

Welcome to your CDP Climate Change Questionnaire 2021

C0. Introduction

C0.1

(C0.1) Give a general description and introduction to your organization.

Headquartered in Singapore, Musim Mas Group is a fully integrated palm oil corporation that delivers the highest quality and innovative palm oil products and derivatives used across multiple industries worldwide.

As one of the most prominent players in the palm oil industry, we aspire to be a responsible leader in the evolution of the industry, driving a new era of sustainability with innovation across the globe. To that aim, our dedicated, global team of professionals across the entire palm oil supply chain work closely with local and international stakeholders, ensuring that our products are economically viable, socially responsible, and environmentally appropriate.

Since 1972, Musim Mas has established deep and long-standing relationships with our customers and stakeholders worldwide. Our multi-cultural and multi-disciplinary workforce, located in 13 countries, brings innovation to meet the growing needs of our customers.

We are proud to be the preferred supply chain partner for palm oil and its derivatives. From our plantations, mills, refineries, kernel crushing plants, oleochemicals, and specialty fats plants, we manufacture palm oil and value-added derivatives before exporting these to customers via our extensive fleet of tankers and barges. Today, Musim Mas is Indonesia's largest palm oil exporter to customers located all around the world.

The steady growth of Musim Mas is underpinned by the quality of our management and supported by professionals dedicated to the highest standards of quality, safety, and efficiency. Our global marketing activities are undertaken by Inter-Continental Oils and Fats (ICOF), a member of Musim Mas Group.

Despite these achievements our business continues to face new challenges. As we have progressed, so have expectations from stakeholders for a responsible supply base. To achieve this, environmental stewardship has been a core pillar of our sustainability measures. Musim Mas strives to minimise and mitigate adverse impacts on the environment, by regularly assessing the impact of our operations through tools or exercises such as RSPO PalmGHG

and CDP. We initiated our first Life Cycle Assessment (LCA) in 2019, to evaluate the impact of our operations on the environment, as well as develop holistic mitigation plans to minimize those impacts.

Musim Mas takes the impact of climate change seriously and is strongly committed to minimising GHG emissions within our operations. Our sustainability teams, senior management and the Board, are involved in decision-making pertaining to our climate-related risks and opportunities to ensure emission reductions are adequately managed throughout our operations.

C0.2

(C0.2) State the start and end date of the year for which you are reporting data.

	Start date	End date	Indicate if you are providing emissions data for past reporting years
Reporting year	January 1, 2020	December 31, 2020	No

C0.3

(C0.3) Select the countries/areas for which you will be supplying data.

- Brazil
- China
- Germany
- India
- Indonesia
- Italy
- Malaysia
- Netherlands
- Singapore
- Spain
- United Kingdom of Great Britain and Northern Ireland
- United States of America
- Viet Nam

C0.4

(C0.4) Select the currency used for all financial information disclosed throughout your response.

- USD

C0.5

(C0.5) Select the option that describes the reporting boundary for which climate-related impacts on your business are being reported. Note that this option should align with your chosen approach for consolidating your GHG inventory.

Operational control

C-AC0.6/C-FB0.6/C-PF0.6

(C-AC0.6/C-FB0.6/C-PF0.6) Are emissions from agricultural/forestry, processing/manufacturing, distribution activities or emissions from the consumption of your products – whether in your direct operations or in other parts of your value chain – relevant to your current CDP climate change disclosure?

	Relevance
Agriculture/Forestry	Both own land and elsewhere in the value chain [Agriculture/Forestry only]
Processing/Manufacturing	Direct operations only [Processing/manufacturing/Distribution only]
Distribution	Direct operations only [Processing/manufacturing/Distribution only]
Consumption	No

C-AC0.6g/C-FB0.6g/C-PF0.6g

(C-AC0.6g/C-FB0.6g/C-PF0.6g) Why are emissions from the consumption of your products not relevant to your current CDP climate change disclosure?

Row 1

Primary reason

Other, please specify

Wide application of palm oil and its derivatives

Please explain

Musim Mas Group is a fully integrated palm oil corporation that delivers innovative palm oil products and derivatives across multiple industries worldwide. These industries subsequently produce many possible applications of oil palm derivatives which leads to difficulty in tracing the final use, waste disposal, and end of life treatment. As such, we cannot control the processing methodology, final use, waste disposal, and end of life treatment of the products, thus, the consumption emission containing Musim Mas products is out of our disclosure scope.

C-AC0.7/C-FB0.7/C-PF0.7

(C-AC0.7/C-FB0.7/C-PF0.7) Which agricultural commodity(ies) that your organization produces and/or sources are the most significant to your business by revenue? Select up to five.

Agricultural commodity

Palm Oil

% of revenue dependent on this agricultural commodity

More than 80%

Produced or sourced

Both

Please explain

Musim Mas business activities covers the whole palm oil supply chain including:

- o Managing Oil Palm plantations to produce Fresh Fruit Bunches
- o Milling oil palm fruits to produce crude palm oil (CPO) and Palm Kernel (PK)
- o Crushing PK to obtain crude palm kernel oil (PKO)
- o Refining CPO and PKO
- o Further processing to produce value-added products such as specialty fats, oleochemicals, biodiesel, soap, palm wax and functional products such as emulsifiers
- o Manufacturing consumer goods such as cooking oil and personal care products
- o Shipping and merchandising value-added products to global destinations

C1. Governance

C1.1

(C1.1) Is there board-level oversight of climate-related issues within your organization?

Yes

C1.1a

(C1.1a) Identify the position(s) (do not include any names) of the individual(s) on the board with responsibility for climate-related issues.

Position of individual(s)	Please explain
Director on board	The Musim Mas Board of Directors ('Board') considers sustainability a core component of our corporate integrity, ensuring that material environmental, social and governance (ESG) factors are embedded into business strategies and decisions. The Board is led by our Executive Chairman and Chief Executive Officer. Our sustainability teams, senior management and the Board, are involved in decision-making pertaining to our climate-related risks and opportunities. Examples of decisions made include taking initiatives in joining Palm Oil Innovation Group (POIG) to become the first South-East Asia company to join. Other includes involving in landscape initiatives such as Siak, Pelalawan, etc.

C1.1b

(C1.1b) Provide further details on the board’s oversight of climate-related issues.

Frequency with which climate-related issues are a scheduled agenda item	Governance mechanisms into which climate-related issues are integrated	Please explain
Scheduled – all meetings	Reviewing and guiding strategy Reviewing and guiding major plans of action Reviewing and guiding risk management policies Reviewing and guiding annual budgets Reviewing and guiding business plans Setting performance objectives Monitoring implementation and performance of objectives Overseeing major capital expenditures, acquisitions and divestitures Monitoring and overseeing progress against goals and targets for addressing climate-related issues	Sustainable objectives in climate change, NDPE commitment, and reduction of GHG emission continue to become the major factors for our operational actions, decision making, and business strategy. To achieve our sustainability goals, these issues are periodically discussed through a Quarterly Meeting. The quarterly meeting serves as a discussion platform among the Board, Directors, and Head of Departments to discuss the progression of all ongoing project and matters, including climate change, sustainability, and GHG emission reduction issues. The outcome of this discussion includes plans of action, risk management policies, annual budgets, business plans and so on. The Director of Sustainability together with the other Sustainability Team will then brief the board on all of the sustainability issues covering the environment as well as social aspects, including the climate-related issues and GHG emissions reduction. Consequently, the results of discussions and action plans will be shared and communicated throughout all relevant departments, ensuring the messages are conveyed to all layers of workers.

C1.2

(C1.2) Provide the highest management-level position(s) or committee(s) with responsibility for climate-related issues.

Name of the position(s) and/or committee(s)	Responsibility	Frequency of reporting to the board on climate-related issues
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Chief Executive Officer (CEO)	Both assessing and managing climate-related risks and opportunities	More frequently than quarterly
Sustainability committee	Both assessing and managing climate-related risks and opportunities	More frequently than quarterly

C1.2a

(C1.2a) Describe where in the organizational structure this/these position(s) and/or committees lie, what their associated responsibilities are, and how climate-related issues are monitored (do not include the names of individuals).

i.) Where in the organizational structure the committee lies

The committees are established upon the combination of various departments with different management levels such as the Sustainability Department, Strategy and Planning Department, Estate Department, Processing Department, Corporate General Affair Department, Corporate Communication Department, Production Planning and Inventory Control Department, Corporate Safety Health Environment and Quality - Development and Implementation Department, and Sustainable Supply Chain Department. These departments work hand in hand to achieve our sustainability goals across the supply chain. Moreover, Musim Mas also implements a robust corporate governance and risk management framework to monitor, identify, and manage the arising risks. The climate-related risks framework is aligned and managed in our NDPE and sustainability policies which include no deforestation and GHG emission reduction commitments. These risks are assessed by Sustainability Department and quarterly reported to the Board which is led by our Chief Executive Officer (CEO) to monitor and track the progress.

ii.) A rationale of why responsibilities for climate-related issues have been assigned to this committee

Following our sustainability policy, Musim Mas adopts and involves in many recognized third-party sustainability certification schemes into our operations demonstrating our commitment to the highest sustainability standards across our supply chain. These include but are not limited to Roundtable Sustainable Palm Oil (RSPO), International Sustainability & Carbon Certification (ISCC), Palm Oil Innovation Group (POIG), Indonesian Sustainable Palm Oil (ISPO), and Italian National Sustainability Certification System (ITSNC / INS). These schemes are very much focusing on climate-related issues and sustainable practices across the supply chain. The Sustainability committee which involved the combination of various departments along the supply chain will then have the responsibility to monitor the development concerning sustainability and climate-related issues, assess any climate-related risks and opportunities, and implement and manage sustainability and climate programs while maintaining compliances to all the certification and verification schemes as well as our Sustainability Policy at all stages of the supply chain.

C1.3

(C1.3) Do you provide incentives for the management of climate-related issues, including the attainment of targets?

	Provide incentives for the management of climate-related issues	Comment
Row 1	Yes	Climate-related issues have been one of the biggest factors that led Musim Mas toward many climate-related risk assessment and sustainable certification and verification. As such, Musim Mas implements the sustainability policy and NDPE policy (No Deforestation and peat Exploitation) across the supply chain. To track the progress of our sustainability practices, both annual achievements and targets are updated and socialized to stakeholders and public through our annual sustainability report. In achieving the targets, both action plans and projects will be discussed quarterly along with the board.

C1.3a

(C1.3a) Provide further details on the incentives provided for the management of climate-related issues (do not include the names of individuals).

Entitled to incentive	Type of incentive	Activity incentivized	Comment
Director on board	Monetary reward	Emissions reduction target Company performance against a climate-related sustainability index Other (please specify) Compliance and Certification	Sustainability management including climate change is integral to the performance of the company. Our Director on Board works and is evaluated annually based on the Key Performance Indicator (KPI), where compensation and benefits are awarded accordingly.
Other, please specify Surrounding Communities	Non-monetary reward	Company performance against a climate-related sustainability index Other (please specify) Zero Burn Policy	As a member of the Fire Free Alliance, we launched our Free Fire Village Program FFVP (Masyarakat Bebas Api) to engage and educate local communities. Our training programmes cover understanding the risks associated with the use of fire for land preparation, employing agronomic best practices, and using alternative methods for land clearance. We also provide

			these villages with firefighting equipment and safety gear. In addition, we incentivize communities that remain fire-free by awarding them with infrastructure improvements and services.
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C2. Risks and opportunities

C2.1

(C2.1) Does your organization have a process for identifying, assessing, and responding to climate-related risks and opportunities?

Yes

C2.1a

(C2.1a) How does your organization define short-, medium- and long-term time horizons?

	From (years)	To (years)	Comment
Short-term	0	3	n/a
Medium-term	3	10	n/a
Long-term	10	20	n/a

C2.1b

(C2.1b) How does your organization define substantive financial or strategic impact on your business?

Musim Mas defines substantive financial impact as impacts that significantly affect and disrupt our supply chains which in turn affect the financial performance of the company. Its definition is further detailed as follows:

- Any form of impacts which could potentially inflict financial loss of the company as much as 10 percent or more than 10 percent of the current EBITDA estimation
- Any form of climate-related event which directly and drastically affecting the total yield and the productivity of the oil palm crop as well as the supply for oil palm
- Any drastic drop in supply (of raw materials) as much as 20 percent or more. This affects production volume and also the production cost of the company

To mitigate these risks, Musim Mas implements a robust corporate governance and risk management framework to continuously monitor, identify, and manage the arising risks. This framework is aligned and managed in our NDPE and sustainability policies which include no deforestation, GHG emission reduction, waste management, traceability to plantations, etc.

C2.2

(C2.2) Describe your process(es) for identifying, assessing and responding to climate-related risks and opportunities.

Value chain stage(s) covered

Direct operations

Risk management process

Integrated into multi-disciplinary company-wide risk management process

Frequency of assessment

More than once a year

Time horizon(s) covered

Short-term

Medium-term

Long-term

Description of process

Mechanisms are developed to keep abreast of new sustainability developments in the oil palm industry. Herewith are the approaches that Musim Mas takes in identifying and assessing risks:

- Sustainability committee which comprises of the various department will gather and obtain relevant updates, information, grievances, and news from both external and internal sources concerning issues such as, but are not limited to climate-related issues, environmental, social, emission reduction, and overall sustainability issues. For example, data related to hotspots and deforestation are monitored using various methods and tools including but not limited to satellite, ground-truthing, GFW Pro, and RADD partnership. In 2020, our monitoring systems have identified 151 hotspots within our concessions. Only 12 of these turned out to be fires, amounting to 32 hectares of burned land of which decreases compared to the area affected in 2019 (49 hectares)
- The relevant information will then be shared and discussed with the relevant departments to plan and decide on necessary action, projects, and/or recommendations. Next, these initiatives will be reported to the board level before embarking on the plan
- Sustainability committee of Musim Mas conducts risk analysis at asset level according to Sustainable Policy and standards of certification and verification related to the respective aspects. Next, the related information will be shared and discussed with related departments to come up with suitable action plans, recommendations, and decisions which will be brought onto the board level
- At the asset level, both risk identification and its assessment are done through a developed checklist. These assessments will then be reported to the senior manager to be further processed at the Sustainable committee

Value chain stage(s) covered

Direct operations
Upstream

Risk management process

Integrated into multi-disciplinary company-wide risk management process

Frequency of assessment

More than once a year

Time horizon(s) covered

Short-term
Medium-term
Long-term

Description of process

Since 2014, Musim Mas' sustainability policy serves as the framework for our NDPE, traceability, climate change, and other sustainability commitments. This policy is shared with all of our supplier candidates through socialization prior to any business agreements. Additionally, we also conduct an extensive review of their land legalities and status, planting history, and other supporting materials to determine whether the FFB are sourced from conflict-free land. In terms of traceability, we have achieved 100% traceability to mill since 2015 and 83% traceability to plantation as of December 2020. We are now gearing toward 100% full traceability to plantation by December 2025. To ensure continual adherence to the policy, we also actively re-socialize and organize workshops and training to encourage suppliers to apply the same policies to themselves. Following that, we also share knowledge of good agricultural practices with our smallholders, including responsible usage of chemicals inputs, such as fertilizers and pesticides to minimize any excess runoff of nutrients to water bodies which could potentially result in eutrophication and acidification. These chemical inputs are frequently monitored to ensure optimal usage has been achieved. Application of good agricultural practices will not only be beneficial to the environment, but also to the smallholders as lower chemical input will lead to reduced direct operational cost. Other practices include land clearing methods without using fire.

Other climate-risk tools such as Global Forest Watch (GFW), High Carbon Stock Assessment (HCSA), and Musim Mas Self-Assessment Tool (SAT) are also used to mitigate the risk. For more information, our sustainability policy can be found at <http://www.musimmas.com/sustainability/sustainability-policy>.

C2.2a

(C2.2a) Which risk types are considered in your organization's climate-related risk assessments?

Relevance & inclusion	Please explain
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Current regulation	Relevant, always included	<p>Musim mas including all of the suppliers must comply with the current applicable local and national laws and regulations, especially those which are related but are not limited to health and safety, habitat and ecosystem, and local communities.</p> <p>For example, Peraturan Menteri Pertanian Republik Indonesia Nomor 11/Permentan/OT.140/3/2015 (updated Perpres 44/2020) or namely Indonesia Sustainability Palm Oil (ISPO) is relevant for us, thus, is used as part of Musim Mas's operational decision making. ISPO's sustainability standards is part of Indonesian Regulation that must be complied with, therefore, it is assigned as a high priority regulations which are always included in our risk assessment.</p>
Emerging regulation	Relevant, always included	<p>With the growing international agreements concerning climate change and GHG emission reduction commitment, the implementation of stricter International and/or national regulations become inevitable.</p> <p>For example, the upcoming adoption of the ISCC regulation of RED II demands us to further reduce our GHG emissions. Therefore, to ensure continual adherence to the latest regulations, dedicated teams are established to constantly monitor and keep abreast of any new laws and regulations that could affect the business. Moreover, through our internal assessment, we also simulate and project our annual GHG emission values to track and prepare us in case of new savings requirements or guidelines are to be applied.</p>
Technology	Relevant, always included	<p>Knowing the need to address the growing global demand, Musim Mas invests in technologies to continuously increase productivity and maximise yield while simultaneously minimizing its environmental impact.</p> <p>For example, in the effort to achieve our 55% reduction in emissions intensity against the 2006 baseline by 2025, we invest in technology such as methane capture plants into our operating POMs. With 15 methane capture plants built, a total of 544,219.64 MT CO₂e of emissions were avoided. Following continuous commissioning of methane capture plants, we are looking to surpass our initial target of 55% reduction before 2025. Align with one of the key pillars in our sustainability policy of driving innovation in sustainable practices, the technology-related risk is included in our risk assessment.</p>
Legal	Relevant, always included	<p>Legal is relevant to our operations and included in our risk assessment. For example, the relationship with Indigenous culture is important to our business and is based on economic, social, environmental, cultural and legal considerations. One of many ways, Musim Mas engages and collaborates with the government, smallholders, and NGOs to discuss and collaborate on the project (i.e. Siak, Pelalawan, Musi Banyuasin and Sambas on landscape initiatives). Additionally, Musim Mas also implements Grievance Mechanisms, Standard Operating Procedures</p>

		(SOPs), policies, and codes which are frequently socialized throughout our supply chain.
Market	Relevant, always included	<p>Emerging regulations concerning sustainability including the climate have influenced the palm oil market.</p> <p>For example, the preferences in the market toward a more environmentally labelled product have led us to participate in many Sustainability Certification and Verification schemes, such as RSPO, ISCC, ITSNC and POIG. To mitigate the risk, dedicated teams are established to ensure continual sustainability compliances and engagement with the stakeholders, customers, and public through meetings, sustainability disclosure platforms, and annual sustainability report.</p> <p>More information on the latest sustainability updates can be found on https://www.musimmas.com/newsroom/.</p>
Reputation	Relevant, always included	<p>With the increasing awareness of climate change, sustainability management plays an integral role in our business operations and reputation. Our sustainability practices are managed in our sustainability and NDPE policies.</p> <p>An example of the risk includes investors and/or some banks are starting to require sustainability assessment as one of their funding criteria. In addition to sustainability verification schemes, Musim Mas also actively participates in various recognized third-party assessments such as CDP, Ecovadis, SPOTT, and PROPER to benchmark and showcase our sustainable progress at the highest level. Additionally, we are also working closely with local community and other relevant parties (i.e. Siak and Pelalawan Landscape collaboration) to ensure that our actions are not only done in accordance with the FPIC principles but also helps the surrounding ecosystem.</p> <p>Lastly, Musim Mas through its relevant department, constantly monitor the media and effectively engage with the stakeholders and public (i.e. customers) through meetings, journal, and annual sustainability report, demonstrating the innovation and measures taken by Musim Mas. More information on the latest updates can be found on https://www.musimmas.com/newsroom/.</p>
Acute physical	Relevant, always included	<p>Acute physical including climate changes may lead to extreme weather conditions such as drought and flood. Consequently, this may reduce our oil palm yield which affects our financial performance.</p> <p>For example, drought or excessive rainfall can lower Fresh Fruit Bunch (FFB) production due to a forest fire or disruption of the fertilizer application program. To mitigate these, some measures taken include</p>

		<p>satellite monitoring such as the WRI Global Forest Watch Fires map to identify and monitor hotspots at and around our concessions. To date, more than 600 mills with its concessions are monitored daily for hotspots across Indonesia and Malaysia covering Musim Mas own and suppliers' operations. Additionally, we also initiate fire-free village programme along with the local communities to educate and encourage best agriculture practices and risks associated with the use of fire for land preparation. As of 2020, 75 villages accounting for 468,569 ha are covered under Free Fire Village Program FFVP or Masyarakat Bebas Api, with 144 trainings conducted. To accelerate our NDPE progress, we collaborate with the Consortium of Resource Experts (CORE) - Proforest and Daemeter – on implementing NDPE commitments, the Extension Services Programme and landscape collaborations.</p> <p>The awareness of climate change and its impact may also bring about a change in customers preferences. For this, we actively socialize and disclose our NDPE and sustainability policies through workshops and websites across the supply chain (https://www.musimmas.com/sustainability/).</p>
Chronic physical	Relevant, always included	<p>Considering Musim Mas operation is closely related to the ecosystems. Chronic physical risks such as the ongoing global warming that led to a higher temperature can affect the yield of our palm oil production. Thus, parameters such as soil health and water balance are essential to be actively monitored and maintained.</p> <p>For example, the El Nino phenomenon affected the productivity of our upstream operations. Recognizing the risk, Musim Mas implements best agricultural practices such as utilizing POME as land irrigation, reusing the bio-waste and organic matter from our plantations to return nutrients to the soil which promote soil health, and utilizes internal or public tools such as WRI Global Forest Watch to monitor and assess extreme weather-related risks.</p>

C2.3

(C2.3) Have you identified any inherent climate-related risks with the potential to have a substantive financial or strategic impact on your business?

Yes

C2.3a

(C2.3a) Provide details of risks identified with the potential to have a substantive financial or strategic impact on your business.

Identifier

Risk 1

Where in the value chain does the risk driver occur?

Direct operations

Risk type & Primary climate-related risk driver

Acute physical

Increased severity and frequency of extreme weather events such as cyclones and floods

Primary potential financial impact

Increased capital expenditures

Company-specific description

Extreme weather events such as prolonged drought and floods can affect the yield of palm oil. For example, drought and/or excessive rainfall might lower Fresh Fruit Bunch (FFB) production yield which may arise from disruption of fertilizer program, fires, etc. These challenges can lead to higher capital and operational cost and may cause disruption in our supply chain. Hence, this poses a risk to Musim Mas operation.

Time horizon

Medium-term

Likelihood

About as likely as not

Magnitude of impact

Medium

Are you able to provide a potential financial impact figure?

Yes, a single figure estimate

Potential financial impact figure (currency)

2,000

Potential financial impact figure – minimum (currency)

Potential financial impact figure – maximum (currency)

Explanation of financial impact figure

Since drought may lead to fire risk, besides RADD partnership and satellite monitoring, Musim Mas also installs fire breaks in our operation areas to slow the spread of fire. The financial impact figure corresponds to the installation of fire break per kilometre. Since firebreak implementation varies depending on the field, thus, the figure is estimated using per kilometre unit.

Cost of response to risk

2,000

Description of response and explanation of cost calculation

Best management practices and operating procedures are carried out by Musim Mas to alleviate the impacts of extreme weather scenarios, such as drought and flood. These practices include:

- Improvement of soil management from recycling back the cut fronds and organic waste from palm mills such as but are not limited to EFB and decanter. This is to improve the soil moisture retention capability and ameliorate the drought effects
- Installation and maintenance of proper drainage systems are done in preparation for floods
- Since drought may lead to fire risk, satellite monitoring such as the WRI Global Forest Watch Fires map is used to watch for hotspots at and around our concessions with more than 6 million hectares are monitored daily across Indonesia. Moreover, we also provide training and equipping firefighting teams at all of our plantations to take action at the first sign of an outbreak and report to headquarters immediately. Zero-burn policy and fire management practices have been implemented in Musim Mas group for many years and are expected to continuously improve in the future. For example, Musim Mas installs fire breaks to slow the spread of fire

One of the cost of responses is the installation of fire break per kilometre. Since firebreak implementation varies depending on the field, thus, the figure is estimated using per kilometre unit.

Comment

The development of new strategies and projects to tackle drought and flood are always carefully planned

Identifier

Risk 2

Where in the value chain does the risk driver occur?

Direct operations

Risk type & Primary climate-related risk driver

Emerging regulation
Enhanced emissions-reporting obligations

Primary potential financial impact

Increased capital expenditures

Company-specific description

With many international agreements on emission reduction commitment, the calculation of GHG emission and reporting have become an integral part in sustainability appraisal

of a company. Therefore, Musim Mas has actively calculated our GHG emissions starting from the upstream operation to ensure compliance to various third-party sustainability certifications and verifications such as RSPO, POIG, ISCC, ISPO, Italian National Standard (INS), and etc. For instance, since 2015, Musim Mas has fully incorporated Indonesia Sustainability Palm Oil (ISPO) sustainability guidelines into our operations. In 2020, 15 of our mills have gone through ISPO audits.

Time horizon

Medium-term

Likelihood

Likely

Magnitude of impact

Medium

Are you able to provide a potential financial impact figure?

Yes, a single figure estimate

Potential financial impact figure (currency)

4,000,000

Potential financial impact figure – minimum (currency)

Potential financial impact figure – maximum (currency)

Explanation of financial impact figure

To ensure continual adherence to both regulations and certifications, new projects and action plans are required at times. Implementing these projects and plans can lead to an increase in expenses. These additional costs depend largely on how severe the regulations (i.e. emission reduction threshold) are changing. Failure in fulfilling the requirement will lead to certifications withdrawal, and thus, loss of market. Recognising these, Musim Mas continuously improve best practices and operational standards to reduce our GHG emissions. For instance, in the effort to further reduce our GHG emissions, we have installed 15 methane captures plants to capture the methane gas. The financial impact figure corresponds to the estimated capital cost of each Methane Capture facility.

Cost of response to risk

4,000,000

Description of response and explanation of cost calculation

To anticipate the possible new requirements, Musim Mas taking initiatives to simplify the data gathering method to increase efficiency, thus, preparing ourselves for the new possible requirements. Our measures include the following:

- Establishes a standardized GHG data collection system

- Provides training and workshops for staffs on GHG calculation methods
- Creates an engagement with suppliers and providing training regarding GHG calculation methods and their importance
- Track and simulate GHG emissions to ensure our GHG emissions are maintained below the demanded threshold

In the effort to further reduce our GHG emissions, we also built 15 methane captures plants in our mills where a total of 544,219.64 MT CO₂e of emissions were avoided in 2020, utilising the captured methane gas into an electricity source. The capital cost of one methane capture plant ranges from 3 million to 4 million USD depending on the FFB processed. Additionally, to maintain and operate the plants, there will be an operational cost which is already included in our overall operational cost. For this, the cost of response taken is corresponding to the capital cost.

Comment

Sharing of knowledge and training are also provided for suppliers to increase the awareness of the importance of certification and verification schemes.

Identifier

Risk 3

Where in the value chain does the risk driver occur?

Direct operations

Risk type & Primary climate-related risk driver

Market

Changing customer behavior

Primary potential financial impact

Decreased revenues due to reduced demand for products and services

Company-specific description

With the growing international agreements concerning climate change and GHG emission reduction commitment, the implementation of stricter International and/or national regulations become inevitable. For example, the decision of the International market to pose stricter guidelines on the import of palm oil has impacted the market. Consequently, more customers now prefer sustainably certified palm oil products and derivatives. With the variability of international regulations and decisions imposed on the palm oil sector, the financial impact on our business varies accordingly. Failure to comply may result in fines and/or loss of market. Hence, this poses a risk to Musim Mas operations.

Time horizon

Medium-term

Likelihood

About as likely as not

Magnitude of impact

Medium-high

Are you able to provide a potential financial impact figure?

Yes, a single figure estimate

Potential financial impact figure (currency)

5,000

Potential financial impact figure – minimum (currency)

Potential financial impact figure – maximum (currency)

Explanation of financial impact figure

Financial impact due to changes in customer's behaviour and preferences could range widely from mild to severe. For example, if the European market shifts their preferences solely to demand more sustainable and certified palm oil products, then the financial impact will be milder in comparison to if the palm oil products are to be rejected completely. The impact on stricter sustainable demand is only limited to the cost needed in fulfilling the third-party certifications (including the operational cost to comply with the certification scheme standards) and supplier engagement costs, whereas the latter, the financial impact will be severe due to the loss of our major market. The financial impact corresponds to the certification cost per unit to be able to enter the European Market i.e. ISCC.

Cost of response to risk

5,000

Description of response and explanation of cost calculation

To mitigate the associated risk, Musim Mas initiates some measures such as:

- Engagement in sustainability initiatives. For example, landscape initiatives surrounding Siak and Pelalawan involving local NGOs, communities, companies, and government agencies
- Achieve and maintain 100% sustainability certifications schemes such as RSPO, ISCC, ISPO throughout our supply chain. These will also serve as a benchmark in our operation to keep track of our sustainability progress
- Promote traceability tools such as Musim Mas Self-Assessment (SAT) Tool to engage with suppliers
- Participates in several well-known public assessments and benchmarking programmes including CDP, SPOTT, Ecovadis, etc. Through improvement in our sustainability practices, we ranked 6th out of 98 palm oil companies globally in SPOTT 2020 (jumped from 11th in the previous year)

The change in customer's preferences and behaviour may impact our financial performance. The cost of response corresponds to the certification cost per unit to be

able to enter the European Market i.e. ISCC. In 2020, all our 18 processing units have been ISCC certified.

Comment

Musim Mas takes active steps to go beyond industry-recognized sustainability standards and will continue to step up in response to critical industry issues in our quest to contribute to a more sustainable industry and equitable world.

C2.4

(C2.4) Have you identified any climate-related opportunities with the potential to have a substantive financial or strategic impact on your business?

Yes

C2.4a

(C2.4a) Provide details of opportunities identified with the potential to have a substantive financial or strategic impact on your business.

Identifier

Opp1

Where in the value chain does the opportunity occur?

Direct operations

Opportunity type

Products and services

Primary climate-related opportunity driver

Development and/or expansion of low emission goods and services

Primary potential financial impact

Increased revenues resulting from increased demand for products and services

Company-specific description

With the growing international agreements concerning climate change and GHG emission reduction commitment, the implementation of stricter International and/or national regulations become inevitable. With the increasing demand for sustainable labelled products, there is an opportunity for Musim Mas to better market products that fulfil the emission guidelines and are sustainably certified.

Time horizon

Medium-term

Likelihood

Likely

Magnitude of impact

Medium

Are you able to provide a potential financial impact figure?

Yes, a single figure estimate

Potential financial impact figure (currency)

8,500,000

Potential financial impact figure – minimum (currency)

Potential financial impact figure – maximum (currency)

Explanation of financial impact figure

The products that are sustainably certified can benefit the financial performance of the company. For example, the International market prefers products that are sourced sustainably and achieved high emissions savings. With the installation of methane capture facilities in our operating mills, this opportunity can be well realized. The figure corresponds to the annual monetary savings of methane capture. These savings are sourced from the substitution of diesel and electricity credit from the national grid.

Cost to realize opportunity

4,000,000

Strategy to realize opportunity and explanation of cost calculation

To seize this opportunity, Musim Mas takes actions such as:

- Invests and takes technological approaches in reducing GHG emissions such as methane capture plants installation. As of December 2020, 15 methane capture plants have been completed in our mills. More methane capture plants are planned in the future
- Adopts various well-recognized certification and verification schemes such as RSPO, POIG, ISCC, and ISPO to track and rate our sustainability progress including GHG emissions
- Publicly disclose the progress of our sustainable commitment through Musim Mas websites, stakeholders meetings, and Sustainable Report according to GRI standard
- Increasing Musim Mas' profile as a Sustainable supplier in the public such as reporting through CDP, annual Sustainability Report, etc

With the installation of the methane capture plants, we have avoided carbon emission of 544,219.64 tCO₂e in 2020 by allowing the Palm Oil Mill Effluent (POME) to be used as an electricity source. The cost to realize the opportunity corresponds to the estimated capital cost of a methane capture plant.

Comment

Musim Mas takes active steps to go beyond industry-recognized sustainability standards and will continue to step up in response to critical industry issues in our quest to contribute to a more sustainable industry and equitable world.

Identifier

Opp2

Where in the value chain does the opportunity occur?

Direct operations

Opportunity type

Markets

Primary climate-related opportunity driver

Access to new markets

Primary potential financial impact

Increased revenues resulting from increased demand for products and services

Company-specific description

The changes toward stricter sustainable regulations might lead to an opportunity in creating a niche and better sustainable products that fulfil the emission guidelines and are sustainably certified. With the upcoming adoption of RED II guidelines, there may also be more demand from the European market. Besides participating in many recognized sustainability certifications schemes, Musim Mas has also installed methane capture plants to reduce GHG emissions beyond the guided threshold.

Time horizon

Medium-term

Likelihood

Likely

Magnitude of impact

Medium

Are you able to provide a potential financial impact figure?

Yes, a single figure estimate

Potential financial impact figure (currency)

0

Potential financial impact figure – minimum (currency)

Potential financial impact figure – maximum (currency)

Explanation of financial impact figure

The financial impact is yet to be publicly available.

Cost to realize opportunity

5,000

Strategy to realize opportunity and explanation of cost calculation

To fully seize the opportunity, Musim Mas takes initiatives such as:

- Achieves and maintains full compliance with local, national, and international regulations and standards such as RSPO, ISPO, POIG, ISCC to ensure the highest level of sustainability practices. Dedicated teams are formed to monitor and update on the new changes of guidelines and regulations of the relevant certifications
- Actively socialises and applies best management practices and standard operating procedures (SOP) across our operations
- Achieves full traceability to plantation throughout our supply chain. Presently, we have achieved 100% traceability to mill since 2015 and 83% traceability to plantation as of December 2020. We are now gearing toward 100% full traceability to plantation by December 2025.

The cost of response corresponds to the certification cost per unit to be able to enter the European Market i.e. ISCC. In 2020, all our 18 processing units have been ISCC certified.

Comment

Musim Mas takes active steps to go beyond industry-recognized sustainability standards and will continue to step up in response to critical industry issues in our quest to contribute to a more sustainable industry and equitable world.

Identifier

Opp3

Where in the value chain does the opportunity occur?

Upstream

Opportunity type

Energy source

Primary climate-related opportunity driver

Use of new technologies

Primary potential financial impact

Reduced indirect (operating) costs

Company-specific description

Methane is a by-product of the palm oil mill effluent (POME). It is usually released in the form of gas which is found to be detrimental to the environment. Recognising this, Musim Mas invests heavily in Methane Capture Facilities to capture and utilise the gas to reduce our GHG emissions. Through biogas engine generators, the captured methane gas is then converted to generate electricity where the electricity will be used in the milling process and to provide 24-hour utilities for all the workers and their families living in the plantations. Additionally, it can also go to the surrounding local communities, and in some cases to the national grid in return for electricity credit.

Time horizon

Long-term

Likelihood

Very likely

Magnitude of impact

Medium-high

Are you able to provide a potential financial impact figure?

Yes, a single figure estimate

Potential financial impact figure (currency)

8,500,000

Potential financial impact figure – minimum (currency)

Potential financial impact figure – maximum (currency)

Explanation of financial impact figure

The figure corresponds to the annual monetary savings of methane capture. These savings are sourced from the substitution of diesel and electricity credit from the national grid.

Cost to realize opportunity

4,000,000

Strategy to realize opportunity and explanation of cost calculation

As of 2020, We have built 15 methane captures plants in our mills where a total of 544,219.64 MT CO₂e of emissions were avoided, utilising the captured methane gas into an electricity source. The investment capital cost of one methane capture plant ranges from 3 million to 4 million USD depending on the FFB processed. Additionally, to maintain and operate the plants, there will be an operational cost which is already included in our overall operational cost. For this, the cost of response taken is corresponding to the capital cost. We are looking to build more methane capture plants in the upcoming years.

Comment

n/a

C3. Business Strategy

C3.1

(C3.1) Have climate-related risks and opportunities influenced your organization's strategy and/or financial planning?

Yes, and we have developed a low-carbon transition plan

C3.1a

(C3.1a) Is your organization's low-carbon transition plan a scheduled resolution item at Annual General Meetings (AGMs)?

	Is your low-carbon transition plan a scheduled resolution item at AGMs?	Comment
Row 1	Yes	During the meeting, Top management will review key ESG issues such as sustainability progresses and achievements. Sustainability issues such as GHG reduction targets, certifications achievements and targets, smallholder's inclusion, grievances, and global market dynamics. Accordingly, action plans are planned and implemented.

C3.2

(C3.2) Does your organization use climate-related scenario analysis to inform its strategy?

Yes, qualitative and quantitative

C3.2a

(C3.2a) Provide details of your organization's use of climate-related scenario analysis.

Climate-related scenarios and models applied	Details
Other, please specify Company Internal Assessment	While Musim Mas has yet implemented climate-related scenario analysis based on the TCFD, our Sustainability Teams, Senior Management, and the Board, are all involved in decision-making relating to our climate-related risks and opportunities to ensure emission reductions are adequately managed throughout our operations. During the top management meeting, quantitative data such as hotspots, GHG progresses and qualitative data such as market dynamics and customer preferences are all compiled and presented to the management as discussion materials. These materials are then served as the

	<p>basis for our operational target(s) and decision making. For example, continuous commissioning of methane capture plants is planned and executed to achieve our 55% reduction emission goals while simultaneously maintain our ISCC certifications. Presently, we are looking to develop a model for our climate-related scenario analysis and will disclose accordingly when ready.</p>
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C3.3

(C3.3) Describe where and how climate-related risks and opportunities have influenced your strategy.

	Have climate-related risks and opportunities influenced your strategy in this area?	Description of influence
Products and services	Yes	<p>With the growing international agreements concerning climate change and GHG emission reduction commitment, the implementation of stricter International and/or national regulations become inevitable. For example, the decision of the international market to pose stricter sustainability guidelines toward the import of palm oil has impacted the market. The changes in European market preferences toward environmentally labelled products have led us to further improve and promote our sustainability practices across our supply chain.</p> <p>Recognizing the dynamics of the market, since 2014, we have publicly announced our sustainability commitment with the launch of our first sustainability policy. To track and evaluate our sustainability progress, we are independently audited against several Sustainability Certification and Verification schemes, such as RSPO, ISCC, POIG, ISPO. Furthermore, we also annually disclose our sustainability progresses, targets, and achievements to our customers and stakeholders through well-recognized bodies such as CDP, Ecovadis, SPOTT, and PROPER as well as our internal Sustainability Report. Through improvement in our sustainability practices, we ranked 6th out of 98 palm oil companies in overall score of SPOTT (jumped from 11th in the previous year) in 2020.</p>
Supply chain and/or value chain	Yes	<p>Following our NDPE policy, we focus on eliminating deforestation, peatland development, and the slash-and-burn land clearing method. This framework has led us to improve on our monitoring tools such as satellites and drones, implement High Carbon Stock Assessment (HCSA),</p>

		<p>and develop a traceability mechanism to identify the FFB source area which align with our NDPE vision.</p> <p>As of 2020, 97% of our suppliers either have an NDPE policy or adopted the Musim Mas Sustainability Policy. Presently, we have achieved 100% traceability to mill since 2015 and 83% traceability to plantation per December 2020. We are on track to achieve full traceability to plantation by 2025. In recent years, suppliers are required to complete Musim Mas Self-Assessment Tool (SAT) which is an exhaustive set of questions against our NDPE requirements. As of 2020, 60% of our suppliers have completed the Self-Assessment Tool.</p>
Investment in R&D	Yes	<p>Recognizing the need to address growing global demand, Musim Mas continues to maximize our oil palm yield while consciously mitigate environmental impacts. Musim Mas R&D team continue to optimise agriculture practices, including efficient usage of fertilizers and pesticides to reduce environmental impacts such as climate change and eutrophication. In addition, we also implement Integrated Pest Management (IPM) where we use barn owls to reduce rats population. This procedure is expected to reduce the usage of rodenticides. In 2019, we have successfully transitioned away from using benomyl and glufosinate-ammonium, bringing our total to four phased out pesticides since 2018. In 2020, we also successfully phased out several pesticides namely Cypermethrin and Mancozeb. Next, we are aiming to phase out Chlorpyrifos, Coumatetralyl, Warfarin by 2021 and intend to begin phasing them out as soon as promising alternatives are found.</p>
Operations	Yes	<p>To ensure continual compliance to new regulations concerning climate change and sustainability aspects, we implement several emission reduction activities such as methane capture installation, no new planting and development on high carbon stock area and peatland, shifting fossil fuel usage to biofuel, etc. All these efforts are to ensure that our target towards a lower carbon emission can be achieved. We plan to build more methane capture plants by 2021.</p>

C3.4

(C3.4) Describe where and how climate-related risks and opportunities have influenced your financial planning.

	Financial planning elements that have been influenced	Description of influence
Row 1	Revenues Direct costs Indirect costs Capital expenditures Capital allocation Acquisitions and divestments Access to capital Assets Liabilities	With the growing international agreements concerning climate change and GHG emission reduction commitment, the implementation of stricter International and/or national regulations become inevitable. The increasing demand for sustainable labelled products has propelled us to further improve on our sustainability practices. Recognizing the importance of sustainability and climate change, the budget to improve on our environmental performance is heavily considered in our financial planning. Depending on the action plans, these improvements might require additional capital and operating expenditures. These improvements include but not limited to build more methane capture plants in our mills and promote smallholders collaboration. In 2020, 15 methane capture plants have been built and 2092 smallholders have been RSPO certified. Following our sustainability policy and financial planning, Musim Mas will continuously improve our sustainability practices.

C3.4a

(C3.4a) Provide any additional information on how climate-related risks and opportunities have influenced your strategy and financial planning (optional).

N/A

C4. Targets and performance

C4.1

(C4.1) Did you have an emissions target that was active in the reporting year?

Intensity target

C4.1b

(C4.1b) Provide details of your emissions intensity target(s) and progress made against those target(s).

Target reference number

Int 1

Year target was set

2016

Target coverage

Business activity

Scope(s) (or Scope 3 category)

Other, please specify

Life Cycle Analysis (product-based emission analysis)

Intensity metric

Metric tons CO₂e per unit of production

Base year

2006

Intensity figure in base year (metric tons CO₂e per unit of activity)

5.96

% of total base year emissions in selected Scope(s) (or Scope 3 category) covered by this intensity figure

100

Target year

2025

Targeted reduction from base year (%)

55

Intensity figure in target year (metric tons CO₂e per unit of activity) [auto-calculated]

2.682

% change anticipated in absolute Scope 1+2 emissions

0

% change anticipated in absolute Scope 3 emissions

0

Intensity figure in reporting year (metric tons CO₂e per unit of activity)

3.17

% of target achieved [auto-calculated]

85.1128737035

Target status in reporting year

Underway

Is this a science-based target?

No, and we do not anticipate setting one in the next 2 years

Target ambition

Please explain (including target coverage)

Our GHG emission analysis is conducted using Roundtable Sustainable Palm Oil (RSPO) PalmGHG calculator, which is a life cycle analysis (LCA)-based calculator. The analysis was conducted for all 15 Musim Mas Group RSPO certified mills. We strive to be part of the solution to combat climate change. Our target is a 55% reduction in emissions intensity by 2025, against our 2006 baseline. In 2020, Musim Mas has avoided 544,219.64 MT CO₂e due to the installation of Methane Captures. With the continuous commissioning of new methane capture plants, we are looking to surpass our initial target of 55% GHG emission reduction before 2025.

The reduction in emission intensity is the culmination of our sustainability practices such as cessation of new planting on peat and high carbon stock area, installation of methane capture plants, a shift of fossil fuel usage to biofuel, integrated pest management practices to reduce pesticide usage, and more. Additionally, Musim Mas R&D department also strives to keep on improving our oil yield and land-use efficiency to further lower our emission intensity.

C4.2

(C4.2) Did you have any other climate-related targets that were active in the reporting year?

No other climate-related targets

C4.3

(C4.3) Did you have emissions reduction initiatives that were active within the reporting year? Note that this can include those in the planning and/or implementation phases.

Yes

C4.3a

(C4.3a) Identify the total number of initiatives at each stage of development, and for those in the implementation stages, the estimated CO₂e savings.

	Number of initiatives	Total estimated annual CO ₂ e savings in metric tonnes CO ₂ e (only for rows marked *)
Under investigation	0	0
To be implemented*	2	60,000
Implementation commenced*	0	0
Implemented*	15	544,219.64
Not to be implemented	0	0

C4.3b

(C4.3b) Provide details on the initiatives implemented in the reporting year in the table below.

Initiative category & Initiative type

Fugitive emissions reductions
Agricultural methane capture

Estimated annual CO₂e savings (metric tonnes CO₂e)

544,219.64

Scope(s)

Scope 1

Voluntary/Mandatory

Voluntary

Annual monetary savings (unit currency – as specified in C0.4)

8,500,000

Investment required (unit currency – as specified in C0.4)

55,000,000

Payback period

4-10 years

Estimated lifetime of the initiative

21-30 years

Comment

Conventionally, POME is stored in a large open pond where its treatment is dependent on anaerobic bacteria to break down the organic matter in the wastewater. To overcome the detrimental emission of methane gas, Musim Mas installs methane capture facilities with the purpose to capture the methane gas, thus, reducing the emission from mills operations.

In 2020, this process has avoided 544,219.64 tCO₂eq of GHG emission. Moreover, methane capture plants utilise the captured methane gas as a gas engine feed to generate electricity. The generated electricity is then used for housing of the workers where the excess will be sent to the national grid in return for electricity credit. The electricity generated by POME should be promoted as a renewable energy alternative to reduce the carbon footprint of palm oil operations.

C4.3c

(C4.3c) What methods do you use to drive investment in emissions reduction activities?

Method	Comment
Dedicated budget for other emissions reduction activities	To ensure continual adherence to local, national, and international regulations, Musim Mas strives to continuously reduce the emission from our operations. For this, we always provide a dedicated budget that will be used for emission reduction activities such as methane capture facilities for Palm Oil Mill Effluent (POME), research and development of fertilizers and pesticides, and training and workshops to improve agricultural best practices.

C-AC4.4/C-FB4.4/C-PF4.4

(C-AC4.4/C-FB4.4/C-PF4.4) Do you implement agriculture or forest management practices on your own land with a climate change mitigation and/or adaption benefit?

Yes

C-AC4.4a/C-FB4.4a/C-PF4.4a

(C-AC4.4a/C-FB4.4a/C-PF4.4a) Specify the agricultural or forest management practice(s) implemented on your own land with climate change mitigation and/or adaptation benefits and provide a corresponding emissions figure, if known.

Management practice reference number

MP1

Management practice

Land use change

Description of management practice

Prior to any new planting, land-use planning is conducted following Musim Mas Sustainability Policy to identify whether the targeted land is under any categories of high conservation value (HCV) and High Carbon Stock (HCS). If the land is identified as a conservation area, the land will be set aside.

Primary climate change-related benefit

Emission reductions (mitigation)

Estimated CO2e savings (metric tons CO2e)

516,263

Please explain

The figure is quantified using the land carbon stock default value provided by RSPO.

Management practice reference number

MP2

Management practice

Fertilizer management

Description of management practice

By-products from our processing processes, such as boiler ash and dry decanter solid are used as organic fertilizers in our plantations. These by-products contain N and P contents which can be used to substitute N-fertilizers and P-fertilizers. Consequently, the reduction in fertilizers usage leads to better environmental impacts (i.e. eutrophication) and healthier financial performance.

Primary climate change-related benefit

Reduced demand for fertilizers (adaptation)

Estimated CO2e savings (metric tons CO2e)

0

Please explain

The savings from these practices have not been quantified.

Management practice reference number

MP3

Management practice

Integrated pest management

Description of management practice

In the effort to reduce the usage of synthetic pesticide, Musim Mas takes the approach of using integrated pest management practices. For example, the usage of barn owl programs to control the rat populations and utilization of Cassia Cobanensis, Tunera Subulata, and Antigonon Leptopus to control the caterpillar populations.

Primary climate change-related benefit

Reduced demand for pesticides (adaptation)

Estimated CO2e savings (metric tons CO2e)

0

Please explain

The savings from these practices have not been quantified.

Management practice reference number

MP4

Management practice

Fire control

Description of management practice

Musim Mas commits to adhere to our zero-burn policy in our plantations. For this, we actively engage with our smallholders to develop best agricultural practices (i.e. alternative method for land clearance) while simultaneously encouraging them to pursue RSPO certification. Additionally, we also continue to improve our fire management practices to mitigate the fire risk. For instance, besides RADD partnership and satellite monitoring, we also provide training and firefighting equipment to the villages along with monetary or non-monetary incentives if the villages remain to be fire-free.

Primary climate change-related benefit

Emission reductions (mitigation)

Estimated CO2e savings (metric tons CO2e)

0

Please explain

The savings from these practices have not been quantified.

C4.5

(C4.5) Do you classify any of your existing goods and/or services as low-carbon products or do they enable a third party to avoid GHG emissions?

Yes

C4.5a

(C4.5a) Provide details of your products and/or services that you classify as low-carbon products or that enable a third party to avoid GHG emissions.

Level of aggregation

Group of products

Description of product/Group of products

Musim Mas products include Palm Oil and their derivatives including Crude Palm Oil (CPO), Refined Bleach and Deodorized Palm Oil (RBDPO), and Palm Methyl Ester (PME)

Are these low-carbon product(s) or do they enable avoided emissions?

Low-carbon product and avoided emissions

Taxonomy, project or methodology used to classify product(s) as low-carbon or to calculate avoided emissions

Other, please specify
RSPO and ISCC

% revenue from low carbon product(s) in the reporting year

0

Comment

Fulfilling the strict criteria of emission and sustainable practices, our products such as CPO, RBDPO and PME are sold under the certification of RSPO and ISCC.

C5. Emissions methodology

C5.1

(C5.1) Provide your base year and base year emissions (Scopes 1 and 2).

Scope 1

Base year start

January 1, 2016

Base year end

December 31, 2016

Base year emissions (metric tons CO₂e)

1,119,103

Comment

n/a

Scope 2 (location-based)

Base year start

January 1, 2016

Base year end

December 31, 2016

Base year emissions (metric tons CO₂e)

212,393

Comment

n/a

Scope 2 (market-based)

Base year start

Base year end

Base year emissions (metric tons CO₂e)

Comment

C5.2

(C5.2) Select the name of the standard, protocol, or methodology you have used to collect activity data and calculate emissions.

The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard (Revised Edition)

The Greenhouse Gas Protocol Agricultural Guidance: Interpreting the Corporate Accounting and Reporting Standard for the Agricultural Sector

C6. Emissions data

C6.1

(C6.1) What were your organization's gross global Scope 1 emissions in metric tons CO₂e?

Reporting year

Gross global Scope 1 emissions (metric tons CO₂e)

1,699,673

Comment

N/A

C6.2

(C6.2) Describe your organization's approach to reporting Scope 2 emissions.

Row 1

Scope 2, location-based

We are reporting a Scope 2, location-based figure

Scope 2, market-based

We have no operations where we are able to access electricity supplier emission factors or residual emissions factors and are unable to report a Scope 2, market-based figure

Comment

N/A

C6.3

(C6.3) What were your organization's gross global Scope 2 emissions in metric tons CO₂e?

Reporting year

Scope 2, location-based

414,431

Comment

N/A

C6.4

(C6.4) Are there any sources (e.g. facilities, specific GHGs, activities, geographies, etc.) of Scope 1 and Scope 2 emissions that are within your selected reporting boundary which are not included in your disclosure?

No

C6.5

(C6.5) Account for your organization's gross global Scope 3 emissions, disclosing and explaining any exclusions.

Purchased goods and services

Evaluation status

Relevant, not yet calculated

Please explain

n/a

Capital goods

Evaluation status

Not relevant, explanation provided

Please explain

Capital goods used in palm oil industry lasted for decades, thus, the scope 3 emission from amortization of capital goods emission is very small and can be ignored

Fuel-and-energy-related activities (not included in Scope 1 or 2)

Evaluation status

Relevant, not yet calculated

Please explain

n/a

Upstream transportation and distribution

Evaluation status

Relevant, not yet calculated

Please explain

n/a

Waste generated in operations

Evaluation status

Not relevant, explanation provided

Please explain

The waste and residue generated in the operations are mostly treated within the operation boundaries (included in scope 1 emission), otherwise they are reused and/or recycled.

Business travel

Evaluation status

Not relevant, explanation provided

Please explain

Scope 3 emission from business travels is in negligible amount. Thus, it is not relevant.

Employee commuting

Evaluation status

Not relevant, explanation provided

Please explain

The majority of Musim Mas's employees are in close vicinity to workplace. For example, in the case of plantations or processing sites, most employees stay in the company's messes and use company transport facilities (i.e. bus) or walk to commute. For this, the commuting's emission is negligible.

Upstream leased assets

Evaluation status

Not relevant, explanation provided

Please explain

This emission category does not apply to Musim Mas's operations.

Downstream transportation and distribution

Evaluation status

Relevant, not yet calculated

Please explain

n/a

Processing of sold products

Evaluation status

Relevant, not yet calculated

Please explain

Musim Mas delivers many intermediate products to many customers globally. Processing methodology of the sold products may differ from one company to the others. Hence, this emission category is yet to be calculated.

Use of sold products

Evaluation status

Relevant, not yet calculated

Please explain

Musim Mas delivers many intermediate products to many customers globally. Processing methodology of the sold products may differ from one company to the others. Hence, this emission category is yet to be calculated.

End of life treatment of sold products

Evaluation status

Relevant, not yet calculated

Please explain

Musim Mas delivers many intermediate products to many customers globally. Processing methodology of the sold products may differ from one company to the others. Hence, this emission category is yet to be calculated.

Downstream leased assets

Evaluation status

Relevant, not yet calculated

Please explain

n/a

Franchises

Evaluation status

Not relevant, explanation provided

Please explain

Not relevant to our business operation.

Investments

Evaluation status

Relevant, not yet calculated

Please explain

n/a

Other (upstream)

Evaluation status

Relevant, not yet calculated

Please explain

n/a

Other (downstream)

Evaluation status

Relevant, not yet calculated

Please explain

n/a

C-AC6.6/C-FB6.6/C-PF6.6

(C-AC6.6/C-FB6.6/C-PF6.6) Can you break down your Scope 3 emissions by relevant business activity area?

No

C-AC6.6b/C-FB6.6b/C-PF6.6b

(C-AC6.6b/C-FB6.6b/C-PF6.6b) Why can you not report your Scope 3 emissions by business activity area?

Row 1

Primary reason

We are planning to include in the next two years

Please explain

We are currently deepened our understanding on how to calculate Scope 3 emissions. Once we refine the calculation and data, we would report it.

C-AC6.8/C-FB6.8/C-PF6.8

(C-AC6.8/C-FB6.8/C-PF6.8) Is biogenic carbon pertaining to your direct operations relevant to your current CDP climate change disclosure?

Yes

C-AC6.8a/C-FB6.8a/C-PF6.8a

(C-AC6.8a/C-FB6.8a/C-PF6.8a) Account for biogenic carbon data pertaining to your direct operations and identify any exclusions.

CO2 emissions from land use management

Emissions (metric tons CO2)

2,165,765

Methodology

Default emissions factors

Please explain

Emission from oxidation of peat calculated by using default emission factor provided by IPCC Guidelines for National Greenhouse Gas Inventories, Vol 4: Agriculture, Forestry and Other Land Use.

CO2 removals from land use management

Emissions (metric tons CO2)

0

Methodology

Default emissions factors

Please explain

N/A

Sequestration during land use change

Emissions (metric tons CO2)

0

Methodology

Default emissions factors

Please explain

N/A

CO2 emissions from biofuel combustion (land machinery)

Emissions (metric tons CO2)

4,677

Methodology

Default emissions factors

Please explain

Calculated using GHG protocol stationary emission calculator

CO2 emissions from biofuel combustion (processing/manufacturing machinery)

Emissions (metric tons CO2)

2,211,136

Methodology

Default emissions factors

Please explain

Calculated using GHG protocol stationary and mobile emission calculator

CO2 emissions from biofuel combustion (other)

Emissions (metric tons CO2)

8,013

Methodology

Default emissions factors

Please explain

Calculated using GHG protocol stationary and mobile emission calculator

C-AC6.9/C-FB6.9/C-PF6.9

(C-AC6.9/C-FB6.9/C-PF6.9) Do you collect or calculate greenhouse gas emissions for each commodity reported as significant to your business in C-AC0.7/FB0.7/PF0.7?

Agricultural commodities

Palm Oil

Do you collect or calculate GHG emissions for this commodity?

Yes

Please explain

Our emissions are related to cultivating, milling, refining and processing oil palm and its derivatives.

C-AC6.9a/C-FB6.9a/C-PF6.9a

(C-AC6.9a/C-FB6.9a/C-PF6.9a) Report your greenhouse gas emissions figure(s) for your disclosing commodity(ies), explain your methodology, and include any exclusions.

Palm Oil

Reporting emissions by

Total

Emissions (metric tons CO₂e)

2,114,104

Change from last reporting year

Higher

Please explain

The emissions are quantified using a calculator provided by GHG Protocol.

C6.10

(C6.10) Describe your gross global combined Scope 1 and 2 emissions for the reporting year in metric tons CO₂e per unit currency total revenue and provide any additional intensity metrics that are appropriate to your business operations.

Intensity figure

0.2

Metric numerator (Gross global combined Scope 1 and 2 emissions, metric tons CO₂e)

2,114,104

Metric denominator

metric ton of product

Metric denominator: Unit total

10,330,509

Scope 2 figure used

Location-based

% change from previous year

43

Direction of change

Increased

Reason for change

There is an increase in our processing emissions. This is due to the addition of two new processing facilities.

C7. Emissions breakdowns

C7.1

(C7.1) Does your organization break down its Scope 1 emissions by greenhouse gas type?

Yes

C7.1a

(C7.1a) Break down your total gross global Scope 1 emissions by greenhouse gas type and provide the source of each used greenhouse warming potential (GWP).

Greenhouse gas	Scope 1 emissions (metric tons of CO ₂ e)	GWP Reference
N ₂ O	361,019	IPCC Fifth Assessment Report (AR5 – 100 year)
CO ₂	1,338,654	IPCC Fifth Assessment Report (AR5 – 100 year)

C7.2

(C7.2) Break down your total gross global Scope 1 emissions by country/region.

Country/Region	Scope 1 emissions (metric tons CO ₂ e)
Indonesia	1,514,126
Malaysia	16,883
China	34
India	40,081
Spain	73,661
Netherlands	1,922
Italy	11,121
Viet Nam	3,005
Singapore	38,840

C7.3

(C7.3) Indicate which gross global Scope 1 emissions breakdowns you are able to provide.

By business division

C7.3a

(C7.3a) Break down your total gross global Scope 1 emissions by business division.

Business division	Scope 1 emissions (metric ton CO ₂ e)
Plantation	384,384
Palm oil mills, ramps and jetties	69,157
Refineries and oleochemicals	1,151,708
Offices	12,426

Shipping	81,997
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C-AC7.4/C-FB7.4/C-PF7.4

(C-AC7.4/C-FB7.4/C-PF7.4) Do you include emissions pertaining to your business activity(ies) in your direct operations as part of your global gross Scope 1 figure?

Yes

C-AC7.4a/C-FB7.4a/C-PF7.4a

(C-AC7.4a/C-FB7.4a/C-PF7.4a) Select the form(s) in which you are reporting your agricultural/forestry emissions.

Total emissions

C-AC7.4b/C-FB7.4b/C-PF7.4b

(C-AC7.4b/C-FB7.4b/C-PF7.4b) Report the Scope 1 emissions pertaining to your business activity(ies) and explain any exclusions. If applicable, disaggregate your agricultural/forestry by GHG emissions category.

Activity

Agriculture/Forestry

Emissions (metric tons CO₂e)

384,384

Methodology

Default emissions factor

Please explain

Calculated using default values and calculation method from RSPO, ISCC and GHG Protocol. This figure covers all of our plantation operation.

Activity

Processing/Manufacturing

Emissions (metric tons CO₂e)

1,220,865

Methodology

Default emissions factor

Please explain

Calculated using default values and calculation method from GHG Protocol. This is emission from our palm oil mills, refineries, oleochemical plants etc.

Activity

Distribution

Emissions (metric tons CO2e)

94,424

Methodology

Default emissions factor

Please explain

Calculated using default values and calculation method from GHG Protocol. This figure is emissions from our trading offices and transports such as trucks, ships etc.

C7.5

(C7.5) Break down your total gross global Scope 2 emissions by country/region.

Country/Region	Scope 2, location-based (metric tons CO2e)	Scope 2, market-based (metric tons CO2e)	Purchased and consumed electricity, heat, steam or cooling (MWh)	Purchased and consumed low-carbon electricity, heat, steam or cooling accounted for in Scope 2 market-based approach (MWh)
Indonesia	328,046	0	405,402	0
Malaysia	9,947	0	14,816	0
China	2,814	0	3,843	0
India	13,708	0	14,802	0
Germany	20	0	42	0
Italy	5,791	0	15,041	0
Singapore	118	0	250	0
United Kingdom of Great Britain and Northern Ireland	6	0	13	0
United States of America	50	0	60	0
Spain	40,233	0	131,759	0
Netherlands	10,236	0	23,227	0
Viet Nam	3,459	0	8,014	0
Brazil	1	0	10	0

C7.6

(C7.6) Indicate which gross global Scope 2 emissions breakdowns you are able to provide.

By business division

C7.6a

(C7.6a) Break down your total gross global Scope 2 emissions by business division.

Business division	Scope 2, location-based (metric tons CO2e)	Scope 2, market-based (metric tons CO2e)
Plantations	0	0
Palm oil mills, ramps, and jetties	816	0
Refineries and oleochemicals	410,874	0
Offices	2,605	0
Shipping	136	0

C7.9

(C7.9) How do your gross global emissions (Scope 1 and 2 combined) for the reporting year compare to those of the previous reporting year?

Increased

C7.9a

(C7.9a) Identify the reasons for any change in your gross global emissions (Scope 1 and 2 combined), and for each of them specify how your emissions compare to the previous year.

	Change in emissions (metric tons CO2e)	Direction of change	Emissions value (percentage)	Please explain calculation
Change in renewable energy consumption	0		0	N/A
Other emissions reduction activities	0		0	N/A

Divestment	0		0	N/A
Acquisitions	425,372	Increased	25.7	The emission increases due to addition of new two processing facilities. The figure is obtained by following the formula provided by the guidance: Sample calculation: $(425,372/1,657,711)*100\%=25.7\%$.
Mergers	0		0	N/A
Change in output	0		0	N/A
Change in methodology	0		0	N/A
Change in boundary	0		0	N/A
Change in physical operating conditions	0		0	N/A
Unidentified	0		0	N/A
Other	0		0	N/A

C7.9b

(C7.9b) Are your emissions performance calculations in C7.9 and C7.9a based on a location-based Scope 2 emissions figure or a market-based Scope 2 emissions figure?

Location-based

C8. Energy

C8.1

(C8.1) What percentage of your total operational spend in the reporting year was on energy?

More than 10% but less than or equal to 15%

C8.2

(C8.2) Select which energy-related activities your organization has undertaken.

Indicate whether your organization undertook this energy-related activity in the reporting year

Consumption of fuel (excluding feedstocks)	Yes
Consumption of purchased or acquired electricity	Yes
Consumption of purchased or acquired heat	No
Consumption of purchased or acquired steam	No
Consumption of purchased or acquired cooling	No
Generation of electricity, heat, steam, or cooling	Yes

C8.2a

(C8.2a) Report your organization's energy consumption totals (excluding feedstocks) in MWh.

	Heating value	MWh from renewable sources	MWh from non-renewable sources	Total (renewable and non-renewable) MWh
Consumption of fuel (excluding feedstock)	LHV (lower heating value)	6,650,226	12,452,224	19,102,450
Consumption of purchased or acquired electricity		0	617,280	617,280
Consumption of self-generated non-fuel renewable energy		0		0
Total energy consumption		6,650,226	13,069,505	19,719,730

C8.2b

(C8.2b) Select the applications of your organization's consumption of fuel.

	Indicate whether your organization undertakes this fuel application
Consumption of fuel for the generation of electricity	Yes
Consumption of fuel for the generation of heat	Yes

Consumption of fuel for the generation of steam	Yes
Consumption of fuel for the generation of cooling	Yes
Consumption of fuel for co-generation or tri-generation	Yes

C8.2c

(C8.2c) State how much fuel in MWh your organization has consumed (excluding feedstocks) by fuel type.

Fuels (excluding feedstocks)

Lignite Coal

Heating value

LHV (lower heating value)

Total fuel MWh consumed by the organization

5,074,572

MWh fuel consumed for self-generation of electricity

0

MWh fuel consumed for self-generation of heat

0

MWh fuel consumed for self-generation of steam

0

MWh fuel consumed for self-generation of cooling

0

MWh fuel consumed for self-cogeneration or self-trigeneration

5,074,572

Emission factor

1.21

Unit

metric tons CO₂e per metric ton

Emissions factor source

GHG Protocol for stationary combustion version 4.1

Comment

n/a

Fuels (excluding feedstocks)

Diesel

Heating value

LHV (lower heating value)

Total fuel MWh consumed by the organization

250,542

MWh fuel consumed for self-generation of electricity

0

MWh fuel consumed for self-generation of heat

125,707

MWh fuel consumed for self-generation of steam

0

MWh fuel consumed for self-generation of cooling

0

MWh fuel consumed for self-cogeneration or self-trigeneration

124,835

Emission factor

2.69

Unit

kg CO₂e per liter

Emissions factor source

GHG Protocol for stationary combustion version 4.1

Comment

n/a

Fuels (excluding feedstocks)

Fuel Oil Number 6

Heating value

LHV (lower heating value)

Total fuel MWh consumed by the organization

149,398

MWh fuel consumed for self-generation of electricity

0

MWh fuel consumed for self-generation of heat

6,681

MWh fuel consumed for self-generation of steam

0

MWh fuel consumed for self-generation of cooling

0

MWh fuel consumed for self-cogeneration or self-trigeneration

142,717

Emission factor

3.14

Unit

metric tons CO₂e per metric ton

Emissions factor source

GHG Protocol for stationary combustion version 4.1

Comment

n/a

Fuels (excluding feedstocks)

Petrol

Heating value

LHV (lower heating value)

Total fuel MWh consumed by the organization

11,559

MWh fuel consumed for self-generation of electricity

0

MWh fuel consumed for self-generation of heat

141

MWh fuel consumed for self-generation of steam

0

MWh fuel consumed for self-generation of cooling

0

MWh fuel consumed for self-cogeneration or self-trigeneration

11,418

Emission factor

2.27

Unit

kg CO2e per liter

Emissions factor source

GHG Protocol for mobile combustion version 2.0

Comment

n/a

Fuels (excluding feedstocks)

Natural Gas

Heating value

LHV (lower heating value)

Total fuel MWh consumed by the organization

6,966,153

MWh fuel consumed for self-generation of electricity

0

MWh fuel consumed for self-generation of heat

0

MWh fuel consumed for self-generation of steam

0

MWh fuel consumed for self-generation of cooling

0

MWh fuel consumed for self-cogeneration or self-trigeneration

6,966,153

Emission factor

1.89

Unit

kg CO2e per m3

Emissions factor source

GHG Protocol for stationary combustion version 4.1

Comment

n/a

Fuels (excluding feedstocks)

Biodiesel

Heating value

LHV (lower heating value)

Total fuel MWh consumed by the organization

24,060

MWh fuel consumed for self-generation of electricity

0

MWh fuel consumed for self-generation of heat

6,993

MWh fuel consumed for self-generation of steam

0

MWh fuel consumed for self-generation of cooling

0

MWh fuel consumed for self-cogeneration or self-trigeneration

17,067

Emission factor

1.92

Unit

metric tons CO2e per metric ton

Emissions factor source

GHG Protocol for stationary combustion version 4.1

Comment

n/a

Fuels (excluding feedstocks)

Agricultural Waste

Heating value

LHV (lower heating value)

Total fuel MWh consumed by the organization

5,644,997

MWh fuel consumed for self-generation of electricity

0

MWh fuel consumed for self-generation of heat

0

MWh fuel consumed for self-generation of steam

0

MWh fuel consumed for self-generation of cooling

0

MWh fuel consumed for self-cogeneration or self-trigeneration

5,644,997

Emission factor

1.18

Unit

metric tons CO₂e per metric ton

Emissions factor source

GHG Protocol for stationary combustion version 4.1

Comment

n/a

Fuels (excluding feedstocks)

Biogas

Heating value

LHV (lower heating value)

Total fuel MWh consumed by the organization

993,417

MWh fuel consumed for self-generation of electricity

0

MWh fuel consumed for self-generation of heat

0

MWh fuel consumed for self-generation of steam

0

MWh fuel consumed for self-generation of cooling

0

MWh fuel consumed for self-cogeneration or self-trigeneration

993,417

Emission factor

2.48

Unit

metric tons CO₂ per metric ton

Emissions factor source

GHG Protocol for stationary combustion version 4.1

Comment

n/a

Fuels (excluding feedstocks)

Charcoal

Heating value

LHV (lower heating value)

Total fuel MWh consumed by the organization

47,751

MWh fuel consumed for self-generation of electricity

0

MWh fuel consumed for self-generation of heat

0

MWh fuel consumed for self-generation of steam

0

MWh fuel consumed for self-generation of cooling

0

MWh fuel consumed for self-cogeneration or self-trigeneration

47,751

Emission factor

3.5

Unit

kg CO2e per metric ton

Emissions factor source

GHG Protocol for stationary combustion version 4.1

Comment

n/a

C8.2d

(C8.2d) Provide details on the electricity, heat, steam, and cooling your organization has generated and consumed in the reporting year.

	Total Gross generation (MWh)	Generation that is consumed by the organization (MWh)	Gross generation from renewable sources (MWh)	Generation from renewable sources that is consumed by the organization (MWh)

Electricity	7,193,686	6,629,552	2,885,740	2,321,606
Heat	160,873	160,873	17,066	17,066
Steam	9,470,789	9,470,789	3,316,580	3,316,580
Cooling	2,841,237	2,841,237	994,974	994,974

C9. Additional metrics

C9.1

(C9.1) Provide any additional climate-related metrics relevant to your business.

C10. Verification

C10.1

(C10.1) Indicate the verification/assurance status that applies to your reported emissions.

	Verification/assurance status
Scope 1	No third-party verification or assurance
Scope 2 (location-based or market-based)	No third-party verification or assurance
Scope 3	No emissions data provided

C10.2


(C10.2) Do you verify any climate-related information reported in your CDP disclosure other than the emissions figures reported in C6.1, C6.3, and C6.5?

Yes

C10.2a

(C10.2a) Which data points within your CDP disclosure have been verified, and which verification standards were used?

Disclosure module verification relates to	Data verified	Verification standard	Please explain
C4. Targets and performance	Year on year emissions intensity figure	Palm Oil Innovation Group (POIG) ; Roundtable on	Both target (55% emission intensity reduction by 2025) and emissions intensity baseline (2006) have been verified through POIG verification.

		Sustainable Palm Oil (RSPO)	 1
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 1Musim-Mas-Sustainability-Report-2019.pdf

C11. Carbon pricing

C11.1

(C11.1) Are any of your operations or activities regulated by a carbon pricing system (i.e. ETS, Cap & Trade or Carbon Tax)?

No, and we do not anticipate being regulated in the next three years

C11.2

(C11.2) Has your organization originated or purchased any project-based carbon credits within the reporting period?

No

C11.3

(C11.3) Does your organization use an internal price on carbon?

No, and we do not currently anticipate doing so in the next two years

C12. Engagement

C12.1

(C12.1) Do you engage with your value chain on climate-related issues?

Yes, our suppliers

Yes, our customers

Yes, other partners in the value chain

C12.1a

(C12.1a) Provide details of your climate-related supplier engagement strategy.

Type of engagement

Compliance & onboarding

Details of engagement

Included climate change in supplier selection / management mechanism

Code of conduct featuring climate change KPIs

Climate change is integrated into supplier evaluation processes

% of suppliers by number

100

% total procurement spend (direct and indirect)

100

% of supplier-related Scope 3 emissions as reported in C6.5

0

Rationale for the coverage of your engagement

We conduct due diligence on all new suppliers before the mill is accepted as our supplier. In the due diligence process, we also assess the commitment and implementation of emissions in the supplier's operation. Our suppliers are enrolled in our engagement process. All suppliers can approach us on climate-related issues. We actively engage with all suppliers, especially high-risk suppliers. Method of engagement includes but is not limited to grievance channels, one-to-one communication, workshops on NDPE commitments, Musim Mas Self-Assessment Tool (SAT), and customised roadmaps. Additionally, we collaborate with the Consortium of Resource Experts (CORE) - Proforest and Daemeter – on implementing NDPE commitments, the Extension Services Programme and landscape collaborations.

Impact of engagement, including measures of success

Musim Mas conducts traceability exercises to understand where and how oil palm fruits or fresh fruit bunches (FFB) are produced, and whether it complies with our sustainability and NDPE policies. As of 2020, 97% of our suppliers either have an NDPE policy or adopted the Musim Mas Sustainability Policy. Furthermore, we have achieved 100% traceability to mill since 2015 and 83% traceability to plantation per December 2020.

Comment

Our suppliers are made aware of our Sustainability Policy, Sustainability Certification Schemes as well as GHG calculation requirement.

Type of engagement

Information collection (understanding supplier behavior)

Details of engagement

Collect climate change and carbon information at least annually from suppliers

% of suppliers by number

100

% total procurement spend (direct and indirect)

100

% of supplier-related Scope 3 emissions as reported in C6.5

0

Rationale for the coverage of your engagement

Our suppliers are required to complete the Musim Mas Self-Assessment Tool (SAT), an exhaustive set of questions against our NDPE requirements. This evaluation is carried out annually and enables suppliers to self-declare information about their operations and allows Musim Mas to identify potential risk areas at the mill level.

Impact of engagement, including measures of success

As of December 2020, 60% of our suppliers have completed their assessments. We will continue to socialise our SAT to our suppliers and support them accordingly.

Comment

Our suppliers are made aware of our Sustainability Policy, Sustainability Certification Schemes as well as GHG calculation requirement.

C12.1b

(C12.1b) Give details of your climate-related engagement strategy with your customers.

Type of engagement

Education/information sharing

Details of engagement

Run an engagement campaign to education customers about your climate change performance and strategy

% of customers by number

100

% of customer - related Scope 3 emissions as reported in C6.5

0

Please explain the rationale for selecting this group of customers and scope of engagement

One of the key pillars in our sustainability policy is to maintain responsible and enduring relationships with suppliers, customers and stakeholders. We maintain an open dialogue with our stakeholders and welcome constructive feedback to improve our operations. We strive to be transparent by keeping stakeholders informed on Group-wide matters. Information channels include our annual sustainability reports, website announcements, and the RSPO Annual Communication of Progress. We make information on all grievances publicly available and maintain an active social media presence to engage with our stakeholders online. We also continuously engage with our stakeholders to support identification and management of ESG topics, and their impacts, risks and opportunities

Impact of engagement, including measures of success

Musim Mas participates in several well-known public assessments and benchmarking programmes including CDP, SPOTT, Ecovadis, etc to share our sustainability progresses with external stakeholders such as customers. Through improvement in our sustainability practices, we ranked 6th out of 98 palm oil companies in the overall score of SPOTT (jumped from 11th in the previous year) in 2020. Additionally, we also annually disclose our sustainability progresses, achievements, and targets in our sustainability report.

C12.1d

(C12.1d) Give details of your climate-related engagement strategy with other partners in the value chain.

Musim Mas understands that multi-stakeholder collaboration is key in improving our sustainability policy and strengthening industry relationships to improve nationwide sustainability practices. For example, multi-stakeholder collaboration with Sambas District Government and Earthqualizer in Sambas landscape. Together with other stakeholders, Musim Mas aims to improve villages' and communities' economic livelihood. This includes supporting local communities on social forestry knowledge and capacity by providing access to local forest areas and land legalisation, establishing sustainable use and forest management practices, and establishing small business models to improve land use. These activities and initiatives are done in accordance with our sustainability and NDPE policies. Since its initiation in 2018, the social forestry programme at Sambas landscape has engaged 80 households in four villages: Sebusus, Kaliau, Sanatab, and Santaban. Other multi-stakeholder collaboration includes Aceh Tamiang Landscape project where Musim Mas collaborates with IDH (the Sustainable Trade Initiative), Government of Aceh, downstream actors (Unilever, PepsiCo, General Mills), local civil society organisations, Earthqualizer, and suppliers, including those outside our supply chain to have Aceh Tamiang verified as a deforestation-free and traceable commodities producer. For more information, please refer to <https://www.musimmas.com/sustainability/landscape/>.

Additionally, we also support and encourage our smallholders and third-party suppliers to pursue RSPO certification by providing Agri practices knowledge. As of December 2020, 2092 smallholders have become RSPO certified. By doing this, we can work towards eliminating all deforestation and ensuring traceability within our supply chains, thus ensuring compliance with our strict sourcing policies.

C-AC12.2/C-FB12.2/C-PF12.2

(C-AC12.2/C-FB12.2/C-PF12.2) Do you encourage your suppliers to undertake any agricultural or forest management practices with climate change mitigation and/or adaptation benefits?

Yes

C-AC12.2a/C-FB12.2a/C-PF12.2a

(C-AC12.2a/C-FB12.2a/C-PF12.2a) Specify which agricultural or forest management practices with climate change mitigation and/or adaptation benefits you encourage your suppliers to undertake and describe your role in the implementation of each practice.

Management practice reference number

MP1

Management practice

Knowledge sharing

Description of management practice

We frequently hold socialization with our FFB suppliers, in which we share our knowledge about good agricultural practices and environmental awareness.

Your role in the implementation

Knowledge sharing

Explanation of how you encourage implementation

We are collecting suppliers' data. These data will be used as a basis to effectively socialise toward the suppliers to achieve higher production rate, efficient usage of fertilizer. Using our own plantations as case study, we share that it is not necessary to use higher usage (i.e. fuel, water, fertilisers, pesticides, etc.) as long as good agricultural practices are implemented. The reduction in these usages will directly result in lower direct cost, which would be favorable by our suppliers. Method of engagement include but not limited to training and workshops on NDPE commitments, Musim Mas Self-Assessment Tool.

Climate change related benefit

Emissions reductions (mitigation)
Reduced demand for fossil fuel (adaptation)
Reduced demand for fertilizers (adaptation)
Reduced demand for pesticides (adaptation)

Comment

Reduction of agricultural inputs will directly translate to lower GHG emission.

Management practice reference number

MP2

Management practice

Diversifying farmer income

Description of management practice

We encourage our FFB suppliers to be RSPO and ISPO certified. RSPO certification could widen their market to reach big companies which require Sustainability Certification, such as RSPO. This could directly increase their income as RSPO certified FFBs has premium price.

Your role in the implementation

Procurement

Explanation of how you encourage implementation

Musim Mas fully supports and encourages our smallholders and third-party suppliers to pursue RSPO certification by providing Agri practices knowledge. As of 2020, 2092 smallholders have become RSPO certified.

Climate change related benefit

Emissions reductions (mitigation)

Comment

RSPO requires its smallholder members to identify their emission hotspot and establish mitigation plans to reduce the impact of identified hotspot.

C-AC12.2b/C-FB12.2b/C-PF12.2b

(C-AC12.2b/C-FB12.2b/C-PF12.2b) Do you collect information from your suppliers about the outcomes of any implemented agricultural/forest management practices you have encouraged?

Yes

C12.3

(C12.3) Do you engage in activities that could either directly or indirectly influence public policy on climate-related issues through any of the following?

- Direct engagement with policy makers
- Trade associations

C12.3a

(C12.3a) On what issues have you been engaging directly with policy makers?

Focus of legislation	Corporate position	Details of engagement	Proposed legislative solution
Mandatory carbon reporting	Support	We engage with the Indonesian Government and Indonesian Sustainable Palm Oil (ISPO) GHG Working Group to develop GHG emission calculation tool and implement it on the plantation level.	We support the continuation of this approach methodology for calculating GHG emissions to contribute more toward the environment.

C12.3b

(C12.3b) Are you on the board of any trade associations or do you provide funding beyond membership?

Yes

C12.3c

(C12.3c) Enter the details of those trade associations that are likely to take a position on climate change legislation.

Trade association

Rountable on Sustainable Palm Oil (RSPO)
Gabungan Pengusaha Kelapa Sawit Indonesia (GAPKI)
Gabungan Industri Minyak Nabati Indonesia (GIMNI)

Is your position on climate change consistent with theirs?

Consistent

Please explain the trade association's position

The trade associations are promoting sustainable palm oil.

How have you influenced, or are you attempting to influence their position?

We strive to promote sustainable practices and implementation to all stakeholders. Musim Mas also involves and placed its staff in the working groups of RSPO to help in shaping the policy of RSPO. Periodic review is conducted to keep the engagement within our climate change strategy framework.

C12.3f

(C12.3f) What processes do you have in place to ensure that all of your direct and indirect activities that influence policy are consistent with your overall climate change strategy?

Musim Mas participates in many public assessments and benchmarking programmes including CDP, Ecovadis, SPOTT, and PROPER to rate our sustainability commitments and progress at the highest level. One of the important aspects of the benchmark is through third-party certifications such as RSPO, ISCC, POIG, ISPO, etc which verify that audits have been conducted independently, thus, ensuring proper implementation and compliance to the principles and criteria of the respective sustainability certification schemes. Our operations are benchmarked annually against these certifications. Additionally, Musim Mas also involves and placed its staff in the working groups of RSPO to help in shaping the policy of RSPO. A periodic review is conducted to keep the engagement within our climate change strategy framework.

C12.4

(C12.4) Have you published information about your organization’s response to climate change and GHG emissions performance for this reporting year in places other than in your CDP response? If so, please attach the publication(s).

Publication

In voluntary sustainability report

Status

Underway – previous year attached

Attach the document

 Musim-Mas-Sustainability-Report-2019.pdf

Page/Section reference

Sustainability Approach (pg 23-26), Certification and verification (pg 29), Environmental Protection and enhancement (pg 34-45), Community Welfare (pg 47-52), Supply Chain (pg 57-76)

Content elements

Governance
Strategy
Risks & opportunities
Emissions figures
Emission targets
Other metrics

Comment

Musim Mas annually published our sustainability report. The upcoming SR2020 has yet to be published at the time of CDP submission.

C13. Other land management impacts

C-AC13.1/C-FB13.1/C-PF13.1

(C-AC13.1/C-FB13.1/C-PF13.1) Do you know if any of the management practices implemented on your own land disclosed in C-AC4.4a/C-FB4.4a/C-PF4.4a have other impacts besides climate change mitigation/adaptation?

Yes

C-AC13.1a/C-FB13.1a/C-PF13.1a

(C-AC13.1a/C-FB13.1a/C-PF13.1a) Provide details on those management practices that have other impacts besides climate change mitigation/adaptation and on your management response.

Management practice reference number

MP1

Overall effect

Positive

Which of the following has been impacted?

Biodiversity

Description of impact

We have established high conservation value (HCV) areas to protect and preserve biodiversity and as a part of the certification processes. The establishment of HCV area imparts a positive impact on the biodiversity of the area compared to areas without HCV. As of 2020, approximately 27,500 hectares have been set aside for conservation in our own operations and more than 6 million hectares are monitored daily covering most of our supplier's concessions. Through these monitoring systems, if our supplier is found to be noncompliant with the NDPE policy, we will engage with the supplier in question and implement our Controlled Purchase Protocol (CPP). In 2020, we have stopped sourcing from one supplier due to commitments breaches.

Have you implemented any response(s) to these impacts?

Yes

Description of the response(s)

Following our sustainability policy, Musim Mas's commitment to conserve and preserve both biodiversity and the environment has been long-standing and will only continue to become our utmost priorities. As a member of the Palm Oil Innovation Group (POIG), the Roundtable on Sustainable Palm Oil (RSPO), Indonesian Sustainability Palm Oil (ISPO), and International Sustainability and Carbon Certification (ISCC), Musim Mas pledge to No Deforestation of High Carbon Stock (HCS) forests, No Conversion of High Conservation Value (HCV) areas, No Developments on Peatlands regardless of depth, and No Burning policy. Through combination methods such as the Earthqualizer platform, RADD partnership, ground-truthing, and satellite, we monitor more than 6 million hectares. Furthermore, we also monitor hotspots and extreme weather on daily basis using data obtained from NOAA, MODIS and VIIRS to mitigate fire risk and floods in our concession and surroundings.

Management practice reference number

MP2

Overall effect

Positive

Which of the following has been impacted?

Soil

Description of impact

The implementation of Integrated Pest Management (IPM) to reduce reliance on pesticides and herbicides, thus, contributes to a lower soil ecotoxicity.

Have you implemented any response(s) to these impacts?

Yes

Description of the response(s)

We track the use of pesticides at our estates and monitor toxicity levels. We have found that our current range of 320-555 toxicity units per hectare is closely aligned with best practices in the palm oil industry.

Management practice reference number

MP3

Overall effect

Positive

Which of the following has been impacted?

Water

Description of impact

Our usage of N-fertilizer is decreased due to usage of organic fertilizer substitute. Therefore, this would reduce the eutrophication impact.

Have you implemented any response(s) to these impacts?

Yes

Description of the response(s)

In all plantation and mill processes, we implement the '4Rs' to manage waste: reduce, reuse, recycle, and recover. At our plantations, old palm tree fronds and trunks are mulched and applied as organic fertilizer. Additionally, dried decanter solids and boiler ash are applied at plantations as organic fertiliser and POME is treated and applied to land as irrigation.

C-AC13.2/C-FB13.2/C-PF13.2

(C-AC13.2/C-FB13.2/C-PF13.2) Do you know if any of the management practices mentioned in C-AC12.2a/C-FB12.2a/C-PF12.2a that were implemented by your suppliers have other impacts besides climate change mitigation/adaptation?

Yes

C-AC13.2a/C-FB13.2a/C-PF13.2a

(C-AC13.2a/C-FB13.2a/C-PF13.2a) Provide details of those management practices implemented by your suppliers that have other impacts besides climate change mitigation/adaptation.

Management practice reference number

MP1

Overall effect

Positive

Which of the following has been impacted?

Soil

Water

Description of impacts

Through sharing knowledge of best Agriculture practices, our suppliers become more efficient toward the usage of fertilizer, pesticides, etc. The reduction in both fertilizers and pesticides would lower the eutrophication and ecotoxicity impact.

Have any response to these impacts been implemented?

Yes

Description of the response(s)

We are collecting suppliers' usage data. These data will be used as a basis to effectively socialise toward suppliers to achieve higher production rates, efficient usage of fertilizer, etc. Using our own plantations as a case study, we share that it is not necessary to use higher usage (i.e. fuel, water, fertilisers, pesticides, etc.) as long as good agricultural practices are implemented. The reduction in these usages will directly result in lower direct cost, which would be favourable by our suppliers. Method of engagement includes but is not limited to training and workshops on NDPE commitments, Musim Mas Self-Assessment Tool.

C15. Signoff

C-FI

(C-FI) Use this field to provide any additional information or context that you feel is relevant to your organization's response. Please note that this field is optional and is not scored.

n/a

C15.1

(C15.1) Provide details for the person that has signed off (approved) your CDP climate change response.

	Job title	Corresponding job category
Row 1	Director of Sustainable Supply Chain	Other, please specify Director of Sustainable Supply Chain

SC. Supply chain module

SC0.0

(SC0.0) If you would like to do so, please provide a separate introduction to this module.

Dear Customers,

Please refer to our website (www.musimmas.com) for latest update of our business. Most the information requested in supply chain module are available in our Sustainability Report, Sustainability Policy, Sustainability Journal, and many different sections on our website that can be accessed publicly. We herewith encourage you to check our website to get latest information and updates on business and development.

SC0.1

(SC0.1) What is your company's annual revenue for the stated reporting period?

	Annual Revenue
Row 1	0

SC0.2

(SC0.2) Do you have an ISIN for your company that you would be willing to share with CDP?

No

SC1.1

(SC1.1) Allocate your emissions to your customers listed below according to the goods or services you have sold them in this reporting period.

SC1.2

(SC1.2) Where published information has been used in completing SC1.1, please provide a reference(s).

n/a

SC1.3

(SC1.3) What are the challenges in allocating emissions to different customers, and what would help you to overcome these challenges?

Allocation challenges	Please explain what would help you overcome these challenges
Diversity of product lines makes accurately accounting for each product/product line cost ineffective	We are striving to allocating emissions to different customers.

SC1.4

(SC1.4) Do you plan to develop your capabilities to allocate emissions to your customers in the future?

Yes

SC1.4a

(SC1.4a) Describe how you plan to develop your capabilities.

We would need to engage our customers and obtain necessary information on their business and product lines.

SC2.1

(SC2.1) Please propose any mutually beneficial climate-related projects you could collaborate on with specific CDP Supply Chain members.

SC2.2

(SC2.2) Have requests or initiatives by CDP Supply Chain members prompted your organization to take organizational-level emissions reduction initiatives?

No

SC4.1

(SC4.1) Are you providing product level data for your organization's goods or services?

No, I am not providing data

Submit your response

In which language are you submitting your response?

English

Please confirm how your response should be handled by CDP

	I am submitting to	Public or Non-Public Submission	Are you ready to submit the additional Supply Chain questions?
I am submitting my response	Investors Customers	Public	Yes, I will submit the Supply Chain questions now

Please confirm below

I have read and accept the applicable Terms