Suzano Papel & Celulose - Climate Change 2023

C0. Introduction

C0.1

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

Suzano is a Brazilian renewable-based company committed to be a global reference in the sustainable use of renewable resources. The Company is the world's leader in the manufacture of eucalyptus pulp and one of the largest paper manufacturers in Latin America, with a forest base of approximately 2,6 million hectares, which includes eucalyptus plantations and one of Brazilian's largest protected private native forest areas (approximately 1 million hectares in 2022). Together, native forests and eucalyptus plantations contribute directly to removing and storing CO2 from the atmosphere. The company does not practice deforestation of native forest and all the new areas for eucalyptus plantations have their previous use made by other human activities. Suzano is committed to the Principles and Criteria of the FSC® and NBR 14,789 CERFLOR Forest Management, with the purpose of providing the sustainability of its business in the long term, the continuous improvement of its activities and performance, as well as the adoption of environmental and socially responsible practices. As a material issue, Suzano prioritizes climate change in its operations, aiming to mitigate risks and seize economic opportunities. This involves incorporating climate change aspects, improving through scenarios and research, implementing new technologies, and innovating processes. The company focuses on reducing emissions throughout its value chain, increasing carbon removals in plantations and native forests. It also has a business model centered on eco-efficient operations and new, renewable, forest product development that replaces non-renewables characterized by high GHG intensity. This is all connected to Suzano's Strategic Vision, which focuses on continuing to be a reference in efficiency, profitability and sustainability, becoming a transformational agent in the expansion of new markets and a reference in sustainable and innovative solutions for the bioeconomy and environmental services. Also, more than 88% of Suzano's energy consumption comes from renewable sources, and the Company exports renewable energy for the Brazilian energy grid. The Company have a higher volume of carbon capture compared to emissions, reaching negative net emissions (going beyond the neutralization and compensation to removing additional amounts of carbon from the atmosphere). In 2022, the Company's accumulated carbon balance (baseline 2020), considering scope 1, 2 and 3 emissions (fossil) and carbon removals (anthropogenic biogenic) from their forests, was 22 million tons of CO2 removed. Suzano accounts for the gases emitted annually in its emissions inventory, which is verified by a third party and made available to the public. And in addition to emissions, the inventory also measures carbon removals promoted by our forest base (planted areas and native conservation areas). Measurement is the first step so that we can act as part of the solutions to combat the climate crisis. We constantly seek to advance in the accounting and transparency of our data for all interested parties. Suzano is attentive in identifying and managing the risks that climate change imposes on its business. Climate change-related risks, such as those related to physiological disturbances, pests and diseases, are priority risks on its Corporate Risk Matrix. As such, climate change risk management is integrated into the overall risk management process. The Board of Directors directly oversees climate change opportunities and risks by monitoring the Company's strategy, which includes two climate change-related long-term targets , one intensity target for reducing 15% of its directly emissions from Scopes 1 and 2 until 2030, and one absolute target to remove 40 millions of CO2e from atmosphere until 2025. Suzano pledges to implement the TCFD Recommendations, not only as a reference for reporting on climate-related financial impacts, but also as a framework for reviewing its existing risk and opportunity management practices and identifying opportunities for improving its processes and operations. In order to better address and communicate company progress regarding performance on TCFD recommendations, Suzano has created a TCFD-dedicated page in its Suzano Sustainability center.

Externally, Suzano strengthens its dialogue and partnerships with governments, companies, NGOs, associations and academy, actively participating in forums and working groups, especially on advocating opportunities for the Brazilian forestry industry, such as carbon markets and strategies to implement a low-carbon economy. In addition, to further strengthen Suzano's relationship with its suppliers and encourage them to make joint commitments to reduce emissions, in 2021 we have joint CDP Supply Chain, where we invite critical suppliers mapped in the socio-environmental risk matrix. During the year, we automated and analyzed data to enhance.

C0.2

(C0.2) State the start and end date of the year for which you are reporting data and indicate whether you will be providing emissions data for past reporting years.

Reporting year

Start date
January 1 2022

End date
December 31 2022

Indicate if you are providing emissions data for past reporting years
Yes

Select the number of past reporting years you will be providing Scope 1 emissions data for
2 years

Select the number of past reporting years you will be providing Scope 2 emissions data for
2 years

Select the number of past reporting years you will be providing Scope 3 emissions data for
2 years

C0.3

(C0.3) Select the countries/areas in which you operate.

Argentina
Austria
Brazil
Canada
China
Finland
Israel
Switzerland
United States of America

C0.4

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

BRL

C0.5

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

Other, please specify (Companies, entities or groups over which financial and operational control is exercised)

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

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

	Relevance
Agriculture/Forestry	Both own land and elsewhere in the value chain [Agriculture/Forestry only]
Processing/Manufacturing	Both direct operations and elsewhere in the value chain [Processing/manufacturing/Distribution only]
Distribution	Both direct operations and elsewhere in the value chain [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

Analysis in progress

Please explain

Since most of the production is aimed at customers who process our products, the operational process control and the emissions of manufacturing transformation (pulp and paper) are controlled by our customers in their scopes 1 and 2. We are currently working on a project to assess our entire value chain emissions and address most impactful categories not yet included in our GHG inventory. Preliminary results indicate that GHG emissions from the process of pulp to produce consumer and specialty products are the most critical part of its life cycle.Emissions from paper consumption are related to the final destination for landfill or recycling.

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
Timber

% of revenue dependent on this agricultural commodity
More than 80%

Produced or sourced
Both

Please explain
With more than 90 years of experience, we operate mainly in the pulp (paper grade and fluff) and paper (paperboard, printing and writing and tissue) segments. We believe that we are one of the largest vertically integrated producers of pulp and paper in Latin America and, according to Hawkins We were the largest producer of eucalypt pulp in the world and virgin market pulp in the world in 2022. Suzano has an installed capacity of 10.9 million metric tons of eucalyptus pulp per year and a broad and diversified forest base. Also, the company owns 1,6 million hectares that are dedicated to Eucalyptus plantation and 1 million for forestry reserves, ensuring compliance with Brazilian law that determines the percentage of area required for legal and permanent preservation reserves, located mainly along the rivers. As a policy, our plantations are exclusively established in areas previously anthropized by other uses, whose conversion has not occurred under its direct or indirect responsibility, committing itself to a zero-deforestation policy. Likewise, the company also undertakes to buy wood from plantations established exclusively in areas that were previously anthropized and, also develops continuous actions to raise awareness and encourage its wood suppliers to certify their plantations and/or apply FSC and PEFC standards in their forest operations. By 2022, Suzano's net sales were R$49.831 million, coming from forest-based products, where eucalyptus pulp sales totalled R$41.384 million, and paper and packaging (both produced mainly from eucalyptus) totalled R$8.447 million.

C0.8

(C0.8) 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
Yes, an ISIN code	BRSUZBACNOR0

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 or committee	Responsibilities for climate-related issues
Board-level committee	The company has a Sustainability Committee, a collegiate advisory and instructional body, established by the Board of Directors, responsible for defining the management on climate change strategy, and analysing and monitoring the implementation of the defined objectives, tactical indicators and targets. Climate change issues are periodically debated by the Board of Directors' Sustainability Committee, which is coordinated by one of the Board of the Directors that have and composed of nine members (five external members). The Sustainability Committee is responsible for establishing and monitoring long-term strategies, structuring guidelines related to sustainability issues and inserting the sustainability dimension into the company's strategy. Thereby, the Sustainability Committee: (i) advises the Board of Directors through analysis and recommendation on the inclusion of the sustainability dimension and climate change issues in the Company's strategic, as well as on the risks, opportunities and measures associated with socio-environmental issues that may have relevant impact on the business in short, medium and long term; (ii) reviews and makes recommendations on long-term sustainability targets, annually evaluating performance against these objectives; (ii) periodically reviews the strategies, actions and projects related to climate change and the company's sustainability; and (iv) evaluates the actions and the quality of the relationship with stakeholders. The establishment of the CEO and others executives' goals are aligned with the company's strategic planning and are submitted for approval by the company's Board of Directors. Furthermore, the Chief Sustainability Officer (CSO) is responsible for the implementation and management of Suzano's climate change strategy and governance ensuring that the climate agenda is taken into account across our operations and business decisions as well as for monitoring the overall performance of our long-term climate change goals.

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	Scope of board-level oversight	Please explain
Scheduled – some meetings	Reviewing and guiding annual budgets Overseeing major capital expenditures Overseeing acquisitions, mergers, and divestitures Overseeing and guiding employee incentives Reviewing and guiding strategy Overseeing the setting of corporate targets Monitoring progress towards corporate targets Reviewing and guiding the risk management process	<Not Applicable>	The Sustainability Committee advises the Board of Directors on re-viewing and recommending on the inclusion of matters dealing with sustainability and climate change in the company's strategy. However, the economic, environmental and social aspects are a responsibility of all company directors, who report to the CEO, who, in turn, reports to the Board of Directors. The establishment of the CEO and others executives' goals are aligned with the company's strategic planning and are submitted for approval by the company's Board of Directors. The Board of Directors is responsible for supporting strategy and establishing commitments that the company will make in climate change issues. The long-term goals announced in 2020 include targets directly related to climate change issues, which are: (1) Be more climate positive by increasing the capture of 40 million tons of carbon from the atmosphere, (2) Reduce the intensity of scope 1 and 2 greenhouse gas emissions by 15% per tonne, (3) Offer 10 million tonnes of products from renewable sources that can replace plastic and other petroleum-based products, (4) Increase renewable energy exports by 50%, (5) Reduce the volume of industrial solid waste sent to landfill by 70% and (6) Increase water availability in all critical watersheds in the areas where Suzano operates. These commitments were deliberated and approved by the Board of Directors and their achievement is periodically monitored at Board meetings.

C1.1d

(C1.1d) Does your organization have at least one board member with competence on climate-related issues?

	Board member(s) have competence on climate-related issues	Criteria used to assess competence of board member(s) on climate-related issues	Primary reason for no board-level competence on climate-related issues	Explain why your organization does not have at least one board member with competence on climate-related issues and any plans to address board-level competence in the future
Row 1	No, but we plan to address this within the next two years	<Not Applicable>	Important but not an immediate priority	Suzano has a Sustainability Committee responsible for supporting the Board of Directors on such themes, including Climate Change. The Committee is coordinated by a member of the Board of Director with knowledge and expertise in climate-related issues and also has independent members with knowledge and expertise in climate-related issues.

C1.2

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

Position or committee
Chief Executive Officer (CEO)

Climate-related responsibilities of this position
Assessing climate-related risks and opportunities
Managing climate-related risks and opportunities

Coverage of responsibilities
<Not Applicable>

Reporting line
Reports to the board directly

Frequency of reporting to the board on climate-related issues via this reporting line
Quarterly

Please explain
The CEO is the responsible for company's Commitments to Renewing Life, such as removing 40 million tonnes of carbon from the atmosphere by 2025 and reducing the intensity of scope 1 and 2 greenhouse gas emissions by 15% per tonne of production by 2030. He reports periodically to the to both 'Strategy and Innovation' and 'Sustainability' Committees.

Position or committee
Chief Sustainability Officer (CSO)

Climate-related responsibilities of this position
Managing annual budgets for climate mitigation activities

Integrating climate-related issues into the strategy
Conducting climate-related scenario analysis
Setting climate-related corporate targets
Monitoring progress against climate-related corporate targets
Assessing climate-related risks and opportunities
Managing climate-related risks and opportunities

Coverage of responsibilities
<Not Applicable>

Reporting line
CEO reporting line

Frequency of reporting to the board on climate-related issues via this reporting line
Quarterly

Please explain
Chief Sustainability Officer is responsible for leading the climate strategy and governance with the objective to incorporate climate change into the business model, driving the strategic vision of the business toward the transition to a low-carbon economy. She also leads the implementation of several multidisciplinary projects, providing technical knowledge on Climate Change, calculations of emissions and removal, analysis of risks and opportunities, engagement with internal and external stakeholders including value chain, among others. She reports periodically to the to both 'Strategy and Innovation' and 'Sustainability' Committees.

Position or committee
Other C-Suite Officer, please specify (Risk and Compliance Executive Manager)

Climate-related responsibilities of this position
Assessing climate-related risks and opportunities
Managing climate-related risks and opportunities

Coverage of responsibilities
<Not Applicable>

Reporting line
CEO reporting line

Frequency of reporting to the board on climate-related issues via this reporting line
Half-yearly

Please explain
The Risk Management area monitors the evolution and mitigation of priority risks through the definition of action plans and controls, with a report to the Board at least once a year. The risk management process also includes specific approaches at the operational level. The areas of Forestry Excellence, Environment (Industrial and Forestry), Planning (Strategic and Forestry), and Recovery and Utilities work with the theme in their daily activities. Among these actions are managing the use of fossil fuels, seeking innovations and technological solutions related to mitigation and resilience, managing energy generation and consumption, forest restoration, among others.

Position or committee
Other C-Suite Officer, please specify (Chief Research and Development Officer)

Climate-related responsibilities of this position
Managing major capital and/or operational expenditures related to low-carbon products or services (including R&D)
Managing climate-related risks and opportunities

Coverage of responsibilities
<Not Applicable>

Reporting line
CEO reporting line

Frequency of reporting to the board on climate-related issues via this reporting line
Quarterly

Please explain
The Chief Research and Development Officer is responsible for the corporate leadership of the company's technological innovation processes since the forest until the product. The Research and Development (R&D) team is responsible for modelling climate change physical scenarios and monitoring indicators. These data are used to calibrate harvest and planting planning models and to review the assessment of co-related climate risks to define new specific action plans, when necessary, to include mitigation and adaptation measures into the risk matrix and in the decision-making process in the forestry area. Among these, the R&D team has a long-term plan focused on climate change adaptation. The Chief Research and Development Officer reports periodically to the CEO and to both 'Strategy and Innovation' and 'Sustainability' Committees.

C1.3

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

	Provide incentives for the management of climate-related issues	Comment
Row 1	Yes	As priority, the company executives have ESG targets in their respective annual target dashboards established and contracted at the start of each performance cycle. These targets are monitored periodically to assess the achievement of the goals established and adjust the action plans, if required. Achieving the established goals directly impacts the annual compensation of the executive since, by virtue of the program model, their reward can be accelerated or reduced. Some of these goals are milestones towards the achievement of company's long-term targets, including those related to the management of climate-related issues, which includes our CEO. The Board of Directors, supported by the Sustainability Committee, is responsible for overseeing the sustainability strategy, including climate change aspects. In 2022, part of the variable compensation of executive directors was linked to sustainability target; our CEO and five directors have climate-related targets.

C1.3a

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

Entitled to incentive
Chief Executive Officer (CEO)

Type of incentive
Monetary reward

Incentive(s)
Bonus – set figure

Performance indicator(s)
Progress towards a climate-related target
Implementation of an emissions reduction initiative
Reduction in emissions intensity

Incentive plan(s) this incentive is linked to
Long-Term Incentive Plan

Further details of incentive(s)
The variable compensation program mostly aims at leveraging business and results, encouraging employees to effectively contribute to the Company's growth, strengthening the commitment to sustainable results, while making the short and long-term visions compatible, ena- bling that the Company's growth results in a financial compensation, as well as retaining employees. These targets are set following a strict monitoring and auditing control. C-suite salary multiplier is tied in accordance to target achievement.

In this way, employees are encouraged to contribute effectively to the Company's sustainable growth, enabling the attraction and retention of high-performance professionals. It is a strategy to reward results in the short or long term and also encourage the achievement of pre-defined objectives.

The configuration of the Variable Compensation model provides for the establishment of collective and individual goals that are aligned with the company's strategic planning and that guide employees towards achieving the defined objectives. Individual performance is directly linked to the business result, allowing the management of employee recognition and meritocracy.

Suzano values the good practice of corporate governance, therefore, the definition and verification of goals follow a strict control of monitoring and auditing, guaranteeing the accuracy of the information.

Explain how this incentive contributes to the implementation of your organization's climate commitments and/or climate transition plan
Suzano seeks to incorporate ESG aspects into its operations, implementing new technologies and innovating processes, in order to provide the company's sustainable growth, preserving and caring for the environment.
Suzano's Variable Compensation Program has the important objective of leveraging business, results and aligning the model with the interests of shareholders that include Climate Change challenges and strategies.
C-suite salary multiplier is tied in accordance to target achievement. The CEO has a climate-related target linked to the achievement of the company's long-term goal on net positive removals (balance between carbons emissions and carbon removals). Variable remuneration is linked to the annual progress towards his goal.
The establishment of the CEO's goals are aligned with the company's strategic planning and are submitted for approval by the company's Board of Directors.
Suzano's Climate Plan aims to integrate climate change into its business strategy, transitioning towards a low carbon economy. The plan includes two climate targets: removing 40 million tonnes of CO_2 equivalent by 2025 (originally 2030) and reducing carbon emissions intensity by 15% by 2030. These targets go beyond carbon neutrality and aim for carbon negativity. Suzano utilizes its extensive forest base to offset its own emissions and generate carbon credits through specific projects. This approach allows the company to contribute to greenhouse gas removal without relying on external carbon credit purchases. In 2022 Suzano has reduced their intensity emissions, have participated in COP27, signed commitments and carbon credits been available in 1Q23.

Entitled to incentive
Chief Operating Officer (COO)

Type of incentive
Monetary reward

Incentive(s)
Bonus – set figure

Performance indicator(s)
Progress towards a climate-related target
Implementation of an emissions reduction initiative

Incentive plan(s) this incentive is linked to
Short-Term Incentive Plan

Further details of incentive(s)
The variable compensation program mostly aims at leveraging business and results, encouraging employees to effectively contribute to the Company's growth, strengthening the commitment to sustainable results, while making the short and long-term visions compatible, ena- bling that the Company's growth results in a financial compensation, as well as retaining employees. These targets are set following a strict monitoring and auditing control.

In this way, employees are encouraged to contribute effectively to the Company's sustainable growth, enabling the attraction and retention of high-performance professionals. It is a strategy to reward results in the short or long term and also encourage the achievement of pre-defined objectives.

The configuration of the Variable Compensation model provides for the establishment of collective and individual goals that are aligned with the company's strategic planning and that guide employees towards achieving the defined objectives. Individual performance is directly linked to the business result, allowing the management of employee recognition and meritocracy.

Suzano values the good practice of corporate governance, therefore, the definition and verification of goals follow a strict control of monitoring and auditing, guaranteeing the accuracy of the information.

Explain how this incentive contributes to the implementation of your organization's climate commitments and/or climate transition plan
Suzano seeks to incorporate ESG aspects into its operations, implementing new technologies and innovating processes, in order to provide the company's sustainable growth, preserving and caring for the environment.
Suzano's Variable Compensation Program has the important objective of leveraging business, results and aligning the model with the interests of shareholders that include Climate Change challenges and strategies.
The variable compensation program mostly aims at leveraging business and results, encouraging employees to effectively contribute to the Company's growth, strengthening the commitment to sustainable results, while making the short and long-term visions compatible, ena- bling that the Company's growth results in a financial compensation, as well as retaining employees. These targets are set following a strict monitoring and auditing control. C-suite salary multiplier is tied in ac- cordance to target achievement. The Pulp Chief Operating Officer has a climate-related target linked to the achievement of the company's long-term goal to reduce the intensity of GHG Scope 1 and Scope 2 CO2 emissions per tonne of production. Variable remuneration is linked to the annual progress towards this goal.
In 2022, our emissions intensity (Scopes 1 and 2) per ton of production was 0.1962 tCO_2e/t[5]. There was an accumulated reduction of 8% in 2022, which represents an advance of 53.5% toward achieving the target.

Entitled to incentive
Other C-Suite Officer

Type of incentive
Monetary reward

Incentive(s)
Bonus – set figure

Performance indicator(s)
Other (please specify) (New business opportunities aligned to a low carbon economy)

Incentive plan(s) this incentive is linked to
Short-Term Incentive Plan

Further details of incentive(s)
The variable compensation program mostly aims at leveraging business and results, encouraging employees to effectively contribute to the Company's growth, strengthening the commitment to sustainable results, while making the short and long-term visions compatible, enabling that the Company's growth results in a financial compensation, as well as retaining employees. These targets are set following a strict monitoring and auditing control.

In this way, employees are encouraged to contribute effectively to the Company's sustainable growth, enabling the attraction and retention of high-performance professionals. It is a strategy to reward results in the short or long term and also encourage the achievement of pre-defined objectives.

The configuration of the Variable Compensation model provides for the establishment of collective and individual goals that are aligned with the company's strategic planning and that guide employees towards achieving the defined objectives. Individual performance is directly linked to the business result, allowing the management of employee recognition and meritocracy.

Suzano values the good practice of corporate governance, therefore, the definition and verification of goals follow a strict control of monitoring and auditing, guaranteeing the accuracy of the information.

Explain how this incentive contributes to the implementation of your organization's climate commitments and/or climate transition plan
Suzano seeks to incorporate ESG aspects into its operations, implementing new technologies and innovating processes, in order to provide the company's sustainable growth, preserving and caring for the environment.

The Chief New Business Officer has a climate-related target linked to the achievement of company's long-term goal on offering renewablesource products that can replace plastic and other petroleum-based products. Variable remuneration is linked to the annual progress towards this goal
Suzano's Variable Compensation Program has the important objective of leveraging business, results and aligning the model with the interests of shareholders that include Climate Change challenges and strategies.

In 2022, we offered about 45,000 tons of renewable products, resulting in an accumulation of about 77,000 tons. We achieved record sales of products to replace plastics, advancing in routes already consolidated, as is the case of products aimed at the markets of cups, straws, and cardboard. Moreover, we launched new products, such as the Greenpack® line, which seeks to address new paper options for the packaging markets. Also, in 2022, we implemented an MFC plant in Limeira (SP), as well as MFC and textile fiber plants in Finland with 1,000 tons of capacity with our partner Spinnova. Both plants are in the startup phase for production throughout 2023.

C2. Risks and opportunities

C2.1

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

C2.1a

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

	From (years)	To (years)	Comment
Short-term	1	3	Suzano considers as time horizons: Short-term (1-3), Medium-term (3-10) and Long-term (10-15). Considering actions that could impact on current year and next two years, Suzano's business strategy has 17 must-win battles and close to 100 initiatives (third level of the strategy) that will be implemented in in short-term. As an example of initiatives, we could mention implementation of industrial energy efficiency projects and modernization projects at the Paper and Packaging units (completed in 2022), that are aligned and part of our long-term goals. Short and long-term metrics and goals complement the work and are fundamental in the analysis of advances and eventual adjustments to the routes. Actions to communication and mobilize the internal audience to learn about the strategic vision, ambitions, battles, and initiatives are already taking place since 2020. They are defined as short-, medium- and long-term time horizons. The Company is equipped with a structure dedicated to corporate risk management, including risks related to climate change, with its own methodologies, tools and processes that aim to ensure the identification, assessment and treatment of its main short, medium and long-term risks. Such structure, through its management system, allows for the continuous monitoring of risks and potential impacts, control of variables involved and definition and implementation of mitigating measures, aimed at reducing identified exposures. The company's assessment of potential physical impacts from climate change, as well as from the transition to a low carbon economy, is continuously conducted and will continue to evolve, integrated to the business
Medium-term	3	10	Suzano considers the following time horizons: Short-term (1-3), Medium-term (3-10) and Long-term (10-15). Medium-term, that is between 3 and 10 years, is the maturity time for most projects, and, corresponds to a wood cycle. Based on the unique long-term vision, senior management was responsible for breaking it down into five main medium-term ambitions (e.g., Play a leading role in sustainability), intended to guide Suzano's path over the medium-term. These are the steps that will need to be followed to ensure the company's success, and is advancing on several fronts, in example, taking another 18,300 people out of the poverty line, reaching 29,600 since 2020. Climate-related risks are incorporated throughout the Company's Enterprise Risk Management (ERM) process. As part of the continuous monitoring process of climate risks, we set up action plans focused on mitigating the medium- and long-term impacts of Climate Change, while critical actions are reported regularly to the Executive Committee and the Board of Directors.
Long-term	10	15	Suzano considers as time horizons: Short-term (1-3), Medium-term (3-10) and Long-term (10-15) On the first level is our long-term strategic vision, which is between 10 and 15 years, and comprises the long-term planning of forest plantations. Prepared together with the members of the Executive Board, Strategy and Innovation Committee and the Board of Directors, this vision shows where Suzano wants to be 15 years from now. And then we believe that there are opportunities to be addressed by Suzano such as plastic substitution, renewable materials supply, and carbon capture. Also, our long-term goals (e.g., remove an additional 40 million tons of carbon from the atmosphere - carbon capture - scopes 1, 2 and 3 emissions) are part of our business strategy. Climate-related risks are incorporated throughout the Company's Enterprise Risk Management (ERM) process. As part of the continuous monitoring process of climate risks, we set up action plans focused on mitigating the medium- and long-term impacts of Climate Change, while critical actions are reported regularly to the Executive Committee and the Board of Directors.

C2.1b

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

Based on Suzano's integrated risk management policy, a combination of impact and probability indicates which risks are considered substantial, both strategic and financial. Based on that, we classify impacts' risk in minor, moderate, major and extreme, being the rules and definition of percentages applied to the calculation of Materiality of Risks consist of use of EBITDA percentages (Earnings Before Interest, Taxes, Depreciation and amortization) , following the curve:

1. Extreme: Above R$600M during risk time-horizon

2. Major: From R$200M to R$600M during risk time-horizon

3. Moderate: From R$40M to R$200M during risk time-horizon

4. Minor - Lower than R$40M during risk time-horizon

Otherwise, probability of occurrence follow these classes: remote, possible, likely and very likely.

Impact must be analyzed in the following categories: financial, health and safety, environmental, social/cultural, reputational, organizational and legal.

Therefore, the combination between impact and probability generates our Risk Matrix, and those risks with major or extreme impact and likely or very likely probability are classified as substantial for Suzano's business.

One of the risks mapped in the context of climate change for Suzano, classified as regulatory, is that arising from regulatory changes that encourage the transition to a low-carbon economy, through the carbon market economy, which, consequently, we assume the emissions would be taxed. Despite this, and the disbursement, Suzano is a company that absorbs more CO2 than it emits, and would soon have, as a company, a positive net in carbon absorption due to its forests. Suzano continues to dialogue with the production sector, civil society , the Ministry of Economy, and Itamaraty (Foreign Affairs) with the expectation of forming an internal commission and developing a legal framework for the Brazilian carbon market to move forward in 2023.

The management of climate change related risks is integrated into our overall risk management, which follows the guidelines defined in our integrated risk management policy with respect to the process of communicating, prioritizing, treating, monitoring and analyzing risks. Priority risks associated with climate change are managed by certain internal departments in charge of monitoring the risk and are periodically monitored by our risk management department through an integrated multi-disciplinary ERM (Enterprise Risk Management) process. In addition, Suzano is a supporter of the Climate Related Financial Disclosures Task Force (TCFD) and was the first company in the pulp and paper sector to be the protagonist of a case study published in the TCFD Knowledge Hub.

The climate related risks are priority for Suzano, so in February 2020, we launched two public targets focused on climate change. First, we expect to remove 40 million tons of GHG from the atmosphere between 2020 and 2025. This number considers the net difference between carbon removal from eucalyptus plantations and native forests and emissions scopes 1, 2 and 3. Second, we plan to reduce by 15% our emission intensity (tCO2e/adt) including scopes 1 and 2 (baseline 2015) until 2030. Both targets require systemic improvements and technological investments along our production chain and are necessary to ensure the Paris Agreement.

C2.2

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

Value chain stage(s) covered
Direct operations
Upstream
Downstream

Risk management process
Integrated into multi-disciplinary company-wide risk management process

Frequency of assessment
More than once a year

Time horizon(s) covered
Short-term
Medium-term
Long-term

Description of process
Suzano prioritizes climate risk management due to its potential impact on our natural resource-based business. We consider Short-term (1-3), Medium-term (3-10), and Long-term (10-15) horizons. Our units focus on 17 must-win battles and 100 short-term initiatives aligned with our strategy. Risk classification is based on an integrated risk management policy, combining impact and probability. Risks are categorized as minor, moderate, major, or extreme, determined by Materiality of Risks calculation using EBITDA percentages (Earnings Before Interest, Taxes, Depreciation, and Amortization). Suzano reviews its risks through risk commissions that happen monthly at industrial units, every 2 months for our international offices, and annually for our corporate leadership. The group must be formed by mandatory areas representants such as industrial manager, forestry operations manager, communication, HR, and Legal. Annually, we have incorporated Climate-related risks as a critical risk into the Company's Enterprise Risk Management (ERM). As part of the continuous evaluation process, we have developed a climate risk action plan with a focus on identifying and mitigating the short- and long-term impacts of Climate Change. This climate action plan is monitored and measured through critical analyses. The status is annually reported to the Executive Board, the Statutory Audit Committee, and the Board of Directors.
Physical Risk: Efforts have been dedicated, since it can affect our wood supply planning, silviculture operations, as well as strategic directions of innovation projects.
Case 1: We mapped future forest productivity impacts indicated in our ERM and developed biophysical models across Suzano's forestry regions. Through this modeling, productivity estimates were made considering the climate change scenarios arising from El Niño and La Niña events in the past 102 years. Three possibilities of occurrences of drought events during a forest cycle (7 years) were generated, and in each scenario the frequency and intensity of the event varied, being possible to calculate how much would reduce the volume of wood. Depending on the future risk, forestry planning, at an annual frequency for a 21-year time horizon, can intensify the supply of wood from third parties, increase the average distance in the supply of wood, demobilize certain low-productivity assets, encourage wood production, among other options, depending on the characteristics of each forest unit. Case 2: In the face of climate variability, intensification of climatic phenomena and seeking a better adaptation of the forests to the possible impacts of these risk scenarios, we have developed Tetrys software optimizing clone allocation based on the best interaction between genotypes and environments.Tetrys ranks productivity risks, classifying clones based on adaptability to the environment, water deficit resilience, and measurement uncertainties. As a result, a portfolio of clones is created based on Tetrys interactions, which assists the breeders in defining which clones will be planted each year. This software was developed by the Genetics and Forest Improvement, Forest Management and the Digital areas. In 2022, Suzano carried out the clonal allocation using this software for more than 190.000 hectares, and we expect to achieve significant gains in productivity and risk reduction, while keeping the sustainability of the forest business.
Transition risk: Suzano continuously assesses possible climate transition risks that may impact our operations, such as political, legal risks, market and reputational risks. Despite strong performance in carbon intensity and ambitious projections for 2030, we understand that competitiveness in the global market will also depend on greater ambitions and efforts to reduce GHG emissions. In addition to having committed to developing an SBTi target aligned with a 1.5°C scenario, we have been assessing our GHG emissions projections until the end of this decade against different decarbonization scenarios and through different tools.
Case 1: The first one is the 1.5°C scenario developed by SBTi using the IPCC's Special Report on Global Warming of 1.5°C. The second is the TPI (Transition Pathway Initiative) tool, which uses the 2DS and B2DS scenarios developed by the International Agency of Energy (IEA). The third is through the methodology of the Assessing Low Carbon Transition initiative (ACT) that uses the IEA's B2DS and NZE 2050 scenarios, which we evaluate carbon intensity in our whole operation, emissions trajectory by product produced type, and the use of low-carbon technologies for heat, steam, and electricity generation. Additionally, we invest in low-carbon mitigation, technologies, and low-carbon products for the coming years.
In 2022, studies were carried out to assess risks in four global warming IPCC scenarios (SSP1-2.6, SSP2-4.5, SSP3-7.0, and SSP5-8.5) in nine global climate models and the analyzes provided projections in future periods (2021-2100). All the analysis provided projections up to the year 2100. Considering the current scientific updates of global carbon emissions in the globe, we have chosen to use the pessimistic scenarios (RCP 8.5) for our forest production decision-making.
Case 3: We actively engage in discussions about a regulated carbon market in Brazil, recognizing the potential positive and negative impacts for Suzano. This includes the opportunity to generate and trade certificates/allowances for carbon removal from our planted and native forests. We have been monitoring and participating in public consultations of new international schemes such as Carbon Border Adjustment Mechanism (CBAM) part of Europe Union Green Deal since some of our clients are located in European Countries. Regarding negative impact, we use shadow carbon pricing both in the approval process of new projects and to quantify the risk of a future carbon tax or regulated market mechanism on our total emissions. We use different data sources in our prices scenario modeling to establish internal carbon prices for different areas which in turn have different contexts such as industrial (Scope 1 and 2), road and maritime logistics (Scope 3) and planting forests (Scope 1 removals). This considers as reference the carbon tax prices practiced in Latin America, current prices of international regulated and voluntary carbon markets, as well as price projections for the next decades estimated by different institutions such as the World Bank's Partnership for Market Readiness (PMR Brazil), International Energy Agency (IEA), International Renewable Energy Agency (IRENA), the UK Department of Energy and Climate Change (DECC), Europe Commission, International Maritime Organization (IMO), among others.

C2.2a

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

	Relevance & inclusion	Please explain
Current regulation	Relevant, always included	(i) Relevance: Environmental and climate regulations are constantly evolving and increasingly ambitious due to the advance in the maturity of this agenda globally. Changes in the regulatory system may generate risks and opportunities for Suzano's business in the different locations where the company operates. To mitigate regulatory risks and enhance opportunities, Suzano constantly monitors the topic in multidisciplinary teams. (ii) Case: The Logistic, Forestry and Industrial team follows the discussion with the regulatory team, and they are looking for alternatives and performing the calculations of impacts and feasibility of mitigation and adaptation actions. In other words, Suzano is actively in national and international discussions about current regulations that can affect the Brazilian's operation, mainly in the discussions with the associations that we are part of, such as WBCSD Brazilian Chapter, Sectorial and Industrial Association (IBA and CNI), among others. An example of mitigation action already in place to reduce regulatory risks of carbon taxation is reducing our GHG emissions. Suzano has a long-term target to reduce the intensity of direct fossil emissions by 15% until 2030, and the direct strategy related to this target is to reduce fossil fuel consumption.

	Relevance & inclusion	Please explain
Emerging regulation	Relevant, always included	Case 1: In addition to existing climate regulations, new regulations are rapidly emerging in many locations globally (e.g carbon taxes and carbon emissions tradings) and number of other potential regulations on related topics, such as biodiversity, water, land use and energy also need to be considered in a transition to a low carbon economy. Despite this, Suzano is a company that absorbs more CO2 than it emits, and would soon have, as a company, a positive net in carbon absorption due to its forests. The Brazilian NDC specifically states the increment of biofuels and other renewables in the national energy mix, zero illegal deforestation, reforestation, forest restoration and native forest management enhancement as national actions to fight the climate change. In this context, Suzano understands the emerging regulations on greenhouse gases and climate change may have material effects, directly, leading to increased capital expenditures and investments for compliance, and indirectly, by affecting prices for transportation, energy, and other inputs. To assess and mitigate the risks of emerging regulations, our experts are frequently evaluating legal discussions in the countries where Suzano operates, or that may impact our business in the value chain. In 2022, the company intensified communication with international authorities, looking to support the process until a balance is found in final discussions on the Paris Agreement. Case 2: Suzano uses shadow carbon pricing both in the approval process of new projects and to quantify the risk of a future carbon tax or regulated market mechanism on our total emissions. We use different data sources in our prices scenario modelling to stablish internal carbon prices for different areas which in turn have different contexts such as industrial (Scope 1 and 2), road and maritime logistics (Scope 3) and planting forests (Scope 1 removals). The modelling considers as reference the carbon tax prices practiced in Latin America, current prices of international regulated and voluntary carbon markets, as well as price projections for the next decades estimated by different institutions such as the World Bank's Partnership for Market Readiness (PMR Brazil), International Energy Agency (IEA), International Renewable Energy Agency (IRENA), the UK Department of Energy and Climate Change (DECC), Europe Commission, International Maritime Organization (IMO), among others.
Technology	Relevant, always included	Scientific evidence has shown Climate Change future projections are even more pessimistic. These trends were evidenced in part of Suzano's areas based on results from climate modeling studies (IPCC) carried out by our R&D team. To minimize this risk scenario,our strategy seeks to develop new technologies allowing resilient and adapted forests and mills, aiming at reducing carbon emissions and increasing the efficiency use of natural resources. In the face of climate variability and intensification of climatic phenomena, we have developed a platform to optimize the allocation of Suzano's clones through the best interaction between genotypes and environments in the forest. This platform, called Tetrys was developed by the Genetics and Forest Improvement, Forest Management and the Digital areas. Tetrys can rank productivity risks to classify clones based on adaptability to the environment, resilience to water deficit, and uncertainties resulting from measurements. As a result, a portfolio of clones is created based on Tetrys interactions, which assists the company in defining which clones will be planted each year. In 2022, Suzano carried out the clonal allocation using this software for more than 190.000 hectares, delivering a forest more adapted to environmental stresses. By this, we could achieve significant gains in productivity and risk reduction, while keeping the sustainability of the forest business. Other actions to mitigate risks are: iii) Fenomics: this new technological platform, expects to produce large-scale phenotyping for pests, diseases and climate effects that affect forest productivity. The recent investments in FenomicS were around R$ 1,5MM; iv) “Euclima” is a private web platform (“Euclima”) for climate forecasting that assists in the decision-making of forestry operations by optimizing activities and their logistics.
Legal	Relevant, always included	(i) Relevance: Suzano recognizes the risk of new legal requirements relating to climate change and changes in existing regulations which could result in increasing liabilities and capital expenditures. All of which could have a material adverse effect on our business and results, directly linked with our operations or indirectly by affecting prices for transportation, energy and other inputs. Even if Suzano agrees with the need to establish a carbon market in Brazil, it is understood that it depends on its specificities, it can generate benefits or impacts for Suzano's operations. If the model considers taking into consideration pulp and paper production processes and inbound and outbound transportation, Suzano may affect with increased liabilities and capital expenditures (ii) Case: Regarding policy and legal risks, we have been following and actively participating in discussions on the establishment of a regulated carbon market in Brazil, understanding that it could have negative and positive impacts for Suzano, the latter through the opportunity to generate and trade certificates/allowances of the carbon removed by our planted and native forests. In 2022, we went to COP27 in Egypt. One of the objectives of the meeting was to continue to operationalize the global carbon market and, consequently, Article 6 of the Paris Agreement. The clear definitions on how the agreements will be made will bring greater assurance for carbon credit trading, ensuring that the undertaken activities will be focused on emission reduction and carbon removal from the atmosphere and its co-benefits. We also have been monitoring and participating in public consultations of new international schemes such as Carbon Border Adjustment Mechanism (CBAM) part of Europe Union Green Deal since some of our clients are located in European Countries. Regarding climate litigation, it is expected that this is not an imminent risk for Suzano as we are climate positive, and we publicly disclose all climate data in the Indicators Center.
Market	Relevant, always included	Suzano’s market leadership is based on the sustainability of our forestry operations (shorter harvest cycle in Brazil compared to other countries), state-of-the-art technology (eg. cloning methods), high productivity, operational efficiency, strong and long-term relationships with stakeholders. Market risks are related to reduced demand for single-use paper and cellulose products. These points are the foundations of the current strategic planning, aiming to keep relevance of the company in the long-term, by green solutions and avenues of development such as “ Be protagonist in sustainability”, “Be bold in expansion of new markets” and “Maintain relevance in pulp, through good projects”. Given their renewable origin and versatility, supported by our Bioproducts Strategy, we develop forest renewable products (microfibrillated celulose, biocomposites, lignin,bio-oil) that could replace other products with higher carbon footprint and have the potential to stimulate the development of a lower-carbon economy, instrumental to combat the climate crisis. To boost forward our biostrategy and portfolio expansion of sustainable solutions, Suzano announced its 2030 sustainability journey, which includes a long-term target to offer 10 million tons of new, renewable products that can replace plastics and other petroleum derivatives, and a target to remove of 40 million tons of carbon from atmosphere (that may also represent an opportunity to help the development of a global carbon market). In 2022, we offered about 45,000 tons of renewable products, resulting in an accumulation of about 77,000 tons. We achieved record sales of products to replace plastics, advancing in routes already consolidated, as is the case of products aimed at the markets of cups, straws, and cardboard. Moreover, we launched new products, such as the Greenpack® line, which seeks to address new paper options for the packaging markets. Also, in 2022, we implemented an MFC plant in Limeira (SP), as well as MFC and textile fiber plants in Finland with 1,000 tons of capacity with our partner Spinnova. Both plants are in the startup phase for production throughout 2023.
Reputation	Relevant, always included	(i) Relevance: Suzano incorporates reputational risks arising from the climate change as material and relevant as it could change the perceptions of our stakeholders regarding the organization's positive contribution to a low carbon economy. Reputational risks for Suzano are related to the negative perception of our customers, communities and investors regarding the consumption of water in forest and industrial production, in water stress scenarios; the potential negative perception of customers and investors about one-single use paper and pulp products, among others. (ii) Case: To mitigate this risk, Suzano has several agendas with external stakeholders, and an Internal working group focused on improving the Suzano reputation as a leader company. Also, Suzano has FSC, ISO 14001 certification and public Indicator Central which was recognized as a benchmarking on TCFD Knowledge Hub due to transparency on climate and environmental KPIs. Also, to accompany the latest good practices at the international level and have a positive influence on the private sector’s progress in the area. One example is the extensive advocacy on the climate agenda the company promotes at COP 26 – the UN Climate Change Conference – in Glasgow in 2021. On the occasion, the company reviewed its ambition to remove 40 million tons of CO2 from the atmosphere by 2025, whose original target was 2030. This move generated a positive reputational impact for the company, demonstrating that we want to lead and influence the private sector towards greater ambitions in the climate agenda.
Acute physical	Relevant, always included	We assess our vulnerability to climate change from the point of view of the entire value chain and take a precautionary approach to industrial and forest management activities and operations. We carry out Risk Analysis of all our operations. Some regions of Brazil are experiencing drought conditions, resulting in acute water shortages and the implementation of rationing to control use. While we believe that not all our operations will be affected by these conditions, some of our Mills are located in the affected areas. Although our Mills are already very efficient in the use of water, we have defined contingency and adaptation plans for all Mills possibly affected, if necessary. As an example, for the Jacareí and Imperatriz Mills, water collection is fixed on the riverbank. In periods of severe water scarcity, we have identified that the lower volume of water in the river can reduce the width of the river, stopping water withdrawal and paralyzing Mill's operations. For this risk, we have developed Adaptation Plans in case this risk materializes, through an Engineering Study for the installation of a floating system to capture water in the riverbed. These systems can be installed in up to 120 days and the investment will be R$ 7 million for Imperatriz and R$ 1.5 million for Jacareí Mills. Our main risk prevention measures are: production control and monitoring; monitoring of the plant's water uptake and availability; mapping of areas with overlapping potential water use; projects related to improving efficiency and energy recovery, water reuse and industrial process stability; exploring different modes of transport; conservation practices in soil management; restoration and conservation of natural areas around springs and other water resources; monitor climate regulations and support or participate in associations engaged in climate-related public policies.
Chronic physical	Relevant, always included	Chronic risks come from long-term changes in climate patterns. Since our business relies upon the use of natural resources, Climate Change is a big concern. There are different consequences of climate change effects for instance water scarcity, physiological disturbances; pest outbreaks, tree diseases. Of these examples above, the main risk is in water scarcity. For anticipating and mitigating its effects, we have developed specific strategies, such as repositioning the forest base and expanding the external wood supply. Based on evaluation for wood supply of our pulp mills, the pessimistic climate scenario indicates a potential financial impact of R$2.2 billion, considering the planted forest. As a result of that, the analysis indicated that mills located in Espirito Santo, Bahia and Maranhao have a higher potential of impact and it has lower expected effect in other Suzano’s forest areas. This study allowed Suzano to incorporate new strategies on the search for clones with higher fitness. Additionally, we are taking some actions as monitoring of water consumption in forest areas, IPM (Integrated Pest Management) with monitoring of all our plantations. Then, we were capable of sharpening the best recommendations of planting, in order to mitigate potential yield loss and optimize forest productivity. In 2022, the actions implemented at Suzano units had as their main aspect changes in the arrangement of forest plantations, designed to reduce the density of trees in critical watershed areas. As a result, we achieved 8.2% of the target KPI, representing 7,084 hectares. Furthermore, we worked during the year to guarantee the insertion of specific management premises in the company's Strategic Forestry Planning to increase water availability in the watersheds. We expanded the studies to measure the use of forest water by medium and high-resolution satellites and statistical models to define the amount of water available in critical watersheds. Despite the developments in water monitoring through this technique, more research is needed to expand the accuracy and indicators of water availability.

C2.3

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

C2.3a

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

Identifier
Risk 1

Where in the value chain does the risk driver occur?
Direct operations

Risk type & Primary climate-related risk driver

Chronic physical	Changing precipitation patterns and types (rain, hail, snow/ice)

Primary potential financial impact
Increased capital expenditures

Climate risk type mapped to traditional financial services industry risk classification
<Not Applicable>

Company-specific description
For Suzano, changes in climate patterns are one of the main current concerns, as they affect several factors linked to the protection of our plantations and, even more directly, forest productivity. Thus, it is very important to understand what the future climate will be like, as well as if there is a way to make it more predictable, so that mitigating measures can be taken in time.
Most of the wood used in our production processes is supplied by our own forestry operations, 64% by 2022, and our strategy aims to reduce our exposure to third-party wood to only 18% by 2024, which include planted forest areas located near our production facilities. The wood market in Brazil is very regional and limited in wood availability, as most pulp and paper producers are integrated and utilize wood grown in their own planted forests to meet their wood requirements.
Our planted forests are subject to natural threats, such as drought, fire, pests, and diseases, which may reduce our supply of wood or increase the price of wood we acquire. Our planted areas are also subject to other threats, considering their wide territorial coverage and proximity to a significant number of neighbors and local communities, including loss of possession due to social unrest or squatter invasion, land title disputes, wood theft, or arson, which may result in real damage to our planting and transit areas and may adversely affect our results.
As an example of direct risk, loss of forest assets due to physiological disorders, enhanced by climatic events such as La Niña and El Niño, may adversely affect our business operations.
We input scenarios of changing global climate conditions in our long-term forest planning analyses, based on Woodstock Remsoft tool, to measure productivity (physical supply) and financial impacts (economic effect).
Depending on the future risk, forestry planning, at an annual frequency for a 21-year time horizon, can intensify the supply of wood from third parties, increase the average distance in the supply of wood, demobilize certain low-productivity assets, encourage wood production, among other options, depending on the characteristics of each forest unit.

Time horizon
Long-term

Likelihood
More likely than not

Magnitude of impact
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
NA

Cost of response to risk
15960000

Description of response and explanation of cost calculation
Our goal is to continue improving our planted forest productivity and quality in a sustainable manner. With this purpose, our research group is selecting new eucalyptus clones based on growth, cellulose content and wood quality, making use of state of art techniques like genetic recombination through controlled pollination, use of genomic tools in the selection of new clones, extensive field evaluation (700 ongoing experiments) and laboratory analysis. In 2020, our Forestry Breeding and Digital teams developed a system – called Tetrys – to help the silviculture team allocate the clones more precisely in available areas for planting. Tetrys allowed the robust elaboration of plantation program for 2021, with more than 90 thousand hectares, and it helped the planning of our operational nurseries and the maximization of productivity. In addition, Suzano maintains 83 weather stations distributed among its forest base, watersheds, land use, occupation, and evapotranspiration monitoring (“open-air laboratories”). This physical structure, as an example, costs R$ 1,28 million (yearly) and allows us to measure with elevated accuracy the impacts of the prediction models in the climate change scenarios arising from the events of El Niño and La Niña in the last 102 years.
Yearly, Suzano have a Research & Development and & Innovation investment of approximately 1% of net revenues (which in 2022 is approximately BRL 500 million). From this amount, BRL 15.96 million is directly related to climate change initiatives, number that we consider in the cost of response.
This investment relates to forest R&D&I initiatives such as more resistant eucalyptus clones’ development and digital tools development in order to reduce impact in forest productivity, the development of Tetrys and clonal optimization, involved investments in nursery and genetic researches for Eucalyptus, software and IT equipment to develop the optimization platform, developing the most modern technologies in analytics, big data and artificial intelligence.

Comment
NA

Identifier
Risk 2

Where in the value chain does the risk driver occur?
Direct operations

Risk type & Primary climate-related risk driver

Emerging regulation	Carbon pricing mechanisms

Primary potential financial impact
Increased direct costs

Climate risk type mapped to traditional financial services industry risk classification
<Not Applicable>

Company-specific description
One of the risks mapped in the context of climate change for Suzano, classified as regulatory, is that arising from regulatory changes that encourage the transition to a low-carbon economy, through the carbon market economy, which, consequently, we assume as emissions would be taxed. Despite this, and the disbursement, Suzano is a company that absorbs more CO2 than it emits, and would soon have, as a company, a positive net in carbon absorption due to its forests.
Suzano believes that one of the main incentives for the recovery and conservation of native forests is the creation of a regulated, global, coordinated, and large-scale carbon market. Brazil can take a leading role in environmental debates for a low-carbon economy. We believe that, in order to achieve a new role in global geopolitics, the country needs, as a nation, to demonstrate its commitment to zero illegal deforestation. This is essential for advancement in the process of creating a global carbon market, an effective instrument for protection against deforestation and a source of resources that could be converted into benefits for the population and the Brazilian territory as a whole.
Suzano continues to dialogue with the production sector, civil society, the Ministry of Economy, and Itamaraty (Foreign Affairs) with the expectation of forming an internal commission and developing a legal framework for the Brazilian carbon market to move forward in 2023. The company also intensified communication with international authorities, looking to support the process until a balance is found in final discussions on the Paris Agreement.

Time horizon
Short-term

Likelihood
Very likely

Magnitude of impact
Medium

Are you able to provide a potential financial impact figure?
Yes, a single figure estimate

Potential financial impact figure (currency)
121046385.59

Potential financial impact figure – minimum (currency)
<Not Applicable>

Potential financial impact figure – maximum (currency)
<Not Applicable>

Explanation of financial impact figure
Within the framework of the Partnership for Market Readiness (PMR), a World Bank project, the Brazilian government has been studying the potential implementation of a tax or cap and trade system in the country. As a result, there is an expectation that the Brazilian government may adopt carbon pricing as part of its climate policy in the coming years.
To assess the current financial risk associated with the main risk factor, namely carbon regulation such as an Emissions Trading Scheme (ETS), we multiplied our total emissions from scope 1 and scope 2 (base year 2022: 2,420,927.71 tCO2e) by US$10/tCO2e (assuming an exchange rate of 1US$=5R$), resulting in R$ 121,046,385.59 by year. This calculation represents our maximum potential financial impact, as it covers all direct emissions and emissions from electricity usage. However, we consider the minimum potential financial impact to be zero, considering a scenario where carbon removals are taken into consideration. As Suzano is a company that absorbs more CO2 than it emits due to its forests, we would have a positive net carbon absorption and would not be required to pay for emissions in this scenario.
The US$10 price aligns with ongoing studies conducted by the Brazilian Ministry of Finance, based on recommendations from the PMR program. This price is considered an initial ceiling price that is more appropriate for the Brazilian context.

Cost of response to risk
221691166.06

Description of response and explanation of cost calculation
In the event of implementing a carbon market or taxation model, the financial impact on our organization would be influenced by our direct emissions and emissions from electricity usage. Consequently, the cost associated with mitigating this risk would involve reducing these emissions through various means, such as implementing efficiency projects, adopting cleaner technologies, transitioning from fossil fuels to renewables, equipments modernization and exploring other alternatives that are currently being studied.
At present, the cost of projects that deliver emissions reductions aumounts to R$ 221.691.166,06, considering the technologies that Suzano is implementing to reduce its direct emissions and electricity usage. These technologies not only help the company achieve its emission reduction targets but also mitigate exposure to the potential costs associated with carbon pricing. As the specific technologies and associated capital expenditures (CAPEX) are treated as confidential information by the company, further details cannot be disclosed at this time.

Comment
Suzano supports and seeks to lead the discussion on the regulation of the carbon market in Brazil. It is important to mentioned that we are already carbon positive, considering scope 1 and 2, and the removals, in other words, the company's CO2 removals are greater than its emissions, which is an opportunity from which Suzano can benefit from capturing CO2 and offer carbon credits, generating revenue from this practice. Also, the company continues to constantly invest in the reduction of the intensity of its emissions, which is a company long-term target while reducing our regulatory risk.
In the industrial units, the company seeks to reduce emissions in retrofits of old machinery and increase efficiency, increasing the generation of renewable energy (based on biomass and black liquor) and with a gradual changing from strongly emitting fuels (such as heavy oil) for less emitting fuels (such as natural gas, or even black liquor),

among others. We have a plan to invest in our modernization projects pipeline, which will result in emission, among others, in CO2 reduction.

C2.4

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

C2.4a

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

Identifier
Opp1

Where in the value chain does the opportunity occur?
Direct operations

Opportunity type
Products and services

Primary climate-related opportunity driver
Development and/or expansion of low emission goods and services

Primary potential financial impact
Increased revenues resulting from increased demand for products and services

Company-specific description
Moving ahead with our long-term strategy through our strategic avenue of maintain relevance in Pulp, Suzano announced Cerrado Project (a new pulp mill located in Ribas do Rio Pardo, Mato Grosso do Sul, Brazil), with capacity of 2.3 million tonnes of hardwood market pulp, in a market that is expected to growth 4.6 million tonnes by 2025. By this project, Suzano will improve competitiveness with the lowest cash cost, provide attractive returns even in more adverse scenarios, advance in economies of scale, increase leadership position in the pulp market, supply long-term demand increase and highlight for contributing to company's sustainability goals.

Time horizon
Short-term

Likelihood
Very likely

Magnitude of impact
High

Are you able to provide a potential financial impact figure?
Yes, a single figure estimate

Potential financial impact figure (currency)
10040000000

Potential financial impact figure – minimum (currency)
<Not Applicable>

Potential financial impact figure – maximum (currency)
<Not Applicable>

Explanation of financial impact figure
Considering Cerrado's Project announced capacity of 2.5 million tonnes of hardwood pulp by year and based on LTM 1Q 2023 net average price for Suzano of R$4.016/tonne, multiplying production capacity and revenue by ton (historical assumption), the annual revenue in actual basis for Cerrado production is up to R$10 billion.

Cost to realize opportunity
22200000000

Strategy to realize opportunity and explanation of cost calculation
Cerrado Project brings many benefits aligned with our business strategy and our long-term goals for climate. Providing more pulp, Suzano not only supplies growth in market demand but also contribute for single-use plastic substitution. Some examples of benefits for this increase in capacity from a new project: renewable energy generation of approximately 180MW and considered in the industry as free from fossil fuel - a new milestone for Suzano in eco-efficiency that shows its commitment to society and the planet. In additional, due to structural average radius of only 60 km, inbound logistics will be provided mainly by hexatrem - innovation launched in 2019 by Suzano —the world's first trailer truck with six semitrailers that is able to transport up to 200 tons of wood in one haul. This innovation only can be used in internal roads. Hexatrem consumption in litters of diesel per m³ transported is 21.5% lower than the traditional tritrem model. This means that, for every 1 million m³ transported, there is a reduction in emission of approximately 600 tons of CO2 equivalent (greenhouse gas reflection standard).

The total cost of our response to risk is based on: Our announced estimated capex (including industrial, infrastructure and indirect costs) was updated to R$22,2 billion (R$7.4 billion being invested in 2022) of which shall be distributed between the years of 2021 and 2024.

This has been calculated by costs for implementation of all industrial process, including pulp lines, utilities, chemical recovery, final product packaging, energy assets, industrial infrastructure, administrative buildings, roads and other infrastructure related to transportation of products, wood and land investments to provide feedstock, and other investments related to a new mill. All the equipment is "the state of art" for woodpulp process, that will allow such efficient process, with less usage of chemicals, fossil-fuel free, high degree of generation of energy from renewable sources, and increase availability of pulp (product with potential to substitute fossil based products)

The project was approved by the board of the company with the announcement to market (Q1 2022) .

Comment
The approval and the effective execution of the Cerrado Project are subject to (i) the Company's commitment to financial discipline, maintaining compliance with the parameters established in the Suzano's Debt Management Policy; and (ii) the conclusion of the negotiation of the acquisition of the equipment and services necessary to

carry out the Project, under satisfactory conditions, to be subsequently evaluated and resolved by the Board of Directors.
The Project shall be financed by the Company's cash position and cash generation from current businesses, which can be complemented by financing, provided that the conditions are attractive in terms of cost and term.

Identifier
Opp2

Where in the value chain does the opportunity occur?
Direct operations

Opportunity type
Energy source

Primary climate-related opportunity driver
Use of lower-emission sources of energy

Primary potential financial impact
Reduced direct costs

Company-specific description
Suzano's energy matrix is mainly supported by renewable sources. We use eucalyptus biomass, such as bark and wood waste, as our own source for energy generation. In some production units there is surplus production, which is made available to the National Interconnected System (SIN), contributing to the expansion of the renewability level of the Brazilian electric energy matrix. Our teams are developing projects and initiatives to reduce consumption, maximize generation of renewable energy, and increase the energy efficiency of the production units.

In 2022, Suzano exported 183 MWh of energy from renewable sources to the grid. There was an increase of energy exportation in Imperatriz and Mucuri, however the paralysation of one turbogenerator at Três Lagoas and the scheduled stoppages affected the total volume of energy exports.

We announced the investment in the construction of a new pulp production plant in Ribas do Rio Pardo (MS), with energy of renewable sources expected to be sent to the national system.

Time horizon
Medium-term

Likelihood
Very likely

Magnitude of impact
Medium

Are you able to provide a potential financial impact figure?
Yes, a single figure estimate

Potential financial impact figure (currency)
259972352

Potential financial impact figure – minimum (currency)
<Not Applicable>

Potential financial impact figure – maximum (currency)
<Not Applicable>

Explanation of financial impact figure
Suzano has already been moving towards reducing energy consumption and self-sufficiency, reaching 100% self-sufficiency in the Company's consolidated (the consolidated level considers that some units such as Aracruz, Imperatriz, Mucuri and Três Lagoas even generate surplus energy for export, while other units such as Facepa Matriz, Facepa Filial and Rio Verde do not produce energy). The increase in energy self-sufficiency is also obtained from the efficiency and generation of renewable energy in industrial plants, which includes projects (efficiencies and energy generation) in all pulp mills that Suzano operates.

The estimated financial impact corresponds to the net revenue of energy sales to the grid in 2022.

Cost to realize opportunity
500000000

Strategy to realize opportunity and explanation of cost calculation
Electric energy generated in Suzano's mills is from renewable sources, enabling surplus that can supply the national energy system. Thus, Suzano constantly conducts studies by internal engineering teams to increase our contribution to make renewable energy available.
In 2022, we supplied 183 MWm of renewable energy to the national system and implemented projects to increase the efficiency of steam generation and optimize energy efficiency using data science. In Jacareí, the change from a turbo generator powered by natural gas to a steam turbo generator stands out, reducing emissions and increasing the renewability of the company's headquarters. This action have resulted in the reduction of more than 72 thousands of Co2eq over the years.
To achieve or 2030 goal of increase renewable energy exports by 50% (versus 2018 baseline), the opportunity rationale considers all potential projects to increase energy efficiency and generation in our 8 mills, aligned with Suzano's strategy to be "best-in-class" in the total pulp cost. Therefore, the cost of R$500 million include all modernization projects that have impact, but most of them focused on energy efficiency, including retrofit and new boilers, revamp and optimization of turbogenerators, and equipment in pulp/paper production with lower usage of steam and electricity. The projects will be approved by the board of Suzano with the maturity to execute and financial viability, but with the horizon to be already operating by 2024 (considering the strategic avenue of "Be best in class in total cost of pulp")

Comment
However, most of the projects depend on CAPEX approval.

Identifier
Opp3

Where in the value chain does the opportunity occur?
Direct operations

Opportunity type
Markets

Primary climate-related opportunity driver
Other, please specify (Increased diversification of financial assets (e.g sustainability-linked bonds))

Primary potential financial impact
Increased diversification of financial assets

Company-specific description
In 2022, we continued to leverage sustainability linked financing and signed two new credit lines for the Cerrado Project. An up to US$800 million Export Credit Supported Facility will be financed by Finnish Export Credit (FEC) and guaranteed by Finnvera, a Finnish export credit agency. The precondition for this loan will be an environmental and social action plan to meet the performance standards of the World Bank's International Finance Corporation (IFC). We also signed a US$600 million Sustainability-Linked Loan (SLL) through a new credit line provided by IFC and a commercial bank syndicate, with two Sustainability Performance Targets (SPTs) linked to interest rates that may increase or decrease depending on their achievement. The two targets used in this agreement are in line with our Commitments to Renewing Life to reduce GHG emissions intensity and increase the number of women in leadership positions in the company. Since our first sustainability-linked bond in 2020, we have raised a total of R$4.9 billion through financing instruments linked to social and environmental targets.

Time horizon
Medium-term

Likelihood
Virtually certain

Magnitude of impact
High

Are you able to provide a potential financial impact figure?
Yes, a single figure estimate

Potential financial impact figure (currency)
18050760

Potential financial impact figure – minimum (currency)
<Not Applicable>

Potential financial impact figure – maximum (currency)
<Not Applicable>

Explanation of financial impact figure
Considering all Sustainable Debt issuances Suzano have in place as of December 31st, 2022, it amounts BRL 25.862 billion. For debt that is directly linked to Climate Change KPIs, Suzano has an amount of BRL 18.05 billion. This value is composed by:
Sustainability-Linked Bond of BRL 6.598 billion
Sustainability-Linked Loan BRL 3.167 billion
*Exchange rate used (5.2780)

Cost to realize opportunity
105872

Strategy to realize opportunity and explanation of cost calculation
Suzano was the second company in the world, and the first in the Americas, to link one of its public commitments to the company's debt management. In a record 3-week time period, the company put together the issuance of its first Sustainability-Linked Bond (SLB), a security in which the cost of financial resources is tied to one (or more) environmental and/or social goals. In the case of Suzano, the issuance of the security was linked to the goal of reducing the intensity of greenhouse gas emissions (GHGs) by 15% by 2030, which is equivalent to 0.181 tCO2e/t of product. To materialize its SLB, however, the company needed to set an intermediate target: 0.190 tCO2e/t of product (pulp and paper, -10.9%) by 2025, when the company will be halfway toward achieving the original goal, with the debt maturing on January 15, 2031.
Suzano went to the market twice: on September 10, when it raised US$750 million, and on November 16, when it reopened negotiations and raised another US$500 million. In both instances, it obtained the lowest interest rates in its history in foreign loans of 3.95% and 3.1%, respectively, and a current coupon rate of 3.75%. In practice, this means that the sustainability component has reduced Suzano's cost of money. Combined with the fact that there was a demand of US$7 billion in the first issuance, equivalent to nine times the offering, and US$2 billion in the reopening, equivalent to four times the offering, these are signs of the soundness and credibility achieved by the company over the years.

If the company fails to reach the intermediate target, the interest rate will increase 25 base points as of the second half of 2025, which will raise the total rate to 4% per year. The average intensity of emission obtained in 2024 and 2025 will indicate whether the company has reached its target and, therefore, whether it will be financially penalized in this transaction.

The cost to realize opportunity (20,000 dollars/BRL 105,872.00) above is related to the Second-Party Opinion (SPO), an analysis made by an independent third-party that evaluate if the Company's sustainability goals linked to the operation are core, relevant, material and ambitious, which was. It is important to note that this cost can vary, depending on the scope of KPIs, the SPO provider and the number of bonds issued under this SPO (which dilutes the cost).

Comment
No more comments

Identifier
Opp4

Where in the value chain does the opportunity occur?
Direct operations

Opportunity type
Products and services

Primary climate-related opportunity driver
Ability to diversify business activities

Primary potential financial impact
Returns on investment in low-emission technology

Company-specific description
Suzano aims to issue carbon credits considering its activities in the main sectors: forestry, industrial, and logistics. Among the established methodologies, we can mention the issuance of carbon credits through biological sequestration, considering sustainable forest management of eucalyptus cultivation in expansion areas, that is, areas

where Suzano's activities have replaced pastures or degraded areas. Additionally, in native areas where we focus on environmental conservation and restoration, we have the possibility to generate carbon credits through methodologies such as Avoided Deforestation and Forest Degradation (REDD+), improvements in forest management, and afforestation of native species. This way, we can work towards restoration and conservation efforts in the Cerrado, Atlantic Forest, and Amazon biomes.
In the industry and logistics sectors, we focus on projects that aim to reduce greenhouse gas emissions through the substitution of fossil fuel consumption with renewable sources and improvement in energy efficiency.
Generation of carbon credits - The Company is currently involved in carbon credit projects certifications, including The ARR Horizonte Carbon Project, which aims to restore degraded areas through the reforestation of native and eucalyptus trees. On March 30, 2023, the registry Verra completed the validation and verification of 1.9Mt CO2e of the Horizonte Project (VCS ID 3350), of which 10% will be allocated to the buffer account and 1.7Mt CO2e is eligible for the issuance of credits. The Company has not yet issued such credits.
The carbon credits are registered by Verra, an accredited entity that holds a global platform, which is also responsible for the custody of the credits. This company has developed the Verified Carbon Standard (VCS) program, currently regarded as the global reference standard, as per the best understanding of the company.
For us, the time horizon considers the long term, extending beyond 35 years.

Time horizon
Long-term

Likelihood
Very likely

Magnitude of impact
Medium-low

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
NA

Cost to realize opportunity
182091000

Strategy to realize opportunity and explanation of cost calculation
- Social projects based on carbon credit revenue will be implemented in Ribas do Rio Pardo region, benefiting both the local area and beyond.
1. Honey Production: Local beekeepers receive support for the implementation of new technologies, technical assistance in the production process, and training for better handling and marketing of the product. It also promotes honey production within the project area. Additionally, a honey processing unit will be built in the city. This initiative benefits 40 families.
2. Circular Cerrado: This project creates a source of income for local families through the circular economy, with innovative economic activities that promote Cerrado biome conservation, such as functional foods, biomaterials, circular forms, and sustainable extraction. This initiative benefits 180 people.
3. + Food: Encouraging sustainable production practices without reliance on external inputs. This involves the production of agroecological fruits and vegetables, imitating the principles of nature (always-covered soil and diversity of species in the same environment), using the known agroforestry system - SAF.
4. BRS - Capiaçu Seed Bank: This initiative will provide high-yield seedlings for multiplication within communities. With high-yield seedlings, there is a greater volume of dry matter and lower production costs compared to corn and sugarcane. Its silage offers a cheaper alternative for livestock supplementation during periods of drought, especially for dairy cattle, ensuring food security for local communities.

- Social projects based on carbon credit revenue will be implemented in Três Lagoas region, with an impact beyond the project area.
1. Inclusive Recycling: This activity will work with Recycling Cooperatives in the municipalities of the Três Lagoas region (MS) to promote the inclusion of individual waste pickers for income generation, development, strengthening, and promotion of productive organization within the cooperatives in the territory. The inclusion of waste pickers in recycling value chain improves waste management, public health, and income for cooperative members.
2. Native and Ornamental Seedling Nursery: Establish a nursery for native Cerrado and ornamental seedlings in a rural community to meet the supply demands for restoration areas of the company. This will ensure diversity of species and genetic variability in plantings.

Comment
The figures were calculated considering the sum of potential activies for the Cerrado and Horizonte Carbon projects.

C3. Business Strategy

C3.1

(C3.1) Does your organization's strategy include a climate transition plan that aligns with a 1.5°C world?

Row 1

Climate transition plan
No, but our strategy has been influenced by climate-related risks and opportunities, and we are developing a climate transition plan within two years

Publicly available climate transition plan
<Not Applicable>

Mechanism by which feedback is collected from shareholders on your climate transition plan
<Not Applicable>

Description of feedback mechanism
<Not Applicable>

Frequency of feedback collection
<Not Applicable>

Attach any relevant documents which detail your climate transition plan (optional)
<Not Applicable>

Explain why your organization does not have a climate transition plan that aligns with a 1.5°C world and any plans to develop one in the future
Suzano does not have a published transition plan yet. Despite that, the company has 15 long-term goals, such as removing 40 million tonnes of carbon from the atmosphere by 2025, reducing the intensity of scope 1 and 2 greenhouse gas emissions by 15% per tonne of production by 2030 and increasing renewable energy exports by 50% by 2030, and an internal plan to achieve these targets.
Suzano's governance allows the systemic monitoring of the main indicators, risks, and opportunities related to the commitments made. The governance structure consists of a group formed by Directors, responsible for the strategic management and critical analysis of the goals. Also, the Investments Committee is responsible to approve and evaluate industrial modernization projects and its quantitative and qualitative impacts on our goals and also to approve our internal carbon pricing which contributes to achieve our climate goals. Success against our long-term goals, including the two related to climate change, is tracked on a quarterly basis by our goals governance working group and board of directors and includes GHG emissions and removals performance KPIs, portfolio and implementation timeline of projects that impact this performance.

Explain why climate-related risks and opportunities have not influenced your strategy
<Not Applicable>

C3.2

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

	Use of climate-related scenario analysis to inform strategy	Primary reason why your organization does not use climate-related scenario analysis to inform its strategy	Explain why your organization does not use climate-related scenario analysis to inform its strategy and any plans to use it in the future
Row 1	Yes, qualitative and quantitative	<Not Applicable>	<Not Applicable>

C3.2a

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

Climate-related scenario	Scenario analysis coverage	Temperature alignment of scenario	Parameters, assumptions, analytical choices
Transition scenarios: IEA NZE 2050	Company-wide	<Not Applicable>	After considering the different scenarios, we included climate change effects in the company's Enterprise Risk Management (ERM) as Suzano's top risk. As part of a continuous evaluation process, we developed a climate risk action plan with a focus on identifying and mitigating the short- and long-term impacts of climate change. We have been dedicating significant effort to this issue, since it can affect our wood supply planning and silviculture operations, as well as the strategic direction of innovation projects. Since 2021, our forest-related strategic plans have incorporated parameters that include annual analyses of climate scenarios and future risks related to the supply of wood and forestry planning, considering a 21-year time horizon. In 2022, we developed a robust climate system ("climate fingerprint"), through which we have mapped climate effects in 100% of Suzano's areas. Artificial intelligence models were developed to generate indicators that explain the influence of climate on forest production and support Suzano's forest planning. Another important strategy is related to clonal allocation. By considering different climate zones, our system is able to rank productivity risks and classify clones based on adaptability to the environment, resilience to water stress and uncertainties resulting from measurements. In 2022, Suzano used this system to carry out clonal allocation in more than 190,000 hectares.
Transition scenarios: IEA NZE 2050	Company-wide	<Not Applicable>	In 2022, working with a consulting group, Suzano conducted a comprehensive assessment of the company's exposure to transition risks using scenario analyses as recommended by TCFD. The qualitative assessment considered a short-term 2025 horizon and a medium-term 2030 horizon, with impacts measured on an annual basis, considering a low-carbon world scenario. The low-carbon world scenario was based on different sources, including IEA NZ2050, NGFS NZ2050 and IPCC's Shared Socioeconomic Pathway SSP1-1.9. IEA's scenario focuses on the consequences of different energy policy and investment choices. NGFS's scenario explores a different set of assumptions for how climate policy, emissions and temperatures evolve. IPCC's scenario describes a world where society would switch to more sustainable practices, with the focus shifting from economic growth to overall well-being. All scenarios align with projections to limit global warming to 1.5°C above pre-industrial temperatures by the end of the century, in line with the Paris Agreement. The assessment process included a series of internal workshops involving Suzano experts, the consulting firm and other project stakeholders, to conclude the evaluation. The group utilized TCFD's list of transition risks and the low-carbon world scenario analysis to identify the transition risks to which Suzano is exposed, including policy and regulatory changes, market disruptions and technological developments, and to classify the impact of these risks according to their likelihood and magnitude. Additionally, scenario analyses have been used to "stress test" Suzano's resilience to transition risks by considering its level of exposure in a low-carbon economy. This helped the company better understand its ability to withstand and adapt to these risks and identify opportunities that could impact the organization's operations, financial performance and reputation.

Climate-related scenario	Scenario analysis coverage	Temperature alignment of scenario	Parameters, assumptions, analytical choices
Transition scenarios: NGFS scenarios framework	Company-wide	<Not Applicable>	In 2022, working with a consulting group, Suzano conducted a comprehensive assessment of the company's exposure to transition risks using scenario analyses as recommended by TCFD. The qualitative assessment considered a short-term 2025 horizon and a medium-term 2030 horizon, with impacts measured on an annual basis, considering a low-carbon world scenario. The low-carbon world scenario was based on different sources, including IEA NZ2050, NGFS NZ2050 and IPCC's Shared Socioeconomic Pathway SSP1-1.9. IEA's scenario focuses on the consequences of different energy policy and investment choices. NGFS's scenario explores a different set of assumptions for how climate policy, emissions and temperatures evolve. IPCC's scenario describes a world where society would switch to more sustainable practices, with the focus shifting from economic growth to overall well-being. All scenarios align with projections to limit global warming to 1.5°C above pre-industrial temperatures by the end of the century, in line with the Paris Agreement. The assessment process included a series of internal workshops involving Suzano experts, the consulting firm and other project stakeholders, to conclude the evaluation. The group utilized TCFD's list of transition risks and the low-carbon world scenario analysis to identify the transition risks to which Suzano is exposed, including policy and regulatory changes, market disruptions and technological developments, and to classify the impact of these risks according to their likelihood and magnitude. Additionally, scenario analyses have been used to "stress test" Suzano's resilience to transition risks by considering its level of exposure in a low-carbon economy. This helped the company better understand its ability to withstand and adapt to these risks and identify opportunities that could impact the organization's operations, financial performance and reputation.
Physical climate scenarios: RCP 2.6	Company-wide	<Not Applicable>	We are aware of the climate risks to which Suzano operations are subject. Our risk analyses use climate scenarios that have been selected after reviewing existing models and downscaling techniques, most of them from IPCC. To better understand these effects, in 2006 Suzano started evaluating the increase of CO2 in most of its planted genotypes by measuring several physiological variables. In 2009, Suzano investigated climate changes using five global models (CSIRO, NCAR, HadGEM, MRI and MIROC), based on IPCC scenarios (A1, B1, A2 and B2), and identified risks in scenarios RCP 2.6, 6.0 and RCP 8.5. In 2022, studies were carried out to assess risks in four IPCC global warming scenarios (SSP1-2.6, SSP2-4.5, SSP3-7.0 and SSP5-8.5) in nine global climate models. These analyses resulted in projections for the 2021-2100 period. All analyses produced projections through the year 2100. Considering the current scientific updates on global carbon emissions, we have chosen to base our decisions related to forest production on pessimistic scenarios (RCP 8.5). After considering the different scenarios, we included climate change effects in the company's Enterprise Risk Management (ERM) as Suzano's top risk. As part of a continuous evaluation process, we developed a climate risk action plan with a focus on identifying and mitigating the short- and long-term impacts of climate change. We have been dedicating significant effort to this issue, since it can affect our wood supply planning and silviculture operations, as well as the strategic direction of innovation projects. Since 2021, our forest-related strategic plans have incorporated parameters that include annual analyses of climate scenarios and future risks related to the supply of wood and forestry planning, considering a 21-year time horizon. In 2022, we developed a robust climate system ("climate fingerprint"), through which we have mapped climate effects in 100% of Suzano's areas. Artificial intelligence models were developed to generate indicators that explain the influence of climate on forest production and support Suzano's forest planning. Another strategy is related to clonal allocation. By considering different climate zones, our system is able to rank productivity risks and classify clones based on adaptability to the environment, resilience to water stress and uncertainties resulting from measurements. In 2022, Suzano used this system to carry out clonal allocation in more than 190,000 hectares.
Physical climate scenarios: RCP 6.0	Company-wide	<Not Applicable>	We are aware of the climate risks to which Suzano operations are subject. Our risk analyses use climate scenarios that have been selected after reviewing existing models and downscaling techniques, most of them from IPCC. To better understand these effects, in 2006 Suzano started evaluating the increase of CO2 in most of its planted genotypes by measuring several physiological variables. In 2009, Suzano investigated climate changes using five global models (CSIRO, NCAR, HadGEM, MRI and MIROC), based on IPCC scenarios (A1, B1, A2 and B2), and identified risks in scenarios RCP 2.6, 6.0 and RCP 8.5. In 2022, studies were carried out to assess risks in four IPCC global warming scenarios (SSP1-2.6, SSP2-4.5, SSP3-7.0 and SSP5-8.5) in nine global climate models. These analyses resulted in projections for the 2021-2100 period. All analyses produced projections through the year 2100. Considering the current scientific updates on global carbon emissions, we have chosen to base our decisions related to forest production on pessimistic scenarios (RCP 8.5). After considering the different scenarios, we included climate change effects in the company's Enterprise Risk Management (ERM) as Suzano's top risk. As part of a continuous evaluation process, we developed a climate risk action plan with a focus on identifying and mitigating the short- and long-term impacts of climate change. We have been dedicating significant effort to this issue, since it can affect our wood supply planning and silviculture operations, as well as the strategic direction of innovation projects. Since 2021, our forest-related strategic plans have incorporated parameters that include annual analyses of climate scenarios and future risks related to the supply of wood and forestry planning, considering a 21-year time horizon. In 2022, we developed a robust climate system ("climate fingerprint"), through which we have mapped climate effects in 100% of Suzano's areas. Artificial intelligence models were developed to generate indicators that explain the influence of climate on forest production and support Suzano's forest planning. Another strategy is related to clonal allocation. By considering different climate zones, our system is able to rank productivity risks and classify clones based on adaptability to the environment, resilience to water stress and uncertainties resulting from measurements. In 2022, Suzano used this system to carry out clonal allocation in more than 190,000 hectares.
Physical climate scenarios: RCP 8.5	Company-wide	<Not Applicable>	We are aware of the climate risks to which Suzano operations are subject. Our risk analyses use climate scenarios that have been selected after reviewing existing models and downscaling techniques, most of them from IPCC. To better understand these effects, in 2006 Suzano started evaluating the increase of CO2 in most of its planted genotypes by measuring several physiological variables. In 2009, Suzano investigated climate changes using five global models (CSIRO, NCAR, HadGEM, MRI and MIROC), based on IPCC scenarios (A1, B1, A2 and B2), and identified risks in scenarios RCP 2.6, 6.0 and RCP 8.5. In 2022, studies were carried out to assess risks in four IPCC global warming scenarios (SSP1-2.6, SSP2-4.5, SSP3-7.0 and SSP5-8.5) in nine global climate models. These analyses resulted in projections for the 2021-2100 period. All analyses produced projections through the year 2100. Considering the current scientific updates on global carbon emissions, we have chosen to base our decisions related to forest production on pessimistic scenarios (RCP 8.5). After considering the different scenarios, we included climate change effects in the company's Enterprise Risk Management (ERM) as Suzano's top risk. As part of a continuous evaluation process, we developed a climate risk action plan with a focus on identifying and mitigating the short- and long-term impacts of climate change. We have been dedicating significant effort to this issue, since it can affect our wood supply planning and silviculture operations, as well as the strategic direction of innovation projects. Since 2021, our forest-related strategic plans have incorporated parameters that include annual analyses of climate scenarios and future risks related to the supply of wood and forestry planning, considering a 21-year time horizon. In 2022, we developed a robust climate system ("climate fingerprint"), through which we have mapped climate effects in 100% of Suzano's areas. Artificial intelligence models were developed to generate indicators that explain the influence of climate on forest production and support Suzano's forest planning. Another strategy is related to clonal allocation. By considering different climate zones, our system is able to rank productivity risks and classify clones based on adaptability to the environment, resilience to water stress and uncertainties resulting from measurements. In 2022, Suzano used this system to carry out clonal allocation in more than 190,000 hectares.
Transition scenarios: IEA B2DS	Company-wide	<Not Applicable>	Suzano is committed to developing science-based targets that align with the 1.5°C scenario to address market, reputation and legal risks. The company uses various decarbonization scenarios and tools to assess the projections on GHG emissions through the end of the decade. One of these tools is the 1.5°C scenario developed by the Science-Based Target Initiative (SBTi) based on the IPCC Special Report on Global Warming of 1.5°C. Another tool is the Transition Pathway Initiative (TPI), which uses the 2DS and B2DS scenarios developed by the International Energy Agency (IEA). Suzano is also using the methodology from the Assessing Low Carbon Transition (ACT) initiative, which uses the IEA B2DS and NZE 2050 scenarios. Additionally, the legal risk modeling includes references to carbon tax prices practiced in Latin America, current prices of international regulated and voluntary carbon markets, and price projections estimated by various institutions such as the World Bank's Partnership for Market Readiness (PMR Brazil), International Energy Agency (IEA), International Renewable Energy Agency (IRENA), the UK Department of Energy and Climate Change (DECC), Europe Commission, and International Maritime Organization (IMO), among others.
Transition scenarios: IEA 2DS	Company-wide	<Not Applicable>	Suzano is committed to developing science-based targets that align with the 1.5°C scenario to address market, reputation and legal risks. The company uses various decarbonization scenarios and tools to assess the projections on GHG emissions through the end of the decade. One of these tools is the 1.5°C scenario developed by the Science-Based Target Initiative (SBTi) based on the IPCC Special Report on Global Warming of 1.5°C. Another tool is the Transition Pathway Initiative (TPI), which uses the 2DS and B2DS scenarios developed by the International Energy Agency (IEA). Suzano is also using the methodology from the Assessing Low Carbon Transition (ACT) initiative, which uses the IEA B2DS and NZE 2050 scenarios. Additionally, the legal risk modeling includes references to carbon tax prices practiced in Latin America, current prices of international regulated and voluntary carbon markets, and price projections estimated by various institutions such as the World Bank's Partnership for Market Readiness (PMR Brazil), International Energy Agency (IEA), International Renewable Energy Agency (IRENA), the UK Department of Energy and Climate Change (DECC), Europe Commission, and International Maritime Organization (IMO), among others.

Climate-related scenario	Scenario analysis coverage	Temperature alignment of scenario	Parameters, assumptions, analytical choices
Physical climate scenarios: Customized publicly available physical scenario	Company-wide	1.5ºC	Climate risk analyses are performed using statistical models. For forest productivity, we use the 3-PG model (Physiological Processes Predicting Growth), a scientifically recognized tool adjusted to our environmental conditions. This model estimates impacts considering climate change scenarios and analyses based on El Niño and La Niña events over the last 102 years. Determining these potential impacts is critical for our business and something we have been doing for many years. For example, in 2006, we measured the increase in CO_2 in most genotypes planted by assessing various physiological variables in trees. In 2009, Suzano updated its database using three global models (HAD, CSIRO and PCM), according to IPCC scenarios (A1, B1, A2 and B2). This study was revised in 2015, when researchers assessed and identified risks in both scenarios (RCP 2.6 and RCP 8.5). We invest in research and development to drive innovation throughout the value chain, targeting adaptation to and mitigation of current and future climate effects. Ongoing projects seek to increase forest clone resilience to climate adversities and tolerance to pests and diseases, as well as to develop tools for early diagnosis of these impacts. We conduct increasingly sophisticated assessments using artificial intelligence, big data and analytics to increase sustainable forest stewardship within the context of climate change. Climate indicators are used to adjust harvest and planting planning models to mitigate possible productivity losses, optimize forest productivity and support strategic decisions related to investments and others. For example, Suzano has the largest private genetic base of eucalyptus worldwide and a significant weather monitoring base to mitigate and monitor climate effects. In 2021, we performed a new risk analysis using climate projections from many international weather institutes and the most recent IPCC warming scenarios (CMIP6). These studies were carried out to assess risks in four IPCC global warming scenarios (SSP1-2.6, SSP2-4.5, SSP3-7.0 and SSP5-8.5) in nine global climate models. These analyses resulted in projections for the 2021-2100 period. In 2022, we developed a robust climate system (“climate fingerprint”), through which we have mapped climate effects in 100% of Suzano’s areas. Artificial intelligence models were developed to generate indicators that explain the influence of climate on forest production and support Suzano’s forest planning.

C3.2b

(C3.2b) Provide details of the focal questions your organization seeks to address by using climate-related scenario analysis, and summarize the results with respect to these questions.

Row 1

Focal questions

-According to the climate projection scenarios, how will Suzano's units be impacted?
-Based on the climate change scenarios, what is the financial impact for decreasing wood availability for the mills?
By the mapped climate scenarios, we were able for a better understanding of weather conditions and water availability that may jeopardize environmental services, such as regional climate regulation and water production, directly affecting the company activities and, at times, those of our suppliers and customers. For this reason, the company has assessed its vulnerability to climate change from the point of view of the entire value chain and adopts a precautionary approach to the management and operation of its.

Results of the climate-related scenario analysis with respect to the focal questions

As a result of that climate projection, the analysis indicated that areas located in Espirito Santo, Bahia and Maranhao have a higher potential of impact and it has lower expected effect in other Suzano’s forest areas. Efforts have been dedicated to this, since it can affect our wood supply planning, Silviculture operations, as well as strategic directions of innovation projects. In order to map the possible impacts of these changes in future productivity, we have developed a biophysical model to estimate forest productivity in all regions where Suzano has a forestry base. Based on our results, the pessimistic scenario indicates a potential financial impact of R$2.2 billion, considering wood supply losses. Through this modeling, productivity estimates were made considering the climate change scenarios arising from the events of El Niño and La Niña in the last 102 years. Three possibilities of occurrences of drought events during a forest cycle (7 years) were generated, and in each scenario the frequency and intensity of the event varied, making it possible to calculate how much the volume of wood would reduce. Depending on the future risk, forestry planning, at an annual frequency for a 21-year time horizon, can intensify the supply of wood from third parties, increase the average distance in the supply of wood, demobilize certain low-productivity assets, encourage wood production, among other options, depending on the characteristics of each forest unit.
In the face of climate variability and intensification of climatic phenomena, the company seeks a better adaptation of the forests to the possible impacts of these risk scenarios. Our Genetics and Forest Improvement, Forest Management, and Digital departments have developed Tetrys software to optimize clone allocation based on genotype-environment interaction. Tetrys ranks clone productivity risks based on environmental adaptability, water deficit resilience, and measurement uncertainties. It generates a portfolio of clones that assists breeders decide which ones to plant annually.
In 2022, Suzano carried out the clonal allocation using this software for more than 190.000 hectares. Suzano expects to achieve significant gains in productivity and risk reduction, while keeping the sustainability of the forest business.
In 2022, we also have developed a robust climate system (“climate fingerprint”) where we mapped climate effects for 100% of Suzano's areas. Artificial intelligence models were developed to generate indicators that explain the influence of climate on forest production. This tool was based on a long data time series (over 30 years) obtained from 83 Suzano’s meteorological stations and 95 meteorological stations from the Brazilian Government. Its development allows improvements of Suzano’s knowledge on climate impacts in its areas and supports important strategies as forestry planning, genetic material selection, among others.

C3.3

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

	Have climate-related risks and opportunities influenced your strategy in this area?	Description of influence
Products and services	Yes	Our actual portfolio is highly sustainable and when we look for our business strategy, "be a transformational agent in the expansion into new markets for our biomass" and "be reference in sustainable and innovative solutions for the bioeconomy and environmental services, based on planted trees" are part of our vision (15 years' time-horizon). Market risks are related to reduced demand for single-use paper and cellulose products. Given their renewable origin and versatility, supported by our Bioproducts Strategy, we develop forest renewable products (microfibrillated celulose, biocomposites, lignin,bio-oil) that could replace other products with higher carbon footprint and have the potential to stimulate the development of a lower-carbon economy, instrumental to combat the climate crisis. Suzano announced a long-term target to offer 10 million tons of new, renewable products that can replace plastics and other petroleum derivatives, and a target to remove of 40 million tons of carbon from atmosphere (that may also represent an opportunity to help the development of a global carbon market). Suzano announced a joint-venture in the textile market with Spinnova, a material innovation company from Finland. By the end of 2022, Woodspin has completed the first phase of a 1,000 ton pre-commercial plant in Finland, ensuring supply of sustainably produced micro-fibrillated cellulose (MFC) obtained from eucalyptus planted in Brazil. With a process that uses no harmful chemicals and from 54 to 100% of water saving, the SPINNOVA® fibre can be considered the most sustainable textile fibre there is. Fibre produced this way creates minimal CO2 emissions (60% lower when comparing to cotton or viscose), is quickly biodegradable and contains no microplastics. The fact that these fibres can be recycled into a new fibre again and again makes the SPINNOVA® fibre disruptively circular. Cerrado Project, Partnerships to substitute single-use plastic and partnership with Spinnova are some relevant examples of opportunities being captured for Suzano aligned with our view of Megatrends and their related implications for Suzano's business, and all climate-related risks and opportunities, specially related to forests, are impacting directly each one of these projects. In 2022, we offered about 45,000 tons of renewable products, resulting in an accumulation of about 77,000 tons.
Supply chain and/or value chain	Yes	We operate throughout our chain to ensure efficiency of resources, reduction of waste and environmental impacts—from eucalyptus seedlings to the product. Suzano dialog with a sustainability vision in the relationship with employees and customers, partnership with suppliers, and financial processes. Suzano has a structured supplier management and qualification process based on its Culture Drivers. This management includes activities to guarantee the supply of products and services, but also a relationship based on ethics and integrity with these fundamental links of our value chain (including initiatives to reduce climate impact by direct and indirect operations in the supply chain, in example, clean energy available on grid). One case to illustrate our supplier performance evaluation process, which is audited internally and externally, Technical Quality, Safety, Environment and Social requirements are applied to 100% of critical suppliers. Our comprehensive policies consist of, for example, our Wood Supply Policy, including our FSC® Controlled Wood Management Procedure, which establishes an internal procedure for wood sourcing and a program to ensure that our wood suppliers comply with the standards FSC-STD-40-005 and Cerflor (NBR 14790). In addition, there is a designated department with regular due diligence process that is responsible for ensuring that certified wood purchases follow the necessary guidelines not only to ensure sustainable forest management, but also to ensure chain of custody and since 2020 a program called Suzano´s Responsible Supplier Management (RSM), were implemented to engage the suppliers about climate, social and governance aspects, generating value through the whole chain. The whole supply chain possible risks were highly considered in the construction of Suzano's business strategy vision of "Continue being a benchmark in the sector in efficiency, profitability and sustainability, from the forest to the client" (15-years' time-horizon), with the Wood Supply Planning figuring as a key point to guarantee operability of Suzano´s Supply Chain. As mentioned in other sections, wood is the major raw material for pulp production, so a dedicated chapter in strategic planning was developed. Also chain of custody is a fundamental part of our product strategy, related with certifications as FSC for market pulp and paper.
Investment in R&D	Yes	Our research & development (R&D) and innovation efforts are strategically organized under a Chief Technology and Innovation Officer. This initiative aims to increase synergy between areas, accelerating innovation that generates gains throughout the value chain. The integration is extended to industrial and forestry areas in collaboration with production, marketing and commercial. To improve processes, to develop innovative and higher quality products in a sustainable way, research activities are highly connected with Suzano strategic planning (15 years' time horizon). Some examples are initiatives to increase forestry productivity, reduce the operational costs, optimize industrial processes, and develop new products through (i) forest management with optimization of natural resources (ii) robust eucalyptus breeding program; (iii) improving the use of eucalyptus for pulp, paper and paperboard products; (iv) develop new applications for our fiber, like nanomaterials; and (v) develop a eucalyptus bio refinery to obtain renewable base chemicals. Our goal is to continue improving our planted forest productivity and quality in a sustainable manner. So, our researches select new eucalyptus clones based on growth, cellulose content and wood quality, using techniques like genetic recombination through controlled pollination, use of genomic tools in the selection of new clones, extensive field evaluation and laboratory analysis Improve usage of eucalyptus fiber contribute to substitute fossil-based materials, and it was considered as a core part of the Strategy through the ambition to expand into new segments. So, R&D&I is a crucial part to develop new products. The efforts are: partnerships with customers, innovation hubs, universities and other stakeholders; internal researches for new usages and industrial tests. The expected result is to diversify Suzano´s portfolio, increasing revenue and availability of renewable products. Also, R&D&I advances in forest management contribute to reduce planted area, reducing the distances travelled by forest machines and consequently fuel consumption. These developments contribute to the strategic avenue "Continue being a benchmark in the sector in efficiency, profitability and sustainability: from the forest to the client" (15-years' time-horizon), and are also impacted by the climate-related risks and opportunities.
Operations	Yes	We operate throughout our chain to ensure efficiency of resources, reduction of waste and environmental impacts—from eucalyptus seedlings to the product. Suzano dialog with a sustainability vision in the relationship with employees and customers, partnership with suppliers, and financial processes. Suzano has a structured supplier management and qualification process based on its Culture Drivers. This management includes activities to guarantee the supply of products and services, but also a relationship based on ethics and integrity with these fundamental links of our value chain (including initiatives to reduce climate impact by direct and indirect operations in the supply chain). Our comprehensive policies consist of, for example, our Wood Supply Policy, including our FSC® Controlled Wood Management Procedure, which establishes an internal procedure for wood sourcing and a program to ensure that our wood suppliers comply with the standards FSC-STD-40-005 and Cerflor (NBR 14790). In addition, there is a designated department with regular due diligence process that is responsible for ensuring that certified wood purchases follow the necessary guidelines. Until 2020, the governance of Suzano´s suppliers followed the described items, demanding all the aspects from the stakeholders (previous situation), but and since 2020 a program called Suzano´s Responsible Supplier Management (RSM), were implemented to engage the suppliers about climate, social and governance aspects, generating value through the whole chain. The RSM program includes, additionally to verification of documentation, engagement actions through webinars, workshops and sustainability-related events and aims to be fully implemented in 4 years. The whole supply chain possible risks were highly considered in the construction of Suzano's business strategy vision of "Continue being a benchmark in the sector in efficiency, profitability and sustainability, from the forest to the client" (15-years' time-horizon), with the Wood Supply Planning figuring as a key point to guarantee operability of Suzano´s Supply Chain. As mentioned in other sections, wood is the major raw material for pulp production, so a dedicated chapter in strategic planning was developed. Also chain of custody is a fundamental part of our product strategy, related with certifications as FSC for market pulp and paper.

C3.4

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

	Financial planning elements that have been influenced	Description of influence
Row 1	Revenues Direct costs Indirect costs Capital expenditures Capital allocation Acquisitions and divestments Access to capital Assets Liabilities	Suzano hardwood fiber is suitable for usages such as textiles, so to map the opportunity for substitution of materials, as synthetic fibers from fossil origin, our company conducted studies with sectorial consultancies. It´s a market of more than 100 million tonnes, but renewable textile production is responsible for less than 10 million tonnes. To address this opportunity of entrance in a new market for Suzano and contribute with the substitution of fossil based fibers, Suzano made a M&A move in a joint-venture operation with Spinnova (called Woodspin), in order to build a commercial plant in Finland, able to provide fiber in a relevant scale to develop market and products. At the end of 2022, Woodspin completed the first phase of a 1,000 ton pre-commercial plant in Finland. This unit will be used for market development and technology improvement. Making a sustainable textile fiber from wood reinforces our compromise to "Be a transformational agent in the expansion into new markets for our biomass". In August 2020, Suzano identified a new opportunity to drive its sustainability agenda and also contribute to the development of a new financing model in the global market by linking its Commitments to Renewing Life to its financial management, especially with regard to its liability management practices, through Sustainability-Linked Bonds (SLB). After identifying this opportunity, in September 2020 Suzano structured the issuance of its first SLB, which was the first such operation in the Americas and only the second worldwide. The issuance raised US$ 1.25 billion in the international market, considering the reopening of the offering in November 2020. The operation was linked to the company's commitment to reduce greenhouse gas emissions by 15% (scopes 1 and 2) by 2030. However, for the SLB issuance it was necessary to define an interim target, that is, 0.190 tonCO2e/ton of product (pulp and paper), equivalent to a reduction of 10.9% by 2025 – when it will be halfway through the target and the debt, which matures on January 15, 2031. The commitment related to climate change was chosen because of the urgent need for action on the issue for the sake of society and due to its importance to Suzano's business model based on natural capital. With this issuance we reiterate our commitment regarding climate change since, if we do not achieve the interim target by 2025, the interest to be paid in the next five years will increase automatically. To achieve the goal, we must be further diligent in our mill operations. For example, we must launch projects that reduce the consumption of fossil fuels and drive innovation across the production process to increase efficiency. This transaction was a strong indication that we benefited financially from the issuance's ESG aspect, which reduced our funding costs and broadened investor interest in the offering; in other words, expanding the company's access to capital. This is because, even considering the short-term bonds issued by Suzano, we obtained the lowest rate in our funding history and it was the lowest rate until then, obtained by a Brazilian company for a 10-year issue. Moreover, with the SLB, we obtained an estimated discount of 0.15% in the interest rate, compared to a bond of similar maturity previously issued by Suzano. This premium, or "greenium", is linked to the ESG commitment and the complete transparency followed by the company in the issuance. Suzano continues with its strategy of linked to ESG targets. In 2021, the company issued two more Sustainability-Linked bonds totaling US$ 1.5 billion, linked to indicators of reduction in emissions intensity and water withdrawal intensity, as well as women in leadership positions. By 2022, financing instruments tied to sustainability objectives, such as SLLs, SLBs and green bonds, constituted 39% of the company's total debt. Through these financial mechanisms, we successfully raised a cumulative amount of USD 4.9 billion specifically allocated to projects with environmental benefits and aligned with social and environmental targets. Suzano's strategy has been influenced by climate-related risks and opportunities discussed throughout the development of our Suzano for the Climate transition plan in which the objective was to further integrate climate change into business, driving its strategic vision towards the transition to a low-carbon economy. We are currently, updating our climate transition plan so that it is well aligned with a 1.5ºC scenario, requiring analysis on capital allocation and Capital Expenditure required for the achievement of 1.5ºC scenario. Furthermore, Suzano has 15 public long-term targets, which two of them are climate related: reducing GHG intensity emission by 2030 and removal of carbon from the atmosphere by 2025. Both of them, together with the other 13 are managed by the sustainability area, that together with working groups are responsible to implement the commitments, analyze risks, trends, opportunities and also the investment and projects necessary to achieve than. Lastly, in 2022, we contracted an external consultancy aiming to expand our capacity to analyze and manage physical and transition risks in different climate scenarios, including our forestry, industrial and logistics operations, as well as some critical suppliers, totaling 50 locations. The result of this work will help us improve the financial quantification of mapped risks and climate governance. This study, combined with the increased use of internal carbon pricing to assess projects and manage the transition risk of a future carbon market, led to an increase in our score in the field of Strategy and Management of Risks and Opportunities.

C3.5

(C3.5) In your organization's financial accounting, do you identify spending/revenue that is aligned with your organization's climate transition?

	Identification of spending/revenue that is aligned with your organization's climate transition	Indicate the level at which you identify the alignment of your spending/revenue with a sustainable finance taxonomy
Row 1	No, but we plan to in the next two years	<Not Applicable>

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

Is this a science-based target?

Yes, we consider this a science-based target, and we have committed to seek validation of this target by the Science Based Targets initiative in the next two years

Target ambition

Other, please specify (Reduce by 15% the intensity of the greenhouse gas emissions of Scope 1 and 2, per ton of production)

Year target was set

2020

Target coverage

Company-wide

Scope(s)

Scope 1

Scope 2

Scope 2 accounting method
Location-based

Scope 3 category(ies)
<Not Applicable>

Intensity metric
Metric tons CO2e per metric ton of product

Base year
2015

Intensity figure in base year for Scope 1 (metric tons CO2e per unit of activity)
0.2069

Intensity figure in base year for Scope 2 (metric tons CO2e per unit of activity)
0.0064

Intensity figure in base year for Scope 3, Category 1: Purchased goods and services (metric tons CO2e per unit of activity)
<Not Applicable>

Intensity figure in base year for Scope 3, Category 2: Capital goods (metric tons CO2e per unit of activity)
<Not Applicable>

Intensity figure in base year for Scope 3, Category 3: Fuel-and-energy-related activities (not included in Scopes 1 or 2) (metric tons CO2e per unit of activity)
<Not Applicable>

Intensity figure in base year for Scope 3, Category 4: Upstream transportation and distribution (metric tons CO2e per unit of activity)
<Not Applicable>

Intensity figure in base year for Scope 3, Category 5: Waste generated in operations (metric tons CO2e per unit of activity)
<Not Applicable>

Intensity figure in base year for Scope 3, Category 6: Business travel (metric tons CO2e per unit of activity)
<Not Applicable>

Intensity figure in base year for Scope 3, Category 7: Employee commuting (metric tons CO2e per unit of activity)
<Not Applicable>

Intensity figure in base year for Scope 3, Category 8: Upstream leased assets (metric tons CO2e per unit of activity)
<Not Applicable>

Intensity figure in base year for Scope 3, Category 9: Downstream transportation and distribution (metric tons CO2e per unit of activity)
<Not Applicable>

Intensity figure in base year for Scope 3, Category 10: Processing of sold products (metric tons CO2e per unit of activity)
<Not Applicable>

Intensity figure in base year for Scope 3, Category 11: Use of sold products (metric tons CO2e per unit of activity)
<Not Applicable>

Intensity figure in base year for Scope 3, Category 12: End-of-life treatment of sold products (metric tons CO2e per unit of activity)
<Not Applicable>

Intensity figure in base year for Scope 3, Category 13: Downstream leased assets (metric tons CO2e per unit of activity)
<Not Applicable>

Intensity figure in base year for Scope 3, Category 14: Franchises (metric tons CO2e per unit of activity)
<Not Applicable>

Intensity figure in base year for Scope 3, Category 15: Investments (metric tons CO2e per unit of activity)
<Not Applicable>

Intensity figure in base year for Scope 3, Other (upstream) (metric tons CO2e per unit of activity)
<Not Applicable>

Intensity figure in base year for Scope 3, Other (downstream) (metric tons CO2e per unit of activity)
<Not Applicable>

Intensity figure in base year for total Scope 3 (metric tons CO2e per unit of activity)
<Not Applicable>

Intensity figure in base year for all selected Scopes (metric tons CO2e per unit of activity)
0.2133

% of total base year emissions in Scope 1 covered by this Scope 1 intensity figure
100

% of total base year emissions in Scope 2 covered by this Scope 2 intensity figure
100

% of total base year emissions in Scope 3, Category 1: Purchased goods and services covered by this Scope 3, Category 1: Purchased goods and services intensity figure
<Not Applicable>

% of total base year emissions in Scope 3, Category 2: Capital goods covered by this Scope 3, Category 2: Capital goods intensity figure
<Not Applicable>

% of total base year emissions in Scope 3, Category 3: Fuel-and-energy-related activities (not included in Scopes 1 or 2) covered by this Scope 3, Category 3: Fuel-and-energy-related activities (not included in Scopes 1 or 2) intensity figure

<Not Applicable>

% of total base year emissions in Scope 3, Category 4: Upstream transportation and distribution covered by this Scope 3, Category 4: Upstream transportation and distribution intensity figure
<Not Applicable>

% of total base year emissions in Scope 3, Category 5: Waste generated in operations covered by this Scope 3, Category 5: Waste generated in operations intensity figure
<Not Applicable>

% of total base year emissions in Scope 3, Category 6: Business travel covered by this Scope 3, Category 6: Business travel intensity figure
<Not Applicable>

% of total base year emissions in Scope 3, Category 7: Employee commuting covered by this Scope 3, Category 7: Employee commuting intensity figure
<Not Applicable>

% of total base year emissions in Scope 3, Category 8: Upstream leased assets covered by this Scope 3, Category 8: Upstream leased assets intensity figure
<Not Applicable>

% of total base year emissions in Scope 3, Category 9: Downstream transportation and distribution covered by this Scope 3, Category 9: Downstream transportation and distribution intensity figure
<Not Applicable>

% of total base year emissions in Scope 3, Category 10: Processing of sold products covered by this Scope 3, Category 10: Processing of sold products intensity figure
<Not Applicable>

% of total base year emissions in Scope 3, Category 11: Use of sold products covered by this Scope 3, Category 11: Use of sold products intensity figure
<Not Applicable>

% of total base year emissions in Scope 3, Category 12: End-of-life treatment of sold products covered by this Scope 3, Category 12: End-of-life treatment of sold products intensity figure
<Not Applicable>

% of total base year emissions in Scope 3, Category 13: Downstream leased assets covered by this Scope 3, Category 13: Downstream leased assets intensity figure
<Not Applicable>

% of total base year emissions in Scope 3, Category 14: Franchises covered by this Scope 3, Category 14: Franchises intensity figure
<Not Applicable>

% of total base year emissions in Scope 3, Category 15: Investments covered by this Scope 3, Category 15: Investments intensity figure
<Not Applicable>

% of total base year emissions in Scope 3, Other (upstream) covered by this Scope 3, Other (upstream) intensity figure
<Not Applicable>

% of total base year emissions in Scope 3, Other (downstream) covered by this Scope 3, Other (downstream) intensity figure
<Not Applicable>

% of total base year emissions in Scope 3 (in all Scope 3 categories) covered by this total Scope 3 intensity figure
<Not Applicable>

% of total base year emissions in all selected Scopes covered by this intensity figure
100

Target year
2030

Targeted reduction from base year (%)
15

Intensity figure in target year for all selected Scopes (metric tons CO2e per unit of activity) [auto-calculated]
0.181305

% change anticipated in absolute Scope 1+2 emissions

% change anticipated in absolute Scope 3 emissions
0

Intensity figure in reporting year for Scope 1 (metric tons CO2e per unit of activity)
0.1922

Intensity figure in reporting year for Scope 2 (metric tons CO2e per unit of activity)
0.004

Intensity figure in reporting year for Scope 3, Category 1: Purchased goods and services (metric tons CO2e per unit of activity)
<Not Applicable>

Intensity figure in reporting year for Scope 3, Category 2: Capital goods (metric tons CO2e per unit of activity)
<Not Applicable>

Intensity figure in reporting year for Scope 3, Category 3: Fuel-and-energy-related activities (not included in Scopes 1 or 2) (metric tons CO2e per unit of activity)
<Not Applicable>

Intensity figure in reporting year for Scope 3, Category 4: Upstream transportation and distribution (metric tons CO2e per unit of activity)
<Not Applicable>

Intensity figure in reporting year for Scope 3, Category 5: Waste generated in operations (metric tons CO2e per unit of activity)
<Not Applicable>

Intensity figure in reporting year for Scope 3, Category 6: Business travel (metric tons CO2e per unit of activity)
<Not Applicable>

Intensity figure in reporting year for Scope 3, Category 7: Employee commuting (metric tons CO2e per unit of activity)
<Not Applicable>

Intensity figure in reporting year for Scope 3, Category 8: Upstream leased assets (metric tons CO2e per unit of activity)
<Not Applicable>

Intensity figure in reporting year for Scope 3, Category 9: Downstream transportation and distribution (metric tons CO2e per unit of activity)
<Not Applicable>

Intensity figure in reporting year for Scope 3, Category 10: Processing of sold products (metric tons CO2e per unit of activity)
<Not Applicable>

Intensity figure in reporting year for Scope 3, Category 11: Use of sold products (metric tons CO2e per unit of activity)
<Not Applicable>

Intensity figure in reporting year for Scope 3, Category 12: End-of-life treatment of sold products (metric tons CO2e per unit of activity)
<Not Applicable>

Intensity figure in reporting year for Scope 3, Category 13: Downstream leased assets (metric tons CO2e per unit of activity)
<Not Applicable>

Intensity figure in reporting year for Scope 3, Category 14: Franchises (metric tons CO2e per unit of activity)
<Not Applicable>

Intensity figure in reporting year for Scope 3, Category 15: Investments (metric tons CO2e per unit of activity)
<Not Applicable>

Intensity figure in reporting year for Scope 3, Other (upstream) (metric tons CO2e per unit of activity)
<Not Applicable>

Intensity figure in reporting year for Scope 3, Other (downstream) (metric tons CO2e per unit of activity)
<Not Applicable>

Intensity figure in reporting year for total Scope 3 (metric tons CO2e per unit of activity)
<Not Applicable>

Intensity figure in reporting year for all selected Scopes (metric tons CO2e per unit of activity)
0.1962

Does this target cover any land-related emissions?
Yes, it covers land-related and non-land related emissions (e.g. SBT approved before the release of FLAG target-setting guidance)

% of target achieved relative to base year [auto-calculated]
53.4458509142053

Target status in reporting year
Underway

Please explain target coverage and identify any exclusions
This goal encompasses the specific emission intensity goal is based on the company's production volume and emissions inventory. Emissions of Scope 1 (direct) and Scope 2 (electricity acquisition) will be considered as a numerator of the indicator, sum of pulp and finished paper produced as the denominator (tCO2e/ton produced). The Suzano goal are in line with bellow 2 degrees scenarios as published by Transtition Pathway Initiative

It is important to highlight that Suzano has one of the lowest carbon emission intensities (tCO_2e/t product), according to the Transition Pathway Initiative (TPI), and that our goal is to continue to be a leader in a positive climate agenda.

https://www.transitionpathwayinitiative.org/sectors/paper

The amount of product considered in the indicator's denominator is in tons. It is important to note that the value represents the sum of the total production of pulp, paper, and consumer goods. This number differs from the production figures disclosed in financial statements, which present the volumes finished and made available to the market.
Our ambition was built using historical data from the former Fibria and Suzano Papel e Celulose. In practice, after the merger, the company became more efficient. The integration of the industrial and forestry processes in the regions where the two companies operated generated gains in efficiency that were reverted into a decrease in our emissions.

Plan for achieving target, and progress made to the end of the reporting year
In 2022, our emissions intensity (scopes 1 and 2) per ton of production was 0.1962 tCO_2e/t5. There was a 8% cumulative reduction in 2022, which represents an advance of 53.43% toward achieving the target. Scope 1 emissions increased by 2% and Scope 2 emissions decreased by 64%, which represents an overall absolute reduction (Scope 1 + 2) of 1.5%.
In addition, an overall reduction in intensity of 1.7% (Scope 1 + 2/production). The reduction in intensity was higher than that of absolute emissions, following the commitment to maximize efficiency and productivity with lower emissions intensity.
Suzano is working on the methodological bases of the goal review to increase the ambition, both for its emissions and the value chain. To achieve this, in 2021 we joined the Business Ambition for 1.5°C and Race to Zero initiatives and signed the commitment to the Science-Based Target Initiative (SBTi). The Company will launcha decarbonization target in alignment with the 1.5°C ambition, considering all the technical and scientific criteria of SBTi. Besides this, we have also participated in GHG Protocol Land Sector and Removals Guidance PIlot Testing Phase in 2022 and we continue to follow the discussions until the publication of the final version of the guide, as well as its impact on the SBTi Flag.
Scope 1 emissions had a slight increase influenced by the mobile categories and agricultural activities due to the consolidation of the forest base and a reduction in emissions from industrial machinery in line with modernization processes and efficiency gains.
For energy imports (Scope 2), the units that operate with electricity consumption had a reduction in total emissions since the average emission factor for electricity offered in the National Interconnected System by the Ministry of Science and Technology and Innovations (MCTIC) of Brazil decreased by 66% due to the increase in electricity generation by renewable sources in 2022.

List the emissions reduction initiatives which contributed most to achieving this target
<Not Applicable>

C4.2

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

Net-zero target(s)
Other climate-related target(s)

C4.2b

(C4.2b) Provide details of any other climate-related targets, including methane reduction targets.

Target reference number
Oth 1

Year target was set
2020

Target coverage
Company-wide

Target type: absolute or intensity
Absolute

Target type: category & Metric (target numerator if reporting an intensity target)

Land use change	Other, please specify (tCO2)

Target denominator (intensity targets only)
<Not Applicable>

Base year
2020

Figure or percentage in base year
0

Target year
2025

Figure or percentage in target year
40000000

Figure or percentage in reporting year
22011839.41

% of target achieved relative to base year [auto-calculated]
55.029598525

Target status in reporting year
Underway

Is this target part of an emissions target?
We understand that tackling climate change is everyone's responsibility and the integrated operation of our business - which links our forests to our industrial units - places us as key players in advancing this agenda. Understanding the need for effective short-term measures, Suzano reaffirmed its commitment to remove more carbon from the atmosphere than it emits and announced five-year anticipation of the target of removing 40 million tons of CO_2e from the atmosphere, from 2030 to 2025. We remain committed to doing more than neutralizing direct and chain emissions. Our goal is to remove significant additional amounts of carbon from the atmosphere, thus contributing to mitigating the effects of the global climate crisis.

Is this target part of an overarching initiative?
Science Based targets initiative - other

Please explain target coverage and identify any exclusions
Remove 40 million tons of carbon - from zero to 40 million by 2025. Net carbon removal results from the balance between scope 1 (direct), scope 2 (from electricity acquisition), scope 3 (indirect emissions) emissions and CO_2 net removals through eucalyptus planting and conservation areas.

Plan for achieving target, and progress made to the end of the reporting year
In 2022, from the balance between our Scope 1, 2, and 3 emissions (fossil) and the removals (anthropogenic biogenic) coming from our planted and conserved forests, we obtained a balance of +2,084,729 tonnes of carbon emissions (anthropogenic biogenic..
Thus, the result of +2,084,729 tonnes of emissions in 2022 is added to the 2020 and 2021 results of -15,200,312 of CO_2e and -8,896,258 ton CO_2e removed from the atmosphere respectively, resulting in an accumulation of -22,011,839 ton CO_2e of removals.
Both GHG emissions and removals in 2022 were third-party verified.
Aligned with its commitment to always be up-to-date with the best methodologies and practices. In 2022 Suzano will participate in the Greenhouse Gas Protocol pilot, which is developing a new guide on how companies account for and report their emissions and removals linked to land use (Land Sector and Removals Guidance). We have also been tracking the evolution of the Science-Based Target Forest and Land Usemethodology and will be considering the need to revise the methodological bases throughout 2022. Furthermore, we are analyzing the possibilities of generating carbon credits from forestry (eucalyptus and native species) and engineering projects.
The 2022 variation is aligned with the harvesting and wood supply strategy to meet production demand, in parallel with a movement to expand the forest base that will provide the company with greater resilience and long-term wood supply, in line with its business strategy.
It is expected that there will be a variation over the years because the value varies according to the emissions (Scope 1, 2, and 3) and the volume of removals related, in turn, to forest management, the volume of wood in the field and the increase in our conservation areas. Considering this variation between years, the commitment to remove 40 million tonnes of carbon was developed.

List the actions which contributed most to achieving this target

<Not Applicable>

Target reference number
Oth 2

Year target was set
2020

Target coverage
Company-wide

Target type: absolute or intensity
Absolute

Target type: category & Metric (target numerator if reporting an intensity target)

Engagement with customers	Other, please specify (Selling 10 million tons of products from renewable source)

Target denominator (intensity targets only)
<Not Applicable>

Base year
2020

Figure or percentage in base year
0

Target year
2030

Figure or percentage in target year
10000000

Figure or percentage in reporting year
77000

% of target achieved relative to base year [auto-calculated]
0.77

Target status in reporting year
Underway

Is this target part of an emissions target?
The target is to make available 10 million tons of renewable-source products that can replace plastic and other petroleum-based products by 2030. Through innovability (innovation at the service of sustainability), we constantly seek solutions aligned with our purpose of renewing life from the tree.

Due to its essentially renewable origin, biodegradable in different environments, and great versatility, we know that from the tree we can have other products. Moreover, products with the potential to impact the reduction of carbon emissions are fundamental to tackling the climate crisis and the pressure on natural resources.

Renewable-source products are those made from natural resources, such as cellulose from eucalyptus trees, and that can be regenerated in a short amount of time. Increasing the availability of renewable-source products, beyond those we have traditionally produced, means enabling a transition economy and strengthening the consolidation of a regenerative economy.

Is this target part of an overarching initiative?
No, it's not part of an overarching initiative

Please explain target coverage and identify any exclusions
Offer renewable products that can replace plastics and other petroleum derivatives, including fossil fuels to replace fossil fuels and help other companies reduce their own GHG emissions. All products offered by Suzano are of renewable origin, but only products from innovation, such as paperboard packaging, cups, straws, lignin, microfibrillated cellulose (MFC), biofuels and others, will be considered for the scope of this target.

Plan for achieving target, and progress made to the end of the reporting year
In 2022, we offered about 45,000 tons of renewable products, resulting in an accumulation of about 77,000 tons. We achieved record sales of products to replace plastics, advancing in routes already consolidated, as is the case of products aimed at the markets of cups, straws, and cardboard. Moreover, we launched new products, such as the Greenpack® line, which seeks to address new paper options for the packaging markets. Also, in 2022, we implemented an MFC plant in Limeira (SP), as well as MFC and textile fiber plants in Finland with 1,000 tons of capacity with our partner Spinnova. Both plants are in the startup phase for production throughout 2023.
On the renewable bio-oil route, we will continue engineering studies and development of partnerships for future approval of the first project.

List the actions which contributed most to achieving this target
<Not Applicable>

C4.2c

(C4.2c) Provide details of your net-zero target(s).

Target reference number
NZ1

Target coverage
Company-wide

Absolute/intensity emission target(s) linked to this net-zero target
Abs1

Target year for achieving net zero
2025

Is this a science-based target?
Yes, we consider this a science-based target, and we have committed to seek validation of this target by the Science Based Targets initiative in the next two years

Please explain target coverage and identify any exclusions
Suzano is already Carbon negative company, and we understand our role in combating the climate crisis. For this reason, we are committed to going beyond the neutralization of our direct emissions and the emissions of our chain, also working for an additional and significant removal of carbon from the atmosphere. This goal encompasses emissions from Scope 1 (direct), Scope 2 (of electricity acquisition), Scope 3 (indirect emissions) and carbon removal by planted and native forest. Suzano is a company with a positive emissions balance for removals, that is, it captures more carbon than it emits, and its intensity of emissions is a benchmark in the sector acording to TPI (Transition Pathway Initiative). This targets are in line with the level of decarbonization necessary to keep the global temperature rise below 2 ° C (WB2D), as described in the 5th IPPC Report and decided in the Paris Agreement. Suzano's goal is 100% consistent with science. Observation: The method used to estimate carbon sequestration is in accordance with the "stock change method" for planted areas, and "gain-loss" method for native areas, as per the IPCC Guidelines for National Greenhouse Gas Inventories; Volume 4: Agriculture, Forestry and Other Land Use; Chapter 4: Forest land. The methodology and data of this target was verified by third party. The target related to this challenge is being more climate positive and increasing net carbon capture by 40 million tons until 2025. As this target is related to absolute reduction emissions, beyond carbon capture, to achieve a benchmark intensity KPI in the sector (tCO2/t) recognized as WB2D, it is considered a "net-zero target".

Do you intend to neutralize any unabated emissions with permanent carbon removals at the target year?
Yes

Planned milestones and/or near-term investments for neutralization at target year
Suzano has a significant forest base, with a total area of approximately 2.6 million hectares, which includes eucalyptus plantations and one of the largest private protected native forest areas in Brazil (conservation and reforestation), with approximately 1 million hectares. For the coming years, we have expansion strategies in anthropized or degraded areas, expanding the vegetation cover. Together, conservation areas and eucalyptus plantations contribute directly to the removal and storage of CO_2.
We understand that the integrated operation of our business - which links our forests to our industrial units - places us as key players in advancing this agenda.
Understanding the need for effective short-term measures, Suzano reaffirmed its commitment to remove more carbon from the atmosphere than it emits and announced five-year anticipation of the target of removing 40 million tons of CO_2e from the atmosphere, from 2030 to 2025.
In 2022, from the balance between our Scope 1, 2, and 3 emissions (fossil) and the removals (anthropogenic biogenic) coming from our planted and conserved forests, we obtained a balance of +2,084,729 tonnes of carbon emissions (anthropogenic biogenic). It is expected that there will be a variation over the years because the value varies according to the emissions (Scope 1, 2, and 3) and the volume of removals related, in turn, to forest management, the volume of wood in the field and the increase in our conservation areas. Considering this variation between years, the commitment to remove 40 million tonnes of carbon was developed.
Thus, the result of +2,084,729 tonnes of emissions in 2022 is added to the 2020 and 2021 results of -15,200,312 of CO_2e and -8,896,258 ton CO_2e removed from the atmosphere respectively, resulting in an accumulation of -22,011,839 ton CO_2e of removals.
In 2022, Suzano planted a significant amount of eucalyptus, which will have its removals reported in the 2024 inventory, two years after planting, according to the premise of the methodology. In the balance are planting (with age equal to or greater than two years), forest growth, harvesting, and forest base management of the current year. Thus, the 2022 variation is aligned with the harvesting and wood supply strategy to meet production demand, in parallel with a movement to expand the forest base that will provide the company with greater resilience and long-term wood supply, in line with its business strategy.

Planned actions to mitigate emissions beyond your value chain (optional)
Our goal is to achieve a significant balance of net carbon removal, maintain our positive balance between removals and emissions, and reinforce Suzano's commitment to the journey of tackling the climate crisis. To make it happen, we will expand the conservation areas and the planted base, and we will keep working to ensure high forest productivity. Furthermore, we will expand the protection of conservation areas, the risk monitoring projects, and the use of technology and science in the forest.
It is worth pointing out that expansion will bring large gains to the goal in the first few years, and later, the level of removal will decrease, being supported by the continued removal of conservation areas. Additionally, Suzano will also work to reduce the intensity of its scope 1, 2, and 3 emissions by reducing the consumption of inputs that generate GHG throughout our operation.
Aligned with its commitment to always be up-to-date with the best methodologies and practices. Since 2020, the GHG Protocol has developed Land Sector and Removals Guidance to assist companies in accounting and reporting their GHG emissions and removals about land management, land use change, biogenic products, carbon dioxide removal technologies, and related activities in GHG inventories, based on the Corporate Standard and Standard for Scope 3.
Based on its vast experience in forest inventories and inventories of emissions and carbon removals, Suzano has collaborated in the development of this new Guidance as a member of the Advisory Committee and through sectoral technical discussions and participation in public consultations promoted by the GHG Protocol. After the publication of the final version, Suzano will evaluate its internal procedures for the inventory of emissions and carbon removals against the new GHG Protocol guidelines and will update them if necessary. Suzano is also awaiting the Guidance's final version as it will be used by the Science Based Target Initiative (SBTi) to update its own Forest, Land Use and Agriculture (FLAG) guidance so that companies in land-use intensive sectors can set science-based targets that include emissions reductions and carbon removals. The SBTi's FLAG guide, when updated from the final version of the GHG Protocol Land Sector and Removals Guidance, will be used by Suzano to validate its own with the SBTi. Furthermore, we are continuously analysing the possibilities of generating carbon credits from forestry and engineering projects.

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	8	174159.09
To be implemented*	2	246640.69
Implementation commenced*	6	264069.63
Implemented*	1	77045.71
Not to be implemented	0	0

C4.3b

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

Initiative category & Initiative type

Transportation	Other, please specify (Route optimization)

Estimated annual CO2e savings (metric tonnes CO2e)
77045.71

Scope(s) or Scope 3 category(ies) where emissions savings occur
Scope 3 category 4: Upstream transportation & distribution

Voluntary/Mandatory
Voluntary

Annual monetary savings (unit currency – as specified in C0.4)
0

Investment required (unit currency – as specified in C0.4)
0

Payback period
<1 year

Estimated lifetime of the initiative
Ongoing

Comment
In 2022, Suzano logistics worked in new contracts looking for larger vessels and route optimization. Prioritizing larger vessels, that emit less GHG per transported tone, we estimated the avoided emissions for the same routes, especially to Europe, when comparing 2022 to 2021 in 77,045.71 ton CO2e.
Due to the ongoing long-term relationship and shared commitment between Suzano and its suppliers, the improvements and adaptations made in contracts did not result in any additional costs, leading to reported figures of 0 for both annual monetary savings and investments.

Initiative category & Initiative type

Energy efficiency in production processes	Process optimization

Estimated annual CO2e savings (metric tonnes CO2e)
14910.15

Scope(s) or Scope 3 category(ies) where emissions savings occur
Scope 1

Voluntary/Mandatory
Voluntary

Annual monetary savings (unit currency – as specified in C0.4)
14479375

Investment required (unit currency – as specified in C0.4)
0

Payback period
<1 year

Estimated lifetime of the initiative
Ongoing

Comment
The Thor Project is an initiative that aims to apply machine learning to optimize steam allocation in turbo-generators and, consequently, increase electricity generation. The opportunities and gains captured vary according to each installation and do not require major equipment replacements (the efforts are mainly focused on automation). The project was developed for the Três Lagoas mill and replicated in other Suzano plants. In 2022, the following results were achieved:
- At Aracruz mill: saving of 2,009 metric tons of fossil fuel (BPF oil) for steam generation.
- At Jacareí mill: saving of 2,725,455 cubic meters of fossil fuel (natural gas) for steam generation.
- At Três Lagoas, Aracruz, Jacareí, and Mucuri mills: increased efficiency of the turbo-generators, generating a total of an additional 5,911 MWh of renewable energy in 2022.

Initiative category & Initiative type

Energy efficiency in production processes	Process optimization

Estimated annual CO2e savings (metric tonnes CO2e)
2835.58

Scope(s) or Scope 3 category(ies) where emissions savings occur
Scope 1

Voluntary/Mandatory
Voluntary

Annual monetary savings (unit currency – as specified in C0.4)
2525649

Investment required (unit currency – as specified in C0.4)
0

Payback period
<1 year

Estimated lifetime of the initiative
Ongoing

Comment
At the Suzano mill, 1,061,335 cubic meters of natural gas were saved from being burned in lime kiln 1 due to an advanced process control project conducted at the unit.

C4.3c

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

Method	Comment
Dedicated budget for energy efficiency	Suzano has an Energy Working Group that periodically reviews structural projects and short-term actions to be implemented. This group is multidisciplinary and analyses and prioritizes projects, including them in a project pipeline. Regarding the order of magnitude of the resources needed to carry out the contemplated initiatives, there are essentially two modalities: (i) CAPEX-free nature, in which case internal resources and funds are used to carry out the projects (ii) Initiatives that involve CAPEX, in which case the proposed actions are integrated into the project engineering pipeline, following the evaluation and approval flow contemplated in the governance structure of corporate project engineering. In the constant search for improvements, Suzano, through investments in efficiency, research, and innovation, seeks to increase its contribution to the availability of clean and renewable energy for the entire country but also focuses on making the best use of its resources.
Internal price on carbon	In 2022, Suzano also expanded the use of internal carbon pricing for application in all new CAPEX modernization projects. Its objective is to encourage the development and investments in decarbonization projects, as well as assist the Company in managing risks associated with regulatory pricing scenarios in the future and opportunities in the voluntary carbon market. Thus, from the application of a shadow price of $10/tCO2e on the variation in GHG emissions of new projects, financial indicators are generated with and without the carbon shadow price, so that the impact on emissions is considered in the approval processes of new investments. Based on these indicators, projects that will reduce GHG emissions will rise in the project prioritization ranking, as well as projects that will increase emissions, will fall, according to the degree of their impact.
Other (Dedicated budget for modernization)	Suzano has an investment type through CAPEX intended exclusively for modernization projects. Modernization projects include fuel efficiency, energy use, purchase of more efficient equipment and use of cleaner fuels, among others.
Dedicated budget for low-carbon product R&D	Since 2020, Suzano has been engaging on a big project to develop pulp for paper packaging production. The growth of e-commerce associated with COVID-19 and the regulatory changes banning plastics supports the strategy of replacing plastic not only with the paper produced by Suzano but also supplying certified pulp for customers all over the world. In partnership with the biggest packaging suppliers, Suzano is developing eucalyptus pulp solutions reducing energy consumption or improve papermaking performance in packaging production. Suzano's Bio Strategy is fully aligned with world trends and demands for renewable solutions for a low-carbon economy and to meet its own goals to reduce ssingle-useplastics. The prioritized areas are: i. lignin, ii. Bio-petroleum; iii. Nanocellulose; and iv. Biocomposites. These areas represent opportunities to maximize the forest assets usage. Both R&D&I and New Business teams are working on developing value chains and processes that are sustainable, energy optimizes, in synergy with the current assets and with minimal environmental impact. Suzano also invest in partnerships to accelerate it's developments accessing innovations hubs and partnering up with start ups in disruptive projects like kraft pulp as raw material for textile production in a joint venture with Spinnova. Yearly, Suzano have a Research & Development and & Innovation investment of approximately 1% of net revenues (which in 2022 is approximately BRL 500 million). From this amount, BRL 16 million is directly related to climate change initiatives, number that we consider in the cost of response. This investment relates to forest R&D&I initiatives such as more resistant eucalyptus clones' development and digital tools development in order to reduce impact in forest productivity, the development of Tetrys and clonal optimization, involved investments in nursery and genetic researches for Eucalyptus, software and IT equipment to develop the optimization platform, developing the most modern technologies in analytics, big data and artificial intelligence.
Other (BNDES)	During the last years, Suzano raised capital with the BNDES (Banco Nacional de Desenvolvimento Econômico e Social) with the intention to support projects and reforestation investiments. The capital raised with the BNDES is in compliance with a series of rules from the institution, which establishes that all the investment need to result in a social improvement or a sustainable matter. The eligible projects are 80% funded by the institution and the remain amount, 20%, it's the company obligation. One of the main investments in this context is "Restoration of Native Forests and Conservation of Biodiversity: planting native Brazilian seedlings in degraded land", closely related to climate change issues.
Other (Sustainability Linked Bond)	In 2019, Suzano issued the first bond linked with a KPI (target) for reduction of GHG emission in the total amount of UDS 1.250 MM. this transaction stablish that the company has to reduce his GHG emission intensity to equal to or less than 0.190 tCO2e/ton produced calculated as the average of years ended 2024 and 2025, which is equivalent to an estimated reduction of 10.9% from the 2015 baseline. If the company is not able to meet the KPI the transaction will have an increase in cost of 0,25%, representing approximately USD 12.500.000,00 in interest. It was not only the first in the Americas, emerging markets and the pulp and paper sector, but was also the first globally to have a voluntary second party opinion. In 2022, Suzano has over 39% of its total debt related to ESG debt instruments. Reducing GHG emissions intensity is a key strategy for Suzano to mitigate climate change and address the climate crisis. In the search for the efficiency of our processes, we have already managed to considerably reduce the emissions associated with our production. However, we know that we can do more. Thus, we remain focused on developing solutions that lead us to better results. At the end of 2022, loans linked to sustainability goals (SLL and SLB) and projects with environmental benefits (green bonds) accounted for 39% of the company's debt and we have raised a total of R$4.9 billion through financing instruments linked to social and environmental targets.
Other (Internal incentives/recognition programs)	i9 is Suzano's intrapreneurship program which opens space for employees to contribute with constructive solutions for continuous improvement on a daily basis and also solving challenges of our company, transforming ideas in results. The employees are recognizing for the engagement, proactive and intrapreneurial profile, colaborative work and also for the innovative solutions. i9 has to ways go: i9 Livre is the modality to receive innovative ideas to improve our day-by-day operation. The recognition is financial, for ideas with quantitative gains, the prize is proportional to this gain, and for qualitative ideas, the prize is a fixed value. The other way to give ideas is for solving Suzano's estrategic challenges that are launched as a Campain so every employee can contribute to solve it. This modality is called i9 Foco, and the recognition is softmoney, which is a combination of gamification, positive exposure and awards in the form of experiences. It is worth mentioning that in both modalities, positive exposure is a strong pillar, putting the proponents in the spotlight in Internal comunication channels and also with their leader's recognition in team meetings. Also, in i9 Livre, employees can give innovative ideas in many areas to improve quantitative and qualitative results, such as sustainable gains.

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

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

Afforestation

Description of management practice

Suzano is a Brazilian company that seeks the growing global demand of products from planted forests in a sustainable way. It is the world's leader in the production of hardwood eucalyptus pulp – raw material, owing 2,6 million hectares distributed in the sites of the company, which in total 1,6 million hectares are composed by Eucalyptus planted forests and 1 million hectares are composed by preservation and conservation areas. The main Eucalyptus planting activities are: cleaning the area manually, chemically or mechanically, preparing the soil manually or mechanically, soil fertilization, planting seedlings manually or semi-mechanically, irrigation and replanting. In order to ensure the forest is productive and grows well, after planting, the subsequent phase is the maintenance of the forest. This phase consists of a set of activities and lasts until the harvest phase (5 to 7 years). The main activities are: fertilizing the soil, weeding chemically or mechanically, fertilization, reducing sprouting, fighting ants, and protecting against fires. Since it grows rapidly, eucalyptus helps to absorb carbon dioxide from the atmosphere, returning pure oxygen to nature. The role of eucalyptus forests is pivotal for humanity's efforts to neutralize the greenhouse gases responsible for global warming.

Primary climate change-related benefit

Increase carbon sink (mitigation)

Estimated CO2e savings (metric tons CO2e)

22011839.41

Please explain

The method currently used to estimate carbon removal in eucalyptus plantations is in line with international methodologies, based on IPCC guidelines. The calculation of carbon removals was performed according to the "stock change method" according to the IPCC Guidelines for National Greenhouse Gas Inventories; Volume 4: Agriculture, Forestry and Other Land Use; Chapter 4: Forest Lands.5 Primary data from the Forest Inventory are used to calculate wood volume, and standard IPCC factors to convert wood volume into carbon stocks. For the calculation of removals, Cadastral Inventory data from plantations as of 2 years of age are used. Thus, the 2022 carbon removals reflect the biomass increment from plantations that occurred until 2020 and the biomass loss from harvests that occurred in 2022. Thus, the GHG removals by planted forests are calculated using the "stock change" method by the IPCC Guidelines. To calculate the carbon stock (which increases with the growth of the vegetation and reduces when harvesting occurs), Suzano uses data from its forestry registration base that includes information on areas, in hectares, separated by age and clone, density, and biomass volume for each one of these ages. Based on this information, the IPCC-recognized conversion factors (C to CO_2), above and below-ground biomass ratio factor, and biomass expansion factors (BEF) are applied, and thus the carbon stocks are calculated.
The result of +2,084,729 tonnes of emissions in 2022 is added to the 2020 and 2021 results of -15,200,312 of CO_2e and -8,896,258 ton CO_2e removed from the atmosphere respectively, resulting in an accumulation in 2022 of -22,011,839 ton CO_2e of removals.
In 2022, Suzano planted a significant amount of eucalyptus, which will have its removals reported in the 2024 inventory, two years after planting, according to the premise of the methodology. In the balance are planting (with age equal to or greater than two years), forest growth, harvesting, and forest base management of the current year. Thus, the 2022 variation is aligned with the harvesting and wood supply strategy to meet production demand, in parallel with a movement to expand the forest base that will provide the company with greater resilience and long-term wood supply, in line with its business strategy.

Management practice reference number

MP2

Management practice

Other, please specify (Conservation of Natural Areas)

Description of management practice

Suzano maintains approximately 40% of its total area, or approximately 1 million hectares, for the conservation of biodiversity. This significant volume of conservation areas includes 93 thousand hectares of high conservation value areas, considered globally and nationally important for the biodiversity and voluntarily established by the company. These areas have important social and environmental attributes, such as the presence of endangered, rare and endemic species; extension of well-preserved forest fragments and rare/endangered ecosystems; and areas that provide environmental services, among others (including sociocultural characteristics). The protection of conservation areas, which represent different types of ecosystems and are located along rivers and among eucalytptus plantations, forming a mosaic landscape, reinforces our commitment to reducing adverse environmental impacts and improving the quality of the environment. Our forestry activities follow the Forest Management Plans, which describe forestry operations, available resources, practices and procedures adopted to sustainably achieve management objectives in the short, medium and long terms. Since 2019, Suzano established an internal working group to address the topic of conservation and biodiversity, in order to define integrated strategies, optimize and expand the sharing of practices and knowledge, in addition to enabling partnerships with NGOs and other institutions. Monitoring of biodiversity within our areas totals more than 4,000 species of fauna and flora have been recorded, of which more than 400 are threatened by extinction and 350 are endemic. Wildlife and flora are frequently controlled in partnership with NGOs and universities, in order to learn about, identify and monitor the development of biodiversity in the regions where the company operates. In a view of the intensification of greenhouse gas emissions, forest formations play an important role in fixing carbon dioxide (CO2) from the atmosphere. The immobilization of CO2 by natural conservation areas corresponds to an alternative of payments for environmental services projects, contributing for the maintenance of these areas and conservation of its biodiversity.

Primary climate change-related benefit

Increasing resilience to climate change (adaptation)

Estimated CO2e savings (metric tons CO2e)

3901016.34

Please explain

We maintain approximately 1 million hectares of preserved areas, which account for almost 40% of the company's forest area and contribute to carbon sequestration and stock, preservation of biodiversity and regulation of the hydrological cycle, among other benefits. We contribute to the restoration of native forests, including headwater

areas. For native areas the removals we are using the “gain-loss” method to accout the carbon removals, also recommended by the IPCC Guidelines, where data from Suzano's forest register are used combined with carbon stock factors by phytophysiognomy and biome, as well as increase of biomass by Biome and by successional stage (forest maturity level – initial, medium and advance stage). All of these factors come from the most consolidated and recognized bibliographic references in Brazil and from IPCC.

Management practice reference number
MP3

Management practice
Restoration of degraded lands and cultivated organic soils

Description of management practice
Currently, the areas under restoration maintained by the company are located within three critical biomes in Brazil —Atlantic Rainforest, Cerrado and Amazon— and total 37,355 hectares in 2022, with 12.10 million seedlings planted in in different areas. The program aims to restore the ecological processes responsible for the formation of a functional and sustainable forest. These actions are predominantly applied in the Permanent Preserves and Legal Protection Areas in order to comply with the legislation. The company also controls invasive tree species in areas that already have vegetation cover, aiming at reducing the threats of biological invasions to the regional biodiversity. For the future, it is estimated that after 30 years, Suzano's areas under restoration will contribute to the removal of approximately 22 million tCO2e (~ 709.29 TonCO2e / ha) from the atmosphere. With a perspective of increase, as the company will continue the initiative in other areas under its management. Our restoration activities also help generate various environmental services, such as improvements in water quality and availability, soil conservation, control of pests and diseases, and increase in wildlife and flora biodiversity.

Primary climate change-related benefit
Increase carbon sink (mitigation)

Estimated CO2e savings (metric tons CO2e)
148202.3

Please explain
For native areas and restoration, the removals we are using the “gain-loss” method to acout the carbon removals, also recommended by the IPCC Guidelines, where data from Suzano's forest register are used combined with carbon stock factors by phytophysiognomy and biome, as well as increase of biomass by Biome and by successional stage (forest maturity level – initial, medium and advance stage). All of these factors come from the most consolidated and recognized bibliographic references in Brazil and from IPCC. The number of restoration process CO2 savings are included in the conservation of natural area CO2 savings. The numbers should not be added.

C4.5

(C4.5) Do you classify any of your existing goods and/or services as low-carbon products?
Yes

C4.5a

(C4.5a) Provide details of your products and/or services that you classify as low-carbon products.

Level of aggregation
Group of products or services

Taxonomy used to classify product(s) or service(s) as low-carbon
Climate Bonds Taxonomy

Type of product(s) or service(s)

Pulp and paper	Other, please specify (GHG Inventory / GHG Protocol Brazilian Program; Lifecycle Assessment / ISO 14040)

Description of product(s) or service(s)
Certified bleached kraft pulp; certified paper and paper products (as straw paper and disposable cups) and certified consumer goods – all from planted eucalyptus

Have you estimated the avoided emissions of this low-carbon product(s) or service(s)
Yes

Methodology used to calculate avoided emissions
Other, please specify (o GHG Inventory / GHG Protocol Brazilian Program; Lifecycle Assessment / ISO 14040)

Life cycle stage(s) covered for the low-carbon product(s) or services(s)
Cradle-to-gate

Functional unit used
tCO2e

Reference product/service or baseline scenario used
Suzano has a long-term goal to be even more climate positive by 2025 (considering scope 1, 2 and 3), removing 40 million CO2 metric tonnes from the atmosphere. The baseline for the target is set at 2020, where removals are considered to be at zero. We have started the accounting from a baseline of zero.

Life cycle stage(s) covered for the reference product/service or baseline scenario
Cradle-to-gate

Estimated avoided emissions (metric tons CO2e per functional unit) compared to reference product/service or baseline scenario
22011839.41

Explain your calculation of avoided emissions, including any assumptions
Suzano's total area of over 2,6 million hectares is composed of eucalyptus plantations and native forests that together remove CO2 from the atmosphere. The Company does not practice deforestation. We occupy degraded pasturelands, promoting carbon sequestration and increment of carbon stock. With our production model, from a balance standpoint, we remove more CO2 from the atmosphere than we emit (considering our scopes 1, 2 and 3). Considering the balance between our scopes 1, 2, and 3 emissions and the removals from our planted and conserved forests, we reached an accumulated balance of 22,011,839.41of CO_2e removed from the atmosphere in 2020, 2021 and 2022. This model is the origin of pulp production, which is the basis of our entire product portfolio. Nevertheless, some of our paper products (e.g., paperboard packaging and paper bag), or new products, such as lignin and bio-oil (as well as other products still under development), have applications that replace fossil materials, which are known to be carbon-intensive.

Revenue generated from low-carbon product(s) or service(s) as % of total revenue in the reporting year
100

C5. Emissions methodology

C5.1

(C5.1) Is this your first year of reporting emissions data to CDP?
No

C5.1a

(C5.1a) Has your organization undergone any structural changes in the reporting year, or are any previous structural changes being accounted for in this disclosure of emissions data?

Row 1

Has there been a structural change?
No

Name of organization(s) acquired, divested from, or merged with
<Not Applicable>

Details of structural change(s), including completion dates
<Not Applicable>

C5.1b

(C5.1b) Has your emissions accounting methodology, boundary, and/or reporting year definition changed in the reporting year?

	Change(s) in methodology, boundary, and/or reporting year definition?	Details of methodology, boundary, and/or reporting year definition change(s)
Row 1	No	<Not Applicable>

C5.2

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

Scope 1

Base year start
January 1 2015

Base year end
December 31 2015

Base year emissions (metric tons CO2e)
2067080.78

Comment
Those are emissions from Suzano Papel and Celulose and Fibria added before their fusion in 2019. Scope 1 and 2 emissions are used for our Long Term Goals that has 2015 as it's base year, with the total value: 2,140,620.90 tCO_2e.

Scope 2 (location-based)

Base year start
January 1 2015

Base year end
December 31 2015

Base year emissions (metric tons CO2e)
73540.12

Comment
Those are emissions from Suzano Papel and Celulose and Fibria added before their fusion in 2019. Scope 1 and 2 emissions are used for our Long Term Goals that has 2015 as its base year.

Scope 2 (market-based)

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment

Scope 3 category 1: Purchased goods and services

Base year start
January 1 2019

Base year end
December 31 2019

Base year emissions (metric tons CO2e)
93561.56

Comment
The main raw material, wood, comes from company's lands and outsourced forestry suppliers provide declarations of fuel consumption. These activities are reported in our GHG Emissions and Removals Inventory.
The inventory was developed in according to worldwide recognized protocols, i.e. GHG Protocol (The Greenhouse Gas Protocol - a Corporate Accounting and Reporting Standard – Revised Edition), Brazilian GHG Protocol Program, The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard, WRI & WBCSD (2004) , and IPCC (2006 IPCC Guidelines for National Greenhouse Gas Inventories; Good Practice Guidance for Land Use, Land-Use Change and Forestry) and Calculation Tools for Estimating Greenhouse Gas Emissions from Pulp and Paper Mills, NCASI (2005).
Suzano started to report upstream and downstream transportation emissions in 2020 since both categories were reported together till 2019.

Scope 3 category 2: Capital goods

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment

Scope 3 category 3: Fuel-and-energy-related activities (not included in Scope 1 or 2)

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment

Scope 3 category 4: Upstream transportation and distribution

Base year start
January 1 2022

Base year end
December 31 2022

Base year emissions (metric tons CO2e)
1582505.91

Comment
The inventory was developed in according to worldwide recognized protocols, i.e. GHG Protocol (The Greenhouse Gas Protocol - a Corporate Accounting and Reporting Standard – Revised Edition), Brazilian GHG Protocol Program, The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard, WRI & WBCSD (2004) , and IPCC (2006 IPCC Guidelines for National Greenhouse Gas Inventories; Good Practice Guidance for Land Use, Land-Use Change and Forestry) and Calculation Tools for Estimating Greenhouse Gas Emissions from Pulp and Paper Mills, NCASI (2005).
Suzano started to report upstream and downstream transportation emissions in 2020 since both categories were reported together till 2019.
In 2022, Suzano adjusted its methodology according to the guidelines of the Brazilian GHG Protocol Program, classifying all transportation services paid for by the company as upstream, and allocating transportation services paid for by clients or suppliers.

Scope 3 category 5: Waste generated in operations

Base year start
January 1 2019

Base year end
December 31 2019

Base year emissions (metric tons CO2e)
8631.17

Comment
The inventory is developed in according to worldwide recognized protocols, i.e. GHG Protocol (The Greenhouse Gas Protocol - a Corporate Accounting and Reporting Standard – Revised Edition), Brazilian GHG Protocol Program, The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard, WRI & WBCSD (2004) , and IPCC (2006 IPCC Guidelines for National Greenhouse Gas Inventories; Good Practice Guidance for Land Use, Land-Use Change and Forestry) and Calculation Tools for Estimating Greenhouse Gas Emissions from Pulp and Paper Mills, NCASI (2005).
For scope 3, the information was collected with suppliers, controls of internal areas responsible for managing supplier activities and on internal systems such as SAP.

Scope 3 category 6: Business travel

Base year start
January 1 2019

Base year end
December 31 2019

Base year emissions (metric tons CO2e)
5283.16

Comment
The inventory was developed in according to worldwide recognized protocols, i.e. GHG Protocol (The Greenhouse Gas Protocol - a Corporate Accounting and Reporting Standard – Revised Edition), Brazilian GHG Protocol Program, The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard, WRI & WBCSD (2004) , and IPCC (2006 IPCC Guidelines for National Greenhouse Gas Inventories; Good Practice Guidance for Land Use, Land-Use Change and Forestry) and Calculation Tools for Estimating Greenhouse Gas Emissions from Pulp and Paper Mills, NCASI (2005).
For scope 3, the information was collected with suppliers, controls of internal areas responsible for managing supplier activities and on internal systems such as SAP.

Scope 3 category 7: Employee commuting

Base year start
January 1 2019

Base year end
December 31 2019

Base year emissions (metric tons CO2e)
8790.62

Comment
Transportation of employees for business-related activities in 2019 (in vehicles not owned or operated by the company).
The inventory was developed in according to worldwide recognized protocols, i.e. GHG Protocol (The Greenhouse Gas Protocol - a Corporate Accounting and Reporting Standard – Revised Edition), Brazilian GHG Protocol Program, The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard, WRI & WBCSD (2004) , and IPCC (2006 IPCC Guidelines for National Greenhouse Gas Inventories; Good Practice Guidance for Land Use, Land-Use Change and Forestry) and Calculation Tools for Estimating Greenhouse Gas Emissions from Pulp and Paper Mills, NCASI (2005).
For scope 3, the information was collected with suppliers, controls of internal areas responsible for managing supplier activities and on internal systems such as SAP.

Scope 3 category 8: Upstream leased assets

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment

Scope 3 category 9: Downstream transportation and distribution

Base year start
January 1 2022

Base year end
December 31 2022

Base year emissions (metric tons CO2e)
37909.18

Comment
Transportation and distribution of products sold by the reporting company in the reporting year between the reporting company's operations and the end consumer (if not paid for by the reporting company), including retail and storage (in vehicles and facilities not owned or controlled by the reporting company). This category is the most relevant to the scope 3 where represent the worldwide producti distribution to clients by road, rail and vessels.
Suzano started to report upstream and downstream transportation emissions in 2020 since both categories were reported together till 2019.
In 2022, Suzano adjusted its methodology according to the guidelines of the Brazilian GHG Protocol Program, classifying all transportation services paid for by the company as upstream, and allocating transportation services paid for by clients or suppliers.

Scope 3 category 10: Processing of sold products

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment

Scope 3 category 11: Use of sold products

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment

Scope 3 category 12: End of life treatment of sold products

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment

Scope 3 category 13: Downstream leased assets

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment

Scope 3 category 14: Franchises

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment

Scope 3 category 15: Investments

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment

Scope 3: Other (upstream)

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment

Scope 3: Other (downstream)

Base year start
January 1 2019

Base year end
December 31 2019

Base year emissions (metric tons CO2e)
4730.74

Comment
Fugitive emissions, Kyoto and non-Kyoto

C5.3

(C5.3) Select the name of the standard, protocol, or methodology you have used to collect activity data and calculate emissions.
Brazil GHG Protocol Programme
IPCC Guidelines for National Greenhouse Gas Inventories, 2006
Other, please specify (ABNT NBR ISO 14064-1 and Calculation Tools for Estimating Greenhouse Gas Emissions from Pulp and Paper Mills, NCASI (2005))

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)
2378304.09

Start date
January 1 2022

End date
December 31 2022

Comment
Suzano's main direct emissions (scope 1) are related to the consumption of fossil fuels in the stationary equipment of the industrial units. Other significant sources of emissions can be observed in the forest units through the consumption of fossil fuels by mobile sources in silviculture and harvesting operations, in logistical operations, and the use of nitrogen fertilizers and soil correction (liming). In general, the absolute value has increased in proportion to production. A breakdown by category is available in the indicator ""Direct greenhouse gas emissions (scope 1), by category"".
Since 2015, emissions had a slight increase influenced by emissions from the mobile and agricultural activities categories due to the consolidation of forest base and we’ve seen reduction in emissions from industrial machinery in line with the company's modernization processes and efficiency gains. As Suzano’s production keeps growing, our GHG intensity (emission per ton of product) is constantly decreasing, align with our Commitment to Renew Life by reducing Scope 1 and 2 emissions by 15% per ton of production by 2030, relative to the base year of 2015.
For comparison with the base year and methodological alignment with Suzano's long-term goals, we used GWP indices from the Fourth Assessment Report of the Intergovernmental Panel on Climate Change (IPCC). The data were also calculated with metrics from the IPCC Fifth Assessment Report (AR5) and can be made available upon request.
All reported values have been verified by an independent third party.
To learn more about GHG emissions management, please visit our Sustainability Center

Past year 1

Gross global Scope 1 emissions (metric tons CO2e)
2328335.53

Start date
January 1 2021

End date
December 31 2021

Comment
Suzano's main direct emissions (scope 1) are related to the consumption of fossil fuels in the stationary equipment of the industrial units. Other significant sources of emissions can be observed in the forest units through the consumption of fossil fuels by mobile sources in silviculture and harvesting operations, in logistical operations, and the use of nitrogen fertilizers and soil correction (liming). In general, the absolute value has increased in proportion to production. A breakdown by category is available in the indicator ""Direct greenhouse gas emissions (scope 1), by category"". For comparison with the base year and methodological alignment with Suzano's long-term goals, we used GWP indices from the Fourth Assessment Report of the Intergovernmental Panel on Climate Change (IPCC). The data were also calculated with metrics from the IPCC Fifth Assessment Report (AR5) and can be made available upon request.
All reported values have been verified by an independent third party.

Past year 2

Gross global Scope 1 emissions (metric tons CO2e)
2155102.68

Start date
January 1 2020

End date
December 31 2020

Comment
Suzano's main direct emissions (scope 1) are related to the consumption of fossil fuels in the stationary equipment of the industrial units. Other significant sources of emissions can be observed in the forest units through the consumption of fossil fuels by mobile sources in silviculture and harvesting operations, in logistical operations, and the use of nitrogen fertilizers and soil correction (liming). In general, the absolute value has increased in proportion to production. A breakdown by category is available in the indicator ""Direct greenhouse gas emissions (scope 1), by category"". For comparison with the base year and methodological alignment with Suzano's long-term goals, we used GWP indices from the Fourth Assessment Report of the Intergovernmental Panel on Climate Change (IPCC). The data were also calculated with metrics from the IPCC Fifth Assessment Report (AR5) and can be made available upon request.
All reported values have been verified by an independent third party.

C6.2

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

Row 1

Scope 2, location-based

We are reporting a Scope 2, location-based figure

Scope 2, market-based

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

Comment

Indirect emissions from the acquisition of energy (scope 2) at Suzano are due to the purchase of electricity from the National Interconnected System (SIN), Brazil's electricity production and transmission system. These emissions are more representative in the Industrial Units, mainly for the paper machines, which require a continuous supply of electricity. Since Suzano is a company that self-generates a large part of its energy consumption, the scope 2 emissions are not very representative in the global inventory.

C6.3

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

Reporting year

Scope 2, location-based
49216.75

Scope 2, market-based (if applicable)
<Not Applicable>

Start date
January 1 2022

End date
December 31 2022

Comment
Given the fact that Suzano is a company that self-generates a substantial portion of its energy consumption, Scope 2 emissions are not very expressive in the global inventory. The 7% increase in electricity imports resulted from the increase in total electricity consumption due to increased production at the consumer goods units and the process of replacing obsolete turbo generators, however, the decrease in Scope 2 emissions at Suzano in 2022 was mainly influenced by the 66% decrease in the average emission factor for electricity offered in the National Interconnected System by the Ministry of Science, Technology and Innovation (MCTIC in Portuguese acronym) of Brazil. This decrease resulted from good rainfall performance in the System as well as a decrease in Thermoelectric Power Plants activity which had occurred during the 2021 energy crisis faced by the country.

*CO2 emission factors for electricity generation in the Brazilian National Interconnected System for corporate inventories - The base year 2022 (consultation carried out for the Suzano inventory in February 2023):
https://www.gov.br/mcti/pt-br/acompanhe-o-mcti/cgcl/paginas/fator-medio-inventarios-corporativos- Emissions verified by independent third party

To learn more about GHG emissions management, go to ""Greenhouse Gas (GHG) Emissions and Methodology"" in our Sustainability Center.

Past year 1

Scope 2, location-based
137822.64

Scope 2, market-based (if applicable)
<Not Applicable>

Start date
January 1 2021

End date
December 31 2021

Comment
"There was an increase of 11% in electricity imports, compatible with the increase in Suzano's production. However, the increase in the Company's scope 2 emissions in 2021 was influenced mainly by the 105% growth in the average emission factor for the electricity offered in the SIN by the Ministry of Science and Technology and Innovations (MCTIC) of Brazil, which in turn was due to the increase in the activation of thermoelectric plants with the energy crisis that the country faced in 2021.

*CO2 emission factors for electricity generation in the Brazilian National Interconnected System for corporate inventories - The base year 2021 (consultation carried out for the Suzano inventory in February 2022): https://antigo.mctic.gov.br/mctic/opencms/ciencia/SEPED/clima/textogeral/emissao_corporativos.html
- Emissions verified by independent third party

Past year 2

Scope 2, location-based
59531.9

Scope 2, market-based (if applicable)
<Not Applicable>

Start date
January 1 2020

End date
December 31 2020

Comment
The 2020 was the second year of Suzano´s emissions report, after the merge between Suzano Pulp & Paper and Fibria.

C6.4

(C6.4) Are there any sources (e.g. facilities, specific GHGs, activities, geographies, etc.) of Scope 1, Scope 2 or Scope 3 emissions that are within your selected reporting boundary which are not included in your disclosure?
No

C6.5

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

Purchased goods and services

Evaluation status
Relevant, calculated

Emissions in reporting year (metric tons CO2e)
70039.55

Emissions calculation methodology
Supplier-specific method
Fuel-based method

Percentage of emissions calculated using data obtained from suppliers or value chain partners
100

Please explain
The second most representative category, that of purchased goods and services (transportation of inputs) represents 4% of Scope 3 and had an increase in emissions motivated by the base increase in forestry activities, conducted by contractors. Suzano has sought to establish better ties with contractors on these fronts and has engaged in a range of exchanges on ESG and data collection. The 2022 values were all collected using primary data from this direct relationship, thereby avoiding the use of estimates, which allows a more realistic scenario to be portrayed and points for improvement in contracting.

Capital goods

Evaluation status
Not relevant, explanation provided

Emissions in reporting year (metric tons CO2e)
<Not Applicable>

Emissions calculation methodology
<Not Applicable>

Percentage of emissions calculated using data obtained from suppliers or value chain partners
<Not Applicable>

Please explain
As an energy intensive industry, the capital goods bough yearly by Suzano has very low impact on our operations. Several LCA's studies reveal that units in the paper industry contribute less than 1% of CO2 emissions from capital goods.

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

Evaluation status
Not relevant, explanation provided

Emissions in reporting year (metric tons CO2e)
<Not Applicable>

Emissions calculation methodology
<Not Applicable>

Percentage of emissions calculated using data obtained from suppliers or value chain partners
<Not Applicable>

Please explain
All fuel emissions not accounted in Scope 1 or 2 are accounted in categories of Purchased Good and Services or Transportation.

Upstream transportation and distribution

Evaluation status
Relevant, calculated

Emissions in reporting year (metric tons CO2e)
1582505.91

Emissions calculation methodology
Hybrid method
Fuel-based method
Distance-based method

Percentage of emissions calculated using data obtained from suppliers or value chain partners
2.17

Please explain
The inventory was developed in according to worldwide recognized protocols, i.e. GHG Protocol (The Greenhouse Gas Protocol - a Corporate Accounting and Reporting Standard – Revised Edition), Brazilian GHG Protocol Program, The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard, WRI & WBCSD (2004) , and IPCC (2006 IPCC Guidelines for National Greenhouse Gas Inventories; Good Practice Guidance for Land Use, Land-Use Change and Forestry) and Calculation Tools for Estimating Greenhouse Gas Emissions from Pulp and Paper Mills, NCASI (2005).
For scope 3, the information was collected with suppliers, controls of internal areas responsible for managing supplier activities and on internal systems such as SAP.
In 2022, Suzano adjusted its methodology according to the guidelines of the Brazilian GHG Protocol Program, classifying all transportation services paid for by the company as upstream, and allocating transportation services paid for by clients or suppliers.
This reclassification was the result of a strong advance in the systematization of transportation data collection and a greater participation of the areas involved. Suzano's logistics areas are integrating GHG emissions measurements into their processes and results meetings. This addition of climate change into the decision making of these areas is intended to drive major advances and impacts in the upstream transportation and distribution category, where our leverage is greatest.
A major project on this front that has yielded the most results was the search for larger vessels for pulp transportation. Among other measures, there was an 8% reduction in this category's emissions.

Waste generated in operations

Evaluation status
Not relevant, calculated

Emissions in reporting year (metric tons CO2e)
33799.78

Emissions calculation methodology
Waste-type-specific method

Percentage of emissions calculated using data obtained from suppliers or value chain partners
0

Please explain
The inventory is developed in according to worldwide recognized protocols, i.e. GHG Protocol (The Greenhouse Gas Protocol - a Corporate Accounting and Reporting Standard – Revised Edition), Brazilian GHG Protocol Program, The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard, WRI & WBCSD (2004) , and IPCC (2006 IPCC Guidelines for National Greenhouse Gas Inventories; Good Practice Guidance for Land Use, Land-Use Change and Forestry) and Calculation Tools for Estimating Greenhouse Gas Emissions from Pulp and Paper Mills, NCASI (2005).
For scope 3, the information was collected with suppliers, controls of internal areas responsible for managing supplier activities and on internal systems such as SAP.

Business travel

Evaluation status
Not relevant, calculated

Emissions in reporting year (metric tons CO2e)
4533.95

Emissions calculation methodology
Supplier-specific method

Percentage of emissions calculated using data obtained from suppliers or value chain partners
100

Please explain
The inventory was developed in according to worldwide recognized protocols, i.e. GHG Protocol (The Greenhouse Gas Protocol - a Corporate Accounting and Reporting Standard – Revised Edition), Brazilian GHG Protocol Program, The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard, WRI & WBCSD (2004) , and IPCC (2006 IPCC Guidelines for National Greenhouse Gas Inventories; Good Practice Guidance for Land Use, Land-Use Change and Forestry) and Calculation Tools for Estimating Greenhouse Gas Emissions from Pulp and Paper Mills, NCASI (2005).
For scope 3, the information was collected with suppliers, controls of internal areas responsible for managing supplier activities and on internal systems such as SAP.

Employee commuting

Evaluation status
Not relevant, calculated

Emissions in reporting year (metric tons CO2e)
9172.2

Emissions calculation methodology
Hybrid method
Fuel-based method
Distance-based method

Percentage of emissions calculated using data obtained from suppliers or value chain partners
100

Please explain
Transportation of employees for business-related activities in 2022 (in vehicles not owned or operated by the company).

Upstream leased assets

Evaluation status
Not relevant, explanation provided

Emissions in reporting year (metric tons CO2e)
<Not Applicable>

Emissions calculation methodology
<Not Applicable>

Percentage of emissions calculated using data obtained from suppliers or value chain partners
<Not Applicable>

Please explain
Mostly of Suzano's leased assets are from forestry areas and we account those as our own emissions because we have operational control.

Downstream transportation and distribution

Evaluation status
Relevant, calculated

Emissions in reporting year (metric tons CO2e)
37909.18

Emissions calculation methodology
Hybrid method
Average data method
Fuel-based method
Distance-based method

Percentage of emissions calculated using data obtained from suppliers or value chain partners
0

Please explain
Transportation and distribution of products sold by the reporting company in the reporting year between the reporting company's operations and the end consumer (if not paid for by the reporting company), including retail and storage (in vehicles and facilities not owned or controlled by the reporting company).
In 2022, Suzano adjusted its methodology according to the guidelines of the Brazilian GHG Protocol Program, classifying all transportation services paid for by the company as upstream, and allocating transportation services paid for by clients or suppliers.
This reclassification was the result of a strong advance in the systematization of transportation data collection and a greater participation of the areas involved. Suzano's logistics areas are integrating GHG emissions measurements into their processes and results meetings. This addition of climate change into the decision making of these areas is intended to drive major advances and impacts in the upstream transportation and distribution category, where our leverage is greatest.

Processing of sold products

Evaluation status
Relevant, not yet calculated

Emissions in reporting year (metric tons CO2e)
<Not Applicable>

Emissions calculation methodology
<Not Applicable>

Percentage of emissions calculated using data obtained from suppliers or value chain partners
<Not Applicable>

Please explain
Suzano has no control over the processing of sold products as our main product - pulp - has multi-uses in the client's industry in multiple sectors. In this regard, we are unable to determine which emission factor we should use for this category. Suzano's is expanding its Scope 3 emissions and we are committed to the Science-Based Target Initiative (SBTi) to have calculate this category in the years to come.
In an internally screening done in 2022, Suzano estimates processing of sold products may vary between 7,000,000 000 tons of CO2e and 20,000,000 tons of CO2e depending on how efficient the customer is.

Use of sold products

Evaluation status
Not relevant, explanation provided

Emissions in reporting year (metric tons CO2e)
<Not Applicable>

Emissions calculation methodology
<Not Applicable>

Percentage of emissions calculated using data obtained from suppliers or value chain partners
<Not Applicable>

Please explain
These emissions can be related to the use of paper. Therefore, we understand that the use of paper itself does not result in carbon emissions, as the possible end uses (eg packaging, printing paper and tissue paper) do not result in energy or fuel consumption.

End of life treatment of sold products

Evaluation status
Relevant, not yet calculated

Emissions in reporting year (metric tons CO2e)
<Not Applicable>

Emissions calculation methodology
<Not Applicable>

Percentage of emissions calculated using data obtained from suppliers or value chain partners
<Not Applicable>

Please explain
Suzano has no control over the end of life of sold products as our main product - pulp - has multi-uses in the client's industry in multiple sectors. In this regard, we are unable to determine which emission factor we should use for this category. Suzano's is expanding its Scope 3 emissions and we are committed to the Science-Based Target Initiative (SBTi) to calculate this category in the years to come.
In an internally screening done in 2022, Suzano estimates the end of life treatment of sold products to be approximately 500,000 tons of CO2e.

Downstream leased assets

Evaluation status
Not relevant, explanation provided

Emissions in reporting year (metric tons CO2e)
<Not Applicable>

Emissions calculation methodology
<Not Applicable>

Percentage of emissions calculated using data obtained from suppliers or value chain partners
<Not Applicable>

Please explain
Suzano has no downstream leased assets.

Franchises

Evaluation status
Not relevant, explanation provided

Emissions in reporting year (metric tons CO2e)
<Not Applicable>

Emissions calculation methodology
<Not Applicable>

Percentage of emissions calculated using data obtained from suppliers or value chain partners
<Not Applicable>

Please explain
Suzano has no franchises in its portfolio.

Investments

Evaluation status
Not evaluated

Emissions in reporting year (metric tons CO2e)
<Not Applicable>

Emissions calculation methodology
<Not Applicable>

Percentage of emissions calculated using data obtained from suppliers or value chain partners
<Not Applicable>

Please explain
Suzano's portfolio of investments varies frequently so we are not asserting this in our Scope 3 emissions. Suzano's is expanding its Scope 3 emissions and we are committed to the Science-Based Target Initiative (SBTi) to have a screening of this category in the years to come

Other (upstream)

Evaluation status
Not relevant, explanation provided

Emissions in reporting year (metric tons CO2e)
<Not Applicable>

Emissions calculation methodology
<Not Applicable>

Percentage of emissions calculated using data obtained from suppliers or value chain partners
<Not Applicable>

Please explain
Suzano has no emissions by this category

Other (downstream)

Evaluation status
Not relevant, explanation provided

Emissions in reporting year (metric tons CO2e)
<Not Applicable>

Emissions calculation methodology
<Not Applicable>

Percentage of emissions calculated using data obtained from suppliers or value chain partners
<Not Applicable>

Please explain
Suzano has no emissions by this category

C6.5a

(C6.5a) Disclose or restate your Scope 3 emissions data for previous years.

Past year 1

Start date
January 1 2021

End date
December 31 2021

Scope 3: Purchased goods and services (metric tons CO2e)
49182.97

Scope 3: Capital goods (metric tons CO2e)

Scope 3: Fuel and energy-related activities (not included in Scopes 1 or 2) (metric tons CO2e)

Scope 3: Upstream transportation and distribution (metric tons CO2e)
332396.87

Scope 3: Waste generated in operations (metric tons CO2e)
24242.27

Scope 3: Business travel (metric tons CO2e)
361.96

Scope 3: Employee commuting (metric tons CO2e)
15664.34

Scope 3: Upstream leased assets (metric tons CO2e)
0

Scope 3: Downstream transportation and distribution (metric tons CO2e)
1420245.24

Scope 3: Processing of sold products (metric tons CO2e)
0

Scope 3: Use of sold products (metric tons CO2e)
0

Scope 3: End of life treatment of sold products (metric tons CO2e)

Scope 3: Downstream leased assets (metric tons CO2e)

Scope 3: Franchises (metric tons CO2e)

Scope 3: Investments (metric tons CO2e)

Scope 3: Other (upstream) (metric tons CO2e)

Scope 3: Other (downstream) (metric tons CO2e)

Comment
In 2022, Suzano adjusted its methodology according to the guidelines of the Brazilian GHG Protocol Program, classifying all transportation services paid for by the company as upstream, and allocating transportation services paid for by clients or suppliers.

This reclassification was the result of a strong advance in the systematization of transportation data collection and a greater participation of the areas involved. Suzano's logistics areas are integrating GHG emissions measurements into their processes and results meetings. This addition of climate change into the decision making of these areas is intended to drive major advances and impacts in the upstream transportation and distribution category, where our leverage is greatest.

Past year 2

Start date
January 1 2020

End date
December 31 2020

Scope 3: Purchased goods and services (metric tons CO2e)
185375.58

Scope 3: Capital goods (metric tons CO2e)

Scope 3: Fuel and energy-related activities (not included in Scopes 1 or 2) (metric tons CO2e)

Scope 3: Upstream transportation and distribution (metric tons CO2e)
108637.17

Scope 3: Waste generated in operations (metric tons CO2e)
19102.09

Scope 3: Business travel (metric tons CO2e)
1492.75

Scope 3: Employee commuting (metric tons CO2e)
8368.34

Scope 3: Upstream leased assets (metric tons CO2e)
0

Scope 3: Downstream transportation and distribution (metric tons CO2e)
1245917.5

Scope 3: Processing of sold products (metric tons CO2e)

Scope 3: Use of sold products (metric tons CO2e)

Scope 3: End of life treatment of sold products (metric tons CO2e)

Scope 3: Downstream leased assets (metric tons CO2e)

Scope 3: Franchises (metric tons CO2e)

Scope 3: Investments (metric tons CO2e)

Scope 3: Other (upstream) (metric tons CO2e)

Scope 3: Other (downstream) (metric tons CO2e)

Comment
In 2022, Suzano adjusted its methodology according to the guidelines of the Brazilian GHG Protocol Program, classifying all transportation services paid for by the company as upstream, and allocating transportation services paid for by clients or suppliers.

This reclassification was the result of a strong advance in the systematization of transportation data collection and a greater participation of the areas involved. Suzano's logistics areas are integrating GHG emissions measurements into their processes and results meetings. This addition of climate change into the decision making of these areas is intended to drive major advances and impacts in the upstream transportation and distribution category, where our leverage is greatest.

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)
44887590.43

Methodology
Region-specific emissions factors

Please explain
The calculation of carbon emissions occurred in forest operation (harvester operation) was performed in accordance with the ""stock change method", as per the IPCC Guidelines for National Greenhouse Gas Inventories; Volume 4: Agriculture, Forestry and Other Land Use; Chapther 4: Forest Land. Suzano uses primary data from its Forest Inventory to calculate wood volume and default factors from IPCC (2006) to convert wood volume to carbon stocks. AftewordsAfterwards the GHG removals is calculated by stock change method according to IPCC (2006) guidance.

CO2 removals from land use management

Emissions (metric tons CO2)
46968342.1

Methodology
Field measurements

Please explain
This number refers to removals/carbon sequestration, not emissions. The method used to estimate carbon sequestration is in line with international methodologies, based on IPCC guidance (2003 and 2006). The calculation of carbon removals was performed in accordance with the ""stock change method", as per the IPCC Guidelines for National Greenhouse Gas Inventories; Volume 4: Agriculture, Forestry and Other Land Use; Chapther 4: Forest Land. Suzano uses primary data from its Forest Inventory to calculate wood volume and default factors from IPCC (2006) to convert wood volume to carbon stocks. AftewordsAfterwards the GHG removals is calculated by stock change method according to IPCC (2006) guidance.

Sequestration during land use change

Emissions (metric tons CO2)
318502973.22

Methodology
Field measurements

Please explain
This number refers to Carbon stocks, it's represented all the carbon present in the forest biomass accumulated over time (as a "picture" of all the carbon that is in the forest area at any given time). According to the Intergovernmental Panel on Climate Change (IPCC), a stock is the total amount of the substance of interest held within a reservoir at a specific time. The method used to estimate carbon stock is in line with international methodologies, based on IPCC guidance (2003 and 2006), IPCC Guidelines for National Greenhouse Gas Inventories; Volume 4: Agriculture, Forestry and Other Land Use; Chapther 4: Forest Land. Suzano uses primary data from its Forest Inventory to calculate wood volume and default factors from IPCC (2006) to convert wood volume to carbon stocks. AftewordsAfterwards the GHG removals is calculated by stock change method according to IPCC (2006) guidance.

CO2 emissions from biofuel combustion (land machinery)

Emissions (metric tons CO2)
50528.13

Methodology
Region-specific emissions factors

Please explain
The biogenic emissions from biofuel combustion was calculated according to NBR ISO 14.064-1 and GHG Protocol Corporate Accounting. Suzano uses data of fuel consumption from the equipment (collected with suppliers or internal control) multiplied by emissions factor available on Brazil GHG Protocol Programme tool, that present specific emission factors by fuel (for example: gasoline, ethanol and diesel in Brazil).

CO2 emissions from biofuel combustion (processing/manufacturing machinery)

Emissions (metric tons CO2)
21007939.65

Methodology
Region-specific emissions factors

Please explain
The biogenic emissions from biofuel combustion was calculated according to NBR ISO 14.064-I and GHG Protocol Corporate Accounting. Suzano uses data of fuel consumption from the equipment (collected with suppliers or internal control) multiplied by emissions factor available on Brazil GHG Protocol Programme tool, that present specific emission factors by fuel (for example: biomass, black liquor, gasoline, ethanol and diesel in Brazil).

CO2 emissions from biofuel combustion (other)

Emissions (metric tons CO2)
84894.25

Methodology
Region-specific emissions factors

Please explain
Biogenic emissions of 366.92 tCO2e for Scope 3 (Transportation and distribution - upstream-, Transport and distribution -downstream, purchase goods and services and and displacement of employees). The biogenic emissions from biofuel combustion was calculated according to NBR ISO 14.064-I and GHG Protocol Corporate Accounting. Suzano uses data of fuel consumption from the equipment (collected with suppliers or internal control) multiplied by emissions factor available on Brazil GHG Protocol Programme tool, that present specific emission factors by fuel (for example: gasoline, ethanol and diesel in Brazil).

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
Timber

Do you collect or calculate GHG emissions for this commodity?
Yes

Reporting emissions by
Unit of production

Emissions (metric tons CO2e)
0.3486

Denominator: unit of production
Metric tons

Change from last reporting year
About the same

Please explain
Total scope 1+2+3 / total production.
Suzano's primary product is timber, and the company's data collection boundaries encompass its overall operations and forestry activities in several states, namely Bahia, Espirito Santo, Maranhão, Mato Grosso do Sul, and São Paulo. The emissions from scope 1, 2, and 3 are considered in the forestry operations, which encompass activities such as nurseries, silviculture, harvesting, purchasing goods and services, inbound wood transportation, waste management, fertilizer usage, and employee transportation. The 2022 Greenhouse Gas Emissions Inventory calculated the forest emissions, including biogenic emissions and carbon removals, although these calculations were not included in the indicator. Suzano employs the Brazilian GHG Protocol methodology for performing these annual calculations.

Explain why you do not calculate GHG emission for this commodity and your plans to do so in the future
<Not Applicable>

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
0.0000487151

Metric numerator (Gross global combined Scope 1 and 2 emissions, metric tons CO2e)
2427520.84

Metric denominator
unit total revenue

Metric denominator: Unit total
49830946000

Scope 2 figure used
Location-based

% change from previous year
19.1

Direction of change
Decreased

Reason(s) for change
Other, please specify (Net revenue from pulp)

Please explain
Net revenue from pulp increased 22% in 2022 due the increase in the average net price following the trend in international market prices.
In GHG emissions, the company presented a 2% increase in Scope 1 emissions and a 64% decrease in Scope 2 emissions, accounting for an overall absolute reduction (Scope 1 + 2) of 1.5%.

Intensity figure
0.1962

Metric numerator (Gross global combined Scope 1 and 2 emissions, metric tons CO2e)
2427520.84

Metric denominator
unit of production

Metric denominator: Unit total
12373588.4

Scope 2 figure used
Location-based

% change from previous year
1.68

Direction of change
Decreased

Reason(s) for change
Change in renewable energy consumption

Please explain
Suzano had a stable production year, with no representative variation when compared to 2021.
Emissions had a slight increase influenced by emissions from the mobile and agricultural activities categories due to the consolidation of forest base and a reduction in emissions from industrial machinery in line with the company's modernization processes and efficiency gains.
For energy imports (Scope 2), units operating with high electricity consumption showed a decrease in total emissions, considering the average emission factor for electricity provided by the National Interconnected System by the Ministry of Science and Technology and Innovations (MCTIC, in Portuguese acronym) of Brazil decreased by 66% because of increased electricity generation from renewable sources by 2022.
Accordingly, the company presented a 2% increase in Scope 1 emissions and a 64% decrease in Scope 2 emissions, accounting for an overall absolute reduction (Scope 1 + 2) of 1.5% and an overall reduction in intensity of 1.7% (Scope 1 + 2/production). Reduction in intensity was greater than that of absolute emissions, as per our commitment to maximize efficiency and productivity with lower emissions intensity.
The amount of product considered in the indicator's denominator is in tons. It is important to note that the value represents the sum of the total production of pulp, paper, and consumer goods. This number differs from the production figures disclosed in financial statements, which present the volumes finished and made available to the market.
Due to these points, the intensity of our emissions (scope 1 and 2) per ton of production was 0.1962 tCO_2e/t.
To our Commitment to Renewing Life of 15% reduction of Scope 1 and 2 emissions per ton of production by 2030, compared to the 2015 base year, there was a 8.04% reduction in 2022, which represents an 53.5% advance towards meeting the goal.
We used GWP indices from the Fourth Assessment Report of the Intergovernmental Panel on Climate Change (IPCC) and factors referring to the 100-year time interval. All reported values have been verified by an independent third party.

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
CO2	2051137.19	IPCC Fourth Assessment Report (AR4 - 100 year)
CH4	63282.9	IPCC Fourth Assessment Report (AR4 - 100 year)
N2O	254603.05	IPCC Fourth Assessment Report (AR4 - 100 year)
Other, please specify (HCFC)	2687.83	IPCC Fourth Assessment Report (AR4 - 100 year)
Other, please specify (PFCs GASES)	6593.12	IPCC Fourth Assessment Report (AR4 - 100 year)

C7.2

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

Country/area/region	Scope 1 emissions (metric tons CO2e)
Brazil	2378304.09
Americas	0
Europe	0
Asia Pacific (or JAPA)	0

C7.3

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

By business division
By facility
By activity

C7.3a

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

Business division	Scope 1 emissions (metric ton CO2e)
Paper and consumer goods: 11% of total scope 1 emissions. Proportional data of emissions in relation to total production (paper and cellulose - 100%). Does not reflect the accuracy of emissions from the papermaking process.	263877.03
Pulp: 89% of total scope 1 emissions. Proportional data of emissions in relation to total production (paper and cellulose - 100%). Does not reflect the accuracy of emissions from the papermaking process.	2114427.06

C7.3b

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

Facility	Scope 1 emissions (metric tons CO2e)	Latitude	Longitude
Head Office / logistic operations and support operations	3499.84	-23.34	-46.41
UNF BA (Forestry Unit - Bahia state)	91822.53	-18.2	-39.55
UNF ES (Forestry Unit - Espírito Santo state)	118260.79	-19.5	-40.4
UNF MA (Forestry Unit - Maranhão state)	104497.81	-5.24	-47.33
UNF MS (Forestry Unit - Mato Grosso do Sul state)	260831.43	-21	-51.47
UNF SP (Forestry Unit - São Paulo state)	94733.03	-23.22	-46.1
Industrial Unit (UNI) - Aracruz	305244.34	-19.5	-40.4
Industrial Unit (UNI) - Belém e Fortaleza	16746.69	-1.24	-48.28
Industrial Unit (UNI) - Imperatriz	192624.52	-5.24	-47.33
Industrial Unit (UNI) - Jacareí	255244.64	-23.22	-46.1
Industrial Unit (UNI) - Limeira	114876.63	-22.42	-47.19
Industrial Unit (UNI) - Mucuri	256446.75	-18.2	-39.55
Industrial Unit (UNI) - Rio Verde	27542.44	-23.29	-46.19
Industrial Unit (UNI) - Suzano	162162.51	-23.32	-46.16
Industrial Unit (UNI) - Três Lagoas	373770.13	-21	-51.47

C7.3c

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

Activity	Scope 1 emissions (metric tons CO2e)
Industry: Stationary Sources	1651528.81
Industry: Internal Transportation	15641.45
Forestry: Fertilizers and Lime	195385.89
Industry: Waste and Wastewater Management	34876.21
Industry: Cooling Gases	9280.95
Forestry: Harvesting and Wood Logistics (road and barges)	471590.78

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.

Emissions disaggregated by category (advised by the GHG Protocol)

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
Non-mechanical

Emissions (metric tons CO2e)
198602.09

Methodology
Region-specific emissions factors

Please explain
Fertilizers and Lime consumption emissions.The non-mechanical emissions were calculated according to NBR ISO 14.064-I and GHG Protocol Corporate Accounting. Suzano uses primary data of consumption and monitoring values obtained by its own intern systems (for example: the amount of fertilizers applied, waste generation in process, amount of gases replaced in refrigeration equipment) multiplied by emissions factor available on Brazil GHG Protocol Programme tool and IPCC (2006), that present specific emission factors and GWP values.

Activity
Agriculture/Forestry

Emissions category
Mechanical

Emissions (metric tons CO2e)
471799.97

Methodology
Region-specific emissions factors

Please explain
Harvesting and Wood Logistics (road and barges) The mechanical emissions were calculated according to NBR ISO 14.064-I and GHG Protocol Corporate Accounting. Suzano uses primary data of fuel consumption from the equipment multiplied by emissions factor available on Brazil GHG Protocol Programme tool, that present specific emission factors by fuel (for example: gasoline, ethanol and diesel in Brazil).

Activity
Processing/Manufacturing

Emissions category
Non-mechanical

Emissions (metric tons CO2e)
40940.96

Methodology
Region-specific emissions factors

Please explain
Industrial fugitive emissions and waste treatment emissions. The non-mechanical emissions was calculated according to NBR ISO 14.064-I and GHG Protocol Corporate Accounting. Suzano uses primary data of consumption and monitoring values obtained by its own intern sistems (for example: amount of fertilizers applied, waste generation in process, amount of gases replaced in refrigeration equipments) multiplied by emissions factor available on Brazil GHG Protocol Programme tool and IPCC (2006), that present specific emission factors and GWP values.

Activity
Processing/Manufacturing

Emissions category
Mechanical

Emissions (metric tons CO2e)
1651518.33

Methodology
Region-specific emissions factors

Please explain
Stationary sources in industry operations. The mechanical emissions was calculated according to NBR ISO 14.064-I and GHG Protocol Corporate Accounting. Suzano uses primary data of fuel consumption from the equipment multiplied by emissions factor available on Brazil GHG Protocol Programme tool, that present specific emission factors by fuel (for example: gasoline, ethanol and diesel in Brazil).

C7.5

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

Country/area/region	Scope 2, location-based (metric tons CO2e)	Scope 2, market-based (metric tons CO2e)
Europe	9.26	0
Americas	29.85	0
Asia Pacific (or JAPA)	15.63	0
Brazil	49162.01	

C7.6

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

By business division
By facility
By activity

C7.6a

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

Business division	Scope 2, location-based (metric tons CO2e)	Scope 2, market-based (metric tons CO2e)
Paper and consumer goods: 11% of total scope 1 emissions. Proportional data of emissions in relation to total production (paper and cellulose - 100%). Does not reflect the accuracy of emissions from the papermaking process.	5460.68	0
Pulp: 89% of total scope 1 emissions. Proportional data of emissions in relation to total production (paper and cellulose - 100%). Does not reflect the accuracy of emissions from the papermaking process.	43756.06	0

C7.6b

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

Facility	Scope 2, location-based (metric tons CO2e)	Scope 2, market-based (metric tons CO2e)
Head Office / logistic operations and support operations	427.15	0
UNF BA (Forestry Unit - Bahia state)	30.91	0
UNF ES (Forestry Unit - Espírito Santo state)	8.77	0
UNF MA (Forestry Unit - Maranhão state)	19.74	0
UNF MS (Forestry Unit - Mato Grosso do Sul state)	8.27	0
UNF SP (Forestry Unit - São Paulo state)	20.56	0
Industrial Unit (UNI) - Aracruz	3849.19	0
Industrial Unit (UNI) - Belém	1604.86	0
Industrial Unit (UNI) - Imperatriz	514.89	0
Industrial Unit (UNI) - Jacareí	10410.36	0
Industrial Unit (UNI) - Limeira	15843.48	0
Industrial Unit (UNI) - Mucuri	126.54	0
Industrial Unit (UNI) - Rio Verde	1433.31	0
Industrial Unit (UNI) - Suzano	14220.82	0
Industrial Unit (UNI) - Três Lagoas	376.84	0
Industrial Unit (UNI) - Fortaleza	75.22	0
Industrial Unit (UNI) - Cachoeiro do Itapemirim	171.91	0
FuturaGene	19.17	0

C7.6c

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

Activity	Scope 2, location-based (metric tons CO2e)	Scope 2, market-based (metric tons CO2e)
Forestry Operations	107.43	0
Industrial Operations	48627.43	0
Head Office / logistic operations and support operations	427.15	0

C7.7

(C7.7) Is your organization able to break down your emissions data for any of the subsidiaries included in your CDP response?

Not relevant as we do not have any subsidiaries

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 in emissions	Emissions value (percentage)	Please explain calculation
Change in renewable energy consumption	120974.45	Decreased	4.9	In 2022, 88.14% of Suzano's energy mix came from renewable sources. Projects to replace the energy generated by burning fossil fuels with renewable energy using black liquor generated in our production process contributed directly to this percentage. Between 2021 and 2022 we decrease by 3% (62,769.37 t CO2e) the consumption of renewable energy (ethanol, biomass, black liquor, etc), and 2% (58,716.07 tCO2e) the consumption of fossil energy (gasoline, oil, natural gas, etc). The scope 1 + 2 emissions in 2021 was 2,466,158.17 tCO2e. In this regard, the total change in emissions was -120,974.45 tCO2e, equal to 4,9% decrease. Rationale: (-120,974.45 tCO2e / 2,466,158.17 tCO2)*100 = -4,9%. Regarding Scope 1, the company aims to reduce emissions through retrofit projects and increased furnace, boiler, and turbogenerator efficiency in a progressive effort to reduce and replace more emitting fuels (such as fuel oil and natural gas) for less emitting fuels (such as biomass and black liquor). Furthermore, Suzano has sought to adopt new technologies, such as biomass gasification (Syngas), as will occur in the new unit under construction in Ribas do Rio Pardo (MS). Moreover, the company has also been seeking to increase renewable energy generation (based on biomass and black liquor). The decrease in the Company's scope 2 emissions in 2022 was influenced mainly by the 66% reduction in the average emission factor for the electricity offered in the SIN by the Ministry of Science and Technology and Innovations (MCTIC) of Brazil, which in turn was due to a good rainfall performance in the System as well as a decrease in Thermoelectric Power Plants activity which had occurred during the 2021 energy crisis faced by the country. Suzano has a CAPEX line exclusively for modernization projects, which include efficiency in the use of fuel, reduction in consumption of fossil fuels, reduction in the use of energy, and purchase of more efficient equipment, among others. In addition, Suzano has been working to obtain funds to improve performance in social and environmental projects, such as those that allow for increasing the use of renewable energy, optimizing the efficiency of the biomass boilers, restoring native forests, and conserving biodiversity.
Other emissions reduction activities	40116.86	Decreased	1.6	In late 2021, we finished the modernization of the Zanini boiler that increased the steam production capacity at Suzano Mil. This resulted in the replacement of the energy matrix with a reduction in natural gas consumption due to the increased use of biomass. 2022 was the first full year that the project operated saving 40.116,86 tCO2e per year from now on and representing 1,6% of annual emissions. In 2022, the scope 1 + 2 emissions was 2.427.520,84 tCO2e. Rationale: (40.116,86tCO2e / 2.427.520,84tCO2e)*100 = 1,6% reduction.
Divestment	0	No change		NA
Acquisitions	0	No change		NA
Mergers	0	No change		NA
Change in output	0	No change		NA
Change in methodology	0	No change		NA
Change in boundary	0	No change		NA
Change in physical operating conditions	0	No change		NA
Unidentified	0	No change		NA
Other	0	No change		NA

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 undertook this energy-related activity in the reporting year
Consumption of fuel (excluding feedstocks)	Yes
Consumption of purchased or acquired electricity	Yes
Consumption of purchased or acquired heat	No
Consumption of purchased or acquired steam	No
Consumption of purchased or acquired cooling	No
Generation of electricity, heat, steam, or cooling	Yes

C8.2a

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

	Heating value	MWh from renewable sources	MWh from non-renewable sources	Total (renewable and non-renewable) MWh
Consumption of fuel (excluding feedstock)	LHV (lower heating value)	60417796.18	8286829.71	68704718.32
Consumption of purchased or acquired electricity	<Not Applicable>	1152402.55	0	1152402.55
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>	61570291.16	8286829.71	69857120.87

C8.2b

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

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

Sustainable biomass

Heating value
LHV

Total fuel MWh consumed by the organization
3808981.23

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
3808981.23

Comment
Suzano's energy matrix is primarily made up of renewable sources. The main source is biomass, which may be liquid, like black liquor, or include wood bark, logs, woodchip and even reused biological sludge. The wood chipping process, as well as the treatment of effluents, produces waste (woodchips and sludge), which is burned in biomass kilns in kraft pulp mills, reducing the volume of waste sent to landfills and positively affecting the steam/electricity matrix, helping create a more environmentally friendly production.

In 2022, sustainable biomass produced 3,808,981.23 MWh of energy, an increase of 407,857.79 MWh compared to 2021 (3,401,123.44 MWh).

Other biomass

Heating value
LHV

Total fuel MWh consumed by the organization
55780522.88

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
55780522.88

Comment
The reported black liquor consumption data (automatedly collected by Suzano) was converted into energy consumption based on its lowest basic density and calorific value. Black liquor is a lignin-rich waste byproduct of kraft pulp production that is burned in boiler/steam turbine cogeneration systems to produce heat and power for onsite use. The surplus energy is exported to the Brazilian grid. Heat produced in the pulp and paper making process is used to generate electricity in combined heat and power (CHP) facilities.
Black liquor is the main energy source used in the production process. In 2022, the production and consumption of black liquor was very similar to the previous year.

Other renewable fuels (e.g. renewable hydrogen)

Heating value
LHV

Total fuel MWh consumed by the organization
621136.79

MWh fuel consumed for self-generation of electricity
0

MWh fuel consumed for self-generation of heat
510417.88

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
110718.91

Comment
Methanol is a byproduct resulting from the condensate treatment in pulp mills. Since methanol is considered to be a type of waste from the pulping process, it must be disposed of either through an effluent treatment system or a stripper off gas system. Methanol is often burned in lime kilns; it can also be incinerated in power/recovery boilers, contributing to the cogeneration matrix.
In 2022,Suzano implemented strategies to replace natural gas with renewable methanol in lime kilns, increasing its use for heat generation.

Coal

Heating value
LHV

Total fuel MWh consumed by the organization
0

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
0

Comment
Suzano does not use coal in its operations.

Oil

Heating value
LHV

Total fuel MWh consumed by the organization
944868.44

MWh fuel consumed for self-generation of electricity
0

MWh fuel consumed for self-generation of heat
413016.47

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
531851.97

Comment
Fuel oil is primarily used in lime kilns, which use heat to convert lime mud (a type of waste) into lime—or, in chemical terms, calcium carbonate into calcium oxide. This process is called calcining. In recovery or auxiliary boilers, fuel oil is exclusively used to maintain the vapor balance within the plants and/or in occasional transient regimes (starts, stops, trips, instability events). Therefore, electricity generation is secondary in this process, especially considering the fact that the tradeoff between fossil fuel-based electricity and revenue generation through sale is mostly disadvantageous.
Oil consumption by the sites has remained stable compared to 2021.

Gas

Heating value
LHV

Total fuel MWh consumed by the organization
5420044.84

MWh fuel consumed for self-generation of electricity
0

MWh fuel consumed for self-generation of heat
4087899.41

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
1332145.43

Comment
Natural gas is primarily used in lime kilns, which use heat to convert lime mud (a type of waste) into lime—or, in chemical terms, calcium carbonate into calcium oxide. This process is called calcining. In recovery or auxiliary boilers, gas is exclusively used to maintain the vapor balance within the plants and/or in occasional transient regimes (starts, stops, trips, instability events). Therefore, electricity generation is secondary in this process, especially considering the fact that the tradeoff between fossil fuel-based electricity and revenue generation through sale is mostly disadvantageous.
In 2022, natural gas consumption was 593,331 MWh lower than in 2021. The company has been working to substitute this fuel in heat generation and to increase boiler efficiency.

Other non-renewable fuels (e.g. non-renewable hydrogen)

Heating value
LHV

Total fuel MWh consumed by the organization
0

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
0

Comment
Suzano does not consume other non-renewable fuels (e.g., non-renewable hydrogen).

Total fuel

Heating value
LHV

Total fuel MWh consumed by the organization
66575554.18

MWh fuel consumed for self-generation of electricity
0

MWh fuel consumed for self-generation of heat
5011333.76

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
61564220.42

Comment
This amount reflects Suzano's total fuel consumption in 2022.

C8.2d

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

	Total Gross generation (MWh)	Generation that is consumed by the organization (MWh)	Gross generation from renewable sources (MWh)	Generation from renewable sources that is consumed by the organization (MWh)
Electricity	8160020.08	7791182.81	7046278.58	6650070.5
Heat	66724764.1	66724764.1	60210640.9	60210640.9
Steam	0	0	0	0
Cooling	0	0	0	0

C8.2g

(C8.2g) Provide a breakdown by country/area of your non-fuel energy consumption in the reporting year.

Country/area
Brazil

Consumption of purchased electricity (MWh)
1152402.55

Consumption of self-generated electricity (MWh)
6650070.5

Is this electricity consumption excluded from your RE100 commitment?
<Not Applicable>

Consumption of purchased heat, steam, and cooling (MWh)
0

Consumption of self-generated heat, steam, and cooling (MWh)
0

Total non-fuel energy consumption (MWh) [Auto-calculated]
7802473.05

C9. Additional metrics

C9.1

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

Description
Other, please specify (tCO2e removals by native forest)

Metric value
3901016.34

Metric numerator
tCO2 sequestration

Metric denominator (intensity metric only)

% change from previous year
2.14

Direction of change
Increased

Please explain
The company has a no deforestation policy and does not remove native vegetation. Our raw material comes exclusively from commercial eucalyptus plantations (planted and harvested for this purpose), developed on previously degrades land or pasture. Suzano is a Brazilian company that seeks the growing global demand of products from planted forests in a sustainable way. It is the world's leader in the production of hardwood eucalyptus pulp – raw material, owing 2,4 million hectares distributed in the sites of the company, which in total 1,3 million hectares are composed by Eucalyptus planted forests and 1 million hectares are composed by preservation and conservation areas. The main Eucalyptus planting activities are: cleaning the area manually, chemically or mechanically, preparing the soil manually or mechanically, soil fertilization, planting seedlings manually or semimechanically, irrigation and replanting. In order to ensure the forest is productive and grows well, after planting, the subsequent phase is the maintenance of the forest. This phase consists of a set of activities and lasts until the harvest phase (5 to 7 years). The main activities are: fertilizing the soil, weeding chemically or mechanically, fertilization, reducing sprouting, fighting ants, and protecting against fires. Since it grows rapidly, eucalyptus helps to absorb carbon dioxide from the atmosphere, returning pure oxygen to nature. The role of eucalyptus forests is pivotal for humanity's efforts to neutralize the greenhouse gases responsible for global warming.

Description
Other, please specify (Native forest restoration - Size of area undergoing restoration process)

Metric value
35089

Metric numerator
Hectare

Metric denominator (intensity metric only)

% change from previous year
6.06

Direction of change
Increased

Please explain
Currently, the areas under restoration maintained by the company are located within three critical biomes in Brazil —Atlantic Rainforest, Cerrado and Amazon— and total 35,090 hectares total 37,355 hectares in 2022, with 12,102 million seedlings planted in different areas.The program aims to restore the ecological processes responsible for the formation of a functional and sustainable forest. These actions are predominantly applied in the Permanent Preserves and Legal Protection Areas in order to comply with the legislation. The company also controls invasive tree species in areas that already have vegetation cover, aiming at reducing the threats of biological invasions to the regional biodiversity. With a perspective of increase, as the company will continue the initiative in other areas under its management. Our restoration activities also help generate various environmental services, such as improvements in water quality and availability, soil conservation, control of pests and diseases, and increase in wildlife and flora biodiversity.

Description
Other, please specify (Carbon Balance)

Metric value
8896257.55

Metric numerator
tCO2e

Metric denominator (intensity metric only)

% change from previous year
41.47

Direction of change
Decreased

Please explain
Suzano's total absolute emissions is 4.31 million tCO2e (scopes 1, 2 and 3) and forest base net removal of 13,204,509.36 tCO2e, of which 3884558,8 tCO2e were from native areas. Thus, from a balance standpoint, we had a higher volume of removals compared to emissions, reaching negative net emissions of 8,896,257.55 tCO2e.

C10. Verification

C10.1

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

	Verification/assurance status
Scope 1	Third-party verification or assurance process in place
Scope 2 (location-based or market-based)	Third-party verification or assurance process in place
Scope 3	Third-party verification or assurance process in place

C10.1a

(C10.1a) Provide further details of the verification/assurance undertaken for your Scope 1 emissions, and attach the relevant statements.

Verification or assurance cycle in place
Annual process

Status in the current reporting year
Complete

Type of verification or assurance
Limited assurance

Attach the statement
CDP-Verification-template_Suzano 2023-27062023.pdf

Page/ section reference
Page 2 “Scope 1 - Total 2,378,304.09 tCO2e”

Relevant standard
ABNT NBR ISO 14064-3:2007 (Associação Brasileira de Normas Técnicas)

Proportion of reported emissions verified (%)
100

C10.1b

(C10.1b) Provide further details of the verification/assurance undertaken for your Scope 2 emissions and attach the relevant statements.

Scope 2 approach
Scope 2 location-based

Verification or assurance cycle in place
Annual process

Status in the current reporting year
Complete

Type of verification or assurance
Limited assurance

Attach the statement
CDP-Verification-template_Suzano 2023-27062023.pdf

Page/ section reference
Page 2, “Scope 2 Location-Based aproach - Total 49,216.75 tCO2e”

Relevant standard
ABNT NBR ISO 14064-3:2007 (Associação Brasileira de Normas Técnicas)

Proportion of reported emissions verified (%)
100

C10.1c

(C10.1c) Provide further details of the verification/assurance undertaken for your Scope 3 emissions and attach the relevant statements.

Scope 3 category
Scope 3: Purchased goods and services

Verification or assurance cycle in place
Annual process

Status in the current reporting year
Complete

Type of verification or assurance
Limited assurance

Attach the statement
CDP-Verification-template_Suzano 2023-27062023.pdf

Page/section reference
Page 2, “Scope 3 - 1: Purchased Goods and Services: 70,039.55 tCO2e"

Relevant standard
ABNT NBR ISO 14064-3:2007 (Associação Brasileira de Normas Técnicas)

Proportion of reported emissions verified (%)
100

Scope 3 category
Scope 3: Upstream transportation and distribution

Verification or assurance cycle in place
Annual process

Status in the current reporting year
Complete

Type of verification or assurance
Limited assurance

Attach the statement
CDP-Verification-template_Suzano 2023-27062023.pdf

Page/section reference
Page 2, “Scope 3 - 4: Upstream Transportation and Distribution: 1,582,505.91 tCO2e”

Relevant standard
ABNT NBR ISO 14064-3:2007 (Associação Brasileira de Normas Técnicas)

Proportion of reported emissions verified (%)
100

Scope 3 category
Scope 3: Waste generated in operations

Verification or assurance cycle in place
Annual process

Status in the current reporting year
Complete

Type of verification or assurance
Limited assurance

Attach the statement
CDP-Verification-template_Suzano 2023-27062023.pdf

Page/section reference
Page 2, “Scope 3 - 5: Waste Generated in Operations: 33,799.78 tCO2e”

Relevant standard
ABNT NBR ISO 14064-3:2007 (Associação Brasileira de Normas Técnicas)

Proportion of reported emissions verified (%)
100

Scope 3 category
Scope 3: Business travel

Verification or assurance cycle in place
Annual process

Status in the current reporting year
Complete

Type of verification or assurance
Limited assurance

Attach the statement
CDP-Verification-template_Suzano 2023-27062023.pdf

Page/section reference
Page 2, “Scope 3 - 6: Business Travel: 4,533.95 tCO2e”

Relevant standard
ABNT NBR ISO 14064-3:2007 (Associação Brasileira de Normas Técnicas)

Proportion of reported emissions verified (%)
100

Scope 3 category
Scope 3: Employee commuting

Verification or assurance cycle in place
Annual process

Status in the current reporting year
Complete

Type of verification or assurance
Limited assurance

Attach the statement
CDP-Verification-template_Suzano 2023-27062023.pdf

Page/section reference
Page 2, “Scope 3 - 7: Employee Commuting: 9,172.20 tCO2e”

Relevant standard
ABNT NBR ISO 14064-3:2007 (Associação Brasileira de Normas Técnicas)

Proportion of reported emissions verified (%)
100

Scope 3 category
Scope 3: Downstream transportation and distribution

Verification or assurance cycle in place
Annual process

Status in the current reporting year
Complete

Type of verification or assurance
Limited assurance

Attach the statement
CDP-Verification-template_Suzano 2023-27062023.pdf

Page/section reference
Page 2, “Scope 3 - 9: Downstream Transportation and Distribution: 37,909.18 tCO2e”

Relevant standard
ABNT NBR ISO 14064-3:2007 (Associação Brasileira de Normas Técnicas)

Proportion of reported emissions verified (%)
100

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
C6. Emissions data	Other, please specify ((CO2e biogenic removals))	NBR ISO 14.064-3 and/or Brazil GHG Protocol Programme	Verification Removals: https://storage.googleapis.com/stateless-site-suzano-en/2022/06/cbaf5ba0-removals-verification-statement-202122.pdf DOC-32692-Declaracao-de-verificacao-suzano-balanco-carbono-final-04032023_rv0_EN_coment_SUZ_CT.pdf CDP-verification-template_SUZANO.pdf
C4. Targets and performance	Progress against emissions reduction target	ISAE 3000	As described in the statement issued by Bureau Veritas, the independent assurance of Suzano's long-term sustainability goals (also called Commitments to Renewing Life, or CPRV in Portuguese), corresponding to the year 2022, included the following activities: 1. Interviews with the parties responsible for the CPRV content. 2. Analysis of documentary evidence provided by Suzano for the period between January 1 and December 31, 2022. 3. Evaluation of the systems used to compile data. 4. Evaluation of the initiatives, programs and policies created to help the company's meet its CPRV. The reasonable assurance was provided in accordance with the ISAE3000 standard, which is incorporated by Bureau Veritas into its internal assurance protocols. This information is also available at: http://centraldesustentabilidade.suzano.com.br/en/sustainability-at-suzano/commitments-to-renewing-life/ Sustainability Report 2022- Complementary Information.pdf
C8. Energy	Energy consumption	ISAE 3000	As described in the statement issued by PwC, the independent assurance of the standards included in the GRI index and Suzano's 2022 Sustainability Report included the following activities: a) planning, considering the relevance, amount of quantitative and qualitative information and the operational and internal control systems that served as the basis for the preparation the 2022 Sustainability Report. (b) a review of the calculation methodology and procedures for compiling indicators through inquiries to the managers responsible for providing the information. (c) analysis of the quantitative information and inquiries about the qualitative information and its correlation with the indicators detailed in the 2022 Sustainability Report. (d) for cases in which non-financial data correlate with indicators of a financial nature, comparison of these indicators with the financial statements and/or accounting records. The limited assurance process also included the analysis of compliance with the guidelines and criteria of the Global Reporting Initiative (GRI Standards) and with the information included in the preparation base produced by the company and applicable in the preparation of the content of the 2022 Sustainability Report. More information is available at: https://stszprdscentind.blob.core.windows.net/site/documents/25ab2912-ra-suzano-2022-informacoes-complementares-en.pdf (assurance statement available on pages 78 and 79). Sustainability Report 2022- Complementary Information.pdf
C7. Emissions breakdown	Year on year change in emissions (Scope 1)	NBR ISO 14.064-3 and/or Brazil GHG Protocol Programme	Verification Statement Template (reasonable level): https://storage.googleapis.com/stateless-site-suzano-en/2022/06/71200d56-verification-statement-reasonable-level-eng.pdf DOC-32692-Declaracao-de-verificacao-suzano-balanco-carbono-final-04032023_rv0_EN_coment_SUZ_CT.pdf CDP-verification-template_SUZANO.pdf
C6. Emissions data	Year on year change in emissions (Scope 1 and 2)	NBR ISO 14.064-3 and/or Brazil GHG Protocol Programme	Verification Statement Template (reasonable level): https://storage.googleapis.com/stateless-site-suzano-en/2022/06/71200d56-verification-statement-reasonable-level-eng.pdf DOC-32692-Declaracao-de-verificacao-suzano-balanco-carbono-final-04032023_rv0_EN_coment_SUZ_CT.pdf CDP-verification-template_SUZANO.pdf
C6. Emissions data	Year on year change in emissions (Scope 3)	NBR ISO 14.064-3 and/or Brazil GHG Protocol Programme	Verification Statement Template (reasonable level): https://storage.googleapis.com/stateless-site-suzano-en/2022/06/71200d56-verification-statement-reasonable-level-eng.pdf DOC-32692-Declaracao-de-verificacao-suzano-balanco-carbono-final-04032023_rv0_EN_coment_SUZ_CT.pdf CDP-verification-template_SUZANO.pdf
C7. Emissions breakdown	Year on year change in emissions (Scope 3)	NBR ISO 14.064-3 and/or Brazil GHG Protocol Programme	Verification Statement Template (reasonable level): https://storage.googleapis.com/stateless-site-suzano-en/2022/06/71200d56-verification-statement-reasonable-level-eng.pdf DOC-32692-Declaracao-de-verificacao-suzano-balanco-carbono-final-04032023_rv0_EN_coment_SUZ_CT.pdf CDP-verification-template_SUZANO.pdf

C11. Carbon pricing

C11.1

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

No, but we anticipate being regulated in the next three years

C11.1d

(C11.1d) What is your strategy for complying with the systems you are regulated by or anticipate being regulated by?

Suzano expects a regulation of a carbon pricing system in Brazil to be implemented in the next three years. The company has been following governmental discussions on the topic such as the PMR Brasil Project, developed under the coordination of the Ministry of the Economy and the World Bank and concluded in 2020, as well as other proposals to regulate a national carbon market in the National Congress.

Seeking to measure the risks and opportunities of regulated and voluntary carbon pricing mechanisms for both our emissions and removals, our financial planning and sustainability team together with different industrial technical teams carry out the exercise of incorporating internal carbon pricing in the analysis of new projects. Thus, from this analysis, several financial indicators are generated with and without the carbon shadow price so that the impact on emissions is considered in the approval processes of new investments. This internal carbon pricing process also aims to reward projects that support our decarbonization journey and commitment to reducing our Scopes 1 and 2 emissions intensity.

We use different data sources in our prices scenario modeling to establish internal carbon prices for different operations which in turn have different contexts such as industrial (Scopes 1 and 2) and planting forests (Scope 1 removals). The average prices adopted per metric tonne CO2e for these operations are US$ 10 for industrial and the price for forest removals varies depending on the type of project. Besides Brazil PMR, the modeling considers as reference prices adopted by peers, the carbon tax prices practiced in Latin America, current prices of international regulated and voluntary carbon markets, as well as price projections for the next decades estimated by different institutions such as the International Energy Agency (IEA), International Renewable Energy Agency (IRENA), the UK Department of Energy and Climate Change (DECC), Europe Commission, International Maritime Organization (IMO), among others. Although currently there is no official emissions trading or carbon tax implemented in Brazil, the initial price of 10.00 was suggested by Brazil PMR and this is considered to assess the impact of a carbon regulation on the company's total emissions.

To estimate the financial risk from the most significant risk (i.e., carbon regulation, such as ETS), we multiplied our stationary emissions from scope 1 (base year 2021) for US$10/tCO2e (1US$=5R$), resulting in R$85,7 million.

Despite the risk, Suzano supports the creation of a carbon market in Brazil and recognizes an opportunity in future regulations that include forestation, reforestation and restauration as an alternative for offsetting emission. We aim to lead the discussion about carbon regulations nationality and internationality addressing the theme with the Brazilian Tree Industry (IBÁ), the Brazilian World Business Council for Sustainable Development (CEBDS), and the Brazil Climate, Forest, and Agriculture Coalition. We also monitor trends and engage in initiatives on this matter like the development of a EU Carbon Border Adjustment Mechanism.

A carbon price starting at US$10.00 is also being used by our New Business department to seize opportunities of forest carbon removal projects considering international carbon markets. Suzano can benefit by capturing CO2 by its eucalyptus and native forests. Our forest base currently has a total of 1,475,529.79 ha of planted areas and 1,047,161.92 ha of native areas and a total of 318,502,973.22 tCO2e stocked and rising . Since we continue to expand our forest base, carbon credit projects are currently under development and in carbon market scenarios. The company can offer these credits, generating revenue from this initiative.

Currently, Suzano is also updating its implicit carbon price through the MACC curve. In parallel, Suzano has been working and evolving in a project across different departments to expand the use of internal carbon pricing internally for forestand logistic projects and use it as a criterion for decision making in the approval process for new projects in 2023 and 2024.

C11.2

(C11.2) Has your organization canceled any project-based carbon credits within the reporting year?

No

C11.3

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

Yes

C11.3a

(C11.3a) Provide details of how your organization uses an internal price on carbon.

Type of internal carbon price
Shadow price

How the price is determined
Price/cost of voluntary carbon offset credits
Benchmarking against peers
Price with material impact on business decisions

Objective(s) for implementing this internal carbon price
Change internal behavior
Drive energy efficiency
Drive low-carbon investment
Identify and seize low-carbon opportunities
Navigate GHG regulations

Scope(s) covered
Scope 1
Scope 2
Scope 3 (upstream)
Scope 3 (downstream)

Pricing approach used – spatial variance
Differentiated

Pricing approach used – temporal variance
Static

Indicate how you expect the price to change over time
<Not Applicable>

Actual price(s) used – minimum (currency as specified in C0.4 per metric ton CO2e)
10

Actual price(s) used – maximum (currency as specified in C0.4 per metric ton CO2e)
10

Business decision-making processes this internal carbon price is applied to
Capital expenditure
Procurement
Risk management
Opportunity management
Public policy engagement

Mandatory enforcement of this internal carbon price within these business decision-making processes
Yes, for all decision-making processes

Explain how this internal carbon price has contributed to the implementation of your organization's climate commitments and/or climate transition plan
1 - Shadow Price: Considering the future regulation of a carbon pricing system in Brazil, whether ETS or carbon tax, Suzano uses a shadow price to measure the potential financial impact on its revenue and EBITDA. We multiply the overall stationary greenhouse gas emissions (1.714.781,00 tCO2e) from all our industrial units by the price suggested by the PMR Brasil Project of US$10/tCO2e (1US$=5R$), resulting in R$ R$ 85,7 million in 2022. The internal carbon pricing process also aims to reward projects that support our decarbonization journey and commitment to reducing our Scopes 1 and 2 emissions intensity. Our financial planning and climate change team together with different industrial technical teams carry out the exercise of incorporating internal carbon pricing in the analysis of new projects, considering different price scenarios for different operations. Thus, from this analysis, several financial indicators are generated with and without the carbon shadow price so that the impact on emissions is considered in the approval processes of new investments.

2- Offsets: A carbon price starting at US$10.00 is being used by our New Business department to seize opportunities of forest carbon removal projects considering international carbon markets. Suzano can benefit by capturing CO2 by its eucalyptus and native forests. Our forest base currently has a total of 1,475,529.79ha of planted areas and 1,047,161.92 ha of native areas and a total of 318,502,973.22 tCO2e stocked and rising.. Since we continue to expand our forest base, carbon credit projects are currently under development and in carbon market scenarios, the Company can offer these credits, generating revenue from this initiative.

C12. Engagement

C12.1

(C12.1) Do you engage with your value chain on climate-related issues?
Yes, our suppliers
Yes, our customers/clients
Yes, other partners in the value chain

C12.1a

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

Type of engagement
Engagement & incentivization (changing supplier behavior)

Details of engagement
Run an engagement campaign to educate suppliers about climate change
Provide training, support, and best practices on how to make credible renewable energy usage claims

% of suppliers by number
1

% total procurement spend (direct and indirect)
29

% of supplier-related Scope 3 emissions as reported in C6.5
80

Rationale for the coverage of your engagement
Suzano's climate-related supplier engagement strategy focuses on strengthen its relationship with suppliers and encourage them to make joint commitments to reduce emissions. The key components and details of this strategy are:
• Setting Clear Expectations: In 2021, Suzano joined the CDP Supply Chain program with the goal of engaging and supporting our suppliers in areas such as measurement, data transparency, goal setting, as well as assessing risks and opportunities associated with climate change. To do so we aim to achieve a broad participation from our suppliers in the program, thus exceeding the global average of program engagement is a measure of success for us.
• Supplier Assessment and Selection: Suzano employed a consultancy to create a socio-environmental risk matrix that identified suppliers with the highest emissions within specific categories in order to select participants for the program. Even so the selection covers 1% of the over 13600 suppliers contracted in 2022, the top 100 suppliers selected from the matrix accounted for 80% of the company's scope 3 emissions, primarily from shipping, logistics, and raw materials.
• Collaboration and Knowledge Sharing: Suzano fosters collaboration with suppliers by sharing knowledge and offering resources. The Semear Online program provides practical and accessible distance learning opportunities to support sustainable development among suppliers. Suzano also organized an online workshop in 2022, focusing on setting greenhouse gas inventories and targeting suppliers with lower maturity on the topic.
• Performance Monitoring and Reporting: Supplier performance is annually monitored and evaluated through the CDP Supply Chain questionnaire. Key metrics monitored include suppliers' commitment to calculating greenhouse gas emissions, initiatives to improve energy usage and emissions reduction, and target setting ambition. Through the implementation of this climate-related supplier engagement strategy, Suzano aims to drive positive change throughout its supply chain, promote sustainability, and contribute to addressing climate change challenges.

Impact of engagement, including measures of success
Measuring our suppliers GHG emissions allow the company to stablish joint goals with its partners in order to reduce Suzano's Scope 3 emissions. This reduction directly impact Suzano's long term goal ""Net removal of 40 million tons of carbon from the atmosphere until 2025"" as is it the balance between removals (planted + native trees) and emissions (Scope 1 + Scope 2 + Scope 3). Supplier engagement is crucial for Suzano's Climate Change strategy. To measure the success of our engagement, we take the average engagement of the other companies participating in the CDP Supply Chain program as a parameter. Above average numbers would demonstrate the success of our approach. In 2022, Suzano achieved a 91% supplier response rate in 2022, surpassing the average response rate of CDP Supplier members (60%) and improving upon the previous year's performance (78%).
By analyzing the performance of our suppliers, we observed notable improvements: 20 suppliers have achieved higher scores compared to the previous assessment cycle, 7 have made progress towards their climate goals, and 5 have advanced in their commitments to Science-Based Targets. One notable example is a supplier that significantly enhanced its questionnaire score by establishing a climate target and joining the SBTi initiative. Our engagement strategy effectively drives supplier sustainability performance.
In order to decrease emissions within our upstream transport category, which is highly relevant in our scope 3 objectives, we have initiated significant projects in the logistics sector with our suppliers starting in 2022. In terms of road transport, we currently have three ongoing innovative initiatives designed to reduce reliance on fossil fuels. One of these projects (in progress), involves the implementation of a hydrogen-generating device that enhances diesel combustion when injected into the engine system. For rail transport, we have identified four projects, two of which are already underway. One of these endeavors aims to optimize the number of wagons per train, leading to improved productivity and subsequent reductions in fuel consumption and gas emissions. Also, we are collaborating with our suppliers on four innovation projects in maritime transport (shipping), including a comprehensive study on the technical and economic feasibility of utilizing green ammonia on transatlantic vessels.

Comment
We have already started the 2023 cycle of the program and invited 200 suppliers, twice as many suppliers as last year. In the upcoming 2023 cycle, our goal is to sustain the high level of engagement from our invited suppliers in responding to the CDP questionnaire. We aim to achieve a response rate that surpasses the program's average, ensuring that we maintain a strong commitment to transparency and sustainability within our supplier network.
The list of invited suppliers was updated according to the premises of the first cycle: potential impact related to GHG emissions and commercial relationship with Suzano. We will also continue the engagement project focused on suppliers who participated in the previous cycle and obtained grades of C or lower in the CDP Clima questionnaire, promoting workshops focused on the maturity level of each supplier, considering the key metrics monitored by Suzano's team.
It is worth noting that 60% of Suzano's suppliers are categorized as micro or small size. This particular characteristic adds complexity to our ability to request extensive actions, such as goal development, from these partners. Nevertheless, we firmly believe that small-scale engagement actions hold immense significance for this group.

Type of engagement
Information collection (understanding supplier behavior)

Details of engagement
Other, please specify (Collect climate change and carbon information at least annually from suppliers)

% of suppliers by number
1

% total procurement spend (direct and indirect)
10

% of supplier-related Scope 3 emissions as reported in C6.5
98

Rationale for the coverage of your engagement
In order to prepare its own inventory of greenhouse gas emissions, Suzano annually collects primary climate-related data from part of its suppliers increasing the engagement about the theme. The 1% suppliers by number was calculated considering the quantity of suppliers we did a face to face approach to collect data per the total amount of suppliers in Suzano (which was more than 13600 in 2022). The same rationale was apllied to "% total procurement spend" data. It is important to mention that the majority of our supplier’s data is collected automatically in the Suzano's internal system, so they are not considered in this number despite been included in the Scope 3 emissions in the GHG Inventory. The 98% is the representativeness of the Scope 3 emissions in categories majority composed by suppliers’ emissions: (i) transport and distribution (ii) purchased goods and services (iii) employee commuting (iv) waste and (v) business air travel.

Impact of engagement, including measures of success
Every year, Suzano carries out a survey and analysis of the carbon emissions and removals that come from its operations. Through internally established procedures, recognized methodologies and independent verification by a third party, Suzano's inventory is published annually and serves as the basis for a series of exercises and internal analyses (in efficiency and mitigation projects and programs) and for monitoring and definition of emission reduction strategies, in addition to the management of

Long Term Goals. Measuring our suppliers GHG emissions allow the company to stablish joint goals with its partners in order to reduce Suzano's Scope 3 emissions, impacting in the reduction of Suzano's long term goal "Net removal of 40 million tons of carbon from the atmosphere until 2025" as is it the balance between removals (planted + native trees) and emissions (Scope 1 + Scope 2 + Scope 3). Therefore, our supplier engagement is essential for Suzano's Climate Change strategy. i) The success is measured by collecting 99%< emission information with suppliers regarding the following scope 3 categories: (i) transport and distribution (ii) purchased goods and services (iii) employee commuting (iv) waste and (v) business air travel.

Comment
For the year 2023, a project is currently underway with the aim of enhancing the data collection process from our suppliers. This involves constructing a user-friendly tool that ensures improved traceability and reliability of the collected data. The objective is to streamline the data collection experience for our suppliers while maintaining high standards of accuracy and accountability.

C12.1b

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

Type of engagement & Details of engagement

Education/information sharing	Run an engagement campaign to educate customers about the climate change impacts of (using) your products, goods, and/or services

% of customers by number
5

% of customer - related Scope 3 emissions as reported in C6.5
53

Please explain the rationale for selecting this group of customers and scope of engagement
Our customer engagement strategy revolves around three primary factors in selecting customers for climate-related actions and collaboration:

- Targeting the largest buyers: Recognizing the influence and impact of our largest buyers, Suzano prioritized engaging with customers who have a significant stake in our emission reduction efforts. At present, our focus lies on pulp customers, since pulp accounts for the majority of our production output (approximately 90% of our installed capacity). Among these customers, we have chosen who represent at least 60% of our sales to closer engagement projects as will be explained below.

- Applying an ESG Matrix: To assess customers' sustainability practices, including their approach to climate change, we utilized an Environmental, Social, and Governance (ESG) matrix. This matrix allowed us to evaluate their current strategies and actions related to climate change and gain a comprehensive understanding of their environmental performance.

- Compatibility with Suzano's Goals and Commitments: We evaluated customers' strategies and actions to ensure they align with Suzano’s own goals and commitments. This assessment helped us identify customers who shared similar values, challenges, and goals regarding climate change.

After applying these criteria, we categorized customers into five levels of interaction and engagement:

Level 0: No existing interaction between Suzano and the customer regarding sustainability or climate-related initiatives.

Level 1: Initial conversations were held to foster a better understanding of the customer's values and priorities. During these interactions, Suzano presents its sustainability strategy and practices to highlight its commitment to social and environmental responsibility.

Level 2: Both Suzano and the customer made progress in understanding each other's sustainability priorities. Potential areas for collaboration are identified, reflecting a growing commitment to working together on shared sustainability goals.
Level 3: With a deepened understanding of areas for collaboration and shared sustainability priorities, Suzano and the custumer jointly design a project or initiatives to address the priorities.

Level 4: Joint projects or initiatives that align with Suzano's long-term sustainability goals have been initiated along with the customer's collaboration.

Impact of engagement, including measures of success
For Suzano, fostering a close relationship with our customers is of utmost importance. We firmly believe that our products go beyond mere commodities due to the sustainability embedded in Suzano's production process, which guarantees distinctive attributes that set our products apart in the market. Presently, Suzano's pulp boasts one of the lowest emission intensities in the industry. It is therefore crucial to communicate these attributes to our customers, alongside our commitment to continuous improvement, and engage in discussions regarding shared challenges and potential synergies.

The success of our engagement strategy is measured by the number of levels we can advance with each client. Annually, we set expectations for how many levels we aim to progress based on client evaluations, identified opportunities, and defined priorities.
By categorizing customers into levels, Suzano can effectively track the level of engagement and progress with each customer. This framework enables us to prioritize resources, allocate support accordingly, and foster continued collaboration to drive meaningful climate-related actions.
An exemplary success from the previous year involved advancing a client to Level 4 through the execution of a joint ecological restoration project. This project facilitated the expansion of conserved forests and natural habitats, resulting in the restoration of 300 hectares of forested areas.
Another example of successful engagement was a series of interactions, including the participation of our Chief Sustainability Officer (CSO) in a customer's event, where they discussed common challenges and explored opportunities related to supplier engagement in the climate agenda. This collaborative effort facilitated a deeper understanding of sustainability priorities and fostered a stronger partnership in addressing climate-related issues.
Suzano believes that open lines of communication with its customers provide valuable opportunities to co-create new products with even greater sustainability in their design. An exemplary collaboration occurred when we partnered with a customer to conduct studies on the emissions impact of a specific product.

These achievements demonstrate our ability to collaborate effectively with customers, translating shared sustainability goals into tangible actions.

C12.1d

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

Suzano has an important technical partnership for the development of R&D projects and a close and transparent engagement with market analysts and investors.

Suzano addresses its performance in climate change in its Annual Sustainability Report, at the Indicators Sustainability Center and makes its GHG inventory publicly available. Currently, the company uses TCFD, SASB and the metrics of Stakeholder Capitalism (World Economic Forum) as data reporting mechanisms. It is worth mentioning that the topic is addressed on a recurring basis with market analysts and investors during the earnings releases, webcasts, meetings, ESG Non-deal roadshows and ESG Calls, being even more recurrent after the launch of the long-term goals related to emissions and carbon capture in 2020. It is important to note that Suzano's engagement with its investors and the market in relation to climate change allowed the company to launch its first sustainability-linked bond back in 2020 with a commitment to reducing GHG emissions by 15% until 2030. It was not only the first in the Americas, emerging markets and the pulp and paper sector, but was also the first globally to have a voluntary second party opinion. Currently Suzano has over 39% of its total debt related to ESG debt instruments.

Regarding R&D projects, Suzano has many years of research partnership with the Brazilian Forestry Science Research Institute (IPEF). Alongside IPEF, Suzano established several technical programs aiming at: i) improving the understanding on how the main climate stresses in the Eucalyptus second rotation and coppice management interact with genetics (PCoppice Program); ii) expanding the monitoring of H2O and CO2 balance in eucalyptus forests (Eucflux Program); iii) improving Productivity by Modeling climate effects in Eucalyptus Plantation (ModProd Program).

Suzano also has advanced tools to monitor climate effects on water availability in partnership with both Universidade de São Paulo (USP) and IPEF. The global results have allowed us to execute hydrological analyses to identify similarities, trends and behaviors of the relationships between the management of planted forests and water. In this theme, we have also developed projects in partnership with the Australian institute CSIRO (Commonwealth Scientific and Industrial Research Organization).

It is important to mention that in 2022, we started a technical group to discuss carbon issue in the Brazilian forestry sector called "SilviCarbo". Suzano, other companies and Ipef (Institute of. Forest Research and Studies) are discussing actions aimed at increasing carbon sequestration by the forest ecosystem.

I. We have recently started a partnership with CIRAD (French Agricultural Research Centre for International Development), seeking to develop new technologies to monitor the impact of climate and management effects on forest productivity by remote sensing. Our goal is to expand forest monitoring to enable decision-making.

As a member of Rede ACV (Brazilian LCA network), Suzano actively engages in producing materials that enhance the comprehension of Life Cycle Assessment (LCA) and its connection to climate change on a national scale. These materials provide clarity on impact studies and demonstrate how both the business sector and Brazilian academia can utilize these tools to minimize environmental footprints and capitalize on opportunities. One notable contribution is the development of the "carbon booklet," which includes informative infographics and concise explanations, aiming to broaden understanding of carbon-related concepts and topics while presenting up-to-date data on Brazil and the global context.

Moreover, Suzano demonstrated customer engagement through its participation in the 2022 Rock in Rio event by showcasing a six-meter-tall scenographic tree made with 9,000 paper cups, symbolizing the innovative and sustainable products that can arise from renewable materials. The cups used in the tree's top were made with Bluecup, a Brazilian paperboard designed for paper cup production, reinforcing the message that paper products contribute to the removal of greenhouse gases in the air and promoting environmentally conscious consumption choices to the public.

C12.2

(C12.2) Do your suppliers have to meet climate-related requirements as part of your organization's purchasing process?

Yes, climate-related requirements are included in our supplier contracts

C12.2a

(C12.2a) Provide details of the climate-related requirements that suppliers have to meet as part of your organization's purchasing process and the compliance mechanisms in place.

Climate-related requirement
Complying with regulatory requirements

Description of this climate related requirement
All Suzano suppliers must agree and comply with the Supplier Code of Conduct. This document has a specific chapter for emissions, including GHG, where Suzano states that all suppliers must monitor the significant emission rates of particulate matter, greenhouse gases, nitrogen oxides (NOx), sulfur oxides (SOx) and others, in compliance with the parameters set by competent authorities.
In the document, Suzano also recommends the adoption of measures to reduce the emission of greenhouse gases, such as carbon dioxide (CO2), nitrous oxide (N2O), methane (CH4), chlorofluorocarbons (CFCs), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs) and sulfur hexafluoride (SF6).
The Supplier Code of Conduct also states that if a supplier's activities generate these gases, it should ideally monitor air emissions in scope 1 (sources owned or controlled by the company), scope 2 (emissions related to the purchase of energy) and scope 3 (from third parties for direct use), depending on the supplier's activity.
Ensuring compliance with the code of conduct and its requirements is carried out through our third-party socio-environmental audit. In this cycle, we audited 60 suppliers identified as being among the most critical in the socio-environmental risk matrix, corresponding to 7% of the company's supply costs. By the end of the year, all suppliers considered critical will be evaluated.

% suppliers by procurement spend that have to comply with this climate-related requirement
7

% suppliers by procurement spend in compliance with this climate-related requirement
7

Mechanisms for monitoring compliance with this climate-related requirement
Supplier self-assessment
Off-site third-party verification
On-site third-party verification

Response to supplier non-compliance with this climate-related requirement
Retain and engage

Climate-related requirement
Implementation of emissions reduction initiatives

Description of this climate related requirement
In 2022, the company introduced more comprehensive obligations related to the socio-environmental responsibilities of its suppliers in the contracts. A dedicated annex was added, specifically addressing Sustainability/ESG principles, which included an environmental obligation for suppliers to make efforts in reducing greenhouse gas emissions throughout their production cycles and supporting the transition towards a low-carbon economy. As of May 2022, this annex has been incorporated into all contracts, reinforcing the company's commitment to sustainability and driving positive environmental impact throughout the supply chain.

% suppliers by procurement spend that have to comply with this climate-related requirement
100

% suppliers by procurement spend in compliance with this climate-related requirement
100

Mechanisms for monitoring compliance with this climate-related requirement
Supplier self-assessment

Response to supplier non-compliance with this climate-related requirement
No response

Climate-related requirement
Other, please specify (Self-assessment questionnaire)

Description of this climate related requirement
We implemented the self-assessment questionnaire with ESG-related requirements (including GHG emissions management issues) in the registration process of our suppliers. Suppliers that do not obtain at least 30% of performance on ESG issues will not be able to provide services to Suzano.
New suppliers that are starting their relationship with Suzano are already required to complete the questionnaire and are subject to ESG performance assessment. For suppliers that already work with Suzano, we are currently recertifying these companies and gradually all of them will need to review their registration and complete the self-assessment questionnaire.
By the end of the year, at least 400 of the most critical suppliers corresponding to the Logistics and Services categories will be required to undergo this new process.

% suppliers by procurement spend that have to comply with this climate-related requirement
100

% suppliers by procurement spend in compliance with this climate-related requirement
100

Mechanisms for monitoring compliance with this climate-related requirement
Supplier self-assessment
Supplier scorecard or rating

Response to supplier non-compliance with this climate-related requirement
Exclude

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

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

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

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

Management practice reference number
MP1

Management practice
Other, please specify (Pasture (AFS))

Description of management practice
Integrated Crop-Livestock-Forest ("ILPF") systems are management systems included in the Brazilian National Policy on Climate Change as a strategy to mitigate GHG emissions in the Brazilian agriculture and livestock sector. In practice, ILPFs are characterized by the planting of one or a group of forest planting lines (rows) interspersed with strips (alleys) intended for agriculture and/or livestock activities. This arrangement offers benefits as it enables the shared use of land for the production of wood, fiber, food and animal protein in the same location. The combined use of the same production space optimizes the use of fertilizers, facilitates nutrient cycling in the soil, mitigates emissions from agriculture and livestock activities, provides comfortable temperatures for animals and diversifies the production of rural properties, thereby minimizing risks. Recognizing the benefits of this system, since the end of the 1990s, Suzano has encouraged this practice, which is still part of its business portfolio with the participation of rural landowners, especially in the form of Support agreements. Suzano recently innovated and expanded the scope of ILPFs by offering it as an alternative in partnership and lease contracts. This allows producers who choose this arrangement to continue to develop their activities in their properties, while Suzano introduces a forestry component—a safer option for producers who have no experience in forest management. In the case of Support agreements, through which property owners remain in charge of production throughout the cycle, Suzano participates by offering technical and financial support, from project conception through the end of the cycle, when it purchases the wood. In addition, the techniques used for planting eucalyptus incorporate the most advanced technology in soil management, combining best practices in the conservation of natural resources with high productivity planting.

Your role in the implementation
Knowledge sharing
Operational

Explanation of how you encourage implementation
Recognizing and appreciating the benefits of ILPF systems, Suzano encourages suppliers to adopt this model. Therefore, the company expanded the categories of contracts based on this land use management option, considering local aptitudes and the interest of landowners. With some contract categories, Suzano offers high-quality genetic material and technical assistance. The company has other initiatives to attract the interest of suppliers, including participation in regional agricultural fairs and exhibitions and organization of guided tours for producers of areas where ILPF systems are in place. In 2022, Suzano innovated and became the first company in the planted forest sector in Brazil to participate in the ILPF Network (www.redeilpf.org.br), an association of six companies and EMBRAPA (Brazilian Agricultural Research Corporation) that works to promote ILPF systems throughout Brazil. The goal of the ILPF Network is to accelerate the adoption of this management model as part of a joint effort aimed at the sustainable intensification of Brazilian agriculture and the mitigation of and adaptation to climate change. As a financing partner, Suzano participates in informational roadshows to different regions of Brazil that include presentations, courses and assessments of the use of these systems. Participating in the ILPF Network also gives access to courses and training programs offered to technical collaborators and external stakeholders that can help promote this model.

Climate change related benefit
Emissions reductions (mitigation)
Increasing resilience to climate change (adaptation)
Increase carbon sink (mitigation)

Comment
Approximately 15,000 hectares of Suzano areas are planted in the ILPF model. In these areas, forestry production is combined with agricultural and livestock activities in different arrangements and planting densities that create a mosaic of activities that positively influence the local landscape. One of the highlights in 2022 was an increase of 590 ha planted in this system by suppliers of Suzano's site in the state of Maranhão (Support program). In line with advances in ILPF systems, the company continues to intensify its research on ILPF and similar systems through studies on different planting patterns to identify opportunities to increase efficiency in the use of water and fertilizers in eucalyptus farming.

Management practice reference number
MP2

Management practice
Fire control

Description of management practice
One of the main practices is to raise awareness among suppliers of the importance of preventing forest fires. This ensures supply and the continuity of the wood purchasing business, and help keep the captured CO2 in the field. For this reason, at the time of negotiation, suppliers are informed that Suzano has a robust firefighting and fire prevention structure to which they have access. This structure has dedicated teams with approximately 130 firefighting vehicles and 840 professionals trained to act preventively and reactively to fight forest fires. Suzano also has monitoring centers that operate 24 hours a day, 7 days a week, including towers equipped with high-resolution cameras and 360° vision covering a 15-km radios.

In addition, Suzano maintains partnerships with suppliers, forest-based partner companies and government agencies, such as the Fire Department, which enable it to help fight fires close to its forest bases and surrounding communities, improving governance in this area.

At the beginning of negotiations, suppliers are strongly asked to communicate any sign of smoke/fire, both in their properties and in neighboring land. This is extremely important because the sooner they communicate the presence of fire, the higher the chances of fighting it successfully. In addition, Suzano engages and guides suppliers to implement best practices in farming, including the construction of firebreaks at the limits of their planting areas. In 2020, Suzano committed to set reduction targets for burned areas. In 2021, the company invested in technology and innovation to improve firefighting structures and monitoring systems. We hired extra surveillance and firefighting teams to work in more critical periods, improved roads and firebreaks, and promoted the Floresta Viva Program, an awareness campaign for communities living near our farms that includes the distribution of gifts and an increase in preventive monitoring. The strong awareness of suppliers, combined with other governance initiatives to strengthen the fire control system resulted in a 69% reduction in the area affected by fires, from 15,655 ha (2021) to 4,823 ha (2022).

Your role in the implementation
Knowledge sharing
Operational

Explanation of how you encourage implementation
Suppliers receive technical guidance at the time when they are planting their farms (construction of firebreaks, importance and flow to communicate fire outbreaks, etc.) and participate in Floresta Viva, a program that aims to control fire outbreaks, preserve biodiversity and increase the safety of communities near Suzano sites. Suzano

recognizes that suppliers and communities play a key role in the program and can report fire outbreaks in eucalyptus or native forests in the areas using a toll-free number available 24 hours a day (0800 642 8162). In 2022, the company also made available a WhatsApp number [(14) 9 8828-3739].

The program includes local campaigns that take place mainly in the months that precede dry seasons, when suppliers and communities are visited to engage and understand the importance of their role in preventing forest fires. They receive informational resources, like brochures, and gifts that include hats, watches, magnets and interactive materials for children. Suppliers and community leaders are mapped and trained locally. In 2022, the campaign was expanded to include the distribution of informational resources at strategic, high-traffic points, increasing the synergy with communities close to critical areas.

The numbers of the São Paulo Forestry Unit illustrate the success of this enterprise-wide campaign: in 2022, 104 high-potential fires were communicated and controlled in areas of suppliers and did not reach company areas. This translated into an 83% reduction, or 3,161 ha (3,818ha in 2021 to 657ha in 2022) of areas affected by forest fires.

Climate change related benefit
Emissions reductions (mitigation)

Comment
No more comments

Management practice reference number
MP3

Management practice
Restoration

Description of management practice
The restoration of forest landscapes and degraded areas helps mitigate climate change, mainly by promoting the capture of CO2 from the atmosphere. Suzano employs specialists in forest restoration in all of its sites to both promote forest restoration in company areas and support suppliers in their efforts. This happens in the form of technical assistance and even donations of native seedlings.

Ecological restoration consists of bringing forest landscapes as close as possible to their natural state prior to anthropogenic interventions. Forest restoration is a slow process and requires good planning based on the history of forest tree species that have developed in specific forest typologies. It is important to consider that a native forest is composed of different species, each with its unique growth rate and ecological characteristics. With that in mind, suppliers are offered technological packages that include different methods: passive restoration, natural regeneration, planting of native plants, intercropping planting, nucleation, direct sowing and exotic/invasive species control. After planting, one of the biggest challenges is maintaining forest growth, especially in the early years. To increase the chances of success, suppliers are offered technical assistance for maintenance and monitoring, including fertilization, chemical weeding and mowing, crowning, ant control, replanting, adaptive management (forest densification and enrichment), and others, until the area is considered restored.

In addition, Suzano provides technical support for sustainable land management and advises producers to only plant eucalyptus in areas that were previously used for other crops. These conditions and benefits discourage the deforestation of native forests for agricultural use, benefiting biodiversity and neighboring traditional communities and native peoples, improving soil quality and carbon storage, and optimizing water availability, resulting in long-term environmental gains.

Your role in the implementation
Knowledge sharing
Operational

Explanation of how you encourage implementation
Rural producers can supply wood to Suzano as independent producers, negotiating the wood when it is ready to be harvested, or as part of the Forestry Support program – when the partnership starts at the time of planting and continues through the delivery of the wood.

In both cases, suppliers must meet a few requirements established by Suzano. An important requirement is that all participating properties must be legally registered and comply with the Wood Supply Policy, developed in line with the Brazilian Forest Code.

Producers are required to provide documents that prove that their land comply with all legal requirements and that they are properly registered (e.g., CAR, Brazilian Federal Rural Environmental Registration), and to complete a specific social and environmental assessment. Also, through satellite images Suzano checks whether there has been any undue conversion of land use (deforestation). If any is detected, the contract is not approved or, if already approved, it is canceled or not renewed. The positive perception of these criteria when negotiating with Suzano encourages suppliers to comply with the requirements and, if necessary, carry out ecological restoration.

Another way to encourage suppliers is to help them recognize the benefits that a restored forest can provide to their properties, including water, and seed and fruit production, biological control of pests and diseases, and others.

Climate change related benefit
Increasing resilience to climate change (adaptation)
Increase carbon sink (mitigation)

Comment
No more comments

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

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

C12.3

(C12.3) Does your organization engage in activities that could either directly or indirectly influence policy, law, or regulation that may impact the climate?

Row 1

External engagement activities that could directly or indirectly influence policy, law, or regulation that may impact the climate
Yes, our membership of/engagement with trade associations could influence policy, law, or regulation that may impact the climate

Does your organization have a public commitment or position statement to conduct your engagement activities in line with the goals of the Paris Agreement?
Yes

Attach commitment or position statement(s)
As evidenced in the attachment, at the Suzano Sustainability Center, we have published our involvement in several areas, associations, and initiatives aimed at formulating a climate agenda, implementing the Paris Agreement, and facilitating a regulated carbon market - a significant financial tool for global economic decarbonization. Additionally, we have shared a letter from IBA (Brazilian Forest Industry), which clearly indicates that Suzano is currently engaged in 12 Committees, 17 Working Groups, and 4 Task Forces. Moreover, Suzano takes the lead in the Climate Change Committee and actively participates in working groups focused on biodiversity, bioenergy, logistics, and water resources.
Central de Sustentabilidade Suzano-paris agreement.pdf
2022SuzanoSustentabilidadeIbá.pdf

Describe the process(es) your organization has in place to ensure that your external engagement activities are consistent with your climate commitments and/or climate transition plan
Suzano has been historically involved in the formulation of public policies and regulatory frameworks to ensure that the association's activities are in line with the objectives of the Paris Agreement. We act through associations (such as Global Compact, WBCSD Brazilian Chapter, Coalizão) to best strive and promote a healthy political-institutional environment, always reinforced by the willingness for dialogue and transparency aimed at the common good of all parties involved.
In 2022 Suzano actively engaged in discussions related to new Carbon Market draft bills, signed public commitments, and was featured in press articles advocating for the advancement of climate policies, regulations, and business sector commitments. The company's Working Group on Climate Engagement and Influence, consisting of executives from various departments, met every two months to focus on topics such as monitoring carbon markets, emissions and removals methodology, climate trends, and legal carbon mechanisms. At COP27, the United Nations Climate Conference, Suzano's CEO, CSO, executive directors, and managers from Sustainability, Corporate Relations, and Carbon Business participated in an effort to engage the business sector and influence positive climate policies, such as carbon markets, to support the carbon neutral and carbon-positive agenda.
Also last year, Suzano developed its climate change policy to ensure that its performance and engagement in public policies align with its climate change strategy. The policy establishes Suzano's commitment to addressing climate change and transitioning to a low-carbon economy by managing risks, reducing negative impacts, and maximizing positive impacts throughout the company and its value chain. It sets clear guidelines for strategic decision-making, including monitoring and collaborating with associations, government bodies, civil society, regulatory entities, international organizations, and the business sector. This collaborative approach allows Suzano to stay updated on the evolving climate agenda, regulatory frameworks, and relevant actions related to climate change mitigation and adaptation, informing its strategy and actions accordingly.

Primary reason for not engaging in activities that could directly or indirectly influence policy, law, or regulation that may impact the climate
<Not Applicable>

Explain why your organization does not engage in activities that could directly or indirectly influence policy, law, or regulation that may impact the climate
<Not Applicable>

C12.3b

(C12.3b) Provide details of the trade associations your organization is a member of, or engages with, which are likely to take a position on any policy, law or regulation that may impact the climate.

Trade association
Other, please specify (Brazilian Tree Industry Association (Ibá))

Is your organization's position on climate change policy consistent with theirs?
Consistent

Has your organization attempted to influence their position in the reporting year?
Yes, we publicly promoted their current position

Describe how your organization's position is consistent with or differs from the trade association's position, and any actions taken to influence their position
The Brazilian Tree Industry Association (Ibá) is responsible for institutionally representing the productive chain of planted trees - from the field to the industry – in interactions with the main stakeholder groups. It advocates on behalf of the industry on interests aimed at adding value to products obtained from planted pine and eucalyptus trees, as well as other species used for industrial purposes, in discussions with government authorities and bodies, entities in the planted tree production chain and important sectors of the economy, social and environmental organizations, universities, schools, consumers and the press in both Brazil and abroad. Specifically regarding climate change issues, the association seeks to mobilize and engage the forest-based industry in actions to promote a low-carbon economy. It also provides technical and political support to institutional entities, dialogue platforms, the parliament and NGOs for negotiations on GHG inventory, carbon pricing and regulations, among others, in order to avoid risks and increase opportunities to foster the low-carbon economy in Brazil and around the world. Notable among the association's positions are the implementation of the MRV procedure and the ETS Market in Brazil and the forest carbon removals to be considered in the Paris Agreement (Article 6). We are aligned with Ibá's position on the issues.

Funding figure your organization provided to this trade association in the reporting year (currency as selected in C0.4)
4680870.64

Describe the aim of your organization's funding
Suzano supports the implementation of global best practices to mitigate climate change at both the national and industry levels. We seek solid alliances to jointly streamline industry practices and evolve collectively in a sustainable manner across the production chain, thereby generating value. Ibá's main themes are good forest management practices, environmental services, innovation and technology, and sustainability in the sector's production chain, among others.

The association has several working groups formed by its member companies, which are responsible for defining public policy priorities and developing advocacy strategies with policymakers (on Climate Change issues, for example) and other relevant stakeholders on each subject.

A Suzano actively participates in IBÁ, with the Climate Change Manager serving as the coordinator of the Climate Change Committee. Also, the Energy Executive Manager leads the Energy Committee, fostering discussions on decarbonization. Additionally, Suzano plays a prominent role in the ESG Steering Committee. In 2022, Suzano sponsored a study titled "Opportunities for Brazil in Carbon Credits" through IBÁ, conducted by ICC Brazil. The Carbon Initiatives Executive Manager from Suzano contributed to this comprehensive assessment of the national carbon market ecosystem, identifying key barriers to unlocking Brazil's potential.

Have you evaluated whether your organization's engagement with this trade association is aligned with the goals of the Paris Agreement?
Yes, we have evaluated, and it is aligned

Trade association
Other, please specify (Brazilian Business Council for Sustainable Development (CEBDS))

Is your organization's position on climate change policy consistent with theirs?
Consistent

Has your organization attempted to influence their position in the reporting year?
Yes, we publicly promoted their current position

Describe how your organization's position is consistent with or differs from the trade association's position, and any actions taken to influence their position
CEBDS has been promoting debates and other actions towards implementing the mandatory carbon market in Brazil in order to expand dialogue between the public and private sectors to set a common agenda on climate change and discuss the Paris Agreement (Article 6), which lists eight guiding principles to establish financial mechanisms for carbon trading. Among the points discussed are the establishment of clear and objective rules that do not create unnecessary transaction costs and which encourage acceptance and demand for reduction credits generated by the country, as well as compliance with the measurement and disclosure recommendations of the TCFD. Dialogues and commitments related to non-deforestation and the Brazilian Business Commitment to Biodiversity. We are aligned with CEBDS' position on the issues.

Funding figure your organization provided to this trade association in the reporting year (currency as selected in C0.4)
94680.59

Describe the aim of your organization's funding
Suzano supports the implementation of global best practices to mitigate climate change at both the national and industry levels. We seek solid alliances to jointly streamline industry practices and evolve collectively in a sustainable manner across the production chain, thereby generating value.
CEBDS It reinforces the sustainable development agenda of the companies operating in Brazil through coordination with governments and civil society while spreading the most current concepts and practices on the subject. Suzano participates in the Technical Chamber (TC) of Biodiversity and Technology (Suzano's Environmental Forest Manager as focal point) and TC Energy and Climate Change (Suzano's Climate Manager as focal point) developing projects and content.
Além disso, o CEO Walter Shalka é parte do Comitê de Líderes do CEBDS.
In addition, CEO Walter Shalka is part of the CEBDS Leadership Committee.

Have you evaluated whether your organization's engagement with this trade association is aligned with the goals of the Paris Agreement?
Yes, we have evaluated, and it is aligned

Trade association
Other, please specify (GHG PROTOCOL)

Is your organization's position on climate change policy consistent with theirs?
Consistent

Has your organization attempted to influence their position in the reporting year?
Yes, we publicly promoted their current position

Describe how your organization's position is consistent with or differs from the trade association's position, and any actions taken to influence their position
The GHG Protocol is a partnership among various stakeholders such as businesses, NGOs, which was established by the WRI and the WBCSD. Its objective is to develop globally recognized standards and tools for greenhouse gas (GHG) accounting and reporting. The partnership aims to encourage their adoption and achieve a low-emissions economy worldwide. Recently, in 2020, GHG Protocol initiated the development of a new Land Sector and Removals Guidance. This guidance outlines how businesses should account for and report GHG emissions and removals resulting from land management, land use change, biogenic products, carbon dioxide removal technologies, and related activities in GHG inventories. Suzano has been an active participant in the discussions on this new methodology, providing strategic guidance as a member of the Advisory Committee. In 2022, Suzano also participated in the Pilot Testing and Review Phase of the project. During this phase, the draft guidance was implemented and tested to gather feedback on its strengths and weaknesses. The feedback generated case studies that will be included in the final publication(s).

Funding figure your organization provided to this trade association in the reporting year (currency as selected in C0.4)
0

Describe the aim of your organization's funding
<Not Applicable>

Have you evaluated whether your organization's engagement with this trade association is aligned with the goals of the Paris Agreement?
Yes, we have evaluated, and it is aligned

Trade association
Other, please specify (CNI)

Is your organization's position on climate change policy consistent with theirs?
Consistent

Has your organization attempted to influence their position in the reporting year?
Yes, we publicly promoted their current position

Describe how your organization's position is consistent with or differs from the trade association's position, and any actions taken to influence their position
Suzano has been actively involved in initiatives and events aimed at driving the transition to a low-carbon economy. Recently, the company sponsored a significant event in Brazil related to decarbonization, bringing together industry leaders and experts to discuss solutions and opportunities.

Also, Suzano's presence at COP27 was marked by a speech aligned with the National Confederation of Industry (CNI). As part of this engagement, the company actively participates in CNI's Climate Working Group, engaging in crucial discussions on national legislation and international agreements related to climate change.

Through these initiatives, Suzano demonstrates its commitment to contributing to the global decarbonization agenda and working collaboratively with other stakeholders to promote effective actions in addressing climate change. The company is dedicated to adopting sustainable practices in its operations and collaborating in the development of solutions that drive a low-carbon economy, thereby striving for a more sustainable future for all.

Funding figure your organization provided to this trade association in the reporting year (currency as selected in C0.4)
0

Describe the aim of your organization's funding

<Not Applicable>

Have you evaluated whether your organization's engagement with this trade association is aligned with the goals of the Paris Agreement?
Yes, we have evaluated, and it is aligned

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 mainstream reports

Status
Complete

Attach the document
RA Suzano 2022 Complementar_EN.pdf

Page/Section reference
Climate change permeates the entire report, but mostly on the following chapters 3. SUZANO AND SUSTAINABILITY, 4. INNOVATION FOR THE BIOECONOMY, 5. BIOSOLUTIONS FOR THE CLIMATE AND NATURE and 7. GOVERNANCE, COMPLIANCE AND ETHICS.

Content elements
Governance
Strategy
Risks & opportunities
Emissions figures
Emission targets
Other metrics

Comment
The Suzano 2022 Report brings together our main financial, social, environmental and governance results. The publication was divided according to the stakeholders that most impact and are impacted by the company, in order to demonstrate how the relationship and the generation of value between the company and these audiences take place. As a material issue, Suzano seeks to incorporate climate change aspects in all operations, continuing to improve through climate change scenarios, enhancing research, implementing new technologies, innovating process, in order to mitigate risks, by adopting strategies to reduce emissions in its value chain, to increase the carbon removals in its plantations and native forests and to be better positioned in regard to economic opportunities related climate change. It also has a business model centered on eco-efficient operations and new, renewable, forest product development that replaces non-renewables characterized by high GHG intensity. This is all connected to Suzano's Strategic Vision, which focuses on continuing to be a reference in efficiency, profitability and sustainability, becoming a transformational agent in the expansion of new markets and a reference in sustainable and innovative solutions for the bioeconomy and environmental services.

Publication
In mainstream reports, incorporating the TCFD recommendations

Status
Complete

Attach the document
12.4_Sustainability Center.pdf
RA Suzano 2022 Complementar_EN.pdf

Page/Section reference
Sustainability Report: Climate change permeates the entire report, but mostly on the following chapters 3. SUZANO AND SUSTAINABILITY, 4. INNOVATION FOR THE BIOECONOMY, 5. BIOSOLUTIONS FOR THE CLIMATE AND NATURE and 7. GOVERNANCE, COMPLIANCE AND ETHICS.
Sustainability Center: all pages are available at http://centraldesustentabilidade.suzano.com.br/en/

Content elements
Governance
Strategy
Risks & opportunities
Emissions figures
Emission targets
Other metrics

Comment

C12.5

(C12.5) Indicate the collaborative frameworks, initiatives and/or commitments related to environmental issues for which you are a signatory/member.

	Environmental collaborative framework, initiative and/or commitment	Describe your organization's role within each framework, initiative and/or commitment
Row 1	Business Ambition for 1.5C Climate Action 100+ Race to Zero Campaign Science Based Targets Network (SBTN) Task Force on Climate-related Financial Disclosures (TCFD) Task Force on Nature-related Financial Disclosures (TNFD) Transition Pathway Initiative UN Global Compact World Business Council for Sustainable Development (WBCSD)	Suzano is actively involved in several national and international associations and organizations that are strategically important for its operations. These include: Business Ambition for 1.5C and Science Based Target Initiative (SBTi): Suzano joined these initiatives in 2021 to take part in the decarbonization of the global economy. By participating in these initiatives, Suzano is also involved in the "Race to Zero" campaign supported by the United Nations (UN), which aims to promote the decarbonization of the global economy. The company committed to establishing goals aligned with the SBTi's 1.5°C emission reduction targets within a period of up to two years. Suzano is investing in modernization projects focused on fuel efficiency, reducing fossil fuel consumption, minimizing energy use, and increasing the use of renewable energy. Additionally, the company collaborates with other stakeholders to improve methodologies related to the planted forest, pulp, and paper sector. Climate Action 100+: Suzano was nominated for this initiative in late 2020 due to its significant role in the transition to net-zero emissions by 2050 or earlier. In 2022, Suzano's public information aligned with two out of the ten indicators assessed by the initiative (medium and short-term GHG reduction targets). Transition Pathway Initiative: Suzano's reduction target for the intensity of Scope 1 and 2 emissions is recognized as one of the best in the sector and aligns with the climate scenario of "below 2°C," surpassing the reduction goals set in the Paris Agreement. In 2021, Suzano was at level 2 - Building capacity, but by 2022, the initiative acknowledged the company's progress, positioning it at level 3, which considers the integration of GHG emissions management as well as risks and opportunities related to the transition to a low-carbon economy at the operational and decision-making level. UN Global Compact: Suzano became a signatory of the UN Global Compact in 2003, committing to the principles of corporate sustainability encompassing human rights, labor, environment, and anti-corruption. The company implements policies and practices aligned with these principles, reports its progress annually, and engages in collaborative dialogues with other organizations and stakeholders. World Business Council for Sustainable Development (WBCSD): Suzano actively participates in the Brazilian Business Council for Sustainable Development (Cebds), which is the WBCSD Brazil Chapter. The company engages in various Technical Chambers (TC), including Biodiversity and Technology and Energy and Climate Change, where it contributes to project development and content creation. Task Force on Climate-related Financial Disclosures (TCFD): Suzano was the first company in the pulp and paper sector to present a case study for the TCFD. This initiative, launched in 2015, focuses on disclosing financial information related to climate change, in line with TCFD recommendations. Suzano's case study highlighted its Sustainability Center, which provides transparent and measurable results aligned with the TCFD's reporting framework. Task Force on Nature-related Financial Disclosures (TNFD): Suzano recognizes the importance of biodiversity in its business strategies and actively contributes to the development of the TNFD framework as a private initiative. The company provides feedback, aiming to enhance the framework's relevance, usability, and effectiveness.

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

Mixed

Which of the following has been impacted?

Biodiversity
Soil
Water
Yield

Description of impact

Guaranteeing the water renewal cycle is essential for life on the planet and for our production process. Eucalyptus and native forests play an essential role in this cycle. Suzano plants in the form of mosaics, intercalating the bands of native forests with plants (allowing "ecological corridors" or even "biological corridors"). These mosaic plants allow the interconnection between natural habitat and planted forest and the use of a corridor between forest fragments with an environmental impact of natural eucalyptus forests, allowing the passage of animals and thus expanding the available habitat for the local fauna.
Suzano's eucalyptus plantings are also carried out following the contour lines, which are arranged perpendicular to the slope and help to conserve the nutrients in the soil, essential for the success of the plantation, balances the speed of rainwater, preventing the crop from losing minerals as well. This technique is essential for steep areas and promotes soil conservation against erosion and contributes to the drainage of rainwater, making it infiltrate the earth more easily and prevent landslides. Suzano's Eucalyptus forests promote greater water percolation through the soil, making it more porous and drainable and with less leaching compared to cattle pastures, for example.
Whenever possible we seek to expand the application of biological pest control techniques, as well as genetic control through the selection of clones that present a certain level of resistance to pests and diseases. Advances in genetics and breeding, drawing greatly on the knowledge of forest stewardship, strive to select clones that yield more wood with lower demand for natural resources, such as water and nutrients. All newly selected clones embody this characteristic.

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

Yes

Description of the response(s)
The intelligent use of water is a priority in Suzano's investments, as we understand that this is an important natural resource for the balance of the ecosystems and for the continuity of our business. In this sense, we perform regular measurements of quali-quantitative parameters of the main watersheds in which we operate and adopt forest management technologies that favor the efficient use of water resources within these watersheds, which helps us reduce the risks of water shortage in neighboring operations and communities. Also, in order to advance its processes and improve the notion that natural resources can and should be harmoniously shared with other users, Suzano has made a long-term commitment to implement specific actions in watersheds identified as critical, seeking to increase water availability in these locations. The assessment of supply and possible water scarcity is being conducted considering a historical hydrological records, as well as environmental and social characteristics of all watersheds in Suzano's forest base.
In 2022, we implemented forestry management measures in 7,284 hectares of critical watershed areas. These measures included reducing tree density per area and creating age mosaics, among others. We also expanded studies to measure water use by forests and the amount of water available in critical watersheds.

Management practice reference number
MP3

Overall effect
Positive

Which of the following has been impacted?
Biodiversity
Soil
Water
Yield

Description of impact
Conducted since 2017 by Suzano, the project called Nascentes do Mucuri encourages the protection of the springs of the Mucuri River and its surroundings, thereby promoting the perpetuity of this water resource so valuable for maintaining the ecosystem services in the region. The river originates in the northeast region of the state of Minas Gerais and discharges in the South of the state of Bahia, extending for 446 kilometers in an area of approximately 15,400 square kilometers and a population of 537,000. The project promotes environmental education and training of local producers to consolidate a culture of preservation in the region.
Therefore, Nascentes do Mucuri's promotes the agroecological transition in existing agricultural and livestock farming in the region, promoting greater autonomy for farming families and encouraging them to preserve their natural areas and water springs. In 2022, we provide technical assistance to 150 families through Agroecological Transition Plan, a consolidated practice in several regions of the country. With this methodology, we believe we can generate greater economic, food and environmental security in properties in the Northeast situated in the state of Minas Gerais, where the Mucuri River basin is located. The monitoring of areas that are in the process of restoration is carried out every six months in order to assess whether natural regeneration is taking place or whether any intervention will be necessary, such as direct planting, enrichment planting, among other possible methodologies.
The results reached up to now were: 1,550 properties visited; 515 springs under restoration; more than 46,000 seedlings planted; more than 12,000 people engaged; more than 4,700 hours dedicated to social and environmental education. Financial controls are also carried out, where the monthly disbursement with the project's actions is monitored.

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

Description of the response(s)
Currently, the areas under restoration maintained by the company are located within three critical biomes in Brazil —Atlantic Rainforest, Cerrado and Amazon— and total 37,355 hectares in 2022, with 12.10 million seedlings planted in in different areas. The program aims to restore the ecological processes responsible for the formation of a functional and sustainable forest. These actions are predominantly applied in the Permanent Preserves and Legal Protection Areas in order to comply with the legislation. The company also controls invasive tree species in areas that already have vegetation cover, aiming at reducing the threats of biological invasions to the regional biodiversity.

Management practice reference number
MP2

Overall effect
Positive

Which of the following has been impacted?
Biodiversity
Soil
Water

Description of impact
Suzano maintains approximately 40% of its total area, or approximately 1 million hectares, for the conservation of biodiversity. This significant volume of conservation areas includes 93 thousand hectares of high conservation value areas, considered globally and nationally important for the biodiversity and voluntarily established by the company. These areas have important social and environmental attributes, such as the presence of endangered, rare and endemic species; extension of well-preserved forest fragments and rare/endangered ecosystems; and areas that provide environmental services, among others (including sociocultural characteristics). The protection of conservation areas, which represent different types of ecosystems and are located along rivers and among eucalytptus plantations, forming a mosaic landscape, reinforces our commitment to reducing adverse environmental impacts and improving the quality of the environment. Our forestry activities follow the Forest Management Plans, which describe forestry operations, available resources, practices and procedures adopted to sustainably achieve management objectives in the short, medium and long terms.

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

Description of the response(s)
Since 2019, Suzano established an internal working group to address the topic of conservation and biodiversity, in order to define integrated strategies, optimize and expand the sharing of practices and knowledge, in addition to enabling partnerships with NGOs and other institutions. Monitoring of biodiversity within our areas totals more than 4,000 species of fauna and flora have been recorded, of which more than 400 are threatened by extinction and 350 are endemic. Wildlife and flora are frequently controlled in partnership with NGOs and universities, in order to learn about, identify and monitor the development of biodiversity in the regions where the company operates. In a view of the intensification of greenhouse gas emissions, forest formations play an important role in fixing carbon dioxide (CO_2) from the atmosphere. The immobilization of CO_2 by natural conservation areas corresponds to an alternative of payments for environmental services projects, contributing for the maintenance of these areas and conservation of its biodiversity.

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

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

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

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

Management practice reference number
MP1

Overall effect
Positive

Which of the following has been impacted?
Biodiversity
Soil
Water
Yield

Description of impacts
In addition to mitigating GHG emissions, the several benefits provided by ILPF systems include improving the public image of farmers; reducing rural flight and labor seasonality in the countryside; creating direct and indirect jobs; intensifying nutrient cycling in the soil; reducing the pressure for new areas of native vegetation; increasing energy balance and efficiency in the use of resources (water, light, nutrients and capital); maintaining agriculture and livestock biodiversity and sustainability; improving the quality and preserving the productive characteristics of the soil; improving animal welfare as a result of increased thermal comfort; increasing the producers' income and capitalization; and increasing the production of grains, meat, milk, wood and non-wood products in the same area.

Have any response to these impacts been implemented?
Yes

Description of the response(s)
Together with their communities, suppliers can take part in and benefit from Suzano's social programs, including the Rural Land Development Program (or PDRT). This program aims to promote land development in neighboring rural communities through continuous dialogue and the strengthening of their organizations and networks based on agroecological principles. It focuses on supporting agricultural activities in the communities by offering a qualified technical support and rural extension service (technical teams), as well as investments to purchase the necessary equipment and inputs to carry out these activities. Approximately 3,500 landowners participate in the PDRT.

Management practice reference number
MP2

Overall effect
Positive

Which of the following has been impacted?
Biodiversity
Soil

Description of impacts
Preventing forest fires is essential for maintaining soil biodiversity. During a forest fire, the soil can reach up to 700 degrees in the layer up to one meter deep, where most soil life is found. The damage to flora, fauna and fungi, as well as to nutrients (which feed the soil microfauna), can be irreparable. Microorganisms that are essential for good plant performance can be completely lost. Forest fires compromise the ability of water to infiltrate the soil, reducing soil macropores and consequently increasing resistance to root penetration. Volatile elements, such as nitrogen, evaporate completely. The organic matter that protects the soil is completely destroyed, taking decades to be restored. The following articles include more information on these effects:

• Impact of forest fire on physical, chemical and biological properties of soil: A review Satyam Verma, S Jayakumar - proceedings of the International Academy of Ecology and Environmental Sciences 2 (3), 168, 2012 ;

• Effects of prescribed fires on soil properties: A review - M Alcañiz, L Outeiro, M Francos, X Úbeda - Science of the Total Environment 613, 944-957, 2018 .

Have any response to these impacts been implemented?
Yes

Description of the response(s)
Following the occurrence of a forest fire, Suzano works to mitigate its effects on the soil when preparing the soil for planting. This includes analyzing soil samples collected at the fire site and its surroundings to correct the soil's acidity and fertilization. This soil analysis determines the amount of micro and macronutrients to be incorporated into the soil when preparing to plant a new farm.

Management practice reference number
MP3

Overall effect
Positive

Which of the following has been impacted?
Biodiversity
Soil
Water
Yield

Description of impacts
The several benefits of forest restoration include reducing the presence of exotic species; increasing animal and plant biodiversity; improving water infiltration into the soil; extending the soil's organic layer, which increases the biodiversity of life in the soil; mitigating erosion processes, since trees act as natural barriers to prevent sediments

from reaching watercourses; and others. This results in increased water production in the property.

The restoration of degraded natural forest and non-forest areas can turn them into productive land and create environmental services through the recovery of their ecological processes and functions. Rural producers are benefited by diversified income and improved water and soil quality, promoting a sustainable economy in the forest surroundings. Restored areas also benefit society as a whole, since they preserve springs, protect the soil and reduce risks in food production. The remaining biological heritage / waste from eucalyptus harvesting expands the native vegetation cover, improving the chemical and physical fertility of the soil and mitigating nutritional depletion over the years. Additionally, it increases soil aeration through the use of different plant species with different root systems, whether due to the profusion of wood from trees or the carbon that is stored underground. Restoration can also bring benefits to biodiversity, as shown by the increase in diversity and number of species recorded in Suzano's conservation areas over the years, with special emphasis on records of endemic, rare and threatened species in new monitoring areas, such as the critically endangered primate Black Bearded Saki (Chiropotes satanas) in the Amazon.

Suzano's Ecological Restoration Program seeks to significantly increase connectivity between existing forest fragments and promote the formation of networks of ecologically representative conservation areas in all regions where it is implemented.

Have any response to these impacts been implemented?
Yes

Description of the response(s)
In 2022, the area under restoration totaled 373.55 ha, an increase of 6% compared to the previous year, resulting from the plating of approximately 12 million seedlings of native species by Suzano.

C15. Biodiversity

C15.1

(C15.1) Is there board-level oversight and/or executive management-level responsibility for biodiversity-related issues within your organization?

	Board-level oversight and/or executive management-level responsibility for biodiversity-related issues	Description of oversight and objectives relating to biodiversity	Scope of board-level oversight
Row 1	No, but we plan to have both within the next two years	<Not Applicable>	<Not Applicable>

C15.2

(C15.2) Has your organization made a public commitment and/or endorsed any initiatives related to biodiversity?

	Indicate whether your organization made a public commitment or endorsed any initiatives related to biodiversity	Biodiversity-related public commitments	Initiatives endorsed
Row 1	Yes, we have made public commitments and publicly endorsed initiatives related to biodiversity	Commitment to Net Positive Gain Commitment to No Net Loss Adoption of the mitigation hierarchy approach Commitment to not explore or develop in legally designated protected areas Commitment to respect legally designated protected areas Commitment to avoidance of negative impacts on threatened and protected species Commitment to no conversion of High Conservation Value areas Commitment to secure Free, Prior and Informed Consent (FPIC) of Indigenous Peoples Commitment to no trade of CITES listed species	CBD – Global Biodiversity Framework SDG CITES Other, please specify (One Trillion Trees - 1t.org; TNFD (Taskforce on Nature-related Financial Disclosures); Capitals Coalition; Brazilian Business Council for Sustainable Development (CEBDS - Brazilian WBCSD))

C15.3

(C15.3) Does your organization assess the impacts and dependencies of its value chain on biodiversity?

Impacts on biodiversity

Indicate whether your organization undertakes this type of assessment
Yes

Value chain stage(s) covered
Direct operations
Upstream

Portfolio activity
<Not Applicable>

Tools and methods to assess impacts and/or dependencies on biodiversity
Other, please specify (Environmental Aspect and Impact Matrices (AIA in the Portuguese acronym) and, Due Diligence program)

Please explain how the tools and methods are implemented and provide an indication of the associated outcome(s)
Considering Suzano's upstream value chain, different management measures are adopted to evaluate its suppliers. After the legal, social, and environmental validations instituted in the Due Diligence program, a monitoring program to assess and mitigate risk in its supply chain, based on Suzano's Wood Supply Policy. With the Due Diligence program, Suzano seeks to ensure, among others, the non-commitment of High Conservation Value Areas, as well as the non-conversion of native areas into commercial wood plantations, contributing to the prevention of impacts on biodiversity.

The Due Diligence principles are audited using checklists, documentation, maps, periodic field visits, and management applications, by qualified technicians, from the contract formalization on, covering the wood harvesting and transportation operations, and considering that planting regularity is a contract prerequisite.

For direct operations, Suzano's environmental aspects and impacts are identified and evaluated by the forestry unit and recorded in their respective Environmental Aspect and Impact Matrices (AIA in the Portuguese acronym), a risk assessment based on its Corporate Environmental Management Policy. Based on the EIA records, Suzano establishes action plans based on the Theory of the Mitigation Hierarchy aimed at the prevention, mitigation, adaptation, restoration, and compensation of negative impacts, and increasing the positive impacts inherent to its operational activities.

Suzano also determines measures to avoid or mitigate negative impacts and enhance positive ones to ensure the management and control of impacts in its AIA Matrix. These actions are shared internally with the operational areas through training for both the company's employees and the contractors, to promote continuous learning about the importance of caring for the environment in their daily activities.

Dependencies on biodiversity

Indicate whether your organization undertakes this type of assessment
No, but we plan to within the next two years

Value chain stage(s) covered
<Not Applicable>

Portfolio activity
<Not Applicable>

Tools and methods to assess impacts and/or dependencies on biodiversity
<Not Applicable>

Please explain how the tools and methods are implemented and provide an indication of the associated outcome(s)
<Not Applicable>

C15.4

(C15.4) Does your organization have activities located in or near to biodiversity- sensitive areas in the reporting year?
Yes

C15.4a

(C15.4a) Provide details of your organization's activities in the reporting year located in or near to biodiversity -sensitive areas.

Classification of biodiversity -sensitive area
UNESCO World Heritage site

Country/area
Brazil

Name of the biodiversity-sensitive area
High Conservation Value Areas (HCVA)
Bahia/Espirito Santo Unit
ALCOPRADO; COMPLEXO APARAJU; COMPLEXO RIO ITANHENTINGA; MUÇUNUNGAS DE JUERANA; PERUÍPE; BLOCO 43 – CB; BLOCO G8 - CB; BUGIO-RUIVO; MUTUM PRETO E RECANTO DAS ANTAS; FAZENDA AGRIL; PIRAQUÊ-AÇU; RESTINGA DE ARACRUZ; SANTA HELENA 1

Proximity
Adjacent

Briefly describe your organization's activities in the reporting year located in or near to the selected area
Suzano maintains and protects more than 1 million hectares of native vegetation, which corresponds to 40% of its total area. In this territory, the company voluntarily identified 75 areas defined as HCVAs and seven Private Natural Heritage Reserve (PNHR), in Category IV of the International Union for Conservation of Nature (IUCN), totaling around 90,000 hectares considered of global or national importance.
It is important to highlight that Suzano does not operate in areas mentioned above (HCVAs, PNHR, and IUCN I-IV), in any native vegetation areas and its operational activities take place exclusively in the eucalyptus production and infrastructure areas (i.e. roads).

There are operational activities that take place close to (but not inside) the area sensitive to biodiversity, such as planting and harvesting of eucalyptus, transportation of eucalyptus wood, as well as maintenance of firebreaks and roads, aimed at preventing fires and erosion respectively

Indicate whether any of your organization's activities located in or near to the selected area could negatively affect biodiversity
Yes, but mitigation measures have been implemented

Mitigation measures implemented within the selected area
Site selection
Project design
Physical controls
Operational controls

Explain how your organization's activities located in or near to the selected area could negatively affect biodiversity, how this was assessed, and describe any mitigation measures implemented
In acknowledgement of the potential impact of its operations on forests and other natural habitats, and based on its Corporate Environmental Management Policy, Suzano establishes a risk assessment and determination of measures based on the Mitigation Hierarchy Theory directed at the prevention, mitigation, adaptation, restoration and compensation of negative impacts, along with the enhancement of positive impacts inherent to its operating activities.
Suzano's environmental aspects and impacts are identified and assessed by forestry unit and registered in their respective Environmental Aspect and Impact Matrices (AIA in Portuguese acronym). The following are some of the main negative impacts on biodiversity:
• Altered physical quality of soil;
• Contamination and alteration of soil quality;
• Wildlife alteration;
• Water resource scarcity;
• Waterway Siltation;
• Contamination and change in air quality.
It is worth mentioning that there are also positive impacts, such as a reduction of the greenhouse effect, as a result of the carbon sequestration carried out by planted and native forests, the increase of connectivity in the landscape and biodiversity maintenance.
To ensure impact management and control in its AIA Matrix, Suzano also determines measures to avoid or mitigate negative impacts, as well as to enhance the positive ones. These measures are shared internally with the operational areas through training for both company employees and contractors, in order to promote continual learning about the importance of environmental care in their daily activities. Below are examples of measures adopted by Suzano in the routine of its operational activities:
• Microplanning of forestry operations (before silviculture, harvesting, and logistics execute their activities) containing environmental recommendations aiming at impact prevention and mitigation.
• Pre and post-operation socio-environmental monitoring to verify the effectiveness of socio-environmental recommendations suggested in the microplanning stage.
• Minimal cultivation (keeping wood residues on the ground after harvest) contributing directly to the conservation of soil moisture and erosion prevention.
• Placing identification and orientation signs in all operating units of the company, to prevent and mitigate impacts resulting from illegal practices;
• Trained fire brigades and monitoring equipment, to mitigate the impacts generated by wildfires;
• Firebreaks maintenance as an important practice in fire prevention and containment; among others.
In addition to these measures adopted in the company's operational activities routine, Suzano has a long-term commitment that goes beyond its gates and focuses on the territory where biodiversity is most threatened.
Therefore, to reverse the biodiversity loss Suzano is committed to connecting, by 2030, half a million hectares of fragments through ecological corridors in the Cerrado, Atlantic Forest, and Amazon biomes.

Classification of biodiversity -sensitive area
UNESCO World Heritage site

Country/area
Brazil

Name of the biodiversity-sensitive area
High Conservation Value Areas (HCVA)
Maranhão Unit
BLOCO BOA ESPERANÇA; BLOCO ELDORADO; BLOCO JUREMA; CALIFÓRNIA; CHALÉ II; CHAPADA GRANDE; ITABAIANA; JACAMIM E ENTRE RIOS; MAAB; NOVA DESCOBERTA; PARAÍSO; RIO DOURADO; SANTA MARIA HM;
SÃO BENTO; SÃO ROQUE; SAYONARA;
SENHOR DO BONFIM I; SENHOR DO BONFIM II; TAMBORIL; TIRIRICA - BLOCO GROTA;
VISCAYA

Proximity
Adjacent

Briefly describe your organization's activities in the reporting year located in or near to the selected area
Suzano maintains and protects more than 1 million hectares of native vegetation, which corresponds to 40% of its total area. In this territory, the company voluntarily identified 75 areas defined as HCVAs and seven Private Natural Heritage Reserve (PNHR), in Category IV of the International Union for Conservation of Nature (IUCN), totaling around 90,000 hectares considered of global or national importance.
It is important to highlight that Suzano does not operate in areas mentioned above (HCVAs, PNHR, and IUCN I-IV), in any native vegetation areas and its operational activities take place exclusively in the eucalyptus production and infrastructure areas (i.e. roads).
There are operational activities that take place close to (but not inside) the area sensitive to biodiversity, such as planting and harvesting of eucalyptus, transportation of eucalyptus wood, as well as maintenance of firebreaks and roads, aimed at preventing fires and erosion respectively.

Indicate whether any of your organization's activities located in or near to the selected area could negatively affect biodiversity
Yes, but mitigation measures have been implemented

Mitigation measures implemented within the selected area
Site selection
Project design
Physical controls
Operational controls

Explain how your organization's activities located in or near to the selected area could negatively affect biodiversity, how this was assessed, and describe any mitigation measures implemented
In acknowledgement of the potential impact of its operations on forests and other natural habitats, and based on its Corporate Environmental Management Policy, Suzano establishes a risk assessment and determination of measures based on the Mitigation Hierarchy Theory directed at the prevention, mitigation, adaptation, restoration and compensation of negative impacts, along with the enhancement of positive impacts inherent to its operating activities.
Suzano's environmental aspects and impacts are identified and assessed by forestry unit and registered in their respective Environmental Aspect and Impact Matrices (AIA

in Portuguese acronym). The following are some of the main negative impacts on biodiversity:
• Altered physical quality of soil;
• Contamination and alteration of soil quality;
• Wildlife alteration;
• Water resource scarcity;
• Waterway Siltation;
• Contamination and change in air quality.
It is worth mentioning that there are also positive impacts, such as a reduction of the greenhouse effect, as a result of the carbon sequestration carried out by planted and native forests, the increase of connectivity in the landscape and biodiversity maintenance.
To ensure impact management and control in its AIA Matrix, Suzano also determines measures to avoid or mitigate negative impacts, as well as to enhance the positive ones. These measures are shared internally with the operational areas through training for both company employees and contractors, in order to promote continual learning about the importance of environmental care in their daily activities. Below are examples of measures adopted by Suzano in the routine of its operational activities:
• Microplanning of forestry operations (before silviculture, harvesting, and logistics execute their activities) containing environmental recommendations aiming at impact prevention and mitigation.
• Pre and post-operation socio-environmental monitoring to verify the effectiveness of socio-environmental recommendations suggested in the microplanning stage.
• Minimal cultivation (keeping wood residues on the ground after harvest) contributing directly to the conservation of soil moisture and erosion prevention.
• Placing identification and orientation signs in all operating units of the company, to prevent and mitigate impacts resulting from illegal practices;
• Trained fire brigades and monitoring equipment, to mitigate the impacts generated by wildfires;
• Firebreaks maintenance as an important practice in fire prevention and containment; among others.
In addition to these measures adopted in the company's operational activities routine, Suzano has a long-term commitment that goes beyond its gates and focuses on the territory where biodiversity is most threatened.
Therefore, to reverse the biodiversity loss Suzano is committed to connecting, by 2030, half a million hectares of fragments through ecological corridors in the Cerrado, Atlantic Forest, and Amazon biomes.

Classification of biodiversity -sensitive area
UNESCO World Heritage site

Country/area
Brazil

Name of the biodiversity-sensitive area
High Conservation Value Areas (HCVA)
Mato Grosso do Sul Unit
H001; H007; H010; H101; H126

Proximity
Adjacent

Briefly describe your organization’s activities in the reporting year located in or near to the selected area
Suzano maintains and protects more than 1 million hectares of native vegetation, which corresponds to 40% of its total area. In this territory, the company voluntarily identified 75 areas defined as HCVAs and seven Private Natural Heritage Reserve (PNHR), in Category IV of the International Union for Conservation of Nature (IUCN), totaling around 90,000 hectares considered of global or national importance.
It is important to highlight that Suzano does not operate in areas mentioned above (HCVAs, PNHR, and IUCN I-IV), in any native vegetation areas and its operational activities take place exclusively in the eucalyptus production and infrastructure areas (i.e. roads).
There are operational activities that take place close to (but not inside) the area sensitive to biodiversity, such as planting and harvesting of eucalyptus, transportation of eucalyptus wood, as well as maintenance of firebreaks and roads, aimed at preventing fires and erosion respectively.

Indicate whether any of your organization’s activities located in or near to the selected area could negatively affect biodiversity
Yes, but mitigation measures have been implemented

Mitigation measures implemented within the selected area
Site selection
Project design
Physical controls
Operational controls

Explain how your organization’s activities located in or near to the selected area could negatively affect biodiversity, how this was assessed, and describe any mitigation measures implemented
In acknowledgement of the potential impact of its operations on forests and other natural habitats, and based on its Corporate Environmental Management Policy, Suzano establishes a risk assessment and determination of measures based on the Mitigation Hierarchy Theory directed at the prevention, mitigation, adaptation, restoration and compensation of negative impacts, along with the enhancement of positive impacts inherent to its operating activities.
Suzano's environmental aspects and impacts are identified and assessed by forestry unit and registered in their respective Environmental Aspect and Impact Matrices (AIA in Portuguese acronym). The following are some of the main negative impacts on biodiversity:
• Altered physical quality of soil;
• Contamination and alteration of soil quality;
• Wildlife alteration;
• Water resource scarcity;
• Waterway Siltation;
• Contamination and change in air quality.
It is worth mentioning that there are also positive impacts, such as a reduction of the greenhouse effect, as a result of the carbon sequestration carried out by planted and native forests, the increase of connectivity in the landscape and biodiversity maintenance.
To ensure impact management and control in its AIA Matrix, Suzano also determines measures to avoid or mitigate negative impacts, as well as to enhance the positive ones. These measures are shared internally with the operational areas through training for both company employees and contractors, in order to promote continual learning about the importance of environmental care in their daily activities. Below are examples of measures adopted by Suzano in the routine of its operational activities:
• Microplanning of forestry operations (before silviculture, harvesting, and logistics execute their activities) containing environmental recommendations aiming at impact prevention and mitigation.
• Pre and post-operation socio-environmental monitoring to verify the effectiveness of socio-environmental recommendations suggested in the microplanning stage.
• Minimal cultivation (keeping wood residues on the ground after harvest) contributing directly to the conservation of soil moisture and erosion prevention.
• Placing identification and orientation signs in all operating units of the company, to prevent and mitigate impacts resulting from illegal practices;
• Trained fire brigades and monitoring equipment, to mitigate the impacts generated by wildfires;
• Firebreaks maintenance as an important practice in fire prevention and containment; among others.
In addition to these measures adopted in the company's operational activities routine, Suzano has a long-term commitment that goes beyond its gates and focuses on the territory where biodiversity is most threatened.

Therefore, to reverse the biodiversity loss Suzano is committed to connecting, by 2030, half a million hectares of fragments through ecological corridors in the Cerrado, Atlantic Forest, and Amazon biomes.

Classification of biodiversity -sensitive area
UNESCO World Heritage site

Country/area
Brazil

Name of the biodiversity-sensitive area
High Conservation Value Areas (HCVA
São Paulo Unit
S1AA; S4AA; S1AS; S5AV; S5BA; S1HN; S1A1; S1A4; S6C4; S2BR; S2B0; S2AU; S7AK

Proximity
Adjacent

Briefly describe your organization's activities in the reporting year located in or near to the selected area
Suzano maintains and protects more than 1 million hectares of native vegetation, which corresponds to 40% of its total area. In this territory, the company voluntarily identified 75 areas defined as HCVAs and seven Private Natural Heritage Reserve (PNHR), in Category IV of the International Union for Conservation of Nature (IUCN), totaling around 90,000 hectares considered of global or national importance.
It is important to highlight that Suzano does not operate in areas mentioned above (HCVAs, PNHR, and IUCN I-IV), in any native vegetation areas and its operational activities take place exclusively in the eucalyptus production and infrastructure areas (i.e. roads).
There are operational activities that take place close to (but not inside) the area sensitive to biodiversity, such as planting and harvesting of eucalyptus, transportation of eucalyptus wood, as well as maintenance of firebreaks and roads, aimed at preventing fires and erosion respectively.

Indicate whether any of your organization's activities located in or near to the selected area could negatively affect biodiversity
Yes, but mitigation measures have been implemented

Mitigation measures implemented within the selected area
Site selection
Project design
Physical controls
Operational controls

Explain how your organization's activities located in or near to the selected area could negatively affect biodiversity, how this was assessed, and describe any mitigation measures implemented
In acknowledgement of the potential impact of its operations on forests and other natural habitats, and based on its Corporate Environmental Management Policy, Suzano establishes a risk assessment and determination of measures based on the Mitigation Hierarchy Theory directed at the prevention, mitigation, adaptation, restoration and compensation of negative impacts, along with the enhancement of positive impacts inherent to its operating activities.
Suzano's environmental aspects and impacts are identified and assessed by forestry unit and registered in their respective Environmental Aspect and Impact Matrices (AIA in Portuguese acronym). The following are some of the main negative impacts on biodiversity:
• Altered physical quality of soil;
• Contamination and alteration of soil quality;
• Wildlife alteration;
• Water resource scarcity;
• Waterway Siltation;
• Contamination and change in air quality.
It is worth mentioning that there are also positive impacts, such as a reduction of the greenhouse effect, as a result of the carbon sequestration carried out by planted and native forests, the increase of connectivity in the landscape and biodiversity maintenance.
To ensure impact management and control in its AIA Matrix, Suzano also determines measures to avoid or mitigate negative impacts, as well as to enhance the positive ones. These measures are shared internally with the operational areas through training for both company employees and contractors, in order to promote continual learning about the importance of environmental care in their daily activities. Below are examples of measures adopted by Suzano in the routine of its operational activities:
• Microplanning of forestry operations (before silviculture, harvesting, and logistics execute their activities) containing environmental recommendations aiming at impact prevention and mitigation.
• Pre and post-operation socio-environmental monitoring to verify the effectiveness of socio-environmental recommendations suggested in the microplanning stage.
• Minimal cultivation (keeping wood residues on the ground after harvest) contributing directly to the conservation of soil moisture and erosion prevention.
• Placing identification and orientation signs in all operating units of the company, to prevent and mitigate impacts resulting from illegal practices;
• Trained fire brigades and monitoring equipment, to mitigate the impacts generated by wildfires;
• Firebreaks maintenance as an important practice in fire prevention and containment; among others.
In addition to these measures adopted in the company's operational activities routine, Suzano has a long-term commitment that goes beyond its gates and focuses on the territory where biodiversity is most threatened.
Therefore, to reverse the biodiversity loss Suzano is committed to connecting, by 2030, half a million hectares of fragments through ecological corridors in the Cerrado, Atlantic Forest, and Amazon biomes.

Classification of biodiversity -sensitive area
UNESCO World Heritage site

Country/area
Brazil

Name of the biodiversity-sensitive area
Private Natural Heritage Reserve (PNHR)
Mutum-Preto; Recanto das Antas; Restinga de Aracruz; São Bento; EcoFuturo; Entre Rios; Olavo Egydio Setúbal

Proximity
Adjacent

Briefly describe your organization's activities in the reporting year located in or near to the selected area
Suzano maintains and protects more than 1 million hectares of native vegetation, which corresponds to 40% of its total area. In this territory, the company voluntarily identified 75 areas defined as HCVAs and seven Private Natural Heritage Reserve (PNHR), in Category IV of the International Union for Conservation of Nature (IUCN), totaling around 90,000 hectares considered of global or national importance.
It is important to highlight that Suzano does not operate in areas mentioned above (HCVAs, PNHR, and IUCN I-IV), in any native vegetation areas and its operational activities take place exclusively in the eucalyptus production and infrastructure areas (i.e. roads).

There are operational activities that take place close to (but not inside) the area sensitive to biodiversity, such as planting and harvesting of eucalyptus, transportation of eucalyptus wood, as well as maintenance of firebreaks and roads, aimed at preventing fires and erosion respectively.

Indicate whether any of your organization's activities located in or near to the selected area could negatively affect biodiversity
Yes, but mitigation measures have been implemented

Mitigation measures implemented within the selected area
Site selection
Project design
Physical controls
Operational controls

Explain how your organization's activities located in or near to the selected area could negatively affect biodiversity, how this was assessed, and describe any mitigation measures implemented
In acknowledgement of the potential impact of its operations on forests and other natural habitats, and based on its Corporate Environmental Management Policy, Suzano establishes a risk assessment and determination of measures based on the Mitigation Hierarchy Theory directed at the prevention, mitigation, adaptation, restoration and compensation of negative impacts, along with the enhancement of positive impacts inherent to its operating activities.
Suzano's environmental aspects and impacts are identified and assessed by forestry unit and registered in their respective Environmental Aspect and Impact Matrices (AIA in Portuguese acronym). The following are some of the main negative impacts on biodiversity:
• Altered physical quality of soil;
• Contamination and alteration of soil quality;
• Wildlife alteration;
• Water resource scarcity;
• Waterway Siltation;
• Contamination and change in air quality.
It is worth mentioning that there are also positive impacts, such as a reduction of the greenhouse effect, as a result of the carbon sequestration carried out by planted and native forests, the increase of connectivity in the landscape and biodiversity maintenance.
To ensure impact management and control in its AIA Matrix, Suzano also determines measures to avoid or mitigate negative impacts, as well as to enhance the positive ones. These measures are shared internally with the operational areas through training for both company employees and contractors, in order to promote continual learning about the importance of environmental care in their daily activities. Below are examples of measures adopted by Suzano in the routine of its operational activities:
• Microplanning of forestry operations (before silviculture, harvesting, and logistics execute their activities) containing environmental recommendations aiming at impact prevention and mitigation.
• Pre and post-operation socio-environmental monitoring to verify the effectiveness of socio-environmental recommendations suggested in the microplanning stage.
• Minimal cultivation (keeping wood residues on the ground after harvest) contributing directly to the conservation of soil moisture and erosion prevention.
• Placing identification and orientation signs in all operating units of the company, to prevent and mitigate impacts resulting from illegal practices;
• Trained fire brigades and monitoring equipment, to mitigate the impacts generated by wildfires;
• Firebreaks maintenance as an important practice in fire prevention and containment; among others.
In addition to these measures adopted in the company's operational activities routine, Suzano has a long-term commitment that goes beyond its gates and focuses on the territory where biodiversity is most threatened.
Therefore, to reverse the biodiversity loss Suzano is committed to connecting, by 2030, half a million hectares of fragments through ecological corridors in the Cerrado, Atlantic Forest, and Amazon biomes.

C15.5

(C15.5) What actions has your organization taken in the reporting year to progress your biodiversity-related commitments?

	Have you taken any actions in the reporting period to progress your biodiversity-related commitments?	Type of action taken to progress biodiversity- related commitments
Row 1	Yes, we are taking actions to progress our biodiversity-related commitments	Land/water protection Land/water management Species management Education & awareness Law & policy

C15.6

(C15.6) Does your organization use biodiversity indicators to monitor performance across its activities?

	Does your organization use indicators to monitor biodiversity performance?	Indicators used to monitor biodiversity performance
Row 1	Yes, we use indicators	State and benefit indicators Pressure indicators Response indicators

C15.7

(C15.7) Have you published information about your organization's response to biodiversity-related issues for this reporting year in places other than in your CDP response? If so, please attach the publication(s).

Report type	Content elements	Attach the document and indicate where in the document the relevant biodiversity information is located
In voluntary sustainability report or other voluntary communications	Content of biodiversity-related policies or commitments	Presentation 2nd ESG Call Suzano 2022 - Page 23-30 Annual Report 2022 - page 21, 42-48 Commitments-to-renewing-life/conserve-biodiversity/ Presentation 2nd ESG Call Suzano 2022 - Page 23-30.pdf Commitments-to-renewing-life-conserve-biodiversity.pdf Annual Report 2022 - page 21, 42-48.pdf
In voluntary sustainability report or other voluntary communications	Details on biodiversity indicators	Suzano Sustainability Center Indicators.pdf
In voluntary sustainability report or other voluntary communications	Impacts on biodiversity	Significant Impacts of Activities, Products and Services on Biodiversity Significant Impacts of Activities, Products and Services on Biodiversity.pdf

C16. 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.

C16.1

(C16.1) Provide details for the person that has signed off (approved) your CDP climate change response.

	Job title	Corresponding job category
Row 1	Chief Financial and Investor Relations Officer, leading the areas of Treasury, M&A, Legal, Investor Relations, Controllership, Shared Services, Taxes, Planning, Risk Management and Compliance.	Chief Financial Officer (CFO)

SC. Supply chain module

SC0.0

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

SC0.1

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

	Annual Revenue
Row 1	49830000000

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.

Requesting member
Ambev S.A

Scope of emissions
Scope 1

Scope 2 accounting method
<Not Applicable>

Scope 3 category(ies)
<Not Applicable>

Allocation level
Business unit (subsidiary company)

Allocation level detail
Mucuri Mill

Emissions in metric tonnes of CO2e
76024

Uncertainty (±%)
5

Major sources of emissions
Stationary emissions in industry units and mobile emissions in forest units and logistic operations.

Verified
Yes

Allocation method
Allocation based on mass of products purchased

Market value or quantity of goods/services supplied to the requesting member
451691

Unit for market value or quantity of goods/services supplied
Metric tons

Please explain how you have identified the GHG source, including major limitations to this process and assumptions made
The allocation of Suzano GHG emissions per client was estimated by the use of a indicator (emissions/ton of product) calculated in the GHG inventory and the amount of product acquired by each client.

Requesting member
Ambev S.A

Scope of emissions
Scope 2

Scope 2 accounting method
Location-based

Scope 3 category(ies)
<Not Applicable>

Allocation level
Business unit (subsidiary company)

Allocation level detail
Mucuri Mill

Emissions in metric tonnes of CO2e
0.034

Uncertainty (±%)
5

Major sources of emissions
Scope 2 emissions from Eletricity purchased in the specifics units related to sold product

Verified
Yes

Allocation method
Allocation based on mass of products purchased

Market value or quantity of goods/services supplied to the requesting member
451691

Unit for market value or quantity of goods/services supplied
Metric tons

Please explain how you have identified the GHG source, including major limitations to this process and assumptions made
The allocation of Suzano GHG emissions per client was estimated by the use of a indicator (emissions /ton of product) calculated in the GHG inventory and the amount of product acquired by each client. The data is specific per mill and related and value chain operation.

Requesting member
Ambev S.A

Scope of emissions
Scope 3

Scope 2 accounting method
<Not Applicable>

Scope 3 category(ies)
Category 1: Purchased goods and services

Allocation level
Business unit (subsidiary company)

Allocation level detail

Muruci Mill

Emissions in metric tonnes of CO2e
2.5491

Uncertainty (±%)
5

Major sources of emissions
Purchased good and services transport, products logistic (maritime, rail and road), waste and wastewater management, employee transportation and downstream transportation

Verified
Yes

Allocation method
Allocation based on mass of products purchased

Market value or quantity of goods/services supplied to the requesting member
451691

Unit for market value or quantity of goods/services supplied
Metric tons

Please explain how you have identified the GHG source, including major limitations to this process and assumptions made
The allocation of Suzano GHG emissions per client was estimated by the use of an indicator (emissions /ton of product) calculated in the GHG inventory and the amount of product acquired by each client.

Requesting member
Ambev S.A

Scope of emissions
Scope 3

Scope 2 accounting method
<Not Applicable>

Scope 3 category(ies)
Category 4: Upstream transportation and distribution

Allocation level
Business unit (subsidiary company)

Allocation level detail
Mucuri Mill

Emissions in metric tonnes of CO2e
25.3366

Uncertainty (±%)
5

Major sources of emissions
Purchased good and services transport, products logistic (maritime, rail and road), waste and wastewater management, employee transportation and downstream transportation.

Verified
Yes

Allocation method
Allocation based on mass of products purchased

Market value or quantity of goods/services supplied to the requesting member
451691

Unit for market value or quantity of goods/services supplied
Metric tons

Please explain how you have identified the GHG source, including major limitations to this process and assumptions made
The allocation of Suzano GHG emissions per client was estimated by the use of an indicator (emissions /ton of product) calculated in the GHG inventory and the amount of product acquired by each client.

Requesting member
Ambev S.A

Scope of emissions
Scope 3

Scope 2 accounting method
<Not Applicable>

Scope 3 category(ies)
Category 5: Waste generated in operations

Allocation level
Business unit (subsidiary company)

Allocation level detail
Mucuri Mill

Emissions in metric tonnes of CO2e
0.7588

Uncertainty (±%)
5

Major sources of emissions
Purchased good and services transport, products logistic (maritime, rail and road), waste and wastewater management, employee transportation and downstream transportation

Verified
Yes

Allocation method
Allocation based on the volume of products purchased

Market value or quantity of goods/services supplied to the requesting member
451691

Unit for market value or quantity of goods/services supplied
Metric tons

Please explain how you have identified the GHG source, including major limitations to this process and assumptions made
The allocation of Suzano GHG emissions per client was estimated by the use of an indicator (emissions /ton of product) calculated in the GHG inventory and the amount of product acquired by each client.

Requesting member
Ambev S.A

Scope of emissions
Scope 3

Scope 2 accounting method
<Not Applicable>

Scope 3 category(ies)
Category 7: Employee commuting

Allocation level
Business unit (subsidiary company)

Allocation level detail
Mucuri Mill

Emissions in metric tonnes of CO2e
0.6156

Uncertainty (±%)
5

Major sources of emissions
Purchased good and services transport, products logistic (maritime, rail and road), waste and wastewater management, employee transportation and downstream transportation.

Verified
Yes

Allocation method
Allocation based on mass of products purchased

Market value or quantity of goods/services supplied to the requesting member
451.691

Unit for market value or quantity of goods/services supplied
Metric tons

Please explain how you have identified the GHG source, including major limitations to this process and assumptions made
The allocation of Suzano GHG emissions per client was estimated by the use of an indicator (emissions /ton of product) calculated in the GHG inventory and the amount of product acquired by each client.

Requesting member
Ambev S.A

Scope of emissions
Scope 3

Scope 2 accounting method
<Not Applicable>

Scope 3 category(ies)
Category 9: Downstream transportation and distribution

Allocation level
Business unit (subsidiary company)

Allocation level detail
Mucuri mill

Emissions in metric tonnes of CO2e
0.0004

Uncertainty (±%)
5

Major sources of emissions
Purchased good and services transport, products logistic (maritime, rail and road), waste and wastewater management, employee transportation and downstream transportation

Verified
Yes

Allocation method
Allocation based on mass of products purchased

Market value or quantity of goods/services supplied to the requesting member
451.691

Unit for market value or quantity of goods/services supplied
Metric tons

Please explain how you have identified the GHG source, including major limitations to this process and assumptions made
The allocation of Suzano GHG emissions per client was estimated by the use of an indicator (emissions /ton of product) calculated in the GHG inventory and the amount of product acquired by each client.

SC1.2

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

The allocation of Suzano GHG emissions per client was estimated by the use of an indicator (emissions/ton of product) in the specific mill where it was fabricated the products acquired by each client, and the amount of product acquired in 2022. All information about our GHG Inventory is publicity in our Sustainability Center: https://centraldesustentabilidade.suzano.com.br/

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	Suzano conducts Life Cycle Assessment studies (LCA, according to ABNT NBR ISO 14040) to measure the environmental performance of its products - today the number of LCA studies currently covers 88.5% of the company's product portfolio. However the great variability of products offered makes it challenging to run specific studies for all the portfolio. In this sense, Suzano aims to increase the percentage of items in its portfolio covered by this type of evaluation in the coming years. For the products that still don't have a carbon footprint calculated by the LCA methodology, Suzano estimates the allocated emissions through its Greenhouse Gas Inventory. However, the Inventory is calculated according to the GHG Protocol and based on consumption in the entire operation, and considering that the paper and pulp production are 100% integrated in our mills, emissions are not separate per process or product, and the separation is not directly proportional per type of product. Therefore, Suzano seeks to enhance the data accuracy by improving data collection.
Other, please specify (Data accuracy)	The accuracy of the data used to calculate emissions is also a challenge, not only for direct emissions - it is difficult to account for all the indirect emissions associated with a particular customer or product. For example, emissions generated during the production of raw materials used to manufacture a product may be difficult to track and allocate to a specific customer. To that extent, Suzano is always seeking to improve emissions tracking and engage with its own supply chain to improve the reliability of the data used to calculate its emissions. Also, communicating the results of emissions allocation to customers and stakeholders in a transparent and understandable manner can be challenging. In this sense, Suzano's marketing and sustainability/climate change departments are studying the alternatives to improve the communication of the LCA results.

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.

Suzano strives to stay up-to-date with the latest methodologies related to climate change by engaging with stakeholders to gain insights into emerging trends and opportunities for progress. For example, the company regularly collaborates with clients to establish partnerships and promote climate advancements throughout the value chain. Additionally, Suzano conducts Life Cycle Assessment (LCA) studies in compliance with ABNT NBR ISO 14040 standards to obtain more accurate data at a product level, with 88.5% of the current product portfolio covered by LCA studies. The company aims to increase the percentage of items in its portfolio that undergo this evaluation in the coming years and improve transparency by sharing results with stakeholders. Furthermore, LCA results will serve as a significant input to develop new products based on the most sustainable criteria.

SC2.1

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

Requesting member
Ambev S.A

Group type of project
New product or service

Type of project
New product or service that reduces customers products / services operational emissions

Emissions targeted
Other, please specify (The target is to use a product with lower footprint emission, replacing a single-use plastic)

Estimated timeframe for carbon reductions to be realized
0-1 year

Estimated lifetime CO2e savings

Estimated payback
Please select

Details of proposal
Suzano has several product options that can replace single-use items with a smaller environmental footprint. For example, Bluecup Bio is a paperboard for cups, that can replace plastic cups, reducing the use of single use plastic for water and other cold / room temperature liquids. It is a paperboard, with a biodegradable barrier.

Requesting member
Ambev S.A

Group type of project
Change to supplier operations

Type of project
Undertaking life-cycle assessment

Emissions targeted
Actions that would reduce both our own and our customers' emissions

Estimated timeframe for carbon reductions to be realized
1-3 years

Estimated lifetime CO2e savings

Estimated payback
Please select

Details of proposal
Suzano is available for the elaboration of life cycle studies in partnership, or to offer a product with a neutralized carbon footprint to our customers.

Requesting member
Ambev S.A

Group type of project
New product or service

Type of project
Other, please specify (Carbon Credits)

Emissions targeted
Actions that would reduce both our own and our customers' emissions

Estimated timeframe for carbon reductions to be realized
0-1 year

Estimated lifetime CO2e savings

Estimated payback
Please select

Details of proposal
Suzano is a carbon-positive company, removes more carbon from the atmosphere than its emission. In this regard, the company is able to generate carbon credits.

Requesting member
Ambev S.A

Group type of project
Reduce Logistics Emissions

Type of project
Other, please specify (Route optimization)

Emissions targeted
Actions that would reduce both our own and our customers' emissions

Estimated timeframe for carbon reductions to be realized
0-1 year

Estimated lifetime CO2e savings

Estimated payback
Cost/saving neutral

Details of proposal
"Hexatrem"- using a truck with 6 trailers to transport wood inside Suzano farms this project seeks to optimize this part of Suzano's Supply Chain increasing the productivity of our farms' logistics. "Rodotrem": this project targets the use of a truck with two trailers to do part of Suzano's logistcs, replacing the traditional truck with a single trailer. "Use of Electric Trucks to distribute UNPE products to customers. Suzano have 2 vehicles in operation running around 200 km/day each.

SC2.2

(SC2.2) Have requests or initiatives by CDP Supply Chain members prompted your organization to take organizational-level emissions reduction initiatives?
No

SC4.1

(SC4.1) Are you providing product level data for your organization's goods or services?
No, I am not providing data

Submit your response

In which language are you submitting your response?
English

Please confirm how your response should be handled by CDP

	I 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