodiversity at our plantations. It also highlighted the importance of establishing standard definitions for habitat types, drawing guidance from a single taxonomic authority, and consolidating all digitized data for species.

These recommendations will support Musim Mas in improving our internal practices and will be helpful for the entire palm oil industry's conservation efforts. In February 2023, we shared our findings with the RSPO to develop a broader understanding and help with the adoption of biodiversity best practices within the industry.

» [For more details, see 12 Years of Biodiversity Data In Musim Mas' Plantations: An Analysis By SEARRP](#)



Pillar 2: Deliver Positive Environmental Impacts

Update on HCSA pilot with Forest Peoples Programme

The HCSA's application is for land that is slated for new plantation development. In 2022, we participated in the HCSA Social Requirement 13 (SR 13) pilot project on applying the HCSA social requirements to selected existing operations. This study will help understand the practicality and feasibility of SR 13 application to assess the social impacts of existing plantation operations on affected lands and communities. Comprising two phases, the pilot involved a Musim Mas plantation in Central Kalimantan:

- ◆ **Phase 1:** A desktop study of the SR13 framework to guide a document review by an independent consultant
- ◆ **Phase 2:** A field study to verify and validate the implementation of SR13 in partnership with the social NGO Forest Peoples Programme (FPP)

As of September 2022, both phases have been completed with our project partners (FPP and Helen Newing), and a report is being prepared in 2023. Musim Mas aims to submit this to the HCSA for review and feedback.

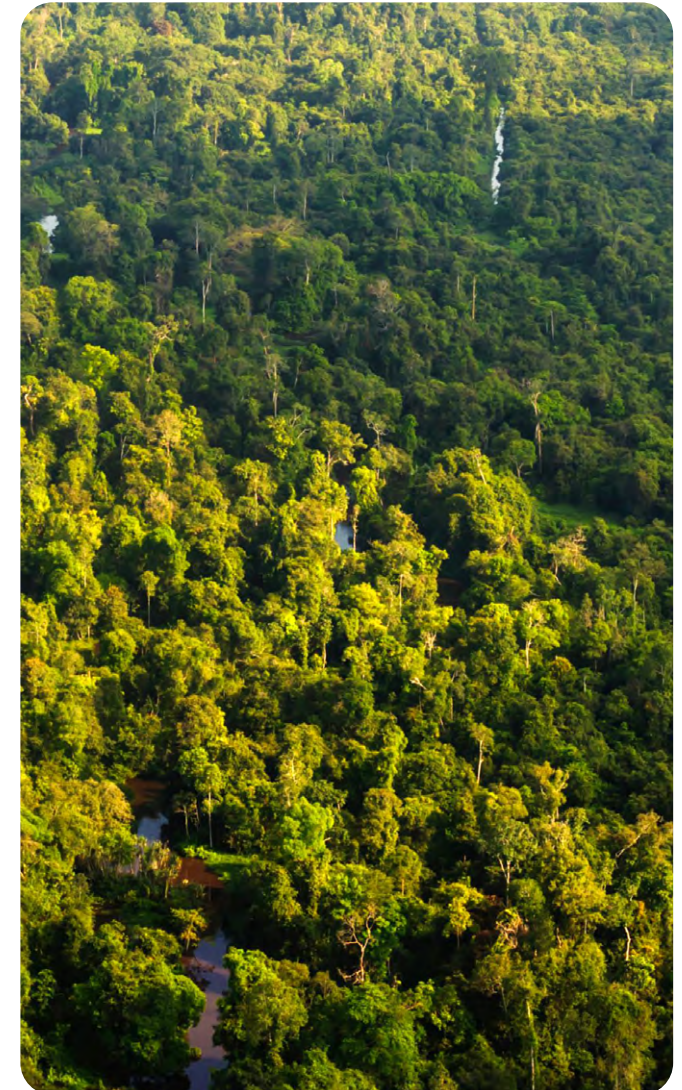
Deforestation-free operations

[GRI 13.4.2, 13.4.4]

Following the cut-off date of 31 December 2015, Musim Mas' operations are monitored and remain 100% free from deforestation and ecosystem conversion. In order to detect any encroachment of conservation areas by third parties, we carry out patrols and use satellite data to expedite our interventions.

To ensure our supply chain remains free from deforestation, we diligently track and trace all sourced FFB to the place of production and engage with our suppliers on our No Deforestation and No Peat commitments. As an additional safeguard, we partner with third parties to monitor forest areas in or near our suppliers' concessions. In 2022, we launched our Sustainable Coconut Sourcing Strategy, committing to sourcing coconut from deforestation-free areas in line with our palm oil cut-off date of 31 December 2015.

» [See: The Musim Mas supply chain](#)



Pillar 2: Deliver Positive Environmental Impacts

Monitoring and managing fires

[GRI 3-3]



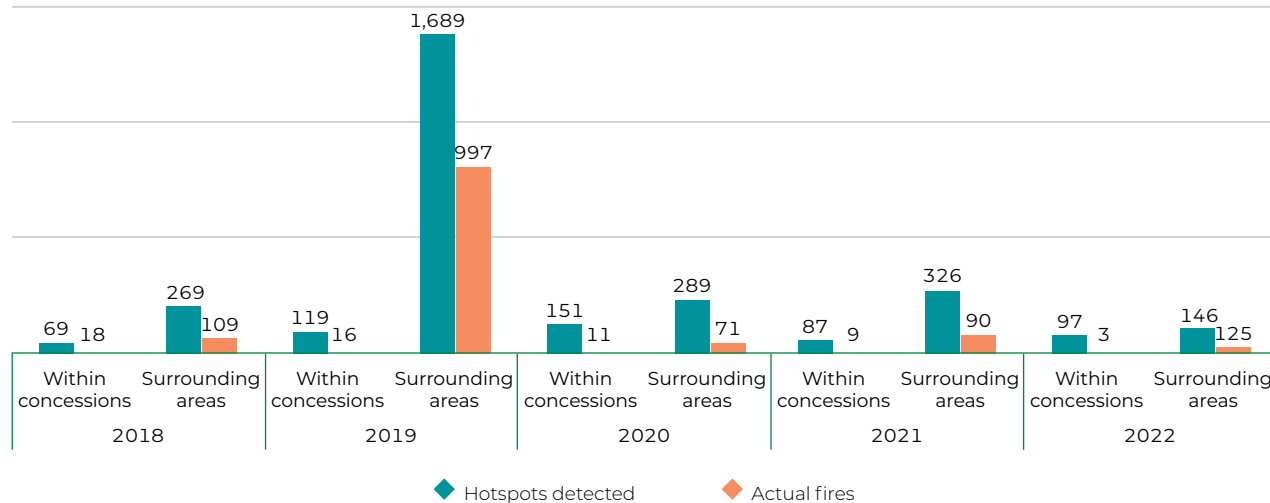
We strictly prohibit fire use within our operations and those of our suppliers and regularly monitor and track hotspots across our estates and surrounding areas. Additionally, we train firefighters to rapidly respond to fire outbreaks and employ satellite surveillance to monitor our concessions and surrounding areas for hotspots.

In 2022, we identified 97 hotspots within our concessions, of which three were confirmed to be fires affecting four hectares of unplanted area in Sumatra and Kalimantan. We detected a further 146 hotspots in the areas surrounding our estates and concessions, of which 25 were confirmed to be fires that burned approximately 75 hectares of land. Fewer fires were detected in 2022 than the previous year because of wetter weather, high annual rainfall, and well-distributed rainfall. However, some fires still happen because of community open-land burning, careless cigarette disposal, and other unknown reasons.

We continue to actively support communities through our Fire Free Village Program (FFVP) (*Masyarakat Bebas Api* [MBA]) to raise awareness about the risks associated with fire and promote the adoption of alternative, fire-free land-clearing methods. Through FFVP, we provide educational resources, agricultural equipment, and incentives to communities that successfully refrain from fire use, including infrastructure improvements and services. Since its inception, we have introduced the program in 74 villages spanning over 450,000 hectares of land. In 2022, we conducted 127 training sessions. Additionally, 46 villages were rewarded for remaining fire-free – four more than the previous year.

Musim Mas has implemented proactive measures in readiness for the expected El Niño weather event⁸ that is expected to raise global temperatures and increase fire risks in 2023. Measures include increasing communication to raise awareness among employees, workers, and community members; establishing water ponds and fire breaks at strategic locations to serve as barriers against spreading fires; and organizing dedicated teams at regional head offices to monitor satellite data and promptly respond to detected hotspots in and around our operations.

Hotspots vs. fires within concessions and surrounding areas 2018-2022 (no.)



Note: The 2019 spike in fires in areas surrounding estates was due to high temperatures causing severe forest fire outbreaks.

» [See our video: Our Fire Prevention and Management Efforts: Small Actions, Big Impact](#)



8 WMO update: *Prepare for el niño*. (2023, May 3). World Meteorological Organization. Retrieved July 10, 2023, from <https://public.wmo.int/en/media/press-release/wmo-update-prepare-el-ni%C3%B1o>

Pillar 2: Deliver Positive Environmental Impacts

CHEMICALS AND PESTICIDES

[3-3, 13.5.1, 13.6.1, 13.6.2]

In 2022, we used 1.46 and 2.40 tonnes per mature hectare (MT/ha) of fertilizer in Sumatra and Kalimantan, respectively.⁹ When applying fertilizer, and to maximize its application and minimize waste, we follow agronomic recommendations based on soil and leaf analysis. We apply boiler ash from our mills in peatland areas to maintain pH levels and use dried

decanter solids instead of potassium on sandy soil to increase moisture retention and improve the physical and chemical properties of marginal soils. You can read more about how we reuse waste [here](#).

We also track and monitor the toxicity level of herbicides at our estates and maintain their levels in line with palm oil industry best practices. In 2022, additional replanting activities took place. Replanting does not require the use of herbicides and therefore led to a reduction in its overall use.

Reducing pesticide use

We have adopted international standards and best practices on Integrated Pest Management (IPM). As much as possible, we employ IPM strategies supported by our extensive long-term research and development (R&D) efforts. We also rely on beneficial insects and barn owls to reduce pesticide use.

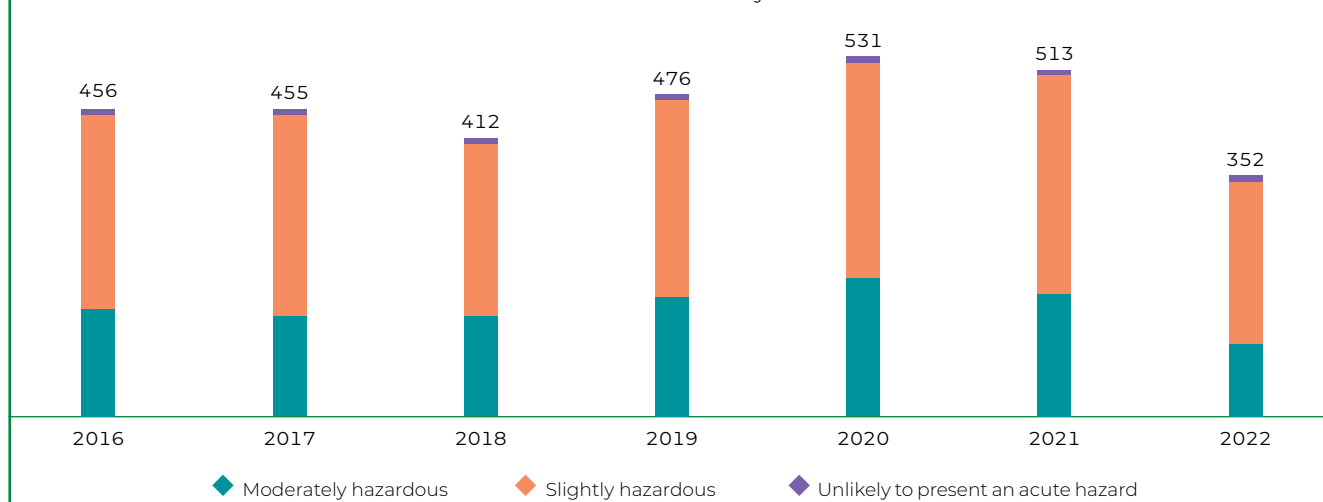
In 2018, we began phasing out pesticides at Musim Mas operations. As of December 2021, we had stopped using six pesticides through intensified research and development (R&D) efforts, trialing alternatives, and securing less intensive chemicals previously unavailable commercially.

One specific pesticide is still being used for emergency purposes only, as currently, there is no commercially available alternative. The Palm Oil Innovation Group (POIG) has approved this approach.

For the remaining three pesticides, we are making progress by increasing the area for our commercial-scale trial and simultaneously increasing training for the new pesticides. The pandemic further delayed some of this work. We also encountered technical and supply issues that we are currently trying to resolve. We will continue to transition to alternatives in line with industry best practices on minimizing toxicity levels and reducing risks related to pesticide use. However, it is unlikely that we will be able to fully achieve a complete phase-out. We will revisit our targets once options become available.

We encourage all suppliers to use alternatives to chemicals listed on the World Health Organization (WHO) Class 1A and 1B lists and those listed under the Stockholm and Rotterdam Conventions.

Toxicity rates 2016-2022 (toxicity units/ha)
Herbicides only



Notes:

1. Our operations do not use herbicides classified as highly hazardous or extremely hazardous.
2. Classification is based on the WHO Recommended Classification of Pesticides.

⁹ Fertilizer data includes both inorganic and organic fertilizers. This data was erroneously reported as inorganic fertilizer in previous reports.

Pillar 2: Deliver Positive Environmental Impacts

WATER MANAGEMENT

[GRI 3-3, 303-1, 303-2, 303-5, 13.7.1, 13.7.2, 13.7.3, 13.7.6] [SASB FB-AG-140a.1, FB-AG-140a.2, FB-AG-140a.3]



We appreciate that water is a finite resource and have adopted comprehensive measures to preserve surface water and groundwater quality and access for our business and surrounding communities.

We draw surface water and groundwater for our upstream industrial use, including steam generation, pesticide mixing, seedling irrigation, and domestic applications, such as cleaning and cooking. Based on the World Resources Institute's [Aqueduct](#) tool to assess

water-related risks, we are mindful that our upstream operations are not located in water-stressed areas.

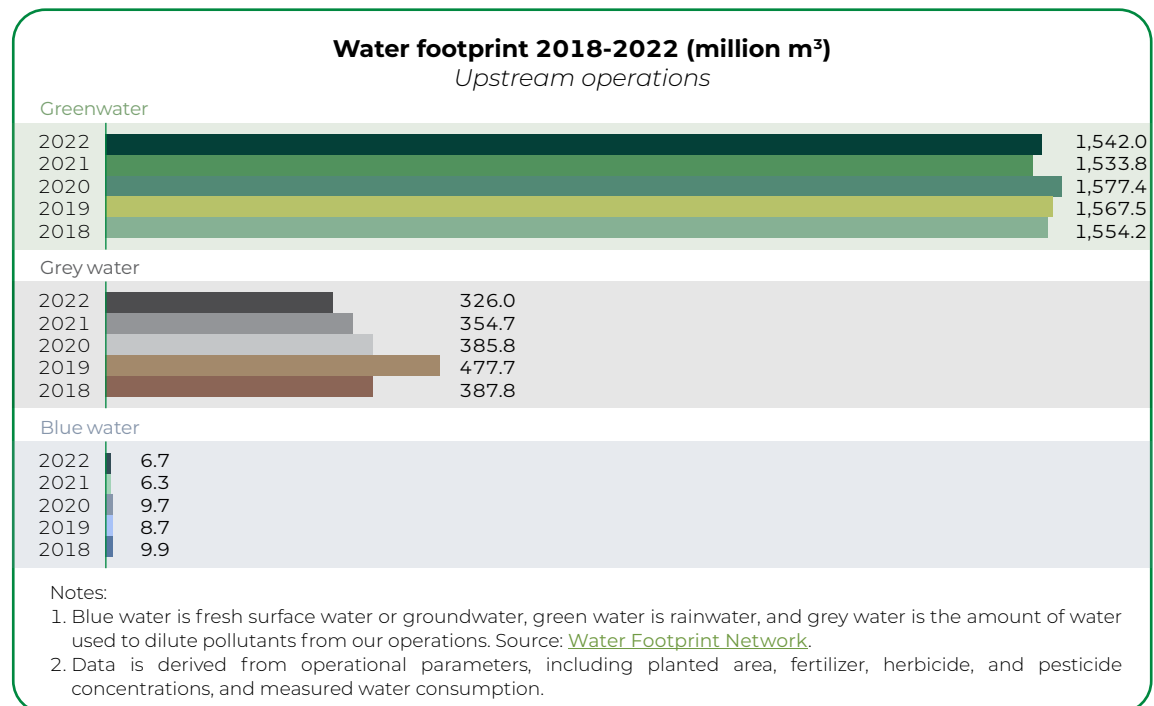
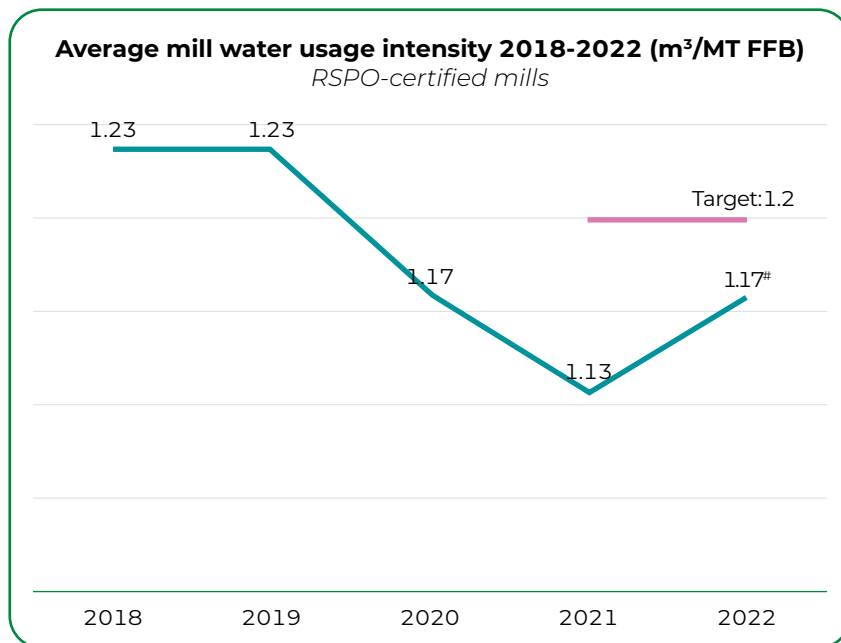
Our 2022 upstream water usage intensity at our RSPO-certified mills was 1.17[#] cubic meters per tonne of FFB processed (m³/FFB), matching our 2020 usage but 3.5% higher than in 2021. Nevertheless, we have met our annual target of keeping water usage intensity at or below 1.2 m³/FFB.

Musim Mas is one of few palm oil companies using the [Water Footprint Methodology](#) to calculate our annual water footprint. Since 2016, we have maintained a positive water balance and continue to record the relevant data to better understand and manage our

water footprint. As specified in the POIG Charter, we have also implemented water management plans at our upstream operations along with other aspects of water accountability.

Group water intensity

For the first time, we can report our water use intensity, including our midstream and downstream operations. In 2022, our Group-level water use intensity was 1.7 m³ per tonne of product produced. We recognize our factories and refineries are also water intensive. We will include our water use and management initiatives in future reports. For more information, see our [2022 CDP Water Security](#) assessment.



EY has performed limited assurance procedures on these figures

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WASTE MANAGEMENT

[GRI 3-3, 306-1, 306-2, 306-3, 306-4, 306-5, 13.8.1, 13.8.2, 13.8.3, 13.8.4, 13.8.5, 13.8.6]



Musim Mas is proud to operate 100% zero-waste mills. We recycle and reuse all non-hazardous waste produced by our upstream processes. All waste produced at our operations is identified and categorized as liquid, solid, or gas and handled according to our standard operating procedures (SOPs). At our plantations, oil palm trunks and fronds that remain after replanting and pruning are left in the soil as organic fertilizer. Solid waste from our mills, including PKS, palm fiber, and empty fruit bunches (EFB), fuel our boilers. Decanter solids and boiler ash are recycled as organic fertilizer at our plantations. Liquid waste from our mills, specifically POME, is directed to our methane capture facilities to generate electricity (see [Energy management](#)) before being channeled to our treatment ponds and processed

into treated wastewater for irrigation. In 2022, we generated and reused 97,412 tonnes of organic waste, including EFB, decanter solids, boiler ash, and more than 2.5 million m³ of POME.

To minimize the pollution risk of hazardous waste from our upstream operations, such as used lubricants, batteries, containers, and drums, we have established waste management protocols for handling and disposal. Government-licensed vendors dispose of all our hazardous waste. To promote and ensure proper waste handling and segregation, we also provide regular education and training sessions to our workers.

We will provide our waste data and reduction initiatives at midstream and downstream operations in greater detail in future reporting.

» [Zero-Waste Mills at Musim Mas](#)

Maintaining water quality

To avoid impacting groundwater and nearby water sources, we treat POME and palm oil refinery effluent (PORE) before discharging it. We strictly manage biological oxygen demand (BOD) and chemical oxygen demand (COD) levels and keep them below the national regulatory thresholds of 5,000 parts per million (ppm) for BOD in land applications, 100 ppm for BOD in waterways, and 350 ppm for COD in waterways. We achieved these levels at our upstream operations in 2022, and there were no instances of non-compliance. We continue to monitor phosphorus and nitrogen levels at inlet and outlet points upstream and downstream of rivers that cross our concessions.

- » [See Sustainability Performance Data 2018–2022 for BOD and COD levels](#)
- » [Treatment of PORE](#)



About This Report

2022 Summary Progress

Chairman Statement

About Musim Mas

Approach to Sustainability

Improve the Lives of Smallholders, Workers, and Communities

Deliver Positive Environmental Impacts

Maintain Responsible and Enduring Relationships with Suppliers, Customers, and Stakeholders

Drive Innovation in Sustainable Practices

Assurance Statement

Appendices

◆ The Musim Mas supply chain

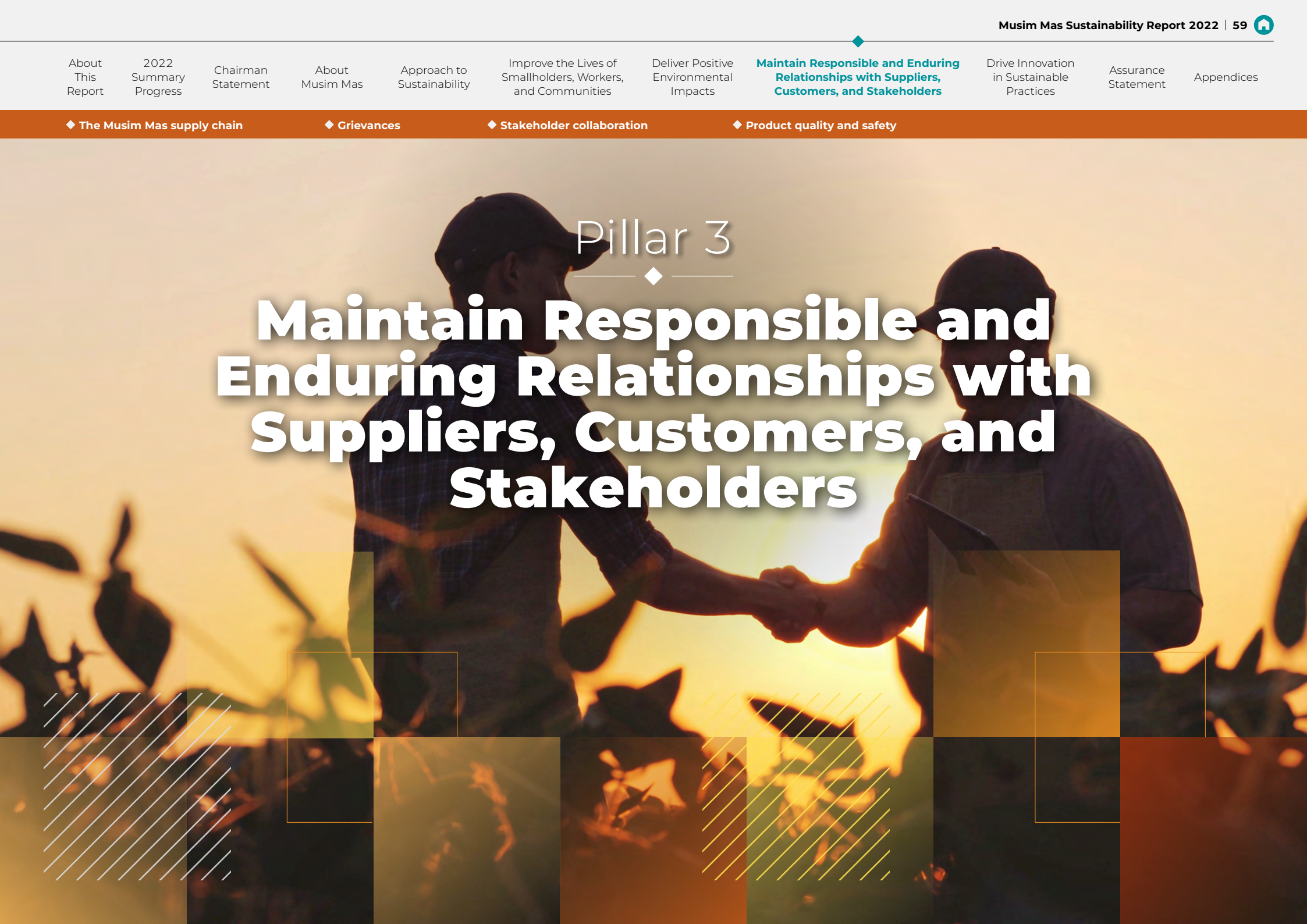
◆ Grievances

◆ Stakeholder collaboration

◆ Product quality and safety

Pillar 3

Maintain Responsible and Enduring Relationships with Suppliers, Customers, and Stakeholders



Pillar 3: Maintain Responsible and Enduring Relationships with Suppliers, Customers, and Stakeholders

Collaborating with partners and peers is the only way the industry can effect meaningful change and tackle common challenges, such as deforestation and labour concerns within and beyond our supply chain. We must work closely with our suppliers on our No Deforestation, No Peat, No Exploitation (NDPE) commitments and with the private and public sectors to transform the industry and align with growing reporting requirements in the international arena.

In 2022, we updated our NDPE Roadmap – the Musim Mas NDPE [Roadmap to Responsible Supply Base 2025](#) – to guide our efforts to ensure NDPE compliance outside our operations. The updates contain new targets developed from improved methodologies and learnings and now align with the four pillars of the Musim Mas Sustainability Policy. For an overview of these changes, see our [Updated NDPE Roadmap](#).

Our focus has historically been on our palm oil operations. In 2022, we extended our sourcing strategies to include our coconut supply chain, developing and launching our new [Sustainable Coconut Sourcing Strategy](#). For the first time, this section contains data on our coconut supply chain. Future reports will expand the scope of this information as we build programs and gather more relevant data about our coconut operations.



Pillar 3: Maintain Responsible and Enduring Relationships with Suppliers, Customers, and Stakeholders

THE MUSIM MAS SUPPLY CHAIN

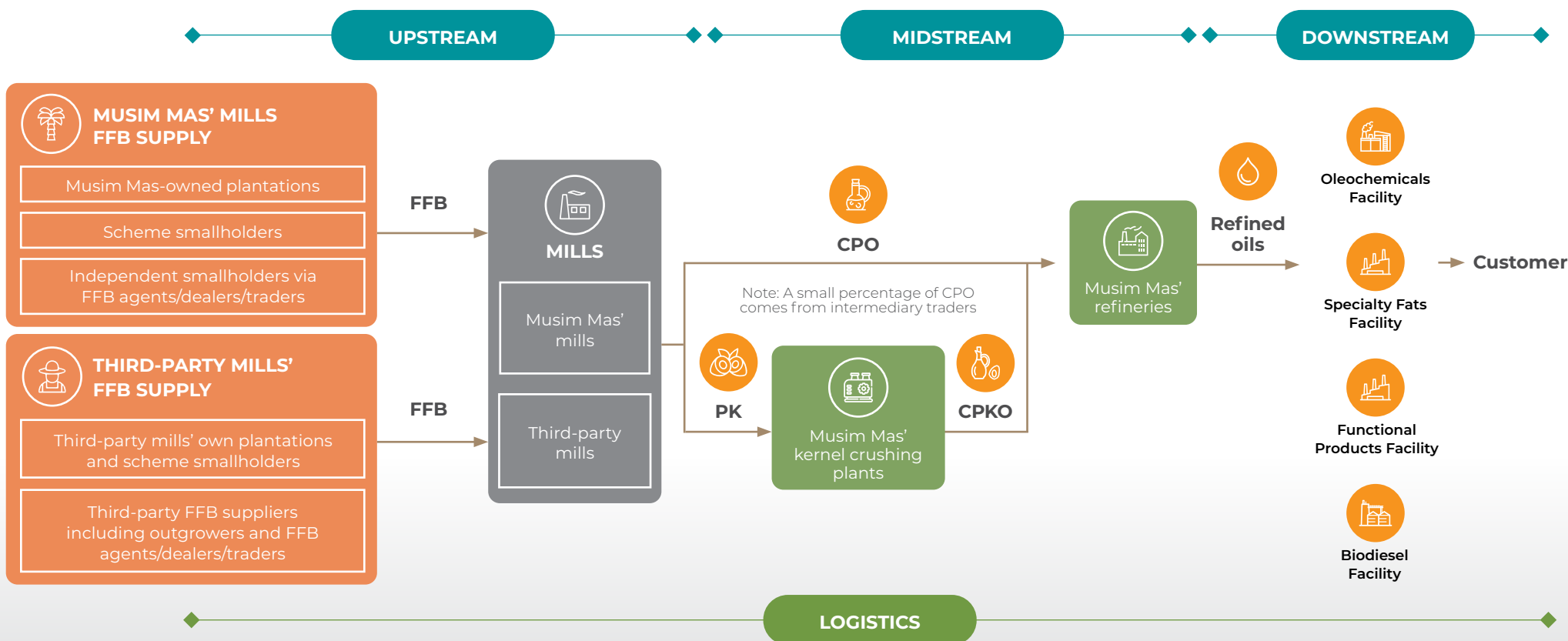
[GRI 2-6, 3-3, 204-1, 13.4.1]



Overview of palm and coconut supply chains

Palm oil supply chain

Our palm oil supply chain is complex, with multiple players contributing volumes at varying scales.



Pillar 3: Maintain Responsible and Enduring Relationships with Suppliers, Customers, and Stakeholders

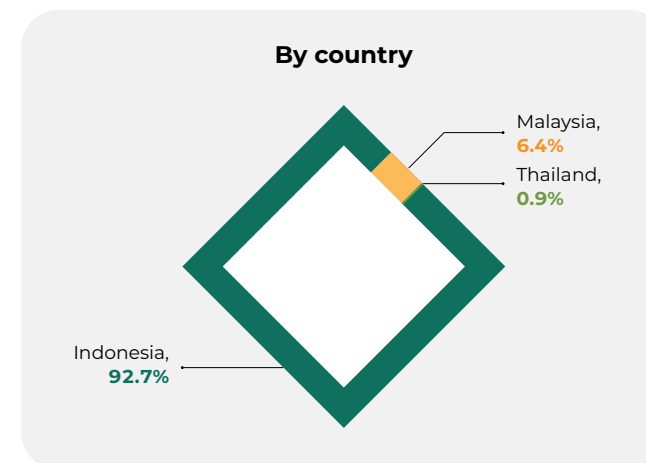
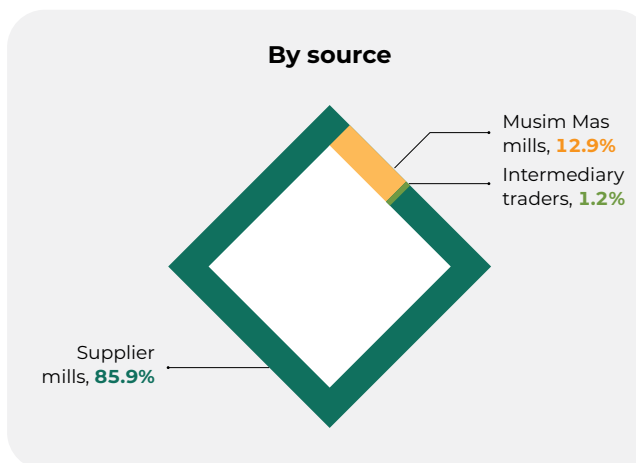
Over 87% of all palm oil we trade and process at refineries is supplied by third parties. Most of the crude palm oil (CPO) sourced originates in Indonesia (over 92%), where we actively pursue supplier engagement and landscape initiatives. The remaining comes from Malaysia (6.4%) and Thailand (less than 1%).

Most of the fresh fruit bunches (FFB) processed at our mills come from our plantations and scheme smallholders, whereas 25.4% is supplied by third-party plantations and smallholders. Musim Mas exclusively sources FFB locally in Indonesia.

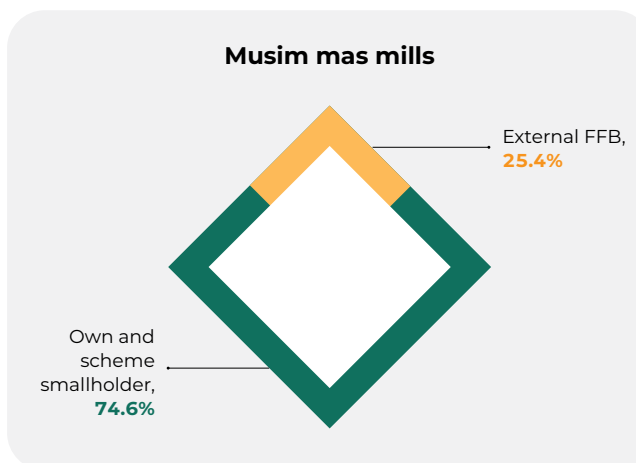
CPO supplying mills by FFB origin 2022 (no.)

Origin	No.
Musim mas-owned mills	18
- FFB from Musim Mas plantations and scheme smallholders (only)	10
- FFB from own plantations and external sources	5
- FFB from external sources (only)	3
Third-party mills	553
- FFB from their own plantations (only)	77
- FFB from external sources (only)	104
- FFB from both their own plantations and external sources	372
Total	571

CPO supply bases 2022 (% of total volume)



FFB sourced by origin 2022 (% of total volume)



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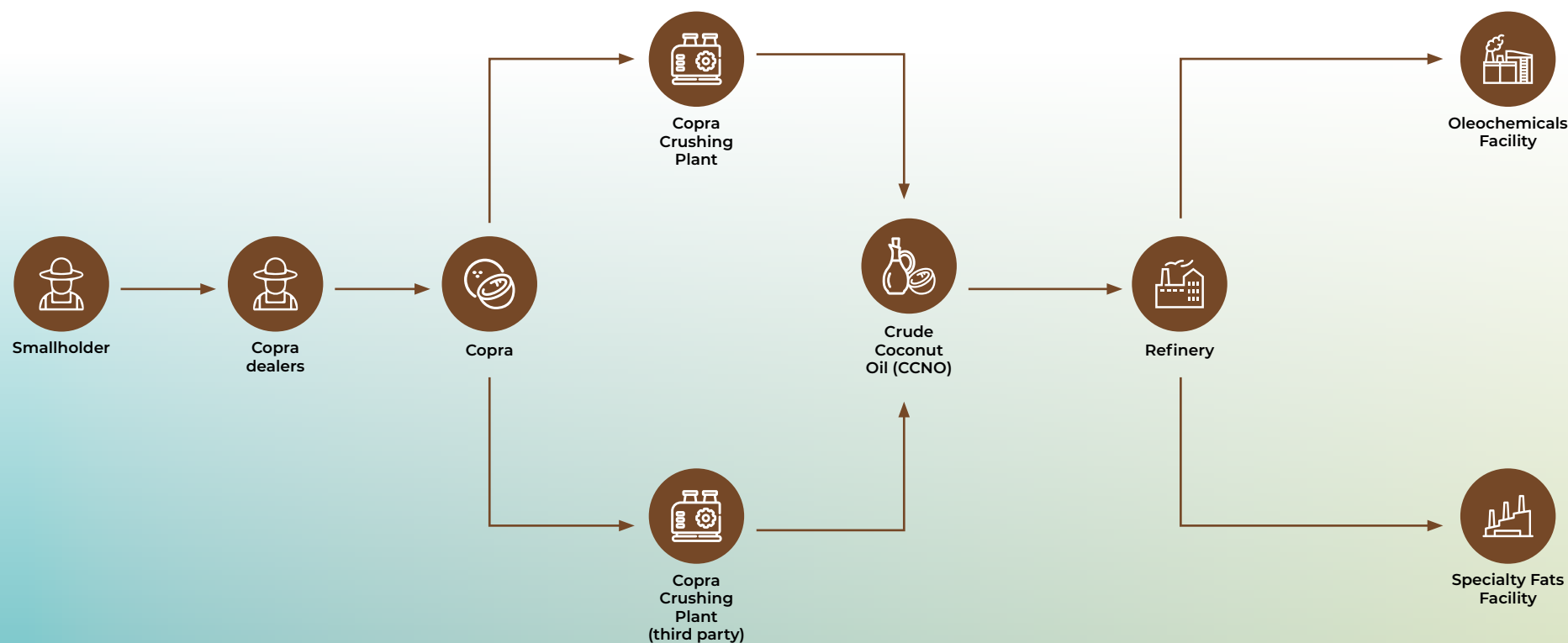


Coconut supply chain

Our sole copra crushing facility in Sulawesi sources copra to produce crude coconut oil that is further refined and processed at our oleochemical and specialty fats plants. In 2022, we began mapping our coconut and copra supply base. The bulk of our copra is sourced from independent smallholders in East Indonesia

through copra dealers. Our refinery also sources a small amount of crude coconut oil from third-party producers, mainly from Sumatra.

In 2023, we will continue to map our supply chain and start to expand our engagement plans in line with our Sustainable Coconut Sourcing Strategy.



Pillar 3: Maintain Responsible and Enduring Relationships with Suppliers, Customers, and Stakeholders

Working with coconut smallholders

In 2022, we conducted a baseline study on our coconut supply base. We met with copra dealers and coconut farmers in Bitung, North Sulawesi, to understand coconut farming practices and the flow of supply to our copra crushing plant. Through this study, we found that:

- ◆ The risk of deforestation or peat development in our existing supply base is low.
- ◆ There is an opportunity to improve coconut yield and productivity in supply chains.
- ◆ Most coconut producers have multiple occupations, and coconut is not always their primary source of income.
- ◆ The current market for local agents and traders is competitive.

Moving forward, Musim Mas will explore opportunities with stakeholders to create a coconut smallholder support program. Our palm oil smallholder initiatives have taught us that effective programs take time and require nurturing robust relationships with smallholders and stakeholders in the broader landscape. We will leverage the strengths of our existing palm oil smallholder programs and adopt a continuous learning approach to developing and deploying the most effective measures on the ground.

Expectations for coconut sustainability

Commentary by Caroline Westerik-Sikking and Ng Seng Bee
Director of Sustainability and Sustainable Multi-oil Manager
AAK

There is an increased demand for sustainable coconut, primarily driven by the requirements of customers in the personal care industry and other emerging industries like the plant-based foods sector.

However, compared to the mature, established frameworks in the palm oil industry, sustainability in coconut oil production is a work in progress. We can learn much from the palm oil sector, but its approaches do not always translate because the coconut industry faces different issues. For example, coconut farmers often face obstacles like fluctuating market prices and insufficient income to secure their livelihoods. Demand for coconut oil is much lower. Consequently, sustainability standards and action on the ground are not always a priority. However, bringing sustainability to a smaller industry opens the potential for dedicated, localized approaches, such as the Musim Mas Smallholders Hubs program. Because the industry is less mature, adapting sustainability measures to the local context and conditions is crucial.

As a founding member of the Sustainable Coconut Charter, over the years, AAK has witnessed a shift in the critical focus areas of industry discussions. Early conversations centered on implementing policies, building awareness, establishing traceability, and engaging with tier-one suppliers because more than 90% of coconut suppliers are smallholders. These days, we better understand coconut supply chains, and discussions focus on using traceability to engage directly with farmers and intermediaries to improve livelihoods and tackle tangible issues on the ground.

We must link farmers' volumes to customer requirements for sustainable coconut production. Certifications from organizations like the Rainforest Alliance provide a seal of approval to help improve farmers' livelihoods but are only one way of confirming sustainable production. The industry must partner with various stakeholders and employ a jurisdictional approach to work towards shared sustainability standards and goals.

About: Caroline leads AAK's "better sourcing" team and is responsible for the company's sustainability strategy and initiatives. Seng Bee is responsible for parts of the tropical oil sustainability, including palm oil and coconut, implementing sustainability through supplier engagements and other programs. AAK has a longstanding customer-supplier relationship with Musim Mas and collaborates with the company on industry association projects. Currently, AAK only sources palm oil products from Musim Mas.

Pillar 3: Maintain Responsible and Enduring Relationships with Suppliers, Customers, and Stakeholders

Traceability

[GRI 13.23.1, 13.23.2, 13.23.3]

To address deforestation and peat development risks, we need detailed knowledge of the supply sheds of mills we source from. We achieved 100% traceability to mill (TTM) in 2015 and continue to focus on achieving 100% traceability to plantation (TTP)¹⁰ for all CPO and palm kernel (PK) we source. For an overview of our traceability approaches, see our [website](#).

We achieved 100% TTP for Musim Mas mills' FFB supply base and are working on 100% TTP for third-party supplier mills and our entire supply chain. Although Roundtable on Sustainable Palm Oil (RSPO) supply chains of CPO and PK are inherently fully traceable and a solid foundation of our supply base, mapping, collating, and validating traceability data of non-certified suppliers demands significant effort.

We have made tremendous inroads since 2019, achieving 96% TTP for third-party supplier mills and 97% overall.

We are pursuing our target of 100% TTP by 2025. The remaining obstacle is collecting FFB supply data from FFB dealers and independent smallholders where crop flow is dynamic and switches between mill supply bases due to changing market factors.

We are developing a methodology to track and report deforestation-free supply based on our traceability and risk management frameworks by 2025.

TTM data has been verified by Control Union. The verification statement can be found [here](#).

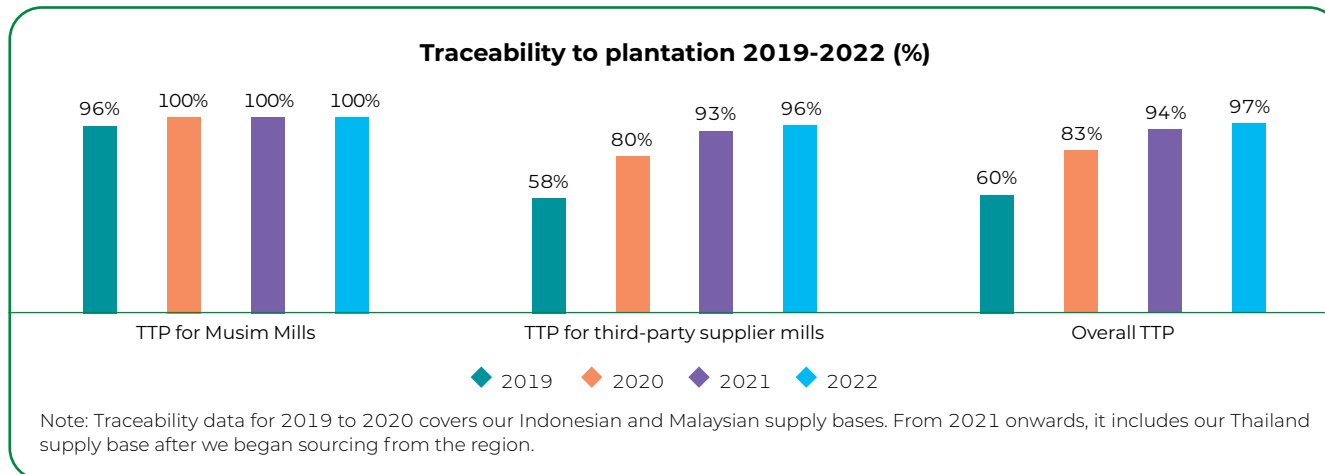
TTP data has been verified by Control Union. The verification statement can be found [here](#).



We began mapping the supply base of our coconut business in 2022. This includes collecting traceability to plantation data at our Sulawesi facility to help us understand our suppliers' potential environmental risks. After collecting our baseline data, we will engage with our suppliers and start reporting traceability progress.



Traceability to plantation 2019-2022 (%)



¹⁰ Traceability to plantation refers to traceability to place of production, e.g., a company's concession, or location of village in the case of FFB dealers and/or smallholders.

Pillar 3: Maintain Responsible and Enduring Relationships with Suppliers, Customers, and Stakeholders

Assessing, managing, and monitoring NDP risks

[GRI 3-3, 308-1, 308-2, 414-1, 414-2, 13.23.4] [SASB FB-AG-430a.1, SASB FB-AG-430a.3]

Musim Mas uses a combination of approaches to monitor and manage risks associated with the No Deforestation and No Peat (NDP) commitments in our NDPE policy.

Supplier risk assessments

Our risk management process informs but does not replace programs that independently verify the NDP compliance of third-party mills that supply our refineries. It also covers Musim Mas-owned mills, which are assessed to be low-risk. Our 2021 [NDP Risk Management Framework](#) outlines our approaches to risk identification, assessment, mitigation, and monitoring.

We use TTP data and overlay supply shed maps with locations of conservation and peat areas to categorize the mills in our supply chain as low-, medium-, or high-risk. We screen new and existing suppliers annually and, in 2022, assessed all our 602 CPO and PK suppliers to determine their risk levels. **We identified no high-risk mills# in the reporting year**, but 2.7%# were classified as medium-risk, with 97.3%# classed as low-risk.

If a high-risk mill were to be identified, we would collaboratively develop time-bound action plans with the supplier and support them through regular engagement until the risks were reduced. This was the case for the one high-risk mill identified in 2021 and engaged through our supplier workshops. The supplier took measures to change its sourcing approach, leading to a change in status to a medium-risk mill in 2022.

EY has performed limited assurance procedures on these figures

Supplier risk levels 2021–2022 (no. (%))

Risk level	Criteria	2021		2022	
		No.	%	No.	%
High risk	Overlaps with > 10% of risk indicators	1	0.2%	0	0%
Medium risk	Overlaps with 2–10% of risk indicators	15	2.6%	16	2.7%
Low risk	Overlaps with < 2% of risk indicators/ RSPO Identity Preserved certified/POIG verified	560	97.2%	586	97.3%



In 2022, we applied our Risk Management Framework to our copra and coconut oil suppliers for the first time, gaining an initial understanding of their risk levels. **Our findings show that our entire coconut sourcing area has low deforestation risk.** As we increase traceability, we will continue analyzing the sourcing regions in our coconut supply chain.



Pillar 3: Maintain Responsible and Enduring Relationships with Suppliers, Customers, and Stakeholders

Deforestation monitoring

We proactively monitor our supply chain to detect and confirm deforestation, development on peat, and fires. Our Geographic Information System (GIS) team uses a combination of methods and platforms to monitor landscapes throughout Indonesia, Malaysia and Thailand.

Confirmed cases of deforestation by existing suppliers activate our [grievance mechanism](#). We support alert systems, such as Earthqualizer's platform and



Global Forest Watch's Integrated Deforestation Alert (IDA) system, and carry out field-checking initiatives that collect landscape-level spatial development information to help guide legal future expansion and development. We augment this work with our outreach programs and landscape initiatives. From January to December 2022, remote deforestation monitoring of more than 9.8# million hectares of our suppliers' concessions in Indonesia, Malaysia, and Thailand was carried out by Earthqualizer.¹¹

Musim Mas Deforestation Monitoring System



Earthqualizer Platform

Industry reference B2B monitoring platform



GFW Integrated Deforestation Alerts

An innovative platform by the Global Forest Watch (GFW) and supporting agencies/universities that provides deforestation alerts through multiple analytical systems, namely GLAD, GLAD-S2 and RADD. Combined, these can detect change in primary forests as well plantations and younger forests



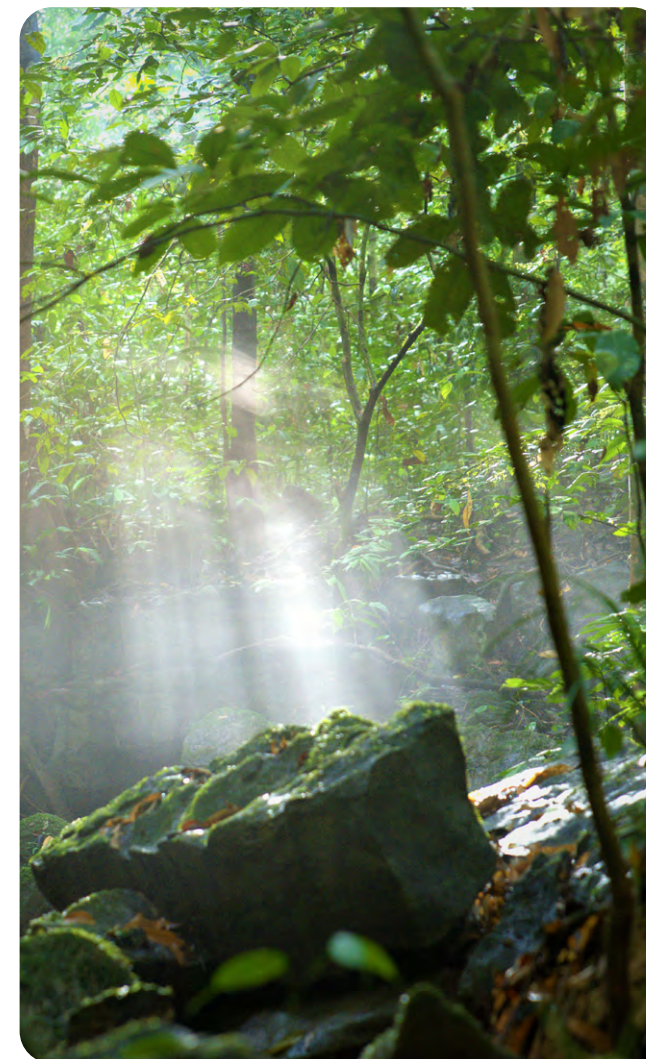
Public Sources

We collect, update, and cross-check information using public sources such as, GeoRSPO, Greenpeace, Kepo Hutan, and Global Forest Watch



Internal Monitoring

To establish TTP, our suppliers share maps and information about their supply base



¹¹ This covers suppliers' concessions at their group levels in Indonesia, Malaysia, and Thailand.

EY has performed limited assurance procedures on these figures

Pillar 3: Maintain Responsible and Enduring Relationships with Suppliers, Customers, and Stakeholders

Supplier progress on NDP commitments

[GRI 13.4.3] [SASB FB-AG-430a.1, FB-AG-430a.2]

Increasing supply base delivering on NDPE IRF

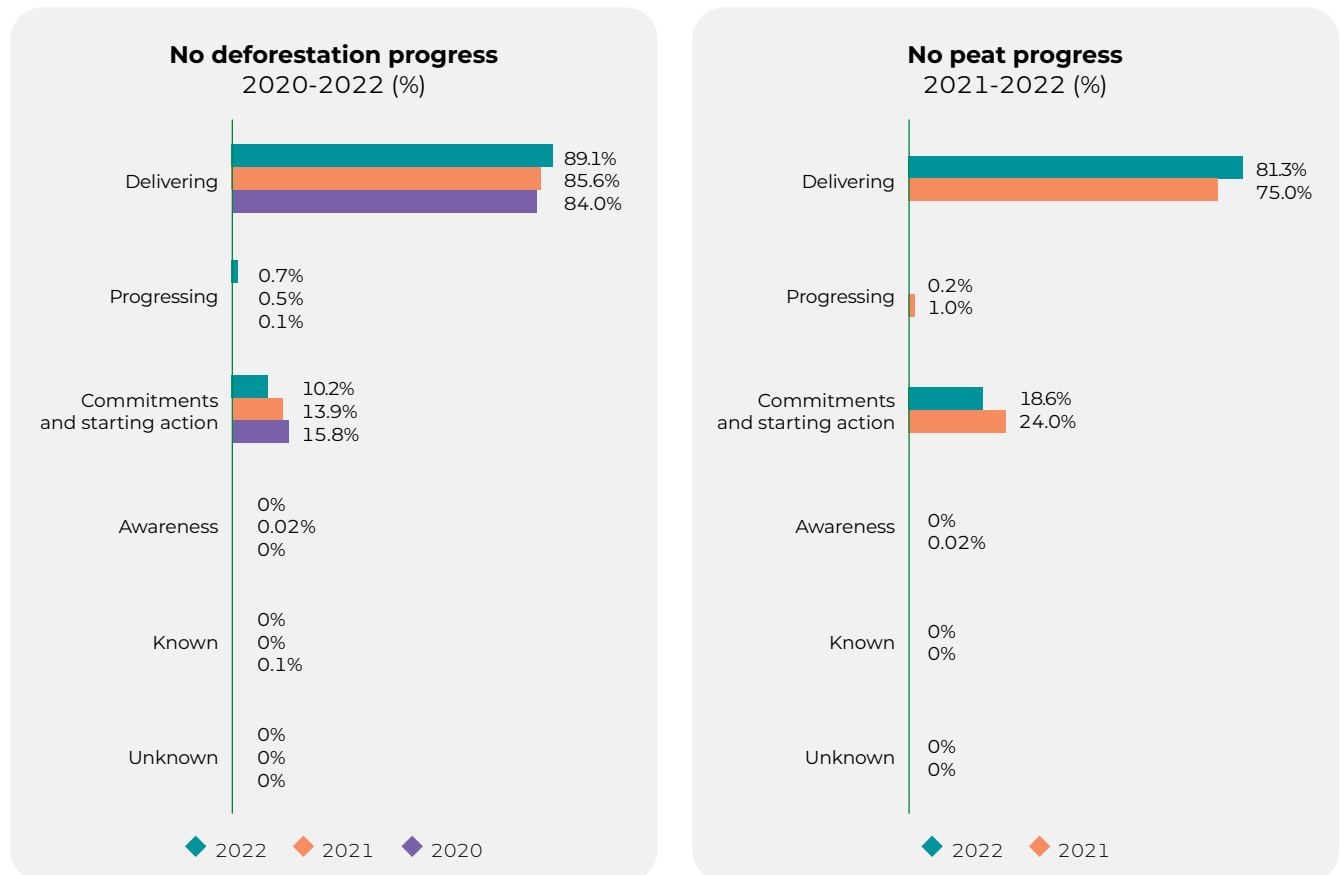
We use the industry-leading NDPE Implementation Reporting Framework (IRF) reporting tool to systematically assess our supplying mills' progress on implementing industry No Deforestation and No Peat commitments and classifying them into one of six categories.

Musim Mas has achieved high levels of traceability by successfully collecting the required data for NDPE IRF reporting from our supply base through our supplier monitoring and engagement programs.

We know that 89.1% of the total volumes sourced in 2022 were "Delivering" on their No Deforestation commitments, and 81.3% were "Delivering" on their No Peat commitments. Over the past two years, more suppliers moved from the "Commitments and starting action" category to the "Progressing" and "Delivering" categories.

We aim to have 100% of suppliers "Delivering" on their NDPE commitments by 2025 and are collaborating with them through our landscape initiatives and Smallholders Hubs to achieve this objective.

No deforestation and no peat progress at the production level (%) NDPE IRF



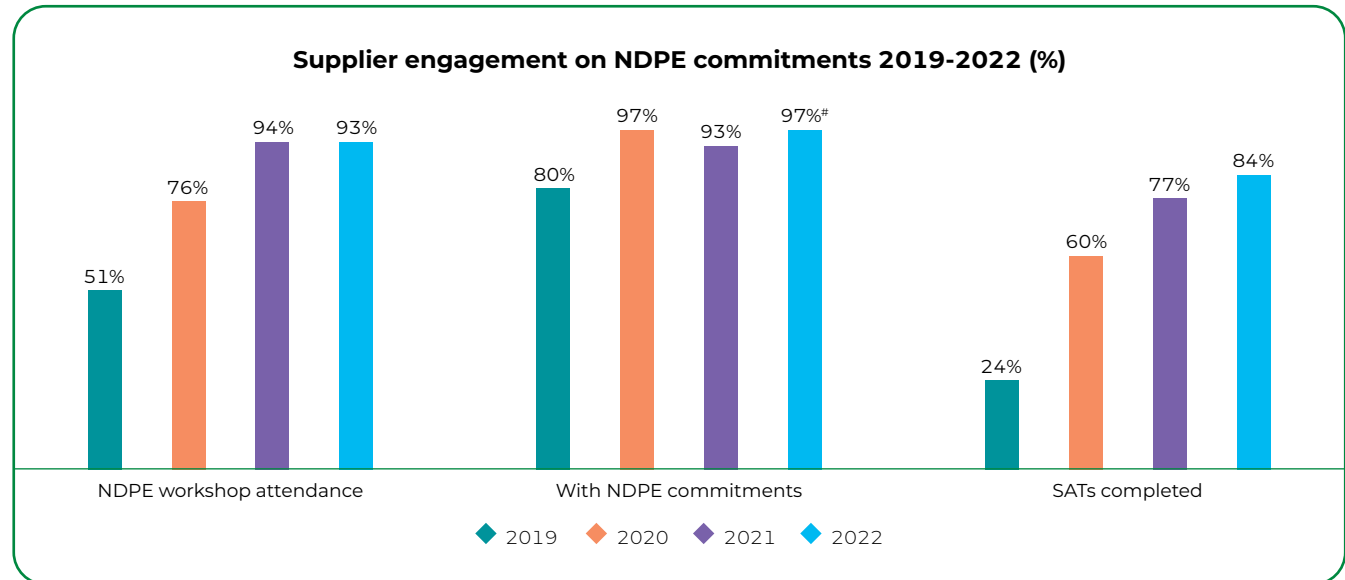
Note: The above data for the January–December 2022 reporting period covers all supplying mills in our supply chain. It has been independently verified by Control Union (Malaysia) Sdn. Bhd. The verification statement can be found [here](#).

Pillar 3: Maintain Responsible and Enduring Relationships with Suppliers, Customers, and Stakeholders

Supplier NDPE engagement

Because our suppliers' progress determines the success of our entire supply chain, we engage with them on our NDPE policy obligations and require them to attend workshops and submit their NDPE commitments. We also ask suppliers to complete the Musim Mas Self-Assessment Tool (SAT) on sustainability commitments. Their answers help us to identify areas of improvement and develop custom roadmaps with time-bound plans to help them meet our policy commitments. These roadmaps comprise benchmarks and milestones that gauge suppliers' degree of compliance, allowing us to monitor their progress. Currently, we are developing a digital platform for our SATs to streamline compiling and tracking results.

As of December 2022, 93% of our suppliers have attended an NDPE workshop, 97%# have NDPE commitments, and 84% have completed SATs.



A global focus on NDPE-compliant supply chains

Commentary by Selene Massy and Benjamin Voirin
Senior Project Managers Transitions

There has been a global push for sustainable supply chains, addressing deforestation, protecting forests, respecting human rights and supporting livelihoods that have been core objectives to palm supply chain players.

Action for Sustainable Derivatives (ASD) is a sectoral initiative that aims to transform supply chains by increasing transparency, monitoring risks, engaging the sector, and generating on-the-ground impacts. In its first two years, ASD established a foundation for work in

palm derivatives supply chains, including an organizing framework, collective engagement mechanisms, and momentum towards action. In response to new regulations, ASD also amended priorities to track developments and prepare members for compliance.

This includes active grievance management, deforestation monitoring and market engagement to build verified deforestation-free supplies in compliance with NDPE principles, upcoming regulations and national sovereign decisions, and civil society expectations.

Engaging with players like Musim Mas has been an essential part of ASD's roadmap, notably building on their NDPE commitments and ability to trace their

supply chain up to mills and plantations. ASD is looking forward to more collaborations notably on salient topics such as human rights and deforestation grievances or the identification of NDPE-compliant sources for the oleochemical sector.

About: ASD is a coalition of 30 stakeholders in the cosmetics, chemicals, and detergents sectors working together to promote action and forward movement in the palm, soy, and coconut derivative supply chains. Transitions is a consultancy that has worked with the derivatives industry since 2014 and serves as the secretariat for the ASD, providing technical expertise on deforestation, biodiversity, human rights, and the palm supply chain.

EY has performed limited assurance procedures on these figures

Pillar 3: Maintain Responsible and Enduring Relationships with Suppliers, Customers, and Stakeholders

Training independent smallholders in our supply base

We continue to conduct training programs for independent smallholders within and outside of our supply base to increase their NDPE understanding and supporting them with certification. As of December 2022, we have trained a total of 40,708 smallholders.

We also know that 16,450# independent smallholders supply to Musim Mas and are part of our third-party FFB supply base in 2022. Of those we source from, 3,797# — or 23% of them — were part of our training programs.

New FFB dealers engagement program in Malaysia

In 2022, we partnered with the Consortium of Resource Experts (CORE) to engage FFB dealers in Peninsular Malaysia. This program was started because this region tends to be a bottleneck for retrieving TTP data. CORE engages FFB dealers on NDPE through training programs that include traceability to plantation and convenes stakeholders to participate in workshops, such as representatives from the Malaysian Palm Oil Board (MPOB) and the Malaysian Palm Oil Certification

Council (MPOCC). The project is a joint program with other palm oil producers that operate refineries in Peninsular Malaysia that may have overlapping supply bases with Musim Mas.

Coconut suppliers

We have developed engagement materials to train our coconut suppliers, and as of 2022, we have conducted four NDPE workshops. Musim Mas has since followed up with these suppliers to collect traceability data.

Monitoring suppliers' certification status

We track suppliers' adherence to recognized sustainability certification schemes, including the RSPO, Indonesian Sustainable Palm Oil (ISPO), Malaysian Sustainable Palm Oil (MSPO), and the International Sustainability and Carbon Certification (ISCC) standards. Verifying our suppliers' certification status assures us their operations have been audited and verified by third parties and that their commitments have been independently assessed by recognized certification bodies.



Country	Certification	% of total suppliers per country
Indonesia	RSPO-certified suppliers	29.3%
	ISPO-certified suppliers	49.2%
	ISCC-certified suppliers	15.0%
Malaysia	RSPO-certified suppliers	25.6%
	MSPO-certified suppliers	99.2%
	ISCC-certified suppliers	12.0%
Thailand	RSPO-certified suppliers	87.5%

EY has performed limited assurance procedures on these figures

Pillar 3: Maintain Responsible and Enduring Relationships with Suppliers, Customers, and Stakeholders

Addressing No Exploitation risk in our supply chains

[GRI 3-3, 414-2] [SASB FB-AG-430a.3]

Our industry has made tremendous progress in developing guidelines to assess compliance, such as the NDP components of NDPE commitments. In recent years, an increasing focus has been on determining compliance with the human and labour rights provisions in the No Exploitation component of NDPE. “Human rights” is a broad focus with many levels and types of risk. These cannot be monitored remotely, unlike NDP risks, which can be tracked via satellite. Also,

the stakeholders responsible for upholding certain rights vary depending on the context. Therefore, it is challenging to verify No Exploitation compliance.

Without an industry-wide tool to address human rights in supply chains, we have always asked suppliers to complete the Musim Mas SAT to assess their No Exploitation commitments, measures, and risks. We also review public information on land conflicts and other No Exploitation-related complaints submitted to our internal and the RSPO grievance platforms. We are now developing a strategy to proactively assess human rights non-compliance.

Human Rights Due Diligence for suppliers

[GRI 2-24]

Since 2021, Musim Mas has worked with Verité in areas of special interest to develop and test tools to assess human and labour rights at supplier operations. Verité began with a desktop review and interviews with key Musim Mas staff who oversee supplier commitments, following up with a baseline assessment of three suppliers in March 2022. To provide a broader awareness of potential No Exploitation risks, the three selected suppliers were non-certified and had different profiles: an integrated mill, an independent mill, and an independent plantation. Verité used their findings to facilitate a risk mapping and prioritization exercise segmenting our suppliers according to their risk level.

Musim Mas is using the outcomes of the Verité assessment to develop our Human Rights Due Diligence (HRDD) strategy.

It will be used to:

- ◆ Update the Musim Mas supplier Self-Assessment Tool
- ◆ Integrate prioritization recommendations into our risk assessment and management systems

The HRDD system will be valuable for detecting potential human rights risks and driving decisions for on-the-ground verification needs. We will also ensure it evolves to reflect emerging and revised industry-driven standards and regulations. This includes the provisions of the new Palm Oil Collaboration Group (POCG) NDPE Implementation Reporting Framework HRDD for land and labour aspects that is currently being piloted. By 2025, we will begin implementing our HRDD strategy for third-party suppliers.



Pillar 3: Maintain Responsible and Enduring Relationships with Suppliers, Customers, and Stakeholders

GRIEVANCES

[GRI 2-16, 2-25, 2-26, 3-3, 308-2, 411-1, 414-2, 13.4.5, 13.13.3, 13.14.2] [SASB FB-AG-430a.2]



Update on Musim Mas grievance on RSPO portal

In January 2021, a grievance case concerning our subsidiary in West Sumatra was filed on the RSPO complaints portal. Following the RSPO Complaints Panel [decision letter](#) in August 2023, the case was dismissed.

Supplier grievances

Nine grievances were filed against our suppliers via the Musim Mas grievance mechanism in 2022, five of which were closed within the year. Three grievances, filed in 2022, concerned potential non-compliant deforestation on approximately 1,062 hectares.³ The five remaining cases were related to illegal FFB produced in conservation areas. One case was a social conflict grievance regarding a supplier allegedly operating without a land use permit and reportedly operating on community-titled land.

Third-party supplier grievances raised and since closed

	Raised	Closed	Active
2022 cases	9	5	4
Cumulative cases 2019–2022	68	45	23

We are working with the affected suppliers and stakeholders to resolve four open cases from 2022 and 19 active ones from previous years. To ensure progress toward compliance, active cases are either resolved or monitored and reviewed by our teams. Three of the grievances filed in 2022 arose from a Rainforest Action Network [report](#) alleging indirect sourcing of FFB from plantations that encroach on the boundaries of the Rawa Singkil Wildlife Reserve. Musim Mas performed spatial analyses, engaged with the affected suppliers to communicate our findings, and conducted site visits. We collaboratively developed action plans to address the grievances and ensured that suppliers have shown or are committed to demonstrating progress.

We aim to close 100% of these grievances but recognize that it can take years to reconcile cases to satisfy industry requirements for a fully NDPE-compliant supply chain. Musim Mas does not regard settled grievances as a foregone conclusion, and suppliers must make demonstrable progress toward resolving them.

Controlled Purchase Protocol

Grievances filed on or after January 2020 are subject to our [Controlled Purchase Protocol \(CPP\)](#), a complaints resolution process that maintains business relationships for those demonstrating progress. The protocol is based on three principles: suppliers' willingness to engage, their positivity to act, and proof of progress against agreed milestones and criteria.

Musim Mas ceases business with suppliers that are unwilling to engage with us or repeatedly fail to meet agreed-upon milestones in cases involving critical grievances, including breaches of ND or NP commitments, regulatory breaches, and withdrawal from the RSPO. There were no new supplier suspensions in 2022.



³ Cumulatively since 2019, there have been a total of 7,927 hectares of non-compliant deforestation recorded on our grievance register.

Pillar 3: Maintain Responsible and Enduring Relationships with Suppliers, Customers, and Stakeholders

STAKEHOLDER COLLABORATION

[GRI 2-28, 2-29, 3-3, 13.4.1]



Musim Mas strives to be at the forefront of sustainability dialogue. Our stakeholder groups have a direct connection with us through commercial relationships, partnerships to achieve common sustainability goals, or those that are directly impacted by us or those whom we directly impact. These include academic institutions, certification bodies, communities and their representatives, customers and partners, employees, financial institutions and investors, government and regulatory bodies, NGOs, smallholders, and suppliers.

We directly engage with various stakeholders to meet the objectives of our sustainability strategies and contribute to multi-stakeholder industry, landscape, and issue-focused partnerships to address emerging challenges and opportunities. Their interests and concerns are critical to the success of our initiatives, influencing and supporting how we develop and update our strategies, management decisions, and operational procedures.

We publish and update our policy and reporting, inviting stakeholder input at every opportunity. This includes consulting our technical experts and engaging with selected stakeholders for our annual materiality updates and sustainability reports. For an overview of our stakeholder engagement approaches and objectives, see [here](#). Our annual materiality assessments cover the priority environmental, social, and governance (ESG) issues we focus on – consulting with stakeholders is critical for identifying and prioritizing these topics. For an overview of our materiality process, see [here](#).



Collective action is one of the core focus areas of our Sustainable Coconut Sourcing Strategy. We have already engaged with partners, suppliers, customers, and stakeholders that share common objectives. Over the next three years, we will work closely with them on our sustainable coconut-sourcing initiatives. In November 2022, Musim Mas representatives demonstrated our commitment to a sustainable coconut supply chain by presenting at the “Tackling Deforestation: mobilizing multi-commodities landscape collaboration” Eco-Business Conference.



Pillar 3: Maintain Responsible and Enduring Relationships with Suppliers, Customers, and Stakeholders

Notable partnerships in 2022



Environmental programs

- ◆ Engaged with a technical consultant to support with carbon accounting and Group-level reduction strategies
- ◆ Signed Agriculture Sector Roadmap for land-use change with 13 other agri-companies versity conservation impact study with SEARRP
- ◆ Completed biodiversity conservation impact study with SEARRP
- ◆ Completed HCSA pilot on SR13 with FPP
- ◆ Engaged in landscape-level HCV/HCS assessments with stakeholders in Aceh Timur and Aceh Tamiang



Human rights programs

- ◆ Completed labour assessment at Musim Mas operations with Verité Southeast Asia
- ◆ Completed human rights baseline assessment for three suppliers with Verité Southeast Asia



Supply chain programs

- ◆ Cohosted supplier workshop in Aceh with Sinarmas Agri and Food
- ◆ New FFB dealers engagement program in Malaysia with CORE
- ◆ Engaged CORE to support with coconut desktop studies



Smallholder programs

- ◆ Established new Smallholders Hubs with Earthqualizer in Sambas
- ◆ Established new Smallholders Hub in Sungai Linau with multiple stakeholders, under the landscape program
- ◆ Continued L3F program in North Sumatra on regenerative livelihoods with L3F, SNV, Danone, L'Oréal, and Mars, Inc.
- ◆ Continued ETH Zurich research program to better understand the conditions under which supply chain sustainability initiatives can lead to reduced deforestation
- ◆ Expanded AgriOn finance platform with training for smallholders

Multi-stakeholder initiatives provide a platform and an opportunity to contribute and lead the development of industry-wide dialogue. Musim Mas is a member of key industry associations and groups tackling important sector-wide and global issues. See a [list of our collaborations here](#).

Musim Mas joins the UNGC

Musim Mas is a member of the world's largest corporate sustainability initiative: the [United Nations Global Compact \(UNGC\)](#). Our Indonesian operations and Singapore headquarters officially joined in September 2022 and February 2023, respectively. This UN-led global corporate responsibility initiative is an opportunity to network and partner with like-minded global companies, sharing best practices and solutions on human rights and labour, environmental, and anti-corruption issues.

As a member of this prestigious body, we pledge to integrate the UNGC and its [Ten Principles](#) into our strategy, culture, and daily operations. We will report on our progress and efforts to implement the Ten Principles by submitting an annual Communication on Progress (CoP) to the UNGC and remain committed to contributing to the broader goals of the United Nations, particularly the UN Sustainable Development Goals (SDGs).

- » [Contributing to the SDGs](#)
- » [Partnerships and Collaboration](#)
- » [Stakeholder list](#)

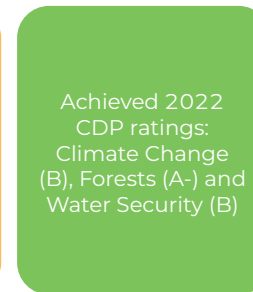
Pillar 3: Maintain Responsible and Enduring Relationships with Suppliers, Customers, and Stakeholders

Transparency, reporting, and evaluation

To help us improve our operations, we maintain an open dialogue with our stakeholders, welcome their constructive feedback, and strive to be transparent by keeping them well-informed on Group-wide matters. In addition to regular reports and communications on our website, and to assess our sustainability commitments and monitor our progress, we actively engage in various voluntary and mandatory benchmarking and public assessment programs, including EcoVadis, CDP, PROPER, Forest500, the Zoological Society of London's Sustainability Policy Transparency Toolkit (ZSL SPOTT), and the World Benchmarking Alliance's (WBA)¹³ [Food and Agriculture Benchmark](#).

In 2022, Musim Mas was assessed for the first time against the [Global Child Forum's Children's Rights Benchmark for the Food, Beverage & Personal Care sector](#). This benchmark evaluates how well companies address children's rights in four areas compared to their industry peers: Governance and Collaboration, Workplace, Marketplace, and Community and Environment. Musim Mas received an average score of 5.7 out of 10 and will continue striving to help protect children's rights in our business and surrounding communities.

Notable achievements in 2022



Sustainable financing for the palm oil sector

Commentary by HSBC Singapore

HSBC has worked with Musim Mas in their efforts to incorporate ESG disclosure and measurement into their financing strategy. Sustainability across the supply chain is particularly important to this sector. Companies must align with the industry frameworks and principles set forth by global non-profit organizations such as the Roundtable on Sustainable Palm Oil (RSPO) and commitments to No Deforestation, Peat and Exploitation (NDPE).

Improving the transparency and sustainable practices across the supply chain has been a key focus of Musim Mas' ESG disclosure strategy.

We have supported Musim Mas as they have worked to make their supply chain more sustainable and to incorporate ESG disclosure and measurement into their financing strategy.

Additional opportunities for Musim Mas as they continue to proactively improve their sustainable practices and disclosures include measuring and supporting their scope 3 emissions, recalibrating, and updating their GHG emission baseline, and further aligning their sustainability goals to science-based targets.

About: HSBC's banking relationship with Musim Mas began in 2003 and extends beyond Singapore to other countries where Musim Mas operates. HSBC has an ambition to achieve net zero portfolio alignment by 2050 by working with its clients to help them progressively decarbonise.

13 Musim Mas will be assessed against the WBA Nature Benchmark in 2023.

Pillar 3: Maintain Responsible and Enduring Relationships with Suppliers, Customers, and Stakeholders

PRODUCT QUALITY AND SAFETY

[GRI 3-3, 13.10.1] [FB-AG-430b.1]



Musim Mas works closely with global brands, supplying products tailored to their specific needs and unique applications. We cultivate non-genetically modified (non-GMO) oil palms and adhere to strict product quality and safety policies. Our refineries and products undergo rigorous and robust checks and are certified against various domestic and international food safety standards, including Food Safety System Certification (FSSC) 22000, International Organization for Standardization (ISO) 22000, Hazard Analysis and Critical Control Point (HACCP) Management

System (MS) 1480, and HACCP Indonesian National Standard (*Standar Nasional Indonesia, SNI*) Codex Alimentarius Commission/Recommended Code of Practice (CAC/RCP) 1:2011. We adhere to all applicable EU regulations, including contaminant thresholds for vegetable oils and fats.

We utilize various approaches and continuously explore innovative technologies across our integrated operations to mitigate potential contaminants and ensure we deliver products of high nutritional value. We identify and address possible entry routes for contaminants like mineral oils, glycerol-based contaminants 3-monochloropropane diol (3-MCPD),

and glycidyl esters (GE), implementing processes to effectively remove them and their precursors throughout our processing chains, e.g., using only food-grade lubricants, applying double refining and post-stripping technology, adopting other mitigation strategies, and following the Codex Alimentarius International Food Standards. Our efforts also extend to our suppliers. We collaborate with and support them to meet the requirements of our customers and the highest standards of product quality and safety.

- » [Healthier without 3-MCPD](#)
- » [Managing mineral oil contaminants in foods](#)



Pillar 4

Drive Innovation in Sustainable Practices



◆ Landscapes

◆ A focus on R&D

Pillar 4: Drive Innovation in Sustainable Practices

Musim Mas strives to meet increasing civil society, customer, and consumer demand for palm oil while navigating an evolving global market and adapting to dynamic regulatory frameworks. We adopt innovative solutions to expand the scope and reach our sustainability commitments, ensuring their effective and meaningful implementation internally and in the landscapes we operate in.

Notable innovations in 2022



Continued focus on R&D to improve yields (See [Improving yields](#))



Expanded Smallholders Hub Training for Trainers in key landscapes (See [Independent smallholders](#))



Continued stakeholder partnerships to improve smallholder livelihoods, reduce deforestation, and advance regenerative agriculture (See [Smallholder program partnerships](#))

AgriON

Partnership with AgriON and other stakeholders to expand digital finance and financial learning platform for smallholders (See [Independent smallholders](#))



Supported and participated in landscape HCV-HCS indicative mapping for Aceh Timur and Aceh Tamiang (See [Transforming Landscapes](#))



Expanded palm oil sustainability policy to cover coconut supply bases, and developed a dedicated strategy (See [A focus on sustainable coconut](#))

Pillar 4: Drive Innovation in Sustainable Practices

Transforming landscapes

[GRI 3-3, 203-2, 304-1, 413-1, 413-2, 13.3.1, 13.3.2, 13.4.1, 13.12.1, 13.12.2, 13.12.3, 13.22.1, 13.22.4]



Musim Mas' landscape approach goes beyond engaging those directly in our supply base. This is crucial because industry supply bases are dynamic. This is especially important for independent smallholder crops that alternate between mill supply bases and are led by factors such as pricing. To have a tangible, long-term impact, we must adopt a multifaceted approach that includes smallholders, communities, suppliers, and geographic regions. Collaborating with other oil palm processors, downstream actors, civil society organizations, and local governments is essential to achieving this goal.

Our chosen landscapes in Indonesia are Aceh, North Sumatra, Riau, South Sumatra, West Kalimantan, and Central Kalimantan. These regions were selected due to the presence of critical conservation areas, our palm oil sourcing volumes, and on-the-ground partnerships that enable effective implementation. We engage with mills and smallholders in these areas through customized programs with the support of local governments, various implementation partners, and peer collaborators.

Landscape program highlights in 2022 – Aceh

In March and November 2022, we jointly hosted two supplier workshops and Focus Group Discussions (FGD) with Sinar Mas Agribusiness and Food (GAR) in Langsa and Kuala Simpang, Aceh, on complying with sustainability policies. The workshops covered NDPE compliance, Indonesia Sustainable Palm Oil (ISPO) certification, and traceability to plantation. In total, 108 participants comprised supplier mill representatives, local traders and farmers, government officials, and members of civil society organizations (CSOs).

» **Second supplier workshop with Sinar Mas Agribusiness**

In October 2022, Musim Mas agreed to a collaborative initiative with the local government, industry players, NGOs, and CSOs on a High Conservation Value (HCV)/High Carbon Stock (HCS) assessment in Aceh Timur and Aceh Tamiang in support of using these approaches to bolster our conservation and zero-deforestation commitments.

» **HCV/HCS Assessment in Aceh Timur and Aceh Tamiang**

Pillar 4: Drive Innovation in Sustainable Practices

← Landscape program overview →





1 ACEH

- ◆ 3 Smallholders Hubs (Aceh Tamiang, Aceh Singkil, and Subulussalam)
- ◆ [Musim Mas Aceh Strategy](#)
- ◆ Verified Sourcing Area (VSA) program
- ◆ [RADD piloted in Aceh Tamiang \(now under IDA\)](#)
- ◆ Joint supplier workshop with GAR in 2022
- ◆ Supporting landscape level HCV-HCS indicative mapping
- ◆ ETHZ research
- ◆  [Leuser Ecosystem](#)

2 Leuser Ecosystem

- ◆ Regenerative agriculture program (Labuhanbatu)

3 Riau

- ◆ Founding member of Siak-Pelalawan Landscape Program
- ◆ 2 Smallholders Hubs (Dayun, Siak, and S. Linau)
- ◆ AgriOn digital finance platform
- ◆ Tesso Nilo Flying Squad
- ◆  [Tesso Nilo National Park](#)
- ◆  [Giam Siak Kecil-Bukit Batu Bioserve](#)

4 West Kalimantan

- ◆ 1 Smallholders Hub (Sambas)
- ◆ Social Forestry Program

Notes:

1. This map shows an overview of our existing programs. Not all landscapes may have programs yet (e.g., South Sumatra and Central Kalimantan).
2. Those in **green** are identified protected areas within regions adjacent to our operations.

» [Our landscape approach](#)

» [Stakeholder collaboration](#)

» [See Sustainability with smallholders on our Smallholders Hubs](#)

Pillar 4: Drive Innovation in Sustainable Practices

Improving yields

Musim Mas firmly believes that future growth in oil palm production should be driven by engineering higher-yield seeds instead of expanding land use. We actively invest in research and development (R&D) to enhance land-use efficiency, maximize yields, and improve productivity while reducing our greenhouse gas emissions and our impact on forests and biodiversity to meet the growing demand for palm oil for the next 30 years and beyond.



The specialized units at our Genetic and Agriculture Research Center in Riau drive innovation in agronomic matters like managing and optimizing crop protection and peat management at our plantations. In addition, the center researches and breeds superior oil palms that can adapt to harsh environmental conditions and with desirable genetic traits like enhanced disease resistance, faster growth, and higher oil extraction rates.

Our industry-leading crude palm oil (CPO) yield was 5.86 tonnes per hectare in 2022 – 1.8 times higher than the global average.

R&D on new food products and applications



Our customers, including food manufacturers, constantly approach us with requests for innovative products, including enhancing existing formulations and developing entirely new consumer goods. To fulfill their demands, our state-of-the-art R&D facility in Singapore, [the Novel IDEAS Center](#), pursues palm oil innovations like specialty fats for the food and beverage industry, including versatile blends of high-quality fats, emulsifiers, and stabilizers that can be used in gluten-free, sugar-free, frozen, and plant-based food and beverages, and even livestock feed.

These innovations improve the overall quality of food and beverages and are essential for creating desirable textures and seasonal flavors that cater to regional consumer tastes. We take pride in collaborating with our customers to fulfill their growing desire for new and exciting palm oil products to meet evolving consumer preferences and demands.

- » [Functional Blends that Enable Food & Beverage Innovations – Musim Mas](#)
- » [Innovating in the Growing Frozen Breads Market – Musim Mas](#)
- » [The right fats for healthy and productive livestock](#)
- » [Enabling food and beverage product development](#)

Musim Mas CPO yield vs. global average 2018-2022 (MT CPO/ha)





Assurance Statement

INDEPENDENT LIMITED ASSURANCE REPORT

To the Management of Musim Mas Holdings Pte Ltd (“Musim Mas”),

Scope

We have been engaged by Musim Mas to perform a ‘limited assurance engagement’, as defined by International Standards on Assurance Engagements, here after referred to as the engagement, to report on Musim Mas’ sustainability performance metrics as set out in the *Subject Matter Information* section below (the “Subject Matter”) contained in Musim Mas’ sustainability report as of 2 October 2023 for the financial year ended 31 December 2022 (“the Report”).

Other than as described in the preceding paragraph, which sets out the scope of our engagement, we did not perform assurance procedures on the remaining information included in the Report, and accordingly, we do not express a conclusion on this information.

Subject Matter Information

Our limited assurance engagement covers the following Subject Matter for the above-mentioned period:

Sl. No.	Information for assurance	Scope for Palm Oil segment	Countries
1	GHG emissions intensity across palm operations in 2022	RSPO-certified mills only	Indonesia
2	Water use intensity (m ³ /MT FFB processed) in 2022	RSPO-certified mills only	Indonesia
3	BOD and COD quality (mg/l) for POME in 2022	RSPO-certified mills only	Indonesia
4	<p>Scheme smallholders that Musim Mas supports under these programmes:</p> <ul style="list-style-type: none"> ◆ KKPA: Number of KKPA programs and number of smallholders ◆ VDP: Number of villages <p>Note: Musim Mas operates two scheme smallholder programs: (1) Kredit Koperasi Primer Anggota (KKPA) and (2) Village Development Program (VDP)</p>	Mills and plantations	Indonesia
5	<p>(1) Number of independent smallholders involved in Musim Mas program that supplies to Musim Mas in 2022; (2) Total number of independent smallholders supplying to Musim Mas in 2022</p>	Mills and plantations	Indonesia
6	Total hectares of suppliers’ (group-level) concession monitored through a combination of methods as at 31 December 2022	Concession land owned by monitored suppliers (i.e. supplying mills integrated with plantations)	Indonesia, Malaysia & Thailand
7	Programs in place to support high-risk mills identified as at 31 December 2022	All supplying mills during the year	Indonesia, Malaysia & Thailand
8	Percentage of suppliers classified under low- to medium- to high-risk mills as of 31 December 2022	All supplying mills during the year	Indonesia, Malaysia & Thailand
9	Percentage of suppliers that have an NDPE policy or adopted Musim Mas Sustainability Policy as at 31 December 2022	All supplying mills during the year	Indonesia, Malaysia & Thailand



Assurance Statement

Criteria applied by Musim Mas

In preparing the Subject Matter, Musim Mas applied the criterion of “Accuracy” as defined by GRI and specific criteria determined by Musim Mas as being relevant for its sustainability performance. Such Criteria were specifically designed for sustainability performance; as a result, the Subject Matter may not be suitable for another purpose.

Musim Mas’ responsibilities

Musim Mas’ management is responsible for selecting Criteria, and for presenting the Subject Matter in accordance with that Criteria, in all material respects. This responsibility includes establishing and maintaining internal controls, maintaining adequate records and making estimates that are relevant to the preparation of the subject matter, such that it is free from material misstatement, whether due to fraud or error.

EY’s responsibilities

Our responsibility is to express a conclusion on the presentation of the Subject Matter based on the evidence we obtained.

We conducted our engagement in accordance with the International Standard for Assurance *Engagements Other Than Audits or Reviews of Historical Financial*

Information (“ISAE 3000 (Revised)”) and *ISAE 3410: Assurance Engagements on Greenhouse Gas Statements* and the terms of reference for this engagement as agreed with Musim Mas on 08 June 2023. Those standards require that we plan and perform our engagement to express a conclusion on whether we are aware of any material modifications that need to be made to the Subject Matter in order for it to be in accordance with the Criteria, and to issue a report. The nature, timing, and extent of the procedures selected depend on our judgment, including an assessment of the risk of material misstatement, whether due to fraud or error.

We believe that the evidence obtained is sufficient and appropriate to provide a basis for our limited assurance conclusions.

Our independence and quality management

We have maintained our independence and confirm that we have met the requirements of the Accounting and Corporate Regulatory Authority (“ACRA”) *Code of Professional Conduct and Ethics for Public Accountants and Accounting Entities* (“ACRA Code”), which is founded on fundamental principles of integrity, objectivity, professional competence and due care, confidentiality and professional behaviour.

EY also applies International Standard on Quality Control 1, *Quality Control for Firms that Perform*

Audits and Reviews of Financial Statements, and Other Assurance and Related Services Engagements, and accordingly maintains a comprehensive system of quality control including documented policies and procedures regarding compliance with ethical requirements, professional standards and applicable legal and regulatory requirements.

Description of procedures performed

Procedures performed in a limited assurance engagement vary in nature and timing from, and are less in extent than for, a reasonable assurance engagement. Consequently, the level of assurance obtained in a limited assurance engagement is substantially lower than the assurance that would have been obtained had a reasonable assurance engagement been performed. Our procedures were designed to obtain a limited level of assurance on which to base our conclusion and do not provide all the evidence that would be required to provide a reasonable level of assurance.

Although we considered the effectiveness of management’s internal controls when determining the nature and extent of our procedures, our assurance engagement was not designed to provide assurance on internal controls. Our procedures did not include testing controls or performing procedures relating to checking aggregation or calculation of data within IT systems.



Assurance Statement

The GHG quantification process is subject to scientific uncertainty, which arises because of incomplete scientific knowledge about the measurement of GHGs. Additionally, GHG procedures are subject to estimation (or measurement) uncertainty resulting from the measurement and calculation processes used to quantify emissions within the bounds of existing scientific knowledge.

A limited assurance engagement consists of making enquiries, primarily of persons responsible for preparing the Subject Matter and related information, and applying analytical and other appropriate procedures.

1. Inquiries with Musim Mas' Sustainability team to:
 - a. Understand principal business operations,
 - b. Appreciate key sustainability issues and developments,
 - c. Map out information flow for sustainability reporting and the relevant controls, and
 - d. Identify data providers with their responsibilities
2. Virtual interviews with and sought clarifications from employees and Management in Singapore and Indonesia (e.g. Sustainable Supply Chain team, Independent Smallholder team and Sustainability team) to understand key sustainability issues related to the selected indicators, data collection processes and accuracy of reporting.

3. Conducting walk-through of systems and processes for data aggregation and reporting with relevant personnel to understand the quality of checks and control mechanisms in relation to the Subject Matter in the Sustainability Report.
4. Performing of analytical reviews on data and inquire with relevant personnel when anomalies are observed.
5. Obtaining of documentation through sampling methods to check accuracy of the data in relation to the Subject Matter in the Sustainability Report.
6. Checking data and statements had been correctly transcribed from corporate systems and / or supporting evidence, in relation to the Subject Matter in the Sustainability Report.
7. Obtaining of relevant certifications and reports in relation to the Subject Matter in the Sustainability Report.
8. Relying on Musim Mas' management representation letter on the Subject Matter in the Sustainability Report.

We also performed such other procedures as we considered necessary in the circumstances.

Conclusion

Based on our procedures and the evidence obtained, we are not aware of any material modifications that should be made to the Subject Matter as of 2 October 2023 for the year ended 31 December 2022, in order for it to be in accordance with the Criteria.

Restricted use

This report is intended solely for the information and use of Musim Mas and is not intended to be and should not be used by anyone other than those specified parties.

Ernst & Young LLP

Ernst & Young LLP

2 October 2023
Singapore

◆ Musim Mas' Contributions to the SDGs

◆ Glossary






Musim Mas' contributions to the SDGs

Our 2022 materiality update has mapped our material topics, program objectives, and downstream risks and opportunities to the United Nations' Sustainable Development Goals (SDGs) and their targets and our four Sustainability Policy Pillars. We have categorized the SDGs we contribute to as Primary SDGs and Secondary SDGs. Primary SDGs are priority goals and targets we report on and contribute to. Secondary SDGs are goals and targets we directly or indirectly contribute to but do not necessarily report on. We have detailed these below:

<h2 style="margin: 0;">Our Sustainability Pillars</h2>	 <p>Pillar 1 Improve the Lives of Smallholders, Workers, and Communities</p>	 <p>Pillar 2 Deliver Positive Environmental Impacts</p>	 <p>Pillar 3 Maintain Responsible and Enduring Relationships with Suppliers, Customers, and Stakeholders</p>	 <p>Pillar 4 Drive Innovation in Sustainable Practices</p>
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Primary SDGs

These are priority goals and targets that Musim Mas reports on and demonstrates contributions to. Corresponding SDG logos are displayed in the relevant sections of this report.

SDG	Relevant SDG Target	Material topic and contributions	Musim Mas Sustainability Policy Pillar
 SDG 2: ZERO HUNGER	2.3: By 2030, double the agricultural productivity and incomes of small-scale food producers, in particular women, indigenous people, family farmers, pastoralists and fishers, including through secure and equal access to land, other productive resources and inputs, knowledge, financial services, markets and opportunities for value addition and non-farm employment	Smallholder engagement: Including smallholders in our supply chain and rolling out training and engagement programs to support smallholders in addressing complex and interlinked barriers around yields, plantation management, land ownership, financial access and income, market access, replanting, economies of scale and quality of life. Our programs cover scheme and independent smallholders in the landscapes we operate in. Our programs now extend beyond our palm oil supply chain and cover coconut smallholders supplying Musim Mas.	
	2.4: By 2030, ensure sustainable food production systems and implement resilient agricultural practices that increase productivity and production, that help maintain ecosystems, that strengthen capacity for adaptation to climate change, extreme weather, drought, flooding and other disasters and that progressively improve land and soil quality	Innovation and R&D: Investing in R&D to produce premium seedlings, increase yields, improve oil extraction rates, reduce reliance on chemicals, improve soil management, and focus on sustainable agriculture to improve the amount and quality of production and contribute to food security worldwide.	
 SDG 4: QUALITY EDUCATION	4.1: By 2030, ensure that all girls and boys complete free, equitable and quality primary and secondary education leading to relevant and effective learning outcomes	Children's rights: Providing access to education for school-age children living at Musim Mas plantations and from surrounding communities by: <ul style="list-style-type: none"> – building and operating kindergartens and primary and secondary schools – providing access to education services and facilities – offering scholarships to deserving students. 	










◆ Musim Mas' Contributions to the SDGs

◆ Glossary

Musim Mas' contributions to the SDGs

SDG	Relevant SDG Target	Material topic and contributions	Musim Mas Sustainability Policy Pillar
 <p>SDG 6: CLEAN WATER AND SANITATION</p>	6.1: By 2030, achieve universal and equitable access to safe and affordable drinking water for all	<p>Human rights and labour rights:</p> <ul style="list-style-type: none"> – Providing access to free, clean drinking water at employee housing – Building wells in communities. 	
	6.2: By 2030, achieve access to adequate and equitable sanitation and hygiene for all and end open defecation, paying special attention to the needs of women and girls and those in vulnerable situations	<p>Community rights and community relations:</p> <ul style="list-style-type: none"> – Providing sanitation facilities and maintaining sanitary premises at estates – Ensuring access to clean toilets at our operations – Providing toilets to communities and engaging with communities on sanitation. 	
 <p>SDG 8: DECENT WORK AND ECONOMIC GROWTH</p>	8.5: By 2030, achieve full and productive employment and decent work for all women and men, including for young people and persons with disabilities, and equal pay for work of equal value	<p>Human rights and labour rights; Gender equality; Occupational safety and health:</p> <ul style="list-style-type: none"> – Upholding the fundamental rights of employees, including freedom of association; ensuring employees are treated fairly without discrimination and with dignity and respect; ensuring wages provided are at least in line with legal requirements; making sufficient provisions for employees to afford a basic but decent standard of living. – Safeguarding the health and safety of employees and inculcating a culture of safety; preventing accidents and work-related illnesses; promoting the wellbeing of employees; providing free healthcare – Respecting all human rights outlined in the International Bill of Human Rights and UN covenants; adhering to the business principles set out in the UNGP BHR and applicable national laws; providing adequate housing, sanitation, community facilities, infrastructure, electricity, access to religious centers, etc. – Ensuring no discrimination in the workforce; respecting diversity and promoting gender equity; ensuring equal opportunity and full and effective participation in leadership for women at our operations – Operating Gender Committees, issuing family cards regardless of gender, providing breastfeeding centers etc.; building and running childcare centers for pre-schoolers. 	
	8.7: Take immediate and effective measures to eradicate forced labour, end modern slavery and human trafficking and secure the prohibition and elimination of the worst forms of child labour, including recruitment and use of child soldiers, and by 2025 end child labour in all its forms	<p>Human rights and labour rights:</p> <ul style="list-style-type: none"> – Implementing no forced labour policies – Adhering to no child labour policies. 	








Musim Mas' contributions to the SDGs

SDG	Relevant SDG Target	Material topic and contributions	Musim Mas Sustainability Policy Pillar
 <p>SDG 12: RESPONSIBLE CONSUMPTION AND PRODUCTION</p>	12.2: By 2030, achieve the sustainable management and efficient use of natural resources	<p>Water management; Waste management:</p> <ul style="list-style-type: none"> – Optimizing water use and consumption at our mills – Minimizing waste generated at our operations; reducing, reusing, recycling, and recovering 100% of upstream waste; exploring ways to reduce and recycle midstream and downstream waste. 	
	12.7: Promote public procurement practices that are sustainable, in accordance with national policies and priorities	<p>Supply chain engagement and transparency; Grievance resolution:</p> <ul style="list-style-type: none"> – Continuously engaging with suppliers on our NDPE policy commitments through our NDPE roadmap to move the industry towards responsible and sustainable production; verifying NDPE progress using evidence-based approaches; supply chain engagement for coconut production – Resolving external complaints and grievances in an accessible, effective, timely, and appropriate manner; bringing suppliers into compliance with NDPE requirements by enacting the CPP in cases of verified grievances on breached commitments. 	
		<p>Sustainability certification and compliance:</p> <p>Complying with leading industry certification and verification schemes within our operations to progressively raise the bar within the palm oil sector; supporting leading industry certification and verification schemes to de-link oil palm expansion and deforestation, protect forests, optimize productivity and efficiency, etc.</p>	   
 <p>SDG 13: CLIMATE ACTION</p>	13.1: Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries	<p>Climate risk and adaption:</p> <p>Minimizing GHG emissions through targeted reduction plans; generating energy from process waste, and investing in renewable energy sources (e.g., methane capture facilities).</p>	

◆ Musim Mas' Contributions to the SDGs

◆ Glossary

Musim Mas' contributions to the SDGs

SDG	Relevant SDG Target	Material topic and contributions	Musim Mas Sustainability Policy Pillar
 <p>SDG 15: LIFE ON LAND</p>	<p>15.1: By 2020, ensure the conservation, restoration and sustainable use of terrestrial and inland freshwater ecosystems and their services, in particular forests, wetlands, mountains and drylands, in line with obligations under international agreements</p>	<p>Conservation and management of HCV, HCS, and peat areas; Supply chain engagement and transparency; Pesticide and chemical management:</p> <ul style="list-style-type: none"> – Implementing our NDPE policy at Musim Mas operations; conserving, managing, and rehabilitating HCS forests and HCV areas, including riparian buffer zones; protecting waterways; assessing the impact of our operations on biodiversity, water, and ecosystems – Implementing our NDPE policy to promote deforestation-free commodities throughout the supply chain; holding suppliers, including smallholders, accountable for deforestation activities – Managing the use and handling of pesticides and chemicals; optimizing and reducing chemical fertilizer and pesticide use; adopting organic substitutes where possible. 	
	<p>15.2: By 2020, promote the implementation of sustainable management of all types of forests, halt deforestation, restore degraded forests and substantially increase afforestation and reforestation globally</p>	<p>Fire and haze prevention:</p> <ul style="list-style-type: none"> – Managing and monitoring fires; reforestation of burnt areas; applying best management practices to manage existing plantations on peat; protecting soil from degradation; handling waste and chemicals responsibly – Implementing our NDPE policy to promote deforestation-free commodities throughout the supply chain; holding suppliers, including smallholders, accountable for deforestation activities. 	
		<p>Supply chain engagement and transparency:</p> <ul style="list-style-type: none"> – Working towards traceability to plantation and full supplier visibility to eliminate deforestation in supply chains. 	
 <p>SDG 17: PARTNERSHIPS FOR THE GOALS</p>	<p>17.16: Enhance the Global Partnership for Sustainable Development, complemented by multi-stakeholder partnerships that mobilize and share knowledge, expertise, technology and financial resources, to support the achievement of the Sustainable Development Goals in all countries, in particular developing countries</p>	<p>Stakeholder collaboration and reporting; Landscapes; Product quality and safety:</p> <ul style="list-style-type: none"> – Working with a wide range of industry players, government bodies, and civil society organizations to address pressing issues; collaborating on transforming the industry; maintaining transparent and accountable partnerships; contributing expertise, resources, and innovation to partnerships; collective action for coconut supply chain sustainability – Collaborating with private and public sector stakeholders in landscapes to transform the industry and support jurisdictional approaches – Staying responsive to customer needs and legislation on contaminant levels requiring mitigation efforts during the production of edible oils to minimize contaminants; increasing consumer awareness of nutritional, dietary, and health benefits 	
		<p>Innovation and R&D:</p> <p>Develop new solutions for using sustainable palm oil-based functional blends and specialty fats to address different industry needs.</p>	

Musim Mas' contributions to the SDGs

Secondary SDGs









These are goals and targets that Musim Mas directly or indirectly contributes to, with some level of reporting. Some of these goals and targets overlap with our primary SDGs.

SDG	Relevant SDG Target	Musim Mas Sustainability Policy Pillar
 <p>SDG 1: NO POVERTY</p>	Target 1.4: By 2030, ensure that all men and women, in particular the poor and the vulnerable, have equal rights to economic resources, as well as access to basic services, ownership and control over land and other forms of property, inheritance, natural resources, appropriate new technology and financial services, including microfinance	
 <p>SDG 2: ZERO HUNGER</p>	<p>Target 2.1: By 2030, end hunger and ensure access by all people, in particular the poor and people in vulnerable situations, including infants, to safe, nutritious and sufficient food all year round</p> <p>Target 2.2: By 2030, end all forms of malnutrition, including achieving, by 2025, the internationally agreed targets on stunting and wasting in children under 5 years of age, and address the nutritional needs of adolescent girls, pregnant and lactating women and older persons</p>	
 <p>SDG 4: QUALITY EDUCATION</p>	Target 4.4: Providing development opportunities by investing in capacity building, training, and technical skills programs to help employees achieve their career goals	
 <p>SDG 5: GENDER EQUALITY</p>	<p>Target 5.1: End all forms of discrimination against all women and girls everywhere</p> <p>Target 5.6: Ensure universal access to sexual and reproductive health and reproductive rights as agreed in accordance with the Program of Action of the International Conference on Population and Development and the Beijing Platform for Action and the outcome documents of their review conferences</p>	
 <p>SDG 8: DECENT WORK AND ECONOMIC GROWTH</p>	Target 8.5: By 2030, achieve full and productive employment and decent work for all women and men, including for young people and persons with disabilities, and equal pay for work of equal value	 

◆ Musim Mas' Contributions to the SDGs

◆ Glossary

Musim Mas' contributions to the SDGs

SDG	Relevant SDG Target	Musim Mas Sustainability Policy Pillar
 <p>SDG 12: RESPONSIBLE CONSUMPTION AND PRODUCTION</p>	<p>Target 12.2: By 2030, achieve the sustainable management and efficient use of natural resources</p> <p>Target 12.6: Encourage companies, especially large and transnational companies, to adopt sustainable practices and to integrate sustainability information into their reporting cycle</p> <p>Target 12.7: Promote public procurement practices that are sustainable, in accordance with national policies and priorities</p>	
 <p>SDG 13: CLIMATE ACTION</p>	<p>Target 13.1: Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries</p>	
 <p>SDG 15: LIFE ON LAND</p>	<p>Target 15.1: By 2020, ensure the conservation, restoration and sustainable use of terrestrial and inland freshwater ecosystems and their services, in particular forests, wetlands, mountains and drylands, in line with obligations under international agreements</p>	
 <p>SDG 16: PEACE, JUSTICE AND STRONG INSTITUTIONS</p>	<p>Target 16.5: Substantially reduce corruption and bribery in all their forms</p>	

GLOSSARY

Biodiversity The number and variety of plant and animal species within a region.

Biological oxygen demand (BOD) The amount of oxygen used when microorganisms decompose organic matter. Testing for BOD assesses the amount of organic matter in water.

Carbon dioxide equivalents (CO₂e) A universal measurement for the impact of releasing (or avoiding the release of) different greenhouse gases.

Chemical oxygen demand (COD) The amount of oxygen required to oxidize soluble and particulate organic matter in water. COD testing uses a strong chemical agent to oxidize organic material in a wastewater sample under controlled conditions.

Concession Musim Mas uses this term to specifically refer to the physical boundaries of an area within a plantation, for example, when monitoring suppliers' lands and operations by satellite.

Consortium of Resource Experts (CORE) A group led by Proforest and Daemeter Consulting that ensures sustainable commodity production and sourcing. Musim Mas has been working with CORE to meet sustainable palm oil sourcing commitments since 2015.

Copra The dried meat or kernel of a coconut that is a crucial ingredient in the production of coconut oil.

Cradle-to-gate A life cycle assessment model that assesses a product's environmental footprint from raw materials extraction ("cradle") until it leaves the factory ("gate").

Effluent Water from industrial activities, including mill processes, discharged into another body of water.

Fire-Free Village Programme (FFVP) A fire management pilot program which provides training, equipment and economic incentives to local communities to help prevent fire.

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

Fresh fruit bunch (FFB) The raw material harvested from an oil palm tree. This weighs 10 to 40 kg, depending on the size and age of the tree.

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

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

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

High Conservation Value (HCV) Ecosystems of outstanding significance and critical importance due to their high biological, ecological, social, or cultural value. There are six types of HCVs, based on the social and environmental value of natural forests. These areas must be carefully managed and protected to maintain or enhance their value.

Identity Preserved RSPO supply-chain model separating sustainable palm oil from a single identifiable certified source from ordinary palm oil across every link in the supply chain.

Independent mills Mills under Musim Mas control that source from third-party FFB suppliers instead of Musim Mas plantations.

Independent smallholders Oil palm farmers who cultivate up to 20 hectares of land that are self-financed, managed, and equipped but not bound to any one mill.

Indonesian Sustainable Palm Oil (ISPO) Indonesia's mandatory national sustainable palm oil standard.

Integrated Deforestation Alert (IDA) A system by Global Forest Watch (GFW) that integrates satellite imagery and or radar data (i.e., Radar for Detecting Deforestation [RADD]) for monitoring and near real-time alerts of deforestation.

Integrated pest management (IPM) The careful consideration of all available pest control techniques and subsequent integration of appropriate measures that discourage the development of pest populations.

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

GLOSSARY

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

No Deforestation, No Peat, No Exploitation (NDPE)

Policies and practices adopted by palm oil companies that prevent deforestation, development on peatlands, and the exploitation of workers, communities, and smallholders.

No Deforestation, No Peat and No Exploitation Implementation Reporting Framework (NDPE IRF)

A reporting tool that helps companies understand and systematically track progress in delivering their NDPE commitments in their palm oil supply chains.

PalmGHG calculator An RSPO tool that calculates the emissions generated and sequestered from activities and processes at plantations and mills. See how it works [here](#).

Palm Oil Collaboration Group (POCG) A multi-stakeholder initiative that brings together companies from every link in the palm oil supply chain to accelerate the effective implementation of NDPE commitments.

Palm Oil Innovation Group (POIG) A multi-stakeholder initiative that promotes the adoption of responsible palm oil production practices by key players in the supply chain by developing and sharing a credible and verifiable benchmark that builds upon the RSPO Principles and Criteria, creating and promoting innovation.

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

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

Plantation Specifically refers to the place of production, be it a large industrial plantation with concessions and mills, a large farm without a mill, or a smallholder farm.

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

Roadmap This term has two distinct meanings in this report. Our 'Roadmap to Responsible Supply Base' is Musim Mas' communication piece on targets and plans to bring suppliers into compliance with our commitments. Musim Mas also compiles supplier roadmaps with timebound plans and clear implementation milestones to guide suppliers toward compliance with our NDPE commitments.

Roundtable on Sustainable Palm Oil (RSPO) A multi-stakeholder organization 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 governing sustainable palm oil production.

Scheme smallholders Farmers operating under a program initiated by the Indonesian government to encourage the development of smallholder plantations, where plantation companies (nucleus estates) assist and support surrounding community plantations.

Segregated A supply-chain model assuring that RSPO-certified palm oil and its derivatives delivered to the end-user originate 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 criteria.

Supply shed A group of suppliers comprising mills and their associated plantations and the independent plantations and smallholders that supply them.

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

Village Development Program (VDP) A Musim Mas program for scheme smallholders tailored to villages where plantations are community-managed rather than individually owned



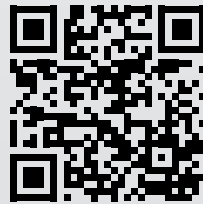
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