

W0. Introduction

W0.1

(W0.1) Give a general description of 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.

W0.2

(W0.2) State the start and end date of the year for which you are reporting data.

	Start date	End date
Reporting year	January 1 2021	December 31 2021

W0.3

(W0.3) Select the countries/areas in which you operate.

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

W0.4

(W0.4) Select the currency used for all financial information disclosed throughout your response.

USD

W0.5

(W0.5) Select the option that best describes the reporting boundary for companies, entities, or groups for which water impacts on your business are being reported.

Companies, entities or groups over which operational control is exercised

W0.6

(W0.6) Within this boundary, are there any geographies, facilities, water aspects, or other exclusions from your disclosure?

Yes

W0.6a

(W0.6a) Please report the exclusions.

Exclusion	Please explain
Water usage in offices, warehouses, and shipping	The water usage in offices, warehouses, and shipping are estimated to be less than 1% of our total group water usage, thus exclusion of these data is not significant for this disclosure.

W0.7

(W0.7) Does your organization have an ISIN code or another unique identifier (e.g., Ticker, CUSIP, etc.)?

Indicate whether you are able to provide a unique identifier for your organization.	Provide your unique identifier

W1. Current state

W1.1

(W1.1) Rate the importance (current and future) of water quality and water quantity to the success of your business.

	Direct use importance rating	Indirect use importance rating	Please explain
Sufficient amounts of good quality freshwater available for use	Important	Important	Direct primary use: While our plantation operations are mostly dependent on rainfall, good quality water is demanded by our mills and downstream operations. For example, water usage in boilers, processes, and domestic uses. Since these water usages are demanded by our daily operational, thus, an important rating is set for this water category. Improvement measures such as boosting the efficiency of mills' processes and machines will help in minimizing our future water dependency. Indirect primary use: Sufficient amounts of good quality freshwater is also important for our suppliers' operations. For example, water is required to produce fertilizers that we use to support operations of our palm oil plantation. Recognizing that water is a finite global resource, we expect our suppliers' water dependency to decrease in the future.
Sufficient amounts of recycled, brackish and/or produced water available for use	Important	Not very important	Direct primary use: We use treated sea water in our operation with water recycling implementation. Since our derivative products are manufactured from the refineries, thus, an important rating is set for our direct operations. Our dependency on recycled, brackish, and/or produced water is expected to increase in the future as we are transitioning to be more sustainable in water use. Indirect primary use: Currently, suppliers' usage of the recycled, brackish, and produced water is ranked to be not very important considering these water usages are only applicable to our own operations. As we are moving forward in our sustainability journey, we expect for our suppliers' dependency on recycled water will increase in the future.

W1.2

(W1.2) Across all your operations, what proportion of the following water aspects are regularly measured and monitored?

	% of sites/facilities/operations	Please explain
Water withdrawals – total volumes	100%	Water withdrawals, including its volume, source and quality, are annually monitored for our operations. Water withdrawn is recorded daily using a flow meter set in respective units.
Water withdrawals – volumes by source	100%	In our operations, water withdrawals data are divided based on its source, namely river basin, groundwater or third party. Water withdrawn is recorded daily using a flow meter set in respective units.
Entrained water associated with your metals & mining sector activities - total volumes [only metals and mining sector]	<Not Applicable>	<Not Applicable>
Produced water associated with your oil & gas sector activities - total volumes [only oil and gas sector]	<Not Applicable>	<Not Applicable>
Water withdrawals quality	100%	In our operations, we performed regular water quality tests of water sources. For instance, the water withdrawn in our mills is stored in a water pond to sediment any unwanted impurities and solid particles. The water stored in the pond is then sent to a water treatment plant where the water quality is improved to achieve the standard to be used for mill processing (e.g. for boiler, cleaning, etc). Water quality parameters such as hardness and pH are monitored daily by our quality control team.
Water discharges – total volumes	100%	100% of our processing units monitor the water discharged from their operations. The water discharge volume is recorded on daily basis using flow meters set in each processing units.
Water discharges – volumes by destination	100%	We measure the volume of water discharged to third party, groundwater, etc. Flow meter is used to daily record the volume of water discharge.
Water discharges – volumes by treatment method	100%	We measure the volume of treated water discharges in our operations. Flow meter is used to daily monitor volume of the respective water discharges.
Water discharge quality – by standard effluent parameters	100%	Our production facilities are required by law to measure the quality of the effluent which discharged to municipal treatment plants. Following the applicable regulations, our palm oil mills monthly evaluate the wastewater quality using external lab testing to ensure that the biological oxygen demand (BOD) and chemical oxygen demand (COD) levels do not exceed the threshold set by the regulation and to avoid any adverse impact on the environment.
Water discharge quality – temperature	Not relevant	This aspect is not relevant to us
Water consumption – total volume	100%	Water consumption is measured for all sites by subtracting water withdrawn with water discharge. Regular monitoring of the water consumption is conducted following our daily monitoring of water withdrawal and discharge.
Water recycled/reused	100%	Wastewater from the palm oil mill namely Palm Oil Mill Effluent (POME) is reused as land irrigation to the plantations. Before being reused for land application, the wastewater is treated to reduce the biological oxygen demand (BOD) and chemical oxygen demand (COD) levels below the regulatory threshold. Flow meter is set to measure the wastewater on daily basis.
The provision of fully-functioning, safely managed WASH services to all workers	100%	We provide free clean water to all our employees and their households. Through our water allocation system, we ensure that every individual receives 120 litres of water per day which – goes beyond recommended requirements by the Indonesian government and the World Health Organization (of 50-100 litres). We also have drilled wells for communities to gain access to water in their vicinity for general purpose use and not for consumption because drinking water has been provided by the government through a public company. We partner with public health officials to monitor the quality of the water from wells to track the potential risk of contamination or other issues. There have been no cases of contamination. We have also built toilets for communities and conducted 'socialization workshops' to raise the importance of hygiene and proper sanitation.

W1.2b

(W1.2b) What are the total volumes of water withdrawn, discharged, and consumed across all your operations, and how do these volumes compare to the previous reporting year?

	Volume (megaliters/year)	Comparison with previous reporting year	Please explain
Total withdrawals	30568	About the same	Despite the newly disclosed water withdrawn from produced/entrained water, the trend remained stable as compared to 2020 as the activity does not differ from the past year. Following our sustainability policy commitment to managing water efficiently, the water withdrawal from our operations should reduce over time. On that note, the figure may also fluctuate depending on the upstream activities such as replanting and seedling.
Total discharges	11859	Higher	The increase does not correspond to the actual increase in total discharge. The amount of total discharges reported this year increased from last year's reporting, as we are improving our calculation methodology. As such, there are replacements in flow meters in some of our operations to get more accurate data. Since we expect water withdrawal from our operations to reduce over time, ideally, we also expect the water discharged should reduce in the upcoming years.
Total consumption	18709	Lower	Following the guidance, the figure is derived from Withdrawal (W) minus Discharge (D). Through our sustainability policy commitment to managing water efficiently, we expect to reduce our water consumption over time.

W1.2d

(W1.2d) Indicate whether water is withdrawn from areas with water stress and provide the proportion.

Row	Withdrawals are from areas with water stress	% withdrawn from areas with water stress	Comparison with previous reporting year	Identification tool	Please explain
Row 1	No	<Not Applicable>	<Not Applicable>	WRI Aqueduct	All Musim Mas upstream operations are located in Sumatera and Kalimantan regions. The WRI Aqueduct was used to determine whether the commodity produced is from water-stressed countries. Areas classified with high or extreme water stress were counted. Using the Water Risk Atlas provided by the WRI Aqueduct, it can be seen that the water withdrawn for our upstream operations is sourced from areas free from water stress.

W1.2h

(W1.2h) Provide total water withdrawal data by source.

	Relevance	Volume (megaliters/year)	Comparison with previous reporting year	Please explain
Fresh surface water, including rainwater, water from wetlands, rivers, and lakes	Relevant	13313	Much higher	The higher figure is obtained due to improvement in our data collection. This year we have fully collected the breakdown of water withdrawal data by source. This can be seen from the total quantity of water withdrawal data breakdown by source (W1.2h) is equal to the total withdrawal (W 1.2b).
Brackish surface water/Seawater	Relevant	8117	Higher	The higher figure is obtained as some of our downstream operations are shifting from fresh water resources to brackish surface water.
Groundwater – renewable	Relevant	2252	Much higher	The higher figure is obtained due to improvement in our data collection. This year we have fully collected the breakdown of water withdrawal data by source. This can be seen from the total quantity of water withdrawal data breakdown by source (W1.2h) is equal to the total withdrawal (W 1.2b).
Groundwater – non-renewable	Not relevant	<Not Applicable>	<Not Applicable>	We do not use non-renewable groundwater for our operations.
Produced/Entrained water	Relevant	1267	This is our first year of measurement	The figure represents moisture derived from Fresh Fruit Bunch (FFB).
Third party sources	Relevant	5619	Lower	The lower figure is obtained as some of the operations reduce our water withdrawal from third-party sources as part of our commitment to using water efficiently.

W1.2i

(W1.2i) Provide total water discharge data by destination.

	Relevance	Volume (megaliters/year)	Comparison with previous reporting year	Please explain
Fresh surface water	Relevant	4723	Much higher	The higher figure is obtained due to improvement in our data collection. This year we have fully collected the breakdown of water discharge data by destination. This can be seen from the total quantity of water discharge data by destination (W1.2i) is equal to the total discharge (W 1.2b).
Brackish surface water/seawater	Relevant	2432	Lower	The lower figure is due to an increase in the use of recycled or reused water in our operations, which is in line with our commitment to using water efficiently.
Groundwater	Relevant	3639	This is our first year of measurement	Some water in operation is discharged to groundwater after being treated.
Third-party destinations	Relevant	1065	About the same	Following the reduction in water withdrawal from third-party sources, consequently, the third-party water discharged has also decreased. This is due to an increase in the use of recycled or reused water, which is in line with our commitment to using water efficiently

W1.2j

(W1.2j) Within your direct operations, indicate the highest level(s) to which you treat your discharge.

	Relevance of treatment level to discharge	Volume (megaliters/year)	Comparison of treated volume with previous reporting year	% of your sites/facilities/operations this volume applies to	Please explain
Tertiary treatment	Relevant	933	This is our first year of measurement	31-40	In some of our facilities, we add chemicals such as chlorine to remove harmful contaminants/chemicals/germs/bacteria, along with other dissolved inorganic substances from the discharge water. The treated water is then discharged for domestic use. All discharge volumes were subject to strict water quality controls before being released to receiving water bodies.
Secondary treatment	Relevant	3182	This is our first year of measurement	31-40	Some of our facilities process wastewater (i.e. POME) through a series of anaerobic digestion systems to reduce the BOD/COD levels. Regular monitoring is conducted internally and externally to ensure the discharged water is well below the regulatory threshold.
Primary treatment only	Relevant	658	This is our first year of measurement	1-10	Primary treatment is carried out in clarifier tank so that there is less contamination/suspended solid from the water discharged.
Discharge to the natural environment without treatment	Relevant	492	This is our first year of measurement	21-30	The figure is referring to water used for backwash. The quality of discharge water is considered to be non-polluting since no significant contaminants are present in the process of backwashing.
Discharge to a third party without treatment	Relevant	882	This is our first year of measurement	11-20	Some of our facilities discharge water to a third party. The water is then treated by a third party before being discharged.
Other	Not relevant	<Not Applicable>	<Not Applicable>	<Not Applicable>	There are no other treatment types considered.

W1.3

(W1.3) Provide a figure for your organization's total water withdrawal efficiency.

	Revenue	Total water withdrawal volume (megaliters)	Total water withdrawal efficiency	Anticipated forward trend
Row 1	1000000 0000	30568	327139.49227950 8	For the past three years, our revenues fluctuates between \$7-7.5 billion with water withdrawal volume fluctuating between 28,000-30,000 megaliters. Hence, we expect the water withdrawal efficiency to be similar in the upcoming years given that no other condition arises.

W1.4

(W1.4) Do you engage with your value chain on water-related issues?

Yes, our suppliers

Yes, our customers or other value chain partners

W1.4a

(W1.4a) What proportion of suppliers do you request to report on their water use, risks and/or management information and what proportion of your procurement spend does this represent?

Row 1

% of suppliers by number

51-75

% of total procurement spend

76-100

Rationale for this coverage

Through our Sustainability Policy, Musim Mas is committed to water accountability with respect to water quantity and quality, as well as equity (extraction, use, treatment and discharge, and management of riparian areas and water sources according to best practices). To support the concrete achievements of this Policy, over 70% of our FFB suppliers which account for most of our total procurement spend are required to monitor their water use and report to us annually. The suppliers are also demanded to develop a water management plan and report to us the progress towards the implementation of the plan. Besides our Sustainability Policy, the suppliers are also incentivized to report on water through the Roundtable on Sustainable Palm Oil (RSPO) certification as well as the Palm Oil Innovation Group (POIG) verification.

Impact of the engagement and measures of success

In accordance with our Sustainability Policy, RSPO Principles and Criteria, as well as POIG Verification Indicator, our suppliers are requested to report on their water consumption for both operational and domestic uses. The information is used to observe the trend and improve their effort on water savings. If the water use in the reporting year increases (out of trend), suppliers are requested to provide justifications and set an action plan to address the issue. We also conduct water savings socialization and training for our suppliers. Additionally, we have set ambitious targets for our mill operations (1.2 m3/MT FFB processed) to encourage our suppliers to take action on water savings efforts.

The success of our suppliers' engagement is measured through compliance with our Sustainability Policy along with the RSPO certification and POIG verification. Since our Sustainability Policy was published in 2014, we have gained a wide range of experience in implementing our policy as well as engaging our suppliers for achieving impact. We conduct internal audits to monitor our suppliers' progress on water accountability and adherence to our Sustainability Policy. We promote and assist our suppliers in achieving RSPO certification which gives beneficial water-related outcomes as the RSPO requires certification unit to maintain the quality and availability of surface and groundwater. We also encourage and guide our suppliers in setting and implementing water management plans to minimize water use and eliminate water pollution as these are part of the POIG Verification Indicator. As of 2021, 15 of our integrated mills maintained RSPO and POIG certifications. Ultimately, we have found this collaboration has helped us and our suppliers to arrive at an equitable and sustainable use of shared water resources.

Comment

We believe that close cooperation and constructive dialogue with suppliers is necessary to integrate sustainable development principles with current business practices.

W1.4b

(W1.4b) Provide details of any other water-related supplier engagement activity.

Type of engagement

Incentivizing for improved water management and stewardship

Details of engagement

Demonstrable progress against water-related targets is incentivized in your supplier relationship management

% of suppliers by number

51-75

% of total procurement spend

76-100

Rationale for the coverage of your engagement

As stipulated in our Sustainability Policy, Musim Mas is committed to delivering positive environmental impact. To encourage our suppliers' compliance with our Sustainability Policy, we have adopted a proactive approach to engaging over 70% of our FFB suppliers which accounts for most of our total procurement spend. The basis for our engagement is a supplier roadmap with implementation milestones. It provides a time-bound plan for demonstrating and monitoring compliance with our policy commitments. In support of the roadmap, we will be delivering capacity building and training to the suppliers. We believe that active engagement with our suppliers by providing them with appropriate support is essential for driving change and enhancing supplier performance towards full compliance.

Impact of the engagement and measures of success

Since our Sustainability Policy was published in 2014, we have gained a wide range of experience in implementing our policy as well as engaging our suppliers for achieving impact. We conduct stakeholder consultations with our suppliers to discuss and develop programs to enhance the ecological and hydrological services within and outside the concession. The program includes but is not limited to implementing best management practices (BMP) on fertilizer usage, pest and diseases management, repairing and constructing terracing, stop bund, retaining wall, and silt-pit, cover crop planting, frond stacking, culvert construction, and road maintenance. From the environmental aspect, implementing BMP is of paramount importance to protect and maintain the hydrological and ecological function of the riparian zone which serves as water catchment areas. Furthermore, the construction of terracing can reduce the length of the slope surface area and then reduce the erosion and prevent the leaching of nutrients from that particular area. Minimum erosion level and preservation of the nutrient reduce sedimentation on the rivers and maintain the soil fertility on slope areas respectively. Regular monitoring and water quality testing are also conducted to evaluate the effectiveness of the programs and to make sure the water qualities of rivers are maintained. It is inevitable that water management within the concession is essential in order to provide water supply and shared responsibility for water stewardship in the vicinity and downstream areas.

The success of our suppliers' engagement is measured through compliance with our Sustainability Policy along with the RSPO certification and POIG verification. We conduct internal audits to monitor our suppliers' progress on water accountability and adherence to our Sustainability Policy. We promote and assist our suppliers in achieving RSPO certification which gives beneficial water-related outcomes as the RSPO requires certification unit to maintain the quality and availability of surface and groundwater. We also encourage and guide our suppliers in setting and implementing water management plans to minimize water use and eliminate water pollution as these are part of the POIG Verification Indicator. Ultimately, we have found this collaboration has helped us and our suppliers to arrive at an equitable and sustainable use of shared water resources.

Comment

We believe that close cooperation and constructive dialogue with suppliers is necessary to integrate sustainable development principles with current business practices.

W1.4c

(W1.4c) What is your organization's rationale and strategy for prioritizing engagements with customers or other partners in its value chain?

Musim Mas aspires to be a responsible leader in the palm oil industry. To that end, we updated our Musim Mas Group Sustainability Policy (2020-2025) to address our stakeholders' concerns such as water, deforestation, GHG, biodiversity as well as labour and human rights. Through the Policy, we take commitment to water accountability, with respect to water quantity and quality, as well as equity (extraction, use, treatment and discharge, and management of riparian areas and water sources according to best practices). In line with the Policy, we also annually audited and certified under various sustainability schemes such as RSPO and POIG which consider water. These sustainability schemes are required by our customers and thus become our priority of engagements with customers in which we set a target for our water use intensity to 1.2 m³/MT FFB processed to meet the customers' demand and verified the target achievement through the RSPO as well as POIG audit certification and verification. The achievement of the target is audited annually by the external auditor to ensure credibility. Our 2021 integrated mills' water use intensity is undergoing a verification process at the time of the submission.

To communicate our sustainability commitments to our customers, we publish our sustainability progress, milestones, and targets through an annual Sustainability Report which covers water-related aspects such as water use intensity, water management, and water footprint. We maintain an open dialogue with our stakeholders, welcome constructive feedback to improve our operations and strive to be transparent by keeping stakeholders informed on Group-wide matters. This increases our brand value and at the same time increases our sales and revenue. In all, we take 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 world.

W2. Business impacts

W2.1

(W2.1) Has your organization experienced any detrimental water-related impacts?

Yes

W2.1a

(W2.1a) Describe the water-related detrimental impacts experienced by your organization, your response, and the total financial impact.

Country/Area & River basin

Indonesia	Other, please specify (Sumatra dan Kalimantan)
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Type of impact driver & Primary impact driver

Acute physical	Drought
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Primary impact

Reduced revenues from lower sales/output

Description of impact

The occurrence of extreme weather such as drought and flood can lower the productivity of our operations and disrupt our palm oil sales, which in turn, affects the performance of the company. In 2015, Indonesia experienced the climatic phenomenon of El Nino. The El Nino phenomenon has led to lower rainfalls and higher temperatures contributing to drought stress for crops including oil palm crops. Our data suggested that a prolonged drought can lower the FFB yield by approximately 15%. Moreover, prolonged drought may also increase the risk of fire. Other extreme weather occurrences such as floods can affect the fertilizer application schedule, leading to a lower yield. Thus, this poses risks to Musim Mas.

Primary response

Adopt water efficiency, water reuse, recycling and conservation practices

Total financial impact

200000

Description of response

- Best management practices and operating procedures are carried out by Musim Mas to alleviate the impacts of extreme weather scenarios, these practices include:
- Improvement of soil management through the implementation of best agri-practices. For example, stems and leaves from our plantations are mulched and applied as organic fertilizer. Dried decanter solids and boiler ash from our mills are repurposed as organic fertilizer at our plantations. This is to improve the soil nutrition and soil moisture retention capability and to ameliorate the drought effects
 - Utilising POME as an irrigant and organic fertilizer to help alleviate the impacts of water scarcity during extreme weather phenomena such as El Nino
 - Construction of water pond in our upstream operations areas as water reserves to mitigate the risk of a long drought
 - Restoration and management of riparian areas and water sources according to RSPO guidelines
 - Implement and socialize water saving campaign to the workers
 - Monitoring of water use in estate and mill operations as well as in domestic use

The construction of a water pond with a volume of approximately 1200m3 is estimated to cost around \$700. The financial impact figure corresponds to the construction of water ponds in our MMG operations. The cost of construction can vary depending on the location, soil type, and the size of the water pond.

W2.2

(W2.2) In the reporting year, was your organization subject to any fines, enforcement orders, and/or other penalties for water-related regulatory violations?

No

W3. Procedures

W3.3

(W3.3) Does your organization undertake a water-related risk assessment?

Yes, water-related risks are assessed

W3.3a

(W3.3a) Select the options that best describe your procedures for identifying and assessing water-related risks.

Value chain stage

Direct operations
Supply chain

Coverage

Full

Risk assessment procedure

Water risks are assessed as part of other company-wide risk assessment system

Frequency of assessment

Annually

How far into the future are risks considered?

More than 6 years

Type of tools and methods used

Tools on the market

Tools and methods used

Water Footprint Network Assessment tool
WRI Aqueduct

Contextual issues considered

Water availability at a basin/catchment level
Water quality at a basin/catchment level
Stakeholder conflicts concerning water resources at a basin/catchment level
Implications of water on your key commodities/raw materials
Water regulatory frameworks
Status of ecosystems and habitats
Access to fully-functioning, safely managed WASH services for all employees

Stakeholders considered

Customers
Employees
Investors
Local communities
NGOs
Regulators
Suppliers
Water utilities at a local level
Other water users at the basin/catchment level

Comment

Water-related risks are assessed at Musim Mas direct operations and supply chain using the tools on market annually.

W3.3b

(W3.3b) Describe your organization's process for identifying, assessing, and responding to water-related risks within your direct operations and other stages of your value chain.

Application of tools: We utilize the Water Risk Atlas provided by the WRI Aqueduct to analyze whether the water withdrawn for our upstream operations is sourced from water stress areas. The results show that all our upstream operations are free from water stress. Moreover, The Water Footprint Methodology is used to evaluate the water balance of our upstream operations to analyze the vulnerability of water scarcity in surrounding areas. We start by categorizing and quantifying our water use and water consumption using the Water Footprint methodology. Following that, we conduct a water balance study to compare the water consumption with the water available from rainwater. Outcomes: The risk assessment results are used to formulate water management plans in our operations in order to manage and mitigate the risks. The relevant information will be discussed with relevant departments to draw out necessary action plans. These action plans will be reported to the board level before embarking on the plan.

Contextual issues considered:

1. Since we operate our own plantations and mills, the availability of sufficient water resources is important. To monitor and assess the water availability of our plantations and mills, we produce a water accountability report annually. This report covers a range of topics starting from water usage to water management plans.
2. Water quality is included in our risk assessment to ensure continual adherence to government water quality standards. For instance, we monitor the N & P levels in watercourses.
3. Water sharing is included in our risk assessment process. Being POIG verified, a water stewardship assessment is undertaken involving relevant stakeholders to address water equity topics.
4. Oil palm commodity is dependent on water, thus, the implication of water is included in our risk assessment. Based on the WRI atlas, our sourcing areas are free from water stress.
5. Align with our sustainability policy, we are committed to obeying laws and regulations, thus, changes in water laws or regulations are always included in our risk assessment. For instance, we conduct regular water sampling and testing in accordance with government regulations.
6. We understand that the riverbed ecosystem plays an important role in the quality of the river. Thus, we are committed to protecting those areas especially HCV 4 in riparian areas. Additionally, we also conduct risk assessments of the HCV areas as well as monitoring and management of the HCV areas (i.e. riparian areas management).
7. To maintain the well-being of our employees, especially during the time of the pandemic, we provide fully functioning and safely managed WASH services for all employees. Additionally, we install handwashing stations at entrance areas of all plantations and mills.

Stakeholders considered:

1. Changes in consumer preferences may affect our business performance. Method of engagement includes but is not limited to one-on-one communications and the annual sustainability report.
2. Musim Mas is established upon a driven workforce to address the challenges in the palm oil industry making the products to become more socially responsible and environmentally viable. Method of engagement includes regular training programs and socialization.
3. Following stricter policies on environmental protection, some investors require sustainability assessment as one of their funding criteria. Among many, water-related issues are considered. Method of engagement includes one-on-one communications and sustainability report.
4. The Social and Environmental Impact Assessment which includes the water aspects is conducted to ensure the water availability for surrounding communities. Method of engagement includes consultation with community groups and representatives and community programs.
5. NGOs play an important role to advance our sustainability progress. Method of engagement includes landscape initiatives (i.e. Sedagho Siak NGO in Siak District conservation project) and sustainability platforms (i.e. HCSA).
6. Musim Mas pledges to fully comply with local, national, and international laws and guidelines (i.e. ISPO). Accordingly, dedicated teams are established to ensure continual adherence to the relevant regulations. Method of engagement includes landscape program meetings and etcetera.
7. We also considered suppliers near riparian areas to manage riparian zones which act as buffers between natural waterways and land use for agricultural development.
8. Some of our operations and offices rely on water from local utilities. Since there is a risk of disruption in the supply of water from the utilities, it is included in our risk assessment. Method of engagement includes landscape program meetings and one-on-one meetings.
9. The availability and quality of water for our operations also depend on other water users in our areas. Method of engagement includes water stewardship assessment involving relevant stakeholders to address water equity topics.

W4. Risks and opportunities

W4.1

(W4.1) Have you identified any inherent water-related risks with the potential to have a substantive financial or strategic impact on your business?

Yes, both in direct operations and the rest of our value chain

W4.1a

(W4.1a) 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 turns affect the financial performance of the company. Its definition is further detailed as follows:

- Any impact that could potentially inflict financial loss around 10 percent or higher of current EBITDA estimates.
- Any climatic event that will drastically affect the yield and productivity of oil palm crop as well as palm oil supply.
- Any drastic drop in supply (of raw materials) of 20 percent or more, which affect our production cost as well as production volume.

To address 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, waste management, etc.

W4.1b

(W4.1b) What is the total number of facilities exposed to water risks with the potential to have a substantive financial or strategic impact on your business, and what proportion of your company-wide facilities does this represent?

	Total number of facilities exposed to water risk	% company-wide facilities this represents	Comment
Row 1	1	26-50	The number of facilities filled represents aggregated own plantations' activities.

W4.1c

(W4.1c) By river basin, what is the number and proportion of facilities exposed to water risks that could have a substantive financial or strategic impact on your business, and what is the potential business impact associated with those facilities?

Country/Area & River basin

Indonesia	Other, please specify (Sumatra and Kalimantan)
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Number of facilities exposed to water risk

1

% company-wide facilities this represents

26-50

Production value for the metals & mining activities associated with these facilities

<Not Applicable>

% company's annual electricity generation that could be affected by these facilities

<Not Applicable>

% company's global oil & gas production volume that could be affected by these facilities

<Not Applicable>

% company's total global revenue that could be affected

1-10

Comment

River is an important aspect as the source of water for the operations as well as for the surrounding communities as they depend on the river as well. Prior to the establishment of the operational units, the source of water or river is assessed through a series of assessments, such as the Environmental Impact Assessment, High Conservation Value assessment as well as Social Impact Assessment. Through these assessments, the company identifies the river basins surrounding the operational units, the impact of companies' existence on the river basins and surrounding communities, and the methodology to maintain and enhance the river basins. Furthermore, the company conducted annual stakeholder consultations together with the local government and the surrounding communities to brainstorm and identify any issues, if any, and efforts for monitoring and management of river and riparian buffer zone. During stakeholder consultation, we emphasized and socialized the importance of the river area, prohibiting littering in the river and buffer zone area by installing signboards, and prohibiting the use of poison or explosives to catch fish. Similarly, companies have policies to avoid chemical run-off to the water body and we also pledge to zero wastewater discharge to the water body. As instructed by the regulation, the company conducted regular tests to ensure that company's activities do not harm the environment and the water body. The company's effort also aims to avoid and minimize the occurrence of extreme weather such as drought and flood which can lower the productivity of our operations and disrupt our palm oil sales, which in turn, affects the performance of the company. In 2015, Indonesia experienced the climatic phenomenon of El Nino. The El Nino phenomenon has led to lower rainfalls and higher temperatures contributing to drought stress for agricultural crops including oil palm crops. . A prolonged drought can lower the FFB yield by approximately 15%. Moreover, prolonged drought may also increase the risk of fire. Other extreme weather occurrences such as floods can affect the fertilizer application schedule, leading to a lower yield.

W4.2

(W4.2) Provide details of identified risks in your direct operations with the potential to have a substantive financial or strategic impact on your business, and your response to those risks.

Country/Area & River basin

Indonesia	Other, please specify (Sumatra and Kalimantan)
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Type of risk & Primary risk driver

Acute physical	Drought
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Primary potential impact

Reduced revenues from lower sales/output

Company-specific description

The occurrence of extreme weather such as drought and flood can lower the productivity of our operations and disrupt our palm oil sales, which in turn, affects the performance of the company. In 2015, Indonesia experienced the climatic phenomenon of El Nino. The El Nino phenomenon has led to lower rainfalls and higher temperatures contributing to drought stress for crops including oil palm crops. Our data suggested that a prolonged drought can lower the FFB yield by approximately 15%. Moreover, prolonged drought may also increase the risk of fire. Other extreme weather occurrences such as floods can affect the fertilizer application schedule, leading to a lower yield. Thus, this poses risks to Musim Mas.

Timeframe

More than 6 years

Magnitude of potential impact

Medium-high

Likelihood

About as likely as not

Are you able to provide a potential financial impact figure?

Yes, an estimated range

Potential financial impact figure (currency)

<Not Applicable>

Potential financial impact figure - minimum (currency)

2975

Potential financial impact figure - maximum (currency)

3570

Explanation of financial impact

Adverse weather conditions can have significant impacts on the productivity of our operations, specifically, prolonged drought or floods that occur over several weeks. Our average CPO yield is estimated to be in the range of 5-6 MTCPO/ha. Hence, taking a reduction of yield by 15% due to extreme weather (i.e. prolonged drought), CPO production can drop to 4.25 - 5.1 MTCPO/ha (or lowered by 0.75 - 0.9 MTCPO/ha). Consequently, taking an average CPO price (2019-2021) of USD 700/MTCPO, the potential financial impact varies between USD 2975 - USD 3570 per hectare.

Primary response to risk

Adopt water efficiency, water reuse, recycling and conservation practices

Description of response

Musim Mas carries out best management practices and operating procedures to alleviate the impacts of extreme weather scenarios, these practices include:

- Improvement of soil management through the implementation of best agri-practices. For example, stems and leaves from our plantations are mulched and applied as organic fertilizer. Dried decanter solids and boiler ash from our mills are repurposed as organic fertilizer at our plantations. This is to improve the soil nutrition and soil moisture retention capability and to ameliorate the drought effects
- Utilising POME as an irrigant and organic fertilizer to help alleviate the impacts of water scarcity during extreme weather phenomena such as El Nino
- Construction of water pond in our upstream operations areas as water reserves to mitigate the risk of a long drought
- Restoration and management of riparian areas and water sources according to RSPO guidelines
- Implement and socialize water saving campaign to the workers
- Monitoring of water use in estate and mill operations as well as in domestic use
- Implement water efficiency in mill operations. For example, since 2020, our mills have implemented pressure-based methodology instead of time-based methodology for the backwash systems leading to 5-10% water savings in backwash water use.

Following the GRI reporting standard, we also publicly communicate our annual sustainability progress through Sustainability Report (<https://www.musimmas.com/sustainability-report/>).

Cost of response

200000

Explanation of cost of response

The construction of a water pond with a volume of approximately 1200m3 is estimated to cost around \$700. The financial impact figure corresponds to the construction of water ponds in our MMG operations. The cost of construction can vary depending on the location, soil type, and the size of the water pond.

W4.2a

(W4.2a) Provide details of risks identified within your value chain (beyond direct operations) with the potential to have a substantive financial or strategic impact on your business, and your response to those risks.

Country/Area & River basin

Indonesia	Other, please specify (Sumatera and Kalimantan)
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Stage of value chain

Supply chain

Type of risk & Primary risk driver

Acute physical	Drought
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Primary potential impact

Supply chain disruption

Company-specific description

The occurrence of extreme weather such as drought may impact the supply chain activity as well as productivity, which in turn, disrupts our supply chain arrangement and supply of raw materials. For example, in 2015 Indonesia experienced the climatic phenomenon of El Nino. The El Nino phenomenon has led to lower rainfalls and higher temperatures contributing to drought stress and fire incidents for agricultural crops including oil palm crops. A prolonged drought can lower the FFB yield by approximately 15%. Furthermore, approximately 90% of our CPO processed originated from third-party suppliers where the sourcing areas are located in Indonesia. For this, our suppliers' yield can also be affected by the occurrence of extreme weather, thus, posing risks to Musim Mas as it may create a disruption to the supply of raw materials needed in our production. Moreover, this situation may also affect the ability of the suppliers to get back to the normal condition as they will require more time and resources to recover from the prolonged drought effects that may last up to 2 to 3 years.

Timeframe

More than 6 years

Magnitude of potential impact

Medium

Likelihood

About as likely as not

Are you able to provide a potential financial impact figure?

Yes, an estimated range

Potential financial impact figure (currency)

<Not Applicable>

Potential financial impact figure - minimum (currency)

2000

Potential financial impact figure - maximum (currency)

2300

Explanation of financial impact

The factories have a Fresh Fruit Bunch (FFB) intake target to keep the production running based on the mill capacity that are ranging from 45 tons to 90 tons FFB / hour. Thus, it is important to meet the FFB intake target to fulfil the production capacity. The constraint in FFB supply due to extreme weather will trigger the need to find another source of FFB to fulfil the target.

The financial impact corresponds to the estimated cost needed to find other alternative suppliers and to make sure they are aligned with our commitment before we can decide to include them in our supply chain. The cost includes finding new suppliers, engagement with suppliers, training and socialization about our NDPE and other Sustainability commitments that must be adhered to prior to sending the raw materials to Musim Mas. Thus, the financial impact is estimated at around \$2000-2300 per engagement event.

Primary response to risk

Supplier engagement	Other, please specify (Engage and educate suppliers on Best Management Practices (BAP))
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Description of response

In line with our sustainability policy - Pillar 1, Musim Mas is committed to maintain good relations with our suppliers. Musim Mas collaborates with International Finance Corporation (IFC) on a program to improve the livelihoods of smallholders by integrating them into sustainable palm oil supply chains. The integration would bring about not only financial value but also sustainable value, where their surrounding environment and community benefit. The program consists of several modules and curriculum that will help our suppliers to enhance their capacity and capability including Best Management Practices (BAP). As smallholders experience low productivity on their farms, we educate them on Good Agricultural Practices (GAP) which aid farmers to better manage their resources, be it financial or operational, leading to positive impacts on their surrounding environment. In addition, Musim Mas provides tailored agronomic advice to smallholders as each farm has different needs, including advice on how to handle drought, fire incidents, and floods and to recover after the occurrence. The full detail is available through this link <https://www.musimmas.com/wp-content/uploads/2021/03/MM-IFC-Smallholders-Program-Report.pdf>.

Cost of response

500

Explanation of cost of response

The cost of the response corresponds to training and workshop on GAP which is estimated to be around \$500 per training event. The cost can vary depending on the number of participating suppliers.

W4.3

(W4.3) Have you identified any water-related opportunities with the potential to have a substantive financial or strategic impact on your business?

Yes, we have identified opportunities, and some/all are being realized

W4.3a

(W4.3a) Provide details of opportunities currently being realized that could have a substantive financial or strategic impact on your business.

Type of opportunity

Efficiency

Primary water-related opportunity

Improved water efficiency in operations

Company-specific description & strategy to realize opportunity

All water withdrawn from the water source (i.e. river) will be sent to the water treatment plant and the water volume is recorded and monitored using flow meter. Furthermore, the volume of water is then input into the company program system. The verification is conducted by the PIC to check whether the data has been inputted correctly. Other improvement measures include but are not limited to enhancing the efficiency of the unit's processes and machines to maintain the quality of water. For instance, since 2020, we have applied a pressure-based methodology instead of a time-based methodology for the backwash system in our mills' operations, leading to an estimated 5-10% savings in our backwash water usage. With these improvement measures, we are to increase our operations' water efficiency.

Estimated timeframe for realization

Current - up to 1 year

Magnitude of potential financial impact

Low

Are you able to provide a potential financial impact figure?

Yes, an estimated range

Potential financial impact figure (currency)

<Not Applicable>

Potential financial impact figure – minimum (currency)

2

Potential financial impact figure – maximum (currency)

4

Explanation of financial impact

Prior to the pressure-based methodology, we demanded approximately 200 tonnes of water for mills' backwashing purposes daily. Utilising the pressure-based methodology, we can save approximately 5-10% of the backwash water used or 10-20 tonnes of water per day. The financial impact is derived from the amount of water savings (10-20 tonnes/day) multiplied by the domestic pricing of water per tonne (~\$0.2/tonne) resulting in \$2 - 4/day per mill.

W5. Facility-level water accounting

W5.1

(W5.1) For each facility referenced in W4.1c, provide coordinates, water accounting data, and a comparison with the previous reporting year.

Facility reference number

Facility 1

Facility name (optional)

n/a

Country/Area & River basin

Indonesia	Other, please specify (Sumatra dan Kalimantan)
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Latitude

0.045

Longitude

102.09

Located in area with water stress

No

Primary power generation source for your electricity generation at this facility

<Not Applicable>

Oil & gas sector business division

<Not Applicable>

Total water withdrawals at this facility (megaliters/year)

3549.92

Comparison of total withdrawals with previous reporting year

Higher

Withdrawals from fresh surface water, including rainwater, water from wetlands, rivers and lakes

2212.84

Withdrawals from brackish surface water/seawater

0

Withdrawals from groundwater - renewable

1337.08

Withdrawals from groundwater - non-renewable

0

Withdrawals from produced/entrained water

0

Withdrawals from third party sources

0

Total water discharges at this facility (megaliters/year)

3234.58

Comparison of total discharges with previous reporting year

Lower

Discharges to fresh surface water

2058.92

Discharges to brackish surface water/seawater

0

Discharges to groundwater

1175.66

Discharges to third party destinations

0

Total water consumption at this facility (megaliters/year)

315.34

Comparison of total consumption with previous reporting year

Higher

Please explain

There were more operational activities in 2021 compared with 2020 such as seedlings.

W5.1a

(W5.1a) For the facilities referenced in W5.1, what proportion of water accounting data has been third party verified?

Water withdrawals – total volumes

% verified

76-100

Verification standard used

Our unit facilities are annually verified by the Palm Oil Innovation Group (POIG). The verification indicators include but are not limited to the volume of water withdrawal and water consumption as well as water quality such as phosphorus and nitrogen level in water courses. Furthermore, parameters such as sources of the river basin of the water withdrawn are verified by the Environmental Impact Assessment for each unit facility.

Please explain

<Not Applicable>

Water withdrawals – volume by source

% verified

76-100

Verification standard used

Our unit facilities are annually verified by the Palm Oil Innovation Group (POIG). The verification indicators include but are not limited to the volume of water withdrawal and water consumption as well as water quality such as phosphorus and nitrogen level in water courses. Furthermore, parameters such as sources of the river basin of the water withdrawn are verified by the Environmental Impact Assessment for each unit facility.

Please explain

<Not Applicable>

Water withdrawals – quality by standard water quality parameters

% verified

76-100

Verification standard used

Our unit facilities are annually verified by the Palm Oil Innovation Group (POIG). The verification indicators include but are not limited to the volume of water withdrawal and water consumption as well as water quality such as phosphorus and nitrogen level in water courses. Furthermore, parameters such as quality of the water withdrawn are verified by the Environmental Impact Assessment for each unit facility.

Please explain

<Not Applicable>

Water discharges – total volumes

% verified

Not verified

Verification standard used

<Not Applicable>

Please explain

Musim Mas will consider third-party verification when ready.

Water discharges – volume by destination

% verified

Not verified

Verification standard used

<Not Applicable>

Please explain

Musim Mas will consider third-party verification when ready.

Water discharges – volume by final treatment level

% verified

Not verified

Verification standard used

<Not Applicable>

Please explain

Musim Mas will consider third-party verification when ready.

Water discharges – quality by standard water quality parameters

% verified

76-100

Verification standard used

Parameters such as the quality of the water discharged are verified by the Environmental Impact Assessment for each unit facility.

Please explain

<Not Applicable>

Water consumption – total volume

% verified

Not verified

Verification standard used

<Not Applicable>

Please explain

Musim Mas will consider third-party verification when ready.

W6. Governance

W6.1

(W6.1) Does your organization have a water policy?

Yes, we have a documented water policy that is publicly available

W6.1a

(W6.1a) Select the options that best describe the scope and content of your water policy.

	Scope	Content	Please explain
Row 1	Company-wide	Description of business dependency on water Description of business impact on water Description of water-related performance standards for direct operations Description of water-related standards for procurement Reference to international standards and widely-recognized water initiatives Company water targets and goals Commitment to align with public policy initiatives, such as the SDGs Commitments beyond regulatory compliance Commitment to water-related innovation Commitment to stakeholder awareness and education Commitment to water stewardship and/or collective action Commitment to safely managed Water, Sanitation and Hygiene (WASH) in the workplace Commitment to safely managed Water, Sanitation and Hygiene (WASH) in local communities Acknowledgement of the human right to water and sanitation Recognition of environmental linkages, for example, due to climate change	Our Sustainability Policy encompasses all our operations and business units worldwide from oil palm plantations to facilities involved in processing, refining and trading of palm oil products, thus it is applicable company-wide. Overview of the Policy includes but is not limited to our commitment to water accountability, commitment beyond regulatory compliance, water quality, and commitment to water stewardship. Progress towards the implementation of the Policy is annually reported through our Sustainability Report which gives a description of our business dependency and impact on water, as well as water-related performance standards for direct operations. For more information on our sustainability policy, please refer to: https://www.musimmas.com/wp-content/uploads/2020/09/Musim-Mas-Sustainability-Policy-2020-2025.pdf Musim-Mas-Sustainability-Report-2020.pdf Musim-Mas-2020-Sustainability-Policy-1.pdf

W6.2

(W6.2) Is there board level oversight of water-related issues within your organization?

Yes

W6.2a

(W6.2a) Identify the position(s) (do not include any names) of the individual(s) on the board with responsibility for water-related issues.

Position of Individual	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. Annually, the Board schedules several meetings with the Director of Sustainability to oversee and decide on active measures needed to improve the ESG performance of Musim Mas operations including water-related issues. Approaching the dry season, for example, the management would plan and decide to construct more water ponds for some units in preparation for the dry season. In 2020, the Board also approved the updated Musim Mas Group Sustainability Policy to further support our commitment to water accountability. The Board is committed to environmental stewardship, human rights and community partnership as the core of our corporate integrity.

W6.2b

(W6.2b) Provide further details on the board's oversight of water-related issues.

	Frequency that water-related issues are a scheduled agenda item	Governance mechanisms into which water-related issues are integrated	Please explain
Row 1	Scheduled - some meetings	Monitoring implementation and performance Overseeing major capital expenditures Reviewing and guiding annual budgets Reviewing and guiding business plans Reviewing and guiding major plans of action Reviewing and guiding risk management policies Reviewing and guiding strategy Reviewing and guiding corporate responsibility strategy Reviewing innovation/R&D priorities Setting performance objectives	During the meeting, our Director of Sustainability will brief the Board on the state of sustainability of the industry including water-related issues and the progress of Musim Mas sustainability initiatives such as RSPO, ISPO, ISCC certification, POIG verification and supply chain traceability. The Director will also bring up any outstandings, complaints, and grievances concerning sustainability to discuss potential paths to resolution. Additionally, the Board and the Director discusses potential new sustainability initiative(s) that can be undertaken with other stakeholders.

W6.2d

(W6.2d) Does your organization have at least one board member with competence on water-related issues?

	Board member(s) have competence on water-related issues	Criteria used to assess competence of board member(s) on water-related issues	Primary reason for no board-level competence on water-related issues	Explain why your organization does not have at least one board member with competence on water-related issues and any plans to address board-level competence in the future
Row 1	Yes	Our Board has extensive experience in handling various sustainability topics including water-related issues. After years of practising responsible palm oil sector, our Board has established Musim Mas Group Sustainability Policy to support our sustainability efforts in accordance with various international and recognised guidelines such as POIG, RSPO, ISPO, ISCC, etc. First published in 2014, the Policy was then strengthened and expanded in 2020 to meet the latest sustainability principles and guidelines. In 2021, we are awarded silver band (improved from bronze) for our Ecovadis assessment and ranked 3rd out of 100 global oil palm companies (rising from 6th) in SPOTT 2021. With these endeavours, our Board has shown their competence in sustainability practices including water-related issues.	<Not Applicable>	<Not Applicable>

W6.3

(W6.3) Provide the highest management-level position(s) or committee(s) with responsibility for water-related issues (do not include the names of individuals).

Name of the position(s) and/or committee(s)

Other C-Suite Officer, please specify (Director of Sustainability)

Responsibility

Assessing future trends in water demand
Assessing water-related risks and opportunities

Frequency of reporting to the board on water-related issues

More frequently than quarterly

Please explain

In the sustainability governance structure, the Director of Sustainability is reporting to the Board of Directors. The Director of Sustainability is responsible to assess and manage key ESG issues including water-related risks and opportunities such as future trends in water demand. The Director and the Board meet more frequently than quarterly to review our ESG performance and are involved in decision-making pertaining to our water-related risks and opportunities. Monthly reports are also provided to the Board. The reported water-related issues include but are not limited to the annual water accountability report that covers a range of topics starting from water usage to water management plans. In all, the objectives are to address ESG-related issues including water and manage environmental strategies into the core of our business.

W6.4

(W6.4) Do you provide incentives to C-suite employees or board members for the management of water-related issues?

	Provide incentives for management of water-related issues	Comment
Row 1	Yes	Yes, we do provide incentives for the board members.

W6.4a

(W6.4a) What incentives are provided to C-suite employees or board members for the management of water-related issues (do not include the names of individuals)?

	Role(s) entitled to incentive	Performance indicator	Please explain
Monetary reward	Director on board	Reduction of water withdrawals Improvements in efficiency - direct operations Increased access to workplace WASH Other, please specify (Certification, Standards and Compliance)	Our Director on board oversees and resolves any sustainability matter including water-related issues such as management of riparian areas. Additionally, Director on board develops water management programs and action plans related to conservation initiatives at the group level. Our Director on Board works and is evaluated annually based on the Key Performance Indicator (KPI) where compensation and benefits are awarded accordingly. Examples of performance indicators include but are not limited to reduction of water intensity and/or full compliance to regulations and certifications schemes such as POIG where water-related issues are discussed. Others include awards and recognitions related to sustainability such as the SPOTT ranking, CDP scorecard, and Ecovadis scorecard. Among many, these indicators were selected as they are aligned with the company's vision and they allow Musim Mas to objectively quantify the progress of the company in the field of sustainability including forest management. Musim Mas uses progress toward its sustainability targets as the threshold of success, therefore incentives are provided if progress is either linear to the overall target or exceeds a linear trend. For example, year-on-year mill water use intensity to be below 1.2 m3/MT FFB processed. Other examples of performance indicators include but are not limited to full compliance with regulations and certifications schemes such as POIG where water-related issues are discussed.
Non-monetary reward	Director on board	Reduction of water withdrawals Improvements in efficiency - direct operations Other, please specify (Certifications, Standards and Compliance)	Our Director on board oversees and resolves any sustainability matter including water-related issues such as management of riparian areas. Additionally, Director on board develops water management programs and action plans related to conservation initiatives at the group level. Our Director on Board works and is evaluated annually based on the Key Performance Indicator (KPI) where compensation and benefits are awarded accordingly. In complement to the monetary reward, non-monetary reward such as special assignment is also given to those who perform. They are given the authority to form, develop, and budget projects/teams/action plans to improve on the performance indicators. These indicators were selected as they are aligned with the company's vision and they allow Musim Mas to objectively quantify the progress of the company in the field of sustainability including water management. Musim Mas uses progress toward its sustainability targets as the threshold of success, therefore incentives are provided if progress is either linear to the overall target or exceeds a linear trend. For example, year-on-year mill water use intensity to be below 1.2 m3/MT FFB processed. Other examples of performance indicators include but are not limited to full compliance with regulations and certifications schemes such as POIG where water-related issues are discussed.

W6.5

(W6.5) Do you engage in activities that could either directly or indirectly influence public policy on water through any of the following?

Yes, other

W6.5a

(W6.5a) What processes do you have in place to ensure that all of your direct and indirect activities seeking to influence policy are consistent with your water policy/water commitments?

As the leader in the palm oil sector, Musim Mas has been a member of the RSPO since 2004 to develop and implement global standards for sustainable palm oil. Among others, we are a substantive member of the RSPO P&C Review Task Force as well as a substantive member of various Working Groups: Smallholders, Biodiversity and High Conservation Values, Human Rights, and Emissions Reduction. Additionally, in 2015, Musim Mas became a member of Palm Oil Innovation Group (POIG), a multi-stakeholder initiative focused on responsible palm oil production verification and innovation. Ever since, we have actively participated in the POIG Organising Committee and Verification Working Group. Align with the highest sustainability standards, Musim Mas launched its first sustainability policy in 2014 and later updated it in 2020. Through our Sustainability Policy, we have committed to water accountability, with respect to water quantity and quality, as well as equity (extraction, use, treatment and discharge, and management of riparian areas and water sources according to best practices). To ensure consistency, we are annually audited against certification schemes such as POIG and RSPO where water aspects such as managing riparian zones are reviewed. Internally, we also conduct third-party verification on water usage for all our RSPO-certified mills to mitigate inconsistency in our water policy.

W6.6

(W6.6) Did your organization include information about its response to water-related risks in its most recent mainstream financial report?

Yes (you may attach the report - this is optional)

Musim Mas is a private company, and we do not publish financial reports. However, we do include information about our response to water-related risks in our Sustainability Report and Sustainability Policy.

W7. Business strategy

W7.1

(W7.1) Are water-related issues integrated into any aspects of your long-term strategic business plan, and if so how?

	Are water-related issues integrated?	Long-term time horizon (years)	Please explain
Long-term business objectives	Yes, water-related issues are integrated	11-15	Musim Mas aspires to be a responsible leader in the palm oil industry. To that end, we updated our Musim Mas Group Sustainability Policy (2020-2025) to address our stakeholders' concerns such as water, NDPE, GHG, biodiversity as well as labor and human rights. Through the Policy, we take commitment to water accountability, with respect to water quantity and quality, as well as equity (extraction, use, treatment and discharge, and management of riparian areas and water sources according to best practices). Align with the SDG's initiatives of Goal 6, Musim Mas is committed to building and constructing water wells within communities and providing free drinking water and clean water for use to all workers living in our plantations and mills. To ensure transparency and monitor our adherence, we are annually audited and certified against various sustainability schemes such as PROPER, POIG, and RSPO which consider water aspects. Moreover, water management plans are also widely socialised among relevant stakeholders (i.e. employees, local communities) ensuring awareness of water aspects including managing riparian buffer zones, fertilizer application management, and water efficiency. We also annually communicate our sustainability progress through Sustainability Report which covers water-related aspects such as water use intensity and water consumption. In all, we take active steps to go beyond industry-recognized sustainability standards to contribute to a more sustainable world.
Strategy for achieving long-term objectives	Yes, water-related issues are integrated	11-15	Recognising the importance of water in our operations, water aspects are integrated into Musim Mas Group Sustainability Policy. Aligned with the sustainability policy and SDG 6, we provide adequate free clean water to all our employees and their households. Through our water allocation system, we ensure that every individual receives 120 liters of water per day (more than national and WHO's recommendations of 50-100 litres). We also partner with public health officials to monitor the quality of the water from wells to track the potential risk of contamination or other issues. Additionally, we actively socialise and promote sustainable water management practices (i.e. fertilizer application, managing riparian buffer zones) to relevant stakeholders such as employees and local communities. To ensure transparency and monitor our adherence, we are annually audited and certified against various sustainability schemes such as PROPER, POIG, Environmental Impact assessment, and RSPO which consider water aspects. To communicate our sustainability commitments, we also published our sustainability progress, milestones, and targets through an annual Sustainability Report (https://www.musimmas.com/sustainability-report/). In all, we take 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 world.
Financial planning	Yes, water-related issues are integrated	11-15	Water-related issues are also included in our financial planning since water is important resource for our operations. As for financial planning, the management would budget in preparation of the current and upcoming action plans/project. For example, we would budget to construct more water ponds for some units in preparation for the dry season. However, understanding that Musim Mas is not a public company, thus, internal figures relating to budget, sales, and profits are not shared externally.

W7.2

(W7.2) What is the trend in your organization's water-related capital expenditure (CAPEX) and operating expenditure (OPEX) for the reporting year, and the anticipated trend for the next reporting year?

Row 1

Water-related CAPEX (+/- % change)

0

Anticipated forward trend for CAPEX (+/- % change)

0

Water-related OPEX (+/- % change)

0

Anticipated forward trend for OPEX (+/- % change)

0

Please explain

N/A

W7.3

(W7.3) Does your organization use scenario analysis to inform its business strategy?

	Use of scenario analysis	Comment
Row 1	Yes	Scenario analysis is used to inform Musim Mas business strategy.

W7.3a

(W7.3a) Provide details of the scenario analysis, what water-related outcomes were identified, and how they have influenced your organization's business strategy.

	Type of scenario analysis used	Parameters, assumptions, analytical choices	Description of possible water-related outcomes	Influence on business strategy
Row 1	Water-related	Recognizing the occurrence of climate change that leads to extreme weather such as drought, Musim Mas has adopted comprehensive measures to deliver positive environmental impact including safeguarding water. Through our internal assessment, we actively measure, monitor, and analyze our historical water usage patterns to appropriately set the water target for future reference. Scenario analysis such as enhancing our mills' processes to use water less, improving our maintenance to minimize leakage, and boosting our machinery efficiency is used to develop a reasonable target for our mill water use intensity.	<p>Set in 2019, our initial water target for water use intensity in palm oil mills was below 1.25 m³/MT FFB processed. We are proud to announce that in 2019 our overall mill water usage intensity was 1.23 m³/MT FFB processed. We then developed a new target to maintain mill water use intensity to be below 1.2 m³/MT FFB processed year over year. Through the action plan of our scenario analysis, our mill water usage intensity has decreased from 1.17 m³/MT FFB processed in 2020 to approximately 1.13 m³/MT FFB processed in 2021. Additionally, to ensure transparency of our progress towards the target, we published our water use intensity in Musim Mas Sustainability Report annually (https://www.musimmas.com/sustainability-report/).</p> <p>Our effort on using water in a sustainable manner as well as implementing Best Management Practices (BMP) and protecting water resources have also contributed to our environmental achievement and compliance with various sustainability certification schemes. In 2021, we are awarded a silver band (improved from bronze) for our Ecovadis assessment and ranked 3rd out of 100 global oil palm companies (rising from 6th) in SPOTT 2021. As of 2021, all 15 of our integrated mills are RSPO certified and POIG verified. Moreover, in 2021, 11 of our mills were awarded the GREEN label of the PROPER award which signifies full and beyond compliance status.</p>	<p>Our strategic responses include but are not limited to reducing water withdrawal, improving efficiency, managing water discharge quality, and socializing water-saving campaigns. As such, we implement best management practices (BMP) on fertilizer usage, pest and diseases management, repairing and constructing terracing, stop bund, retaining wall, and silt-pit, cover crop planting, frond stacking, culvert construction, and road maintenance. From the environmental aspect, implementing BMP is of paramount importance to protect and maintain the hydrological and ecological function of the riparian zone which serves as water catchment areas. Furthermore, the construction of terracing can reduce the length of the slope surface area and then reduce the erosion and prevent the leaching of nutrients from that particular area. Minimum erosion level and preservation of the nutrient reduce sedimentation on the rivers and maintain the soil fertility on slope areas respectively. Regular monitoring and water quality testing are also conducted to evaluate the effectiveness of the programs and to make sure the water qualities of rivers are maintained.</p> <p>To objectively track our strategic response, an indicator such as water use intensity target is set. In our mills, for example, we targeted to maintain our mill water usage intensity below 1.2 m³/MT FFB processed year on year. In 2021, we meet the intensity target with 1.13 m³/MT FFB (improved from 1.17 in the previous year).</p>

W7.4

(W7.4) Does your company use an internal price on water?

Row 1

Does your company use an internal price on water?

Yes

Please explain

Aligned with the sustainability policy and SDG 6, we provide adequate free clean water to all our employees and their households. Through our water allocation system, we ensure that every individual receives 120 litres of water per day (more than national and WHO's recommendations of 50-100 litres). We also partner with public health officials to monitor the quality of the water from wells to track the potential risk of contamination or other issues. On that note, we installed flow meter in our housing areas to monitor our water consumption. We have internal pricing on water for individuals who need more water. This is to ensure that our operations are in line with our water savings commitment.

W7.5

(W7.5) Do you classify any of your current products and/or services as low water impact?

	Products and/or services classified as low water impact	Definition used to classify low water impact	Primary reason for not classifying any of your current products and/or services as low water impact	Please explain
Row 1	Yes	<p>We define low water impact as having the following traits:</p> <ul style="list-style-type: none"> -Value chain stage: CPO Production -Water aspects considered: Impact on water resources - Criteria (impact indicator): BOD and COD levels of the POME from CPO production -Threshold: BOD below 100 mg/liter and COD below 350 mg/liter -Standards considered: Peraturan Menteri Lingkungan Hidup Republik Indonesia Nomor 5 Tahun 2014 tentang Baku Mutu Air Limbah 	<Not Applicable>	<p>Crude palm oil (CPO) is one of Musim Mas key products. The waste from CPO production namely Palm Oil Mill Effluent (POME) contains a high amount of biological oxygen demand (BOD) levels and chemical oxygen demand (COD) levels which will negatively impact the watercourses if discharged without treatment. Hence, Musim Mas treats all POME prior to discharging it. The BOD and COD levels are strictly managed and kept below regulatory thresholds to avoid any adverse impact on groundwater and nearby water sources. The BOD and COD values are monthly tested through independent external parties. As a result, CPO is classified as our low water impact product.</p>

W8. Targets

W8.1

(W8.1) Describe your approach to setting and monitoring water-related targets and/or goals.

	Levels for targets and/or goals	Monitoring at corporate level	Approach to setting and monitoring targets and/or goals
Row 1	Company-wide targets and goals Business level specific targets and/or goals Country level targets and/or goals	<p>Targets are monitored at the corporate level</p> <p>Goals are monitored at the corporate level</p>	<p>Driven to deliver positive environmental impacts, Musim Mas has set a goal to promote sustainable oil palm practices by addressing key issues such as deforestation, climate change, water scarcity, loss of biodiversity, etc. Through our internal assessment, we actively measure, monitor, and analyze our historical water usage patterns to appropriately set the water target for future reference. Musim Mas sets water use intensity target of 1.2 m3 per ton of Fresh Fruit Bunch (FFB) processed from all our integrated palm oil mills. To ensure transparency of our progress towards the goal and target, we published our water use intensity in Musim Mas Sustainability Report annually (https://www.musimmas.com/sustainability-report/)</p>

W8.1a

(W8.1a) Provide details of your water targets that are monitored at the corporate level, and the progress made.

Target reference number

Target 1

Category of target

Other, please specify (Water Use Intensity)

Level

Business activity

Primary motivation

Reduced environmental impact

Description of target

In order to reduce environmental impact, Musim Mas has set water use efficiency target for our business activity which is our palm oil mills. Our water target covers water usage intensity from all of our integrated mills. We targeted to maintain our mill water usage intensity below 1.2 m3 per ton of fresh fruit bunch processed (m3/MT FFB processed) year over year.

Quantitative metric

Other, please specify (Mill water usage intensity)

Baseline year

2020

Start year

2020

Target year

2021

% of target achieved

100

Please explain

Our mill water usage intensity decreased from 1.17 m3/MT FFB processed in 2020 to approximately 1.13 m3/MT FFB processed in 2021. For this, we have achieved 100% of the mill water usage intensity target. Through our best management practices, we will continue to reduce our water use intensity.

W8.1b

(W8.1b) Provide details of your water goal(s) that are monitored at the corporate level and the progress made.

Goal

Promotion of sustainable agriculture practices

Level

Company-wide

Motivation

Reduced environmental impact

Description of goal

Driven to deliver positive environmental impacts, Musim Mas is committed to environmental stewardship and continuously strives to minimize and mitigate the impacts of our operations. Moreover, we are committed to enhancing the state of the natural environment, where possible, and identifying areas where we can make difference. As the leader in oil palm industry, our goal is to lead by example and promote sustainable oil palm practices at the highest level to address environmental issues, such as climate change, water scarcity, loss of biodiversity, etc. Launched in 2014, we updated our Musim Mas Group Sustainability Policy in 2020 which sets out our commitment to sustainable agriculture practices including in water aspect. The Policy applies to our global operations and those of our suppliers to implement the goal company-wide.

Baseline year

2020

Start year

2020

End year

2025

Progress

To demonstrate how we intend to meet our 2025 goals, we annually published Musim Mas Sustainability Report which articulates our progress toward meeting the goal. The indicators that we used to assess the progress are including but are not limited to the amount of GHG emissions, water usage for direct operations, water footprint, renewable energy from waste, effluent volume and its quality, chemicals and pesticides used, as well as total conservation area. The threshold of success is based on the regulatory requirements and sustainable palm oil certification standards (e.g. RSPO, ISCC, ISPO). As of June 2021, we have achieved 100% mills with plantations RSPO-certified signifies that we have progressed towards our goal. Moreover, in 2021, we conducted our first third-party verification on our water use in our integrated mills to ensure consistency with our water policy. For more information about our sustainability progress, please refer to <https://www.musimmas.com/sustainability-report/>.

W9. Verification

W9.1

(W9.1) Do you verify any other water information reported in your CDP disclosure (not already covered by W5.1a)?

Yes

W9.1a

(W9.1a) Which data points within your CDP disclosure have been verified, and which standards were used?

Disclosure module	Data verified	Verification standard	Please explain
W8 Targets	Water usage intensity target in our processing unit.	ISAE 3000	To ensure credibility and transparency, we conduct third-party verification on our mills' water use. The figure of 1.17 m3/MT FFB processed has been verified by Ernst & Young LLP. The latest figure of 1.13 m3/MT FFB processed is currently undergoing verification process at the time of submission.

W10. Sign off

W-FI

(W-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

W10.1

(W10.1) Provide details for the person that has signed off (approved) your CDP water response.

	Job title	Corresponding job category
Row 1	Director of Sustainability	Director on board

W10.2

(W10.2) Please indicate whether your organization agrees for CDP to transfer your publicly disclosed data on your impact and risk response strategies to the CEO Water Mandate's Water Action Hub [applies only to W2.1a (response to impacts), W4.2 and W4.2a (response to risks)].

No

SW. Supply chain module

SW0.1

(SW0.1) What is your organization's annual revenue for the reporting period?

	Annual revenue
Row 1	10000000

SW1.1

(SW1.1) Could any of your facilities reported in W5.1 have an impact on a requesting CDP supply chain member?

This is confidential

SW1.2

(SW1.2) Are you able to provide geolocation data for your facilities?

	Are you able to provide geolocation data for your facilities?	Comment
Row 1	No, this is confidential data	n/a

SW2.1

(SW2.1) Please propose any mutually beneficial water-related projects you could collaborate on with specific CDP supply chain members.

SW2.2

(SW2.2) Have any water projects been implemented due to CDP supply chain member engagement?

No

SW3.1

(SW3.1) Provide any available water intensity values for your organization's products or services.

Product name

Crude Palm Oil (CPO)

Water intensity value

1.13

Numerator: Water aspect

Water withdrawn

Denominator

Amount of FFB processed

Comment

n/a

Submit your response

In which language are you submitting your response?

English

Please confirm how your response should be handled by CDP

	I understand that my response will be shared with all requesting stakeholders	Response permission
Please select your submission options	Yes	Public

Please confirm below

I have read and accept the applicable Terms