

PT Musim Mas - Climate Change 2019

C0. Introduction

C0.1

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

Headquartered in Singapore, Musim Mas is one of the world's biggest players in the palm oil industry. Our business is involved with every part of the palm oil supply chain: from managing plantations and mills to refining crude palm oil and manufacturing palm-based products, supported by an extensive fleet of ship tankers and barges that enhances our logistical capability. We have 37,000 employees in 13 countries across Asia Pacific, Europe, and the Americas, committed to meeting global palm oil demand in an environmentally, socially and economically viable way. Our global marketing activities are undertaken by Inter-Continental Oils & Fats (ICOF) - a member of Musim Mas Group.

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	Select the number of past reporting years you will be providing emissions data for
Row 1	January 1 2018	December 31 2018	No	<Not Applicable>

C0.3

(C0.3) Select the countries/regions 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 consolidation approach to your Scope 1 and Scope 2 greenhouse gas 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	Own land only [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

Palm Oil and its derivatives have wide application of use, which render difficulty in tracing the final use, waste disposal and end of life treatment.

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

Our business activities run the gamut of the palm oil supply chain: o Managing oil palm plantations to produce fresh fruit bunch (FFB) 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
Other, please specify (Head of Department)	Director of Sustainability who is in charge of the sustainability strategy, sustainability certification and sustainability issues. Director of Sustainability reports directly to President Director

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	Climate change, sustainability and GHG emission reductions are important to Musim Mas. These issues are integrated into Musim Mas business strategy and daily operations. These issues are frequently discussed and set as an agenda through a Quarterly Meeting. Quarterly meeting is a discussion platform among the Board, Directors and Head of Departments to discuss all the progression of ongoing project and matters, including climate change, sustainability and GHG emission reduction issues. This including reviewing and guiding strategy, major plans of action, risk management policies, annual budgets, business plans and so on. Director of Sustainability together with the other Sustainability Team will brief the board on all the sustainability issues on environment as well as social, including the climate-related issues and GHG emissions reduction. After that the results of discussions and action plan will be shared and communicated to all relevant departments so the message can be 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
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

It is a combination of management level from various departments within Musim Mas such as Sustainability department, Strategy and Planning department, Estate department, Processing department, Corporate General Affair Department, Corporate Communication Department, Production Planning Inventory and Control Department, Corporate Safety Health Environment and Quality - Development and Implementation Department. The committee frequently report to the President Director regarding sustainability, climate and GHG emission reduction issues.

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

Musim Mas has adopted several sustainability certification and verification schemes, such as Roundtable Sustainable Palm Oil (RSPO), International Sustainability & Carbon Certification (ISCC), Palm Oil Innovation Group (POIG), Indonesian Sustainable Palm Oil (ISPO), Italian National Sustainability Certification System (ITSNC / INS) and etcetera. All those schemes focus on the climate-related issues and sustainable practice. The Sustainability committee is a combination of various departments along the supply chain who are responsible to monitor the development regarding sustainability and climate issues, assess any risks and opportunities and implement and manage sustainability and climate programs as well as maintain conformity with all the certification and verification schemes as well as our Sustainability Policy at all stages of the supply chain.

iii.) Specific responsibilities of every committee with regard to the assessment and management of climate related issues

The Sustainability committee is a combination of various departments along the supply chain who are responsible to monitor the development regarding sustainability and climate issues, assess any risks and opportunities and implement and manage sustainability and climate programs as well as maintain conformity with 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?

Yes

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).

Who is entitled to benefit from these incentives?

All employees

Types of incentives

Monetary reward

Activity incentivized

Emissions reduction project

Comment

In current business environment, proper climate change management is integral to the performance of the company. Musim Mas awares that the vision and mission on Sustainability must be shared and conveyed to all level of staffs so all staffs can share the same goals with the company and take part on the realization process. Monetary incentives are awarded based on performance. In addition, Musim Mas encourages staffs to come up with an improvement idea and submit a project to reduce emissions for daily operation to be reviewed and considered by the management level. Management level will deliberate with board level on the idea and project submitted by the staff. In return, the staff will be rewarded monetarily (cash, holiday trip, electronics).

Who is entitled to benefit from these incentives?

Other, please specify (Raw Material Suppliers)

Types of incentives

Monetary reward

Activity incentivized

Supply chain engagement

Comment

In current business environment, proper climate change management is integral to the performance of the company. Musim Mas is aware that the vision and mission on Sustainability must be shared and conveyed to all stakeholders including our raw material suppliers i.e. smallholders or small farmers supplying raw material for our production. We encourage and engage small farmers, educating them on Sustainable Practices in order to reduce the risk of climate change. We help and facilitate our scheme smallholders to obtain Sustainability Certification and Verification and is thus directly linked to their earning. For example : a sustainability certified raw material would have better price in the market nowadays, rather than those raw material without sustainability certificate. When the farmers receive more earnings they have more access to better education for their children, better access to health

Who is entitled to benefit from these incentives?

All employees

Types of incentives

Monetary reward

Activity incentivized

Other, please specify (Serving NDPE Market and Emission Reduction Target)

Comment

In current business environment, proper climate change management is integral to the performance of the company and is thus indirectly linked to the size of the annual bonus that is distributed to the employees. For example, NDPE market is emerging these days and many customers are operating in such market demanding producers to follow standards of Sustainability. There is an increasing demand for the suppliers that are comply with NDPE policy, which enable the production of sustainable and low emission products, which generate more revenue for the company, which indirectly has positive impact on employees' income.

C2. Risks and opportunities

C2.1

(C2.1) Describe what your organization considers to be short-, medium- and long-term horizons.

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

C2.2

(C2.2) Select the option that best describes how your organization's processes for identifying, assessing, and managing climate-related issues are integrated into your overall risk management.

Integrated into multi-disciplinary company-wide risk identification, assessment, and management processes

C2.2a

(C2.2a) Select the options that best describe your organization's frequency and time horizon for identifying and assessing climate-related risks.

	Frequency of monitoring	How far into the future are risks considered?	Comment
Row 1	Six-monthly or more frequently	>6 years	

C2.2b

(C2.2b) Provide further details on your organization's process(es) for identifying and assessing climate-related risks.

i.) How climate-related risks are identified and assessed at a company level and asset level

The palm oil sector is linked to different sustainability challenges and had come under scrutiny in the past few years. In view of that, we have developed a mechanism to keep abreast of the new developments regarding sustainability in the oil palm industry. The approach to identify and assessed risk are as follow:

- The sustainability committee which comprises of various departments is to collect and obtain all relevant news and information from external as well as internal such as climate related topics, environmental topics, social topics, emission reduction topics and the overall sustainability topics. All relevant informations will be shared and discussed with related departments to eventually come up with necessary action plans, recommendations and decisions and reported to the board level.

- The sustainability committee is to conduct risk analysis at asset level based on our Sustainability Policy and all Certification and Verification Standards relevant for the respective asset. All relevant informations will be shared and discussed with related departments to eventually come up with necessary action plans, recommendations and decisions and reported to the board level.

- At asset level, the risk is identified and assessed using developed checklist. The asset level management will report to senior management to be processed further at the Sustainability committee.

ii.) Definition of substantive financial or strategic impact on our business

Musim Mas defines substantive impact as either:

- o Forcing a change in our normal operation
- o Increase our own production cost by at least 10%
- o Reduce our avenue by at least 10%
- o Forcing us to switch suppliers

C2.2c

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

	Relevance & inclusion	Please explain
Current regulation	Relevant, always included	We and all our suppliers must comply with applicable national and/or local laws and regulations especially those related but not limited to labour, health and safety, natural environment and local communities. Regulation is relevant for us and will always included and considered for climate-related risk assessments.
Emerging regulation	Relevant, always included	There are risks in changes in regulation (for example: the ban of the use of palm oil in European Biodiesel by 2030). This is an emerging regulation we constantly monitors and considers in the risk assessment.
Technology	Relevant, always included	There are risks in the relatively new technology which we have implemented to tackle climate change may fail (for example: methane capture technology). This risk is always included in our risk assessment.
Legal	Relevant, always included	Legal is an important aspect in our business and operations. We must comply with the relevant legal in the country we are operating. Legal is relevant for us and will always included and considered for climate-related risk assessments.
Market	Relevant, always included	The ever changing market and public opinion driven by NGO's campaign poses a risk to our business. This is always included in our risk assessment.
Reputation	Relevant, always included	There are risks that we may be targeted by an NGO campaign and take reputational hit. This risk is always included in our risk assessment.
Acute physical	Relevant, always included	Acute physical risks such as extreme drought and flood can greatly reduce oil palm yield. This risk is always included in our risk assessment.
Chronic physical	Relevant, always included	Chronic physical risks for example: increased temperature may cause disruption in oil palm production. This risk is always included in our risk assessment.
Upstream	Relevant, always included	In the ever changing industry there is risk that our suppliers may fail to keep up. This risk is always included in our risk assessment.
Downstream	Relevant, always included	Customers requirement is changing with new development in the field of sustainability. We have to keep up with the change. This risk is always included in our risk assessment.

C2.2d

(C2.2d) Describe your process(es) for managing climate-related risks and opportunities.

A communication and team meeting is conducted every month among all relevant departments to reflect on the information on risks and opportunities and assign particular projects to teams when the risk are being assessed as high risk or opportunities are identified which should be capitalized on.

On a six monthly basis the board will assess outcomes of particular projects and set targets where possible or address technical matters if needed. Also risk assessment are done on the third party supply chain regarding sustainability. This information is used to help us update our risk profile and identify opportunities

At asset level, the risk and opportunity is monitored and reported to the management. The asset level management will report to senior management during the Quarterly Meeting at the headquarter.

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

Physical risk

Primary climate-related risk driver

Acute: Increased severity of extreme weather events such as cyclones and floods

Type of financial impact

Increased production costs due to changing input prices (e.g., energy, water) and output requirements (e.g., waste treatment)

Company- specific description

Increased severity of extreme weather events such as prolonged drought and flooding may reduce oil palm yield. Some study showed that 10-30% drop in production can be expected. This will decrease our production and revenue.

Time horizon

Long-term

Likelihood

About as likely as not

Magnitude of impact

Medium

Are you able to provide a potential financial impact figure?

No, we do not have this figure

Potential financial impact figure (currency)

<Not Applicable>

Potential financial impact figure – minimum (currency)

<Not Applicable>

Potential financial impact figure – maximum (currency)

<Not Applicable>

Explanation of financial impact figure

Reduced revenue from reduced production can be significant. Reduction in production can be expected due to drought and flooding.

Management method

The company has been implementing best management practices to alleviate the impact of drought and flood such as: 1. Improve soil management by recycling back cut fronds and organic waste from palm oil mill such as EFB and decanter to improve the soil moisture retention capacity and to ameliorate the drought effects. 2. Install and maintain proper drainage to better deal with flood waters. 3. Research drought or flood resistant varieties of oil palm. These activities have been implemented since a few years ago and are expected to continue in the future. They are expected to help the company to better deal with drought and flooding condition. Improved moisture retention due to biomass application help provide buffer for the palms during drought while the improved drainage will help to reduce the incidence and severity of flooding during wet months.

Cost of management

Comment

Identifier

Risk 2

Where in the value chain does the risk driver occur?

Direct operations

Risk type

Transition risk

Primary climate-related risk driver

Policy and legal: Enhanced emissions-reporting obligations

Type of financial impact

Increased operating costs (e.g., higher compliance costs, increased insurance premiums)

Company- specific description

GHG emission calculation and reporting is becoming integral to the sustainability appraisal of a company. In our case, we have to calculate the GHG emissions of our upstream operations to comply with various sustainability certifications such as POIG, RSPO, ISCC, ISPO, Italian National Standard (INS) etc. It is expected that more emission reporting will be required in the future for example: Singapore in 2017 required GHG emission calculation and reporting for all sites which emitted more than 25,000 tCO₂ per year. Other countries (such as Indonesia and Malaysia) which currently do not have this requirement may follow suit. This means more resources need to be allocated to calculate and report GHG emission.

Time horizon

Short-term

Likelihood

Likely

Magnitude of impact

Medium

Are you able to provide a potential financial impact figure?

No, we do not have this figure

Potential financial impact figure (currency)

<Not Applicable>

Potential financial impact figure – minimum (currency)

<Not Applicable>

Potential financial impact figure – maximum (currency)

<Not Applicable>

Explanation of financial impact figure

Increased operational cost because more resources need to be allocated to calculate and report GHG emission. There is also risk that some of our supplier may not be able to comply with the requirement and we have to find a new supplier.

Management method

- Establish a standardized GHG data collection system - Provide training to staffs on GHG calculation methods - Engage with suppliers and provide training to them on GHG calculation methods

Cost of management**Comment****Identifier**

Risk 3

Where in the value chain does the risk driver occur?

Direct operations

Risk type

Transition risk

Primary climate-related risk driver

Market: Changing customer behavior

Type of financial impact

Reduced demand for goods and/or services due to shift in consumer preferences

Company- specific description

Changes in consumer preferences in the future may affect the sale of our main products: palm oil and its derivatives. There is an ongoing campaign in Europe which aim to reduce and ultimately displace the use of palm oil. On the other hand there is a more benign campaign to promote the use of sustainable and certified palm oil instead of displacing palm oil entirely. The impact on our business will vary depending on the outcome of those campaigns.

Time horizon

Short-term

Likelihood

More likely than not

Magnitude of impact

Medium-high

Are you able to provide a potential financial impact figure?

No, we do not have this figure

Potential financial impact figure (currency)

<Not Applicable>

Potential financial impact figure – minimum (currency)

<Not Applicable>

Potential financial impact figure – maximum (currency)

<Not Applicable>

Explanation of financial impact figure

Financial impact of the changing consumer behavior can range from relatively mild to severe. If the European consumer shift to demanding sustainable and certified palm oil, the impact will be milder than if the consumer reject palm oil entirely. In the former, the financial impact will be limited to the certification cost (and the cost of change in operation to comply with certifications) and supplier engagement cost. In the latter, the financial impact will be severe due to the loss of our major market.

Management method

- Engage in positive palm oil campaign - Certification of our operations - Engagement with suppliers to push them to certify their operations - Explore new market opportunities

Cost of management**Comment**

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

Type of financial impact

Increased revenue through demand for lower emissions products and services

Company-specific description

Changes in renewable regulations may result in an opportunity to create a niche and better premium for products that has the lowest emission. Our company has installed various emission reduction technologies and is in a good position to exploit it.

Time horizon

Short-term

Likelihood

Likely

Magnitude of impact

Medium

Are you able to provide a potential financial impact figure?

No, we do not have this figure

Potential financial impact figure (currency)

<Not Applicable>

Potential financial impact figure – minimum (currency)

<Not Applicable>

Potential financial impact figure – maximum (currency)

<Not Applicable>

Explanation of financial impact figure

Increased revenue from sale of premium low emission palm oil products

Strategy to realize opportunity

- Install GHG emission reduction technologies such as methane capture - Obtain the necessary certification

Cost to realize opportunity**Comment**

Identifier

Opp2

Where in the value chain does the opportunity occur?

Direct operations

Opportunity type

Markets

Primary climate-related opportunity driver

Other

Type of financial impact

Other, please specify (Reputation)

Company-specific description

Climate change has created more awareness among the stakeholders as well in relation to palm oil which can reflect in different ways on the industry. However, there is also an opportunity to establish the reputation of Musim Mas as a supplier of certified sustainable palm oils and palm products.

Time horizon

Medium-term

Likelihood

Likely

Magnitude of impact

Medium

Are you able to provide a potential financial impact figure?

No, we do not have this figure

Potential financial impact figure (currency)

<Not Applicable>

Potential financial impact figure – minimum (currency)

<Not Applicable>

Potential financial impact figure – maximum (currency)

<Not Applicable>

Explanation of financial impact figure

Better sales environment and potential premiums for sustainable and low emission products will increase revenue and profit

Strategy to realize opportunity

- Create and implement Musim Mas Sustainability Policy. - Publicize the progress of the implementation of Musim Mas Sustainability Policy (for example: through Musim Mas website, Musim Mas Sustainability report following GRI Standard etc). - Raise the profile of Musim Mas as sustainable supplier in the public (for example: reporting through CDP, publish Musim Mas Sustainability report following GRI Standard etc). - Adopt various sustainability certification and verification schemes, such as RSPO, ISCC, POIG and ISPO.

Cost to realize opportunity

Comment

Identifier

Opp3

Where in the value chain does the opportunity occur?

Direct operations

Opportunity type

Products and services

Primary climate-related opportunity driver

Other

Type of financial impact

Other, please specify (Change in precipitation pattern)

Company-specific description

Climate change may cause a change in precipitation pattern resulting in previously dry area to become wet area. The increase in moisture level could enable planting of oil palm where soils and other conditions are suitable. This provides opportunity for expansion of oil palm into these new areas.

Time horizon

Long-term

Likelihood

Very unlikely

Magnitude of impact

Medium-high

Are you able to provide a potential financial impact figure?

No, we do not have this figure

Potential financial impact figure (currency)

<Not Applicable>

Potential financial impact figure – minimum (currency)

<Not Applicable>

Potential financial impact figure – maximum (currency)

<Not Applicable>

Explanation of financial impact figure

More production and revenue from expansion in new area

Strategy to realize opportunity

Engaging with government to build land bank in area which is showing a trend in precipitation increase

Cost to realize opportunity

Comment

C2.5

(C2.5) Describe where and how the identified risks and opportunities have impacted your business.

	Impact	Description
Products and services	Impacted	We have to make changes in how we produce our products to mitigate the climate related risks and exploit climate related opportunities
Supply chain and/or value chain	Impacted	Our Supply chain have been impacted by climate related risks and opportunities. We have engaged with our suppliers to change their operation into a more climate resilient model. We have also altered our sourcing pattern by leaving out suppliers which have not taken action to mitigate climate risks.
Adaptation and mitigation activities	Impacted	The study of the risks and opportunities revealed new adaptation and mitigation activities which can be adopted.
Investment in R&D	Impacted	The climate related risks and opportunities has altered our focus in research and development.
Operations	Impacted	To mitigate the climate related risks and exploit climate related opportunities, we have changed our operations. For example: we have installed methane capture systems in our operations.
Other, please specify	Please select	

C2.6

(C2.6) Describe where and how the identified risks and opportunities have been factored into your financial planning process.

	Relevance	Description
Revenues	Impacted	Many of the risks and opportunities identified above will have impact on our revenue. For example changes in consumer preferences in the future may affect the sale of our main products: palm oil and its derivatives. This will affect our revenue.
Operating costs	Impacted	Some of the risks and opportunities identified above will have impact on our operating cost. For example: enhanced emission reporting obligation will increase our operating cost.
Capital expenditures / capital allocation	Impacted	To mitigate some of the risks and to capitalize on some of the opportunities, we have to change our capital allocations. For example: We have to allocate capital to build methane capture systems in our mills to reduce our GHG emission.
Acquisitions and divestments	Impacted	The climate related risks have altered our acquisitions and divestments strategy. We now have to stay away from acquiring companies or land which are deemed to have high climate related risks. For example: if a piece of land is heavily forested, we will pass on acquiring it.
Access to capital	Impacted	Banks and financial institution have now buy into the climate change concept and as a result we expect to have harder time securing funding if we do not manage our climate risks.
Assets	Impacted	The physical risks such as extreme weather condition (flooding and drought) poses a threat to our assets (our plantations)
Liabilities	Impacted	Climate related risks may cause major financial damage which will affect our ability to repay our liabilities
Other	Please select	

C3. Business Strategy

C3.1

(C3.1) Are climate-related issues integrated into your business strategy?

Yes

C3.1a

(C3.1a) Does your organization use climate-related scenario analysis to inform your business strategy?

No, but we anticipate doing so in the next two years

C-AC3.1b/C-CE3.1b/C-CH3.1b/C-CO3.1b/C-EU3.1b/C-FB3.1b/C-MM3.1b/C-OG3.1b/C-PF3.1b/C-ST3.1b/C-TO3.1b/C-TS3.1b

(C-AC3.1b/C-CE3.1b/C-CH3.1b/C-CO3.1b/C-EU3.1b/C-FB3.1b/C-MM3.1b/C-OG3.1b/C-PF3.1b/C-ST3.1b/C-TO3.1b/C-TS3.1b)

Indicate whether your organization has developed a low-carbon transition plan to support the long-term business strategy.

Yes

C3.1c

(C3.1c) Explain how climate-related issues are integrated into your business objectives and strategy.

i.) A company-specific explanation of how business objectives and strategy have been influenced by climate-related issues

Climate change and awareness of it require us to address this on a global and holistic level and on a way which enhances our sustainability value. Climate change has necessitated a re-examination of our business strategy especially in expansion and procurement. For example, the emergence of sustainability certifications and concepts such as RSPO, ISCC, High conservation value (HCV), High carbon stock (HCS) etc and the need to adapt to the market demand which increasingly require adherence to those certifications and concepts drove us to change our expansion strategy. Before the discussion of climate change and sustainability came into the picture, the land acquisition and new planting process only considered legal (including environmental legal requirement), agronomical, economical and logistical consideration. With the advent of climate change and sustainability concept, all land acquisition and new planting process must now also consider extra legal environmental issues such as conservation of high conservation value (HCV) area, conservation of high carbon stock (HCS) area, adoption of NDPE policy (no deforestation, peat, exploitation) and sustainable certification.

Overall, sustainability has greatly enhanced our business strategy. Customers are starting to demand products which can be traced back to source as well as products with high sustainability value (sometimes paying premium for such products). Governments around the world have also started to address sustainability in supply chain by regulations or other means (e.g EU RED, ISPO etc). Other stakeholders have also highlighted concerns which link to the media campaigns reflecting on the sustainability value of the product which can cause a significant reputation risk.

The sustainability and climate change requirement is evolving and our strategy is also evolving to adapt to the changes. In the short term, this means keeping abreast of the new development and getting ourselves certified. In the long term, Musim Mas aims to lead in sustainability and has released Musim Mas Sustainability Policy (<http://www.musimmas.com/sustainability/sustainability-policy>). Musim Mas is also participating actively in many sustainability working groups to help shape the policy. We believe that by adapting early to change and in some cases leading the change, we will benefit by being able to provide innovative products and solutions which are not widely available in the market.

ii.) How our business strategy is linked to an emission reductions target or energy reduction target

Consumers' awareness of climate change has shifted market demand for more environment-friendly products. This issue has driven us to set a target to reduce our emission in order to conform with all the sustainability certification and verification scheme adopted by Musim Mas. POIG and ISCC are two examples of sustainability standards adopted by Musim Mas with emission reduction target must be fulfilled.

iii.) The most substantial business decision made during the reporting year that have been influenced by the climate change

Musim Mas has published its first Sustainability Report in 2018, it is a progress report on Sustainable practices and implementation in Musim Mas.

In 2018, Musim Mas was committed to obtain 'PROPER HIJAU' achievement for the very first time for 11 of its mills, a government beyond-compliance program that required companies to further improve their environment performances, such as water and energy usage reduction, emissions reduction, proper disposal of waste, community empowerment, and biodiversity conservation. In 2019, Musim Mas has successfully obtained 'PROPER HIJAU'. We are continuously working towards obtaining "PROPER EMAS", which is the highest level of the government beyond-compliance program.

C-AC3.1e/C-CE3.1e/C-CH3.1e/C-CO3.1e/C-EU3.1e/C-FB3.1e/C-MM3.1e/C-OG3.1e/C-PF3.1e/C-ST3.1e/C-TO3.1e/C-TS3.1e

i.) Implementation target and the timeframe

Musim Mas has set a target of 55% GHG emission intensity reduction by 2025 compared to 2006's. Since then, Musim Mas has implemented various emission reduction strategies to achieved the target.

ii.) Progress tracking and monitoring to ensure the success of climate-related target

Musim Mas calculates its GHG emission to keep track on the company's performance in achieving the target set and actively implemented new emission reduction strategies to ensure the success of the target achievement.

iii.) Steps taken to implement a low-carbon transition plan

We have implemented various emission reduction strategies.

1. We have installed methane capture in all of our palm oil mills
2. We are replacing the use of fossil diesel in our vehicles with biodiesel
3. We have implemented RSPO best management practices on our existing peat area which reduces peat GHG emission
4. We have implemented integrated pest management to reduce the use of mineral fertiliser
5. We have adopted NDPE policy (No Deforestation, Peat, Exploitation)

C3.1g

(C3.1g) Why does your organization not use climate-related scenario analysis to inform your business strategy?

We are not familiar with climate-related scenario analysis. Once we have studied it and other available options, we may implement one in the future.

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

Scope

Other, please specify (Life Cycle Analysis (product-based emission analysis))

% emissions in Scope

100

Targeted % reduction from base year

55

Metric

Metric tons CO2e per metric ton of product

Base year

2006

Start year

2016

Normalized base year emissions covered by target (metric tons CO2e)

5.96

Target year

2025

Is this a science-based target?

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

% of target achieved

96

Target status

Underway

Please explain

Musim Mas Group is committed to Palm Oil Innovation (POIG) Charter which requires GHG emission enumeration, reduction and setting of a reduction target. The 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 twelve Musim Mas Group RSPO certified mills. Musim Mas has set a group emission reduction target of 55% in 2025 compared to baseline year, 2006. In 2018, Musim Mas has achieved 53% reduction compared to 2006. This decline in emission intensity is the culmination of our emission reduction activities, such as cessation of new planting on peat and high carbon stock area, installation of methane capture, shift fossil fuel usage to biofuel, integrated pest management practices to reduce pesticide usage. Moreover, Musim Mas also strive to keep improving the oil yield to further lower the emission intensity.

% change anticipated in absolute Scope 1+2 emissions

0

% change anticipated in absolute Scope 3 emissions

0

C4.2

(C4.2) Provide details of other key climate-related targets not already reported in question C4.1a/b.

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 CO2e savings in metric tonnes CO2e (only for rows marked *)
Under investigation	0	0
To be implemented*	1	16263.47
Implementation commenced*	0	0
Implemented*	14	687686.91
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 type

Fugitive emissions reductions

Description of initiative

Agriculture methane capture

Estimated annual CO2e savings (metric tonnes CO2e)

703950.38

Scope

Scope 1

Voluntary/Mandatory

Voluntary

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

8000000

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

45000000

Payback period

4 - 10 years

Estimated lifetime of the initiative

21-30 years

Comment

Palm Oil Mill Effluent (POME) is the main liquid waste of the milling process. It has very high concentration of Biological Oxygen Demand (BOD), chemical oxygen demand (COD) and various solids which make it undesirable and illegal to dispose without proper treatment. POME is conventionally treated in large open lagoons which rely on anaerobic bacteria to break down the organic matters in the wastewater. POME is the main source of emission in the mill operation, contributing up to 95% of the total mill emission as this process releases a huge amount of biogenic methane, a greenhouse gas that is 22.25 times more potent than carbon dioxide (Gan et al, 2018; IPCC, 2007). In order to overcome the large emission of POME, Musim Mas has installed methane captures to reduce the emission from mill operation by capturing the methane from POME. In 2018, this process had saved 624,778.74 tCO2e of GHG emission. Moreover, the methane captured can be utilized as gas engine feed to generate electricity. The electricity generated will then be sent to workers' housing and national grid. The electricity generation will provide emission credit that will further reduce emission of mill operation. In 2018, Musim Mas generated 97,840,611 kWh of electricity from methane captures installed in palm oil mills. This is equivalent to avoidance of 79,171.64 tCO2e if the same amount of electricity was to be generated by national grid.

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	Musim Mas provide a dedicated budget for emission reduction activities such as methane capture from palm oil mill effluent (POME)

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

(C-AC4.4/C-FB4.4/C-PF4.4) Do you implement 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

A land use planning following Sustainability Policy and all sustainability schemes adopted by Musim Mas are conducted before any new planting to identify land with high conservation value, high carbon stock and riparian areas which will be avoided

Primary climate change-related benefit

Emission reductions (mitigation)

Estimated CO₂e savings (metric tons CO₂e)

Please explain

A land use planning following Sustainability Policy and all sustainability schemes adopted by Musim Mas are conducted before any new planting to identify land with high conservation value and high carbon stock which will be avoided

Management practice reference number

MP2

Management practice

Integrated pest management

Description of management practice

Several integrated pest management practices are applied to reduce the use of synthetic pesticides. 1. Barn owl program to control the rat populations 2. Planting 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)

Please explain

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

Palm oil and its derivatives such as crude palm oil (CPO), refined bleached 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

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

Other, please specify (RSPO, ISCC)

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

Comment

We produced and sold RSPO and ISCC certified CPO, RBDPO and PME to customers that require them.

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)

1119103

Comment

Scope 2 (location-based)

Base year start

January 1 2016

Base year end

December 31 2016

Base year emissions (metric tons CO2e)

212393

Comment

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 Scope 1 and Scope 2 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)

1275590

Start date

January 1 2018

End date

December 31 2018

Comment

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 operations where we are able to access electricity supplier emission factors or residual emissions factors, but are unable to report a Scope 2, market-based figure

Comment

C6.3

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

Reporting year

Scope 2, location-based

291186

Scope 2, market-based (if applicable)

<Not Applicable>

Start date

January 1 2018

End date

December 31 2018

Comment

In general, in 2018 we increased the capacity of our production compared to the baseline year (2016). However, our Scope 2 emission intensity in 2018 is lower than the baseline year.

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 Scope 3 emissions, disclosing and explaining any exclusions.

Purchased goods and services

Evaluation status

Relevant, not yet calculated

Metric tonnes CO2e

<Not Applicable>

Emissions calculation methodology

<Not Applicable>

Percentage of emissions calculated using data obtained from suppliers or value chain partners

<Not Applicable>

Explanation

Capital goods

Evaluation status

Not relevant, explanation provided

Metric tonnes CO2e

<Not Applicable>

Emissions calculation methodology

<Not Applicable>

Percentage of emissions calculated using data obtained from suppliers or value chain partners

<Not Applicable>

Explanation

Capital goods used in palm oil industry last for decades. As such, 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

Metric tonnes CO2e

<Not Applicable>

Emissions calculation methodology

<Not Applicable>

Percentage of emissions calculated using data obtained from suppliers or value chain partners

<Not Applicable>

Explanation

Upstream transportation and distribution

Evaluation status

Relevant, not yet calculated

Metric tonnes CO2e

<Not Applicable>

Emissions calculation methodology

<Not Applicable>

Percentage of emissions calculated using data obtained from suppliers or value chain partners

<Not Applicable>

Explanation

Waste generated in operations

Evaluation status

Not relevant, explanation provided

Metric tonnes CO2e

<Not Applicable>

Emissions calculation methodology

<Not Applicable>

Percentage of emissions calculated using data obtained from suppliers or value chain partners

<Not Applicable>

Explanation

Most of the waste and residue generated in the operations are either treated within operation boundaries (thus included in scope 1 emission) or reused and recycled.

Business travel

Evaluation status

Not relevant, explanation provided

Metric tonnes CO2e

<Not Applicable>

Emissions calculation methodology

<Not Applicable>

Percentage of emissions calculated using data obtained from suppliers or value chain partners

<Not Applicable>

Explanation

Scope 3 emission from business travel is relatively small and thus is not relevant

Employee commuting

Evaluation status

Not relevant, explanation provided

Metric tonnes CO2e

<Not Applicable>

Emissions calculation methodology

<Not Applicable>

Percentage of emissions calculated using data obtained from suppliers or value chain partners

<Not Applicable>

Explanation

Scope 3 emission from employee commuting is relatively small and thus is not relevant

Upstream leased assets

Evaluation status

Not relevant, explanation provided

Metric tonnes CO2e

<Not Applicable>

Emissions calculation methodology

<Not Applicable>

Percentage of emissions calculated using data obtained from suppliers or value chain partners

<Not Applicable>

Explanation

We do not have any upstream leased assets.

Downstream transportation and distribution

Evaluation status

Relevant, not yet calculated

Metric tonnes CO2e

<Not Applicable>

Emissions calculation methodology

<Not Applicable>

Percentage of emissions calculated using data obtained from suppliers or value chain partners

<Not Applicable>

Explanation

Processing of sold products

Evaluation status

Not relevant, explanation provided

Metric tonnes CO2e

<Not Applicable>

Emissions calculation methodology

<Not Applicable>

Percentage of emissions calculated using data obtained from suppliers or value chain partners

<Not Applicable>

Explanation

Processing of sold product emission is calculated by our customers and is included in their GHG emission

Use of sold products

Evaluation status

Not relevant, explanation provided

Metric tonnes CO2e

<Not Applicable>

Emissions calculation methodology

<Not Applicable>

Percentage of emissions calculated using data obtained from suppliers or value chain partners

<Not Applicable>

Explanation

Our products are biogenic and thus do not have any fossil CO2 emission.

End of life treatment of sold products

Evaluation status

Not relevant, explanation provided

Metric tonnes CO2e

<Not Applicable>

Emissions calculation methodology

<Not Applicable>

Percentage of emissions calculated using data obtained from suppliers or value chain partners

<Not Applicable>

Explanation

Our end products are palm oil and its derivative which are perishable products which do not require end of life treatment.

Downstream leased assets

Evaluation status

Not relevant, explanation provided

Metric tonnes CO2e

<Not Applicable>

Emissions calculation methodology

<Not Applicable>

Percentage of emissions calculated using data obtained from suppliers or value chain partners

<Not Applicable>

Explanation

We do not have any downstream leased assets

Franchises

Evaluation status

Not relevant, explanation provided

Metric tonnes CO2e

<Not Applicable>

Emissions calculation methodology

<Not Applicable>

Percentage of emissions calculated using data obtained from suppliers or value chain partners

<Not Applicable>

Explanation

We do not have any franchising system

Investments

Evaluation status

Not evaluated

Metric tonnes CO2e

<Not Applicable>

Emissions calculation methodology

<Not Applicable>

Percentage of emissions calculated using data obtained from suppliers or value chain partners

<Not Applicable>

Explanation

Other (upstream)

Evaluation status

Not evaluated

Metric tonnes CO2e

<Not Applicable>

Emissions calculation methodology

<Not Applicable>

Percentage of emissions calculated using data obtained from suppliers or value chain partners

<Not Applicable>

Explanation

Other (downstream)

Evaluation status

Not evaluated

Metric tonnes CO2e

<Not Applicable>

Emissions calculation methodology

<Not Applicable>

Percentage of emissions calculated using data obtained from suppliers or value chain partners

<Not Applicable>

Explanation

C6.7

(C6.7) Are carbon dioxide emissions from biologically sequestered carbon relevant to your organization?

Yes

C6.7a

(C6.7a) Provide the emissions from biologically sequestered carbon relevant to your organization in metric tons CO2.

Row 1

Emissions from biologically sequestered carbon (metric tons CO2)

2332178

Comment

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)

1921410

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

Sequestration during land use change

Emissions (metric tons CO2)

0

Methodology

Default emissions factors

Please explain

CO2 emissions from biofuel combustion (land machinery)

Emissions (metric tons CO2)

0

Methodology

Default emissions factors

Please explain

We do not use biofuel in our land machinery

CO2 emissions from biofuel combustion (processing/manufacturing machinery)

Emissions (metric tons CO2)

2332178

Methodology

Default emissions factors

Please explain

Calculated using GHG protocol stationary emission calculator

CO2 emissions from biofuel combustion (other)

Emissions (metric tons CO2)

0

Methodology

Default emissions factors

Please explain

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

This is similar to the data in 6.1 and 6.3 as all of our emission is related to growing, 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)

1566776

Denominator: unit of production

<Not Applicable>

Change from last reporting year

Lower

Please explain

Shifting of material consumption to a lower emission material i.e. fuel from fossil fuel to bio fuel, thus the overall emission is lower than last reporting year emission.

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

0.14

Metric numerator (Gross global combined Scope 1 and 2 emissions)

1566776

Metric denominator

metric ton of product

Metric denominator: Unit total

11584877

Scope 2 figure used

Location-based

% change from previous year

35

Direction of change

Decreased

Reason for change

Musim Mas increased its total amount of products produced. However, the emission emitted in this reporting year is lower than the last reporting year as the result of shifting fossil fuel usage to bio fuel. These two factors are contributing to the reduction in the overall emission intensity.

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 CO2e)	GWP Reference
N2O	362059	IPCC Fourth Assessment Report (AR4 - 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 CO2e)
Indonesia	1125026
Malaysia	17305
China	126
India	40856
Spain	69432
Netherlands	706
Italy	20619
Viet Nam	1519

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 CO2e)
Plantation	385745
Palm oil mills, ramps and jetties	55727
Refineries and oleochemicals	764983
Offices	36844
Shipping	32290

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 category

<Not Applicable>

Emissions (metric tons CO2e)

385745

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 category

<Not Applicable>

Emissions (metric tons CO2e)

820710

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 category

<Not Applicable>

Emissions (metric tons CO2e)

69135

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 in market-based approach (MWh)
Indonesia	244529	0	302190.36	0
Malaysia	9293	0	13842.33	0
China	2523	0	3383.88	0
India	13746	0	14842.7	0
Germany	2067	0	4348.59	0
Italy	2921	0	7585.55	0
Singapore	102	0	216.63	0
United Kingdom of Great Britain and Northern Ireland	4	0	878	0
United States of America	77	0	93.23	0
Spain	12247	0	40105.82	0
Netherlands	2859	0	6487.36	0
Viet Nam	818	0	1895.74	0
Brazil	0.14	0	1.6	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 emissions (metric tons CO2e)	Scope 2, market-based emissions (metric tons CO2e)
Plantations	0	0
Palm oil mills, ramps, and jetties	106	0
Refineries and oleochemicals	290436	0
Offices	543	0
Shipping	101	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?

Decreased

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	227982	Decreased	25.91	The emission decrease is due to shift from fossil fuel to bio fuel and biomass. The figure is obtained by following the formula provided by the guidance, which equals to 31.81% decrease compared to last reporting year: $(227,982/1,107,800)*100\%=25.91\%$.
Other emissions reduction activities		<Not Applicable >		
Divestment		<Not Applicable >		
Acquisitions		<Not Applicable >		
Mergers		<Not Applicable >		
Change in output	378156	Increased	31.81	The emission increase is due to significant increase in output production. The figure is obtained by following the formula provided by the guidance, which equals to 31.81% increase compared to last reporting year: $(378,156/1,188,620)*100\%=31.81\%$.
Change in methodology		<Not Applicable >		
Change in boundary		<Not Applicable >		
Change in physical operating conditions		<Not Applicable >		
Unidentified		<Not Applicable >		
Other		<Not Applicable >		

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 0% but less than or equal to 5%

C8.2

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

	Indicate whether your organization undertakes this energy-related activity
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 MWh
Consumption of fuel (excluding feedstock)	LHV (lower heating value)	11661062	7701387	19362449
Consumption of purchased or acquired electricity	<Not Applicable>	0	395343	395343
Consumption of purchased or acquired heat	<Not Applicable>	<Not Applicable>	<Not Applicable>	<Not Applicable>
Consumption of purchased or acquired steam	<Not Applicable>	<Not Applicable>	<Not Applicable>	<Not Applicable>
Consumption of purchased or acquired cooling	<Not Applicable>	<Not Applicable>	<Not Applicable>	<Not Applicable>
Consumption of self-generated non-fuel renewable energy	<Not Applicable>	0	<Not Applicable>	0
Total energy consumption	<Not Applicable>	11661062	8096730	19757792

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	No
Consumption of fuel for the generation of steam	Yes
Consumption of fuel for the generation of cooling	No
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

5117457

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

<Not Applicable>

MWh fuel consumed for self-cogeneration or self-trigeneration

5117457

Comment

Fuels (excluding feedstocks)

Diesel

Heating value

LHV (lower heating value)

Total fuel MWh consumed by the organization

507813

MWh fuel consumed for self-generation of electricity

0

MWh fuel consumed for self-generation of heat

146562

MWh fuel consumed for self-generation of steam

0

MWh fuel consumed for self-generation of cooling

<Not Applicable>

MWh fuel consumed for self-cogeneration or self-trigeneration

361251

Comment

Fuels (excluding feedstocks)

Fuel Oil Number 6

Heating value

LHV (lower heating value)

Total fuel MWh consumed by the organization

236193

MWh fuel consumed for self-generation of electricity

0

MWh fuel consumed for self-generation of heat

100669

MWh fuel consumed for self-generation of steam

0

MWh fuel consumed for self-generation of cooling

<Not Applicable>

MWh fuel consumed for self-cogeneration or self-trigeneration

135523

Comment

Fuels (excluding feedstocks)

Petrol

Heating value

LHV (lower heating value)

Total fuel MWh consumed by the organization

14621

MWh fuel consumed for self-generation of electricity

0

MWh fuel consumed for self-generation of heat

831

MWh fuel consumed for self-generation of steam

0

MWh fuel consumed for self-generation of cooling

<Not Applicable>

MWh fuel consumed for self-cogeneration or self-trigeneration

13790

Comment

Fuels (excluding feedstocks)

Natural Gas

Heating value

LHV (lower heating value)

Total fuel MWh consumed by the organization

1825303

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

<Not Applicable>

MWh fuel consumed for self-cogeneration or self-trigeneration

1825303

Comment

Fuels (excluding feedstocks)

Biodiesel

Heating value

LHV (lower heating value)

Total fuel MWh consumed by the organization

43518

MWh fuel consumed for self-generation of electricity

0

MWh fuel consumed for self-generation of heat

21856

MWh fuel consumed for self-generation of steam

0

MWh fuel consumed for self-generation of cooling

<Not Applicable>

MWh fuel consumed for self-cogeneration or self-trigeneration

2221

Comment

Fuels (excluding feedstocks)

Agricultural Waste

Heating value

LHV (lower heating value)

Total fuel MWh consumed by the organization

10465420

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

<Not Applicable>

MWh fuel consumed for self-cogeneration or self-trigeneration

10465420

Comment

Fuels (excluding feedstocks)

Biogas

Heating value

LHV (lower heating value)

Total fuel MWh consumed by the organization

1152006

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

<Not Applicable>

MWh fuel consumed for self-cogeneration or self-trigeneration

1152006

Comment

Fuels (excluding feedstocks)

Charcoal

Heating value

LHV (lower heating value)

Total fuel MWh consumed by the organization

119

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

<Not Applicable>

MWh fuel consumed for self-cogeneration or self-trigeneration

119

Comment

C8.2d

(C8.2d) List the average emission factors of the fuels reported in C8.2c.

Agricultural Waste

Emission factor

1.18

Unit

metric tons CO₂e per metric ton

Emission factor source

GHG Protocol for stationary combustion version 4.1

Comment

Biodiesel

Emission factor

1.92

Unit

metric tons CO₂e per metric ton

Emission factor source

GHG Protocol for stationary combustion version 4.1

Comment

Biogas

Emission factor

2.48

Unit

metric tons CO₂e per metric ton

Emission factor source

GHG Protocol for stationary combustion version 4.1

Comment

Charcoal

Emission factor

Unit

Please select

Emission factor source

Comment

Diesel

Emission factor

2.69

Unit

kg CO2e per liter

Emission factor source

GHG Protocol for stationary combustion version 4.1

Comment

Fuel Oil Number 6

Emission factor

3.14

Unit

metric tons CO2e per metric ton

Emission factor source

GHG Protocol for stationary combustion version 4.1

Comment

Lignite Coal

Emission factor

1.21

Unit

metric tons CO2e per metric ton

Emission factor source

GHG Protocol for stationary combustion version 4.1

Comment

Natural Gas

Emission factor

1.89

Unit

kg CO2e per m3

Emission factor source

GHG Protocol for stationary combustion version 4.1

Comment

Petrol

Emission factor

2.27

Unit

kg CO2e per liter

Emission factor source

GHG Protocol for mobile combustion version 2.0

Comment

C8.2e

(C8.2e) 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	6774172	6676331	4170045	4072204
Heat	287216	287216	26195	26195
Steam	9537616	9537616	5817434	5817434
Cooling	2861285	2861285	1745230	1745230

C8.2f

(C8.2f) Provide details on the electricity, heat, steam and/or cooling amounts that were accounted for at a low-carbon emission factor in the market-based Scope 2 figure reported in C6.3.

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	Progress against emissions reduction target	POIG	The verification is conducted annually by a third party auditor. Verification is conducted for all Musim Mas' RSPO-certified mills and their supply bases.

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

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

% Scope 3 emissions as reported in C6.5

Rationale for the coverage of your engagement

Our suppliers are enrolled in our engagement process. All suppliers can approach us on climate related issues. We actively engage all suppliers especially high-risk suppliers.

Impact of engagement, including measures of success

The suppliers are now more aware of our Sustainability Policy, Sustainability Certification Schemes as well as GHG calculation requirement and more active in engaging with us about the GHG calculation.

Comment

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 engaged with the Indonesian Government and Indonesian Sustainable Palm Oil GHG Working Group to develop GHG emission calculation tool and implement it on plantation level.	We support the continuation of this approach methodology for calculating GHG emission to contribute more to 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.

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 placed its staff in the working groups of RSPO to help shape the policy of RSPO. 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

Complete

Attach the document

Musim Mas Sustainability Report 2017 v1,7.pdf

Page/Section reference

Page 15 to 49

Content elements

Governance
Strategy
Risks & opportunities
Emissions figures
Emission targets
Other metrics

Comment

The Sustainability Report was composed based on GRI (Global Reporting Initiative) reporting template.

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 impart positive impact on the biodiversity of the area compared to area without HCV.

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

No

Description of the response(s)

C14. 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.

C14.1

(C14.1) Provide details for the person that has signed off (approved) your CDP climate change response.

	Job title	Corresponding job category
Row 1	Director of Sustainability	Other, please specify (Head of Department)

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 be informed that you can go into 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	

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).

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?

Yes

SC2.2a

(SC2.2a) Specify the requesting member(s) that have driven organizational-level emissions reduction initiatives, and provide information on the initiatives.

SC3.1

(SC3.1) Do you want to enroll in the 2019-2020 CDP Action Exchange initiative?

No

SC3.2

(SC3.2) Is your company a participating supplier in CDP's 2018-2019 Action Exchange initiative?

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

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

Please confirm below

I have read and accept the applicable Terms