Klabin S/A - Climate Change 2021

C0. Introdução

C0.1

(C0.1) Faça uma descrição e uma introdução geral da organização.

For 122 years, Klabin has been part of the daily lives of millions of people by creating customized sustainable solutions for various industrial sectors. Klabin is the Brazil's largest paper manufacturer and exporter and the country's leading producer of papers and paperboard for packaging, industrial bags and corrugated board packaging. Moreover, we are the only Brazilian company to simultaneously supply hardwood pulp (eucalyptus), softwood pulp (pine) and fluff pulp to the market.

Founded in Brazil in 1899, currently has 18 industrial units, with 17 units distributed in nine Brazilian states and one in Argentina. Klabin also has commercial offices in various Brazilian states, a branch office in the United States, Austria, and sales representatives and agents in many countries. Recently, in 2020, Klabin acquired five units from International Paper.

The paper and paperboard for packaging manufactured, as well as corrugated board packaging and industrial bags offer protection and safety to foods, beverages, hygiene and cleaning products, electronics and consumer appliances, cement, seeds, wheat flour, chemical products and other items.

Klabin's Integrity Program comprises a series of procedures to prevent, detect and remediate conduct that could expose Klabin to undesirable situations, while also implementing best global practices related to the matter. In this way, Klabin demonstrates its commitment to building ethical relationships, contributing to a more transparent business environment, strengthening its image, reputation and business strategy and helping to build a more just and sustainable society. The program, which is aligned with the UN Sustainable Development Goals (SDG), targets anyone who works or interacts with Klabin in the public or private sectors.

We are a global reference in sustainable development. Our forestry and industrial operations are based on this concept to help preserve biodiversity and the ecological balance of the ecosystems surrounding our operations. Klabin's sustainability policy integrates the entire production chain to offer the market environmentally responsible products.

To Klabin, sustainability is the continuous creation of value that prioritizes balance among the economic, social and environmental dimensions. We are a unique forestry company with a responsible management that is committed to biodiversity. We work in collaboration with our clients and suppliers, always guided by innovation and the constant improvement of our products and processes. We together to foster the engagement and development of our people and local communities to achieve increasingly better and sustainable results for the entire value chain.

We directly and indirectly influence the social and economic dynamics of the communities living in the cities where we operate. More than just offering good job opportunities, Klabin invests in the region so that the entire population benefits from initiatives in the areas of local development, education, culture and environmental education. Klabin also offers its employees programs to promote their personal development and volunteer initiatives.

All of Klabin's operations incorporate into their strategy environmental management aspects, such as water, energy, climate change and biodiversity. In this way, the company strengthens its commitment to preserve natural resources, such as by working to reduce the use of non-renewable resources, controlling environmental impacts, monitoring biodiversity and preserving fauna and flora in the forests where it operates.

To guarantee quality, attest to the credibility of our products and reinforce our commitment to continuous improvement, our processes are certified by a number of systems and methodologies that are widely recognized in the global market. The certifications that Klabin holds attest to its pioneering efforts in meeting the needs of its clients and anticipating market trends.

Klabin has a research team working at two research facilities focused on improving its production chain. The first – the Forestry Research Center in Lagoa, Telêmaco Borba (PR) – is dedicated to studying everything related to the forestry chain, such as genetic enhancement, wood quality, soil and climate studies, genetic adaptation, pest control and biotechnology, among others. The mission of the other Technology Center, also located in Telêmaco, is to improve the quality of products, while anticipating trends and developing new technologies and sustainable applications. The professionals seek solutions for an increasingly more efficient consumption of inputs in order to minimize environmental impacts.

The company creates 21,000 jobs (direct and indirect) and invests regularly in people development to promote competencies specific to its business, well-being and safety.

C0.2

(C0.2) Indique a data de início e de fim do ano do qual os dados estão sendo informados.

	Data de início	Data de fim	Indique se estão sendo fornecidos dados de emissões de anos de reporte passados	Selecione o número de anos de reporte passados para os quais serão fornecidos de emissões
Ano de reporte	Janeiro 1 2020	Dezembro 31 2020	Sim	1 ano

C0.3

(C0.3) Selecione os países/áreas sobre os quais os dados serão fornecidos.

Brasil

C0.4

(C0.4) Selecione a moeda usada para todas as informações financeiras divulgadas em sua resposta.
BRL

C0.5

(C0.5) Selecione a opção que descreve os limites de reporte para os quais os impactos climáticos em sua empresa estão sendo reportados. Observe que esta opção deve estar alinhada com o método de consolidação escolhido para o inventário de GEE.
Controle operacional

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

(C-AC0.6/C-FB0.6/C-PF0.6) As emissões de atividades agrícolas/florestais, processamento/fabricação, distribuição ou emissões do consumo de seus produtos – seja em nas operações diretas ou em outras partes da cadeia de valor – são relevantes para o reporte atual de mudanças climáticas ao CDP?

	Relevância
Agricultura/Florestas	Nas próprias terras e em qualquer ponto da cadeia de valor [Agrícola/Florestal apenas]
Processamento/Fabricação	Operações diretas e em outros lugares da cadeia de valor [Processamento/fabricação/distribuição somente]
Distribuição	Operações diretas e em outros lugares da cadeia de valor [Processamento/fabricação/distribuição somente]
Consumo	Operações diretas e em outros lugares da cadeia de valor [Processamento/fabricação/distribuição somente]

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

(C-AC0.7/C-FB0.7/C-PF0.7) Quais commodities agrícolas que sua organização produz e/ou extrai são mais importantes para seus negócios, no que diz respeito às receitas? Selecione cinco, no máximo.

Commodity agrícola
Produto florestal madeireiro

Porcentagem da receita dependente dessa commodity agrícola
Mais de 80%

Produzida ou obtida
Ambas

Por favor, explique
58% of the wood that goes into the production process comes from Klabin's own forests, the other 42% comes from partnerships and producers in the regions where Klabin has forestry operations. According to society's conception, Klabin has preemptive right to purchase wood. Klabin is recognized for its sustainable management adopted. It was the first pulp and paper company in the Southern Hemisphere to obtain, in 1998, the Forest Stewardship Council®-FSC® certification. In 2017, Paraná Forest unit also earned the Cerflor certificate. These certifications attest to forest management practices that conserve natural resources, provide fair working conditions and encourage healthy relations with local communities. Forest-issues commitment enlarges through the value chain. To legally safeguard Klabin's business and guarantee products from trusted sources and the traceability of it, Klabin's Wood Purchase Policy is used to decision-making as a standard for wood procurement. Klabin is committed to 100% coverage of FSC® Chains of Custody and controlled wood/due diligence system to ensure the legal and trusted wood sources. Timber is classified as the main raw material for pulp and paper production. Based on the total amount of inputs consumed in 2020 for total production of Klabin S/A, wood represents 96% of the amount of the inputs. - Calculation: % Revenue = Total Quantity of Wood (thousand t / year) / Total Quantity of Input (thousand t / year) * 100 % Revenue = (13,505.73/ 14,068.46)*100 = 96% It is also important to mention that, considering all the inputs consumed by Klabin in 2020, 98.3% are from renewable origin, the remaining 1.7% refer to chemicals used in the production process.

C1. Governança

C1.1

(C1.1) Existe supervisão pelo Conselho sobre as questões climáticas na organização?
Sim

C1.1a

(C1.1a) Identifique o(s) cargo(s) do(s) indivíduo(s) do conselho responsável(is) pelas questões relacionadas ao clima (não inclua os nomes).

Cargo dos indivíduos	Por favor, explique
Diretor de Sustentabilidade (CSO)	EXECUTIVE DIRECTOR - INDUSTRIAL TECHNOLOGY, INNOVATION, SUSTAINABILITY OFFICER has the responsibility over Climate Change and its related studies on impacts and opportunities, considering the climate in the company's business strategy. An example of the insertion of the climate in the business strategy is the new industrial complex of the company (Puma I and Puma II) located in Ortigueira, Paraná, which is being built with the adoption of innovative technologies to reduce carbon in the operation, such as example, biomass gasification and tail oil. Example of a decision made by the CSO regarding climate change: approval and supervision of a pipeline of low carbon technologies to be implemented in the company, such as technologies mentioned (biomass gasification and tall oil), approval and supervision of the study of climate risks and opportunities, as well as projects and actions to mitigate risks, related to the company's business. Furthermore, in 2020 the CSO approved three climate targets until 2030: (i) meet the goals agreed with the Science-Based Targets Initiative; (ii) 100% purchase of certified energy from a renewable source; (iii) Reduce fossil fuel usage to have an energy matrix that is 92% renewable It is important to mention that Klabin's CEO and Executive Director of Sustainability joined the global Business Ambition campaign for 1.5oC. With the approval of the Executive Director of Sustainability, the company has also submitted its Science Based Target for approval. In addition, Klabin maintains a fixed sustainability committee composed of directors, with the Executive Director of Industrial Technology, Innovation and Sustainability as the sponsor. The directors of the following areas also participate in this committee: (i) Industrial Paper; (ii) Forestry; (iii) Legal, Integrity and Risk Management, (iv) People and Corporate Services. The sustainability manager is the committee's technical advisor. He is also responsible for climate change issues, managing a corporate sustainability team that works daily with this issue.
Comitê do conselho	Klabin maintains a fixed sustainability committee composed of directors, with the Executive Director of Industrial Technology, Innovation and Sustainability as the sponsor. Also participate of this committee the directors from following areas: (i)Industrial paper; (ii) Forestry; (iii) Legal, Integrity and Risk Management, (iv) People and Corporate Services. The sustainability manager is the technical advisor of the committee. In 2020, the board level committee approved the Klabin's initiative to become TCFD Supporter. Counting on support of the board level committee the company improved the recommendations of the TCFD. A robust study was developed to integrate all the information and data on how the company is meeting the TCFD methodology. A summary of this work is published on the company's ESG website. The prioritization of risks and opportunities, as well as the calculation of the financial impact of risks and opportunities is supervised by the board level committee and other directors.

C1.1b

(C1.1b) Forneça mais detalhes sobre a supervisão pelo Conselho das questões relacionadas ao clima.

Frequência com que as questões relacionadas ao clima são um item da agenda programada	Mecanismos de governança nos quais as questões relacionadas ao clima estão integradas	Escopo da supervisão no nível do conselho	Por favor, explique
Programado – todas as reuniões	Análise e orientação de estratégia Análise e orientação dos principais planos de ação Análise e orientação de políticas de gestão de riscos Definição de objetivos de desempenho Monitoramento da implementação e do desempenho de objetivos Monitoramento e supervisão do progresso em relação às metas e objetivos para tratar das questões climáticas	<Not Applicable>	Issues related to climate change are part of the organization's sustainability policy and objectives. Item number 13 of Klabin S/A sustainability policy: "Ensure that the company's operations are constantly seeking to reduce greenhouse gas (GHG) emissions and managing the climate risks and opportunities (adaptation)." Taking into consideration this, the organization's goals and objectives are defined based on the organization's principles. Klabin has a specific corporate area of Sustainability and Environment that has as one of its objectives the day-to-day management of the issue with the responsibility of monitoring global and national climate agendas and mapping their related risks and opportunities. This area shows the importance that the organization sees to deal daily on corporate issues related to the environment and industrial sustainability in the different industrial units and businesses of Klabin. In addition, the issues related to atmospheric emissions integrate the environmental indices of the main units of Klabin S/A. These indicators are monitored and analyzed on a monthly basis. Definitions and main action plans to meet defined goals involve the operational and strategic levels of the organization. Klabin maintains a fixed sustainability committee main composed of directors, with the Executive Director of Industrial Technology, Innovation and Sustainability as the sponsor and Sustainability and Environment Executive Manager as the technical advisor of these committee. Items related to climate change and risks and opportunities are fixed agenda. Items of critical analysis involving senior management (managers and directors). The aligned strategies and actions defined in the committee are guided by financial, legal, social and environmental themes. In general, all these items taken into consideration during these meetings are important issues for the definition of the organization's growth strategy, considering new technologies and new projects for the company in line with the Klabin's Objectives for Sustainable Development – based on UN Sustainable Development Goals. In 2020, Klabin approved three climate targets until 2030: (i) meet the goals agreed with the Science-Based Targets Initiative; (ii) 100% purchase of certified energy from a renewable source; (iii) reduce fossil fuel usage to have an energy matrix that is 92% renewable. A specific webpage was created for disclosure and transparency on the company's progress towards achieving the climate and other sustainability goals/targets.

C1.2

(C1.2) Forneça o(s) comitê(s) ou o(s) cargo(s) de gerência de nível mais alto com responsabilidade pelas questões climáticas.

Nome dos cargos e/ou comitês	Linha de reporte	Responsabilidade	Abrangência da responsabilidade	Frequência de reporte ao Conselho das questões climáticas
Diretor de Sustentabilidade (CSO)	<Not Applicable>	Avaliação e gestão de riscos e oportunidades climáticos	<Not Applicable>	Trimestralmente
Comitê de Sustentabilidade	<Not Applicable>	Avaliação e gestão de riscos e oportunidades climáticos	<Not Applicable>	Trimestralmente
Gerente de Meio Ambiente/Sustentabilidade	<Not Applicable>	Avaliação e gestão de riscos e oportunidades climáticos	<Not Applicable>	Frequência maior que trimestral

C1.2a

(C1.2a) Descreva em que local da estrutura organizacional encontra(m)-se este(s) cargo(s) e/ou comitê(s), quais são suas responsabilidades associadas e como são monitoradas as questões relacionadas ao clima (não inclua os nomes dos indivíduos).

1) Where in the organizational structure these position (s) and / or committee (s) meet:

- Chief Sustainability Officer (CSO): Highest level of the organization, responsible for the execution of the Board of Directors' deliberations and the day-to-day management of the business. Has the responsibility over Climate Change and its related studies on impacts and opportunities

- Sustainability committee: Composed of directors, with the Executive Director of Industrial Technology and Sustainability as the sponsor. Participate of this committee the directors from following areas:

(i)Industrial paper; (ii) Forestry; (iii) Legal, Integrity and Risk Managemente, (iv) People and Corporate Services.

The sustainability manager is the technical advisor of the committee.

- Environment / Sustainability Executive Manager: positioned in the organizational structure below the director, responsible for consolidating and leveraging sustainability practices and environment.

2) Why responsibilities for climate issues have been assigned to this position (s) or committee (s):

- Chief Sustainability Officer (CSO) and Environment / Sustainability Executive Manager: Due to the importance of the theme when related to the organization's policy, goals and objectives.

- Sustainability committee: The objective of centralizing the information in this committee is with the presence of the directors in this group and, in addition, it is done with the objective of giving strength to the subject in the update of the information and in the decision making for the strategy of the organization.

3) How climate issues are monitored by the position (s) and / or committee (s):

Klabin has a specific corporate area of Sustainability and Environment that has as one of its objectives the day-to-day management of the issue with the responsibility of monitoring global and national climate agendas and mapping their related risks and opportunities. The area is also responsible for inserting and monitoring the guidelines and results of environmental and climate management in the company's operating units and facilities. The management of these items is carried out by the area along with coordinators and manager of the units that periodically critically examines the items related to this subject so that they are brought to the Sustainability Committee for discussion and strategic decision making for the organization.

Climate risks and opportunities are monitored and evaluated by the Sustainability Committee and by the company's Risk Committee so that they are incorporated into the company's strategic and financial planning.

C1.3

(C1.3) Há incentivos para a gestão de questões relacionadas ao clima, incluindo o cumprimento de metas?

	Fornecer incentivos para a gestão das questões climáticas	Comentários
Linha 1	Sim	All professionals participate in an awards program for the results of the organization, one of the items that compose this index are the environmental indicators of the specific unit. These indicators include environmental aspects that are directly linked to climate change, such as reducing energy consumption, reducing water consumption, and so on.

C1.3a

(C1.3a) Forneça mais detalhes sobre os incentivos oferecidos pela gestão das questões climáticas (não inclua os nomes dos indivíduos).

Com direito a incentivo	Tipo de incentivo	Atividade incentivada	Comentários
Diretor do Conselho	Recompensa monetária	Meta de redução das emissões	Sustainability Director is response for Environmental, Climate and Social issues and has specific goals related: Klabin is continually investing to raise the use of renewable sources in our energy matrix and consequently develop products with lower carbon footprint. In recent years, it have progressively replaced fuel oil by biomass (vegetable matter from forestry operations) as fuel in our boilers, reaching, in 2014, 86.5% of renewable sources for energy generation – in 2020 we reached 89.94% of renewable sources for energy generation, With the creation of the company's 2030 Agenda, in 2020 the goal of achieving a 92% energy matrix from renewable sources by 2030 was announced. The result achieved in 2020 shows the company's commitment to meeting the target. This percentage includes, as well as biomass, burning of black liquor (by-product generated in the industrial process) and our own hydraulic power. In addition, Klabin is looking for electricity from clean sources, such as the wind and sun.
Gerente de Energia	Recompensa monetária	Meta de eficiência	Energy controllers/ managers have targets related to efficiency on energy consumption. Klabin is continually investing to raise the use of renewable sources in our energy matrix. In recent years, it have progressively replaced fuel oil by biomass (vegetable matter from forestry operations) as fuel in our boilers, reaching, in 2014, 86.5% of renewable sources for energy generation – in 2020 we reached 89.94% of renewable sources for energy generation. With the creation of the company's 2030 Agenda, in 2020 the goal of achieving a 92% energy matrix from renewable sources by 2030 was announced. The result achieved in 2020 shows the company's commitment to meeting the target. This percentage includes, as well as biomass, burning of black liquor (by-product generated in the industrial process) and our own hydraulic power. In addition, Klabin is looking for electricity from clean sources, such as the wind and sun.
Gerente de Meio Ambiente/Sustentabilidade	Recompensa monetária	Meta de eficiência	Klabin has developed guidelines for climate management. Based on those guidelines, managers establish goals in accordance with its own projects. To monitor and quantify emissions through inventories which have complied with the methodology of the GHG Protocol since 2004; To establish targets for the reduction of GHG emissions, publicly published on company's website, Sustainability report and to CDP; To assesses the vulnerabilities of the business faced with Climate Change, mapping potential risks; Participates in forums and voluntary initiatives associated with the issue; Promotes and encourages energy efficiency; Considers the reduction of GHG emissions to combat the effects of Climate Change in the conception of new projects and processes; Promotes and incentivizes the use of renewable fuels, in an effort to reduce consumption of fossil fuels; Endeavors to reduce GHG emissions related to transportation of its products; Fosters technological innovation and research to reduce GHG in its activities; Discloses the guidelines of Climate Change to stakeholders.
Diretor de Compras (CPO)	Recompensa monetária	Critérios ambientais incluídos nas compras Engajamento da cadeia de suprimentos	The procurement area, in line with the sustainability area, have related goals for the sustainability of the business, where criteria related to environment, climate change, social responsibility and labor are linked to the process of evaluation of Klabin's supply chain. These assessment criteria include items related to business climate change. These goals directly influence the results of direct and indirect greenhouse gas emissions from Klabin SA, in addition to the correlation between the development of sustainable products with lowest carbon footprints.
Diretor de Compras (CPO)	Recompensa não-monetária	Please select	The procurement area, in line with the sustainability area, have related goals for the sustainability of the business, where criteria related to environment, climate change, social responsibility and labor are linked to the process of evaluation of Klabin's supply chain. These assessment criteria include items related to business climate change. These goals directly influence the results of direct and indirect greenhouse gas emissions from Klabin SA, in addition to the correlation between the development of sustainable products with lowest carbon footprints.
Todos os funcionários	Recompensa monetária	Meta de eficiência	All professionals participate in an awards program for the results of the organization, one of the items that compose this index are the environmental indicators of the specific unit. these indicators include environmental aspects that are directly linked to climate change, such as reducing energy consumption, reducing water consumption, and so on.

C2. Riscos e oportunidades

C2.1

(C2.1) A organização dispõe de um processo para identificar, avaliar e responder aos riscos e oportunidades climáticos?

Sim

C2.1a

(C2.1a) Como a organização define "horizontes temporais de curto, médio e longo prazo"?

	De (anos)	A (anos)	Comentários
Curto prazo	1	10	Short-term: Actions and goals in strategic planning of the organization for the current and following year (1 to 10 years horizon, it is considered short term)
Médio prazo	10	20	Medium-term: Medium-term actions and targets are those that have goals of 11 to at most 20 years horizon.
Longo prazo	20	30	Long-term: Long-term actions and goals are those that present longer periods than those described in the medium term, following long-term thoughts that may be longer than 20 years.

C2.1b

(C2.1b) Como a organização define um impacto financeiro ou estratégico "considerável" nos seus negócios?

The definition of substantive financial or strategic impact on business is based on Klabin's risk management. Klabin has a specific area for risk management and controls of the wide organization and supply chain. This management considers the entire organization as part of the scenario analysis. In this matrix we consider, for example, the categories of commodities, economic scenario, international policies, government changes, research and development, climate change, environmental accidents, environmental regulations, business continuity plan, etc. The risks listed in Klabin's risk matrix take into account strategic, financial, operational, regulatory and environmental aspects. Four criterias are used to assess the risk:

1. Financial impact :

R$: > 700 – critical impact, > 400 < 700 MM- high impact, > 150 MM < 400 – medium impact. It is important to inform that the ranges of values are being updated by the company's risk management. Critic financial impact, per example, represent around 14% Ebitda of the company in 2020 (R$ 4,9 millions).

2. Reputation: the indicators of periods of damage to the public image are used: > 24 months – critical impact, 12 a 24 months - high impact, < 12 months – medium impact, without damage to the public image– low impact

3. Environmental accidents with difficult remediation and occupational accidents are considered as substantial strategic or financial impact. To determine the significance of the impact an assessment is made regarding the temporality, i.e., the period in which the impact was identified, whether it occurred in the present or in the past but has influence currently or whether it can be predicted to cause some change in the future; incidence – it is considered direct if under the company's control and indirect if the company merely exerts influence on the activity that generated the impact; and condition – normal for routine activities, anormal for non-routine activities and emergency for aspects resulting from unplanned situations.

4 - Identification of scope of the area of impact is also recommended, whether it is local or affects another sector; severity, whether low, medium or high; and if complaints exist.

The applied methodologies are based on ISO 31000. The company determines the evaluation criteria of impact and vulnerability of each listed risk, considering a heat map for the impact classification and vulnerability.

It is important to reaffirm this is applied to all direct operations and supply chain.

- Follow below one example of a possible financial impact that is assessed and monitored by the company:

A stress water and other varieties climate (from climate change) could affect the Klabin's forestry productivity; around 7% productivity (>400 MM and < 700 MM) loss can be expected without adaptation/mitigation measure. It would represent high financial impact, considering the replacement cost of wood (cost of wood purchase in the market). It is relevant to inform that current conditions and projections do not evidence deficit or surplus water in Klabin forestry region (until 2040), but due the relevance of water for productivity it is monitored and there is investment to genetic improvement.

C2.2

(C2.2) Descreva o(s) processo(s) para a identificação, a avaliação e a resposta aos riscos e oportunidades climáticos.

Etapa(s) da cadeia de valor abrangidas
Operações diretas

Processo de gestão de riscos
Integrado no processo de gestão de riscos multidisciplinar da empresa como um todo

Frequência da avaliação
Mais de uma vez por ano

Horizonte(s) temporal(is) abrangidos
Curto prazo
Médio prazo
Longo prazo

Descrição do processo
To identify / map climate risks and opportunities, the company: (i) developed specific studies considering future climate scenarios for the regions in which it has operations; (ii) in addition, studies available in the literature were also used; (iii) and the company's history and records with climatic events already experienced. The identified risks were assessed according to the company's risk management criteria and metrics - criticality analysis - which crosses the impact analysis (financial, reputational, environment and health and safety) with vulnerability analysis (occurrence, internal controls and perspective of occurrence). Example of the metrics adopted to assess the risk: (i) Financial impact: R$: > 700 MM – critical impact, > 400 < 700 MM- high impact, > 150 < 400 MM – medium impact. It is important to inform that the ranges of values are being updated by the company's risk management. (ii) Reputation: the indicators of periods of damage to the public image are used: > 24 months – critical impact, 12 a 24 months - high impact, < 12 months – medium impact, without damage to the public image– low impact. (iii) Environmental accidents with difficult remediation and occupational accidents are considered as substantial strategic or financial impact. To determine the significance of the impact an assessment is made regarding the temporality, i.e., the period in which the impact was identified, whether it occurred in the present or in the past but has influence currently or whether it can be predicted to cause some change in the future Klabin has a Working Group formed by specialists from the company that support the risk area in the development of this work. Specialists from the follow areas: strategic, research, environmental and risk management. After identification and criticality analysis, the risks are: (i) treaties: how to deal with each risk in order to structure action plans; (ii) monitored: monitoring and reviewing risks and action plans; definition of indicator; (iii) contingency plan: contingency plans and crisis management. Each Business Unit is responsible for embracing its risks (pointed out by the vulnerability matrix) and address it accordingly - following the controls and action plan to mitigate the risk. This plan is registered and monitored by risk management area. For example, forestry business board assumes risk management and mitigation actions of this business unit. Klabin has a dedicated area for risk management. The area organizes quarterly review meetings to (i) (re) assessment the risks together companies' areas and (ii) defines/monitors controls or actions plans to mitigate the risks. The company also has Risk Committee composed by Executive Directors, with a quarterly agenda, for discussion and decision-making. This ensures the governance of the businesses risks in the company, and climate risks are included. The company considers short, medium and long-term risks and opportunities in its assessment. Klabin has been implementing the TCFD (Task Force on Climate Related Financial Disclosure) recommendations to improve the management, integration and disclosure of climate risks with advancement in the financial calculation of the impacts of climate risks. As results of this work, climate risks are integrated into the company's risk management - below are examples of risks that are part of the risk matrix with a mitigation plan: Physical risk - water scarcity Reduction in the availability and quality of water in some regions with industrial operations by the company. Using a specific tool - Aqueduct and other future climate scenarios it was possible to map which units are in regions with potential water scarcity. Considering potential financial and reputation impacts this risk is evaluated as critical. Potential impacts assessed considering the criteria's of risk evaluation of the company interference in industrial production with high financial impact (> R$ 150 MM) and reputation impact due possible paralysation considering lack of water that could affect the image of the company together the community, customers, investors and other stakeholders. For this reasons and high probability of occurrence (due future climate scenario) this risk is assessed and prioritesed in the company's risk matrix. Mitigation plan: Water monitoring of regions at risk of scarcity; projects to reduce water consumption and increase reuse; study of sustainable alternatives for water supply; monitoring of water quality and disposal of effluents. Transition risk - carbon pricing Klabin follows the environmental policy and economy agenda in Brazil and worldwide, including participating in discussion groups on this agenda. The adoption of economic instruments, such as tax or "cap and trade", to regulate carbon emissions is growing around the world, especially in the sectors of industry and power generation. In Brazil, the Ministry of Economy, in partnership with the World Bank, developed a technical study to analyze the impact of adopting such instruments in the countries - the Partnership for Market Readiness (PMR) project. Thus, the possibility of implementing a cap and trade system in the regulated carbon market is considered in Brazil. Potential impacts: two Klabin industrial units have direct emissions above 200 thousand tCO2e / year, which implies the possibility of regulation. In practice, each tCO2e emitted may be priced via the purchase of an emission permit in a (regulated) carbon market. Which can have a financial impact.. The risk assessed with medium financial impact (< R$ 400 MM) for Klabin S.A – however, it is important to clarify that carbon pricing focuses on industrial plants, and for these industrial units the carbon cost can have a high impact on the unit's specific revenue which can then mean a high financial impact. Furthermore, Klabin is a company with a business strategy committed to climate change and carbon management. Due to the relevance of carbon pricing on this agenda, the company assesses and prioritizes this risk in its management. Mitigation plan: Klabin has a robust carbon reduction target (a science-based target), and a set of technologies that will be implemented in the short and medium term in order to achieve that reduction target. The greater the company's investment in reducing carbon emissions, the lower its exposure to the cost of carbon pricing regulation. In addition, the company develops internal pricing studies to (i) identify the impact cost of possible carbon regulation in the country; (ii) economic and environmental analysis of low carbon technologies through the Marginal Abatement Cost Curve methodology. In the analyzes, a shadow price is adopted based on the average rate in Latin America: US $ 7.

C2.2a

(C2.2a) Quais tipos de riscos são levados em conta nas avaliações de riscos climáticos da organização?

	Relevância e inclusão	Por favor, explique
Regulamentação atual	Relevante, sempre incluído	Klabin developed, together with a company specialized in the theme, a study to define its risks related to climate change. The steps of this study were separated into internal mapping (information gathering and temporal alignment), climate modeling study and identification of risks and opportunities. After defining the risks, they were classified according to their probability and magnitude considering the criteria's of risk's assessment of the company, specialy, financial, reputation and environmental impacts. One of the identified risks is regulatory risks, which indicate that the establishment of regulations related to fuel / energy consumption and the establishment of GHG emission limits are considered relevant for Klabin as they may lead to iIncreased costs for operation of the whole organization. Due the with high probability of the establishment GHG regulation in Brazil and the financial impacts due the incresead cost for operation this risk is assessed as relevant for the company and take part of the risk matrix . Mainly in the Monte Alegre and Puma units (located in the state of Paraná), Otacílio Costa and Correia Pinto units (Santa Catarina) and Angatuba unit (São Paulo), which are the largest units and consequently the largest consumers of fuels. As a control, Klabin actively takes part in discussion, forums and workshops related to Climate Changes challenges and its possible impacts on legislation (among others). Klabin is reference of public consults of carbon emissions and climate policies. The legislative proposes are done by APC Group, which represents Klabin and others companies. Klabin also has clear guidelines that orientates its activities planning and operations towards the management of Climate Change and its related regulations. Its pillars basically, relies on making constant improvements to make its operations more efficient in terms of emissions, the establishment of targets for GHG emissions and the assessment of business vulnerabilities in face of climate change.

	Relevância e inclusão	Por favor, explique
Regulamentação emergente	Relevante, sempre incluído	Any new regulations related to emissions limits will be relevant for Klabin, mainly in the Monte Alegre and Puma units (located in the state of Paraná), Otacílio Costa and Correia Pinto units (Santa Catarina) and Angatuba unit (São Paulo) which are the units with higher atmospheric emissions. The purchase of allowances or payment of a tax, per example, may represent an increase in operating costs for the company, considering possible regulated market in Brazil. It is a relevant potential financial impact. Therefore, this risk is assessed as relevant for the company. In 2020 Klabin developed, together with a company specialized in the theme, a study to define its risks related to climate change. The steps of this study were separated into internal mapping (information gathering and temporal alignment), climate modeling study and identification of risks and opportunities. After defining the risks, they were classified according to their probability and magnitude – included financial, reputation and environment impacts criterias. One of the identified risks is regulatory risks, which indicate that the establishment of regulations related to fuel / energy consumption and the establishment of GHG emission limits are considered relevant for Klabin as they may lead to increased costs for operation of the whole organization. As a control, Klabin actively takes part in discussion, forums and workshops related to Climate Changes challenges and its possible impacts on legislation (among others). Klabin is reference of public consults of carbon emissions and climate policies in Brazil. Together with the association Brazilian Tree Industry and Coalition of ongs and companies (Coalizão Brasil Floresta, Clima e Agricultura) the company monitors and discusses the Brazilian government's carbon agenda in Brazil (emerging regulation). The pillars of the company basically, relies on making constant improvements to make its operations more efficient in terms of emissions, the establishment of robust targets for GHG emissions (approved by Science Based Target) and the assessment of business vulnerabilities in face of climate change . In addition, the company has been using more efficient technologies and equipment, and it has adopted an increase cleaner matrix (89,9% of renewable energy) to reduce the risks and costs of emerging carbon regulation. The lower the company's carbon emissions, the less exposure to regulations.
Tecnológico	Relevante, sempre incluído	Klabin developed, together with a company specialized in the theme, a study to define its risks related to climate change. After defining the risks, they were classified according to their reliability, magnitude and severity. This risk matrix Klabin considers the gap in relation to marketing and technological trends of development of new products and / or processes as a risk to the organization as a whole. A possible technological delay in relation to low-carbon technologies could mean a reputational impact for the company that seeks innovation and forefront on the climate agenda. In addition it represents impact of loss of competitiveness, as the company's markets and customers are increasingly looking for products/packaging with a low carbon footprint, and the adoption of technologies are the basis for meeting this market demand. Therefore, due the potential reputational impact and loss of competitiveness (criteria's used by Klabin risk management to assess the risk) the technology risk is assessed as relevant for the company, The company identified a series of new technologies in the paper and cellulose sector that must be implemented to reduce emissions. Failure to invest in these technologies may bring a risk of technological backwardness, loss of innovation. Thus, to mitigate this and other risks, Klabin, in 2015 concluded the new Technology Center, is taking the company's R & D + I activities to a new level. It is part of the three-year investment plan (2015 to 2017), which provides for the allocation of BRL 70 million in R&D processes. The Technology Center has several lines of research in the areas of forestry, industry, new technologies and reduction of environmental impacts. In 2018, in order to develop initiatives aimed at sustainable management and operational excellence, with a focus on innovation and technology, Klabin announced yet another investment in innovation with the construction of a 'pilot plant park'. The space was built with an investment of BRL 32 million in research and development. In it, studies and tests are carried out on some research fronts. One of them will be with microfibrillated cellulose, a renewable source, which will be incorporated into the company's products to improve quality and resistance. Another line is the multiple use of lignin, a very resistant natural polymer extracted from trees and has the potential to replace raw materials of fossil origin.
Jurídico	Relevante, sempre incluído	The legal requirements are considered relevant for Klabin (specially the risk management of the company) as they may lead to increased costs for operation of the whole organization. Klabin actively takes part in discussion, forums and workshops aimed at Climate Changes challenges and its possible impacts on legislation (among others)..The legislative proposes are done by Brazilian Tree Industry Group, which represents Klabin and others companies of the sector. For example, a Cap &Trade scheme could affect competitiveness and raise operational costs due to the imposition of a carbon price, mainly in the Monte Alegre and Puma units (located in the state of Paraná), Otacílio Costa and Correia Pinto units (Santa Catarina) and Angatuba unit (São Paulo) which are the units with higher atmospheric emissions. Thus, the company develops and updates internal carbon pricing studies to understand the impact of regulation on its business / competitiveness, and also to help in making investment decisions to reduce emissions. Klabin also has clear guidelines that orientates its activities planning and operations towards the management of Climate Change and its related regulations. Its pillars basically, relies on making constant improvements to make its operations more efficient in terms of emissions, the establishment of targets for GHG emissions and the assessment of business vulnerabilities in face of climate change.
Mercado	Relevante, sempre incluído	Climate change may induce changes in customer preferences for products and services that emit less greenhouse gases. The company's market and customers are increasingly demanding information and products that have a low carbon footprint. For this reason, the company considers the risks and opportunities related to the market. Klabin, according to the Transition Pathway Initiative, is one of the companies in the pulp and paper sector with the lowest carbon intensity, which possibility the company in making low-carbon products available on the market in response to the growing "carbon and water packaging responsible" movement. Practical example is the researchers in the product development area of the Technology Center work on projects to eliminate, for example, the use of fossil-based barriers in packaging lining. One of Klabin S.A's main research fronts is precisely the development of barriers of renewable origin, which ensures the storage and transport of several products, not requiring materials related to the extraction and oil refining oil. The integrated work of the Sustainability, Commercial and Product Development areas positively explores the competitive advantage of offering low-carbon and biodegradable alternatives to the market, which are renewable and recyclable, given the growing movement towards "carbon and water responsible packaging. We constantly use the relationship with our stakeholders as a source of consultation for new lines of research and market demands in relation to the risks to the business and possible sustainable alternatives to be developed. From the trends, demands and constant updates of the market Klabin directed its new investment cycles. In 2018 we announced another investment in innovation with the construction of a 'pilot plant park'. The space will be built with the contribution of 32 million BRL in research and development of new products. In this park, studies and tests will be carried out on some research fronts. One ofresearch front is the extraction and use of lignin in the products, a very resistant natural polymer extracted from trees. Of renewable origin, lignin and its derivatives can substitute raw materials of fossil origin, among other applications of high added value in industries and several segments which are directly linked to the consumer market and its trends.
Reputação	Relevante, sempre incluído	To understand the potential risks and opportunities to which its activities are subject, as well as the adaptive measures required to face such risks and opportunities, Klabin conducts studies on its vulnerabilities and possibilities regarding climate change.. The main risks found are divided into the following categories: physical, regulatory, reputational and financial. Klabin prioritizes adaptive measures related to reputational and financial risks. Klabin has been recognized for 120 years in the market for its commitment to sustainable development and for considering climate change in its business strategy. This allows the company to have in its portfolio green investors who allocate capital to ESG companies. In 2019, the company emitted US$ 1,2 billion of green bonds. Thus, the risk of inconsistent results on the climate agenda can impact the company's image and business, such as loss of investments. This is one of the types of risk that is integrated into the risk management assessment and is constantly updated through meetings with members of the sustainability committee, the Board of Directors, the commercial area and the board of directors, who discuss changes and contribute on this subject. In addition, the reputation is one of the element of the risk management assessment of the company. Periods of damage to the public image: > 24 months - critical impact, 12 to 24 months - high impact, <12 months - medium impact, without damage to the public image - low impact. Klabin constantly monitors its image in the various media, considering the below to evaluate periods of damage to the public image. Thus, the company has an excellent socio-environmental and climate image perception in the market and this is directly associated with the maintaining of its certifications such as FSC and ISO 14000 and results such "A List" in Climate and Water of the CDP Program. Furthermore, the company has relevant public commitments with the climate: TCFD Supporter, Science Based Target, Global Compact (UNP); and public goals related to the climate agenda: i) meet the goals agreed with the Science-Based Targets Initiative; (ii) 100% purchase of certified energy from a renewable source; (iii) reduce fossil fuel usage to have an energy matrix that is 92% renewable. In addition, since 2013 the company has participated in the Corporate Sustainability Index of the Stock Exchange of Brazil (B3).
Físico agudo	Relevante, sempre incluído	Klabin developed, together with a company specialized in the theme, a study to define its risks related to climate change. The steps of this study were separated into internal mapping (information gathering and temporal alignment), climate modeling study and identification of risks and opportunities. It is important to reaffirm the adoption of future climate scenarios to identify physical risks. After defining the risks, they were classified according to their reliability, magnitude and severity. These risks can generate several impacts for the company, such as production stoppage, impact on raw material supply, among others. Which can lead to increased operating costs, lost revenue. Therefore, they are relevant and included in the company's risk management matrix. Follow below the most important acute physical identified and the adaptation measures. Changes in precipitation extremes and/or droughts could compromise the development of seedlings. Heavy rainfall can cause runoff entrainment of seedlings, floods, and cause soil drenching. It can affect the logistics of removing wood from forest areas. Strong winds could paralyses ports used by Klabin (for example, Paranaguá Port Region in Paraná State) causing delays in deliveries and dissatisfied clients. The forest department of Klabin constantly monitors the climatic conditions of the regions where Klabin has its forests planted. This monitoring aims to assess trends at the acute and chronic levels of climate variables that may interfere with forest productivity and development. The organization has and efficient operational logistics system, capable of work under adverse rain conditions. Contour lines and containment berms on roads are already being used to prevent the risk of erosion. Also, Klabin works to continuously develop seedlings with higher resistant to cold and frost, focusing on increasing productivity and pulp volume yield.
Físico crônico	Relevante, sempre incluído	Klabin developed, together with a company specialized in the theme, a study to define its risks related to climate change. The steps of this study were separated into internal mapping (information gathering and temporal alignment), climate modeling study and identification of risks and opportunities. After defining the risks, they were classified according to their reliability, magnitude and severity. One of the most important chronic risk identified is related water scarcity with impacts such as reduction in the availability and quality of water in some of the regions where the Company has industrial and forestry operations. The Aqueduct tool enabled mapping which units are located in regions with the potential for hydric stress. In addition, the company has developed its own studies on climate change and forestry activity. This risk offers potential impacts due it is included in the risk managemet of the company: interference in industrial production; and interference in the planting of pine and eucalyptus seedlings in the Paraná region. Thus, mitigation measures are adopted such as: water monitoring in regions at risk of scarcity; projects to reduce water consumption and increase reuse; study on sustainable water supply alternatives; monitoring of water quality and the disposal of effluents. And Paraná forestry unit: deployment and increase of irrigated areas in the planting of seedlings; micro-basin forestry planning, which implies the application of best forest management practices to reduce impacts on river basins; and forest conservation, ensuring ecosystem services for water regulation and quality, and local microclimate. In addition, iIncrease in sea level during the years could paralyses ports used by Klabin (for example, Paranaguá Port Region in Paraná State) causing delays in deliveries and dissatisfied clients. Contour lines and containment berms on roads are already being used to prevent the risk of erosion. The forest department of Klabin constantly monitors the climatic conditions of the regions where Klabin has its forests planted. This monitoring aims to assess trends at the acute and chronic levels of climate variables that may interfere with forest productivity and development

C2.3

(C2.3) Foi identificado algum risco climático inerente com potencial para causar um impacto financeiro ou estratégico considerável nos negócios?
Sim

C2.3a

(C2.3a) Forneça detalhes dos riscos identificados com potencial para causar um impacto financeiro ou estratégico considerável em seus negócios.

Identificador
Risco 1

Em que ponto da cadeia de valor ocorre o fator de risco?
Operações diretas

Tipo de risco e Principal fator de risco climático

Regulamentação emergente	Mecanismo de precificação do carbono

Principal impacto financeiro em potencial
Aumento dos custos diretos

Tipo de risco climático mapeado conforme a classificação de risco tradicional do setor de serviços financeiros
<Not Applicable>

Descrição específica da empresa
Klabin has two main industrial units (Puma and Monte Alegre) that have significant carbon emissions and are liable to be regulated by carbon pricing. In 2020, above industrial units emitted around 519.724 tCO2e – Scope 1. The Puma unit produces 4 types of cellulose to the market; and at the Monte Alegre unit packaging paper is produced, such as cardboard and kraft paper. The Brazilian government, within the scope of the Partnership for Market Readiness - World Bank project, studied in the last years the possibility of implementing a tax or cap and trade in the country. Another possible phase of this project will be able to implement in next years – Partnership for Market Implementation to set up a pilot cap and trade in Brazil. Thus the company's expectation is that in the next 5 ou 6 years the Brazilian government may adopt carbon pricing in the country's climate policy. Klabin participates in different forums that cover/debate this topic in Brazil, closely following this agenda. Given this scenario of regulatory risk and the financial impact, a series of actions were taken by Klabin: (i) inclusion of carbon pricing risk in the analysis and, subsequently, the company's risk matrix (ii) internal carbon pricing studies to identify the cost of the financial impact for the company (iii) study of a pipeline of low carbon technologies that should be implemented in the medium and long term to reduce carbon emissions. To identify and prioritize technologies, the company developed a Marginal Abatement Cost Curve that makes it possible to evaluate the most cost effective technologies Example of technologies: that turns wood waste into gas. This gas can be used in the industrial process, increasing the use of renewable energy (iv) development of a robust, science-based carbon reduction target. The lower the emission the less exposed to the impact of carbon pricing the company will be. Klabin S.A commits to reduce scope 1 and 2 GHG emissions 25% per ton of pulp, paper and packaging by 2025 from a 2019 base year; and 49% until 2035. Considering all the above actions, Klabin results in the internal approval of a series of technologies that will be implemented to reduce emissions and the financial impact of a possible carbon pricing. And the approval of a science-based carbon reduction target. It is important to mention that these risks are included in the company's risk matrix, with the risk management and financial area accompanying the mitigation actions.

Horizonte temporal
Médio prazo

Probabilidade
Muito provável

Dimensão do impacto
Médio

É possível fornecer um valor para o potencial impacto financeiro?
Sim, uma estimativa de valor único

Valor do potencial impacto financeiro (moeda)
20788960

Valor potencial do impacto financeiro – mínimo (moeda)
<Not Applicable>

Valor potencial do impacto financeiro – máximo (moeda)
<Not Applicable>

Explicação do valor do impacto financeiro
The financial impact of the creation of the carbon pricing in Brazil (tax or cap and trade) was calculated based on the total scope 1 emissions of the Puma and Monte Alegre units (considered to be the units with industrial production with high emissions, for which it is estimated that there will be taxation). The estimated value for the allowance/tax in Brazil is R$ 40 (BRL 40) - considering studies that demonstrate what an average value of the carbon price should be to induce the adoption of low carbon technologies by the Brazilian industry.The financial impact is measured by the product between the value of the carbon tax/allowance (BRL 40) versus the total scope 1 emissions of the Puma and Monte Alegre units in 2020 – 519.724 tCO2e = BRL 20.788.960. It is annual cost. This calculation aims to demonstrate the financial impact of a possible carbon regulation for the company

Custo da resposta ao risco
186945000

Descrição da resposta e explicação do cálculo do custo
Klabin closely follows the discussions on the establishment of a carbon regulation in Brazil. As mentioned the Brazilian government, within the scope of the Partnership for Market Readiness - World Bank project, studied in the last years the possibility of implementing a tax or cap and trade in the country. Thus, the company's expectation is that in the next 5 ou 6 years the Brazilian government may adopt carbon pricing in the country's climate policy. To mitigate the risk of carbon costs, the company has been investing in low carbon technologies. The lower the emission - the lower the cost / financial impact. From 2020 to 2030 the company has a pipeline of seven low carbon technologies that will be implemented to reduce emissions. From this pipeline, between 2019 – 2020, three technologies were implemented biomass gasification – CAPEX BRL 141,486,000; tail oil – BRL 21,500,000; and boiler fuel exchange (oil for biomass) – CAPEX BRL 23,959,000. The other technologies and its CAPEX are treated as confidential by the company. These technologies have enabled the company to achieve its emission reduction target, approved by Science Based Target, and also to reduce exposure to the cost of carbon regulation. An example we can mention the tail oil technology, installed in the Puma II Project will have a process of extraction and use of Tall Oil as a source of energy for the unit. Tall Oil is a by-product of the pulp production process, originating from wood resins, which can be recovered and used as

another source of renewable energy at Klabin. Its use allows for the replacement of fossil fuel and the reduction of greenhouse gas emissions CO2 into the atmosphere. As a result the company has robust strategies and technologies pipeline to reduce emissions and consequently reduce the operating cost by paying a fee or purchasing an allowance. Klabin has a MACC for medium and long-term assessment of other technologies to reduce carbon emissions. A MAAC permits an easy to read visualization of various mitigation options or measures organized by a single, understandable metric: economic cost of emissions abatement. It is possible to assess/compare the (i) cost of regulation x (ii) the cost of investing in low carbon technology – BRL/tCO2 both. From this analyse it is possible to understand that for Klabin it is more economically attractive to invest in low carbon technologies than to pay a carbon price considering the company's reference value - BRL 40.

Comentários
Klabin has been adopting carbon pricing methodologies in order to prepare for and reduce the possible impacts of carbon regulation in Brazil. In addition (to the analysis of the financial impact of a possible cap and trade or carbon tax in Brazil - as shown), the company evaluates a series of low carbon technologies for the medium and long term.

Identificador
Risco 2

Em que ponto da cadeia de valor ocorre o fator de risco?
Operações diretas

Tipo de risco e Principal fator de risco climático

Físico crônico	Elevação das temperaturas médias

Principal impacto financeiro em potencial
Queda nas receitas devido à redução da capacidade de produção

Tipo de risco climático mapeado conforme a classificação de risco tradicional do setor de serviços financeiros
<Not Applicable>

Descrição específica da empresa
Climate change can have an impact on the company's planted forests – pines and eucalyptus, generating loss of productivity. Therefore, Klabin has a complete study on current and future climate conditions and the impact of climate change in forestry operation regions – Paraná, Santa Catarina and São Paulo (Brazilian states). Klabin's owned and managed planted forest areas were approximately 273 thousand hectares, distributed in 200 thousand ha in Paraná, 66 thousand ha in Santa Catarina and 6,7 thousand ha in São Paulo. The analysis of climatic variables was based on (i) the climatic history of the region (1981-2010), (ii) and reference scenarios on emissions (RCP 8.5) of greenhouse gases for climate models - HadGEN2-ES. Therefore, the climatology studies for the reference period 1981 to 2010 were generated for the scenarios HadGEN2 of 2011-2020, 2021-2030 and 2031-2040. The main climatic risks for eucalyptus and pinus growth evaluated were quantity and frequency of intense drought, minimum temperature, average temperature, potential evapotranspiration and water deficit in the planted forest areas. Some of the results of this study show a general tendency of temperature increase in the regions considered with a mean increase of 0.32 °C per decade. Thus, temperature increase with low change in the rain distribution regime, which may imply an increase in evapotranspiration, in other words, risk of water deficit. The water deficiency is directly related to the decrease in wood production, and this is explained by the SPPA (System soil-plant-atmosphere). When under water stress, the plant reduces the opening of the stoma to reduce the loss of water through the leaves (transpiration), however, when the stoma is closed, photosynthesis is interrupted and impacts in the tree growth. The set of climate changes, especially considering water availability and temperature, indicates scenarios of impact on forest productivity, especially for the growth of planted forests. In the period (2020 and 2035), the annual average loss of productivity (ton of wood) will be 3% for eucalyptus and 5% for pine - if no measures are taken.

Horizonte temporal
Curto prazo

Probabilidade
Provável

Dimensão do impacto
Alto

É possível fornecer um valor para o potencial impacto financeiro?
Sim, uma estimativa de valor único

Valor do potencial impacto financeiro (moeda)
39187356

Valor potencial do impacto financeiro – mínimo (moeda)
<Not Applicable>

Valor potencial do impacto financeiro – máximo (moeda)
<Not Applicable>

Explicação do valor do impacto financeiro
Climate change could have an impact on the company's forestry productivity. Around 70% of the wood consumed by the company comes from the company's own pine and eucalyptus forests and planted forest with partnership contract. The company has a study that indicates in the period from 2020 to 2050, what will be the impact on productivity, that is, on the loss of wood. In this period, the annual average loss of productivity (ton of wood) will be 3% for eucalyptus and 5% for pine - if no measures are taken. 3% of Klabin's average annual wood production represents around 179,035 tonnes of eucalyptus; and 5% of Klabin's average annual wood production represents around 192,601 tonnes of pine. In order to understand the financial impact, the company adopted the scenario of buying wood in the market/suppliers to replace the wood that can stop being produced due the impact of climate change. In this context was considered the price of buy wood in the last six month - YTD: BRL 92.80 per eucalyptus tonne and BRL 117.20 per pine tonne. It is a replacement cost approach. 179,035 tonnes of eucalyptus versus BRL 92.80 = BRL 16,614,519 192,601 tonnes of pines versus BRL 117.20 = BRL 22,572,837 Thus it is potential that climate change may impact Klabin's forest productivity with an annual average cost of wood loss of about BRL 39,245,218 - if no measures are taken.

Custo da resposta ao risco
2445164

Descrição da resposta e explicação do cálculo do custo
Studies of the company shows general tendency of temperature increase in the regions considered with a mean increase of 0.32 °C per decade. Thus, temperature increase with low change in the rain distribution regime, which may imply an increase in evapotranspiration, in other words, risk of water deficit. In the period of 2020 and 2035, the annual average loss of productivity (ton of wood) will be 3% for eucalyptus and 5% for pine - if no measures are taken. Klabin has Forest Research Department responsible for developing research and solutions to mitigate the impacts of climate change on the company's forest production and develop activities in Ecophysiology, Soils, Forest Nutrition, Pest Control. It is also responsible for the Climate Scenarios. For this, it works with a data model related to exposure to climatic parameters, evaluating the impact of changes in planted forests, and recommending the necessary measures in case of adverse effects. In 2020, Klabin made an investment of

approximately R$ 2,445,164 in forestry research linked with climate change and forest impact. All lines of forestry research work directly or indirectly to develop solutions to mitigate the impacts of climate change on forest production., but the specific investments in forestry and climate research were of R$ 2,445,164 in 2020. For more details, we can mention the example of the phytosanitary line, with an investment of R$ 439,787 which investigates the plant protection against pests and diseases. In this development, for example, it is considered that pests and diseases will be intensified due to climate change. Another line that we can use as an example is biotechnology and genetic improvement, with investments around R$ 933,670 develops clones of pine and eucalyptus aiming at greater forest production, but also materials that are more resistant to the impacts of climate change. As a result of this work studies for pine genetic improvement for climate changing are being developed. Considering the climate change projections for the region, the research team are working to develop new pine species to plant in warmer conditions. Using tree breeding techniques the species Pinus maximinoi, a species from Central America, was genetic improved and now we start operational plantation in North of Paraná State. The wood production with this new species is showing up to 20% increase comparing with Pinus taeda plantation in some regions.

Comentários
The study of how climate change affects the productivity of pine and eucalyptus is extremely important for the company's planning and decision making.

Identificador
Risco 3

Em que ponto da cadeia de valor ocorre o fator de risco?
Operações diretas

Tipo de risco e Principal fator de risco climático

Físico crônico	Mudanças nos padrões de precipitação e variabilidade extrema nos padrões climáticos

Principal impacto financeiro em potencial
Aumento dos custos diretos

Tipo de risco climático mapeado conforme a classificação de risco tradicional do setor de serviços financeiros
<Not Applicable>

Descrição específica da empresa
One of the main climatic risks identified by Klabin is water scarcity. One of the company's industrial units are located in regions where the drought is already manifesting in some months of the year. Goiana unit is located in water stressed area classified by WRI Aqueduct tool. Klabin has found the increased water stress in the Capibaribe-Mirim river to be a risk to meet the water demand to production of the recycled paper, corrugated board and paper bags. Goiana unit represents around 7% of Klabin's global production and 8% of total revenue. Goiana unit intake water from two sources: groundwater and surface water. Together, the water sources intake represents 1% of total water intake of Klabin. On northeast region, the months of October, November and December are affected to drought. We use this information to calculate the potential financial impact. In additional, the magnitude of potential impact has considered that Goiana unit is the only Klabin unit that produces recycled paper, corrugated board and paper bags. The worst scenario considers the total interruption on production during two days. In 1999, the Goiana unit production was completely interruption for two days due to the drought of the Capibaribe-Mirim river. Today, the unit has a contingency plan for emergency cases like this, but as a worst-case scenario we are considering this two-day total production interruption.

Horizonte temporal
Curto prazo

Probabilidade
Mais provável que improvável

Dimensão do impacto
Baixo

É possível fornecer um valor para o potencial impacto financeiro?
Sim, uma estimativa de valor único

Valor do potencial impacto financeiro (moeda)
4861370

Valor potencial do impacto financeiro – mínimo (moeda)
<Not Applicable>

Valor potencial do impacto financeiro – máximo (moeda)
<Not Applicable>

Explicação do valor do impacto financeiro
The potential financial impact was estimated considering a total interruption on production during two working days. In 2020, the total revenue of Goiana unit was BRL 887,200,000.00. The financial impact of total interruption of production during this period is BRL 4,861,370 (887.2 million of total revenue per year / 365 working days per year * 2 days of interruption). In 1999, the Goiana unit production was completely interruption for two days due to the drought of the Capibaribe-Mirim river. Today, the unit has a contingency plan for emergency cases like this, but as a worst-case scenario we are considering this two-day total production interruption.

Custo da resposta ao risco
750000

Descrição da resposta e explicação do cálculo do custo
Surface fresh water is very important to recycled paper production on Goiana unit, even representing only 1% of Klabin's total water withdrawals. Goiana is located in the water stressed area. Between 2019 and 2020, this unit has reduced the water withdrawals by 24.2%.Currently, more than 60% of the wastewater treated at the unit are returned to recycled paper production machines, which further reduce the need to fresh water withdrawals. It is an excellent result but even so the unit is developing a drought emergency plan. The is developing of drough plan considers the drilling of 3 renewable deep wells (200 - 250 meters) in the region to supply the unit's necessary water demand. Today, the average fresh water intake per day is around 100 m3/h, with more than 95% of this value coming from surface water. In addition, the plan envisages reducing the unit's specific water use from 3.8 m3/t to less than 2.0 m3/t. The cost involved for this plan is BRL 750,000 to drilling of 3 renewable deep wells.This cost of response considers the drilling of 3 renewable deep wells on Brazilian northeast. Each deep wells cost around BRL 250,000. The actions to implement the plan will start in the end of the year of 2021 considering the company is assess the technical information of the project. It is important to mention that Goiana unit already has back up water lagoon that could be offer water for around 10 days of lack of water in case of drought.

Comentários
We classified all our facilities using WRI Aqueduct tool. To be considered as being exposed to substantive water risk the facilities need to classify on baseline water stress score of 20% or more in WRI Aqueduct tool and to represent more than 5% of Klabin's total revenue. Goiana unit represents around 7% of Klabin's total production and 8% of total revenue. So, Goiana unit is exposed to water risk with the potential to have a substantive financial or strategic impact on our business.

C2.4

(C2.4) Você identificou alguma oportunidade relacionada ao clima com potencial para causar um impacto financeiro ou estratégico considerável em seus negócios?

Sim

C2.4a

(C2.4a) Forneça detalhes das oportunidades identificadas com potencial para causar um impacto financeiro ou estratégico considerável em seus negócios.

Identificador

Opp1

Em que ponto da cadeia de valor ocorre a oportunidade?

Operações diretas

Tipo de oportunidade

Mercados

Principal fator de oportunidade climática

Outros, especifique (Increased diversification of financial assets (e.g., green bonds and infrastructure))

Principal impacto financeiro em potencial

Aumento na diversificação dos ativos financeiros

Descrição específica da empresa

Klabin has an important market recognition for its commitment to sustainable development and also for the company's shares consolidated in a green / low carbon economy sector. This enabled the company to issue $ 500 million of green bonds, in 2019. In April 2019, Klabin made the second issue of green bonds, in the amount of US$ 500 million, maturing in 30 years. It is BRL 1,970,000,000 converted to Real based on the exchange rate in the month of issue of the security. It is first time that a Brazilian company manages to raise funds in this category with the term maturity of 30 years. The operation reached classification of “High Level” (High Standard) in the independent evaluation of the consultancy Sustainalytics, reinforcing Klabin's seriousness and commitment with the sustainable development, an area in which it is a reference to the market. Issuing green bonds is important for the company, as it attracts conventional investors and investors who allocate capital considering green investments / ESG / Climate Change. Green investors are less volatile and more committed to the company's goals which helps the company to invest in long term projects such as Puma II. In addition, green bonds guarantee the continuous and long-term investment of the company's sustainable projects. The issue of green bonds guarantees financing for the company's sustainable growth. The company is committed to Science Based Target for reduction target. To reach the goal, investment in low carbon technologies will be necessary. The money raised by the issue of green bonds can be used for this type of investment. In addition, the company has a series of actions to mitigate the risks of climate change and the funding by green bonds will also be used for this investment. The allocated resources must fall into the following categories – direct and indirect involved with climate agenda: - Sustainable Forest Management; - Restoration of Native Forests and Biodiversity Conservation; - Renewable energy; - Clean Transport; - Energy efficiency; - Waste management; -Sustainable water management; - EcoEco-efficient products and / or adapted to the circular economy, production technologies and processes; - Adaptation to Climate Change.

Horizonte temporal

Médio prazo

Probabilidade

Virtualmente certo

Dimensão do impacto

Médio-alto

É possível fornecer um valor para o potencial impacto financeiro?

Sim, uma estimativa de valor único

Valor do potencial impacto financeiro (moeda)

1970000000

Valor do possível impacto financeiro – mínimo (moeda)

<Not Applicable>

Valor potencial do impacto financeiro – máximo (moeda)

<Not Applicable>

Explicação do valor do impacto financeiro

The financial impact is the value of the green bonds inserted in the market in 2019. The green bonds expiration in 2029. US$ 500,000,000 * BRL 3.94 = BRL 1,970,000,000

Custo para materializar a oportunidade

17493271

Estratégia para pôr em prática a oportunidade e explicação do cálculo de custos

Klabin is a historically recognized company for its investments and good practices in the socio-environmental agenda, especially in climate agenda. In April 2019, Klabin made the second issue of green bonds, in the amount of US$ 500 million, maturing in 30 years. It is BRL 1,970,000,000 converted to Real based on the exchange rate in the month of issue of the security.Projects financed by green bonds are directly linked to the climate agenda such as sustainable forest management, renewable energy, energy efficiency, and eco-efficient product. The sustainability, investor relations and financial teams organized the green bonds plan and negotiated in the market. The first step in this process is market analysis to assess trends and market conditions for issuing the bond. After comes the bond design by analysing the eligibility criteria and which projects are eligible to be financed via green bonds. Around BRL 808,338 was invested in structuring the issuance considering the partnership with specialiazed banks. This process is conducted in alignment with the company's executives. Second step is to hire an external evaluation (audit).The cost of the audit was BRL 882,012. Rating agencies were also contracted for assessment and specific scoring to the bond. It is investment of BRL 2,958,720. Law firms are also hired to assist the company with legal issues regarding the issuance of green bonds. Which represents a cost of BRL 2,524,872. Subsequently, there is the preparation, structuring and distribution for offering and issuing the bonds by financial agents. It is represent BRL 10,019,158. As result of this work Klabin emitted to the market US$ 500 million of green bond (in April, 2019). For 2021 the company is studying and evaluating the opportunity to issue Sustainability Linked Bond based on the carbon reduction target approved by the Science Based Target. Green bond resources can be allocated to capital needed for the development, construction, installation, operation and updating of facilities that reduce

emissions (GHG) by substituting fuels fossil fuels from renewable sources and increased energy efficiency. Per example, The project to build a unit for the production of Tall Oil at the Puma Unit, for which they are being used green bond resources, will reduce the consumption of fuel and CO2 emissions into the atmosphere. Tall Oil is a by-product of the pulp production process that can be recovered and used as another source of energy at Klabin.

Comentários
It is important to mention that an internal evaluation of the company indicates that Klabin has a relevant class of “sustainable investors”. It signals that the company's strategy and investments in climate brought the opportunity to have a market differential. Sustainable finance instruments connect the company with investors focused with the same sustainable practices that conduct Klabin throughout its growth mindset. It is an opportunity related to the company's reputation – intangible value. Klabin prepares an annual accountability report on the investment of money raised by green bonds with environmental impact indicators. We expect that we can also issue/help any CO2 (Carbon) Bond initiatives. This topic is well known by the general public but not materialized in terms of financial instruments/ tools. Therefore, we hope the financial market help the Companies to incorporate that in different funding structures.

Identificador
Opp2

Em que ponto da cadeia de valor ocorre a oportunidade?
Operações diretas

Tipo de oportunidade
Fonte de energia

Principal fator de oportunidade climática
Uso de fontes de energia com menor índice de emissões

Principal impacto financeiro em potencial
Retornos de investimentos em tecnologias com baixo índice de emissões

Descrição específica da empresa
Klabin has important market recognition for its commitment to sustainable development and also for the company's actions in minimizing the impacts of its operations. Since 2003, Klabin has been investing in a cleaner and more sustainable energy matrix. To this end, within its history of operations, it has constantly promoted actions to reduce its greenhouse gas emissions as indicated in the previous items. Several actions over the years have resulted in the reduction of emissions of more than 205 thousand tons of CO2eq. Over the years, Klabin has constantly invested in reducing consumption of fossil fuels and also in increasing the energy efficiency of the industrial plants. These investments have made Klabin's energy matrix cleaner and based predominantly on the use of renewable fuels - such as bark, wood chips and black liquor, for use in the boilers. Actions like these are important for the company, because besides reducing operational costs, they contribute to a more renewable national energy matrix, aligning these actions with the UN Sustainable Development Goals.

Horizonte temporal
Médio prazo

Probabilidade
Provável

Dimensão do impacto
Médio-alto

É possível fornecer um valor para o potencial impacto financeiro?
Sim, uma estimativa de valor único

Valor do potencial impacto financeiro (moeda)
200155187.29

Valor do possível impacto financeiro – mínimo (moeda)
<Not Applicable>

Valor potencial do impacto financeiro – máximo (moeda)
<Not Applicable>

Explicação do valor do impacto financeiro
Estimated value referring to the quantity of fuel oil that the organization would stop consuming (replacing with fossil fuels) if there were regulations that demand the reduction of atmospheric emissions and increase of the clean matrix of fuels for generation of energy. This value only estimates the replacement of the fuel by another renewable source (biomass residues). This impact is considered medium-high, since the estimated specific cost difference for fuel use is different (specific cost of estimated fuel oil is more expensive than cost with biomass). It is important to mention that this estimated value does not consider the costs necessary to change technologies for fuel substitution. This calculation considers the replacement of the total consumption of fuel oil by the organization (102,486.015 tonnes in 2020) for biomass waste to produce the same amount of energy (GJ), considering the specific cost of the oil in approximately BRL 1,953 per ton. 102,486.015 * BRL 1,953 = BRL 200,155,187.295

Custo para materializar a oportunidade
63930068.73

Estratégia para pôr em prática a oportunidade e explicação do cálculo de custos
Situation: Klabin purchase energy from renewable resources. Its energy matrix includes natural renewable sources. At the end of 2013, 80% of the energy used by the company was generated by these sources. Every year, strategies, targets and effective actions are defined in all the industrial plants for gains in energy efficiency. Task: Over the years, Klabin has constantly invested in reducing consumption of fossil fuels and also in increasing the energy efficiency of its industrial plants. These investments have made Klabin's energy matrix cleaner and based predominantly on the use of renewable fuels - such as bark, wood chips and black liquor, for use in the boilers. All these activities in favor of sustainability are evidence of Klabin's commitment to reduce emissions of greenhouse gases generated by the company. Action: In recent years, some actions have been taken by the company in order to reduce the consumption of heavy fuel oil and consequently the direct emissions. In 2008 we changed 2 Heavy oil Boilers for a Biomass boiler in Monte Alegre Mill and did the same action in Otacilio Costa mill (2014), Correia Pinto mill (2012) and Angatuba mill (2015). In 2020 the Puma Tall Oil plant went into operation to replace the burning of fuel oil in the lime kilns, at the Piracicaba unit, the new biomass boiler, scheduled for 2021, replaces one fuel oil boiler and three natural gas boilers that will be kept on standby for situations when the biomass boiler stops. Cost to realize opportunity: BRL 63,930,068.73 Estimated value representing the cost for the use of renewable fuel (biomass residue) in the replacement of fuel oil, not considering the need for replacement of new technology equipment Result: These actions have resulted in the reduction of more than 205 thousand tons of CO2eq over the years, reinforcing Klabin's commitment to minimize the impacts of its operations. Explanation of cost calculation: Fuel oil consumed * PCI = GJ 102,486.015 tonnes * 40.2 GJ/t = 4,119,937.803 GJ GJ / Biomass PCI = Biomass that would be consumed 4,119,937.803 GJ / 11.6 GJ/t = 355,167. 05 tonnes Humid volume of biomass consumed 355,167. 05 tonnes / 0.55 = 645,758.27 tonnes Cost to realize this opportunite = biomass * cost of biomass fuel 645,758.27 tonnes * BRL 99.00 = BRL 63,930,068.73

Comentários
BRL 63,930,068.73. Estimated value representing the cost for the use of renewable fuel (biomass residue) in the replacement of fuel oil, not considering the need for

replacement of new technology equipment

Identificador
Opp3

Em que ponto da cadeia de valor ocorre a oportunidade?
Operações diretas

Tipo de oportunidade
Produtos e serviços

Principal fator de oportunidade climática
Capacidade de diversificar as atividades de negócios

Principal impacto financeiro em potencial
Outros, especifique (Increased revenue through demand for lower emissions products and services)

Descrição específica da empresa
The PUMA unit, located in the municipality of Ortiguera (Paraná), produces more energy from renewable sources than demand for its production requires, allowing Klabin to generate International Renewable Energy Certificates (IRECs) for all the energy that was made available in the national system (1,007,411.83 MWh) To maintain this opportunity, in 2018 the PUMA unit was the first unit in the country's pulp sector to achieve ISO 50001 certification, attesting to the unit's efforts to improve its performance and energy efficiency. The I-REC Service is a global environmental energy attribute tracking system designed to facilitate reliable carbon accounting for Scope 2, consistent with various international carbon accounting standards. For Klabin, registration at the I-REC Service is a way to obtain additional revenue from the sale of renewable energy certificates, contributing to a cleaner grid.

Horizonte temporal
Curto prazo

Probabilidade
Virtualmente certo

Dimensão do impacto
Médio

É possível fornecer um valor para o potencial impacto financeiro?
Sim, uma estimativa de valor único

Valor do potencial impacto financeiro (moeda)
1511117.75

Valor do possível impacto financeiro – mínimo (moeda)
<Not Applicable>

Valor potencial do impacto financeiro – máximo (moeda)
<Not Applicable>

Explicação do valor do impacto financeiro
Approximately BRL 1,511,117.75 related to the sale of International Renewable Energy Certificates (IRECs) for all the energy that was made available in the national system (1,007,411.83 MWh) by PUMA unit. Calculation is equal to the amount of renewable energy distributed to the national grid multiplied by the IREC average sales value in the year (BRL 1.50). This impact is considered medium, since the sale of renewable energy certificates are considered as an additional revenue the main revenue obtained with the product "renewable energy" that is its sale and distribution with the national system. 1,007,411.83 MWh * BRL 1.50 = BRL 1,511,117.75

Custo para materializar a oportunidade
418277.39

Estratégia para pôr em prática a oportunidade e explicação do cálculo de custos
Situation: The year of 2014 made a progress in the works of the Puma Project, the most ambitious in our history, which made Klabin nearly double its size in a period of three years. The construction of this new pulp mill in Ortigueira (PR), has the production capacity of 1.5 million tons of pulp per year. It is worth to metion that the Ortigueira Plant, is able to generate more energy than it needs and the surplus is sold to the interconnected energy system. Task: The surplus production of energys allowed Klabin to generate International Renewable Energy Certificates (IRECs) for all the energy that was made available in the national system. Action: To manage this opportunity Klabin energy matrix includes natural renewable sources such as black liquor, biofuel, and hydro (own electrical power). In order to maintain this opportunity, in 2018 the PUMA unit was the first unit in the country's pulp sector to achieve ISO 50001 certification, attesting to the unit's efforts to improve its performance and energy efficiency. Cost to realize opportunity: This value (BRL 418,277.39) refers to the total rate of emission of the renewable energy certificate per MWh sold (BRL 0.4152 / Mwh) multiplied by the total renewable energy sold by the PUMA unit in 2020 (1,007,411.83 Mwh) Explanation of the cost calculation: 1,007,411.83 Mwh * BRL 0.4152 / Mwh = BRL 418,277.39 As a result, we can mention the emission of 9,000 iRECS in, which makes it possible to increase the share of renewable energy in the Brazilian energy matrix. It is important to mention that the company has the potential to emit the total amount of MWh sold in iRECS.

Comentários
This value (BRL 418,277.39) refers to the total rate of emission of the renewable energy certificate per MWh sold (BRL 0.4152 / MW) multiplied by the total renewable energy sold by the PUMA unit in 2020 (1,007,411.83 mW)

C3. Estratégia de negócios

C3.1

(C3.1) Os riscos e oportunidades climáticos influenciaram a estratégia e/ou o planejamento financeiro da organização?
Sim, desenvolvemos um plano de transição para baixo carbono

C3.1a

(C3.1a) O plano de transição para baixo carbono da organização é um item de resolução programado nas Reuniões Gerais Anuais (RGA)?

	O plano de transição para baixo carbono é um item programado de resolução nas RGAs?	Comentários
Linha 1	Sim	Klabin has an Agenda for Sustainable Development Goals – 2030 Agenda. One of the most important parts of this agenda is the goals related to climate management: (i) meet the goals agreed with the Science-Based Targets Initiative; (ii) 100% purchase of certified energy from a renewable source; (iii) reduce fossil fuel usage to have an energy matrix that is 92% renewable. These goals forms the low carbon trasition plan of the company. The design and execution of the climate goals and 2030 Agenda are relevant item of the Annual General Meeting. Environmental, social and governance aspects are addressed as a priority by the Company and Board members have historically been involved with the biodiversity and climate agenda in Brazil. The Company's decision-making and strategies are based on the principle and values of sustainable development and have registered long-term actions and true results through its commitment and business strategy guided by the climate change agenda. The Klabin Agenda 2030 (KODS) prioritizes ESG themes aligned to the Company's growth plan. The strategic goals enshrined in the KODS are the responsibility of all Klabin's areas and units and were designed to create value for all stakeholders (biodiversity, communities, employees, business partners) in line with the United Nations Sustainable Development Goals. See progress made in achieving the 23 goals (KODS).

C3.2

(C3.2) A organização usa a análise de cenários climáticos para informar sua estratégia?

Sim, qualitativa e quantitativa

C3.2a

(C3.2a) Dê detalhes do uso da análise de cenários climáticos pela organização.

Modelos e cenários climáticos aplicados	Detalhes
RCP 2.6	Due to the relevance of the climate change agenda for Klabin, which presents itself with risks and opportunities, the company developed a series of studies and processes to work on the adaptation agenda. The company is a TCFD supporter and implements all methodology guidelines for climate risk management. First step, Klabin developed, together with a company specialized in the theme, a study to define its risks related to climate change. The CMIP5 climate models were the main information base used, with the description of the approximate horizontal resolutions and number of rounds of the future simulations (RCPs 2.6, 4.5, 6.0 and 8.5). Simulations of climatic scenarios were carried out for the different regions of Brazil where Klabin units exists (all the facilities were included), pointing out the climatic risks specific to each state from the present data to 2040 simulations. The choice to model climate scenarios until 2040 is due to the company's planning time horizon organized in decades: 2020 - 2030 and 2030 and 2040. In addition, from 2040 onwards, specialists indicate the possibility of even greater uncertainty about the realization of the scenarios and respective impacts.The steps of this study were internal mapping (information collection and time alignment), study of climate modeling and identification of risks and opportuniti es. Based on the climate modelling, it was possible to identify the physical climate risks that could interfere with the company's operations and chain. The use of future climate scenarios is fundamental to mapping and prioritizing physical climate risks.. Being the basis for successful risk management. After defining the risks, they were classified according to their reliability, magnitude and severity. The results of the main risks (forestry, industrial and logistic) were discussed by the steering committee, serving as a basis for the strategic planning of the organization and decision making on future scenarios. One of them, for example, is the increase in temperature and increase in the frequency of intense heat waves that can increase the growth of forest pests due to the increase of thermal stress on Klabin's plantations. Thus, the risks identified by climate scenarios are fundamental for decision making and actions that the company must implement to mitigate the risk. Below is a series of actions developed by the company based on the adopted climate scenarios and its results. The creation of the Department of Forest Efficiency and Ecophysiology responsible to monitors possible future climate scenarios, developing a modeling of data related to exposure to climatic parameters and assessing the impact of changes in planted forests, and recommends the necessary measures in case of adverse effects. Climate change could have an impact on the company's forestry productivity. 70% of the wood consumed by the company comes from the company's own pine and eucalyptus forests. This study indicates what will be the impact on productivity, that is, on the loss of wood. In this period, the annual average loss of productivity (ton of wood) will be 3% for eucalyptus and 5% for pine - if no measures are taken. As part of the expansion of the focus on P&D+I to face a larger Klabin, the Company carries out a further investment cycle in the area. In addition to the investment of BRL 70 million between 2015 and 2017, Klabin will invest about BRL 180 million in Industrial and Forestry Research in the years 2019-2021. The company has a detailed array of climate opportunities and risks, including internal mapping of impacts already occurring due to climate events and major future risks and opportunities, as well as notes from the Climate Conference (COP) and the Intergovernmental Panel on Climate Change (IPCC).
RCP 8.5	Klabin continues to conduct studies to assess its risks and opportunities. Recently, we carried out a study comparing climate change in relation to forest management in the regions of Telêmaco Borba (PR), Otacílio Costa (SC) and Itapetininga (SP). This analysis of climatic variables used the climatic scenario RCP 8.5 based on the climatic history of the region (1981-2010), as well as evaluated reference scenarios on emissions of greenhouse gases for climate models - HadGEN2-ES. The climatologies for the reference period 1981 to 2010 were generated for the scenarios HadGEN2 of 2011-2020, 2021-2030 and 2031-2040. The main climatic risks evaluated were Quantity and frequency of intense drought, minimum temperature, average temperature, potential evapotranspiration and water deficit. Some of the results of this study show a general tendency of temperature increase in the study regions with mean increase of 0.32 °C per decade. Evaluating the impacts of the tendency of water deficit occurrence, it can be observed that the risks for the study regions (Telêmaco Borba and Otacílio Costa) are classified as low. Having a direct relationship in risk assessment of the organization, Klabin's area of Research, Development and Forestry Innovation is based on the conduction of the projects in different lines of research, such as Phytosanitary, Nutrition/Forestry and Ecophysiology. It is important to mention some highlights, such as the creation of the internal technical committee called FIR (Forest, Industry and Research), focused on understanding the quality characteristics of wood; the construction of a new laboratory in the Forest Research for the research activities in Ecophysiology, Soils and Forest Nutrition, creating synergism within the studies directed to the Forest Management of the company; Beginning of the creation of natural enemies in the laboratory and evaluation of its efficiency in controlling the main pests of Eucalyptus and Pinus. This Department of Forest Efficiency and Ecophysiology also monitors possible future climate scenarios, developing a modeling of data related to exposure to climatic parameters and assessing the impact of changes in planted forests, and recommends the necessary measures in case of adverse effects. As part of the expansion of the focus on Research, Development and Innovation to face a larger Klabin, the Company carries out a further investment cycle in the area. In addition to the investment of BRL 70 million between 2015 and 2017, Klabin will invest about BRL 180 million in Industrial and Forestry Research in the years 2019-2021. The company has a detailed array of climate opportunities and risks, including internal mapping of impacts already occurring due to climate events and major future risks and opportunities, as well as notes from the Climate Conference (COP) and the Intergovernmental Panel on Climate Change (IPCC).

C3.3

(C3.3) Descreva onde e como os riscos e as oportunidades climáticos exerceram influência na estratégia.

	Os riscos e as oportunidades climáticos exerceram influência na estratégia nesta área?	Descrição da influência
Produtos e serviços	Sim	Klabin offers to the market renewable products with low carbon footprint – paper for packaging and its own packaging (sacks and cardboard boxes). The raw material is wood from planted forest with sustainable management. The trend is the market increases even more the demand for these materials replacing fóssil packaging (ex. plastic). Thus, the company is increasingly developing commercial strategies linked to carbon. In addition to the commercial strategy of adding value through the products' carbon footprint performance, the company also invests in research and development to replace carbon intensive products. Klabin is conducting carbon footprint studies with results that are being shared with customers, and which can be incorporated into the packaging produced with Klabin's paper. The company included in its planning for 2020 and 2030, in Klabin Sustainable Development Goals, the expansion of the carbon footprint studies of its products to demonstrate to the market its competitive advantage: low-carbon products. Around three projects for labeling the carbon footprint of packaging made from Klabin's paper are being studied together with customers. In addition, the research and development area advances in the portfolio of the other biobased materials replacing fossil-based raw materials such as microfibrillated cellulose (MFC). MFC is an example of the oppportunity to replacing fossil based material in a variety of applications in the packaging. The strategic planning of the company that considers the period of 2020 and 2030 includes expansion of the production and negotiation of products to replacing fossil based material, being a differential for the company's growth. As a result of this work, the company implemented in 2019 a pilot plant that simulates a plant to carry out studies and industrial tests in research fronts related to lignin and microfibrillated cellulose (MFC), enabling the production of these materials that may guide future opportunities of business for the company.
Cadeia de fornecimento e/ou cadeia de valor	Sim	Supplier management is part of the strategy of the company's sustainability and supply areas. In recent years, the company has evolved in this agenda in order to mitigate risks related to the supply chain and also due to its socio-environmental responsibility. The company adopts the Ecovadis platform to assess suppliers as well as their demand. In additionKlabin is preparing to incorporate elements related to climate management in its supplier assessment - emission reduction and adaptation - considering the Klabin Sustainable Development Goals with targets and actions for 2020 -2030.In order to expand the analysis of suppliers most vulnerable to climate impacts. Follow example of this opportunity: one of Klabin's main suppliers are wood producers. Many are small suppliers. Klabin has a technical assistance and technology transfer partnership for these suppliers. Result of the forestry research is the development of pine and eucalyptus seedlings that are more resistant to changes in the local climate, such as, for example, temperature increase. These seedlings and management are shared with suppliers, maintaining the supply of wood, and can also increase productivity.
Investimento em P&D	Sim	In addition to the production of cellulose, packaging paper and packaging, such as bags and cardboard boxes, the company operates in the development of materials for the bioeconomy. The company believes in a "renewable future", which is why, in recent years, it has expanded its focus on innovation and high technology to respond to market demands and seek new growth cycles, aiming to develop initiatives aimed at sustainable management and operational excellence. Investments in the bioeconomy is one of the elements of the Klabin Sustainable Development Goals with targets and actions for 2020 -2030. In 2019, Klabin issued US $ 500 million of green bonds to the market, part of this money raised will be used to invest in the development of projects within the scope of the bioeconomy and in low carbon technologies. This is described in the green bond issuance framework. The company has a technology center for the development and testing of new products from wood, which are renewable and low carbon products. These producers are important options for consumers in a low carbon economy. Lignin is an example. It is a polymer found in tree/wood. This material has variety applications can replace fossil based phenols. In addition, the company is researching other derivatives such as carbon fiber. Another example/result is MFC to replacing fossil based material in a variety of applications in the packaging. The strategic planning of the company that considers the period of 2020 and 2030 includes expansion of the production and negotiation of products to replacing fossil based material, being a differential for the company's growth. As a result of this work, the company implemented in 2019 a pilot plant that simulates a plant to carry out studies and industrial tests in research fronts related to lignin and microfibrillated cellulose (MFC), enabling the production of these materials that may guide future opportunities of business for the company.
Operações	Sim	The strategy of implementing low carbon technologies are fundamental for the company to consolidate its business strategy of being part of the low carbon economy. Klabin has a strong history of developing actions and implementing technologies that allow for the reduction of emissions. Reducing emissions allows the company to continue to be recognized by the market as a company that delivers sustainable products, with a low carbon footprint, for example. In addition, it is resource efficient, as it allows greater use of forest biomass from its own operation in detriment of fossil fuel. In recent years, Klabin has incorporated new low carbon technologies into its operations. These technologies bring financial returns to the company, with a reduction in operating costs, in addition to reducing carbon. The company prepared a marginal abatment cost curve (MACC) to identify the cost or avoided cost x potential for carbon reduction per technology. All the projects evaluated so far have brought economic benefits. Example, the technology of tail oil (originated from the production of cellulose can be used as biofuel) which for each ton of reduced carbon brings an avoided cost of BRL 217. Therefore, the operations (with low carbon technologies) is an important opportunity . On the company's sustainable development agenda, Klabin Sustainable Development Goals, with targets and actions for 2020 -2030 includes the expansion of technologies that reduce emissions for the company and avoid costs, such as the implementation of biomass gasification in other units. This technology expands the company's renewable energy generation with a reduction in fossil fuel consumption. Thus, as a result of this work three technologies were implemented: tail and biomass gasification in Puma Unit, and boiler exchange in Piracicaba unit.

C3.4

(C3.4) Descreva onde e como os riscos e as oportunidades climáticos exerceram influência no planejamento financeiro.

	Elementos do planejamento financeiro que sofreram influência	Descrição da influência
Linha 1	Receitas	Possible benefits of the 100% clean energy matrix, carbon credits (high magnitude) and sale of renewable energy certificates. The recovery in the carbon market after COP21 (Paris, December 2015) and a recently approved Brazilian Environmental Payment Law may bring benefits and financial opportunities due to Klabin's native and preserved forests. Currently, the company has 248 thousand hectares of native forests preserved in the Atlantic Forest. In order to maintain these "medium-high" magnitudes as defined, in 2018 the PUMA unit was the first unit in the country's pulp sector to achieve ISO 50001 certification, attesting the unit's efforts to improve its performance and energy efficiency . For the sale of energy certificates, this impact is considered medium, since the sale of renewable energy certificates is considered as an additional revenue the main revenue obtained with the product "renewable energy" that is its sale and distribution with the national system. This sale has a magnitude of average to high, since it represents a financial impact of BRL 162,800,000.00 (2020). Thanks to the surplus production of energy from the Puma unit, derived from biomass and black liquor, Klabin was able to become an issuer of IRECs, which are renewable energy certificates that allow all electricity users to make a conscious, evidence-based choice renewable energy generation in any country in the world. Some steps were taken so that the company could start the process of issuing and selling IRECs. Starting by joining the I-REC platform, followed by the registration of the generator project, in this case, the Puma unit. Then, proof of energy generation is required, using evidence to confirm the emission, finally, the company can start proving the energy generated and issuing IRECs. Klabin aims, until 2030, is to zero its Scope 2 emissions, with the use of part of the IRECs as one of the scenarios considered, the remaining part would be sold, generating revenue for the company.

C3.4a

(C3.4a) Dê eventuais informações adicionais sobre como os riscos e as oportunidades climáticos influenciaram a estratégia e o planejamento financeiro (opcional).

Klabin has clear guidelines that orientates its activities planning and operations towards the management of Climate Change and its related issues. Its pillars, basically, relies on making constant improvements to make its operations more efficient in terms of emissions, the establishment of targets for GHG emissions and the assessment of business vulnerabilities in face of the Climate Change.

As Klabin presents a forest base of great representativeness for its business, besides being sensitive to the issues related to climate change, in 2013 the company started to study the most vulnerable aspects of its operations regarding change in rainfall and temperatures patterns, and strength and constancy of winds. The study results in internal action plans and proposals for adaptive measures aimed at to prevent impacts to Klabin's operation (in both forest and industry units), as well as indications on possible external effects related to these climate changes such as price and pressure on natural resources and its effects (e.g. price of electricity). The potential short and medium terms effects were already added to company's strategic planning (especially those ones which require technological innovation to preserve forests growth) and are closely monitored by multiple groups, including the Sustainability Committee.

In addition, as an example of a significant strategic decision for the organization, Klabin created the Klabin's Ecophysiology department, which is responsible for monitoring current and future trends of climate elements such as changing in rainfall, winds and temperature patterns and for anticipating possible impacts on the forest productivity. Results from this analysis provides lines of action, for instance, to the R&D areas which become aware of new developments or innovation that they must pursue in order to face Climate Change threats and opportunities.

The reduction of atmospheric emissions is also one of the commitments of the organization, inserted in its Sustainability Policy (item number 13 – "Ensure that the company's operations constantly seek to reduce emissions of greenhouse gases"). With the increase in the use of renewable fuel, the company contributes to reduce the emission of greenhouse gases (GHG). Indicators of this aspect are reported annually in the Emissions Inventory fulfilled according to the methodology of the Brazilian GHG Protocol program, a world recognized standard and audited by third party.

Klabin joins other organizations in implementing a global plan of action for people, the planet, peace and prosperity. The 17 Sustainable Development Goals (SDG) set out the global priorities and aspirations for 2030 and represent an opportunity to eliminate extreme poverty and put the world on a sustainable path. To implement this commitment, Klabin has developed new objectives and targets to incorporate both the issues that are relevant to its business and general issues of the global agenda into its Sustainability Strategy.

For several years, we have been committed to switching fossil fuel for biomass as an energy source. In 2020 Klabin announced the goal of having at least 92% of its energy matrix coming from renewable sources by 2030. Several sources contribute to this cleaner matrix: in addition to biomass, we burn black liquor (a by-product of the industrial process) and use our own hydroelectric electricity.

Our concern with climate change and the availability of abundant and clean energy extends to strategic decisions to the Puma Unit in Ortigueira, PR, which is in the process of expansion with the Puma II Project and the start-up of the Tall Oil plant in 2020, which replaces the consumption of heavy fuel oil in the call ovens.

With the stabilization of the industrial operations of the Puma Unit, inaugurated in 2016, Klabin registered evolution in the indicators related to energy. The unit was designed to be self-sufficient through the generation of energy from process residues, such as black liquor and biomass. As it produces more energy than it consumes, the company can make available the surplus for sale in the Brazilian Electric System, which contributes to the generation of revenue, while contributing to a cleaner energy matrix.

In 2020, Klabin consumed 78.704.791,38 GJ of energy in its operations. We can highlight the increased participation of fuels from renewable sources in the company's energy matrix. We had an increase of 12% in the consumption of biomass and 1% in the consumption of black liquor, making the representation of renewable fuels in the company's matrix reach 89.94%.

Since 2017, Klabin began to record part of the indirect emissions through the Approach based on the choice of purchase (Marketbased).In this approach, Klabin quantifies scope 2 GHG emissions using the specific emission factor associated with each source of electricity generation that Klabin has chosen to acquire. In 2020, Klabin acquired 740,637.8 MWh of hydroelectric generation, with the appropriate declaration of the generator. This represents a 61% reduction in Scope 2 emissions, when compared to the Location Based Approach, which uses the average emission factor of the SIN (National Interconnected System).

C4. Metas e desempenho

C4.1

(C4.1) Havia uma meta de emissões ativa no ano de reporte?
Metas absolutas e de intensidade

C4.1a

(C4.1a) Forneça detalhes de suas metas de emissões absolutas e do progresso em relação a essas metas.

Número de referência da meta
Abs 1

Ano em que a meta foi definida
2017

Abrangência da meta
Para a empresa como um todo

Escopo(s) (ou categoria do Escopo 3)
Escopo 1

Ano-base
2004

Emissões abrangidas no ano-base (toneladas métricas de CO2e)
895474.56

Emissões abrangidas no ano-base como porcentagem do total das emissões do ano-base em um Escopo(s) selecionado(s) (ou na categoria do Escopo 3)
100

Ano da meta
2022

Meta de redução com relação ao ano-base (%)
21.38

Emissões abrangidas no ano da meta (toneladas métricas de CO2e) [calculadas automaticamente]
704022.099072

Emissões abrangidas no ano de reporte (toneladas métricas de CO2e)
703830.51

Porcentagem da meta alcançada [autocalculada]
100.100071355088

Status da meta no ano de reporte
Alcançada

Esta meta tem base científica?
Sim, consideramos essa meta como sendo de base científica, mas ela não foi aprovada como de base científica pela Science-Based Targets initiative

Meta desejada
Alinhada com os 2 °C

Por favor, explique (incluindo a abrangência a meta)
The reduction target is based on 2004 emissions, whose value for Scope 1 was 895,474.56 tCO2eq, In 2016, with the operation of a new production Puma I unit producing around 1,500,000 tons of pulp per year, a recalculation of the base year was carried out, the year 2004 was chosen because it was the first year of the company's greenhouse gas inventory. In 2022, the company's goal is to issue 704,000 tCO2e of Scope 1, which represents a reduction of about 21.38%. In 2020, the result of Scope 1 was 100.1%. It is important to mention that the company has the planning to implement some measures and technologies that until 2022 will make it possible to reach the target. Klabin started projects to reduce the consume of diesel and heavy oil in the pulp and paper mills. This project was started in 2004, when we changed a oil for natural GAS in Piracibaba unit. Then in 2008 we changed 2 to Heavy oil Boilers for a Biomass boiler in Monte Alegre Mill and did the same action in Otacilio Costa mill (2014), Correia Pinto mill (2012) and Angatuba mill (2015). In 2019 the fuel oil boiler at the Feira de Santana unit was replaced by a natural gas boiler, in 2020 the Puma Tall Oil plant went into operation to replace the burning of fuel oil in the lime kilns, at the Piracicaba unit, the new biomass boiler, scheduled for 2021, replaces one fuel oil boiler and three natural gas boilers that will be kept on standby for situations when the biomass boiler stops. To reaffirm our commitment to implementing actions to combat climate change, Klabin is the first Brazilian company in the sector of forests, pulp and paper to be part of the "Companies Taking Action" initiative of the validation of our goals based on Science Based Targets. Science-based targets provide companies with a clearly defined pathway to future-proof growth by specifying how much and how quickly they need to reduce their greenhouse gas emissions.

Número de referência da meta
Abs 2

Ano em que a meta foi definida
2017

Abrangência da meta
Para a empresa como um todo

Escopo(s) (ou categoria do Escopo 3)
Escopo 3 (upstream e downstream)

Ano-base
2017

Emissões abrangidas no ano-base (toneladas métricas de CO2e)
175368.08

Emissões abrangidas no ano-base como porcentagem do total das emissões do ano-base em um Escopo(s) selecionado(s) (ou na categoria do Escopo 3)
100

Ano da meta
2020

Meta de redução com relação ao ano-base (%)
5

Emissões abrangidas no ano da meta (toneladas métricas de CO2e) [calculadas automaticamente]
166599.676

Emissões abrangidas no ano de reporte (toneladas métricas de CO2e)
184379.5

Porcentagem da meta alcançada [autocalculada]
-102.771496386344

Status da meta no ano de reporte
Alcançada

Esta meta tem base científica?
Sim, consideramos essa meta como sendo de base científica, mas ela não foi aprovada como de base científica pela Science-Based Targets initiative

Meta desejada

Alinhada com os 2 °C

Por favor, explique (incluindo a abrangência a meta)
By 2020, with Klabin SA's new growth projects, our goal was not to increase Scope 3 emissions by more than 5% over the 2017 base year, which would total emissions of 184,136.50 tCO2eq. We consider this target to have been met, since we managed to keep the increase below 5%, having a 2% increase in 2020. This year, 2020, we reduced upstream diesel emissions by 7% compared to 2017, the year in which the target was set, from optimizing the raw material transportation routes to the production plants. However, there was a 20% increase in emissions related to the distribution of products to our customers. With the achievement of the target for the year, this target has been revised. In addition, Klabin is restructuring its supplier evaluation process based on a new sustainability assessment in the organization's supply chain. Once we have reached the target year, Since we have reached the base year, we are making a gradual evaluation of suppliers and their results in sustainability, with the objective of together building new targets to, for example, reduce greenhouse gas emissions in the supply chain. To reaffirm our commitment to implement actions to combat climate change, Klabin is the first Brazilian company in the forestry, pulp and paper sector to take part in the "Companies in Action" initiative of validating our targets based on Science-Based Targets. Science-based targets provide companies with a clearly defined path to future-proof growth, specifying how much and how quickly they need to reduce their greenhouse gas emissions.

C4.1b

(C4.1b) Forneça detalhes de suas metas de intensidade de emissões e do progresso em relação a essas metas.

Número de referência da meta
Int 1

Ano em que a meta foi definida
2020

Abrangência da meta
Para a empresa como um todo

Escopo(s) (ou categoria do Escopo 3)
Escopos 1+2 (com base no mercado)

Métrica de intensidade
Toneladas métricas de CO2e por tonelada métrica de produto

Ano-base
2019

Valor da intensidade no ano-base (toneladas métricas de CO2e por unidade de atividade)
172.4

Porcentagem das emissões totais do ano-base no(s) Escopo(s) selecionado(s) (ou na categoria do Escopo 3) abrangido(s) por este valor de intensidade
100

Ano da meta
2025

Meta de redução com relação ao ano-base (%)
25

Valor da intensidade no ano da meta (toneladas métricas de CO2e por unidade de atividade) [calculado automaticamente]
129.3

Porcentagem de mudança esperada nas emissões absolutas dos Escopos 1+2
-3.31

Porcentagem de mudança esperada nas emissões absolutas de Escopo 3
0

Valor da intensidade no ano de reporte (toneladas métricas de CO2e por unidade de atividade)
164.765

Porcentagem da meta alcançada [autocalculada]
17.7146171693736

Status da meta no ano de reporte
Nova

Esta meta tem base científica?
Sim, consideramos essa meta como sendo de base científica, mas ela não foi aprovada como sendo de base científica pela iniciativa da Science-Based Targets

Meta desejada
Alinhada com menos de 2 °C

Por favor, explique (incluindo a abrangência a meta)
In December 2020, Klabin submitted two targets to the Science Based Target Initiative. In April 2021, SBT approved Klabin's science-based targets: - Klabin S.A commits to reduce scope 1 and 2 GHG emissions 25% per ton of pulp, paper and packaging by 2025 from a 2019 base year*. - Klabin S.A commits to reduce scope 1 and 2 GHG emissions 49% per ton of pulp, paper and packaging by 2035 from a 2019 base year*. *The target boundary includes biogenic emissions and removals from bioenergy feedstocks. The targets coverage is company-wide. Scopes 1 and 2 are considered in the approved targets. The sectoral methodology (SDA) was used to calculate the targets. The ambition of the approved targets is well-below 2ºC aligned.

Número de referência da meta
Int 2

Ano em que a meta foi definida
2020

Abrangência da meta

Para a empresa como um todo

Escopo(s) (ou categoria do Escopo 3)
Escopos 1+2 (com base no mercado)

Métrica de intensidade
Toneladas métricas de CO2e por tonelada métrica de produto

Ano-base
2019

Valor da intensidade no ano-base (toneladas métricas de CO2e por unidade de atividade)
172.4

Porcentagem das emissões totais do ano-base no(s) Escopo(s) selecionado(s) (ou na categoria do Escopo 3) abrangido(s) por este valor de intensidade
100

Ano da meta
2035

Meta de redução com relação ao ano-base (%)
49

Valor da intensidade no ano da meta (toneladas métricas de CO2e por unidade de atividade) [calculado automaticamente]
87.924

Porcentagem de mudança esperada nas emissões absolutas dos Escopos 1+2
-3.31

Porcentagem de mudança esperada nas emissões absolutas de Escopo 3
0

Valor da intensidade no ano de reporte (toneladas métricas de CO2e por unidade de atividade)
164.765

Porcentagem da meta alcançada [autocalculada]
9.03806998437428

Status da meta no ano de reporte
Nova

Esta meta tem base científica?
Sim, essa meta foi aprovada como sendo de base científica pela iniciativa Science Based Targets

Meta desejada
Alinhada com menos de 2 °C

Por favor, explique (incluindo a abrangência a meta)
In December 2020, Klabin submitted two targets to the Science Based Target Initiative. In April 2021, SBT approved Klabin's science-based targets: - Klabin S.A commits to reduce scope 1 and 2 GHG emissions 25% per ton of pulp, paper and packaging by 2025 from a 2019 base year*. - Klabin S.A commits to reduce scope 1 and 2 GHG emissions 49% per ton of pulp, paper and packaging by 2035 from a 2019 base year*. *The target boundary includes biogenic emissions and removals from bioenergy feedstocks. The targets coverage is company-wide. Scopes 1 and 2 are considered in the approved targets. The sectoral methodology (SDA) was used to calculate the targets. The ambition of the approved targets is well-below 2ºC aligned.

Número de referência da meta
Int 3

Ano em que a meta foi definida
2017

Abrangência da meta
Para a empresa como um todo

Escopo(s) (ou categoria do Escopo 3)
Escopos 1+2 (com base na localização)

Métrica de intensidade
Toneladas métricas de CO2e por tonelada métrica de produto

Ano-base
2004

Valor da intensidade no ano-base (toneladas métricas de CO2e por unidade de atividade)
492

Porcentagem das emissões totais do ano-base no(s) Escopo(s) selecionado(s) (ou na categoria do Escopo 3) abrangido(s) por este valor de intensidade
100

Ano da meta
2022

Meta de redução com relação ao ano-base (%)
62.4

Valor da intensidade no ano da meta (toneladas métricas de CO2e por unidade de atividade) [calculado automaticamente]
184.992

Porcentagem de mudança esperada nas emissões absolutas dos Escopos 1+2
-3.31

Porcentagem de mudança esperada nas emissões absolutas de Escopo 3

0

Valor da intensidade no ano de reporte (toneladas métricas de CO2e por unidade de atividade)
175.45

Porcentagem da meta alcançada [autocalculada]
103.108062330623

Status da meta no ano de reporte
Alcançada

Esta meta tem base científica?
Sim, consideramos essa meta como sendo de base científica, mas ela não foi aprovada como sendo de base científica pela iniciativa da Science-Based Targets

Meta desejada
Alinhada com os 2 °C

Por favor, explique (incluindo a abrangência a meta)
In 2017, Klabin S/A had as its target the reduction of 1% of scope 1+ 2 emissions, reaching 205 kg of CO2eq per ton of product. This goal was achieved, obtaining 193.53 kg of CO2eq per ton of product in the year 2017. This demonstrates Klabin's commitment to reducing emissions of studied effect gases. With the targets achieved, they were revisited, revised and established for 2018-202 at 185 kg of CO2eq per ton of product. With the improvements made in our processes, in 2020 we reached the goal until the year 2022, obtaining a result of 175.66 kgCO2eq per ton of product, which represents 103.1% of the goal achievement. Klabin started projects to reduce diesel and heavy oil consumption in the pulp and paper mills. This project started in 2004, when we changed one oil for natural GAS at the Piracibaba mill. In 2008 we changed 2 to heavy oil boilers for a Biomass boiler at the Monte Alegre mill and did the same action at the Otacilio Costa mill (2014), Correia Pinto mill (2012) and Angatuba mill (2015). In 2019 the fuel oil boiler at the Feira de Santana unit was replaced by a natural gas boiler, already in 2020 the Puma Tall Oil plant went into operation to replace the burning of fuel oil in the lime kilns, at the Piracicaba unit, the new biomass boiler, planned for 2021, replaces a fuel oil boiler and three natural gas boilers that will be kept on standby for situations when the biomass boiler stops. To reaffirm our commitment to implement actions to combat climate change, Klabin is the first Brazilian company in the forestry, pulp and paper sector to be part of the "Companies in Action" initiative of validating our targets based on Science-Based Targets. Science-based targets provide companies with a clearly defined path to future-proof growth, specifying how much and how quickly they need to reduce their greenhouse gas emissions.

C4.2

(C4.2) Havia alguma outra meta climática ativa no ano de reporte?
Outra(s) meta(s) climática(s)

C4.2b

(C4.2b) Dê detalhes de outras eventuais metas climáticas, incluindo de redução de metano.

Número de referência da meta
Oth 1

Ano em que a meta foi definida
2014

Abrangência da meta
Para a empresa como um todo

Tipo de meta: absoluta ou de intensidade
Absoluta

Tipo de métrica: categoria e Métrica (numerador da meta, em caso de reporte de uma meta de intensidade)

Consumo de combustível renovável	Porcentagem do consumo total de combustível originária de fontes renováveis

Denominador da meta (somente metas de intensidade)
<Not Applicable>

Ano-base
2014

Valor ou porcentagem no ano-base
86.5

Ano da meta
2022

Valor ou porcentagem no ano da meta
88

Valor ou porcentagem no ano de reporte
89.94

Porcentagem da meta alcançada [autocalculada]
229.333333333333

Status da meta no ano de reporte
Alcançada

Esta meta faz parte de uma meta de emissões?
- Reduce 1% of emissions from scope 1. - Reduction for Scope 1+2 (location-based) reaching the value of 185 kg CO2 eq per ton of product.

Esta meta faz parte de uma iniciativa abrangente?
Outros, especifique (Sustainable Development Goals (SDG) from UN)

Explique (incluindo a abrangência da meta)
Klabin is continually investing to increase the use of renewable sources in our energy matrix. In recent years, it has progressively replaced fuel oil with biomass as fuel in our boilers, reaching 86.5% of renewable sources for energy generation in 2014. Our goal for 2022 is to increase this number and maintain it at least at 88%. In 2020 Klabin increased the index of energy from renewable sources to 89.94% and reduced the consumption of non-renewable fuels for energy generation by 7% compared to 2017, the year in which the current goal of reducing greenhouse gas emissions was established, mainly from actions to reduce the consumption of heavy oil (-12% compared to 2017) and diesel (-62% compared to 2017). Year in which the goal was set. In 2020, the sustainability and environment area held several events at the plants to disseminate the company's Agenda 2030, where they showed the path to be followed so that together we can achieve the goals outlined in the strategic planning focused on sustainability and business continuity. The actions to mitigate climate change that are related to SDG 13 - Climate Action were presented, in addition to the commitment to establish science based targets.

Número de referência da meta
Oth 2

Ano em que a meta foi definida
2016

Abrangência da meta
Para a empresa como um todo

Tipo de meta: absoluta ou de intensidade
Absoluta

Tipo de métrica: categoria e Métrica (numerador da meta, em caso de reporte de uma meta de intensidade)

Produtividade energética	Outros, especifique (Percentage of energy purchased in relation to energy generated)

Denominador da meta (somente metas de intensidade)
<Not Applicable>

Ano-base
2016

Valor ou porcentagem no ano-base
70

Ano da meta
2022

Valor ou porcentagem no ano da meta
76

Valor ou porcentagem no ano de reporte
94

Porcentagem da meta alcançada [autocalculada]
400

Status da meta no ano de reporte
Revisada

Esta meta faz parte de uma meta de emissões?
- Reduce 1% of emissions from scope 1. - Reduction for Scope 1+2 (location-based) reaching the value of 185 kg CO2 eq per ton of product.

Esta meta faz parte de uma iniciativa abrangente?
Outros, especifique (Sustainable Development Goals (SDG) from UN)

Explique (incluindo a abrangência da meta)
With the stabilization of the industrial operations of the Puma Unit, inaugurated in 2016, Klabin registered evolution in the indicators related to energy. The unit was designed to be self-sufficient through the generation of energy from process residues, such as black liquor and biomass. As it produces more energy than it consumes, the company can make available the surplus for sale in the Brazilian Electric System, which contributes to the generation of revenue, while contributing to a cleaner energy matrix. In 2020, the goal was revised considering the percentage of energy generated in relation to the total energy consumed in the company. Klabin reached values of 94% of energy self-sufficiency, this target is related to SDG 7 - Affordable and Clean Energy and SDG 13 - Climate Action.

Número de referência da meta
Oth 3

Ano em que a meta foi definida
2017

Abrangência da meta
Para a empresa como um todo

Tipo de meta: absoluta ou de intensidade
Absoluta

Tipo de métrica: categoria e Métrica (numerador da meta, em caso de reporte de uma meta de intensidade)

Consumo ou eficiência energéticos	MWh

Denominador da meta (somente metas de intensidade)
<Not Applicable>

Ano-base
2017

Valor ou porcentagem no ano-base
1143797.95

Ano da meta
2022

Valor ou porcentagem no ano da meta
1086606.05

Valor ou porcentagem no ano de reporte
1189857.665

Porcentagem da meta alcançada [autocalculada]
-80.535381758606

Status da meta no ano de reporte
Em andamento

Esta meta faz parte de uma meta de emissões?
Reduction for Scope 1+2 (location-based) reaching the value of 185 kg CO2 eq per ton of product.

Esta meta faz parte de uma iniciativa abrangente?
Outros, especifique (Sustainable Development Goals (SDG) from UN)

Explique (incluindo a abrangência da meta)
Based on the results obtained in 2017, Klabin has established a target of a reduction of up to 5% between 2018 and 2022, aiming to reach 1,086,606.05 MWh in the company's energy purchases. This year 2020, the amount of energy purchased was 1,189,857.6 MWh, reaching 80% of the target, which is still in progress. Of this amount of purchased energy, 62% comes from certified renewable sources. Also the period had the following highlights we reduced the consumption of non-renewable fuels for energy generation by 7% compared to 2017, the year in which the current goal of reducing greenhouse gas emissions was established, mainly from actions to reduce the consumption of heavy oil (-12% compared to 2017) and diesel (-62% compared to 2017). In 2020, the sustainability and environment area held several events at the plants to disseminate the company's Agenda 2030, where they showed the path to be followed so that together we can achieve the goals outlined in the strategic planning focused on sustainability and business continuity, this target is related to SDG 7 - Affordable and Clean Energy and SDG 13 - Climate Action. It is also linked to the KODS (Klabin Goals for Sustainable Development) "Use of Energy" in the company's Agenda 2030, where we have made a commitment to purchase 100% of our certified energy from renewable sources.

C4.3

(C4.3) Existiam iniciativas de redução de emissões ativas no ano de reporte? Observe que isto pode incluir aquelas nas fases de planejamento e/ou implementação.
Sim

C4.3a

(C4.3a) Identifique o número total de iniciativas em cada estágio de desenvolvimento; para aquelas em fase de implementação, identifique a economia de CO2e estimada.

	Número de iniciativas	Economia anual total estimada de CO2e em toneladas métricas de CO2e (somente para linhas marcadas com *)
Em fase de pesquisa	2	19314.57
A ser implementada*	0	0
Implementação iniciada*	2	94129.42
Implementada*	2	95310.19
Não será implementada	0	0

C4.3b

(C4.3b) Dê detalhes sobre as iniciativas implementadas no ano de reporte na tabela abaixo.

Categoria de iniciativa e Tipo de iniciativa

Geração de energia de baixo carbono	Biocombustíveis sólidos

Economia anual estimada de CO2e (toneladas métricas de CO2e)
26675.18

Escopo(s)
Escopo 1

Voluntário/obrigatório
Voluntária

Economia monetária anual (unidade monetária – conforme especificada em C0.4)
1945000

Investimento necessário (unidade monetária – conforme especificada em C0.4)
23959000

Período de retorno
1 a 3 anos

Duração estimada da iniciativa
16 a 20 anos

Comentários
The biomass boiler at the Piracicaba unit is scheduled to start operating in 2021, replacing one oil boiler and three natural gas boilers that will be kept on stand-by, maintained for situations when the biomass boiler stops. Thus, reducing the consumption of non-renewable fuels in the unit, reinforcing the company's commitment to maintain its energy matrix from renewable sources.

Categoria de iniciativa e Tipo de iniciativa

Geração de energia de baixo carbono	Biogás

Economia anual estimada de CO2e (toneladas métricas de CO2e)
67454.24

Escopo(s)
Escopo 1

Voluntário/obrigatório
Voluntária

Economia monetária anual (unidade monetária – conforme especificada em C0.4)
63810000

Investimento necessário (unidade monetária – conforme especificada em C0.4)
141486000

Período de retorno
4 a 10 anos

Duração estimada da iniciativa
16 a 20 anos

Comentários
Installation of a biomass gasification plant, to produce 3 t/day of gas, substituting the oil consumption in the normal operation of 1 lime kiln with a production capacity of 650 tCal/day. Tall oil will be considered as auxiliary fuel in case of unavailability of the gasifier, and diesel oil for system start-up and start-up. It was considered the beginning of operation in the second quarter of 2021.

Categoria de iniciativa e Tipo de iniciativa

Consumo de energia de baixo carbono	Hidrelétrica

Economia anual estimada de CO2e (toneladas métricas de CO2e)
47626.65

Escopo(s)
Escopo 2 (com base no mercado)

Voluntário/obrigatório
Voluntária

Economia monetária anual (unidade monetária – conforme especificada em C0.4)
0

Investimento necessário (unidade monetária – conforme especificada em C0.4)
0

Período de retorno
Nenhum retorno

Duração estimada da iniciativa
> 30 anos

Comentários
On Indirect GHG emissions from energy acquisition - Scope 2, in 2017 Klabin began to record these emissions through the Market-based Approach. In this approach Klabin quantifies GHG emissions of scope 2 using the specific emission factor associated with each source of electricity generation that Klabin has chosen to acquire. In this year 2020, Klabin acquired 740,637.8 MWh, from hydroelectric generation, with the proper declaration of the generator. This results in a reduction of Scope 2 emissions in 47,626.65 when compared to location-based, which uses the average emission factor of the SIN (National Interconnected System). This demonstrates Klabin's commitment to opt for the purchase of renewable energy, in accordance with its Sustainability Policy.

Categoria de iniciativa e Tipo de iniciativa

Geração de energia de baixo carbono	Biocombustíveis líquidos

Economia anual estimada de CO2e (toneladas métricas de CO2e)
47683.54

Escopo(s)
Escopo 1

Voluntário/obrigatório
Voluntária

Economia monetária anual (unidade monetária – conforme especificada em C0.4)
11220000

Investimento necessário (unidade monetária – conforme especificada em C0.4)
21500000

Período de retorno
1 a 3 anos

Duração estimada da iniciativa
6 a 10 anos

Comentários
Installation of a plant for the production of Tall Oil (CTO - Crude Tall Oil) from the soap generated in the recovery process at the PUMA and MA factories. The CTO generated is burned in the PUMA Lime kilns, reducing the consumption of fuel oil; Plant sized to consume 100% of the soap generated in the MA and PUMA processes.

C4.3c

(C4.3c) Que métodos a empresa usa para estimular os investimentos em atividades de redução das emissões?

Método	Comentários
Mecanismos de financiamento interno	All the projects elaborated undergo a flow of analysis and prioritization based on the Marginal Abatement Cost Curve (MACCs), which provide a method of evaluating potential emissions reduction activities. Providing a visual comparison of the marginal abatement costs for different projects. The starting point is to estimate how much it costs to control carbon emissions. MACC allows the identification of where the main opportunities for mitigating emissions lie, thus considering the relationship between the cost per ton of carbon avoided and the amount of tons that a reduction measure, if undertaken, will be able to avoid. MACC provides individual access to measures, so that the costs and mitigation potential of emissions can be examined in isolation, and ranked according to their costs from lowest to highest, and thus assists in prioritizing projects.

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

(C-AC4.4/C-FB4.4/C-PF4.4) São implementadas práticas de manejo agrícola ou florestal em terras próprias com o benefício da mitigação e/ou da adaptação às mudanças climáticas?
Sim

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

(C-AC4.4a/C-FB4.4a/C-PF4.4a) Especifique as práticas de gestão agrícola ou florestal implementadas em suas próprias terras com os benefícios de mitigação e/ou adaptação às mudanças climáticas e forneça um valor de emissões correspondente, se conhecido.

Número de referência da prática de manejo
MP1

Prática de manejo
Reflorestamento

Descrição da prática de manejo
Practices of adequacy, conservation and environmental preservation in rural properties and planted forests of Klabin. Klabin is pioneer on mosaic management based on "hidrosolidarity", ensuring the operational efficiency while preserves the water resources and biodiversity present in almost 248,000 hectares of native area (Atlantic Forest, predominantly). Hence, Klabin has created flows to guide forest management planning in order to comply with correct proportion of forestry activities and take in consideration each point of neighbour's water catchment. This management strategy are in accordance with the ecological services of water provisioning and regulating. First flow happens in the medium term of supply (5 year's harvest plan). In this horizon, the main point observed is the maintenance of mosaic on basins of third order. Micro-basin area must always have 40% of standing forest (both, native and planted), while 60% is available for forestry operations. Nowadays, this flow is being applied in Paraná's forestry unit. Therefore, in 2020, the company included this subject in the Klabin's sustainable development goals for 2030, which has the objective to expand this strategic/analyzis flow to the other two Klabin's forest units (SC and SP).

Principal benefício relacionado às mudanças climáticas
Aumento no reservatório de carbono (mitigação)

Economia estimada de CO2e (toneladas métricas de CO2e)
5361.15

Por favor, explique
The greenhouse gas inventory calculation was based on the Brazilian GHG Protocol methodology Klabin reserves 43% of its land for preserved native forests and maintains its own areas with planted forests for the manufacture of its products. Klabin was the first pulp and paper company in the Southern Hemisphere to obtain, in 1998, the Forest Stewardship Council®-FSC® certification (FSC-C022516) which attests to management practices that conserve natural resources, provide fair working conditions and encourage healthy relations with local communities. Matas Legais - Developed in partnership with the Association of Preservation of Environment and Life (Apremavi), it promotes actions of rural property planning, conservation and environmental education in the states of Paraná and Santa Catarina. It guides small and medium-sized owners to perform more efficiently and with greater profitability, in addition to preserving ecosystems. Producers take courses, lectures and exchange visits and receive free seedlings of native plants. The program also encourages forestry with planted pine and eucalyptus forests, organic agriculture and ecotourism. This program had 519 ha of demarcated areas of preservation. Using as base the value of 10.85 tCO2eq / ha calculated according to the CO2 sequestration of the native forests in relation to a total area that a Klabin has (Brazilian GHG Protocol Metodology used). As we have an amount in ha from Matas Legal we have: 519 ha * 10.85 tCO2 / ha = 5,361.15 tCO2eq This amount of CO2 is also contemplated in the CO2 removal calculation for land use management. In 2020 there was a reduction in the program's actions due to the security protocols in the fight against the pandemic of COVID-19, despite this, we restarted the actions of adequacy of the properties taking all the necessary hygiene measures and social distancing.

C4.5

(C4.5) A empresa possui algum bem e/ou serviço atual que pode ser classificado como produto com baixos níveis de carbono ou que permita que terceiros evitem emissões de GEE?
Sim

C4.5a

(C4.5a) Forneça detalhes dos produtos e/ou serviços da empresa classificados como produtos com baixos níveis de carbono ou que permitam que terceiros evitem emissões de GEE.

Nível de agregação
Para a empresa como um todo

Descrição do produto/Grupo de produtos
Whole products list

Estes produtos têm baixos níveis de carbono ou permitem evitar emissões?
Produto de baixo carbono

Taxonomia, metodologia ou projeto usado para classificar produtos como tendo baixos níveis de carbono ou para calcular emissões evitadas
Estimating and Reporting the Comparative Emissions Impacts of Products (WRI)

Porcentagem da receita dos produtos de baixo carbono no ano de reporte
100

Porcentagem do valor total do portfólio
<Not Applicable>

Classes de ativos/tipos de produtos
<Not Applicable>

Comentários
Since our raw material is our own forests, we have to maintain the great parameters of forest management. So, Klabin is a reference on particular areas preserved. 578,000 HECTARES OF OWN LAND: 273,000 hectares of planted forests and 248,000 hectares of preserved native forests and other third-part lands which has planted and preserved areas. Therefore, the company has the best numbers on Carbon Footprint. Using the methodology of the GHG Brazilian protocol and considering the scope 1, 2 and 3 of Klabin S.A we have the result of GHG emission intensity in 278.026 kgCO2eq / ton of product produced.

C5. Metodologia de emissões

C5.1

(C5.1) Informe o ano-base e as emissões do ano-base (Escopos 1 e 2).

Escopo 1

Início do ano-base
Janeiro 1 2004

Fim do ano-base
Dezembro 31 2004

Emissões do ano-base (toneladas métricas de CO2e)
642219

Comentários
The reduction of emissions is one of the items of Klabin's Sustainability Policy. With the increased use of renewable energy source, a company responsible for reducing the emission of greenhouse gases (GHG). The highlighted texts are presented in the Emissions Inventory prepared according to the methodology of the Brazilian GHG Protocol Program (base year 2004), an internationally recognized standard and audited by the Brazilian part.

Escopo 2 (com base na localização)

Início do ano-base
Janeiro 1 2004

Fim do ano-base
Dezembro 31 2004

Emissões do ano-base (toneladas métricas de CO2e)
19195

Comentários
The reduction of emissions is one of the items of Klabin's Sustainability Policy. With the increased use of renewable energy source, a company responsible for reducing the emission of greenhouse gases (GHG). The highlighted texts are presented in the Emissions Inventory prepared according to the methodology of the Brazilian GHG Protocol Program (base year 2004), an internationally recognized standard and audited by the Brazilian part.

Escopo 2 (com base no mercado)

Início do ano-base
Janeiro 1 2017

Fim do ano-base
Dezembro 31 2017

Emissões do ano-base (toneladas métricas de CO2e)
43644.22

Comentários
The reduction of emissions is one of the items of Klabin's Sustainability Policy. With the increased use of renewable energy source, a company responsible for reducing the emission of greenhouse gases (GHG). The highlighted texts are presented in the Emissions Inventory prepared according to the methodology of the Brazilian GHG Protocol Program (base year 2004), an internationally recognized standard and audited by the Brazilian part. On Indirect GHG emissions from energy acquisition - Scope 2, in 2017 Klabin began to record these emissions through the Market-based Approach. In this approach Klabin quantifies GHG emissions of scope 2 using the specific emission factor associated with each source of electricity generation that Klabin has chosen to acquire

C5.2

(C5.2) Selecione o nome da norma, do protocolo ou da metodologia usado/a para coletar dados de atividades e calcular as emissões.
Brazil GHG Protocol Programme

C6. Dados de emissões

C6.1

(C6.1) Qual foi o total de emissões brutas de Escopo 1 da organização, em toneladas métricas de CO2e?

Ano de reporte

Emissões brutas de Escopo 1 (toneladas métricas de CO2e)
703830.512

Data de início
Janeiro 1 2020

Data de fim
Dezembro 31 2020

Comentários
In 2020 there was a 1.4% reduction in Scope 1 emissions. It is possible to relate the result to the increase in the participation of renewable fuels, by 8%, in stationary combustion, making the company's energy matrix reach 89.94% of participation of renewable fuels, besides the reduction in the consumption of mobile combustion fuels and in the use of air conditioning gases. There was a 6% increase in scope 1 biogenic emissions due to the increase in the percentage of biomass and black liquor burning in the boilers. Considering the intensity of the emissions, there was a 3% increase in the company's total production, causing our specific emissions to reduce from 163 to 158 kgCO2e/t.

Ano passado 1

Emissões brutas de Escopo 1 (toneladas métricas de CO2e)
713885.93

Data de início
Janeiro 1 2019

Data de fim
Dezembro 31 2019

Comentários
Despite the increase of 4% in the consumption of fossil fuels, there was a reduction of 4% in the consumption of LPG and 35% in the consumption of stationary diesel. This increase in fossil fuels was due to the exchange of the fuel oil boiler in Feira de Santana for a natural gas boiler, as it is less polluting. We can also highlight the increased participation of fuels from renewable sources in the company's energy matrix. We had an increase of 6% in the consumption of biomass and 10% in the consumption of black liquor, making the representation of renewable fuels in the company's matrix reach 89.54%

C6.2

(C6.2) Descreva o método usado para reportar as emissões de Escopo 2 de sua organização.

Linha 1

Escopo 2, com base na localização
Estamos divulgando um valor de Escopo 2 com base na localização

Escopo 2, com base no mercado
Estamos divulgando um valor de Escopo 2 com base no mercado

Comentários
On Indirect GHG emissions from energy acquisition - Scope 2, in 2017 Klabin began to record these emissions through the Market-based Approach. In this approach Klabin quantifies GHG emissions of scope 2 using the specific emission factor associated with each source of electricity generation that Klabin has chosen to acquire. In this year 2020, Klabin acquired 740,637.8 MWh, from hydroelectric generation, with the proper Declaration of the generator. This results in a reduction of Scope 2 emissions in 47,626.65 when compared to location-based, which uses the average emission factor of the SIN (National Interconnected System). This demonstrates Klabin's commitment to opt for the purchase of renewable energy, in accordance with its Sustainability Policy.

C6.3

(C6.3) Qual foi o total de emissões brutas de Escopo 2 de sua organização, em toneladas métricas de CO2e?

Ano de reporte

Escopo 2, com base na localização
77768.603

Escopo 2, com base no mercado (se aplicável)
30141.952

Data de início
Janeiro 1 2020

Data de fim
Dezembro 31 2020

Comentários
Regarding indirect GHG emissions from the acquisition of energy - Scope 2, in 2017 Klabin began to record these emissions through the Market-Based Approach. In this approach, Klabin quantifies Scope 2 GHG emissions using the specific emission factor associated with each source of electricity generation that Klabin chose to purchase. In this year 2020, Klabin purchased 740,637.8 MWh, from hydroelectric generation, with the appropriate generator declaration, this amount indicates that 62% of the energy purchased was from renewable sources. This results in a reduction of Scope 2 emissions by 47,626,651 when compared to the SIN (National Interconnected System), which uses the average SIN emission factor. This demonstrates Klabin's commitment to opting to purchase renewable energy, in accordance with its Sustainability Policy.

Ano passado 1

Escopo 2, com base na localização
95674.193

Escopo 2, com base no mercado (se aplicável)
39207.288

Data de início
Janeiro 1 2019

Data de fim
Dezembro 31 2019

Comentários
On Indirect GHG emissions from energy acquisition - Scope 2, in 2017 Klabin began to record these emissions through the Market-based Approach. In this approach Klabin quantifies GHG emissions of scope 2 using the specific emission factor associated with each source of electricity generation that Klabin has chosen to acquire. In this year 2019, Klabin acquired 747,047.22 MWh, from hydroelectric generation, with the proper Declaration of the generator. This results in a reduction of Scope 2 emissions in 56,466.91 when compared to location-based, which uses the average emission factor of the SIN (National Interconnected System). This demonstrates Klabin's commitment to opt for the purchase of renewable energy, in accordance with its Sustainability Policy.

C6.4

(C6.4) Existem fontes (por ex., instalações, GEEs específicos, atividades, regiões etc.) de emissões de Escopo 1 e Escopo 2 que estejam dentro dos limites de reporte selecionados, mas que não estão incluídas na divulgação?
Sim

C6.4a

(C6.4a) Forneça detalhes sobre as fontes de emissões de Escopo 1 e Escopo 2 que estão dentro dos limites de divulgação selecionados, mas que não estão incluídas em sua divulgação.

Fonte
We are excluding the direct emissions of the newly acquired units.

Relevância das emissões de Escopo 1 desta fonte
Emissões excluídas devido à recente aquisição

Relevância das emissões de Escopo 2 desta fonte, com base na localização
Emissões excluídas devido à recente aquisição

Relevância das emissões de Escopo 2 desta fonte, com base no mercado (se aplicável)
Emissões excluídas devido à recente aquisição

Explique por que essa fonte foi excluída
At present, we are unable to account for emissions from the direct operations of five industrial mills recently acquired by the company. Klabin received approval from CADE in October 2020, therefore it was not possible to consolidate the data for the report in the 2021 cycle.

C6.5

(C6.5) Explique as emissões globais brutas de Escopo 3 da organização, divulgando e explicando eventuais exclusões.

Bens e serviços adquiridos

Status da avaliação
Relevante, calculadas

Toneladas métricas em CO2e
85282.25

Metodologia de cálculo das emissões
GHG Protocol Brazil Methodology

Porcentagem das emissões calculada com dados obtidos de fornecedores ou parceiros da cadeia de valor
0

Por favor, explique
Klabin started reporting the emissions for purchased goods and services referring to the chemical inputs used in paper production, the emission factors used are from the Ecoinvent database, adapted to the Brazilian reality.

Bens de capital

Status da avaliação
Não relevante, explicação fornecida

Toneladas métricas em CO2e
<Not Applicable>

Metodologia de cálculo das emissões
<Not Applicable>

Porcentagem das emissões calculada com dados obtidos de fornecedores ou parceiros da cadeia de valor
<Not Applicable>

Por favor, explique
The greenhouse gas inventory calculation was based on the Brazilian GHG Protocol methodology and was verified by third party, attesting to the veracity of the data, as well as the non-relevance of some emission sources for scope 3. The transportation of goods and services acquired by the company are done by its own vehicles and are allocated in Scope 1.

Atividades relacionadas a combustível e energia (não incluídas no Escopo 1 ou 2)

Status da avaliação
Relevante, calculadas

Toneladas métricas em CO2e
2296.17

Metodologia de cálculo das emissões
GHG Protocol Brazil Methodology

Porcentagem das emissões calculada com dados obtidos de fornecedores ou parceiros da cadeia de valor
0

Por favor, explique
Klabin started to report the emissions related to fuels that are not previously included in scope 1 and 2, these emissions refer to the transportation of fuel used at Klabin's gas stations, calculated through the distance between the refinery and Klabin's gas stations. The greenhouse gas inventory calculation was based on the Brazilian GHG Protocol methodology and was verified by third party, attesting to the veracity of the data.

Transporte e distribuição upstream

Status da avaliação
Relevante, calculadas

Toneladas métricas em CO2e
367581.237

Metodologia de cálculo das emissões
GHG Protocol Brazil Methodology

Porcentagem das emissões calculada com dados obtidos de fornecedores ou parceiros da cadeia de valor
0

Por favor, explique
Klabin calculates emissions from third-party fuel consumption, referring to the transportation of inputs and products, in this year of 2020 we also started to report maritime emissions referring to the export of our products, which caused emissions in this category to increase compared to 2019. The company has been studying alternatives to reduce fuel consumption in the products transportation, some initiatives are related to the substitution of fossil fuel for biofuels, besides the improvement in equipment efficiency. The greenhouse gas inventory calculation was based on the Brazilian GHG Protocol methodology and was verified by third party, attesting to the veracity of the data.

Resíduos gerados nas operações

Status da avaliação
Relevante, calculadas

Toneladas métricas em CO2e
443.025

Metodologia de cálculo das emissões
GHG Protocol Brazil Methodology

Porcentagem das emissões calculada com dados obtidos de fornecedores ou parceiros da cadeia de valor
0

Por favor, explique
This Scope 3 category includes emissions from the treatment and / or final disposal of solid waste arising from the operations of the organization during the year, carried out in facilities owned or controlled by third parties. We increased waste reuse by 2%. This category accounts for all future emissions (along the treatment and / or final disposal process) that result from the waste generated in the inventory year. The greenhouse gas inventory calculation was based on the Brazilian GHG Protocol methodology and was verified by third party, attesting to the veracity of the data.

Viagens de negócios

Status da avaliação
Relevante, calculadas

Toneladas métricas em CO2e
413.972

Metodologia de cálculo das emissões
GHG Protocol Brazil Methodology

Porcentagem das emissões calculada com dados obtidos de fornecedores ou parceiros da cadeia de valor
0

Por favor, explique
This category includes the calculation of emissions from the transportation of employees to activities related to the inventor's organization's business carried out on vehicles operated by or owned by third parties. Business travel related emissions reduced when compared to 2019, this result was impacted by protocols and measures to combat the COVID-19 pandemic. The greenhouse gas inventory calculation was based on the Brazilian GHG Protocol methodology and was verified by third party, attesting to the veracity of the data.

Deslocamento de funcionários (ida e volta do trabalho)

Status da avaliação
Relevante, calculadas

Toneladas métricas em CO2e
893.92

Metodologia de cálculo das emissões
GHG Protocol Brazil Methodology

Porcentagem das emissões calculada com dados obtidos de fornecedores ou parceiros da cadeia de valor
0

Por favor, explique
This category includes the calculation of the emissions of the transport of employees in their movement between home and work, carried out in private vehicles of employees or public transportation. The greenhouse gas inventory calculation was based on the Brazilian GHG Protocol methodology and was verified by third party, attesting to the veracity of the data.

Ativos arrendados upstream

Status da avaliação
Não relevante, explicação fornecida

Toneladas métricas em CO2e
<Not Applicable>

Metodologia de cálculo das emissões
<Not Applicable>

Porcentagem das emissões calculada com dados obtidos de fornecedores ou parceiros da cadeia de valor
<Not Applicable>

Por favor, explique
The greenhouse gas inventory calculation was based on the Brazilian GHG Protocol methodology and was verified by third party, attesting to the veracity of the data, as well as the non-relevance of some emission sources for scope 3. The forestry operation on land leased by the company is carried out by its own team and machinery, so the emissions are allocated to Scope 1.

Transporte e distribuição downstream

Status da avaliação
Não relevante, explicação fornecida

Toneladas métricas em CO2e
<Not Applicable>

Metodologia de cálculo das emissões
<Not Applicable>

Porcentagem das emissões calculada com dados obtidos de fornecedores ou parceiros da cadeia de valor
<Not Applicable>

Por favor, explique
In 2020, through report improvement work, we reallocated the emissions from this category to Category 4 "Transport and upstream distribution", which was more in line with the company's reality. The greenhouse gas inventory calculation was based on the Brazilian GHG Protocol methodology and was verified by third party, attesting to the veracity of the data, as well as the non-relevance of some emission sources for scope 3.

Processamento de produtos vendidos

Status da avaliação
Não relevante, explicação fornecida

Toneladas métricas em CO2e
<Not Applicable>

Metodologia de cálculo das emissões
<Not Applicable>

Porcentagem das emissões calculada com dados obtidos de fornecedores ou parceiros da cadeia de valor
<Not Applicable>

Por favor, explique
The greenhouse gas inventory calculation was based on the Brazilian GHG Protocol methodology and was verified by third party, attesting to the veracity of the data, as well as the non-relevance of some emission sources for scope 3.

Uso de produtos vendidos

Status da avaliação
Não relevante, explicação fornecida

Toneladas métricas em CO2e
<Not Applicable>

Metodologia de cálculo das emissões
<Not Applicable>

Porcentagem das emissões calculada com dados obtidos de fornecedores ou parceiros da cadeia de valor
<Not Applicable>

Por favor, explique
The greenhouse gas inventory calculation was based on the Brazilian GHG Protocol methodology and was verified by third party, attesting to the veracity of the data, as well as the non-relevance of some emission sources for scope 3.

Tratamento de produtos vendidos ao final de sua vida útil

Status da avaliação
Não relevante, explicação fornecida

Toneladas métricas em CO2e
<Not Applicable>

Metodologia de cálculo das emissões
<Not Applicable>

Porcentagem das emissões calculada com dados obtidos de fornecedores ou parceiros da cadeia de valor
<Not Applicable>

Por favor, explique
Paper and paper packaging, the company's main products, return to the production process of recycled paper, Klabin is the largest paper recycler in Brazil, thus we consider that emissions related to the end of the life cycle of our products are allocated to Scope 1. The greenhouse gas inventory calculation was based on the Brazilian GHG Protocol methodology and was verified by third party, attesting to the veracity of the data, as well as the non-relevance of some emission sources for scope 3.

Ativos arrendados downstream

Status da avaliação
Não relevante, explicação fornecida

Toneladas métricas em CO2e
<Not Applicable>

Metodologia de cálculo das emissões
<Not Applicable>

Porcentagem das emissões calculada com dados obtidos de fornecedores ou parceiros da cadeia de valor
<Not Applicable>

Por favor, explique
The greenhouse gas inventory calculation was based on the Brazilian GHG Protocol methodology and was verified by third party, attesting to the veracity of the data, as well as the non-relevance of some emission sources for scope 3. The forestry operation on land leased by the company is carried out by its own team and machinery, so the emissions are allocated to Scope 1.

Franquias

Status da avaliação
Não relevante, explicação fornecida

Toneladas métricas em CO2e
<Not Applicable>

Metodologia de cálculo das emissões
<Not Applicable>

Porcentagem das emissões calculada com dados obtidos de fornecedores ou parceiros da cadeia de valor
<Not Applicable>

Por favor, explique
The company has no franchises, the emissions that are included in the greenhouse gas inventory come from the units that are under operational control and are allocated in scopes 1, 2, and in the categories mentioned above in scope 3. The greenhouse gas inventory calculation was based on the Brazilian GHG Protocol methodology and was verified by third party, attesting to the veracity of the data, as well as the non-relevance of some emission sources for scope 3.

Investimentos

Status da avaliação
Não relevante, explicação fornecida

Toneladas métricas em CO2e
<Not Applicable>

Metodologia de cálculo das emissões
<Not Applicable>

Porcentagem das emissões calculada com dados obtidos de fornecedores ou parceiros da cadeia de valor
<Not Applicable>

Por favor, explique
Emissions from projects developed throughout 2020 are allocated to scopes 1 and 2. The greenhouse gas inventory calculation was based on the Brazilian GHG Protocol methodology and was verified by third party, attesting to the veracity of the data, as well as the non-relevance of some emission sources for scope 3.

Outros (upstream)

Status da avaliação
Não relevante, explicação fornecida

Toneladas métricas em CO2e
<Not Applicable>

Metodologia de cálculo das emissões
<Not Applicable>

Porcentagem das emissões calculada com dados obtidos de fornecedores ou parceiros da cadeia de valor
<Not Applicable>

Por favor, explique
The greenhouse gas inventory calculation was based on the Brazilian GHG Protocol methodology and was verified by third party, attesting to the veracity of the data, as well as the non-relevance of some emission sources for scope 3.

Outros (downstream)

Status da avaliação
Não relevante, explicação fornecida

Toneladas métricas em CO2e
<Not Applicable>

Metodologia de cálculo das emissões
<Not Applicable>

Porcentagem das emissões calculada com dados obtidos de fornecedores ou parceiros da cadeia de valor
<Not Applicable>

Por favor, explique
The greenhouse gas inventory calculation was based on the Brazilian GHG Protocol methodology and was verified by third party, attesting to the veracity of the data, as well as the non-relevance of some emission sources for scope 3.

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

(C-AC6.6/C-FB6.6/C-PF6.6) É possível decompor as emissões de Escopo 3 por área de atividade de negócio relevante?
Sim

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

(C-AC6.6a/C-FB6.6a/C-PF6.6a) Divulgue as emissões de Escopo 3 de cada uma das áreas de atividades de negócio relevantes.

Atividade
Distribuição

Categoria de Escopo 3
Transporte e distribuição upstream

Emissões (toneladas métricas de CO2e)
367581.23

Por favor, explique
The Greenhouse gas inventory calculation was based on the Brazilian GHG Protocol methodology and was verified by third party, attesting to the veracity of the data, as well as the non-relevance of some emission sources for scope 3. The transportation and distribution (upstream) are related to the diesel consumption of the forest areas and are monitored in subdivided classes: 47,878.42 t CO2e Transport and distribution (upstream) are related to the diesel consumption of delivering products to the domestic and foreign markets: 134,750.14 t CO2e Transport and distribution (upstream) are related to fuel consumption in maritime transport: 177,275.72 t CO2e In addition, there is also the rail transport of the PUMA unit that represents 7,676.93 t CO2e

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

(C-AC6.8/C-FB6.8/C-PF6.8) O carbono biogênico relacionado às operações diretas é relevante para a sua atual divulgação de mudanças climáticas ao CDP?
Sim

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

(C-AC6.8a/C-FB6.8a/C-PF6.8a) Explique os dados de carbono biogênico relacionados às operações diretas e identifique eventuais exclusões.

Emissões de CO2 provenientes da gestão do uso da terra

Emissões (toneladas métricas de CO2)
6502.36

Metodologia
Fatores de emissão padrão

Por favor, explique
The greenhouse gas inventory calculation was based on the Brazilian GHG Protocol methodology and was verified by third party, attesting to the veracity of the data, as well as the non-relevance of some emission sources for scope 3.

Remoções de CO2 da gestão do uso da terra

Emissões (toneladas métricas de CO2)
8447067.736

Metodologia
Fatores de emissão padrão

Por favor, explique
Removal of 8,447,067.736 t CO2e (biogenic) referring to the planting of forests for the supply of wood. The greenhouse gas inventory calculation was based on the Brazilian GHG Protocol methodology and was verified by third party, attesting to the veracity of the data, as well as the non-relevance of some emission sources for scope 3.

Sequestro durante a mudança de uso da terra

Emissões (toneladas métricas de CO2)
5361.15

Metodologia
Fatores de emissão padrão

Por favor, explique
Matas Legais - Developed in partnership with the Association of Preservation of Environment and Life (Apremavi), it promotes actions of rural property planning, conservation and environmental education in the states of Paraná and Santa Catarina. It guides small and medium-sized owners to perform more efficiently and with greater profitability, in addition to preserving ecosystems. Producers take courses, lectures and exchange visits and receive free seedlings of native plants. The program also encourages forestry with planted pine and eucalyptus forests, organic agriculture and ecotourism. This program had 519 ha of demarcated areas of preservation. Using as base the value of 10.85 tCO2eq / ha calculated according to the CO2 sequestration of the native forests in relation to a total area that a Klabin has (Brazilian GHG Protocol Metodology used). As we have an amount in ha from Matas Legal we have: 519 ha * 10.85 tCO2 / ha = 5,361.15 tCO2eq This amount of CO2 is also contemplated in the CO2 removal calculation for land use management. In 2020 there was a reduction in the program's actions due to the security protocols in the fight against the pandemic of COVID-19, despite this, we resumed the actions of adequacy of the properties taking all the necessary hygiene measures and social distancing.

Emissões de CO2 pela queima de biocombustível (maquinário para preparo da terra)

Emissões (toneladas métricas de CO2)
19822.177

Metodologia
Fatores de emissão padrão

Por favor, explique
Emissions of 19,822.177 t CO2e (biogenic) for mobile combustion (transport / machinery) The greenhouse gas inventory calculation was based on the Brazilian GHG Protocol methodology and was verified by third party, attesting to the veracity of the data, as well as the non-relevance of some emission sources for scope 3. The exclusions related to this category concern biodiesel used in the units recently acquired by the company. The new acquisitions were not accounted for in the 2020 cycle due to the formalization of the transfer of ownership of the units.

Emissões de CO2 pela queima de biocombustível (maquinário para processamento/fabricação)

Emissões (toneladas métricas de CO2)
5476114.056

Metodologia
Fatores de emissão padrão

Por favor, explique
Emissions of 5,476,114.056 tCO2e (biogenic) relative to stationary combustion of biomass fuels (biodiesel, vegetable residues and Black Liquor). The greenhouse gas inventory calculation was based on the Brazilian GHG Protocol methodology and was verified by third party, attesting to the veracity of the data, as well as the non-relevance of some emission sources for scope 3. The exclusions related to this category concern biodiesel used in the units recently acquired by the company. The new acquisitions were not accounted for in the 2020 cycle due to the formalization of the transfer of ownership of the units.

Emissões de CO2 da combustão de biocombustível (outros)

Emissões (toneladas métricas de CO2)
145836.082

Metodologia
Fatores de emissão padrão

Por favor, explique
Emissions of 21,417.89 t CO2e (biogenic) for Scope 3 and 124,418.192 for Scope 2. The greenhouse gas inventory calculation was based on the Brazilian GHG Protocol methodology and was verified by third party, attesting to the veracity of the data, as well as the non-relevance of some emission sources for scope 3. The exclusions related to this category concern biodiesel used in the units recently acquired by the company. The new acquisitions were not accounted for in the 2020 cycle due to the formalization of the transfer of ownership of the units.

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

(C-AC6.9/C-FB6.9/C-PF6.9) A empresa coleta dados ou calcula as emissões de gases de efeito estufa para cada commodity reportada como significativa para os negócios em C-AC0.7/FB0.7/PF0.7?

Commodities agrícolas
Produto florestal madeireiro

A empresa coleta dados ou calcula as emissões de GEE para esta commodity?
Sim

Por favor, explique
Timber is considered to be the main raw material for Klabin's production process. The boundaries used for data collection are related to the company's own operations as a whole and forestry activities in the states of Parana, Santa Catarina, and Sao Paulo. For the calculations of the atmospheric emissions of this commodity, the stationary emissions (plant residues and black liquor) are considered as biomass and liquor for the boilers (GHG emissions equivalent to 63,014.20 t CO2e and 5,443,399.34 tCO2 biogenic in 2020) and, in addition, the emissions of greenhouse gases are calculated for the agricultural emissions processes considering Forest Planting for wood supply (GHG emissions of 6,502.36 tCO2e in 2020). These calculations are performed annually using the methodology of the Brazilian GHG Protocol.

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

(C-AC6.9a/C-FB6.9a/C-PF6.9a) Relate os valores de emissões de gases de efeito estufa para a divulgação de produtos de sua empresa, explique a metodologia usada e inclua eventuais exclusões.

Produto florestal madeireiro

Emissões reportadas por
Total

Emissões (toneladas métricas de CO2e)
5506413.54

Denominador: unidade de produção
<Not Applicable>

Variação desde o último ano de reporte
Maior

Por favor, explique
Timber is considered to be the main raw material for Klabin's production process. For the calculations of the atmospheric emissions of this commodity, the stationary emissions (plant residues and black liquor) are considered as biomass and liquor for the boilers (GHG emissions equivalent to 63,014.20 t CO2e and 5,443,399.34 tCO2 biogenic in 2020). Thats an increase of 4.4% of CO2 biogenic emissions from timber when compared to 2019. It is important to mention that this increase is due to the increase in the use of renewable fuels. In this year of 2020 we have not increased our consumption of non-renewable fuels by more than 1%, despite increased production, mainly from constant actions to reduce the consumption of heavy oil and diesel stationary. These calculations are performed annually using the methodology of the Brazilian GHG Protocol.

C6.10

(C6.10) Descreva as emissões combinadas globais brutas de Escopos 1 e 2 para o ano de reporte, em toneladas métricas de CO2e, por receita total em moeda unitária, e forneça eventuais métricas de intensidade adicionais adequadas para as operações de negócios.

Valor da intensidade
175.457

Numerador da métrica (Emissões combinadas globais brutas de Escopos 1 e 2, em toneladas métricas de CO2e)
781599.11

Denominador da métrica
tonelada métrica de produto

Denominador da métrica: Total de unidade
4454653.87

Valor do Escopo 2 usado
Com base na localização

Porcentagem de variação em relação ao ano anterior
5.25

Direção da variação
Diminuiu

Motivo da variação
In 2017, the company set a target of 185 kgCO2e / t of product for Scope 1 + 2 in GHG emissions for the medium term (2022). This reinforces the organization's commitment to its goals and to maintaining corporate sustainability. In the year 2020 there was a 5.25% reduction in the intensity of Scope 1+2 emissions. It is possible to relate the result to the increase in the participation of renewable fuels, by 8%, which consequently reduces the consumption of heavy oil, in stationary combustion, reduction in the consumption of fossil fuels of mobile combustion and in the use of air conditioning gases. In addition, there was a reduction in the consumption of purchased energy in the units. These calculations are performed annually, using the methodology of the Brazilian GHG Protocol

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Valor da intensidade
0.000065

Numerador da métrica (Emissões combinadas globais brutas de Escopos 1 e 2, em toneladas métricas de CO2e)
782222.38

Denominador da métrica
receita total unitária

Denominador da métrica: Total de unidade
11949000000

Valor do Escopo 2 usado
Com base na localização

Porcentagem de variação em relação ao ano anterior
16.07

Direção da variação
Diminuiu

Motivo da variação
By 2020, we saw a 2% increase in the company's production despite the reduction in Scopes 1+2 emissions. It is possible to relate the result to the increase in the participation of renewable fuels, by 8%, in stationary combustion, which consequently reduces the consumption of heavy oil, we also started operating the Tall Oil plant in the Puma unit, where we observed a reduction in the consumption of heavy oil in the lime kilns. , These results indicate an energy matrix of 89.94% from renewable sources. This reinforces Klabin's commitment to constantly seek to increase the share of renewable sources in the energy matrix. The reductions are also linked to lower fossil fuel consumption in mobile combustion and in the use of air conditioning gases. In addition, there was a reduction in the consumption of purchased energy in the units. It is important to note that since 2017 Klabin has also reported its scope-2 emissions by the market-based method. In 2020, 62% of the amount of energy purchased was reported as being from a renewable source with its respective generator declaration, reducing 47,626.651 tCO2eq in our scope 2.

C7. Decomposição das emissões

C7.1

(C7.1) Sua organização decompõe suas emissões de Escopo 1 por tipo de gás de efeito estufa?
Sim

C7.1a

(C7.1a) Decomponha o total de emissões brutas globais de Escopo 1 por tipo de gás de efeito estufa e forneça a fonte de cada potencial de aquecimento global de efeito estufa (GWP) utilizado.

Gás de efeito estufa	Emissões de Escopo 1 (toneladas métricas de CO2e)	Referência de GWP
CO2	624409.559	Quarto Relatório de Avaliação do IPCC (AR4 – 100 anos)
CH4	18648.85	Quarto Relatório de Avaliação do IPCC (AR4 – 100 anos)
N2O	55409.226	Quarto Relatório de Avaliação do IPCC (AR4 – 100 anos)
HFCs	5362.877	Quarto Relatório de Avaliação do IPCC (AR4 – 100 anos)

C7.2

(C7.2) Desagregue o total de emissões brutas de Escopo 1 por país/região.

País/Região	Emissões de Escopo 1 (toneladas métricas de CO2e)
Brasil	703830.512

C7.3

(C7.3) Indique quais desagregações de emissões brutas de Escopo 1 a empresa pode fornecer.

Por instalação

C7.3b

(C7.3b) Desagregue o total de emissões brutas de Escopo 1 por instalação de negócios.

Instalação	Emissões de Escopo 1 (toneladas métricas de CO2e)	Latitude	Longitude
Angatuba	2843.946	-23.565066	-48.359227
Betim	4165.93	-19.964755	-44.120758
Correia Pinto	29302.61	-27.551488	-50.364019
Feira de Santana	4012.074	-12.290827	-38.91198
Goiana	51095.748	-7.556655	-35.035038
Itajaí	4517.586	-26.891305	-48.709733
Jundiaí Distrito Industrial	4991.095	-23.1752	-46.931352
Jundiaí Tijuco Preto	5985.042	-23.266963	-46.865105
Lages 1	720.242	-27.808633	-50.363555
Manaus	997.006	-3.0985	-59.943561
Monte Alegre	265473.191	-24.310186	-50.6079
Otacilio Costa	34781.751	-27.513275	-50.116602
Piracicaba	36063.616	-22.687536	-47.674963
Puma	254251.006	-24.258055	-50.746944
São Leopoldo	3162.981	-29.786711	-51.114425
Depósito Paranaguá	611.642	-25.539727	-48.535783
Rio Negro	723.182	-26.083283	-49.77273
Escritório Sede	0	-23.589061	-46.682311
Lages 2	52.686	-27.80863	-50.363555
Horizonte	0.217	-4.09752	-38.4909

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

(C-AC7.4/C-FB7.4/C-PF7.4) Estão incluídas emissões relacionadas às atividades de negócios nas operações diretas como parte do valor global bruto de Escopo 1?

Sim

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

(C-AC7.4a/C-FB7.4a/C-PF7.4a) Selecione o(s) formulário(s) em que as emissões agrícolas/florestais estão sendo reportadas.

Emissões decompostas por categoria (recomendado pelo GHG Protocol)

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

(C-AC7.4b/C-FB7.4b/C-PF7.4b) Relate as emissões de Escopo 1 relacionadas às atividades de negócios e explique eventuais exclusões. Se aplicável, desagregue as atividades agrícolas/florestais por categoria de emissões de GEE.

Atividade
Agricultura/Florestas

Categoria de emissões
Total

Emissões (toneladas métricas de CO2e)
6502.36

Metodologia
Fator de emissões padrão

Por favor, explique
This emission value is linked to Agricultural emissions (scope 1) column on Brazilian GHG Protocol Metodology. Is related to the application of nitrogen compounds in the implantation of planted forests.

Atividade
Processamento/Fabricação

Categoria de emissões
Total

Emissões (toneladas métricas de CO2e)
2.19

Metodologia
Fator de emissões padrão

Por favor, explique
This emission value is linked to Industrial Process (scope 1) column on Brazilian GHG Protocol Metodology

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Atividade
Distribuição

Categoria de emissões
Total

Emissões (toneladas métricas de CO2e)
172283.958

Metodologia
Fator de emissões padrão

Por favor, explique
This emission value is linked to Mobile Combustion emissions (scope 1) column on Brazilian GHG Protocol Metodology

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Atividade
Processamento/Fabricação

Categoria de emissões
Total

Emissões (toneladas métricas de CO2e)
519672.656

Metodologia
Fator de emissões padrão

Por favor, explique
This emission value is linked to Stationary Combustion emissions (scope 1) column on Brazilian GHG Protocol Metodology

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C7.5

(C7.5) Desagregue o total de emissões brutas de Escopo 2 por país/região.

País/Região	Escopo 2, com base na localização (toneladas métricas de CO2e)	Escopo 2, com base no mercado (toneladas métricas de CO2e)	Eletricidade, aquecimento, vapor ou refrigeração (MWh) adquiridos e consumidos	Eletricidade, aquecimento, vapor ou refrigeração de baixo carbono adquiridos e consumidos, contabilizados na abordagem do Escopo 2 com base no mercado 2 (MWh)
Brasil	77768.603	30141.952	1189857.67	1016846.46

C7.6

(C7.6) Indique quais desagregações de emissões brutas de Escopo 2 a empresa pode fornecer.
Por instalação

C7.6b

(C7.6b) Desagregue o total de emissões brutas de Escopo 2 por instalação de negócios.

Instalação	Escopo 2, com base na localização (toneladas métricas de CO2e)	Escopo 2, com base no mercado (toneladas métricas de CO2e)
Angatuba	7681.947	2413.856
Betim	421.659	0
Correia Pinto	6843.174	2971.725
Feira de Santana	365.417	0
Goiana	7156.018	0
Itajaí	375.858	0
Jundiaí Distrito Industrial	517.759	0
Jundiaí Tijuco Preto	360.591	0
Lages 1	681.686	0
Manaus	182.544	0
Monte Alegre	40569.629	0
Otacílio Costa	5845.854	4253.938
Piracicaba	4481.075	0
Puma	1526.882	0
São Leopoldo	331.803	0
Despósito Paranaguá	19.247	0
Rio Negro	269.831	0
Escritório Sede	19.247	0
Lages 2	80.491	0
Horizonte	35.757	0

C7.9

(C7.9) Como o total de emissões brutas (Escopos 1 e 2 combinados) do ano de referência variou em comparação com o do ano de referência anterior?

Diminuiu

C7.9a

(C7.9a) Caso tenha ocorrido qualquer variação no total das emissões brutas (Escopos 1 e 2 combinados), identifique as razões dessa variação e compare cada uma delas com as emissões do ano anterior.

	Mudança nas emissões (toneladas métricas de CO2e)	Direção da variação	Valor das emissões (porcentagem)	Explique os cálculos
Variação no consumo de energia renovável	19121.573	Diminuiu	2.54	The gross global emissions (Scope 1 + 2) of company for this reporting year are 733,972.464 metric tons of CO2e. Its gross global emissions for the previous reporting year were 753,094.037 metric tons of CO2e. This means that the total change in emissions is 19,121.573 metric tons of CO2e, equal to a 2.54% decrease, according to the formula in the explanation of terms, above: (19,121.573/753,094.037) * 100 = 2.54%. The change from 753,094.037 to 733,972.464 metric tonnes is attributed to by replacing the use of fossil fuels for fuels from renewable sources, such as biomass and black liquor. These mitigation actions resulted in an increase in the share of renewable sources in the company's energy matrix, reaching 89.94%, in addition to a 10% increase in power generation (from biomass and black liquor) at the Puma unit that was made available for sale, contributing to a more renewable national energy matrix. Scope 1+2 in 2019: 753,094.037 tCO2e Scope 1+2 in 2020: 733,972.464 tCO2e (19,121.573 / 753,094.037)* 100 = 2.54%
Outras atividades de redução de emissões	8563.33	Diminuiu	1.13	Last year 8,563.33 tons of CO2e were reduced by our emissions reduction projects, and our total Scope 1 and Scope 2 emissions in the previous year was 753,094.037 tCO 2e, therefore we arrived at -1.13%. With the installation of a plant for the production of Crude Tall Oil (CTO) from the soap generated in the recovery process in PUMA and MA plants. The CTO generated is burned in PUMA lime kilns, reducing fuel oil consumption; Plant sized to consume 100% of the soap generated in MA and PUMA processes. Emissions from use of fuel oil at the Puma unit in 2019: 175,922.69 tCO2e Emissions from use of fuel oil at the Puma unit in 2020: 167,359.36 tCO2e (8,563.33 / 753,094.037) * 100 = 1.13%
Desinvestimentos	0	Sem alteração	0	0.0
Aquisições	0	Sem alteração	0	0.0
Fusões	0	Sem alteração	0	0.0
Variação na produção	0	Sem alteração	0	0.0
Mudança de metodologia	9065.329	Diminuiu	23.12	In 2020 we had a significant reduction in our scope 2, purchase choice method, by 23.12%. Some factors impacted this result, (i) there was a 3% reduction in the amount of energy purchased, (ii) the emissions of this scope are calculated through variable emissions factors, the emission factor of the national interconnected system for 2020 was 10% lower than in 2019, (iii) we also increased the certification of renewable energy by 2%, which also influences the amount of CO2eq emitted. Scope 2 market-based in 2019: 39,207.281 tCO2e Scope 2 market-based in 2020: 30,141.952 tCO2e (9,065.329 / 39,207.281) * 100 = 23.12%
Mudança de limite	0	Sem alteração	0	0.0
Mudança das condições físicas de operação	0	Sem alteração	0	0.0
Não identificado	0	Sem alteração	0	0.0
Outros	1736.651	Diminuiu	24.43	There was a reduction in consumption and consequent recharges of air conditioning gases in the company's units due to lower traffic of people, mainly in administrative areas, in accordance with the protocols for confronting the COVID-19 pandemic and social distancing measures. Fugitive emissions in 2019: 7,105.997 tCO2e Fugitive emissions in 2020: 5,369.347 tCO2e (1,736.651 / 7,105.997) * 100 = 24.43%

C7.9b

(C7.9b) Seus cálculos sobre o desempenho das emissões em C7.9 e C7.9a têm como parâmetro o valor das emissões de Escopo 2 com base na localização ou o valor das emissões de Escopo 2 com base no mercado?

Com base no mercado

C8. Energia

C8.1

(C8.1) Durante o ano de referência, qual porcentagem do total de gastos operacionais corresponde aos gastos com energia?

Mais de 30%, mas inferior ou igual a 35%

C8.2

(C8.2) Selecione quais atividades relacionadas à energia foram realizadas pela organização.

	Indique se a organização realizou esta atividade energética no ano de reporte
Consumo de combustível (exceto matérias-primas)	Sim
Consumo de eletricidade comprada ou adquirida	Sim
Consumo de aquecimento comprado ou adquirido	Não
Consumo de vapor comprado ou adquirido	Não
Consumo de refrigeração comprada ou adquirida	Não
Geração de eletricidade, aquecimento, vapor ou refrigeração	Sim

C8.2a

(C8.2a) Relate os totais de consumo de energia (exceto matérias-primas) de sua organização, em MWh.

	Valor de aquecimento	MWh de fontes renováveis	MWh de fontes não renováveis	Total (renováveis e não renováveis) em MWh
Consumo de combustível (exceto matérias-primas)	LHV (menor poder calorífico)	16943617.46	1811516.2	18755133.66
Consumo de eletricidade comprada ou adquirida	<Not Applicable>	740637.8	449219.87	1189857.67
Consumo de aquecimento comprado ou adquirido	<Not Applicable>	<Not Applicable>	<Not Applicable>	<Not Applicable>
Consumo de vapor comprado ou adquirido	<Not Applicable>	<Not Applicable>	<Not Applicable>	<Not Applicable>
Consumo de refrigeração comprada ou adquirida	<Not Applicable>	<Not Applicable>	<Not Applicable>	<Not Applicable>
Consumo de energia renovável (não combustível) autogerada	<Not Applicable>	46827.25	<Not Applicable>	46827.25
Consumo total de energia	<Not Applicable>	17731082.51	2260736.07	19991818.58

C8.2b

(C8.2b) Selecione as aplicações de consumo de combustível de sua organização.

	Indique se a organização adota esta aplicação de combustível
Consumo de combustível para a geração de eletricidade	Não
Consumo de combustível para a geração de calor	Sim
Consumo de combustível para geração de vapor	Sim
Consumo de combustível para a geração de refrigeração	Não
Consumo de combustível para cogeração ou trigeração	Sim

C8.2c

(C8.2c) Informe a quantidade de combustível em MWh que a organização consumiu (exceto matérias-primas) por tipo de combustível.

Combustíveis (exceto matérias-primas)
Gás Natural

Valor de aquecimento
LHV (menor poder calorífico)

Total de combustível em MWh consumido pela organização
529563.2

Combustível consumido, em MWh, para a autogeração de eletricidade
<Not Applicable>

Combustível MWh consumido para a autogeração de calor
0

Combustível consumido, em MWh, para a autogeração de vapor
523170.38

Combustível em MWh consumido para a autogeração de refrigeração
<Not Applicable>

Combustível MWh consumido para a autocogeração ou autotrigeração
0

Fator de emissão
0.0021

Unidade
Kg de CO2 por litro

Fonte do fator de emissões
National Agency of Petroleum, Natural Gas and Biofuels (ANP 2012)

Comentários
Emission factor used as reference of this fuel for the Brazilian GHG Protocol

Combustíveis (exceto matérias-primas)
Óleo combustível residual

Valor de aquecimento
LHV (menor poder calorífico)

Total de combustível em MWh consumido pela organização
1144427.19

Combustível consumido, em MWh, para a autogeração de eletricidade
<Not Applicable>

Combustível MWh consumido para a autogeração de calor

0

Combustível consumido, em MWh, para a autogeração de vapor
9125.71

Combustível em MWh consumido para a autogeração de refrigeração
<Not Applicable>

Combustível MWh consumido para a autocogeração ou autotrigeração
1135301.47

Fator de emissão
3.1

Unidade
Kg de CO2 por litro

Fonte do fator de emissões
National Agency of Petroleum, Natural Gas and Biofuels (ANP 2012)

Comentários
Emission factor used as reference of this fuel for the Brazilian GHG Protocol

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Combustíveis (exceto matérias-primas)
Madeira

Valor de aquecimento
LHV (menor poder calorífico)

Total de combustível em MWh consumido pela organização
5820999.39

Combustível consumido, em MWh, para a autogeração de eletricidade
<Not Applicable>

Combustível MWh consumido para a autogeração de calor
0

Combustível consumido, em MWh, para a autogeração de vapor
50838.48

Combustível em MWh consumido para a autogeração de refrigeração
<Not Applicable>

Combustível MWh consumido para a autocogeração ou autotrigeração
5493952.24

Fator de emissão
0.00116

Unidade
Toneladas métricas de CO2 por tonelada métrica

Fonte do fator de emissões
National Energy Balance 2016 (base year 2015) - (BEN 2019).

Comentários
Emission factor used as reference of this fuel for the Brazilian GHG Protocol

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Combustíveis (exceto matérias-primas)
Lixívia Negra

Valor de aquecimento
LHV (menor poder calorífico)

Total de combustível em MWh consumido pela organização
10202668.53

Combustível consumido, em MWh, para a autogeração de eletricidade
<Not Applicable>

Combustível MWh consumido para a autogeração de calor
0

Combustível consumido, em MWh, para a autogeração de vapor
0

Combustível em MWh consumido para a autogeração de refrigeração
<Not Applicable>

Combustível MWh consumido para a autocogeração ou autotrigeração
10202668.53

Fator de emissão
0.00114

Unidade
Toneladas métricas de CO2 por tonelada métrica

Fonte do fator de emissões
National Energy Balance 2016 (base year 2015) - (BEN 2019).

Comentários
Emission factor used as reference of this fuel for the Brazilian GHG Protocol

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Combustíveis (exceto matérias-primas)
Gás liquefeito de petróleo (LPG)

Valor de aquecimento
LHV (menor poder calorífico)

Total de combustível em MWh consumido pela organização
133504.62

Combustível consumido, em MWh, para a autogeração de eletricidade
<Not Applicable>

Combustível MWh consumido para a autogeração de calor
2708.24

Combustível consumido, em MWh, para a autogeração de vapor
0

Combustível em MWh consumido para a autogeração de refrigeração
<Not Applicable>

Combustível MWh consumido para a autocogeração ou autotrigeração
130796.36

Fator de emissão
0.00293

Unidade
Toneladas métricas de CO2 por tonelada métrica

Fonte do fator de emissões
National Agency of Petroleum, Natural Gas and Biofuels (ANP 2012)

Comentários
Emission factor used as reference of this fuel for the Brazilian GHG Protocol

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Combustíveis (exceto matérias-primas)
Óleo diesel

Valor de aquecimento
LHV (menor poder calorífico)

Total de combustível em MWh consumido pela organização
4021.19

Combustível consumido, em MWh, para a autogeração de eletricidade
<Not Applicable>

Combustível MWh consumido para a autogeração de calor
0

Combustível consumido, em MWh, para a autogeração de vapor
69.96

Combustível em MWh consumido para a autogeração de refrigeração
<Not Applicable>

Combustível MWh consumido para a autocogeração ou autotrigeração
3951.23

Fator de emissão
0.00212

Unidade
Toneladas métricas de CO2 por tonelada métrica

Fonte do fator de emissões
National Agency of Petroleum, Natural Gas and Biofuels (ANP 2012)

Comentários
Emission factor used as reference of this fuel for the Brazilian GHG Protocol

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Combustíveis (exceto matérias-primas)
Energia

Valor de aquecimento
LHV (menor poder calorífico)

Total de combustível em MWh consumido pela organização
43971.27

Combustível consumido, em MWh, para a autogeração de eletricidade
<Not Applicable>

Combustível MWh consumido para a autogeração de calor
0

Combustível consumido, em MWh, para a autogeração de vapor
0

Combustível em MWh consumido para a autogeração de refrigeração
<Not Applicable>

Combustível MWh consumido para a autocogeração ou autotrigeração
43971.27

Fator de emissão
0

Unidade
Toneladas métricas de CO2 por tonelada métrica

Fonte do fator de emissões
Brazilian GHG Protocol

Comentários
Emission factor used as reference of this fuel for the Brazilian GHG Protocol

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Combustíveis (exceto matérias-primas)
Alcatrão

Valor de aquecimento
LHV (menor poder calorífico)

Total de combustível em MWh consumido pela organização
35664.99

Combustível consumido, em MWh, para a autogeração de eletricidade
<Not Applicable>

Combustível MWh consumido para a autogeração de calor
0

Combustível consumido, em MWh, para a autogeração de vapor
0

Combustível em MWh consumido para a autogeração de refrigeração
<Not Applicable>

Combustível MWh consumido para a autocogeração ou autotrigeração
42348.23

Fator de emissão
0.00114

Unidade
Toneladas métricas de CO2 por tonelada métrica

Fonte do fator de emissões
Ministry of Mines and Energy. National Energy Balance 2016 (base year 2015) - (BEN 2019).

Comentários
Emission factor used as reference of this fuel for the Brazilian GHG Protocol

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Combustíveis (exceto matérias-primas)
Outros, especifique (Methanol)

Valor de aquecimento
LHV (menor poder calorífico)

Total de combustível em MWh consumido pela organização
52848.23

Combustível consumido, em MWh, para a autogeração de eletricidade
<Not Applicable>

Combustível MWh consumido para a autogeração de calor
0

Combustível consumido, em MWh, para a autogeração de vapor
0

Combustível em MWh consumido para a autogeração de refrigeração
<Not Applicable>

Combustível MWh consumido para a autocogeração ou autotrigeração
52848.23

Fator de emissão
0.00114

Unidade
Toneladas métricas de CO2 por tonelada métrica

Fonte do fator de emissões
Ministry of Mines and Energy. National Energy Balance 2016 (base year 2015) - (BEN 2019).

Comentários

Emission factor used as reference of this fuel for the Brazilian GHG Protocol

C8.2d

(C8.2d) Dê detalhes sobre a eletricidade, o aquecimento, o vapor e a refrigeração que a organização gerou e consumiu no ano de reporte.

	Geração bruta total (MWh)	Geração consumida pela organização (MWh)	Geração bruta de fontes renováveis (MWh)	Geração de fontes renováveis consumida pela organização (MWh)
Eletricidade	3932274.39	4114720.22	3535901.13	2528489.3
Aquecimento	2708.24	2708.24	0	0
Vapor	17645070.79	17645070.79	15842655.69	15842655.69
Refrigeração	0	0	0	0

C8.2e

(C8.2e) Forneça detalhes sobre as quantidades de eletricidade, aquecimento, vapor e/ou resfriamento que foram contabilizadas a um fator de emissão zero no valor do Escopo 2 com base no mercado relatado em C6.3.

Método de aquisição
Produtos de eletricidade ecológica (por ex., tarifas verdes) de um fornecedor de energia, com o suporte de certificados de atributos energéticos

Tipo de tecnologia com baixo carbono
Hidrelétrica

País/região de consumo da eletricidade, do aquecimento, do vapor ou da refrigeração de baixo carbono
Brasil

MWh consumidos contabilizados a um fator de emissão zero
740637.8

Comentários
The Brazilian GHG Protocol Methodology considers hydroelectric energy with emission factor equal to zero. in 2017 Klabin began to record these emissions through the Market-based Approach. In this approach Klabin quantifies GHG emissions of scope 2 using the specific emission factor associated with each source of electricity generation that Klabin has chosen to acquire. In this year 2020, Klabin acquired 740,637.8 MWh, from hydroelectric generation, with the proper Declaration of the generator. This results in a reduction of Scope 2 emissions in 47,626.651 tCO2e, when compared to location-based, which uses the average emission factor of the SIN (National Interconnected System). This demonstrates Klabin's commitment to opt for the purchase of renewable energy, in accordance with its Sustainability Policy.

Método de aquisição
Acordo de compra de energia (PPA) com gerador dentro da unidade/fora da unidade de posse de terceiros sem transferências pela rede elétrica (linha direta)

Tipo de tecnologia com baixo carbono
Biomassa

País/região de consumo da eletricidade, do aquecimento, do vapor ou da refrigeração de baixo carbono
Brasil

MWh consumidos contabilizados a um fator de emissão zero
276208.66

Comentários
Klabin has a contract to buy steam from biomass through direct transfer. The steam is generated in the boilers of a third-party company that supplies it to be consumed at the Angatuba mill. In the year 2020 the equivalent of 276,208.66 MWh were purchased. This demonstrates Klabin's commitment to opt for the purchase of renewable energy, in accordance with its Sustainability Policy.

C9. Métricas adicionais

C9.1

(C9.1) Forneça as métricas adicionais relacionadas ao clima relevantes para seus negócios.

Descrição
Uso de energia

Valor da métrica
38409.2

Numerador da métrica
GJ

Denominador da métrica (apenas para métrica de intensidade)
-x-

Porcentagem de variação em relação ao ano anterior
1

Direção da variação
Aumentou

Por favor, explique
In 2020, we had a slight increase of 1% in the company's fossil fuel consumption. This was due to the higher demand for packaging production, mainly due to the pandemic of COVID-19. Despite this increase, we also had a reduction in heavy oil consumption and an increase in the share of renewable fuels, making us reach a total of 89.94% of renewable sources in our energy matrix. This reinforces Klabin's commitment to constantly seek to increase the share of renewable sources in the energy matrix.

Descrição
Resíduos

Valor da métrica
47.46

Numerador da métrica
ton

Denominador da métrica (apenas para métrica de intensidade)
-x-

Porcentagem de variação em relação ao ano anterior
10

Direção da variação
Diminuiu

Por favor, explique
In 2020, we can highlight the reduction in the generation of hazardous waste destined for Landfills (-8% compared to 2020), as well as the percentage of generation of total hazardous waste that went from 0.039% in 2019 to 0.035% in 2020, showing the company's commitment to achieving the goal of keeping that number below 0.5%. In addition, we increased the waste recycling indicator to 98.3%, reinforcing the commitment and focus to zero waste disposal to industrial landfills by 2030.

C10. Verification

C10.1

(C10.1) Indique o status da verificação/garantia que se aplica às emissões relatadas.

	Status da verificação/garantia
Escopo 1	Processo de verificação ou garantia por terceiros em vigor
Escopo 2 (com base na localização ou com base no mercado)	Processo de verificação ou garantia por terceiros em vigor
Escopo 3	Processo de verificação ou garantia por terceiros em vigor

C10.1a

(C10.1a) Forneça mais detalhes sobre a verificação/garantia realizada para as emissões de Escopo 1 e anexe as declarações relevantes.

Ciclo de verificação ou garantia em vigor
Processo anual

Status do ano de reporte atual
Completo

Tipo de verificação ou garantia
Verificação/garantia de terceiros em andamento

Anexe o documento
C2411 VIE Klabin GPV VIE 2019 (DE) Declaração de Verificação ingles (2).pdf

Página/seção de referência
Scope 1 emissions are found on page 3, in the Organization Verified Emissions (Operational Control) section, in the attached document. Verification Statement in accordance with the Brazilian GHG Protocol Program and ABNT NBR ISO 14064-3: 2007.

Norma pertinente
ISO14064-3

Porcentagem de emissões divulgadas e verificadas (%)
100

C10.1b

(C10.1b) Dê mais detalhes sobre a verificação/garantia realizada para as emissões de Escopo 2 e anexe as declarações relevantes.

Abordagem do Escopo 2
Escopo 2, com base na localização

Ciclo de verificação ou garantia em vigor
Processo anual

Status do ano de reporte atual
Completo

Tipo de verificação ou garantia
Verificação/garantia de terceiros em andamento

Anexe o documento
C2411 VIE Klabin GPV VIE 2019 (DE) Declaração de Verificação ingles (2).pdf

Página/seção de referência
Scope 2 location based emissions are found on page 3, in the Organization Verified Emissions (Operational Control) section, in the attached document. Verification Statement in accordance with the Brazilian GHG Protocol Program and ABNT NBR ISO 14064-3: 2007.

Norma pertinente
ISO14064-3

Porcentagem de emissões divulgadas e verificadas (%)
100

Abordagem do Escopo 2
Escopo 2, com base no mercado

Ciclo de verificação ou garantia em vigor
Please select

Status do ano de reporte atual
Completo

Tipo de verificação ou garantia
Verificação/garantia de terceiros em andamento

Anexe o documento
C2411 VIE Klabin GPV VIE 2019 (DE) Declaração de Verificação ingles (2).pdf

Página/seção de referência
Scope 2 market based emissions are found on page 3, in the Organization Verified Emissions (Operational Control) section, in the attached document. Verification Statement in accordance with the Brazilian GHG Protocol Program and ABNT NBR ISO 14064-3: 2007.

Norma pertinente
ISO14064-3

Porcentagem de emissões divulgadas e verificadas (%)
100

C10.1c

(C10.1c) Dê mais detalhes sobre a verificação/garantia realizada para as emissões de Escopo 3 e anexe as declarações relevantes.

Categoria de Escopo 3

Escopo 3: Bens e serviços adquiridos

Ciclo de verificação ou garantia em vigor
Processo anual

Status do ano de reporte atual
Completo

Tipo de verificação ou garantia
Verificação/garantia de terceiros em andamento

Anexe o documento
C2411 VIE Klabin GPV VIE 2019 (DE) Declaração de Verificação ingles (2).pdf

Página/Seção de referência
Scope 3 emissions are found on page 3, in the Organization Verified Emissions (Operational Control) section, in the attached document. Verification Statement in accordance with the Brazilian GHG Protocol Program and ABNT NBR ISO 14064-3: 2007.

Norma pertinente
ISO14064-3

Porcentagem de emissões divulgadas e verificadas (%)
100

Categoria de Escopo 3
Escopo 3: Atividades relacionadas a combustível e energia (não incluídas nos Escopos 1 ou 2)

Ciclo de verificação ou garantia em vigor
Processo anual

Status do ano de reporte atual
Completo

Tipo de verificação ou garantia
Verificação/garantia de terceiros em andamento

Anexe o documento
C2411 VIE Klabin GPV VIE 2019 (DE) Declaração de Verificação ingles (2).pdf

Página/Seção de referência
Scope 3 emissions are found on page 3, in the Organization Verified Emissions (Operational Control) section, in the attached document. Verification Statement in accordance with the Brazilian GHG Protocol Program and ABNT NBR ISO 14064-3: 2007.

Norma pertinente
ISO14064-3

Porcentagem de emissões divulgadas e verificadas (%)
100

Categoria de Escopo 3
Escopo 3: Transporte e distribuição upstream

Ciclo de verificação ou garantia em vigor
Processo anual

Status do ano de reporte atual
Completo

Tipo de verificação ou garantia
Verificação/garantia de terceiros em andamento

Anexe o documento
C2411 VIE Klabin GPV VIE 2019 (DE) Declaração de Verificação ingles (2).pdf

Página/Seção de referência
Scope 3 emissions are found on page 3, in the Organization Verified Emissions (Operational Control) section, in the attached document. Verification Statement in accordance with the Brazilian GHG Protocol Program and ABNT NBR ISO 14064-3: 2007.

Norma pertinente
ISO14064-3

Porcentagem de emissões divulgadas e verificadas (%)
100

Categoria de Escopo 3
Escopo 3: Resíduos gerados nas operações

Ciclo de verificação ou garantia em vigor
Processo anual

Status do ano de reporte atual
Completo

Tipo de verificação ou garantia
Verificação/garantia de terceiros em andamento

Anexe o documento
C2411 VIE Klabin GPV VIE 2019 (DE) Declaração de Verificação ingles (2).pdf

Página/Seção de referência
Scope 3 emissions are found on page 3, in the Organization Verified Emissions (Operational Control) section, in the attached document. Verification Statement in accordance with the Brazilian GHG Protocol Program and ABNT NBR ISO 14064-3: 2007.

Norma pertinente
ISO14064-3

Porcentagem de emissões divulgadas e verificadas (%)
100

Categoria de Escopo 3
Escopo 3: Viagens de negócios

Ciclo de verificação ou garantia em vigor
Processo anual

Status do ano de reporte atual
Completo

Tipo de verificação ou garantia
Verificação/garantia de terceiros em andamento

Anexe o documento
C2411 VIE Klabin GPV VIE 2019 (DE) Declaração de Verificação ingles (2).pdf

Página/Seção de referência
Scope 3 emissions are found on page 3, in the Organization Verified Emissions (Operational Control) section, in the attached document. Verification Statement in accordance with the Brazilian GHG Protocol Program and ABNT NBR ISO 14064-3: 2007.

Norma pertinente
ISO14064-3

Porcentagem de emissões divulgadas e verificadas (%)
100

Categoria de Escopo 3
Escopo 3: Deslocamento de funcionários (ida e volta do trabalho)

Ciclo de verificação ou garantia em vigor
Processo anual

Status do ano de reporte atual
Completo

Tipo de verificação ou garantia
Verificação/garantia de terceiros em andamento

Anexe o documento
C2411 VIE Klabin GPV VIE 2019 (DE) Declaração de Verificação ingles (2).pdf

Página/Seção de referência
Scope 3 emissions are found on page 3, in the Organization Verified Emissions (Operational Control) section, in the attached document. Verification Statement in accordance with the Brazilian GHG Protocol Program and ABNT NBR ISO 14064-3: 2007.

Norma pertinente
ISO14064-3

Porcentagem de emissões divulgadas e verificadas (%)
100

C10.2

(C10.2) Você verifica alguma informação relacionada ao clima relatada em sua divulgação do CDP, além dos valores de emissões relatados em C6.1, C6.3 e C6.5?
Sim

C10.2a

(C10.2a) Quais pontos de dados da divulgação ao CDP foram verificados e quais normas de verificação foram usadas?

A verificação do módulo de divulgação se refere a	Dados verificados	Norma de verificação	Por favor, explique
C6. Dados de emissões	Verificação do impacto dos produtos	The product life cycle study was evaluated within the general guidelines for conducting Life Cycle Assessment studies established by ISO 14040 - Environmental Management - Life Cycle assessment - Principles and Framework and ISO 14044 - Environmental Management - Life Cycle Assessment - Requirements and Guidelines - (ISO, 2006a and ISO, 2006b).	Klabin's main products (64% of the portfolio) are evaluated using the ISO 14040 methodology. Through this methodology, we were able to identify the carbon footprint and the main points of carbon emission along the chain. What enables better targeting of actions and investments to reduce carbon. In 2020, some Life Cycle Assessment and Carbon Footprint studies were finalized and verified by a third party for the following products: common sacks of 25 kgs of cement, common sacks of 25 kgs of flour and common sacks of 8 kgs of lime. Carbon Footprint studies were also started for bleached eucalyptus pulp from the Puma unit, Eukaliner and dispersible sacks from Lages. In 2020, Klabin invested about BRL 206,350 to evaluate the life cycle of products, and the results are shared with some customers, which also allows joint actions to reduce carbon in the chain.
C5. Desempenho das emissões	Variação nas emissões de Escopo 1 em relação a um ano base (não relacionado à meta)	The company's greenhouse gas inventories are calculated according to the methodology of the Brazilian GHG Protocol Program. Since 2010, the company has been reporting its inventories on the Public Emissions Registry platform and since 2011 they have been verified by a third party, according to Verification Specifications of the Brazilian GHG Protocol Program and the ABNT NBR ISO 14064-3: 2007 standard.	Klabin's greenhouse gas inventory is assessed using the Brazilian GHG Protocol methodology and the ABNT NBR ISO 14064-3: 2007 standard. With this methodology, we were able to map the main sources of carbon emissions in the company. Klabin's inventory is audited by a third party and made available at the Public Emissions Registry.

C11. Precificação do carbono

C11.1

(C11.1) Alguma (ou algumas) de suas operações ou atividades é regulamentada por um sistema de precificação do carbono (por ex., ETS, Cap & Trade ou Carbon Tax)?

Não, mas prevemos ser regulamentados nos próximos três anos

C11.1d

(C11.1d) Qual é a estratégia para estar em conformidade com os sistemas que regulam a empresa ou que se prevê que a regulem?

Since 2018, Klabin has been adopting methodologies for internal carbon pricing. To assess the impact and strategic investments in the face of possible regulation in Brazil, (ETS and / or tax) a shadow price (R$ 40) is adopted. This value was defined based on studies by the Ministry of Economy of Brazil that analyzes the ways to price carbon in the country. R$ 40 would be the average amount needed to induce investment in low carbon technologies. This value also reflects (in reais) the average carbon price in Latin American countries, which have mandatory carbon pricing schemes.

Sensitivity analyzes are performed to better understand the impacts of the carbon cost. Klabin has two industrial units, Puma and Monte Alegre, with emissions scope 1 above 200,000 tCO2e, being liable to be regulated if the Brazilian government in the future adopt a cap and trade scheme or taxation. Thus, analyzes are made to identify the financial impact of carbon pricing. The financial impact is measured by the product between the value of the carbon tax/allowance (US$ 7 = R$ 40) versus the total scope 1 emissions of the Puma and Monte Alegre units in 2019 - 532.101 t CO2e = BRL 14,9 million. It is annual cost.

In addition, Klabin prepares a MACC to identify and prioritize mitigation measures / low carbon technologies, as well as to stimulate business opportunities / cost reduction. A MAAC permits an easy to read visualization of various mitigation options or measures organized by a single, understandable metric: economic cost of emissions abatement. It is possible to assess/compare the (i) cost of regulation x (ii) the cost of investing in low carbon technology – BRL/tCO2 both. As the MACC presents the marginal cost of carbon, which facilitates the company in decisions such as investing in low carbon technologies or paying the fee or allowance. Serving as a basis for comparing the price of carbon when it is regulated in Brazil.

Thus, by prioritizing technologies, Klabin has a pipeline of technologies that will be implemented in the short and medium term to achieve its carbon reduction target and take advantage of opportunities to increase resource efficiency.

In 2020, to improve internal carbon pricing analyzes, Klabin extended the study considering the impact of carbon pricing on the chain, especially in the purchase of inputs that may pass on the cost of carbon pricing. Thus, the financial impact was calculated based on the projected increase in the purchase price of energy and fuels consumed by the company.

Based on a study and literary review, it was considered, in the scenario of the establishment of the national carbon pricing market, an increase in the price of energy by 3% (CNI, 2020) and an increase of 8% in the price of fossil fuels (CNI, 2020). CNI – Brazilian National Confederation of Industry

Furthermore, in the last years Klabin also participates together with other companies in an exercise that simulates an emissions trading system in Brazil - Brazilian Emissions Trading Simulation. Exercise elaborated by Sustainability Center Studies from Getulio Vargas Foundation.

C11.2

(C11.2) Sua organização criou ou adquiriu créditos de carbono com base em projetos no período de divulgação?

Não

C11.3

(C11.3) A organização usa um preço interno do carbono?

Sim

C11.3a

(C11.3a) Forneça detalhes de como sua organização usa um preço interno do carbono.

Objetivo para implementação de um preço interno do carbono
Navegar pelas regulamentações de GEE
Gerar investimentos de baixo carbono
Fazer o teste de estresse nos investimentos
Identificar e aproveitar oportunidades de baixo carbono

Escopo de GEE
Escopo 1

Aplicação
We simulate that emissions from stationary sources (of our industrial units with annual emissions > 200,000 tonCO2e) are regulated. In this case, the Klabin units apply the carbon pricing for the Monte Alegre and PUMA units, both located in the state of Parana.

Preços reais usados (moeda/tonelada métrica)
40

Variação de preços usada
± BRL 5.0

Tipo de preço interno do carbono
Preço-sombra
Preço implícito
Compensações

Impacto e implicação
1 - Shadow price: Due the possible impacts of the carbon regulation, for example tax or ETS, Klabin use a shadow price to understand the financial impact on the business revenue and EBITDA. We simulate that emissions from stationary sources (of our industrial units with annual emissions > 200,000 tonCO2e) are regulated. Impact & implication We conducted 'sensitivity analysis' based on: average carbon tax in Latin America – U$ 7.0. The carbon price is converted to Real. Our stationary emissions (532.101 tCO2e) X medium carbon tax (BRL 40.00) = around BRL 21,284,040. Less than 1% of the 2020 Adjusted Ebitda (R$ 4.906 millions). 2 - MACC - Klabin has been structuring a Marginal Abatement Cost Curves to identify the cost of the technologies and reduction emission potential. Impact & implication The MACC contributes to understand better the cost effective emission abatement of the company, contributing to identify and prioritize the emission reduction measures. A MAAC permits an easy to read visualization of various mitigation options or measures organized by a single, understandable metric: economic cost of emissions abatement. It is possible to assess/compare the (i) cost of regulation x (ii) the cost of investing in low carbon technology – BRL/tCO2 both In some cases, the cost of possible carbon regulation (in Brazil) will enable some investments. In additional, some technologies measures offers economic gains. 3 - Offsets – the company has an offset project base on restoration areas with planted forest. This project was submitted to UNFCCC and Brazilian government. It is expected the negotiation these offsets in future carbon market in Brazil. A percentage of the offsets can be used as a flexible mechanism in the regulated market. Impact & implication An expected economic gain from sales of offsets, to identify this opportunity we use the currently offset price ($ 3 = BRL 11.58) X 4,645,40 tCO2e expected offsets (it will be generated) = around BRL 53 million.

C12. Engajamento

C12.1

(C12.1) Há engajamento da empresa com a cadeia de valor nas questões relacionadas ao clima?
Sim, com nossos fornecedores
Sim, com nossos clientes
Sim, com outros parceiros da cadeia de valor

C12.1a

(C12.1a) Dê detalhes da estratégia de engajamento com os fornecedores sobre questões climáticas.

Tipo de engajamento
Engajamento e incentivação (mudança no comportamento dos fornecedores)

Detalhes do engajamento
Realizar campanhas de engajamento para instruir os fornecedores sobre as mudanças climáticas

Porcentagem de fornecedores por número
27

Porcentagem do total de gastos com aquisição (diretos e indiretos)
56

Porcentagem das emissões de Escopo 3 relacionadas aos fornecedores, conforme divulgado em C6.5
100

Justificativa para a cobertura do engajamento
Klabin has a due diligence system for raw materials supplied without FSC® certification, guided by the FSC Controlled Wood procedure, guarantees traceability through internal audits that are verified annually by an external auditor in the Chain of Custody audit FSC. Since certified suppliers are audited annually for forest management certification, we focus our efforts on non-certified producers in this way, Iin 2020, 836 audits were realized in Paraná and Santa Catarina; approximately 214 suppliers were evaluated by Klabin's commercial team. Klabin audits all wood suppliers on a quarterly basis. In case of non-compliance, Klabin stops supplying immediately and sends a recommendation of adequacy. After fulfilling the recommendations, the supplier is audited again and, in the event of no pending issues, the supply contract is resumed. In 2020, six suppliers were blocked in the system. The causes ranged from outdated documents to poor accommodation conditions. After the recommendations, all of them adapted to the quality standard required in the process. 31% of the total purchased ton (about 5,7 million) refers to controlled wood.

Impacto do engajamento, incluindo as medições de sucesso
Klabin audits all wood suppliers on a quarterly basis. Audit checklist contemplates environmental; social and work conditions issues. Severity of operational deviations follows the same logic as the external certification audits: observations (minor severity) and non-conformities (major severity). For example, (I) operational procedure is outdated, but this situation was punctual/ not recurrent, so this is pointed out as an observation; (II) unhealthy work conditions for employees is considered as a non-compliance. In case of non-compliance, Klabin suspends the audited supplier's wood supplying immediately and sends a recommendation of adequacy. After fulfilling the recommendations, the supplier undergoes a new audit and, in the event of no pending issues, the supply contract is resumed.Commercial team monitors non-conformities, observations and the action plan for them through an internal system (developed in PowerBi). Periodically (bimonthly) internal meetings are held between commercial and certification team for a critical analysis of the process. Klabin measures the success by compliance percentage of sustainability parameters. In 2020, 99% of the evaluated items involved were attended; the 1% refers to update documents and adequacy of accommodation for employees. For 2021's target is to reach 100%. The impact of this engagement for the company is to bring security to Klabin's processes, ensuring the traceability of raw materials and the non-acquisition of wood from controversial sources. If we didn't have it, we would harm the auditing of the custody chain, where it is inserted.

Comentários
In 2020, 99% of the evaluated items involved were attended; the 1% refers to update documents and adequacy of accommodation for employees. For 2021's target is to reach 100%.

Tipo de engajamento
Conformidade e integração

Detalhes do engajamento
As mudanças climáticas estão integradas nos processos de avaliação de fornecedores

Porcentagem de fornecedores por número
7

Porcentagem do total de gastos com aquisição (diretos e indiretos)
54

Porcentagem das emissões de Escopo 3 relacionadas aos fornecedores, conforme divulgado em C6.5
100

Justificativa para a cobertura do engajamento
Klabin took an important step in improving supply chain management in 2019 with the adoption of the EcoVadis methodology for supplier assessment, aimed at classifying sustainability in several aspects: financial, labor & human rights, environment and social issues. Klabin has selected 472 strategic suppliers from our portfolio (around 7,000 suppliers), representing 7% by number and 54% of total procurement spend of supply chain, to participate in the assessment, which considers questions grouped into four major themes: Environment (e.g water issues), Labor and Human Rights, Ethics and Sustainable Procurement. The strategic suppliers were selected according to criticality matrix of supply chain team that assesses aspects-related to potential impacts on business and sustainability area. Our suppliers are incentivized to participate the Ecovadis assessment through our supply contracts which request that they comply with the sustainability standards as defined in our Supplier Code.

Impacto do engajamento, incluindo as medições de sucesso
Divided into three phases, 110 strategic suppliers were selected for the first phase in 2019. With an adherence by 78%, the result was considered above average by EcoVadis itself. To suppliers maintain within our procurement strategy, Klabin requires all suppliers to report their direct use of water, water-related actions and water-related potential risks. In situations where the result of this reporting is less than minimum score required (<35), suppliers are requested to elaborate an action plan to improve your score. In case of this score be critical (<25), Klabin realizes a follow-up audits in suppliers. We have found this assessment has helped us to identify on our supply chain the major water-related risks who we are exposed. We have the ambitious target evaluating 100% of critical suppliers by the end of 2030. The success is measured by number of suppliers with water actions every year. In 2019, 72% of 86 suppliers report that they had actions to reduce, reuse or other water actions. In 2020, the second phase selected 96 strategic suppliers to participate of this Program. In this phase, we reach an excellent adherence by 88% of participation, much above average by EcoVadis itself. Still in this phase, no supplier scored less than 25 and therefore no on-site audits were carried out. In 2020, 75% of 84 suppliers report that they had actions to reduce emissions or other climate changes related actions.

Comentários
EcoVadis is a collaborative platform that allows measuring the quality of a company's Corporate Social Responsibility management system through its policies, actions and results. It is used by more than 50 thousand companies in the world. In 2020, the participation is voluntary and requires an investment by suppliers. For this reason, Klabin financed the participation of smaller companies.

C12.1b

(C12.1b) Forneça detalhes de sua estratégia de engajamento com os clientes nas questões relacionadas ao clima.

Tipo de engajamento
Compartilhamento de aprendizado/informações

Detalhes do engajamento
Compartilhar informações sobre os produtos e os esquemas de certificação relevantes (por ex., Energy STAR)

Porcentagem de clientes por número
100

Porcentagem das emissões de Escopo 3 relacionadas aos clientes, conforme reportado em C6.5
100

Abrangência do portfólio (total ou pendente)
<Not Applicable>

Explique a justificativa para selecionar este grupo de clientes e o escopo do engajamento
Klabin shares information with all its customers regarding information related to the organization's atmospheric emissions and certifications. There are some specific customers where Klabin periodically responds to information on air emissions, sustainability and the environment. It is important to mention that over the years more customers are requesting the supply engagment questionnaire in the CDP. This demonstrates the company's commitment to stakeholder engagement and transparency in information sharing. In addition, for all customers (and for this reason it is considered 100%), Klabin publicly announces its results and actions related to climate change. Some of the shared documents are: Public record of atmospheric emissions, disclosure of results on the Klabin website, Corporate Sustainability Index Report (ISE), Klabin Sustainability Report, Dow Jones Report, among others.

Impacto do engajamento, incluindo as medições de sucesso
Klabin's customers are one of the stakeholder groups which have most driven and challenged the Company on its path to a low carbon economy. This is reinforced by Klabin's Policy of Stakeholder Engagement, which states that the Company should seek to meet the needs of its customers, considering their growing demand for gains in innovation and sustainability of its products. The theme Customers and Products is increasingly linked to innovation and sustainability and is considered one of Klabin's Objectives for Sustainable Development (KODS). In 2020, the company established a goal of having 10 benchmarking cases of circular economy in partnership with customers by 2030, this goal is part of Klabin's Agenda 2030 and the KODS. The indicator of engagement with customers is the number of circular economy cases performed with customers, in 2020 a one case was performed, in the Sacks business, we launched the hydrodispersible sack for cements, created in partnership with Votorantim Cimentos, which is 100% composed of dispersible paper, which means it can be integrated into the process at the time of concrete preparation, reducing the amount of waste generated for landfill. Furthermore, Klabin conducts annual satisfaction or perception surveys specific to each of its businesses with the objective of identifying strong points and opportunities for improvement in products, processes and performance. Indicators of quality, safety, qualification, technical support and sustainability (including life cycle analysis) are part of the surveys. A highlight is the annual Pulp survey, answered by customers who represent about 80% of the volume sold and evaluate Klabin with an excellent score (4.4 out of 5 total points). For the company, the impact of sharing information through the sustainability report and questionnaires focused on climate change is related to the scores obtained on completed forms for specific customers, in which Klabin currently has the highest score in all answered questionnaires. In addition, the main indicator of this engagement is the loss of customers due to environmental issues, whose impact of success is 100%, since there were no losses of Klabin's customers due to such issues.

C12.1d

(C12.1d) Dê detalhes sobre a estratégia de engajamento com outros parceiros da cadeia de valor para as questões climáticas.

Situation: In 2017, Klabin began a program of engagement and approximation with the communities where the company has forestry operations called "Klabin at School". In this way, it seeks a social license to operate in these communities, taking care that the forestry operation does not cause inconvenience, especially when we think about the dust on the roads and accidents with trucks and heavy machinery.

Task: The purpose of this program is to get closer to the communities and take environmental issues to the students, show them a little about who we are and what we do.

Action: In this program, Klabin gets closer to the community, showing its initiatives of sustainable development in the communities where it has operations, taking environmental issues to school students, showing them a little about our socio-environmental programs, as well as guidance on safety during the forestry operation period, thus making it possible to strengthen the relationship with the communities.

Results: Since the beginning of the program, more than 5,300 students from 15 municipalities where Klabin operates have been engaged. Klabin monitors engagement through a survey that evaluates speakers, visits and chosen topics. In the year 2020, due to safety protocols to combat the COVID-19 pandemic, the initiative's actions were paused.

For the company, the program has a positive impact on its image and reputation, as it is a way to get closer to the community. Emphasizing the approximate time that the operation will take place in that location, reinforcing the good relationship that the company seeks in terms of guidance, because we talk a little about the risks of approaching the operation, in case it is too close to the houses, disclosure of the 0800 number, so that they can make this report to the family if necessary.

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

(C-AC12.2/C-FB12.2/C-PF12.2) Você incentiva seus fornecedores a adotarem práticas de gestão agrícola ou florestal com benefícios de mitigação e/ou adaptação às mudanças climáticas?
Sim

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

(C-AC12.2a/C-FB12.2a/C-PF12.2a) Especifique quais práticas de manejo agrícola ou florestal com os benefícios de mitigação e/ou adaptação às mudanças climáticas a empresa incentiva seus fornecedores a adotar e descreva seu papel na implementação de cada prática.

Número de referência da prática de manejo
MP1

Prática de manejo
Reflorestamento

Descrição da prática de manejo
We develop practices of adequacy, conservation and environmental preservation in rural properties.

Seu papel na implementação
Financeiro
Compartilhamento de conhecimentos
Operacional
Compras

Explicação sobre o modo de incentivo à implementação
Klabin adopts programs and plays the role of its suppliers and its region owners in order to improve the conditions of its stakeholders, as well as to comply with environmental laws, the preservation and management of companies and plantations. The main programs are: Matas Legais - Developed in partnership with the Association of Preservation of Environment and Life (Apremavi), it promotes actions of rural property planning, conservation and environmental education in the states of Paraná and Santa Catarina. It guides small and medium-sized owners to perform more efficiently and with greater profitability, in addition to preserving ecosystems. Producers take courses, lectures and exchange visits and receive free seedlings of native plants. The program also encourages forestry with planted pine and eucalyptus forests, organic agriculture and ecotourism. Fomento Florestal [Forest Development] - economic, social and environmental development by promoting the planting of pine and eucalyptus in idle areas of rural properties. In addition to the seedlings, Klabin provides the necessary guidance for correct land management. The process assists in the establishment of rural populations, promotes plant recovery and stimulates regional development. Planning for Sustainable Properties (Matas Sociais) - This program has been developed since August 2015 in partnership with APREMAVI, TNC and SEBRAE, to promote the economic, environmental and social strengthening of small and medium-sized rural properties. It develops actions that assist the producer in the environmental, legal and landscape adaptation of the property, in the planning and diversification of the production, strengthening initiatives of association and cooperativism, and facilitating the access to the new opportunities of market and regional development.

Benefício relacionado às mudanças climáticas
Reduções de emissões (mitigação)
Aumento no reservatório de carbono (mitigação)

Comentários
In 2020, Matas legais program had XX new owners; 34,419 seedlings donated; 519 ha of demarcated areas of preservation. Its is also important to mention that this program reduced greenhouse gas emissions in 5,631.15 tCO2eq using as base the value of 10.85 tCO2eq / ha calculated according to the CO2 sequestration of the native forests in relation to a total area that a Klabin has (Brazilian GHG Protocol Metodology used). In 2020, "Plante com a Klabin", the company's new forest partnership program, signed 32 contracts with 26 landowners, covering an area of approximately 1,554 ha. Planning Sustainable Properties (Matas Sociais) - Serves 605 rural properties.

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

(C-AC12.2b/C-FB12.2b/C-PF12.2b) A empresa coleta informações dos fornecedores sobre os resultados de quaisquer práticas de manejo agrícola/florestal que tenha incentivado?
Sim

C12.3

(C12.3) Há engajamento da empresa em atividades que possam, direta ou indiretamente, influenciar as políticas públicas nas questões climáticas por meio de alguma das seguintes formas?
Engajamento direto com os formuladores de políticas públicas
Associações comerciais
Financiamento de organizações de pesquisa
Outros

C12.3a

(C12.3a) Em quais aspectos a empresa está engajada diretamente com os formuladores de políticas públicas?

Foco da legislação	Posição corporativa	Detalhes do engajamento	Solução legislativa proposta
Reporte obrigatório de emissões de carbono	Apoio com pequenas exceções	Klabin's report is based on The Greenhouse Gas Protocol (GHG Protocol) which is the most widely used international accounting tool for government and business leaders to understand, quantify, and manage greenhouse gas emissions. Furthermore, Klabin takes part on "Iniciativas Empresariais" from Getulio Vargas Foundation a platform which mobilizes, raises awareness and influences companies to manage and reduce greenhouse gas emissions, manage climate risks and propose public policies and positive incentives in the context of climate change. Also, Klabin takes part of the Coalition Brazil Climate, Forests and Agriculture, initiative formed by businesses, civil society organizations and individuals interested in contributing to the national agenda on sustainable use of forests, sustainable agriculture and mitigation and adaptation to climate change in Brazil and in the world. Currently, the Coalition is promoting a dialogue between its participants, the federal government and the main international organizations related in order to contribute to the multilateral negotiations and economic agenda in the country. The minor exceptions refers to GHG Protocol methodology which currently considers only emissions, not including removals by sinks.	Because of these programs, Klabin is a reference for public consultations on carbon emissions and climate policies. The legislative proposals are made by the Coalition Brazil Climate, Forests and Agriculture, which represents Klabin and other companies. The Coalition promotes debates between member companies and the government, in order to allow the private sector to collaborate in the construction of public policies for a low carbon economy in Brazil. Another initiative is the reporting of emissions in the Public Emissions Registry, of the Brazilian GHG Protocol Program, which Klabin does voluntarily for all its operations and encourages the participation of its suppliers because it is a tool which helps establish public policies in Brazil. Together, we participate in the initiative Parana Climate Seal, of the Secretary of the Environment of Parana, where companies are encouraged to report their emissions and recognized for their management of the same, we also report to the Inventory of Greenhouse Gases of the State of Sao Paulo, an initiative of CETESB. Klabin supports these programs and encourages the voluntary participation of the companies in the construction of public policies.
Cap and Trade	Apoio	Klabin takes part, for the sixth year, in an Emissions Trading System Simulation, performed by Getulio Vargas Foundation. This initiative aims to discuss the best guidelines for implementing a cap and trade in Brazil. These guidelines are shared and discussed with policymakers in the country.	Promoted by Getulio Vargas Foundation in partnership with EDF – Environmental Defend Fund. The purpose of this simulation is to provide the business sector with a realistic and hands-on experience on how a 'cap-and-trade' system works. The simulation foundations were built throughout 2013 through a joint process with Brazilian companies, inspired by similar - real and simulated - experiences, in a number of countries and regions worldwide. It is worth mentioning, however, that in early 2015 Klabin established a Climate Committee: working group responsible for assessing the Global Climate agenda evolution and for interpreting its implications (risks andopportunities) for the company's operations. With representatives from various areas of the company and with thesupport of an external expert, the challenge proposed to the committee is to align internal action and goals with those set by global Climate science. In 2016 and 2018, we did a complex study of climate vulnerabilities which is on use to develop your strategy to manage this subject in the whole company.
Eficiência energética	Apoio	Klabin's report is based on The Greenhouse Gas Protocol (GHG Protocol) which is the most widely used international accounting tool for government and business leaders to understand, quantify, and manage greenhouse gas emissions. Furthermore, Klabin takes part on the Coalition Brazil Climate, Forest and Agriculture, a initiative which mobilizes, raises awareness and influences business leaders to manage and reduce greenhouse gas emissions, manage climate risks and propose public policies and positive incentives in the context of climate change. Currently, the Coalition is promoting a dialogue between its participants, the federal government and the main international organizations related in order to contribute to the multilateral negotiations and economic agenda in the country.	In reason of this programs, Klabin is reference of public consults of carbon emissions and climate policies. The legislative proposes are done by "Coalition Brazil Climate, Forest and Agriculture, which represents Klabin and others companies and ONG's. The Coalition promoves debates between member companies and the government, in order to enable the private sector collaboration in the building of public policies for a low-carbon economy in Brazil. Periodically, Coalition launches publications with visions and technical foundations (constructed by companies, NGOs and other participants in the initiative) about environmental public policy in Brazil, especially considering the climate and low-carbon agriculture agenda. The Coalition is an example of engagement of different stakeholders to debate climate and environmental public policies. In the agenda of climate the follow topics are cover: Brazilian carbon market considering the potential of the country to provide carbon credits and the studies of Brazilian government to establish possible cap and trade in the country, efficiency and renewable energy. It is important to mention that Klabin has a professional of the company with lof of experience actively participating in the Coalition. In addition, Klabin take part of the Brazilian Industry Tree that has a specific committee to debate the climate agenda i (carbon market, renewable energy, efficiency and other) in the pulp and paper sector aiming to positively explore the sector's potential for a low-carbon economy. Part of the scope of work of this committee is related to dialogue with Brazilian policymakers. Besides, Klabin also take part of "Iniciativas Empresariais" from Getulio Vargas Foundation, that create of a first-of-its-kind collaboration network and building of best practices to manage GHG emissions. Its goals are: mobilize, engage and involve corporate professionals for managing and reducing GHG emissions, managing climate risks, and suggesting public policies and positive incentives in the context of climate change.
Geração de energia limpa	Apoio	Klabin's report is based on The Greenhouse Gas Protocol (GHG Protocol) which is the most widely used international accounting tool for government and business leaders to understand, quantify, and manage greenhouse gas emissions. Furthermore, Klabin takes part on the Coalition Brazil Climate, Forest and Agriculture a initiative which mobilizes, raises awareness and influences business leaders to manage and reduce greenhouse gas emissions, manage climate risks and propose public policies and positive incentives in the context of climate change.	In reason of this programs, Klabin is reference of public consults of carbon emissions and climate policies. The legislative proposes are done by "Coalition Brazil Climate, Forest and Agriculture, which represents Klabin and others companies and ONG's. The Coalition promoves debates between member companies and the government, in order to enable the private sector collaboration in the building of public policies for a low-carbon economy in Brazil. Periodically, Coalition launches publications with visions and technical foundations (constructed by companies, NGOs and other participants in the initiative) about environmental public policy in Brazil, especially considering the climate and low-carbon agriculture agenda. The Coalition is an example of engagement of different stakeholders to debate climate and environmental public policies. In the agenda of climate the follow topics are cover: Brazilian carbon market considering the potential of the country to provide carbon credits and the studies of Brazilian government to establish possible cap and trade in the country, efficiency and renewable energy. It is important to mention that Klabin has a professional of the company with lof of experience actively participating in the Coalition. In addition, Klabin take part of the Brazilian Industry Tree that has a specific committee to debate the climate agenda i (carbon market, renewable energy, efficiency and other) in the pulp and paper sector aiming to positively explore the sector's potential for a low-carbon economy. Part of the scope of work of this committee is related to dialogue with Brazilian policymakers. Besides, Klabin also take part of "Iniciativas Empresariais" from Getulio Vargas Foundation, that create of a first-of-its-kind collaboration network and building of best practices to manage GHG emissions. Its goals are: mobilize, engage and involve corporate professionals for managing and reducing GHG emissions, managing climate risks, and suggesting public policies and positive incentives in the context of climate change. In 2020, 90% of our energy was generated from renewable resources.

C12.3b

(C12.3b) A empresa faz parte do Conselho de alguma associação comercial ou oferece, além da taxa de associação, outro tipo de apoio financeiro?

Sim

C12.3c

(C12.3c) Insira os detalhes sobre as associações comerciais que estão mais propensas a posicionar-se sobre legislação na área de mudanças climáticas.

Associação comercial
Brazilian Tree Industry

A posição da empresa em relação às mudanças climáticas é consistente com a dessas associações?
Consistente

Explique o posicionamento da associação comercial
The Brazilian Tree Industry has a permanent committee (Climate Group) which aims to discuss together business leaders sector to manage and reduce GHG emissions, the climate risks management and policy building and positive incentives in the context of climate change. The Brazilian Tree Industry promotes debates between member companies and the government, in order to enable the private sector collaboration in the building of public policies for a low-carbon economy in Brazil. The Committee also participates in international discussions on the climate agenda, especially at COP. Brazil is one of the main producers of cellulose and packaging paper in the world. Klabin supports and participates in international involvement on the topic of climate change.

Como você influenciou ou tenta influenciar esse posicionamento?
Klabin actively takes part in discussion, forums and workshops aimed at Climate Change challenges and its possible impacts on legislation (among others).Klabin is reference of public consults of carbon emissions and climate policies. The legislative proposes are done by Brazilian Tree Industry – Climate Committee/Group , which represents Klabin and others companies.

Associação comercial
Coalition Brazil Climate, Forests and Agriculture

A posição da empresa em relação às mudanças climáticas é consistente com a dessas associações?
Consistente

Explique o posicionamento da associação comercial
Coalition Brazil Climate, Forests and Agriculture, initiative formed by businesses, civil society organizations and individuals interested in contributing to the national agenda on sustainable use of forests, sustainable agriculture and mitigation and adaptation to climate change in Brazil and in the world. Currently, the Coalition is promoting a dialogue between its participants, the federal government and the main international organizations related in order to contribute to the multilateral negotiations and economic agenda in the country.

Como você influenciou ou tenta influenciar esse posicionamento?
Klabin is one of the 5 principal particular areas planted and preserved in Brazil, so its represents the importance of our forest management in the country.

C12.3d

(C12.3d) A empresa divulga uma lista com todas as organizações de pesquisa que financia?
Sim

C12.3e

(C12.3e) Forneça detalhes sobre as outras atividades de engajamento empreendidas.

Coalition Brazil Climate, Forests and Agriculture, initiative formed by businesses, civil society organizations and individuals interested in contributing to the national agenda on sustainable use of forests, sustainable agriculture and mitigation and adaptation to climate change in Brazil and in the world. Currently, the Coalition is promoting a dialogue between its participants, the federal government and the main international organizations related in order to contribute to the multilateral negotiations and economic agenda in the country. Klabin also take part of “Iniciativas Empresariais” from Getulio Vargas Foundation, that create of a first-of-its-kind collaboration network and building of best practices to manage GHG emissions. Its goals are: mobilize, engage and involve corporate professionals for managing and reducing GHG emissions, managing climate risks, and suggesting public policies and positive incentives in the context of climate change.

C12.3f

(C12.3f) Quais os processos adotados para garantir que todas as atividades diretas e indiretas da empresa, que influenciam a política, sejam consistentes com a estratégia global de mudanças climáticas?

Klabin has restructured its team and created a specific corporate area of Sustainability and Environment that has as one of its objectives the day-to-day management of the issue with the responsibility of monitoring global and national climate agendas and mapping their related risks and opportunities related to all of the Klabin units. This team is responsible for operating and managing corporate issues related to the environment and sustainability in the organization.

As a complement to the inclusion of the activities of this corporate team, Klabin presents a fixed sustainability committee made up of representatives of the organization's board of directors whose objective is to discuss and insert sustainability-related issues (including climate change) into the organization's strategic planning.

The corporate sustainability and environmental team is responsible for following the demands of global and national climate agendas and mapping their related risks and opportunities and taking these issues to decision making in the sustainability committee.

In addition, the demands and decisions of this committee return the corporate team to operationalize and apply the actions together with the environmental teams located in Klabin units. This ensures that the issues related to our direct and indirect activities are linked to our strategy of climate change and organizational sustainability.

The success of this management model is ensured by a governance structure that involves all levels of the company, constantly interacting with each other and empowering all Klabin's areas and employees.

C12.4

(C12.4) Além da resposta ao CDP, a empresa publicou alguma informação sobre sua resposta frente às mudanças climáticas e ao desempenho das emissões de GEEs no ano de referência? Em caso afirmativo, anexe as publicações.

Publicação
Nos relatórios tradicionais

Status
Completo

Anexar o documento
klabin-RS20-EN_web.pdf

Página/Seção de referência
Sections 'Susatainable economy' and 'Renewable future'

Elementos do conteúdo
Governança
Estratégia
Riscos e oportunidades
Valores de emissões
Metas de emissões
Outras métricas

Comentários
This is the organization's sustainability report. The document presents the main information on the performance and management practices of the company in the environmental, social and economic fields in the last year. The content was organized based on the correspondence between the nine most relevant themes for the business, pointed out in a materiality study conducted with Klabin's stakeholders and subsequently related to the Sustainable Development Goals (SDG) of the United Nations (UN). Since 2016, Klabin has voluntarily joined the SDG. In order to implement its commitment to the SDGs, Klabin complemented its sustainability policy and assumptions to cover all these issues, creating its own agenda, which was called Klabin Goals for sustainable development. In it, objectives and goals were outlined to guide the company's strategic planning for the next 10 years.

C13. Outros impactos de gestão da terra

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

(C-AC13.1/C-FB13.1/C-PF13.1) É possível informar se alguma das práticas de gerenciamento implementadas em sua própria terra divulgadas em C-AC4.4a/C-FB4.4a/C-PF4.4a tem outros impactos além da mitigação/adaptação às mudanças climáticas?
Sim

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

(C-AC13.1a/C-FB13.1a/C-PF13.1a) Forneça detalhes das práticas de gestão que tenham outros impactos além da mitigação/adaptação às mudanças climáticas e sobre sua resposta gerencial.

Número de referência da prática de manejo
MP1

Efeito geral
Positiva

Quais das seguintes opções sofreram impacto?
Biodiversidade
Solo
Água
Rendimento

Descrição do impacto
Klabin adopts programs and plays the role of its suppliers and its region owners in order to improve the conditions of its stakeholders, as well as to comply with environmental laws, the preservation and management of companies and plantations. The main programs are: Matas Legais - Developed in partnership with the Association of Preservation of Environment and Life (Apremavi), it promotes actions of rural property planning, conservation and environmental education in the states of Paraná and Santa Catarina. It guides small and medium-sized owners to perform more efficiently and with greater profitability, in addition to preserving ecosystems. Producers take courses, lectures and exchange visits and receive free seedlings of native plants. The program also encourages forestry with planted pine and eucalyptus forests, organic agriculture and ecotourism. 'Plante com a Klabin', Programa de Fomento Florestal [Forest Development] - economic, social and environmental development by promoting the planting of pine and eucalyptus in idle areas of rural properties. In addition to the seedlings, Klabin provides the necessary guidance for correct land management. The process assists in the establishment of rural populations, promotes plant recovery and stimulates regional development. Planning for Sustainable Properties (Matas Sociais) - This program has been developed since August 2015 in partnership with APREMAVI, TNC and SEBRAE, to promote the economic, environmental and social strengthening of small and medium-sized rural properties. It develops actions that assist the producer in the environmental, legal and landscape adaptation of the property, in the planning and diversification of the production, strengthening initiatives of association and cooperativism, and facilitating the access to the new opportunities of market and regional development.

Foi implementada alguma resposta a esses impactos?
Sim

Descrição das respostas
All Klabin forest stewardship units are certified by the FSC®. To ensure that good management practices and a commitment to sustainable development are extended to the timber supply chain, Klabin has since 2013 maintained the Forest Certification Program for Small and Medium-sized Rural Producers in the region of Campos Gerais, Paraná, During the Matas Legais program, 1184 properties were served; in 2020, 34,419 seedlings donated; 519 ha of demarcated areas of preservation. Its is also important to mention that this program reduced greenhouse gas emissions in 5,631.15 tCO2eq using as base the value of 10.85 tCO2eq / ha calculated according to the CO2 sequestration of the native forests in relation to a total area that a Klabin has (Brazilian GHG Protocol Metodology used).

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

(C-AC13.2/C-FB13.2/C-PF13.2) Sabe-se se alguma das práticas de gestão mencionadas em C-AC12.2a/C-FB12.2a/C-PF12.2a que foram implementadas pelos fornecedores têm outros impactos além da mitigação/adaptação às mudanças climáticas?
Sim

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

(C-AC13.2a/C-FB13.2a/C-PF13.2a) Forneça detalhes das práticas de gestão implementadas por seus fornecedores que tenham outros impactos além da mitigação/adaptação às mudanças climáticas.

Número de referência da prática de manejo
MP1

Efeito geral
Positiva

Quais das seguintes opções sofreram impacto?
Biodiversidade
Solo
Água
Rendimento

Descrição dos impactos
Klabin adopts programs and plays the role of its suppliers and its region owners in order to improve the conditions of its stakeholders, as well as to comply with environmental laws, the preservation and management of companies and plantations. The main programs are: Matas Legais - Developed in partnership with the Association of Preservation of Environment and Life (Apremavi), it promotes actions of rural property planning, conservation and environmental education in the states of Paraná and Santa Catarina. It guides small and medium-sized owners to perform more efficiently and with greater profitability, in addition to preserving ecosystems. Producers take courses, lectures and exchange visits and receive free seedlings of native plants. The program also encourages forestry with planted pine and eucalyptus forests, organic agriculture and ecotourism. 'Plante com a Klabin', Programa de Fomento Florestal [Forest Development] - economic, social and environmental development by promoting the planting of pine and eucalyptus in idle areas of rural properties. In addition to the seedlings, Klabin provides the necessary guidance for correct land management. The process assists in the establishment of rural populations, promotes plant recovery and stimulates regional development. Planning for Sustainable Properties (Matas Sociais) - This program has been developed since August 2015 in partnership with APREMAVI, TNC and SEBRAE, to promote the economic, environmental and social strengthening of small and medium-sized rural properties. It develops actions that assist the producer in the environmental, legal and landscape adaptation of the property, in the planning and diversification of the production, strengthening initiatives of association and cooperativism, and facilitating the access to the new opportunities of market and regional development.

Foi implementada alguma resposta a esses impactos?
Sim

Descrição das respostas
All Klabin forest stewardship units are certified by the FSC®. To ensure that good management practices and a commitment to sustainable development are extended to the timber supply chain, Klabin has since 2013 maintained the Forest Certification Program for Small and Medium-sized Rural Producers in the region of Campos Gerais, Paraná, During the Matas Legais program, 1184 properties were served; in 2020, 34,419 seedlings donated; 519 ha of demarcated areas of preservation. In 2020, "Plante com a Klabin", the company's new forest partnership program, signed 32 contracts with 26 landowners, covering an area of approximately 1,554 ha. Planning Sustainable Properties (Matas Sociais) - Serves 605 rural properties.

C15. Aprovação

C-FI

(C-FI) Use este campo para fornecer qualquer informação ou contexto adicional que considere relevante para a resposta da sua organização. Observe que este campo é opcional e não é pontuado.

No additional information.

C15.1

(C15.1) Forneça detalhes sobre a pessoa que assinou (aprovou) a resposta sobre mudanças climáticas ao CDP.

	Cargo	Categoria de trabalho correspondente
Linha 1	INDUSTRIAL TECHNOLOGY, INNOVATION, SUSTAINABILITY BUSINESS OFFICER	Diretor do Conselho

SC. Módulo de cadeia de fornecimento

SC0.0

(SC0.0) Se preferir, forneça uma introdução separada para este módulo.

For 122 years, Klabin has been part of the daily lives of millions of people by creating customized sustainable solutions for various industrial sectors. Klabin is the Brazil's largest paper manufacturer and exporter and the country's leading producer of papers and paperboard for packaging, industrial bags and corrugated board packaging. Moreover, we are the only Brazilian company to simultaneously supply hardwood pulp (eucalyptus), softwood pulp (pine) and fluff pulp to the market.

Founded in Brazil in 1899, currently has 18 industrial units, with 17 units distributed in nine Brazilian states and one in Argentina. Klabin also has commercial offices in various Brazilian states, a branch office in the United States, Austria, and sales representatives and agents in many countries. Recently, in 2020, Klabin acquired five units from International Paper.

The paper and paperboard for packaging manufactured, as well as corrugated board packaging and industrial bags offer protection and safety to foods, beverages, hygiene and cleaning products, electronics and consumer appliances, cement, seeds, wheat flour, chemical products and other items.

Klabin's Integrity Program comprises a series of procedures to prevent, detect and remediate conduct that could expose Klabin to undesirable situations, while also implementing best global practices related to the matter. In this way, Klabin demonstrates its commitment to building ethical relationships, contributing to a more transparent business environment, strengthening its image, reputation and business strategy and helping to build a more just and sustainable society. The program, which is aligned with the UN Sustainable Development Goals (SDG), targets anyone who works or interacts with Klabin in the public or private sectors.

We are a global reference in sustainable development. Our forestry and industrial operations are based on this concept to help preserve biodiversity and the ecological balance of the ecosystems surrounding our operations. Klabin's sustainability policy integrates the entire production chain to offer the market environmentally responsible products.

To Klabin, sustainability is the continuous creation of value that prioritizes balance among the economic, social and environmental dimensions. We are a unique forestry company with a responsible management that is committed to biodiversity. We work in collaboration with our clients and suppliers, always guided by innovation and the constant improvement of our products and processes. We together to foster the engagement and development of our people and local communities to achieve increasingly better and sustainable results for the entire value chain.

We directly and indirectly influence the social and economic dynamics of the communities living in the cities where we operate. More than just offering good job opportunities, Klabin invests in the region so that the entire population benefits from initiatives in the areas of local development, education, culture and environmental education. Klabin also offers its employees programs to promote their personal development and volunteer initiatives.

All of Klabin's operations incorporate into their strategy environmental management aspects, such as water, energy, climate change and biodiversity. In this way, the company strengthens its commitment to preserve natural resources, such as by working to reduce the use of non-renewable resources, controlling environmental impacts, monitoring biodiversity and preserving fauna and flora in the forests where it operates.

To guarantee quality, attest to the credibility of our products and reinforce our commitment to continuous improvement, our processes are certified by a number of systems and methodologies that are widely recognized in the global market. The certifications that Klabin holds attest to its pioneering efforts in meeting the needs of its clients and anticipating market trends.

Klabin has a research team working at two research facilities focused on improving its production chain. The first – the Forestry Research Center in Lagoa, Telêmaco Borba (PR) – is dedicated to studying everything related to the forestry chain, such as genetic enhancement, wood quality, soil and climate studies, genetic adaptation, pest control and biotechnology, among others. The mission of the other Technology Center, also located in Telêmaco, is to improve the quality of products, while anticipating trends and developing new technologies and sustainable applications. The professionals seek solutions for an increasingly more efficient consumption of inputs in order to minimize environmental impacts.

The company creates 21,000 jobs (direct and indirect) and invests regularly in people development to promote competencies specific to its business, well-being and safety.

SC0.1

(SC0.1) Qual é a receita anual da sua empresa para o período de referência declarado?

	Receita anual
Linha 1	11949000000

SC0.2

(SC0.2) Sua empresa tem um ISIN que você esteja disposto a compartilhar com o CDP?

Sim

SC0.2a

(SC0.2a) Use a tabela abaixo para compartilhar o ISIN.

	Código de país ISIN (duas letras)	Identificador numérico ISIN e dígito de verificação simples (10 números ao todo)
Linha 1	BR	KLBNCDAM18

SC1.1

(SC1.1) Aloque as emissões da empresa para os clientes listados abaixo, de acordo com os bens e serviços que vendeu para eles neste período de referência.

Membro solicitante
Ambev S.A

Escopo das emissões
Escopo 1

Nível de alocação
A empresa como um todo

Detalhes do nível de alocação
<Not Applicable>

Emissões em toneladas métricas de CO2e
0.158

Incerteza (±%)
0.5

Principais fontes de emissões
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Verificada(s)
Sim

Método de alocação
Alocação com base no peso dos produtos adquiridos

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Membro solicitante
L'Oréal

Escopo das emissões
Escopo 1

Nível de alocação
A empresa como um todo

Detalhes do nível de alocação
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Membro solicitante
Marfrig Global Foods S/A

Escopo das emissões
Escopo 1

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A empresa como um todo

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Membro solicitante
PepsiCo, Inc.

Escopo das emissões
Escopo 1

Nível de alocação
A empresa como um todo

Detalhes do nível de alocação
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Método de alocação
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Membro solicitante
Santa Catarina

Escopo das emissões
Escopo 1

Nível de alocação
A empresa como um todo

Detalhes do nível de alocação
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Membro solicitante
The Coca-Cola Company

Escopo das emissões
Escopo 1

Nível de alocação
A empresa como um todo

Detalhes do nível de alocação
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Membro solicitante
Unilever plc

Escopo das emissões
Escopo 1

Nível de alocação
A empresa como um todo

Detalhes do nível de alocação
<Not Applicable>

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Membro solicitante
Ambev S.A

Escopo das emissões
Escopo 2

Nível de alocação
A empresa como um todo

Detalhes do nível de alocação
<Not Applicable>

Emissões em toneladas métricas de CO2e
0.006

Incerteza (±%)
0.5

Principais fontes de emissões
This reported result is related to the amount of GHG emissions related to Scope 2 by the market-based method. These issues are related to the total amount of energy purchased by Klabin S/A in 2020 deducting the 62% of certified purchased energy coming from renewable sources (hydroelectric). Since 2017, Klabin has also reported its scope 2 emissions by the market-based method.

Verificada(s)
Sim

Método de alocação
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Membro solicitante
L'Oréal

Escopo das emissões
Escopo 2

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A empresa como um todo

Detalhes do nível de alocação
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Membro solicitante
Marfrig Global Foods S/A

Escopo das emissões
Escopo 2

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Membro solicitante
PepsiCo, Inc.

Escopo das emissões
Escopo 2

Nível de alocação

A empresa como um todo

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Membro solicitante
Santa Catarina

Escopo das emissões
Escopo 2

Nível de alocação
A empresa como um todo

Detalhes do nível de alocação
<Not Applicable>

Emissões em toneladas métricas de CO2e
0.006

Incerteza (±%)
0.5

Principais fontes de emissões
This reported result is related to the amount of GHG emissions related to Scope 2 by the market-based method. These issues are related to the total amount of energy purchased by Klabin S/A in 2020 deducting the 62% of certified purchased energy coming from renewable sources (hydroelectric). Since 2017, Klabin has also reported its scope 2 emissions by the market-based method.

Verificada(s)
Sim

Método de alocação
Alocação com base no peso dos produtos adquiridos

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Membro solicitante
The Coca-Cola Company

Escopo das emissões
Escopo 2

Nível de alocação
A empresa como um todo

Detalhes do nível de alocação
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Verificada(s)
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Membro solicitante
Unilever plc

Escopo das emissões
Escopo 2

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A empresa como um todo

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Membro solicitante
Ambev S.A

Escopo das emissões
Escopo 3

Nível de alocação
A empresa como um todo

Detalhes do nível de alocação
<Not Applicable>

Emissões em toneladas métricas de CO2e
0.102

Incerteza (±%)
0.5

Principais fontes de emissões
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Verificada(s)
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Método de alocação
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Membro solicitante
L'Oréal

Escopo das emissões
Escopo 3

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A empresa como um todo

Detalhes do nível de alocação
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Membro solicitante
Marfrig Global Foods S/A

Escopo das emissões
Escopo 3

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A empresa como um todo

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Membro solicitante
PepsiCo, Inc.

Escopo das emissões
Escopo 3

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A empresa como um todo

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Membro solicitante
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Membro solicitante
The Coca-Cola Company

Escopo das emissões
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Membro solicitante
Unilever plc

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SC1.2

(SC1.2) No caso de terem sido publicadas informações na questão SC1.1, forneça referências.

The reported results of greenhouse gas emissions from Klabin S/A are available on the Brazilian Public Emissions Registry platform.

The Public Register of Emissions is a platform developed by the Brazilian GHG Protocol Program that assists in the publication of the inventories of greenhouse gas (GHG) emissions from member organizations of the Program.

It is currently the largest database of corporate inventories in Latin America.

The results can be found on the website:

https://www.registropublicodeemissoes.com.br/participantes/1461

SC1.3

(SC1.3) Quais os desafios de alocar emissões para diferentes clientes e o que o ajudaria a vencer esses desafios?

Desafios de alocação	Explique o que o ajudaria a vencer esses desafios
Não enfrentamos desafios	Klabin conducts its greenhouse gas inventory and publicly informs this data since 2010. Since the program is already consolidated within the organization, there are no quantification limitations, since all internally generated data is available for inventory preparation. The GHG Protocol is a tool used to understand, quantify and manage GHG emissions. It is now the most widely used method in the world by companies and governments to conduct GHG inventories. It is also compatible with ISO 14.064 and the methods of quantification of the Intergovernmental Panel on Climate Change (IPCC). This inventory of greenhouse gases is verified and audited by third parties (scopes 1, 2 and 3), attesting to the veracity of the data and publicly disclosed results. Thus, considering the calculation of specific emissions for the products produced by Klabin S/A, we do not identify challenges so that it is possible to make available to our customers the specific emissions information of the organization.

SC1.4

(SC1.4) Você planeja desenvolver futuramente recursos para alocar emissões para seus clientes?
Sim

SC1.4a

(SC1.4a) Descreva como planeja desenvolver seus recursos.

Klabin conducts its greenhouse gas inventory and publicly informs this data since 2010. Since the program is already consolidated within the organization, there are no quantification limitations, since all internally generated data is available for inventory preparation.

Still, the development of studies and maps of externalities in Klabin's operation, together with the complete life cycle analysis of all its products, could provide better conditions for allocating emissions to different customers.

Klabin's main products (64% of the portfolio) are evaluated using the ISO 14040 methodology. Through this methodology, we were able to identify the carbon footprint and the main points of carbon emission along the chain. What enables better targeting of actions and investments to reduce carbon. In 2020, some Life Cycle Assessment and Carbon Footprint studies were finalized and verified by a third party for the following products: common sacks of 25 kgs of cement, common sacks of 25 kgs of flour and common sacks of 8 kgs of lime. Carbon Footprint studies were also started for bleached eucalyptus pulp from the Puma unit, Eukaliner and dispersible sacks from Lages. In 2020, Klabin invested about BRL 206,359 to evaluate the life cycle of products, and the results are shared with some customers, which also allows joint actions to reduce carbon in the chain.

SC2.1

(SC2.1) Proponha algum projeto climático mutuamente benéfico no qual você possa colaborar junto com membros específicos do Supply Chain do CDP.

Membro solicitante
Ambev S.A

Tipo de grupo de projetos
Mudança nas operações do fornecedor

Tipo do projeto
Aumento dos níveis de energia renovável adquirida

Emissões visadas
Ações que reduziriam nossas próprias emissões e as de nossos clientes

Cronograma estimado para materializar as reduções de carbono
1 a 3 anos

Duração estimada da economia de CO2e
30141.95

Retorno financeiro estimado
0 a 1 ano

Detalhes da proposta
The PUMA unit, located in the municipality of Ortiguera (Paraná), produces more energy from renewable sources than demand for its production requires, allowing Klabin to generate International Renewable Energy Certificates (IRECs) for all the energy that was made available in the national system (1,007,411.83 MWh) To maintain this opportunity, it is important to note that the Puma unit was the first unit in the country's pulp sector to obtain ISO 50001 certification, attesting to the unit's efforts to improve its performance and energy efficiency. The I-REC Service is a global environmental energy attribute tracking system designed to facilitate reliable carbon accounting for Scope 2, consistent with various international carbon accounting standards. For Klabin, registration at the I-REC Service is a way to obtain additional revenue from the sale of renewable energy certificates, contributing to a cleaner grid.

Membro solicitante
L'Oréal

Tipo de grupo de projetos
Mudança nas operações do fornecedor

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Marfrig Global Foods S/A

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Membro solicitante
Santa Catarina

Tipo de grupo de projetos
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Tipo do projeto
Aumento dos níveis de energia renovável adquirida

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0 a 1 ano

Detalhes da proposta
The PUMA unit, located in the municipality of Ortiguera (Paraná), produces more energy from renewable sources than demand for its production requires, allowing Klabin to generate International Renewable Energy Certificates (IRECs) for all the energy that was made available in the national system (1,007,411.83 MWh) To maintain this opportunity, it is important to note that the Puma unit was the first unit in the country's pulp sector to obtain ISO 50001 certification, attesting to the unit's efforts to improve its performance and energy efficiency. The I-REC Service is a global environmental energy attribute tracking system designed to facilitate reliable carbon accounting for Scope 2, consistent with various international carbon accounting standards. For Klabin, registration at the I-REC Service is a way to obtain additional revenue from the sale of renewable energy certificates, contributing to a cleaner grid.

Membro solicitante
Unilever plc

Tipo de grupo de projetos
Mudança nas operações do fornecedor

Tipo do projeto
Aumento dos níveis de energia renovável adquirida

Emissões visadas
Ações que reduziriam nossas próprias emissões e as de nossos clientes

Cronograma estimado para materializar as reduções de carbono
1 a 3 anos

Duração estimada da economia de CO2e
30141.95

Retorno financeiro estimado
0 a 1 ano

Detalhes da proposta
The PUMA unit, located in the municipality of Ortiguera (Paraná), produces more energy from renewable sources than demand for its production requires, allowing Klabin to generate International Renewable Energy Certificates (IRECs) for all the energy that was made available in the national system (1,007,411.83 MWh) To maintain this opportunity, it is important to note that the Puma unit was the first unit in the country's pulp sector to obtain ISO 50001 certification, attesting to the unit's efforts to improve its performance and energy efficiency. The I-REC Service is a global environmental energy attribute tracking system designed to facilitate reliable carbon accounting for Scope 2, consistent with various international carbon accounting standards. For Klabin, registration at the I-REC Service is a way to obtain additional revenue from the sale of renewable energy certificates, contributing to a cleaner grid.

SC2.2

(SC2.2) As solicitações ou iniciativas de membros do Supply Chain do CDP levaram sua organização a tomar iniciativas de redução de emissões em nível organizacional?
Sim

SC2.2a

(SC2.2a) Especifique o(s) membro(s) solicitante(s) que conduziram iniciativas de redução de emissões no nível organizacional e forneça informações sobre as iniciativas.

Membro solicitante
Ambev S.A

ID da iniciativa
2020-ID1

Tipo de grupo de projetos
Reduzir emissões de logística

Tipo do projeto
Logística consolidada

Descrição da iniciativa de redução
With the construction of the PUMA unit and with the objective of improving the logistics of distribution of the pulp produced in the unit to the port terminal for commercialization, Klabin built a stretch of railroad to transport the pulp. The use of pulp rail transport in the Klabin PUMA stretch and the city of Paranaguá (Parana state) in the year 2020 prevented approximately 27 thousand truck transportation on the BR376 highway in one year. This corresponds to a reduction/avoided of 18,004.89 tonnes of CO2e when we compare the emission of heavy vehicles with the railway emission.

Redução de emissões no ano de reporte em toneladas métricas de CO2e
18004.89

Esta oportunidade foi identificada como parte da iniciativa Action Exchange do programa Supply Chain do CDP?
Sim

Você gostaria que os membros do programa Supply Chain do CDP dessem destaque a este trabalho em suas comunicações externas?
Sim

Membro solicitante
L'Oréal

ID da iniciativa
2020-ID1

Tipo de grupo de projetos
Reduzir emissões de logística

Tipo do projeto
Logística consolidada

Descrição da iniciativa de redução
With the construction of the PUMA unit and with the objective of improving the logistics of distribution of the pulp produced in the unit to the port terminal for commercialization, Klabin built a stretch of railroad to transport the pulp. The use of pulp rail transport in the Klabin PUMA stretch and the city of Paranaguá (Parana state) in the year 2020 prevented approximately 27 thousand truck transportation on the BR376 highway in one year. This corresponds to a reduction/avoided of 18,004.89 tonnes of CO2e when we compare the emission of heavy vehicles with the railway emission.

Redução de emissões no ano de reporte em toneladas métricas de CO2e
18004.89

Esta oportunidade foi identificada como parte da iniciativa Action Exchange do programa Supply Chain do CDP?
Sim

Você gostaria que os membros do programa Supply Chain do CDP dessem destaque a este trabalho em suas comunicações externas?
Sim

Membro solicitante
Marfrig Global Foods S/A

ID da iniciativa
2020-ID1

Tipo de grupo de projetos
Reduzir emissões de logística

Tipo do projeto
Logística consolidada

Descrição da iniciativa de redução
With the construction of the PUMA unit and with the objective of improving the logistics of distribution of the pulp produced in the unit to the port terminal for commercialization, Klabin built a stretch of railroad to transport the pulp. The use of pulp rail transport in the Klabin PUMA stretch and the city of Paranaguá (Parana state) in the year 2020 prevented approximately 27 thousand truck transportation on the BR376 highway in one year. This corresponds to a reduction/avoided of 18,004.89 tonnes of CO2e when we compare the emission of heavy vehicles with the railway emission.

Redução de emissões no ano de reporte em toneladas métricas de CO2e
18004.89

Esta oportunidade foi identificada como parte da iniciativa Action Exchange do programa Supply Chain do CDP?
Sim

Você gostaria que os membros do programa Supply Chain do CDP dessem destaque a este trabalho em suas comunicações externas?
Sim

Membro solicitante
PepsiCo, Inc.

ID da iniciativa
2020-ID1

Tipo de grupo de projetos
Reduzir emissões de logística

Tipo do projeto
Logística consolidada

Descrição da iniciativa de redução
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Redução de emissões no ano de reporte em toneladas métricas de CO2e
18004.89

Esta oportunidade foi identificada como parte da iniciativa Action Exchange do programa Supply Chain do CDP?
Sim

Você gostaria que os membros do programa Supply Chain do CDP dessem destaque a este trabalho em suas comunicações externas?
Sim

Membro solicitante
Santa Catarina

ID da iniciativa
2020-ID1

Tipo de grupo de projetos
Reduzir emissões de logística

Tipo do projeto
Logística consolidada

Descrição da iniciativa de redução
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Redução de emissões no ano de reporte em toneladas métricas de CO2e
18004.89

Esta oportunidade foi identificada como parte da iniciativa Action Exchange do programa Supply Chain do CDP?
Sim

Você gostaria que os membros do programa Supply Chain do CDP dessem destaque a este trabalho em suas comunicações externas?
Sim

Membro solicitante
The Coca-Cola Company

ID da iniciativa
2020-ID1

Tipo de grupo de projetos
Reduzir emissões de logística

Tipo do projeto
Logística consolidada

Descrição da iniciativa de redução

With the construction of the PUMA unit and with the objective of improving the logistics of distribution of the pulp produced in the unit to the port terminal for commercialization, Klabin built a stretch of railroad to transport the pulp. The use of pulp rail transport in the Klabin PUMA stretch and the city of Paranaguá (Parana state) in the year 2020 prevented approximately 27 thousand truck transportation on the BR376 highway in one year. This corresponds to a reduction/avoided of 18,004.89 tonnes of CO2e when we compare the emission of heavy vehicles with the railway emission.

Redução de emissões no ano de reporte em toneladas métricas de CO2e
18004.89

Esta oportunidade foi identificada como parte da iniciativa Action Exchange do programa Supply Chain do CDP?
Sim

Você gostaria que os membros do programa Supply Chain do CDP dessem destaque a este trabalho em suas comunicações externas?
Sim

Membro solicitante
Unilever plc

ID da iniciativa
2020-ID1

Tipo de grupo de projetos
Reduzir emissões de logística

Tipo do projeto
Logística consolidada

Descrição da iniciativa de redução
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Redução de emissões no ano de reporte em toneladas métricas de CO2e
18004.89

Esta oportunidade foi identificada como parte da iniciativa Action Exchange do programa Supply Chain do CDP?
Sim

Você gostaria que os membros do programa Supply Chain do CDP dessem destaque a este trabalho em suas comunicações externas?
Sim

Membro solicitante
Ambev S.A

ID da iniciativa
2020-ID2

Tipo de grupo de projetos
Mudança nas operações do fornecedor

Tipo do projeto
Aumento dos níveis de energia renovável adquirida

Descrição da iniciativa de redução
Since 2017, Klabin began to record part of the indirect emissions through the Approach based on the choice of purchase (Marketbased). In this approach Klabin quantifies GHG emissions of scope 2 using the specific emission factor associated with each source of electricity generation that Klabin has chosen to acquire. In this year 2020, Klabin acquired 740,637.8 MWh from hydroelectric generation, with the appropriate Declaration of the generator. This represent a 61% reduction of the Scope 2 emissions (47,626.651 tCO2e), when compared to the Location-based Approach, which uses the average emission factor of the SIN (National Interconnected System).

Redução de emissões no ano de reporte em toneladas métricas de CO2e
47626.65

Esta oportunidade foi identificada como parte da iniciativa Action Exchange do programa Supply Chain do CDP?
Sim

Você gostaria que os membros do programa Supply Chain do CDP dessem destaque a este trabalho em suas comunicações externas?
Sim

Membro solicitante
L'Oréal

ID da iniciativa
2020-ID2

Tipo de grupo de projetos
Mudança nas operações do fornecedor

Tipo do projeto
Aumento dos níveis de energia renovável adquirida

Descrição da iniciativa de redução
Since 2017, Klabin began to record part of the indirect emissions through the Approach based on the choice of purchase (Marketbased). In this approach Klabin quantifies GHG emissions of scope 2 using the specific emission factor associated with each source of electricity generation that Klabin has chosen to acquire. In this year 2020, Klabin acquired 740,637.8 MWh from hydroelectric generation, with the appropriate Declaration of the generator. This represent a 61% reduction of the Scope 2 emissions (47,626.651 tCO2e), when compared to the Location-based Approach, which uses the average emission factor of the SIN (National Interconnected System).

Redução de emissões no ano de reporte em toneladas métricas de CO2e
47626.65

Esta oportunidade foi identificada como parte da iniciativa Action Exchange do programa Supply Chain do CDP?
Sim

Você gostaria que os membros do programa Supply Chain do CDP dessem destaque a este trabalho em suas comunicações externas?
Sim

Membro solicitante
Marfrig Global Foods S/A

ID da iniciativa
2020-ID2

Tipo de grupo de projetos
Mudança nas operações do fornecedor

Tipo do projeto
Aumento dos níveis de energia renovável adquirida

Descrição da iniciativa de redução
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Redução de emissões no ano de reporte em toneladas métricas de CO2e
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Esta oportunidade foi identificada como parte da iniciativa Action Exchange do programa Supply Chain do CDP?
Sim

Você gostaria que os membros do programa Supply Chain do CDP dessem destaque a este trabalho em suas comunicações externas?
Sim

Membro solicitante
PepsiCo, Inc.

ID da iniciativa
2020-ID2

Tipo de grupo de projetos
Mudança nas operações do fornecedor

Tipo do projeto
Aumento dos níveis de energia renovável adquirida

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Since 2017, Klabin began to record part of the indirect emissions through the Approach based on the choice of purchase (Marketbased). In this approach Klabin quantifies GHG emissions of scope 2 using the specific emission factor associated with each source of electricity generation that Klabin has chosen to acquire. In this year 2020, Klabin acquired 740,637.8 MWh from hydroelectric generation, with the appropriate Declaration of the generator. This represent a 61% reduction of the Scope 2 emissions (47,626.651 tCO2e), when compared to the Location-based Approach, which uses the average emission factor of the SIN (National Interconnected System).

Redução de emissões no ano de reporte em toneladas métricas de CO2e
47626.65

Esta oportunidade foi identificada como parte da iniciativa Action Exchange do programa Supply Chain do CDP?
Sim

Você gostaria que os membros do programa Supply Chain do CDP dessem destaque a este trabalho em suas comunicações externas?
Sim

Membro solicitante
Santa Catarina

ID da iniciativa
2020-ID2

Tipo de grupo de projetos
Mudança nas operações do fornecedor

Tipo do projeto
Aumento dos níveis de energia renovável adquirida

Descrição da iniciativa de redução
Since 2017, Klabin began to record part of the indirect emissions through the Approach based on the choice of purchase (Marketbased). In this approach Klabin quantifies GHG emissions of scope 2 using the specific emission factor associated with each source of electricity generation that Klabin has chosen to acquire. In this year 2020, Klabin acquired 740,637.8 MWh from hydroelectric generation, with the appropriate Declaration of the generator. This represent a 61% reduction of the Scope 2 emissions (47,626.651 tCO2e), when compared to the Location-based Approach, which uses the average emission factor of the SIN (National Interconnected System).

Redução de emissões no ano de reporte em toneladas métricas de CO2e
47626.65

Esta oportunidade foi identificada como parte da iniciativa Action Exchange do programa Supply Chain do CDP?
Sim

Você gostaria que os membros do programa Supply Chain do CDP dessem destaque a este trabalho em suas comunicações externas?
Sim

Membro solicitante

The Coca-Cola Company

ID da iniciativa
2020-ID2

Tipo de grupo de projetos
Mudança nas operações do fornecedor

Tipo do projeto
Aumento dos níveis de energia renovável adquirida

Descrição da iniciativa de redução
Since 2017, Klabin began to record part of the indirect emissions through the Approach based on the choice of purchase (Marketbased). In this approach Klabin quantifies GHG emissions of scope 2 using the specific emission factor associated with each source of electricity generation that Klabin has chosen to acquire. In this year 2020, Klabin acquired 740,637.8 MWh from hydroelectric generation, with the appropriate Declaration of the generator. This represent a 61% reduction of the Scope 2 emissions (47,626.651 tCO2e), when compared to the Location-based Approach, which uses the average emission factor of the SIN (National Interconnected System).

Redução de emissões no ano de reporte em toneladas métricas de CO2e
47626.65

Esta oportunidade foi identificada como parte da iniciativa Action Exchange do programa Supply Chain do CDP?
Sim

Você gostaria que os membros do programa Supply Chain do CDP dessem destaque a este trabalho em suas comunicações externas?
Sim

Membro solicitante
Unilever plc

ID da iniciativa
2020-ID2

Tipo de grupo de projetos
Mudança nas operações do fornecedor

Tipo do projeto
Aumento dos níveis de energia renovável adquirida

Descrição da iniciativa de redução
Since 2017, Klabin began to record part of the indirect emissions through the Approach based on the choice of purchase (Marketbased). In this approach Klabin quantifies GHG emissions of scope 2 using the specific emission factor associated with each source of electricity generation that Klabin has chosen to acquire. In this year 2020, Klabin acquired 740,637.8 MWh from hydroelectric generation, with the appropriate Declaration of the generator. This represent a 61% reduction of the Scope 2 emissions (47,626.651 tCO2e), when compared to the Location-based Approach, which uses the average emission factor of the SIN (National Interconnected System).

Redução de emissões no ano de reporte em toneladas métricas de CO2e
47626.65

Esta oportunidade foi identificada como parte da iniciativa Action Exchange do programa Supply Chain do CDP?
Sim

Você gostaria que os membros do programa Supply Chain do CDP dessem destaque a este trabalho em suas comunicações externas?
Sim

SC4.1

(SC4.1) Estão sendo fornecidos dados no nível do produto para os bens ou serviços da organização?
Sim, fornecerei os dados

SC4.1a

(SC4.1a) Forneça a porcentagem geral do total de emissões, para todos os Escopos abrangidos por estes produtos.
100

SC4.2a

(SC4.2a) Preencha a seguinte tabela para bens/serviços a respeito dos quais deseja fornecer dados.

Nome do bem/serviço
Liquid Package Board (LPB)

Descrição do bem/serviço
Liquid Package Board (LPB) (Scope 1 + 2 emissions)

Tipo de produto
Final

SKU (Stock Keeping Unit, Unidade de Manutenção de Estoque)
tonnes

Total de emissões em kg de CO2e por unidade
378

±% de variação em relação ao valor anterior fornecido
80.86

Data do valor anterior fornecido
Dezembro 31 2018

Explicação sobre a variação
In 2019 some studies of Life Cycle Assessment were updated and verified by a third party for the following products: Carrier Board Liquid Paper Board and Kraft. These studies indicate that the amount of CO2 captured from the atmosphere during photosynthesis is greater than that emitted by Klabin's production process. Studies was also carried out for three types of industrial bags produced by Klabin at the Lages - SC unit.

Métodos usados para estimar as emissões no ciclo de vida
ISO 14040 & 14044

Nome do bem/serviço
Carrier Board

Descrição do bem/serviço
Carrier Board (Scope 1 + 2 emissions)

Tipo de produto
Final

SKU (Stock Keeping Unit, Unidade de Manutenção de Estoque)
tonnes

Total de emissões em kg de CO2e por unidade
374

±% de variação em relação ao valor anterior fornecido
78.94

Data do valor anterior fornecido
Dezembro 31 2018

Explicação sobre a variação
In 2019 some studies of Life Cycle Assessment were updated and verified by a third party for the following products: Carrier Board Liquid Paper Board and Kraft. These studies indicate that the amount of CO2 captured from the atmosphere during photosynthesis is greater than that emitted by Klabin's production process. Studies was also carried out for three types of industrial bags produced by Klabin at the Lages - SC unit.

Métodos usados para estimar as emissões no ciclo de vida
ISO 14040 & 14044

Nome do bem/serviço
Kraft

Descrição do bem/serviço
Kraftliner paper (Scope 1 + 2 emissions)

Tipo de produto
Final

SKU (Stock Keeping Unit, Unidade de Manutenção de Estoque)
tonnes

Total de emissões em kg de CO2e por unidade
273

±% de variação em relação ao valor anterior fornecido
30.62

Data do valor anterior fornecido
Dezembro 31 2018

Explicação sobre a variação
In 2019 some studies of Life Cycle Assessment were updated and verified by a third party for the following products: Carrier Board Liquid Paper Board and Kraft. These studies indicate that the amount of CO2 captured from the atmosphere during photosynthesis is greater than that emitted by Klabin's production process. Studies was also carried out for three types of industrial bags produced by Klabin at the Lages - SC unit.

Métodos usados para estimar as emissões no ciclo de vida
ISO 14040 & 14044

Nome do bem/serviço
Short Fiber Cellulose - SFC

Descrição do bem/serviço
Short Fiber Cellulose (Scope 1 + 2 emissions)

Tipo de produto
Final

SKU (Stock Keeping Unit, Unidade de Manutenção de Estoque)
tonnes

Total de emissões em kg de CO2e por unidade
318

±% de variação em relação ao valor anterior fornecido
0

Data do valor anterior fornecido
Dezembro 31 2019

Explicação sobre a variação
In 2019, a Life Cycle Assessment study was carried out and verified by third parties for the following products: Short Fiber Cellulose (SFC) and Long Fiber Cellulose (LFC). These studies indicate that the amount of CO2 captured from the atmosphere during photosynthesis is greater than that emitted by Klabin's production process. Studies was also carried out for three types of industrial bags produced by Klabin at the Lages - SC unit.

Métodos usados para estimar as emissões no ciclo de vida
ISO 14040 & 14044

Nome do bem/serviço
Long Fiber Cellulose - LFC

Descrição do bem/serviço
Long Fiber Cellulose (Scope 1 + 2 emissions)

Tipo de produto
Final

SKU (Stock Keeping Unit, Unidade de Manutenção de Estoque)
tonnes

Total de emissões em kg de CO2e por unidade
283

±% de variação em relação ao valor anterior fornecido
0

Data do valor anterior fornecido
Dezembro 31 2019

Explicação sobre a variação
In 2019, a Life Cycle Assessment study was carried out and verified by third parties for the following products: Short Fiber Cellulose (SFC) and Long Fiber Cellulose (LFC). These studies indicate that the amount of CO2 captured from the atmosphere during photosynthesis is greater than that emitted by Klabin's production process. Studies were also carried out for three types of industrial bags produced by Klabin at the Lages - SC unit.

Métodos usados para estimar as emissões no ciclo de vida
ISO 14040 & 14044

Nome do bem/serviço
25 kgs Sack of cement

Descrição do bem/serviço
25 kgs Sack of cement (Scope 1 + 2 emissions)

Tipo de produto
Final

SKU (Stock Keeping Unit, Unidade de Manutenção de Estoque)
tonnes

Total de emissões em kg de CO2e por unidade
101

±% de variação em relação ao valor anterior fornecido
0

Data do valor anterior fornecido
Dezembro 31 2020

Explicação sobre a variação
In 2020, a Life Cycle Assessment study was carried out and verified by third parties for the following products: 25 kgs Sack of cement, 25 kgs Sack of flour and 8 kgs Sackof lime. These studies indicate that the amount of CO2 captured from the atmosphere during photosynthesis is greater than that emitted by Klabin's production process.

Métodos usados para estimar as emissões no ciclo de vida
ISO 14040 & 14044

Nome do bem/serviço
25 kgs Sack of flour

Descrição do bem/serviço
25 kgs Sack of flour (Scope 1 + 2 emissions)

Tipo de produto
Final

SKU (Stock Keeping Unit, Unidade de Manutenção de Estoque)

Total de emissões em kg de CO2e por unidade
195

±% de variação em relação ao valor anterior fornecido
0

Data do valor anterior fornecido

Dezembro 31 2020

Explicação sobre a variação
In 2020, a Life Cycle Assessment study was carried out and verified by third parties for the following products: 25 kgs Sack of cement, 25 kgs Sack of flour and 8 kgs Sack of lime. These studies indicate that the amount of CO2 captured from the atmosphere during photosynthesis is greater than that emitted by Klabin's production process.

Métodos usados para estimar as emissões no ciclo de vida
ISO 14040 & 14044

Nome do bem/serviço
8 kgs Sack of lime

Descrição do bem/serviço
8 kgs Sack of lime (Scope 1 + 2 emissions)

Tipo de produto
Final

SKU (Stock Keeping Unit, Unidade de Manutenção de Estoque)
tonnes

Total de emissões em kg de CO2e por unidade
50.6

±% de variação em relação ao valor anterior fornecido
0

Data do valor anterior fornecido
Dezembro 31 2020

Explicação sobre a variação
In 2020, a Life Cycle Assessment study was carried out and verified by third parties for the following products: 25 kgs Sack of cement, 25 kgs Sack of flour and 8 kgs Sack of lime. These studies indicate that the amount of CO2 captured from the atmosphere during photosynthesis is greater than that emitted by Klabin's production process.

Métodos usados para estimar as emissões no ciclo de vida
ISO 14040 & 14044

SC4.2b

(SC4.2b) Preencha a tabela a seguir com os dados das fases do ciclo de vida dos bens e/ou serviços.

Nome do bem/serviço
Liquid Package Board (LPB)

Selecione o escopo
Escopos 1, 2 e 3

Selecione a fase do ciclo de vida
Cradle-to-gate (“do berço ao portão”)

Emissões na fase do ciclo de vida, em kg de CO2e por unidade
378

Esta fase está sob a responsabilidade ou o controle da empresa?
Sim

Tipo de dados usados
Primário e secundário

Qualidade dos dados
It is important to mention that this result is POSITIVE, which means that the emission for the LPB product is -974 kg CO2eq / tonne of paper produced The discrepancy calculated in the model used was 11% whitch is an acceptable value

Caso esteja verificando/assegurando os dados de emissão deste produto, informe como está fazendo isso
The data were verified and validated according to the STANDARD ISO 14044 methodology

---

Nome do bem/serviço
Carrier Board

Selecione o escopo
Escopos 1, 2 e 3

Selecione a fase do ciclo de vida
Cradle-to-gate (“do berço ao portão”)

Emissões na fase do ciclo de vida, em kg de CO2e por unidade
374

Esta fase está sob a responsabilidade ou o controle da empresa?
Sim

Tipo de dados usados
Primário e secundário

Qualidade dos dados
It is important to mention that this result is POSITIVE, which means that the emission for the Carrier Board product is -948 kg CO2eq / tonne of paper produced The

discrepancy calculated in the model used was 11% whitch is an acceptable value

Caso esteja verificando/assegurando os dados de emissão deste produto, informe como está fazendo isso
The data were verified and validated according to the STANDARD ISO 14044 methodology

---

Nome do bem/serviço
Kraftliner

Selecione o escopo
Escopos 1, 2 e 3

Selecione a fase do ciclo de vida
Cradle-to-gate (“do berço ao portão”)

Emissões na fase do ciclo de vida, em kg de CO2e por unidade
273

Esta fase está sob a responsabilidade ou o controle da empresa?
Sim

Tipo de dados usados
Primário e secundário

Qualidade dos dados
It is important to mention that this result is POSITIVE, which means that the emission for the Kraftliner product is -1,166 kg CO2eq / tonne of paper produced The discrepancy calculated in the model used was 11% whitch is an acceptable value

Caso esteja verificando/assegurando os dados de emissão deste produto, informe como está fazendo isso
The data were verified and validated according to the STANDARD ISO 14044 methodology

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Nome do bem/serviço
Short Fiber Cellulose -SFC

Selecione o escopo
Escopos 1, 2 e 3

Selecione a fase do ciclo de vida
Cradle-to-gate (“do berço ao portão”)

Emissões na fase do ciclo de vida, em kg de CO2e por unidade
318

Esta fase está sob a responsabilidade ou o controle da empresa?
Sim

Tipo de dados usados
Primário e secundário

Qualidade dos dados
The discrepancy calculated in the model used was 2% which is an acceptable value. For the calculation of the carbon footprint of cellulose, the carbon removed / sequestered from planted forests was not considered.

Caso esteja verificando/assegurando os dados de emissão deste produto, informe como está fazendo isso
The data were verified and validated according to the STANDARD ISO 14044 methodology

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Nome do bem/serviço
Long Fiber Cellulose - LFC

Selecione o escopo
Escopos 1, 2 e 3

Selecione a fase do ciclo de vida
Cradle-to-gate (“do berço ao portão”)

Emissões na fase do ciclo de vida, em kg de CO2e por unidade
283

Esta fase está sob a responsabilidade ou o controle da empresa?
Sim

Tipo de dados usados
Primário e secundário

Qualidade dos dados
The discrepancy calculated in the model used was 6% which is an acceptable value. For the calculation of the carbon footprint of cellulose, the carbon removed / sequestered from planted forests was not considered

Caso esteja verificando/assegurando os dados de emissão deste produto, informe como está fazendo isso
The data were verified and validated according to the STANDARD ISO 14044 methodology

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Nome do bem/serviço
25 kgs Sack of cement

Selecione o escopo
Escopos 1, 2 e 3

Selecione a fase do ciclo de vida
Cradle-to-gate (“do berço ao portão”)

Emissões na fase do ciclo de vida, em kg de CO2e por unidade
101

Esta fase está sob a responsabilidade ou o controle da empresa?
Sim

Tipo de dados usados
Primário e secundário

Qualidade dos dados
The discrepancy calculated in the model used was 6% which is an acceptable value. For the calculation of the carbon footprint of cellulose, the carbon removed / sequestered from planted forests was not considered

Caso esteja verificando/assegurando os dados de emissão deste produto, informe como está fazendo isso
The data were verified and validated according to the STANDARD ISO 14044 methodology

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Nome do bem/serviço
25 kgs Sack of flour

Selecione o escopo
Escopos 1, 2 e 3

Selecione a fase do ciclo de vida
Cradle-to-gate (“do berço ao portão”)

Emissões na fase do ciclo de vida, em kg de CO2e por unidade
195

Esta fase está sob a responsabilidade ou o controle da empresa?
Sim

Tipo de dados usados
Primário e secundário

Qualidade dos dados
The discrepancy calculated in the model used was 6% which is an acceptable value. For the calculation of the carbon footprint of cellulose, the carbon removed / sequestered from planted forests was not considered

Caso esteja verificando/assegurando os dados de emissão deste produto, informe como está fazendo isso
The data were verified and validated according to the STANDARD ISO 14044 methodology

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Nome do bem/serviço
8 kgs Sack of lime

Selecione o escopo
Escopos 1, 2 e 3

Selecione a fase do ciclo de vida
Cradle-to-gate (“do berço ao portão”)

Emissões na fase do ciclo de vida, em kg de CO2e por unidade
50.6

Esta fase está sob a responsabilidade ou o controle da empresa?
Sim

Tipo de dados usados
Primário e secundário

Qualidade dos dados
The discrepancy calculated in the model used was 6% which is an acceptable value. For the calculation of the carbon footprint of cellulose, the carbon removed / sequestered from planted forests was not considered

Caso esteja verificando/assegurando os dados de emissão deste produto, informe como está fazendo isso
The data were verified and validated according to the STANDARD ISO 14044 methodology

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SC4.2c

(SC4.2c) Forneça detalhes sobre a redução de emissões realizada ou planejada para este produto.

Nome do bem/serviço	ID da iniciativa	Descrição da iniciativa	Realizada ou planejada	Reduções de emissões em kg de CO2e por unidade
Long Fiber Cellulose - LFC, Short Fiber Cellulose -SFC	Iniciativa 1	In the year 2020, we reduced the consumption of heavy oil by 2,747,677. 13 liters through the start-up of the Tall Oil plant at the Puma unit, responsible for the production of these products. These actions resulted in a total of 8,563.33 tCO2eq of avoided emissions, which is equivalent to a reduction of 5.52 kg of CO2 for each ton of product produced. Avoided emissions / production of tonnes of paper (8,563.33 tCO2eq / 1,550,872 tonnes of pulp) * 1000 = 5.52 kg CO2e per unit	Realizada	5.52

SC4.2d

(SC4.2d) Alguma das iniciativas descritas em SC4.2c foi motivada a pedido de membros do Supply Chain do CDP?

Não

Envie sua resposta

Sua resposta está sendo enviada em qual idioma?

Inglês

Confirme como a sua resposta deve ser gerenciada pela CDP

	Estou enviando para	Envio público ou não público	Você está pronto para enviar as perguntas adicionais sobre a cadeia de fornecimento?
Estou enviando minha resposta	Investidores Clientes	Público	Sim, enviar as perguntas sobre a cadeia de fornecimento agora

Confirme abaixo

Li e aceito os Termos aplicáveis