

C0. Introdução

C0.1

(C0.1) Faça uma descrição e uma introdução geral sobre a sua organização.

Klabin is the Brazilian largest paper producer and exporter. Is considered the leader in the production of papers and cartons for packaging, corrugated packaging and industrial bags, and markets timber in logs. It is also 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 eight Brazilian states and one in Argentina. Klabin also has commercial offices in eight Brazilian states, a branch office in the United States, a new office in Austria, and sales representatives and agents in many countries.

The paper and paperboard for packaging manufactured by Klabin, 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. These products are a measure of how Klabin is present in the people's daily lives.

Hardwood and softwood pulp, used individually or together as a mix, give the essential characteristics to diverse types of paper: the ideal level of strength, softness and absorption for hygiene products, strength and opacity for printing and writing paper, and other specific properties required for specialty papers.

Klabin's management practices are guided by sustainable development and its management pursues the integrated and responsible growth that combines profitability, social development and a firm commitment to environmental preservation.

Since 2014, Klabin has been part of the Corporate Sustainability Index (ISE) of the BM&FBovespa. In addition, Klabin is also a signatory to the United Nations Global Compact and the Brazilian Pact to Eradicate Slave Labor, and look for suppliers and business partners that adopt the same values of ethics, transparency and respect for the principles of sustainability.

Historically committed to sustainable development, Klabin reserves more than **40%** of its land for preserved native forests. In addition, it maintains its own areas with planted forests for the manufacture of its products. One of the pioneers in adopting the concept of sustainable development, 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. A pioneer in the adoption of mosaic planting concepts (a system that intermingles preserved native forests with planted forests) in its forestry management, Klabin has **229,000 hectares** planted with pine and eucalyptus and **214,000 hectares** of preserved native forests.

Since 2013, Klabin has been participating in the permanent "Empresas Pelo Clima" (Companies for the Climate), which aims to mobilize, sensitize and articulate business leaders for the management and reduction of emissions of greenhouse gases (GHG), the management of climate risks and the proposal of public policies and positive incentives in the context climate change.

In 2017, "Guia Exame de Sustentabilidade" elected Klabin the Most Sustainable Company in the Pulp and Paper Sector. With a methodology developed by the Center for Sustainability Studies of the Getúlio Vargas Foundation of São Paulo (GVces), the Guide is one of the most relevant publications on sustainability in the market.

Klabin also achieved a high level of performance by achieving 100% performance in Responsible Fiber Supply in the Environmental Index of Paper and Pulp Companies - Environmental Paper Company Index 2017 (EPCI), held every two years by WWF. In addition to this result, there was also a 6% increase in the registry of the Clean Manufacturing Index. This is an important recognition, which evaluates 93 companies worldwide, being only three Brazilian.

Respect for communities is a guiding value of Klabin in all the regions where it operates. Having clear governance criteria, providing transparency to all its acts and promoting the engagement of local stakeholders are the company's constant concerns in managing the social impacts of its activities. The Forestry Development Program, which aims to expand and diversify income opportunities for communities, is an example in this regard. The initiative, which involves stimulating the formation of planted forests on farms adjacent to the company's operations, helps in settling farmers on the land, promotes recovery of vegetation and diversifies crops. The program has already benefited **19,000** rural producers and distributed more **160 million** of seedlings. The company creates **over 18,000** 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 sobre o qual você está informando os dados.

	Data de início	Data de fim	Indique se você está fornecendo dados de emissões para anos anteriores	Selecionar o número de anos de relatórios anteriores para os quais você fornecerá dados de emissões
Linha 1	Janeiro 1 2017	Dezembro 31 2017	Sim	1 ano
Linha 2			<Not Applicable>	<Not Applicable>
Linha 3	<Not Applicable>	<Not Applicable>	<Not Applicable>	<Not Applicable>
Linha 4	<Not Applicable>	<Not Applicable>	<Not Applicable>	<Not Applicable>

C0.3

(C0.3) Selecione os países para os quais você fornecerá dados.

Brasil

C0.4

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

BRL

C0.5

(C0.5) Selecione a opção que descreve o limite do reporte para o qual os impactos relacionados ao clima em sua empresa estão sendo relatados. Observe que essa opção deve estar alinhada à sua abordagem de consolidação do inventário de gases de efeito estufa do Escopo 1 e do Escopo 2.

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 suas operações diretas ou em outras partes de sua cadeia de valor - são relevantes para a atual divulgação sobre mudanças climáticas ao CDP?

	Relevância
Agrícola/Florestal	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	Sim [Apenas consumo]

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

(C-AC0.7/C-FB0.7/C-PF0.7) Quais produtos agrícolas que sua organização produz e/ou extrai são mais importantes para seus negócios em termos de receita? Selecione cinco, no máximo.

Produtos agrícolas

Madeira

% da receita dependente desse produto agrícola

Mais de 80%

Produzido ou extraído

Ambos

Explique

Klabin is recognized for its sustainable management adopted, which aims forest multipurpose usage. The use of the environmental practices used by the company, as well as the proper management of the landscape, allow the excellent exploitation of the potential of production of the forests and the protection of the natural resources. 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. Timber is classified as the main raw material for pulp and paper production. Based on the total amount of inputs consumed in 2017 for total production of Klabin S / A, wood represents 97% of the amount of the inputs. - Calculation: % Revenue = Total Quantity of Wood (thousand t / year) / Total Quantity of Input (thousand t / year) * 100 % Revenue = 12,400.00 / 12,766.79 = 97%

C1. Governança

C1.1

(C1.1) Existe supervisão pelo Conselho das questões relacionadas ao clima em sua organização?

Sim

C1.1a

(C1.1a) Identifique os cargos dos indivíduos no Conselho com responsabilidade pelas questões relacionadas ao clima.

Cargo dos indivíduos	Explique
Diretor de Sustentabilidade (CSO)	DIRECTOR OF INDUSTRIAL TECHNOLOGY, INNOVATION AND SUSTAINABILITY, has the responsibility over Climate Change and its related studies on impacts and opportunities. Alongside him, the Environmental and Sustainability Corporate team is also responsible for 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. It is worth mentioning that Klabin maintains a fixed sustainability committee main composed of directors, with the Director of Industrial Technology and Sustainability as the sponsor and Sustainability and Environment Manager as the technical director of the commission. Also participate in this committee, managers of people and corporate services, legal directory, industrial directory of papers and forest management areas. He is also responsible for climate change issues, managing a corporate sustainability team that works with this subject on a daily basis.

C1.1b

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

Frequency with which climate-related issues are a scheduled agenda item	Governance mechanisms into which climate-related issues are integrated	Please explain
Scheduled – all meetings	<ul style="list-style-type: none"> Reviewing and guiding strategy Reviewing and guiding major plans of action Reviewing and guiding risk management policies Setting performance objectives Monitoring implementation and performance of objectives Monitoring and overseeing progress against goals and targets for addressing climate-related issues 	<p>Issues related to climate change are part of the organization's sustainability policy and objectives. Item number 13 of Klabin S / A's sustainability policy: "Ensure that the company's operations are constantly seeking to reduce greenhouse gas (GHG) emissions." Based on this, the organization's goals and objectives are defined based on the organization's principles. 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. This change is focused on 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. 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.</p>

C1.2

(C1.2) Abaixo do nível do Conselho, forneça os cargos de gestão ou comitês de nível mais elevado com responsabilidade pelas questões relacionadas ao clima.

Nome dos cargos e/ou comitês	Responsabilidade	Frequência de relatórios ao Conselho sobre as questões relacionadas ao clima
Diretor de Sustentabilidade (CSO)	Avaliação e gestão de riscos e oportunidades relacionados ao clima	Trimestralmente
Comitê de Sustentabilidade	Avaliação e gestão de riscos e oportunidades relacionados ao clima	Trimestralmente
Gerente de Meio Ambiente/Sustentabilidade	Avaliação e gestão de riscos e oportunidades relacionados ao clima	Frequência maior que trimestralmente

C1.2a

(C1.2a) Descreva em que local da estrutura organizacional situam-se estes cargos e/ou comitês, quais suas responsabilidades associadas e como são monitoradas as questões relacionadas ao clima.

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

- 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 by a board of directors representative and has the objective of following both global and national Climate agendas and map its related risk and opportunities.

- Environment / Sustainability manager: positioned in the organizational structure below the position of 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 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 these 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 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.

The sustainability committee, which is made up of a representative of the board of directors, and also aims to follow global and national climate agendas and map their related risks and opportunities in decision-making.

Those changes are focused on 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.

The monitoring process at Klabin starts with day-to-day management by the environmental teams of each Klabin facilities and / or by the team of assistants from the corporate area of environment and sustainability. The management of these items is carried out by these areas along with their coordinators and their respective manager, who periodically critically examines the items related to this subject so that they are brought to the steering committee for discussion and strategic decision making for the organization.

C1.3

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

Sim

C1.3a

(C1.3a) Provide further details on the incentives provided for the management of climate-related issues.

Who is entitled to benefit from these incentives?

Director on board

Types of incentives

Monetary reward

Activity incentivized

Emissions reduction target

Comment

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. 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 2017 we reached 88,7% of renewable sources for energy generation, reaching a number higher than the target of 88%. 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.

Who is entitled to benefit from these incentives?

Energy manager

Types of incentives

Monetary reward

Activity incentivized

Efficiency target

Comment

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 2017 we reached 88,7% of renewable sources for energy generation, reaching a number higher than the target of 88%. 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.

Who is entitled to benefit from these incentives?

Environment/Sustainability manager

Types of incentives

Monetary reward

Activity incentivized

Efficiency project

Comment

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.

Who is entitled to benefit from these incentives?

Process operation manager

Types of incentives

Monetary reward

Activity incentivized

Efficiency target

Comment

Energy reduction and efficiency target through: actions to improve and achieve predefined goals related to Climate Change and Emissions in different Klabin facilities. In order to follow more closely the impacts of possible climate change on the growth of forest plantations, we created a Department of Productivity and Forest Ecophysiology, able to simulate adverse scenarios and recommend appropriate action. In the case of our most extensive forest areas in the state of Parana, the most predictable climate change has been the intensification of rains in the region, which would make management more difficult, but, on the other hand, would benefit tree growth and plantation productivity. In 2016, we did a complex study of climate vulnerabilities that is on use to develop your strategy to manage this subject in the whole company.

C2. Riscos e oportunidades

C2.1

(C2.1) Descreva o que a sua organização considera como horizontes de curto, médio e longo prazo.

	De (anos)	A (anos)	Comentários
Curto prazo	1	2	Short-term: Actions and goals in strategic planning of the organization for the current and following year (1 to 2 years horizon, it is considered short term)
Médio prazo	2	5	Medium-term: Medium-term actions and targets are those that have goals of 2 to at most 5 years horizon.
Longo prazo	5	23	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.

C2.2

(C2.2) Selecione a opção que melhor descreve o modo como os processos da sua organização de identificação, avaliação e gestão de questões relacionadas ao clima estão integrados na gestão de riscos geral.

Integrados nos processos multidisciplinares de identificação, avaliação e gestão de riscos de toda a empresa

C2.2a

(C2.2a) Selecione as opções que melhor descrevem a frequência e o horizonte de tempo da organização para a identificação e avaliação dos riscos relacionados ao clima.

	Frequência de monitoramento	Até que momento no futuro os riscos são considerados?	Comentários
Linha 1	Semestralmente ou com frequência maior	>6 anos	The scope of the assessment includes Klabin's forestry, industrial, logistic and port operations in Brazil. The the sustainability committee (which is made up of a representative of the board of directors), aims to follow global and national climate agendas and map their related risks and opportunities in decision-making. Klabin conducts studies on its vulnerabilities regarding climate change based on global models such as the IPCC's Assessment Reports and on local scientific findings focus on understanding risks, especially those with the highest potential to create a significant change in its business. Klabin prioritizes adaptive measures related to reputational and financial risks. Quarterly, Klabin risk team monitors and monitors with the representatives of each unit the risks and opportunities observed. In addition, annually the Klabin corporate risk matrix is updated based on the results of the monitoring. Main risks mapped: Changes in Regulation and Physical Climate Parameters

C2.2b

(C2.2b) Forneça mais detalhes sobre os processos da organização para a identificação e avaliação de riscos relacionados ao clima.

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.

The sustainability committee, which is made up of a representative of the board of directors, and aims to follow global and national climate agendas and map their related risks and opportunities in decision-making.

To understand the potential risk to which its activities are subject, as well as the adaptive measures required to face such risks, Klabin conducts studies on its vulnerabilities regarding climate change. The study is always based on global models such as the IPCC's Assessment Reports and on local scientific findings and focus on understanding risks, especially those with the highest potential to create a significant change in its business operations, revenues and expenses. The physical, regulatory, reputational and financial.

Once assessed (or updated), each potential risk/opportunity receives adaptive action-plan in order to find the best way to address it throughout the company.

Klabin has a specific area for risk management and controls of the organization. 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, among others. The financial impact is one of the main indicators of the impact of the risk raised, which can vary from an indicator of 1 to 4 depending on the estimated values. A calculation on financial, reputational and environmental loss is applied to define a degree of impact (low, medium, high or very high) which will subsequently be correlated to vulnerability, generating a risk result referenced by a heat map (risk matrix).

For risks, the magnitude and likelihood of the adverse effects will determine the timeframe of company's action. Each Business Unit is responsible for embracing its own risks (pointed out by the vulnerability matrix) and address it accordingly. The Sustainability and Environmental area alongside with Sustainability Committee are the responsible for monitoring, testing and scaling up identified opportunities. On a quarterly basis, Klabin S / A's risk team monitors and monitors with the representatives of each Klabin unit the risks and opportunities observed.

The applied methodology is based on the COSO (Committee of Sponsoring Organizations of the Treadway Commission), where Klabin determines the evaluation criteria of Impact and Vulnerability of each listed risk, considering a heat map for the impact classification and vulnerability.

One of the risks mapped on Klabin's matrix, 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. This risk led the organization to strategically decide to create the Department of Forest Efficiency and Ecophysiology which 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.

In 2016 Klabin also 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.

C2.2c

(C2.2c) Quais dos seguintes tipos de riscos são considerados nas avaliações de riscos relacionados as mudanças do clima da organização?

	Relevância e inclusão	Explique
Regulamentação atual	Relevante, sempre incluído	In 2016 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 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, Mainly in the Monte Alegre and Puma units (located in the state of Paraná), Otacilio 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.
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), Otacilio Costa and Correia Pinto units (Santa Catarina) and Angatuba unit (São Paulo) which are the units with higher atmospheric emissions. While the company has been using more efficient technologies and equipment, it has adopted an increasingly cleaner matrix, and has high carbon stock and a great potential to generate new CO2eq credits. In 2016 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 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. 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.
Tecnológico	Relevante, sempre incluído	In 2016 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. 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. Concluded in this year 2017, the new Klabin Technology Center in Telêmaco Borba (Paraná), is raising Research, Development and Innovation (R & D + I) activities in the company to a new level (including renewable energy studies and adaptations). The initiative is part of Klabin's three- year investment plan (2015 to 2017), which provides for R \$ 70 million to be allocated to R & D + I processes.
Jurídico	Relevante, sempre incluído	The legal requirements are considered relevant for Klabin 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). 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. 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), Otacilio Costa and Correia Pinto units (Santa Catarina) and Angatuba unit (São Paulo) which are the units with higher atmospheric 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.

	Relevância e inclusão	Explique
Mercado	Relevante, sempre incluído	Climate change may induce changes in customer preferences for products and services that emit less greenhouse gases. The logistics industry is an important component of these emissions may be under pressure to reduce distances traveled and greenhouse gas emissions, requiring the use of cleaner fuels, replacement of old fleets with new and re-planning of the operation. An example of outcome is the creation of the 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.
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 study is always based on global models such as the IPCC's Assessment Reports and on local scientific findings and focus on understanding risks and opportunities, especially those with the highest potential to create a significant change in its business operations, revenues or expenses in company and/or asset level. The scope of the assessment includes Klabin's forestry, industrial and port operations in Brazil. 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. Regulatory risks are not a priority, since there is no specific regulation for the pulp and paper industry so far, regarding Climate Changes. For example, in Santa Catarina and Paraná States, to mitigate the impacts of possible drought scenarios, Klabin is working so that its plants consume less water from natural resources and has been developing water recycling and reuse programs for use in irrigation, return to the manufacturing process, and equipment cleaning. - Intense Rainfall: Klabin has an efficient operational logistics system, capable of working under adverse rain and muddy conditions. Contour lines and containment berms on roads have already being used to prevent the risk of erosion.
Parâmetro físico agudo	Relevante, sempre incluído	In 2016 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. 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. Moreover, it can affect the logistics of removing wood from forest areas. Strong winds could paralyse 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 an 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 clones with higher resistant to cold and frost, focusing on increasing productivity and pulp volume yield.
Parâmetro físico crônico	Relevante, sempre incluído	In 2016 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. The tendencies during the years related to changes in precipitation extremes and/or droughts could compromise the development of seedlings and planted areas development. Also, temperature variations during the years pose a risk to Klabin's business because they may significantly affect forest development, impacting seedling growth. Increase in sea level during the years could paralyse ports used by Klabin (for example, Paranaguá Port Region in Paraná State) causing delays in deliveries and dissatisfied clients. Klabin is working so that its plants consume less water from natural sources and developing water recycling and reuse for irrigation. Contour lines and containment berms on roads are already being used to prevent the risk of erosion. Also, Klabin works to continuously develop clones with higher resistant to cold and frost, focusing on increasing productivity and pulp volume yield. 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.
A montante	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 study is always based on global models such as the IPCC's Assessment Reports and on local scientific findings and focus on understanding risks and opportunities, especially those with the highest potential to create a significant change in its business operations, revenues or expenses in company and/or asset level. The scope of the assessment includes Klabin's forestry, industrial and port operations in Brazil. 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. Regulatory risks are not a priority, since there is no specific regulation for the pulp and paper industry so far, regarding Climate Changes. In 2016 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. At this stage, risks related to climate in forest areas (production of raw material for factories) were also evaluated. Upstream risk are considered relevant for the organization and area always included in the risk assessment. For example, heavy rainfall can cause runoff entrainment of seedlings, floods, and cause soil drenching. Moreover, it can affect the logistics of removing wood from forest areas. The forest department of Klabin constantly monitors the climatic conditions of the regions where Klabin has its forests planted. This monitoring aims to assess trend levels of climate variables that may interfere with forest productivity and development. The organization has an 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.
A jusante	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 study is based on global models such as the IPCC's Assessment Reports and on local scientific findings and focus on understanding risks and opportunities, especially those with the highest potential to create a significant change in its business operations, revenues or expenses in company and/or asset level. The scope of the assessment includes Klabin's forestry, industrial and port operations in Brazil. The main risks are divided into the following categories: physical, regulatory, reputational and financial. Klabin prioritizes adaptive measures related to reputational and financial risks. Regulatory risks are not a priority, since there is no specific regulation for the pulp and paper industry so far, regarding Climate Changes. In 2016 Klabin developed, 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. Downstream risk are considered relevant for the organization and area always included in the risk assessment. For example, climate change may induce changes in customer preferences for products and services that emit less greenhouse gases. The logistics industry is an important component of these emissions may be under pressure to reduce distances traveled and greenhouse gas emissions, requiring the use of cleaner fuels, replacement of old fleets with new and re-planning of the operation. An example of outcome is the creation of the 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.

C2.2d

(C2.2d) Descreva seus processos para a gestão de riscos e oportunidades relacionados ao clima.

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 study is always based on global models such as the IPCC's Assessment Reports and on local scientific findings and focus on understanding risks and opportunities, especially those with the highest potential to create a significant change in its business operations, revenues or expenses in company and/or asset level. The scope of the assessment includes Klabin's forestry, industrial and port operations in Brazil.

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. Regulatory risks are not a priority, since there is no specific regulation for the pulp and paper industry so far, regarding Climate Changes.

On an asset level, the main considered risks are physical risks once they are evaluated by region of interest (For example, The sea level rise in Paranaguá Port, one of the main ports used by Klabin). In addition, it is important to mention that Klabin evaluate all the risks categories independent of company or asset level of impact.

Once assessed (or updated), each potential risk/opportunity receives adaptive action-plan in order to find the best way to address it throughout the company. For risks, the magnitude and likelihood of the adverse effects will determine the timeframe of company's action. Each Business Unit is responsible for embracing its own risks (pointed out by the vulnerability matrix) and address it accordingly. The Sustainability and Environmental area alongside with Sustainability Committee are the responsible for monitoring, testing and scaling up identified opportunities.

Apart from the magnitude and likelihood analysis pointed out by the vulnerability matrix, which helps to determine the timeframe of company's action, Klabin performs, whenever significant changes occur in the operations of the company, a materiality study. Klabin believes that prioritizing its business strategies by taking into consideration the business strategies of its stakeholders is fundamental for building a future of perpetuity, responsibility and consensus, including Climate Changes issues. The results of this broad consultation help to point out priorities which company should address within its Sustainability strategy in the short, medium and long term. During the last cycle of study, climate change, especially regarding water, energy and biodiversity issues, was elected by stakeholders as one of main concerns and therefore is prioritized by Klabin.

Transition Risk / Opportunity Example: A cap & trade scheme related to the imposition of a carbon price may affect the production of paper and pulp for the Klabin Units affecting directly in competitiveness by raising production costs. As a way of managing this risk Klabin has been using more efficient technologies and equipment's, it has adopted an increasingly cleaner matrix, and has high carbon stock. In addition, 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.

Physical Risk / Opportunity example: Heavy rainfall can cause runoff entrainment of seedlings, floods, and cause soil drenching. Moreover, it can impact the logistics of removing wood from forest areas. The organization has an 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. As a way of managing this risk Klabin created the 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.

C2.3

(C2.3) Você identificou algum risco inerente relacionado ao clima com potencial para causar um impacto financeiro ou estratégico considerável em seus 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

Risco de transição

Principal fator de risco relacionado ao clima

Política e juridicidade: Aumento da precipificação de emissões de GEE

Tipo de fator de impacto financeiro

Política e juridicidade: Aumento dos custos operacionais (por ex., custos de conformidade mais altos, aumento dos prêmios de seguro)

Descrição específica da empresa

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), Otacilio Costa and Correia Pinto units (Santa Catarina) and Angatuba unit (São Paulo) which are the units with higher atmospheric emissions.

Horizonte de tempo

Médio prazo

Probabilidade

Muito provável

Dimensão do impacto

Média-baixa

Possível impacto financeiro

28537503.87

Explicação do impacto financeiro

BRL 28,573,503.87 which represents a simulation of carbon pricing in Brazil, using as a reference the average global price of carbon tax multiplied by the total quantity issued by Klabin in the year 2017 not considering that CO2 removals by native and planted forests could serve as a reduction in the amount paid for the company's atmospheric emissions

Método de gestão

Klabin will continue participating in "Empresas Pelo Clima" (Companies for the Climate), which aims to mobilize and articulate business leaders for the management and reduction of emissions of greenhouse gases, the management of climate risks and the proposal of public policies and positive incentives in the context climate change. Klabin has restructured its team and created a corporate area of Sustainability and Environment that has as its objectives the daily management/monitoring global and national climate agendas and mapping their risks and opportunities related to all Klabin units. As a complement, 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 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.

Custo de gestão

23500000

Comentários

BRL 23,500,000.00 million to environmental investments, including management, treatment of air emissions prevention costs and environmental management costs.

Identificador

Risco 2

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

Cliente

Tipo de risco

Risco de parâmetro físico

Principal fator de risco relacionado ao clima

Crônicos: Elevação do nível do mar

Tipo de fator de impacto financeiro

Redução na receita decorrente da diminuição na capacidade de produção (por ex., dificuldades de transporte, interrupções na cadeia de fornecimento)

Descrição específica da empresa

The sea level rise may paralyze ports used by Klabin (eg Port Region of Paranaguá in Paraná State), forcing the need to change the logistics process of the company (transportation of products, mainly from the Paraná units (Monte Alegre and PUMA).

Horizonte de tempo

Longo prazo

Probabilidade

Provável

Dimensão do impacto

Média

Possível impacto financeiro

5767744.68

Explicação do impacto financeiro

Estimated cost of BRL 5,767,744 .98 per day related to non-disposal of Klabin's products in the port region of Paranaguá (Paraná) Considering the products that pass through the warehouse.

Método de gestão

The port terminal is responsible for the control and monitoring of the climatic and operational conditions of the terminal. Day-to-day there is direct contact between the port terminal and the Paranaguá depot (Paraná State) in relation to climatic conditions (temperature, wind conditions, sea level, among others) for cargo planning.

Custo de gestão

80106.66

Comentários

BRL 80,1 06.66 which represent the costs per day for operating the warehouse and transporting the materials to the port terminal. As a control for possible risk of sea level rise or fall, Klabin maintains free spaces in the warehouse to receive the finished products even if there is a delay in loading due to climatic conditions. This information is important for the strategic planning of the organization and, in addition, in cases where more significant delays occur, the products can be stored in the free spaces in the warehouses located within each specific unit. In these warehouses, spaces are always available to receive products in abnormal process conditions, thus avoiding production unit stops.

Identificador

Risco 3

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

Operações diretas

Tipo de risco

Risco de transição

Principal fator de risco relacionado ao clima

Política e juridicidade: Mandatos sobre e regulamentação de produtos e serviços existentes

Tipo de fator de impacto financeiro

Política e juridicidade: Aumento dos custos operacionais (por ex., custos de conformidade mais altos, aumento dos prêmios de seguro)

Descrição específica da empresa

New regulations for the use of renewable energies can generate needs for changes in the process and, consequently, an increase in operating costs. Due to its size, approximately 75% of the fuel oil consumption is of the units of Klabin PUMA (40%), Monte Alegre (25%), Correia Pinto (6%) and Otacilio Costa (3%). New regulations related to the use of renewable energy can mainly increase the operational costs of these plants, requiring changes and investments in engineering for process and equipment changes.

Horizonte de tempo

Médio prazo

Probabilidade

Virtualmente certo

Dimensão do impacto

Média

Possível impacto financeiro

17721549.88

Explicação do impacto financeiro

BRL 17,721,549.88 which represents a simulation of carbon pricing in Brazil, using as a reference the average global price of carbon tax multiplied by the total quantity of non-renewable fuel issued by Klabin in the year 2017 not considering that CO2 removals by native and planted forests could serve as a reduction in the amount paid for the company's atmospheric emissions

Método de gestão

Klabin will continue participating in "Empresas Pelo Clima" (Companies for the Climate), which aims to mobilize and articulate business leaders for the management and reduction of emissions of greenhouse gases, the management of climate risks and the proposal of public policies and positive incentives in the context climate change. Klabin has restructured its team and created a corporate area of Sustainability and Environment that has as its objectives the daily management/monitoring global and national climate agendas and mapping their risks and opportunities related to all Klabin units. As a complement, 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 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.

Custo de gestão

23500000

Comentários

BRL 23,500,000.00 million to environmental investments, including management, treatment of air emissions prevention costs and environmental management costs.

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

Fonte de energia

Principal fator de oportunidade relacionada ao clima

Uso de fontes de energia com menor índice de emissões

Tipo de fator de impacto financeiro

Aumento da disponibilidade de capital (por ex., à medida que mais investidores privilegiam os produtores com menor índice de emissões)

Descrição específica da empresa

With the new PUMA unit located in the state of Paraná, the unit will generate more energy from renewable sources than its production demand will require, allowing the company to make this surplus available to the market.

Horizonte de tempo

Curto prazo

Probabilidade

Provável

Dimensão do impacto

Média-alta

Possível impacto financeiro

54530000

Explicação do impacto financeiro

Approximately BRL 54,530,000.00 related to the sale of energy produced and not consumed by the PUMA unit in Paraná. Calculation is equal to the amount of energy distributed to the national grid multiplied by the average sales value in the year.

Estratégia para materializar a oportunidade

To manage this opportunity Klabin purchase energy from renewable resources. Its energy matrix includes natural renewable sources such as black liquor, biofuel, and hydro (own electrical power). 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, in a quest for gains in energy efficiency. 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 mention that the Ortigueira Plant, is able to generate more energy than it needs and the surplus is sold to the interconnected energy system. Of the total energy available for sale at the Puma Unit (854,875 MWh), 80% were made available to the market, representing a 97% increase in the amount of energy sold compared to 2016.

Custo para materializar a oportunidade

40179125

Comentários

BRL 40,179,125.00 in relation to the total cost of production of surplus energy sold in 2017 by PUMA (Paraná State), considering an average cost of 854,875.00 MWh (amount of energy sold in 2017).

Identificador

Opp2

Em que ponto da cadeia de valor ocorre a oportunidade?

Cadeia de fornecimento

Tipo de oportunidade

Fonte de energia

Principal fator de oportunidade relacionada ao clima

Outros

Tipo de fator de impacto financeiro

Aumento da disponibilidade de capital (por ex., à medida que mais investidores privilegiam os produtores com menor índice de emissões)

Descrição específica da empresa

Opp: Cap and trade schemes: CDM projects Voluntary commitments. Participate in the groups of discussion, such as "Empresas Pelo Clima" (Companies for the Climate), which aims to mobilize, sensitize and articulate business leaders for the management and reduction of emissions of greenhouse gases (GHG), the management of climate risks and the proposal of public policies and positive incentives in the context climate change.

Horizonte de tempo

Médio prazo

Probabilidade

Muito provável

Dimensão do impacto

Alta

Possível impacto financeiro

582422921.54

Explicação do impacto financeiro

Annual financial positive implication: BRL 582,422,921.54 estimated. Rational: carbon removal credits (9237561.186 tons CO₂-eq from planted and native forests), minus the total GHG emissions (direct and indirect) from the production process (1034421.446 tons CO₂-eq), multiplied by the current price per tonne of CO₂ on Brazil's emerging carbon credit market simulation in 2017 (BRL 71 /ton CO₂ eq).

Estratégia para materializar a oportunidade

The recovering in the carbon market after COP21 (Paris, December 2015) and a recently approved Brazilian Law of Payment for Environmental Services will bring benefits and financial opportunities due to Klabin's native and preserved forests. Currently, the company has 211 thousand hectares of preserved native woodlands in the Atlantic Rainforest. However, so far (due to lack of unique measurement methodology accepted worldwide) it is not possible to measure or value biodiversity and its ecosystem services (such as the amount of stored CO₂) nor the carbon value in exchange markets.

Custo para materializar a oportunidade

23500000

Comentários

BRL 23,500,000.00 million to environmental investments, including management, treatment of air emissions prevention costs and environmental management costs.

Identificador

Opp3

Em que ponto da cadeia de valor ocorre a oportunidade?

Operações diretas

Tipo de oportunidade

Resiliência

Principal fator de oportunidade relacionada ao clima

Participação em programas de energia renovável e adoção de medidas de eficiência energética

Tipo de fator de impacto financeiro

Outros (especifique) (● Increased capital availability)

Descrição específica da empresa

With the new PUMA unit located in the state of Paraná, the unit will generate more energy from renewable sources than its production demand will require, allowing

participation in renewable energy programs and adoption of energy efficiency measures

Horizonte de tempo

Médio prazo

Probabilidade

Provável

Dimensão do impacto

Média-alta

Possível impacto financeiro

60393239.2

Explicação 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).

Estratégia para materializar a oportunidade

To manage this opportunity Klabin purchase energy from renewable resources. Its energy matrix includes natural renewable sources such as black liquor, biofuel, and hydro (own electrical power). 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, in a task for gains in energy efficiency. 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 mention that the Ortigueira Plant, is able to generate more energy than it needs and the surplus is sold to the interconnected energy system. Of the total energy available for sale at the Puma Unit (854,875 MWh), 80% were made available to the market, representing a 97% increase in the amount of energy sold compared to 2016.

Custo para materializar a oportunidade

1494955.8

Comentários

BRL 1,494,955.80 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

C2.5

(C2.5) Descreva onde e como os riscos e oportunidades identificados causaram impacto em seus negócios.

	Impacto	Descrição
Produtos e serviços	Impactado para alguns fornecedores, instalações ou linhas de produtos	Until now, the organization understands that in the future (an estimation for the next 5 years) there may be changes in customer preferences that may generate changes in the products and services provided. For example, increasing customer demands for products certified with ISO and FSSC in their production chain as a way of guaranteeing the supply of a quality and environmentally correct product. With this, Klabin has been developing new lines of monitoring and research and development for adequacy and innovation based on market trends. For example the construction of Klabin Technology Center in Telêmaco Borba (Paraná) is considered a high positive impact for the organization, since it is leading opportunities in Research, Development and Innovation (R&D+) activities in the company to a new level (including the renewable energy studies and adaptations). The initiative is part of Klabin's three-year investment plan (2015 to 2017), which provides for BRL 70 million to be allocated to R&D+I processes.
Cadeia de fornecimento e/ou cadeia de valor	Impactado para alguns fornecedores, instalações ou linhas de produtos	In order to follow more closely the impacts of possible climate change on the growth of forest plantations, we created a Department of Productivity and Forest Ecophysiology, able to simulate adverse scenarios and recommend appropriate action. In the case of our most extensive forest areas in the state of Parana, the most predictable climate change has been the intensification of rains in the region, which would make management more difficult, but, on the other hand, would benefit tree growth and plantation productivity. This action is directly linked to the study of climate-related risks in the forest, industrial and logistical areas carried out in 2016.
Atividades de adaptação e mitigação	Impactado	Until now, in order to follow more closely the impacts of possible climate risks, we created a Department of Productivity and Forest Ecophysiology, able to simulate adverse scenarios and recommend appropriate action. In the case of our most extensive forest areas in the state of Parana, the most predictable climate change has been the intensification of rains in the region, which would make management more difficult, but, on the other hand, would benefit tree growth and plantation productivity. This action is directly linked to the study of climate-related risks in the forest, industrial and logistical areas carried out in 2016 and was classified as medium severity impact. These studies carried out simulations of climatic scenarios for the different regions of Brazil where there are Klabin units (all the facilities were included in this study), pointing out the climatic risks specific to each state from the present data to 2040 simulations. The steps and inputs 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.
Investimento em P&D	Impactado	The construction of Klabin Technology Center in Telêmaco Borba (Paraná) is considered a high positive impact for the organization, since it is leading opportunities in Research, Development and Innovation (R&D+) activities in the company to a new level (including the renewable energy studies and adaptations). The initiative is part of Klabin's three-year investment plan (2015 to 2017), which provides for BRL 70 million to be allocated to R&D+I processes. Also, this allow us to development of new strategies for the organization: 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 (eg. 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. An example of outcome is the creation of the 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.
Operações	Impactado	Development of new strategies for the organization: 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 (eg. 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. An example of outcome is the creation of the 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.
Outros (especifique)	Não impactado	-x-

C2.6

(C2.6) Descreva onde e como os riscos e oportunidades identificados foram considerados em seu processo de planejamento financeiro.

	Relevância	Descrição
Receitas	Impactado	Possible benefits from 100% clean energy matrix and for carbon credits (high magnitude opportunity). Of the total energy available for sale at the Puma Unit (854,875 MWh), 80% were made available to the market, representing a 97% increase in the amount of energy sold compared to 2016. The recovering in the carbon market after COP21 (Paris, December 2015) and a recently approved Brazilian Law of Payment for Environmental Services can bring benefits and financial opportunities due to Klabin's native and preserved forests. Currently, the company has 211 thousand hectares of preserved native woodlands in the Atlantic Rainforest.
Custos operacionais	Ainda não impactado	In the future (estimated time horizon of 5 years), a cap & trade scheme related to the imposition of a carbon price may affect the production of paper and pulp for the Klabin Units of Monte Alegre, Puma, Otacilio Costa, Correia Pinto and Angatuba, affecting directly in competitiveness by raising production costs. Also, any regulations related to fuel/ energy consumption and the establishment of GHG emissions limits will be relevant for Klabin. While the company has been using more efficient technologies and equipment, it has adopted an increasingly cleaner matrix, and has high carbon stock and a great potential to generate new CO2eq credits. New regulations related to emissions limits will be relevant for Klabin. While the company has been using more efficient technologies and equipment, it has adopted an increasingly cleaner matrix, and has high carbon stock and a great potential to generate new CO2eq credits. In 2016 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 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. 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.
Gastos/alocação de capital	Impactado	Klabin historically makes investments and encourages environmental and sustainability practices. Be it for controls and maintenance of operating systems as well as investments for research and development in the area. Based on this, the organization constantly maintains investments aimed at tracking trends and developing new technologies to improve environmental performance. For example, in 2017 Klabin invested about R \$ 23.5 million for environmental investments, covering waste management, treatment of atmospheric emissions, costs of prevention and environmental management expenses. In addition, invested BRL 228,000,000.00, which represents the total investment to manage the forest operations in São Paulo, Santa Catarina and Paraná State. Also, the Klabin Technology Center in Telêmaco Borba (Paraná), is raising Research, Development and Innovation (R&D+I) activities in the company to a new level (including the renewable energy studies and adaptations).The initiative is part of Klabin's three-year investment plan (2015 to 2017), which provides for BRL 70 million to be allocated to R&D+I processes.
Aquisições e desinvestimentos	Impactado	Klabin has been developing new lines of monitoring and research and development for adequacy and innovation based on market trends. For example the construction of Klabin Technology Center in Telêmaco Borba (Paraná) is considered a high positive impact for the organization, since it is leading opportunities in Research, Development and Innovation (R&D+I) activities in the company to a new level (including the renewable energy studies and adaptations). The initiative is part of Klabin's three-year investment plan (2015 to 2017), which provides for BRL 70 million to be allocated to R&D+I processes.
Acesso ao capital	Impactado	The organization understands that it is positively impacted in this aspect, since Klabin participates in the ISE (Business Sustainability Index), the ICO2 index, among other platforms that actively favor reallocation of investments in the organization, since participation in these platforms demonstrates transparency, concern and active work on issues related to corporate sustainability and preservation of the environment.
Ativos	Impactado para alguns fornecedores, instalações ou linhas de produtos	A positive item regarding investments for assets in the research and development of productive areas and environment is a construction of Klabin Technology Center. the Klabin Technology Center in Telêmaco Borba (Paraná), is raising Research, Development and Innovation (R&D+I) activities in the company to a new level (including the renewable energy studies and adaptations).The initiative is part of Klabin's three-year investment plan (2015 to 2017), which provides for BRL 70 million to be allocated to R&D+I processes. In addition, the construction of a new plant (PUMA unit) with investment of more than BRL 8 billion, as well as the acquisition of new conversion units also demonstrates that the organization is seeking its growth in a planned and strategic way Klabin also monitors market trends with regard to investments for sustainability and environmental developments.
Passivos	Não impactado	The organization has not yet been impacted by this item, however it is understood that this is a risk that must be managed closely and constantly to ensure that there are no liabilities such as the need for investments for environmental adjustments and / or payment of legal sanctions. Such as the need to purchase carbon credits due to increased atmospheric emissions. For this, Klabin has environmental areas in each of its units, as well as an corporative area of sustainability and environment (located strategically in the state of Parana to be near the largest units of Klabin (Puma, Monte Alegre, Otacilio Costa, Correia Pinto and Angatuba)) which aims to carry out the daily monitoring and management of all items related to environmental issues and legality.
Outros (especifique)	Não impactado	-x-

C3. Estratégia de negócios**C3.1****(C3.1) As questões relacionadas ao clima estão integradas em sua estratégia de negócios?**

Sim

C3.1a**(C3.1a) Sua organização usa a análise de cenários relacionados ao clima para informar sua estratégia de negócios?**

Sim, qualitativa e quantitativa

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

(C-AC3.1b/C-CE3.1b/C-CH3.1b/C-CO3.1b/C-EU3.1b/C-FB3.1b/C-MM3.1b/C-OG3.1b/C-PF3.1b/C-ST3.1b/C-TO3.1b/C-TS3.1b) Indique se a sua organização desenvolveu um plano de transição para uma economia com baixos níveis de carbono em apoio à estratégia de negócios de longo prazo.

Sim

C3.1c

(C3.1c) Explique de que modo as questões relacionadas ao clima estão integradas em seus objetivos e estratégia de negócios.

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 and the Climate 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 (GHG)"). 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 Program of the GHG Protocol (base year 2004), 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. Klabin has an internal goal of maintaining at least 88% of its renewable energy matrix between 2018 and 2022. 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 the climate change and the availability of abundant and clean energy extends to strategic decisions to the recently built Puma Unit in Ortigueira, PR.

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 2017, Klabin consumed 63,798,351.60 GJ of energy in its operations. Considering the total energy consumption of the company (bought + sold), the energy intensity rates (energy consumption of the units divided by production) registered a reduction. This was 14% in the Pulp Business Unit and 4% in the Paper Unit. The results demonstrate Klabin's commitment to operate at the highest possible energy efficiency, reducing losses.

In addition, in 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 2017, Klabin acquired 674,320,073 MWh from hydroelectric generation, with the appropriate Declaration of the generator, Copel Geração e Transmissão SA. This represent a reduction of the Scope 2 emissions, when compared to the Location-based Approach, which uses the average emission factor of the SIN (National Interconnected System).

C3.1d

(C3.1d) Forneça detalhes do uso da análise de cenários relacionados ao clima por sua organização.

Cenários relacionados ao clima	Detalhes
RCP 2.6	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 in this study, 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). These studies carried out simulations of climatic scenarios for the different regions of Brazil where there are Klabin units (all the facilities were included in this study), pointing out the climatic risks specific to each state from the present data to 2040 simulations. The steps and inputs 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. The results of the main risks (forestry, industrial and logistic) in this study 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 the risks mapped on Klabin's matrix, 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. This risk led the organization to strategically decide to create the Department of Forest Efficiency and Ecophysiology which 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 Also, 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. It is worth mentioning, 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. The sustainability committee, which is made up of a representative of the board of directors, and also aims to follow global and national climate agendas and map their related risks and opportunities in decision-making. The company follows the application of the precautionary principle established at the Eco-92 Conference and constantly evaluates all aspects that present risks to the environment, health and safety of employees, customers and communities impacted by its activities. 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).

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.

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It is also worth to mention that, 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.

The sustainability committee, which is made up of a representative of the board of directors, and aims to follow global and national climate agendas and map their related risks and opportunities in decision-making.

Since 2013, Klabin has been participating in the permanent "Empresas Pelo Clima" (Companies for the Climate), which aims to mobilize, sensitize and articulate business leaders for the management and reduction of emissions of greenhouse gases (GHG), the management of climate risks and the proposal of public policies and positive incentives in the context climate change.

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. Klabin has an internal goal of maintaining at least 88% of its renewable energy matrix between 2018 and 2022. 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 the climate change and the availability of abundant and clean energy extends to strategic decisions to the recently built Puma Unit in Ortigueira, PR.

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 2017, Klabin consumed 63,798,351.60 GJ of energy in its operations. Considering the total energy consumption of the company (bought + sold), the energy intensity rates (energy consumption of the units divided by production) registered a reduction. This was 14% in the Pulp Business Unit and 4% in the Paper Unit. The results demonstrate Klabin's commitment to operate at the highest possible energy efficiency, reducing losses.

In addition, in 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 2017, Klabin acquired 674,320,073 MWh from hydroelectric generation, with the appropriate Declaration of the generator, Copel Geração e Transmissão SA. This represent a reduction of the 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) Existia uma meta de emissões que estava ativa no ano de referência?

Metas absolutas e de intensidade

C4.1a

(C4.1a) Provide details of your absolute emissions target(s) and progress made against those targets.

Target reference number

Abs 1

Scope

Scope 1

% emissions in Scope

100

% reduction from base year

30.67

Base year

2004

Start year

2017

Base year emissions covered by target (metric tons CO2e)

704000

Target year

2022

Is this a science-based target?

Yes, we consider this a science-based target, but this target has not been approved as science-based by the Science-Based Targets initiative

% achieved (emissions)

99.21

Target status

New

Please explain

This is a new goal. With the operation of the PUMA unit we increased by 8% the absolute values of Scope 1 emissions, the goal in 2017 was a maximum increase of 7% with its operationalization. For this, until 2022 we aim to reduce at least 1% of emissions from scope 1. In 2017, Klabin recorded an increase of 8% in the absolute GHG emissions of Scope 1, due to the increase in production of the Puma Unit, which reached its full capacity. However, the 15% increase in emissions from biomass, renewable fuel, stands out positively. It is important to mention that, considering the emission values of scope 1 in intensity rate (kg CO2e / ton produced) in relation to 2016, there was a reduction of 14.42 kgCO2e / ton produced.

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

Escopo

Escopo 1 + 2 (com base no mercado)

% de emissões do Escopo

100

% de redução no ano de base

62.4

Métrica

Toneladas métricas de CO2e por unidade de produção

Ano-base

2004

Ano de início

2016

Emissões do ano de base normalizadas, cobertas pela meta (toneladas métricas de CO2e)

185

Ano da meta

2022

Esta meta tem base científica (science-based target)?

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

% alcançada (emissões)

60.66

Status da meta

Em andamento

Explique

In 2017 Klabin S / A had as a goal the reduction of 1% of the emissions of the scope 1+ 2 reaching 205kg CO2eq per ton of product. This goal was achieved, obtaining 193.53kg CO2 eq per ton of product in this year of 2017. This demonstrates Klabin's commitment to reduce emissions of effect gases studied. With this, the targets set for 2018-2022 is 185 kg CO2 eq per ton of product. 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 Piracicaba 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). Now we still have some oportunities to install biomass boilers or to change oil for natural gas at Klabin packages mills

% de mudança esperada em emissões absolutas dos Escopos 1+2

1

% de mudança esperada em emissões absolutas do Escopo 3

0

C4.2

(C4.2) Forneça detalhes de outras metas relacionadas ao clima principais ainda não relatadas na pergunta C4.1/a/b.

Meta

Uso de energia

KPI – Numerador métrico

Do not exceed: 1,086,608.05 MWh / year

KPI – Denominador métrico (somente metas de intensidade)

year

Ano-base

2017

Ano de início

2017

Ano da meta

2022

KPI no ano de base

1143797.95

KPI no ano da meta

1086608.05

% alcançada no ano de reporte

94.7

Status da meta

Em andamento

Explique

In 2017, the increase in energy purchased was mainly due to the increase in consumption of the Monte Alegre Unit, which ended the loss of power generation loss at the

SHP, after the construction of the UHE Mauá. Based on the results obtained in 2017, Klabin has set a reduction target of up to 5% between 2018 and 2022. Although there was no reduction in absolute energy consumption in relation to the previous year, the period had the following highlights: - 80% of the total energy available for sale at the Puma Unit (854,875 MWh) were made available to the market, representing a 97% increase in the amount of energy sold compared to 2016. - Klabin increased the energy index from renewable sources to 89% and reduced its consumption of fossil fuels by 7%.

Parte da meta de emissões

(Int 1): Reduction for Scope 1+2 (market-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 Objectives (ODS))

Meta

Consumo de energia renovável

KPI – Numerador métrico

Increase the share of renewable sources in the energy matrix to 87%

KPI – Denominador métrico (somente metas de intensidade)

-x-

Ano-base

2014

Ano de início

2014

Ano da meta

2022

KPI no ano de base

86.5

KPI no ano da meta

88

% alcançada no ano de reporte

100

Status da meta

Em andamento

Explique

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 as fuel in our boilers, reaching in 2014 86,5% of renewable sources for energy generation. Our goal to 2022 in to increase this number and keep it at least to 88%. - In 2017, Klabin increased the energy index from renewable sources to 89% and reduced its consumption of fossil fuels by 7%.

Parte da meta de emissões

(Abs1): reduce 1% of emissions from scope 1. (Int 1): Reduction for Scope 1+2 (market-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 Objectives (ODS))

Meta

Produtividade energética

KPI – Numerador métrico

Increase self-sufficiency in energy generation to 65%

KPI – Denominador métrico (somente metas de intensidade)

-x-

Ano-base

2016

Ano de início

2017

Ano da meta

2022

KPI no ano de base

59.8

KPI no ano da meta

65

% alcançada no ano de reporte

100

Status da meta

Em andamento

Explique

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. With this stabilization of the PUMA unit, in 2017, Klabin reached values of 70% of energy self-sufficiency, values that are classified as a minimum value to be maintained until 2022

Parte da meta de emissões

(Int 1): Reduction for Scope 1+2 (market-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 Objectives (ODS))

C4.3

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

Sim

C4.3a

(C4.3a) Indique o número total de projetos em cada fase de desenvolvimento e, para aqueles em fase de implementação, informe a economia de CO2e estimada.

	Número de projetos	Economia anual total estimada de CO2e em toneladas métricas de CO2e (somente para linhas marcadas com *)
Em fase de pesquisa	1	3986.52
A ser implementado*	1	2000
Implementação iniciada*	1	11.8
Implementado*	3	117807.35
Não será implementado	0	0

C4.3b

(C4.3b) Forneça detalhes sobre as iniciativas implementadas no ano de referência, na tabela abaixo.

Tipo de atividade

Reduções de emissões de processos

Descrição da atividade

Novos equipamentos

Economia anual estimada de CO2e (toneladas métricas de CO2e)

41416

Escopo

Escopo 1

Voluntário/obrigatório

Voluntária

Economia monetária anual (unidade monetária – conforme especificada em CC0.4)

15441535

Investimento necessário (unidade monetária – conforme especificado em CC0.4)

47000000

Período de retorno financeiro (<i>payback</i>)

4 a 10 anos

Duração estimada da iniciativa

Em andamento

Comentários

This project is related to the installation of a biomass boiler at the Angatuba plant, reducing CO2 emissions by reducing the consumption of fuel oil. In 2015 Klabin consumed 37,793,687.70 GJ of energy of which more than 82% came from renewable energy sources. Related to this total amount, only 3,623,999.70 GJ were acquired from the national electrical system (purchased electricity). In the last years, with the construction of the PUMA unit, the absolute values of energy did not reduce. This project represents a voluntary action by Klabin for investment in biomass as sustainable resource to reduce our carbon footprint.

Tipo de atividade

Reduções de emissões de processos

Descrição da atividade

Novos equipamentos

Economia anual estimada de CO2e (toneladas métricas de CO2e)

16289

Escopo

Escopo 1

Voluntário/obrigatório

Voluntária

Economia monetária anual (unidade monetária – conforme especificada em CC0.4)

0

Investimento necessário (unidade monetária – conforme especificado em CC0.4)

400000

Período de retorno financeiro (<i>payback</i>)

> 25 anos

Duração estimada da iniciativa

Em andamento

Comentários

In the unit of Otacilio Costa and Correia Pinto, besides the black liquor, it is also consumed the tar. This material is inserted in the matrix Klabin from 2017. It is a renewable fuel generated from Tail Oil processing, which is a sub-product of the Pulp Industry. In this project there was no need for significant changes in Klabin's facilities. Besides that, This project has no financial savings, its main focus and objective is linked to the reduction of CO2 emissions by the organization, further reinforcing Klabin's commitment to climate change.

Tipo de atividade

Aquisição de energia com baixos níveis de carbono

Descrição da atividade

Hidro

Economia anual estimada de CO2e (toneladas métricas de CO2e)

60149.35

Escopo

Escopo 2 (com base no mercado)

Voluntário/obrigatório

Voluntária

Economia monetária anual (unidade monetária – conforme especificada em CC0.4)

0

Investimento necessário (unidade monetária – conforme especificado em CC0.4)

0

Período de retorno financeiro (<i>payback</i>)

&lt; 1 ano

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 2017, Klabin acquired 674,320,073 MWh, from hydroelectric generation, with the proper Declaration of the generator, COPEL Geração e Transmissão SA. This results in a reduction of Scope 2 emissions, 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.

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

Método	Comentários
Mecanismos de financiamento interno	All the projects elaborated undergo a flow of analysis and prioritization based on the use of an internal Klabin methodology, which uses as a prioritization parameter the possible environmental impacts. In addition, other items such as legal requirements and financial return of the investments are also taken into consideration.

C-AC4.4/C-FB4.4/C-PF4.4**(C-AC4.4/C-FB4.4/C-PF4.4) Você implementa práticas de gestão em suas próprias terras com um benefício de mitigação e/ou 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 gestão

MP1

Prática de gestão

Reflorestamento

Descrição da prática de gestão

Practices of adequacy, conservation and environmental preservation in rural properties and planted forests of Klabin.

Principal benefício relacionado às mudanças climáticas

Aumento do reservatório de carbono (mitigação)

Economia estimada de CO₂e (toneladas métricas de CO₂e)

36775.6

Explique

The greenhouse gas inventory calculation was based on the Brazilian GHG Protocol methodology Klabin reserves more than 40% 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. A pioneer in the adoption of mosaic planting concepts Klabin has 229,000 hectares planted with pine and eucalyptus and 214,000 hectares of preserved native forests. For fire control, Klabin has an expert team to control through observation towers that use fire localization techniques by georeference and control charts. The team is made up of its own employees: 23 sentry towers, 18 forest lookouts, 26 night watchmen and 4 leaders are trained to detect any problems that occur in the company's assets. Klabin also adopts programs in order to improve the conditions of its areas, as well as to comply with environmental laws, the preservation and management of companies and plantations. 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. In 2016 this program had 88 new owners; 53,760 seedlings donated; 3,374 ha of demarcated areas of preservation. Planning Sustainable Properties (Matas Sociais) - Serves 150 rural properties. Using as base the value of 10.90 tCO₂eq / ha calculated according to the CO₂ sequestration of the planted 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: 3374 ha * 10.9 tCO₂ / ha = 36775.6 tCO₂eq

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

Por toda a empresa

Descrição do produto/Grupo de produtos

Whole products list

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

Produto com baixos níveis de carbono

Taxonomia, metodologia ou projeto usado para classificar produtos com baixos níveis de carbono ou para calcular emissões evitadas

Outros (especifique) (Carbon Footprint evaluation)

% de receita dos produtos com baixos níveis de carbono no ano de referência

100

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. 497,176 HECTARES OF OWN LAND: 229,167 hectares of planted forests and 214,423 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. Internal studies appointed that: 249 kgCO₂eq/ton of paper produced - which represents our emissions. 1177 kg kgCO₂eq/ton of paper produced - which represents our carbon sink. We can conclude that Klabin has a expressive carbon credit.

C5. Metodologia das 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 2004

Fim do ano-base

Dezembro 31 2004

Emissões do ano-base (toneladas métricas de CO2e)

0

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.

C5.2

(C5.2) Seleccione o nome do padrão, protocolo ou metodologia usado para coletar dados de atividades e calcular as emissões de Escopo 1 e Escopo 2.

Brazil GHG Protocol Programme

C6. Dados das emissões

C6.1

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

Linha 1

Emissões brutas de Escopo 1 (toneladas métricas de CO2e)

709560.46

Fim do ano do período de referência

<Not Applicable>

Comentários

In 2017, Klabin increased in 15% emissions from biomass, a renewable fuel that stands out positively. It is important to mention that, considering the emission values of scope 1 in intensity rate (kg CO2e / ton produced) in relation to 2016, there was a reduction of 14.42 kgCO2e / ton produced.

Linha 2

Emissões brutas de Escopo 1 (toneladas métricas de CO2e)

709560.46

Fim do ano do período de referência

2017

Comentários

In 2017, Klabin increased in 15% emissions from biomass, a renewable fuel that stands out positively. It is important to mention that, considering the emission values of scope 1 in intensity rate (kg CO2e / ton produced) in relation to 2016, there was a reduction of 14.42 kgCO2e / ton produced.

C6.2

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

Linha 1

Escopo 2, com base na localização

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

Escopo 2, com base no mercado

Estamos relatando 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 2017, Klabin acquired 674,320,073 MWh, from hydroelectric generation, with the proper Declaration of the generator, COPEL Geração e Transmissão SA. This results in a reduction of Scope 2 emissions, 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?

Linha 1

Escopo 2, com base na localização

105828

Escopo 2, com base no mercado (se aplicável)

43664

Fim do ano do período de referência

<Not Applicable>

Comentários

On Indirect GHG emissions from energy acquisition - Scope 2, in 2017 Klabin began to record part of 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 2017, Klabin acquired 674,320,073 MWh, from hydroelectric generation, with the proper Declaration of the generator, COPEL Geração e Transmissão SA. This results in a reduction of Scope 2 emissions, 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.

Linha 2

Escopo 2, com base na localização

105828.68

Escopo 2, com base no mercado (se aplicável)

43664.22

Fim do ano do período de referência

2017

Comentários

On Indirect GHG emissions from energy acquisition - Scope 2, in 2017 Klabin began to record part of 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 2017, Klabin acquired 674,320,073 MWh, from hydroelectric generation, with the proper Declaration of the generator, COPEL Geração e Transmissão SA. This results in a reduction of Scope 2 emissions, 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 referência selecionados, mas que não estão incluídas em sua divulgação?

Não

C6.5

(C6.5) Descreva detalhadamente as emissões de Escopo 3 de sua organização, divulgando e explicando eventuais exclusões.

Bens e serviços adquiridos

Status da avaliação

Não relevante, calculada

Toneladas métricas em CO2e

0

Metodologia de cálculo das emissões

GHG protocol brazil methodology

Porcentagem de emissões calculada com dados obtidos de fornecedores ou parceiros da cadeia de fornecimento

0

Explicação

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.

Bens de capital

Status da avaliação

Não relevante, calculada

Toneladas métricas em CO2e

0

Metodologia de cálculo das emissões

GHG protocol brazil methodology

Porcentagem de emissões calculada com dados obtidos de fornecedores ou parceiros da cadeia de fornecimento

0

Explicação

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.

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

Status da avaliação

Não relevante, calculada

Toneladas métricas em CO2e

0

Metodologia de cálculo das emissões

GHG protocol brazil methodology

Porcentagem de emissões calculada com dados obtidos de fornecedores ou parceiros da cadeia de fornecimento

0

Explicação

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.

Transporte e distribuição a montante

Status da avaliação

Relevante, calculada

Toneladas métricas em CO2e

85539

Metodologia de cálculo das emissões

GHG protocol brazil methodology

Porcentagem de emissões calculada com dados obtidos de fornecedores ou parceiros da cadeia de fornecimento

100

Explicação

Klabin measures emissions from its employees travels and accounts into its GHG emissions Scope 3 reports. The company also controls the oil fuel consumption of third party fleet of trucks and measures the correspondent emissions.

Resíduos gerados nas operações

Status da avaliação

Relevante, calculada

Toneladas métricas em CO2e

527

Metodologia de cálculo das emissões

GHG protocol brazil methodology

Porcentagem de emissões calculada com dados obtidos de fornecedores ou parceiros da cadeia de fornecimento

100

Explicação

Klabin measures emissions from its employees travels and accounts into its GHG emissions Scope 3 reports. The company also controls the oil fuel consumption of third party fleet of trucks and measures the correspondent emissions.

Viagens de negócios

Status da avaliação

Relevante, calculada

Toneladas métricas em CO2e

1256

Metodologia de cálculo das emissões

GHG protocol brazil methodology

Porcentagem de emissões calculada com dados obtidos de fornecedores ou parceiros da cadeia de fornecimento

100

Explicação

Klabin measures emissions from its employees travels and accounts into its GHG emissions Scope 3 reports. The company also controls the oil fuel consumption of third party fleet of trucks and measures the correspondent emissions.

Viagens diárias (ida e volta do trabalho) de funcionários

Status da avaliação

Relevante, calculada

Toneladas métricas em CO2e

1983

Metodologia de cálculo das emissões

GHG protocol brazil methodology

Porcentagem de emissões calculada com dados obtidos de fornecedores ou parceiros da cadeia de fornecimento

100

Explicação

Klabin measures emissions from its employees travels and accounts into its GHG emissions Scope 3 reports. The company also controls the oil fuel consumption of third party fleet of trucks and measures the correspondent emissions.

Ativos arrendados a montante

Status da avaliação

Não relevante, calculada

Toneladas métricas em CO2e

0

Metodologia de cálculo das emissões

GHG protocol brazil methodology

Porcentagem de emissões calculada com dados obtidos de fornecedores ou parceiros da cadeia de fornecimento

0

Explicação

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.

Transporte e distribuição a jusante

Status da avaliação

Relevante, calculada

Toneladas métricas em CO2e

86061

Metodologia de cálculo das emissões

GHG protocol brazil methodology

Porcentagem de emissões calculada com dados obtidos de fornecedores ou parceiros da cadeia de fornecimento

100

Explicação

Klabin measures emissions from its employees travels and accounts into its GHG emissions Scope 3 reports. The company also controls the oil fuel consumption of third party fleet of trucks and measures the correspondent emissions.

Processamento de produtos vendidos

Status da avaliação

Não relevante, calculada

Toneladas métricas em CO2e

0

Metodologia de cálculo das emissões

GHG protocol brazil methodology

Porcentagem de emissões calculada com dados obtidos de fornecedores ou parceiros da cadeia de fornecimento

0

Explicação

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, calculada

Toneladas métricas em CO2e

0

Metodologia de cálculo das emissões

GHG protocol brazil methodology

Porcentagem de emissões calculada com dados obtidos de fornecedores ou parceiros da cadeia de fornecimento

0

Explicação

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, calculada

Toneladas métricas em CO2e

0

Metodologia de cálculo das emissões

GHG protocol brazil methodology

Porcentagem de emissões calculada com dados obtidos de fornecedores ou parceiros da cadeia de fornecimento

0

Explicação

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 a jusante

Status da avaliação

Não relevante, calculada

Toneladas métricas em CO2e

0

Metodologia de cálculo das emissões

GHG protocol brazil methodology

Porcentagem de emissões calculada com dados obtidos de fornecedores ou parceiros da cadeia de fornecimento

0

Explicação

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.

Franquias

Status da avaliação

Não relevante, calculada

Toneladas métricas em CO2e

0

Metodologia de cálculo das emissões

GHG protocol brazil methodology

Porcentagem de emissões calculada com dados obtidos de fornecedores ou parceiros da cadeia de fornecimento

0

Explicação

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, calculada

Toneladas métricas em CO2e

0

Metodologia de cálculo das emissões

GHG protocol brazil methodology

Porcentagem de emissões calculada com dados obtidos de fornecedores ou parceiros da cadeia de fornecimento

0

Explicação

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 (a montante)

Status da avaliação

Não relevante, calculada

Toneladas métricas em CO2e

0

Metodologia de cálculo das emissões

GHG protocol brazil methodology

Porcentagem de emissões calculada com dados obtidos de fornecedores ou parceiros da cadeia de fornecimento

0

Explicação

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 (a jusante)

Status da avaliação

Não relevante, calculada

Toneladas métricas em CO2e

0

Metodologia de cálculo das emissões

GHG protocol brazil methodology

Porcentagem de emissões calculada com dados obtidos de fornecedores ou parceiros da cadeia de fornecimento

0

Explicação

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) Você pode dividir suas emissões do Escopo 3 por área de atividade comercial relevante?

Sim

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

(C-AC6.6a / C-FB6.6a / C-PF6.6a) Divulgue suas emissões do Escopo 3 para cada uma das áreas de atividade de negócios relevantes.

Atividade

Agrícola/Florestal

Categoria de Escopo 3

Bens e serviços adquiridos

Emissões (toneladas métricas de CO2e)

85539

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 (downstream) are related to the diesel consumption of the forest areas and are monitored in subdivided classes: Forestry Area of the Angatuba Unit: 1518.54 t CO2e Zona Florestal de Correia Pinto Unit: 7788,78 t CO2e Forest Area of the Otacílio Costa Unit: 11341,10 t CO2e Forest Area of Monte Alegre Unit ("Fábrica" Region): 14358,04 t CO2e Forest Area of Monte Alegre Unit ("Distrito" Region): 5408,28 t CO2e Forest Area of Monte Alegre Unit ("Rio Branco" Region): 438.90 t CO2e Forest Area of Monte Alegre Unit ("Aeroporto" Region): 2833.52 t CO2e Forest Area of Monte Alegre Unit ("Rio Novo" Region): 1056,04 t CO2e Forestry Area of the Monte Alegre Region ("Castro" Region): 1.47 t CO2e Forest Area of the PUMA Unit: 29603,58 t CO2e Forest Area of Monte Alegre Unit ("Guarapuava" Region): 745.02 t CO2e Forest Area of Monte Alegre Unit ("Ibaiti" Region): 19.66 t CO2e Forestry Area of the Monte Alegre Region ("Jaguariaíva" Region): 1208.61 t CO2e Forest Area of Monte Alegre Unit ("Maringá" Region): 156.04 t CO2e Forest Area of Monte Alegre Unit ("Palmas" Region): 63.07 t CO2e Forest Area of the Monte Alegre Unit ("Sengés" Region): 719.32 t CO2e In addition, there is also the rail transport of the PUMA unit that represents 2017 8279.23 t CO2e

Atividade

Agrícola/Florestal

Categoria de Escopo 3

Bens e serviços adquiridos

Emissões (toneladas métricas de CO2e)

86061

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. Transportation and distribution (downstream) are related to diesel consumption for the domestic market fleet and are subdivided into classes for each unit: Angatuba Support - Transit: 65.42 t CO2e Angatuba Industry: 3,060.10 t CO2e Correia Pinto Industry: 2,216.44 t CO2e Monte Alegre Industry: 12,684.61 t CO2e Otacílio Costa Industry: 6,108.36 t CO2e Goiana Recycled Paper: 1,072.04 t CO2e Piracicaba Recycled Paper: 924,32 t CO2e Warehouse - Jundiáí DI: 159,86 t CO2e Warehouse - Jundiáí TP: 276,38 t CO2e Third Party Storage: 8.21 t CO2e KE Betim: 4,569.98 t CO2e KE Feira de Santana: 1,448.01 t CO2e KE Goiana: 6,289.07 t CO2e KE Itajaí: 2,565.26 t CO2e KE Jundiáí 1 - TP: 1,570.68 t CO2e KE Jundiáí 2 - DI: 2,632.73 t CO2e KE Manaus: 915.86 t CO2e KE Piracicaba: 1,471.59 t CO2e KE Rio Negro: 2,297.19 t CO2e KE São Leopoldo: 1,399.48 t CO2e Klabin PUMA: 12,761.16 t CO2e Lages I: 9,826.45 t CO2e Lages II: 26.61 t CO2e SC Goiana: 2,133,34 t CO2e Angatuba (ANG): 115.91 t CO2e Correia Pinto (CP01): 821,30 t CO2e Lages 1 (LG01): 404.67 t CO2e Ortigueira (OR30): 4,342.60 t CO2e Otacílio Costa (OTA1): 1,847.01 t CO2e Monte Alegre (MA01): 2,046.76 t CO2e

C6.7

(C6.7) As emissões de dióxido de carbono efetuadas a partir de carbono biologicamente sequestrado são relevantes para sua organização?

Sim

C6.7a

(C6.7a) Forneça as emissões de carbono biologicamente sequestrado relevantes para sua organização em toneladas métricas de CO2.

5272713.08

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 da gestão do uso da terra

Emissões (toneladas métricas de CO2)

0

Metodologia

Fatores de emissão padrão

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)

9237561.19

Metodologia

Fatores de emissão padrão

Explique

Removal of 9237561.186 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 mudança de uso da terra

Emissões (toneladas métricas de CO2)

36775.6

Metodologia

Fatores de emissão padrão

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. Using as base the value of 10.90 tCO2eq / ha calculated according to the CO2 sequestration of the planted 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: 3374 ha * 10.9 tCO2 / ha = 36775.6 tCO2eq This amount of CO2 is also contemplated in the CO2 removal calculation for land use management

Emissões de CO2 da combustão de biocombustível (maquinaria terrestre)

Emissões (toneladas métricas de CO2)

11391.58

Metodologia

Fatores de emissão padrão

Explique

Emissions of 11391.58 t CO2e (biogenic) for mobile combustion (transport / machinery)

Emissões de CO2 da combustão de biocombustível (maquinário para processamento/fabricação)

Emissões (toneladas métricas de CO2)

5261529.2

Metodologia

Fatores de emissão padrão

Explique

Emissions of 5261529.2 tCO2e (biogenic) relative to stationary combustion of biomass fuels (biodiesel, vegetable residues and Black Liquor)

Emissões de CO2 da combustão de biocombustível (outros)

Emissões (toneladas métricas de CO2)

12893.64

Metodologia

Fatores de emissão padrão

Explique

Emissions of 12893,642 t CO2e (biogenic) for Scope 3 (Transportation and distribution -upstream-, Transport and distribution -downstream- and displacement of employees)

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

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

Agricultural commodities

Timber

Do you collect or calculate GHG emissions for this commodity?

Yes

Please explain

Timber is considered to be the main raw material for Klabin's production process. For the calculations of atmospheric emissions of this commodity, stationary emissions (plant residues) are considered as biomass in power boilers (GHG emissions equal to 2258016,39 t CO2e in 2017) and, moreover, greenhouse gas emissions are calculated for the agricultural emissions processes, considering Forest Planting for wood supply (GHG emissions of 2309.20 t CO2e in 2017). 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) Report your greenhouse gas emissions figure(s) for your disclosing commodity(ies), explain your methodology, and include any exclusions.

Timber

Reporting emissions by

Total

Emissions (metric tons CO2e)

2258016.39

Denominator: unit of production

<Not Applicable>

Change from last reporting year

Lower

Please explain

In 2017, Klabin increased in 15% emissions from biomass, an renewable fuel, that stands out positively.

C6.10

(C6.10) Descreva as emissões brutas totais de Escopos 1 e 2 combinados para o ano de referência (em toneladas métricas de CO2e), por receita total de unidade de moeda, e forneça as métricas de intensidade adicionais que são adequadas para suas operações de negócios.

Valor da intensidade

193.5

Numerador métrico (Emissões brutas totais de Escopos 1 e 2 combinados)

815390

Denominador métrico*

unidade de produção

Denominador métrico: Total de unidade

4213248.59

Valor do Escopo 2 usado

Com base no mercado

% de variação em relação ao ano anterior

6.73

Direção da variação

Diminuiu

Motivo da variação

In this year 2017, Klabin acquired 674,320,073 MWh, from hydroelectric generation, with the proper Declaration of the generator, COPEL Geração e Transmissão SA. This results in a reduction of Scope 2 emissions, when compared to location-based, which uses the average emission factor of the SIN (National Interconnected System). Klabin had an emission rate for the year 2016 of 207.5 kgCO2 / t product. in this year 2017, with the registration of a part of emissions of scope 2 considering the market-based option and, in addition, with the operationalization of the PUMA unit which raised the level of sustainability of the organization, the results of detection rate reached the values of 193.53 kgCO2 / t product, approximately 7% lower than the result of the previous year. It is worth mentioning that the organization's goal was 1% (205 kgCO2 / t product). This reinforces the organization's commitment to its objectives and to the maintenance of corporate sustainability.

Valor da intensidade

0.000084

Numerador métrico (Emissões brutas totais de Escopos 1 e 2 combinados)

815390

Denominador métrico*

receita total unitária

Denominador métrico: Total de unidade

9727000000

Valor do Escopo 2 usado

Com base no mercado

% de variação em relação ao ano anterior

8.75

Direção da variação

Diminuiu

Motivo da variação

In this year 2017, Klabin acquired 674,320,073 MWh, from hydroelectric generation, with the proper Declaration of the generator, COPEL Geração e Transmissão SA. This results in a reduction of Scope 2 emissions, when compared to location-based, which uses the average emission factor of the SIN (National Interconnected System). In this year 2017, with the registration of a part of emissions of scope 2 considering the market-based option and, in addition, with the operationalization of the PUMA unit which raised the level of sustainability of the organization, the results of CO2 emissions compared with the total revenue for the organization decreased in 8.75% compared to 2016 (0.000096). This reinforces the organization's commitment to invest in the company in order to surpass its environmental results, contributing even more to the sustainability

C7. Desagregações de emissões

C7.1

(C7.1) Sua organização gera outras emissões de gases de efeito estufa além do dióxido de carbono?

Sim

C7.1a

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

Greenhouse gas	Scope 1 emissions (metric tons of CO2e)	GWP Reference
CO2	637569.02	IPCC Fourth Assessment Report (AR4 - 100 year)
CH4	19808.05	IPCC Fourth Assessment Report (AR4 - 100 year)
N2O	50933.56	IPCC Fourth Assessment Report (AR4 - 100 year)
HFCs	1249.84	IPCC Fourth Assessment Report (AR4 - 100 year)

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	709560

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	5782.4	-23.565066	-48.359227
Betim	3950.53	-19.964755	-44.120758
Correia Pinto	33044.45	-27.551488	-50.364019
Feira de Santana	4235.03	-12.290827	-38.91198
Goiana	43516.31	-7.556655	-35.035038
Itajaí	3949.71	-26.891305	-48.709733
Jundiá Distrito Industrial	4434.03	-23.1752	-46.931352
Jundiá Tijuco Preto	3908.04	-23.266963	-46.865105
Lages 1	1140.98	-27.808633	-50.363555
Lages 2	83.33	-27.797544	-50.291533
Manaus	1328.79	-3.0985	-59.943561
Monte Alegre	265490	-24.310186	-50.6079
Otacílio Costa	38287.37	-27.513275	-50.116602
Piracicaba	36257.09	-22.687536	-47.674963
Puma	260703.29	-24.258055	-50.746944
São Leopoldo	2667.85	-29.786711	-51.114425
Depósito Paranaguá	519.54	-25.539727	-48.535783
Rio Negro	261.72	-26.083283	-49.77273
Escritório Sede	0	-23.589061	-46.682311

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

(C-AC7.4/C-FB7.4/C-PF7.4) Você inclui emissões relativas à(s) sua(s) atividade(s) de negócios em suas operações diretas como parte de seu valor global bruto do 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 você está relatando suas emissões agrícolas/florestais.

Emissões desagregadas por categoria (recomendado pelo GHG Protocol)

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

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

Activity

Agriculture/Forestry

Emissions category

Total

Emissions (metric tons CO2e)

2309.2

Methodology

Default emissions factor

Please explain

This emission value is linked to Agricultural emissions (scope 1) column on Brazilian GHG Protocol Metodology

Activity

Processing/Manufacturing

Emissions category

Total

Emissions (metric tons CO2e)

23.12

Methodology

Default emissions factor

Please explain

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

Activity

Distribution

Emissions category

Total

Emissions (metric tons CO2e)

151936.51

Methodology

Default emissions factor

Please explain

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

Activity

Processing/Manufacturing

Emissions category

Total

Emissions (metric tons CO2e)

554036.2

Methodology

Default emissions factor

Please explain

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

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 com baixos níveis de carbono (MWh) adquiridos e consumidos, contabilizados na abordagem com base no mercado
Brasil	105828.68	43664.22	1143797.95	674320.07

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 emissões com base na localização (toneladas métricas de CO2e)	Escopo 2, emissões com base no mercado (toneladas métricas de CO2e)
Angatuba	733.97	0
Betim	599.3	0
Correia Pinto	9389.51	0
Feira de Santana	483.32	0
Goiana	9578.94	0
Itajaí	576.25	0
Jundiaí Distrito Industrial	690.58	0
Jundiaí Tijuco Preto	737.95	0
Lages 1	950.59	0
Lages 2	86.71	0
Manaus	187.96	0
Monte Alegre	60898.05	43664.22
Otacílio Costa	5822.4	0
Piracicaba	5979.94	0
Puma	1729.86	0
São Leopoldo	456.99	0
Despósito Paranaguá	26.81	0
Rio Negro	250.84	0
Escritório Sede	48.61	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?

Aumentou

C7.9a

(C7.9a) Caso tenha ocorrido qualquer variação no total de 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
Mudança no consumo de energia renovável	60149.35	Diminuiu	36	On the subject of indirect GHG emissions from the acquisition of energy - Scope 2, this year 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 2017, Klabin acquired 674,320,073 MWh, from hydroelectric generation, with the proper Declaration of the generator, COPEL Geração e Transmissão SA This shows a reduction of Scope 2 emissions, when purchased the Approach based on 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. Calculation: Emissions Scope 2 = 149,492,901 tCO2 Emissions Avoided with COPEL's Clean Energy Certificate (market-based) = 60149.35 tCO2 Scope 2 Total (assuming we would not have the certificate of the copel) = 165978.031 tCO2 Taking into account the latter value as 100%, with the copel certificate (60149.35 tCO2) we were able to reduce our scope 2 emissions by 36%
Outras atividades de redução de emissões	0	Sem alteração	0	-x-
Desinvestimentos	0	Sem alteração	0	-x-
Aquisições	52290	Aumentou	8	In 2017, Klabin posted an increase of 8% in absolute GHG emissions in Scope 1, due to the increase in production of the Puma Unit, which reached its full capacity. However, the 15% increase in emissions from biomass, renewable fuel, stands out positively. % of Increase in Scope 1 = 100% * (1 - (Scope 1 Emission in 2017 / Scope 1 Emission in 2016)), % of Increase in Scope 1 = 100% * (1 - (709560 / 657270)), % of Increase in Scope 1 = 8% It is important to mention that, considering the emission values of scope 1 in intensity rate (kg CO2e / ton produced) in relation to 2016, there was a reduction of 14.42 kgCO2e / ton produced.
Fusões	0	Sem alteração	0	-x-
Mudança de resultado	0	Sem alteração	0	-x-
Mudança de metodologia	0	Sem alteração	0	-x-
Mudança de limite	0	Sem alteração	0	-x-
Mudança das condições físicas de operação	16300.8	Diminuiu	2.3	With the start of stabilization of the new Puma Unit, Hydrogen was considered one of the fuels used in this plant, reducing greenhouse gas emissions in 11.8 metric tons CO2e in this first moment (year 2017). Also, In the unit of Otacilio Costa and Correia Pinto, besides the black liquor, it is also consumed the tar. This material is inserted in the matrix Klabin from 2017. It is a renewable fuel generated from Tail Oil processing, which is a sub-product of the Pulp Industry % of contribution = 100* (16300.8 tCO2e / total scope 1 of 709560.467 t CO2e) % of contribution = 2.3%
Não identificado	0	Sem alteração	0	-x-
Outros	0	Sem alteração	0	-x-

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 na localização

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 5%, mas inferior ou igual a 10%

C8.2

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

	Indique se a sua organização realiza esta atividade relacionada à energia
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 de MWh
Consumo de combustível (exceto matérias-primas)	LHV (menor valor de aquecimento)	14651209.79	1867984.25	16519194.04
Consumo de eletricidade comprada ou adquirida	<Not Applicable>	674320.07	469477.87	1143797.95
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>	53048.04	<Not Applicable>	53048.04
Consumo de energia total	<Not Applicable>	14704257.83	1867984.25	16572242.09

C8.2b

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

	Indique se a sua organização realiza esta aplicação de combustível
Consumo de combustível para a geração de eletricidade	Sim
Consumo de combustível para a geração de vapor	Sim
Consumo de combustível para a geração de refrigeração	Não
Consumo de combustível para cogeração ou trieração	Não

C8.2c

(C8.2c) Indique o quanto de combustível em MWh sua organização consumiu (excluindo as matérias-primas) por tipo de combustível.

Combustíveis (exceto matérias-primas)

Gás Natural

Valor de aquecimento

LHV (menor valor de aquecimento)

Total de combustível MWh consumido pela organização

429014.36

Combustível MWh consumido para a autogeração de eletricidade

0

Combustível MWh consumido para a autogeração de calor

0

Combustível MWh consumido para a autogeração de vapor

429014.36

Combustível MWh consumido para a autogeração de refrigeração

<Not Applicable>

Combustível MWh consumido para a autocogeração ou autotrigeração

<Not Applicable>

Combustíveis (exceto matérias-primas)

Óleo combustível residual

Valor de aquecimento

LHV (menor valor de aquecimento)

Total de combustível MWh consumido pela organização

1304061.6

Combustível MWh consumido para a autogeração de eletricidade

393433.1

Combustível MWh consumido para a autogeração de calor

882965.35

Combustível MWh consumido para a autogeração de vapor

421096.25

Combustível MWh consumido para a autogeração de refrigeração

<Not Applicable>

Combustível MWh consumido para a autocogeração ou autotrigeração

<Not Applicable>

Combustíveis (exceto matérias-primas)

Resíduo de biomassa sólida

Valor de aquecimento

LHV (menor valor de aquecimento)

Total de combustível MWh consumido pela organização

5867444.17

Combustível MWh consumido para a autogeração de eletricidade

5867444.17

Combustível MWh consumido para a autogeração de calor

0

Combustível MWh consumido para a autogeração de vapor

5867444.17

Combustível MWh consumido para a autogeração de refrigeração

<Not Applicable>

Combustível MWh consumido para a autocogeração ou autotrigeração

<Not Applicable>

Combustíveis (exceto matérias-primas)

Lixívia Negra

Valor de aquecimento

LHV (menor valor de aquecimento)

Total de combustível MWh consumido pela organização

8725373.9

Combustível MWh consumido para a autogeração de eletricidade

8725373.9

Combustível MWh consumido para a autogeração de calor

0

Combustível MWh consumido para a autogeração de vapor

8725373.9

Combustível MWh consumido para a autogeração de refrigeração

<Not Applicable>

Combustível MWh consumido para a autocogeração ou autotrigeração

<Not Applicable>

Combustíveis (exceto matérias-primas)

Gás liquefeito de petróleo (LPG)

Valor de aquecimento

LHV (menor valor de aquecimento)

Total de combustível MWh consumido pela organização

124016.94

Combustível MWh consumido para a autogeração de eletricidade

109641.41

Combustível MWh consumido para a autogeração de calor

0

Combustível MWh consumido para a autogeração de vapor

124016.94

Combustível MWh consumido para a autogeração de refrigeração

<Not Applicable>

Combustível MWh consumido para a autocogeração ou autotrigeração

<Not Applicable>

Combustíveis (exceto matérias-primas)

Óleo diesel

Valor de aquecimento

LHV (menor valor de aquecimento)

Total de combustível MWh consumido pela organização

10891.35

Combustível MWh consumido para a autogeração de eletricidade

8068.65

Combustível MWh consumido para a autogeração de calor

2478.11

Combustível MWh consumido para a autogeração de vapor

10888.87

Combustível MWh consumido para a autogeração de refrigeração

<Not Applicable>

Combustível MWh consumido para a autocogeração ou autotrigeração

<Not Applicable>

Combustíveis (exceto matérias-primas)

Hidrogênio

Valor de aquecimento

LHV (menor valor de aquecimento)

Total de combustível MWh consumido pela organização

42.2

Combustível MWh consumido para a autogeração de eletricidade

0

Combustível MWh consumido para a autogeração de calor

151.97

Combustível MWh consumido para a autogeração de vapor

0

Combustível MWh consumido para a autogeração de refrigeração

<Not Applicable>

Combustível MWh consumido para a autocogeração ou autotrigeração

<Not Applicable>

Combustíveis (exceto matérias-primas)

Piche

Valor de aquecimento

LHV (menor valor de aquecimento)

Total de combustível MWh consumido pela organização

58349.52

Combustível MWh consumido para a autogeração de eletricidade

0

Combustível MWh consumido para a autogeração de calor

58349.52

Combustível MWh consumido para a autogeração de vapor

0

Combustível MWh consumido para a autogeração de refrigeração

<Not Applicable>

Combustível MWh consumido para a autocogeração ou autotrigeração

<Not Applicable>

C8.2d

(C8.2d) Indique os fatores de emissões médios dos combustíveis relatados em C8.2c.

Lixívia Negra**Fator de emissão**

0.00114

Unidade

Toneladas métricas de CO2 por tonelada métrica

Fonte do fator de emissão

Ministry of Mines and Energy. National Energy Balance 2016 (base year 2015) - (BEN 2017).

Comentários

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

Óleo diesel**Fator de emissão**

0.00212

Unidade

Toneladas métricas de CO2 por tonelada métrica

Fonte do fator de emissão

National Agency of Petroleum, Natural Gas and Biofuels (ANP 2012)

Comentários

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

Hidrogênio

Fator de emissão

0

Unidade

Toneladas métricas de CO2 por tonelada métrica

Fonte do fator de emissão

Brazilian GHG Protocol

Comentários

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

Gás liquefeito de petróleo (LPG)

Fator de emissão

0.00293

Unidade

Toneladas métricas de CO2 por tonelada métrica

Fonte do fator de emissão

Ministry of Mines and Energy. National Energy Balance 2016 (base year 2015) - (BEN 2017).

Comentários

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

Gás Natural

Fator de emissão

0.0021

Unidade

Kg de CO2 por litro

Fonte do fator de emissão

National Agency of Petroleum, Natural Gas and Biofuels (ANP 2012)

Comentários

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

Piche

Fator de emissão

0.00114

Unidade

Toneladas métricas de CO2 por tonelada métrica

Fonte do fator de emissão

Ministry of Mines and Energy. National Energy Balance 2016 (base year 2015) - (BEN 2017).

Comentários

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

Óleo combustível residual

Fator de emissão

3.1

Unidade

Kg de CO2 por litro

Fonte do fator de emissão

National Agency of Petroleum, Natural Gas and Biofuels (ANP 2012)

Comentários

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

Resíduo de biomassa sólida

Fator de emissão

0.00116

Unidade

Toneladas métricas de CO2 por tonelada métrica

Fonte do fator de emissão

Ministry of Mines and Energy. National Energy Balance 2016 (base year 2015) - (BEN 2017).

Comentários

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

C8.2e

(C8.2e) Forneça detalhes sobre eletricidade, aquecimento, vapor e refrigeração que sua organização gerou e consumiu no ano de referência.

	Geração bruta total (MWh)	Geração consumida pela organização (MWh)	Geração bruta de fontes renováveis (MWh)	Geração de fontes renováveis consumida pela organização (MWh)
Eletricidade	15201868.17	14346993.17	14645866.11	13790991.11
Aquecimento	943944.95	943944.95	58501.49	58501.49
Vapor	15577834.49	15577834.49	14592818.07	14592818.07
Refrigeração	0	0	0	0

C8.2f

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

Basis for applying a low-carbon emission factor

Contract with suppliers or utilities (e.g. green tariff), supported by energy attribute certificates

Low-carbon technology type

Hydropower

MWh consumed associated with low-carbon electricity, heat, steam or cooling

674320.07

Emission factor (in units of metric tons CO₂e per MWh)

0

Comment

The Brazilian GHG Protocol Methodology considers hydroelectric energy with emission factor equal to zero. In this year 2017, Klabin acquired 674,320,073 MWh, from hydroelectric generation, with the proper Declaration of the generator, COPEL Geração e Transmissão SA. This shows a reduction of Scope 2 emissions, when purchased the Approach based on 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.

C9. Métricas adicionais

C9.1

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

Description

Energy use

Metric value

43797.95

Metric numerator

MWh

Metric denominator (intensity metric only)

year

% change from previous year

4

Direction of change

Decreased

Please explain

In 2017, Energy purchased: 1,143,797,950 MWh / year. In the year 2017, the increase was justified, mainly due to the increase in consumption of the Monte Alegre Unit, which ended the reimbursement of the loss of power generation in the SHP, after the construction of the UHE Mauá upstream. The goal of Klabin S/A is to reduce its energy purchase to values lower than 1100000 MWh / year, optimizing its energy matrix and reducing its atmospheric emissions

Description

Waste

Metric value

95

Metric numerator

%

Metric denominator (intensity metric only)

0

% change from previous year

4

Direction of change

Decreased

Please explain

The greatest contribution for the result on this indicator is the generation of tertiary sludge from PUMA Unit, which is being stockpiled, while the R&D areas study alternatives for their recycling or reuse. The objective is to maintain reuse (reuse and recycling) of waste greater than 95%. It is worth mentioning that this is a result for the corporate indicator. In some specific units, such as the Monte Alegre unit, this figure is 98%, thus showing the organization's commitment to sustainable development.

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 localidade ou 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 usada para suas emissões e anexe os documentos relevantes.

Escopo

Escopo 1

Ciclo de verificação ou garantia em vigor

Processo anual

Status do atual ano de referência

Completo

Tipo de verificação ou garantia

Garantia limitada

Anexe o documento

1

Declaracao_de_Verificacao_pbghgp_apendice_a_v4 Klabin 2017 18.pdf

Página/seção de referência

Verification Statement in accordance with the Verification Specifications of the Brazilian GHG Protocol Program and ABNT NBR ISO 14064-3: 2007. Third party verification statement certifies that the emissions of greenhouse gases reported by Klabin S/A in its emissions inventory, from January 1 to December 31, 2017, are verifiable and meet the requirements of the Brazilian Program GHG Protocol, for the Accounting, Quantification and Publication of Corporate Inventory of Greenhouse Gas Emissions

Norma pertinente

ISO14064-3

Porcentagem de emissões relatadas e verificadas (%)

100

Declaracao_de_Verificacao_pbghgp_apendice_a_v4 Klabin 2017 18.pdf

Escopo

Escopo 2, com base na localização

Ciclo de verificação ou garantia em vigor

Processo anual

Status do atual ano de referência

Completo

Tipo de verificação ou garantia

Garantia limitada

Anexe o documento

2

Declaracao_de_Verificacao_pbghgp_apendice_a_v4 Klabin 2017 18.pdf

Página/seção de referência

Verification Statement in accordance with the Verification Specifications of the Brazilian GHG Protocol Program and ABNT NBR ISO 14064-3: 2007. Third party verification statement certifies that the emissions of greenhouse gases reported by Klabin S/A in its emissions inventory, from January 1 to December 31, 2017, are verifiable and meet the requirements of the Brazilian Program GHG Protocol, for the Accounting, Quantification and Publication of Corporate Inventory of Greenhouse Gas Emissions

Norma pertinente

ISO14064-3

Porcentagem de emissões relatadas e verificadas (%)

100

Declaracao_de_Verificacao_pbghgp_apendice_a_v4 Klabin 2017 18.pdf

Escopo

Escopo 2, com base no mercado

Ciclo de verificação ou garantia em vigor

Processo anual

Status do atual ano de referência

Completo

Tipo de verificação ou garantia

Garantia limitada

Anexe o documento

3

Declaracao_de_Verificacao_pbghgp_apendice_a_v4 Klabin 2017 18.pdf

Página/seção de referência

Verification Statement in accordance with the Verification Specifications of the Brazilian GHG Protocol Program and ABNT NBR ISO 14064-3: 2007. Third party verification statement certifies that the emissions of greenhouse gases reported by Klabin S/A in its emissions inventory, from January 1 to December 31, 2017, are verifiable and meet the requirements of the Brazilian Program GHG Protocol, for the Accounting, Quantification and Publication of Corporate Inventory of Greenhouse Gas Emissions

Norma pertinente

ISO14064-3

Porcentagem de emissões relatadas e verificadas (%)

100

Declaracao_de_Verificacao_pbghgp_apendice_a_v4 Klabin 2017 18.pdf

C10.1b

(C10.1b) Forneça mais detalhes sobre a verificação/garantia usada para suas emissões de Escopo 3 e anexe os documentos relevantes.

Escopo

Escopo 3 – todas as categorias relevantes

Ciclo de verificação ou garantia em vigor

Processo anual

Status do atual ano de referência

Completo

Anexe o documento

4

Declaracao_de_Verificacao_pbghgp_apendice_a_v4 Klabin 2017 18.pdf

Página/Seção de referência

2/4

Norma pertinente

ISO14064-3

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 em sua divulgação do CDP foram verificados e quais normas de verificação foram usadas?

A verificação do módulo de divulgação refere-se a	Dados verificados	Norma de verificação	Explique
C6. Dados das 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 made the Life Cycle Analyses and calculated the carbon footprint for the 3 main products of the company. These studies indicate that observing that the amount of CO2 captured from the atmosphere during photosynthesis is greater than that emitted by Klabin's production process. Today Klabin has a more complete study ongoing which will comprehend the whole industrial process that involve its products.

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 pretendemos ser regulamentados nos próximos três anos

C11.1d

(C11.1d) Qual a estratégia para atuar em conformidade com os sistemas de que a empresa participa ou pretende participar?

Klabin estimates that in the next five years carbon taxation may be a reality in the country. For this reason, Klabin currently takes part in an Emissions Trading System Simulation, organized by Business for the Climate (EPC) Platform, an initiative which assess market responses to carbon pricing. The company is using the experience in order to prepare itself, and engage with the market, to perspectives of carbon market recuperation and the resins prices recovering after COP21. 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. This methodology includes round tables, group dynamics and discussions in groups of different economy sectors.

C11.2

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

Não

C11.3

(C11.3) Sua organização utiliza um preço interno do carbono?

Não, mas pretendemos fazê-lo nos próximos dois anos

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) Forneça detalhes de sua estratégia de engajamento com fornecedores nas questões relacionadas ao clima.

Tipo de engajamento

Engajamento e incentivação (mudança no comportamento dos fornecedores)

Detalhes do engajamento

Realizar uma campanha de engajamento para instruir os fornecedores sobre as mudanças climáticas

% de fornecedores por número

3.84

% do total de gastos com aquisição (diretos e indiretos)

2.37

% de emissões de Escopo 3, conforme relatado em C6.5

100

Justificativa para a cobertura do engajamento

The percentage, in relation to the total number of suppliers active in Klabin S / A (5000 suppliers), is 3.84%. This calculation takes into account all suppliers regardless of the product supplied and / or their size. Thus, 192 suppliers of 5000 assets, represents 3.84% It is important to mention that, considering the forest area, this value is equal to 100%, that is, all suppliers are engaged by the organization. The suppliers that are contemplated in the projects are the suppliers and small farmers of the regions near the Klabin units. Mainly in the state of Paraná. The purpose of these investments is to carry out projects to promote 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. The producers take courses, exchange talks and receive free seedlings of native plants. The program also encourages forestry with planted pine and eucalyptus forests, organic agriculture and ecotourism. In addition, it also aims to ally 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.

Impacto do engajamento, incluindo as medidas de sucesso

All Klabin forest stewardship units are certified by the FSC®, totaling the scope of approximately 451,975.18 hectares. 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, aimed at the producers that are part of the Programa de Fomento Florestal [Forest Development Program] and to independent producers. Certification is a statement that the timber producer operates with social and environmental responsibility and follows the worldwide standards of forest management. In addition, it contributes to the generation of product value and to the development of a market of greater added value. More than 25,000 hectares of properties had been certified and almost 7,000 hectares have already been environmentally restored in partner-producer areas. Thus, Klabin works together with its suppliers on an assessment of FSC controlled source wood. This work works with periodic follow-ups to address issues related to meeting legal requirements and environmental issues. The forest area develops a routine program of supplier audits to assess compliance with all FSC requirements, including issues of native forest preservation, which contributes to carbon sequestration. In addition to suppliers, there are carriers who also participate in engagement programs that assess issues related to climate change, such as preventive maintenance on equipment and monitoring of black smoke emitted by vehicles.

Comentários

Number of suppliers: 192 Considering an investment of BRL 22 million in 2017 for socio-environmental projects of BRL 925 million invested in the year with respect to forestry activities, operational continuity, special projects and expansion and puma project reported in the summary of the organization's financial results in 2017.

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 seus produtos e esquemas de certificação relevantes (por ex., Energy STAR)

Dimensão do engajamento

100

% de emissões de Escopo 3, conforme relatado em C6.5

100

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. 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 medidas de sucesso

Impact measurement with information sharing is related to the grades obtained in completed forms for the specific customers. In addition, the main indicator is the loss of customers due to environmental issues. For the first item, Klabin has a maximum rating on all completed customer forms. For the second item, the impact of success is 100%, since, there were no losses of customers of Klabin for environmental reasons.

C12.1c

(C12.1c) Forneça detalhes de sua estratégia de engajamento com outros parceiros da cadeia de valor nas questões relacionadas ao clima.

Klabin is starting the process with the partners following key steps:

1. Select main partners and identify information
2. Identify the internal departments in each partner responsible for data collection
3. Engage the procurement staff
4. Develop a method for managing supplier data

Klabin also shares information with all its partners regarding information related to the organization's atmospheric emissions and certifications.

There are some specific partners where Klabin periodically responds to information on air emissions, sustainability and the environment.

In addition, 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.

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 você incentiva seus fornecedores a adotarem e descreva seu papel na implementação de cada prática.

Número de referência da prática de gestão

MP1

Prática de gestão

Reflorestamento

Descrição da prática de gestão

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 do reservatório de carbono (mitigação)

Comentários

Matas Legais: In 2016 this program had 88 new owners; 53,760 seedlings donated; 3,374 ha of demarcated areas of preservation. Fomento Florestal [Forest Development] - 10,025 contracts already formalized Planning Sustainable Properties (Matas Sociais) - Serves 150 rural properties.

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

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

Sim

C12.3

(C12.3) Você se engaja em atividades que possam, direta ou indiretamente, influenciar as políticas públicas nas questões relacionadas ao clima, por meio de alguma das seguintes formas?

Engajamento direto com os formuladores de políticas

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?

Foco em 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 the EPC - Empresas pelo Clima (Companies for the Climate) a platform 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. 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. 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.	In reason of this programs, Klabin is reference of public consults of carbon emissions and climate policies. The legislative proposes are done by EPC Group, which represents Klabin and others companies. EPC 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; creation of a first-of-its-kind collaboration network and building of best practices to manage GHG emissions among EPC members and partners; and participation in the Corporate Leaders Network for Climate Action (CLN) international network. In 2009, a significant group of Brazilian business people willing to encourage a low-carbon economy in the country and help build a new sustainable development framework got together and created the Business for the Climate (EPC) Platform, a continuous Brazilian business platform for the transition towards a low-carbon economy. Launched in partnership with The Prince of Wales Corporate Leaders Group on Climate Change (CLG), and with the support of 27 Founding Companies, EPC currently counts with the participation of 36 Member Companies. Its goals are: mobilize, engage and involve corporate leaderships for managing and reducing GHG emissions, managing climate risks, and suggesting public policies and positive incentives in the context of climate change. Considered the next step after Brazil GHG Protocol Program, EPC engages companies not only in discussions and activities related to management and reduction of corporate GHG emissions, but also in the industry positioning when it comes to climate and elaboration of public policy propositions to contribute to a low-carbon economy in Brazil. 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 when the Coalition Brazil Climate, Forests and Agriculture was created.
<->Cap and Trade</>	Apoio	Klabin takes part, for the third year, in an Emissions Trading System Simulation, performed by EPC - Empresas pelo Clima (Companies for the Climate) which aims to assess market responses in carbon pricing looking forward a new Cap and trade market.	Promoted by EPC in partnership with Rio de Janeiro Green Stock Exchange (BVRio), 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 EPC member 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 and opportunities) for the company's operations. With representatives from various areas of the company and with the support 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, 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 EPC - Empresas pelo Clima (Companies for the Climate) a platform 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 EPC Group, which represents Klabin and others companies. EPC 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; creation of a first-of-its-kind collaboration network and building of best practices to manage GHG emissions among EPC members and partners; and participation in the Corporate Leaders Network for Climate Action (CLN) international network. In 2009, a significant group of Brazilian business people willing to encourage a low-carbon economy in the country and help build a new sustainable development framework got together and created the Business for the Climate (EPC) Platform, a continuous Brazilian business platform for the transition towards a low-carbon economy. Launched in partnership with The Prince of Wales Corporate Leaders Group on Climate Change (CLG), and with the support of 27 Founding Companies, EPC currently counts with the participation of 36 Member Companies. Its goals are: mobilize, engage and involve corporate leaderships for managing and reducing GHG emissions, managing climate risks, and suggesting public policies and positive incentives in the context of climate change. Considered the next step after Brazil GHG Protocol Program, EPC engages companies not only in discussions and activities related to management and reduction of corporate GHG emissions, but also in the industry positioning when it comes to climate and elaboration of public policy propositions to contribute to a low-carbon economy in Brazil. 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 when the Coalition Brazil Climate, Forests and Agriculture was created.
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 EPC - Empresas pelo Clima (Companies for the Climate) a platform 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.	Klabin is reference of public consults of carbon emissions and climate policies. The legislative proposes are done by EPC Group, which represents Klabin and others companies. EPC 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; creation of a first-of-its-kind collaboration network and building of best practices to manage GHG emissions among EPC members and partners; and participation in the Corporate Leaders Network for Climate Action (CLN) international network. Launched in partnership with The Prince of Wales Corporate Leaders Group on Climate Change (CLG), and with the support of 27 Founding Companies, EPC currently counts with the participation of 36 Member Companies. Its goals are: mobilize, engage and involve corporate leaderships for managing and reducing GHG emissions, managing climate risks, and suggesting public policies and positive incentives in the context of climate change. Considered the next step after Brazil GHG Protocol Program, EPC engages companies not only in discussions and activities related to management and reduction of corporate GHG emissions, but also in the industry positioning when it comes to climate and elaboration of public policy propositions to contribute to a low-carbon economy in Brazil. Based on EPC activities, Brazilian businesspeople assess their risks and opportunities and jointly discuss practical solutions and contributions to a legal framework in the country. Such efforts aim at contributing to: Strengthening competitiveness in the domestic industry in a new global economic context; Ensuring access of Brazilian products to international markets, which are increasingly demanding in socio-environmental standards; Building a domestic market that is keen on technology development, innovation and business practices, with lower potential to release GHG; Promote energy security in Brazil. For several years, we have been committed to switching fossil fuel for biomass as an energy source. In 2017, 88% 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

EPC (Empresas pelo Clima) - literal translation to Companies For Climate

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

Consistente

Explique o posicionamento da associação comercial

The Empresas pelo Clima (Companies for Climate) is a permanent business platform, which aims to mobilize and raise awareness on business leaders to manage and reduce GHG emissions, the climate risks management and policy building and positive incentives in the context of climate change. EPC 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; creation of a first-of-its-kind collaboration network and building of best practices to manage GHG emissions among EPC members and partners; and participation in the Corporate Leaders Network for Climate Action (CLN) international network. Based on EPC activities, Brazilian businesspeople assess their risks and opportunities and jointly discuss practical solutions and contributions to a legal framework in the country. Such efforts aim at contributing to: Strengthening competitiveness in the domestic industry in a new global economic context.

Como você tentou ou está tentando influenciar a posição?

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 EPC Group, which represents Klabin and others companies.

Associação comercial

Coalition Brazil Climate, Forests and Agriculture

A posição da sua 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 tentou ou está tentando influenciar a posição?

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. Also, Klabin takes part in an Emissions Trading System Simulation, performed by EPC - Empresas pelo Clima (Companies for the Climate) which aims to assess market responses in carbon pricing looking forward a new vision of carbon market. This methodology includes round tables, group dynamics and discussions in groups of different economy sectors.

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 17 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 desempenho das emissões de GEE no ano de referência? Em caso afirmativo, anexe as publicações.

Publicação

Nos relatórios principais

Status

Completo

Anexar o documento

1

Relatório de Sustentabilidade - Klabin 2017.pdf

Elementos do conteúdo

Governança

Estratégia

Riscos e oportunidades

Valores de emissões

Metas de emissões

Outras métricas

Publicação

Em comunicações voluntárias

Status

Completo

Anexar o documento

2

GHG 2017.pdf

Elementos do conteúdo

Valores de emissões

Publicação

Em outros relatórios normativos

Status

Completo

Anexar o documento

3

Resultados Financeiros Klabin 2017.pdf

Elementos do conteúdo

Governança

Estratégia

C13. Outros impactos de gestão da terra

(C-AC13.1/C-FB13.1/C-PF13.1) Você sabe se alguma das práticas de gerenciamento implementadas em suas próprias terras 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 sobre as 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 gestão

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. 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®, totaling the scope of approximately 451,975.18 hectares. 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, Matas Legais: In 2016 this program had 88 new owners; 53,760 seedlings donated; 3,374 ha of demarcated areas of preservation. Fomento Florestal [Forest Development] - 10,025 contracts already formalized Planning Sustainable Properties (Matas Sociais) - Serves 150 rural properties.

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

(C-AC13.2/C-FB13.2/C-PF13.2) Você sabe se alguma das práticas de gerenciamento mencionadas em C-AC12.2a/C-FB12.2a/C-PF12.2a que foram implementadas pelos seus 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 sobre as práticas de gestão implementadas por seus fornecedores que tenham outros impactos além da mitigação/adaptação às mudanças climáticas.

Número de referência da prática de gestão

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. 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®, totaling the scope of approximately 451,975.18 hectares. 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, Matas Legais: In 2016 this program had 88 new owners; 53,760 seedlings donated; 3,374 ha of demarcated areas of preservation. Fomento Florestal [Forest Development] - 10,025 contracts already formalized Planning Sustainable Properties (Matas Sociais) - Serves 150 rural properties.

C14. 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.

-x-

C14.1

(C14.1) Forneça detalhes da pessoa que assinou (aprovou) suas respostas sobre mudanças climáticas do CDP.

	Cargo	Categoria de trabalho correspondente
Linha 1	DIRECTOR OF INDUSTRIAL TECHNOLOGY, INNOVATION AND SUSTAINABILITY	Diretor do Conselho

SC. Módulo Supply Chain

SC0.0

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

Klabin is the Brazilian largest paper producer and exporter. Is considered the leader in the production of papers and cartons for packaging, corrugated packaging and industrial bags, and markets timber in logs. It is also 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 eight Brazilian states and one in Argentina. Klabin also has commercial offices in eight Brazilian states, a branch office in the United States, a new office in Austria, and sales representatives and agents in many countries.

The paper and paperboard for packaging manufactured by Klabin, 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. These products are a measure of how Klabin is present in the people's daily lives.

Hardwood and softwood pulp, used individually or together as a mix, give the essential characteristics to diverse types of paper: the ideal level of strength, softness and absorption for hygiene products, strength and opacity for printing and writing paper, and other specific properties required for specialty papers.

Klabin's management practices are guided by sustainable development and its management pursues the integrated and responsible growth that combines profitability, social development and a firm commitment to environmental preservation.

Since 2014, Klabin has been part of the Corporate Sustainability Index (ISE) of the BM&FBovespa. In addition, Klabin is also a signatory to the United Nations Global Compact and the Brazilian Pact to Eradicate Slave Labor, and look for suppliers and business partners that adopt the same values of ethics, transparency and respect for the principles of sustainability.

Historically committed to sustainable development, Klabin reserves more than 40% of its land for preserved native forests. In addition, it maintains its own areas with planted forests for the manufacture of its products. One of the pioneers in adopting the concept of sustainable development, 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. A pioneer in the adoption of mosaic planting concepts (a system that intermingles preserved native forests with planted forests) in its forestry management, Klabin has 229,000 hectares planted with pine and eucalyptus and 214,000 hectares of preserved native forests.

Since 2013, Klabin has been participating in the permanent "Empresas Pelo Clima" (Companies for the Climate), which aims to mobilize, sensitize and articulate business leaders for the management and reduction of emissions of greenhouse gases (GHG), the management of climate risks and the proposal of public policies and positive incentives in the context climate change.

In 2017, "Guia Exame de Sustentabilidade" elected Klabin the Most Sustainable Company in the Pulp and Paper Sector. With a methodology developed by the Center for Sustainability Studies of the Getúlio Vargas Foundation of São Paulo (GVces), the Guide is one of the most relevant publications on sustainability in the market.

Klabin also achieved a high level of performance by achieving 100% performance in Responsible Fiber Supply in the Environmental Index of Paper and Pulp Companies - Environmental Paper Company Index 2017 (EPCI), held every two years by WWF. In addition to this result, there was also a 6% increase in the registry of the Clean Manufacturing Index. This is an important recognition, which evaluates 93 companies worldwide, being only three Brazilian.

Respect for communities is a guiding value of Klabin in all the regions where it operates. Having clear governance criteria, providing transparency to all its acts and promoting the engagement of local stakeholders are the company's constant concerns in managing the social impacts of its activities. The Forestry Development Program, which aims to expand and diversify income opportunities for communities, is an example in this regard. The initiative, which involves stimulating the formation of planted forests on farms adjacent to the company's operations, helps in settling farmers on the land, promotes recovery of vegetation and diversifies crops. The program has already benefited 19,000 rural producers and distributed more 160 million of seedlings. The company creates over 18,000 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	9727000000

SC0.2

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

Sim

SC0.2a

(SC0.2a) Please use the table below to share your ISIN.

	ISIN country code (2 letters)	ISIN numeric identifier and single check digit (10 numbers overall)
Row 1	BR	KLBNC DAM18

(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.

Selecione o(s) membro(s) solicitante(s)

L'Oréal

Escopo das emissões

Escopo 1

Emissões em toneladas métricas de CO₂e

168.42

Incerteza (±%)

2

Principais fontes de emissões

Scope 1 - stationary sources

Verificada

Sim

Método de alocação

Alocação com base no peso dos produtos adquiridos

Explique como você identificou a fonte de GEE, incluindo as principais limitações a este processo e as premissas feitas

This is the specific CO₂ emissions for Klabin products. The respective supplier can calculate his own emission using this factor in relation to the total product acquired in the respective year of 2017.

Selecione o(s) membro(s) solicitante(s)

PepsiCo, Inc.

Escopo das emissões

Escopo 1

Emissões em toneladas métricas de CO₂e

168.42

Incerteza (±%)

2

Principais fontes de emissões

Scope 1 - stationary sources

Verificada

Sim

Método de alocação

Alocação com base no peso dos produtos adquiridos

Explique como você identificou a fonte de GEE, incluindo as principais limitações a este processo e as premissas feitas

This is the specific CO₂ emissions for Klabin products. The respective supplier can calculate his own emission using this factor in relation to the total product acquired in the respective year of 2017.

Selecione o(s) membro(s) solicitante(s)

Tesco

Escopo das emissões

Escopo 1

Emissões em toneladas métricas de CO₂e

168.42

Incerteza (±%)

2

Principais fontes de emissões

Scope 1 - stationary sources

Verificada

Sim

Método de alocação

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Selecione o(s) membro(s) solicitante(s)

Unilever plc

Escopo das emissões

Escopo 1

Emissões em toneladas métricas de CO₂e

168.42

Incerteza (±%)

Principais fontes de emissões

Scope 1 - stationary sources

Verificada

Sim

Método de alocação

Alocação com base no peso dos produtos adquiridos

Explique como você identificou a fonte de GEE, incluindo as principais limitações a este processo e as premissas feitas

This is the specific CO2 emissions for Klabin products. The respective supplier can calculate his own emission using this factor in relation to the total product acquired in the respective year of 2017.

SC1.2

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

The reported results were published in Klabin S / A's public emissions register for the year 2017.

website: <https://www.registropublicodeemissoes.com.br/>

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
A gestão dos diferentes fatores de emissão de numerosas e diversificadas regiões dificulta o cálculo do impacto total	The development of studies and maps of externalities in Klabin's operation together with the full lifecycle analysis of all its products would provide better conditions to allocate emissions to different customers. Klabin started in the end of 2017 and beginning of 2018 a new lifecycle study of his products. The products shall be analysed in the next years and the results will assist these challenges.
A diversidade de linha de produtos torna ineficaz em termos de custo o controle contábil preciso de cada produto/linha de produtos	The development of studies and maps of externalities in Klabin's operation together with the full lifecycle analysis of all its products would provide better conditions to allocate emissions to different customers. Klabin started in the end of 2017 and beginning of 2018 a new lifecycle study of his products. The products shall be analysed in the next years and the results will assist these challenges.

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.

The development of studies and maps of externalities in Klabin's operation together with the full lifecycle analysis of all its products would provide better conditions to allocate emissions to different customers. Klabin started in the end of 2017 and beginning of 2018 a new lifecycle study of his products. The products shall be analysed in the next years and the results will assist these challenges.

SC2.1

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

L'Oréal

Group type of project

Change to supplier operations

Type of project

Increased levels of purchased renewable energy

Emissions targeted

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

Estimated timeframe for carbon reductions to be realized

0-1 year

Estimated lifetime CO2e savings

43664

Estimated payback

0-1 year

Details of proposal

We seek to continue with the purchase certificates, from hydroelectric generation, with the proper Declaration of the generator, COPEL Generation and Transmission SA. This shows a reduction of Scope 2 emissions, when the Approach is based on location-based, which uses the average emission factor of the SIN (National Interconnected System). In addition, Klabin is developing in 2018 works for the issuance of renewable energy certificates to prove the generation and consumption of low emission energy sources This demonstrates Klabin's commitment to the purchase of renewable energy, in accordance with its Sustainability Policy.

Requesting member

PepsiCo, Inc.

Group type of project

Change to supplier operations

Type of project

Increased levels of purchased renewable energy

Emissions targeted

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

Estimated timeframe for carbon reductions to be realized

0-1 year

Estimated lifetime CO2e savings

43664

Estimated payback

0-1 year

Details of proposal

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Requesting member

Tesco

Group type of project

Change to supplier operations

Type of project

Increased levels of purchased renewable energy

Emissions targeted

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

Estimated timeframe for carbon reductions to be realized

0-1 year

Estimated lifetime CO2e savings

43664

Estimated payback

0-1 year

Details of proposal

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Requesting member

Unilever plc

Group type of project

Change to supplier operations

Type of project

Increased levels of purchased renewable energy

Emissions targeted

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

Estimated timeframe for carbon reductions to be realized

0-1 year

Estimated lifetime CO2e savings

43664

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Details of proposal

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SC2.2

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

Não

SC3.1

(SC3.1) Gostaria de se inscrever na iniciativa Action Exchange 2017-2018 do CDP?

Sim

SC3.1a

(SC3.1a) Identify which member(s), if any, have motivated you to take part in Action Exchange this year.

Unilever plc
Tesco
PepsiCo, Inc.
L'Oréal

SC3.1b

(SC3.1b) Select the types of emissions reduction activities that your company would like support in analyzing or in implementing in the next reporting year.

Energy efficiency: Building fabric
Energy efficiency: Processes
Low-carbon energy purchase
Low-carbon energy installation
Product design
Green project finance

SC3.1c

(SC3.1c) Como parte da Action Exchange, você gostaria de uma análise no nível de instalação?

Sim

SC3.2

(SC3.2) A sua empresa é participante da iniciativa Action Exchange 2017-2018 do CDP?

Sim

SC3.2a

(SC3.2a) Descreva como sua empresa considerou ativamente os projetos de redução de emissões como resultado do Action Exchange. Se você não tiver nenhuma atividade de redução de emissões resultante da Action Exchange em qualquer estágio de implementação, explique o motivo na segunda coluna.

	Tipo de projeto	Detalhes da proposta
Linha 1	Eficiência energética: Processos de aquisição de energia com baixos níveis de carbono	Our vision to the future is that of a substantial larger company that is increasingly recognized for the excellence of its products and services, built on solid foundations of sustainability and innovation. In 2017, we were not sued for any unfair competition, antitrust, of monopoly practices, and we continue to take this stance as a priority. Klabin has also restructured its team and created a specific corporate area of Sustainability and Environment that has as one of its objectives of monitoring global and national climate agendas and mapping their related risks and opportunities. The year 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. Of the total energy available for sale at the Puma Unit 80% were made available to the market. Also, Hydrogen was considered one of the fuels used in this plant, reducing greenhouse gas emissions of the company. Klabin began to record part of the indirect emissions through the Market-based approach. The company acquired energy from hydroelectric generation, with the appropriate Declaration of the generator. This represent a reduction of the Scope 2 emissions, when compared to the Location-based Approach. In this year the results of emissions rate reached the values of 193.53 kgCO ₂ / t product, approximately 7% lower than the result of the previous year. Klabin transparently accounts for and disclosure its results in this field with and emissions inventory, verified by third part, developed according to the Brazilian GHG Protocol Program and it is also published on its Public Record. Concluded in 2017, the new Klabin Technology Center in Telémaco Borba (Paraná), is raising Research, Development and Innovation (R & D + I) activities in the company to a new level (including renewable energy studies and adaptations). The initiative is part of Klabin's three- year investment plan (2015 to 2017), which provides for R \$ 70 million to be allocated to R & D + I processes. In addition, in 2017, Klabin invested BRL 23,500,000.00 million to environmental management, treatment of air emissions prevention costs and environmental management costs. In 2017, "Guia Exame de Sustentabilidade" elected Klabin the Most Sustainable Company in the Pulp and Paper Sector. With a methodology developed by the Center for Sustainability Studies of the Getúlio Vargas Foundation of São Paulo, one of the most relevant publication in the market.

SC4.1

(SC4.1) Are you providing product level data for your organization's goods or services, if so, what functionality will you be using?

Yes, I will provide data

SC4.1a

(SC4.1a) Indique a porcentagem global de emissões totais, 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

209

±% de variação em relação ao valor anterior fornecido

0

Data do valor anterior fornecido

Dezembro 31 2008

Explicação sobre a variação

No significant change

Métodos usados para estimar 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

209

±% de variação em relação ao valor anterior fornecido

0

Data do valor anterior fornecido

Dezembro 31 2008

Explicação sobre a variação

No significant change

Métodos usados para estimar 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

209

±% de variação em relação ao valor anterior fornecido

0

Data do valor anterior fornecido

Dezembro 31 2008

Explicação sobre a variação

no significant changes

Métodos usados para estimar 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

Escopo 1, 2 e 3

Selecione a fase do ciclo de vida

<i>Cradle-to-gate</i> ("do berço ao portão")

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

1010

Esta fase está sob sua responsabilidade ou controle?

Sim

Tipo de dados utilizados

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 -1,010 kg CO2eq / tonne of paper produced The discrepancy calculated in the model used was 11% which is an acceptable value

Caso esteja verificando/assegurando os dados de emissão deste produto, informe como está fazendo isso

ISO STANDARD ISO 14044

Nome do bem/serviço

Carrier Board

Selecione o escopo

Escopo 1, 2 e 3

Selecione a fase do ciclo de vida

<i>Cradle-to-gate</i> ("do berço ao portão")

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

1018

Esta fase está sob sua responsabilidade ou controle?

Sim

Tipo de dados utilizados

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 -1,018 kg CO2eq / tonne of paper produced The discrepancy calculated in the model used was 11% which is an acceptable value

Caso esteja verificando/assegurando os dados de emissão deste produto, informe como está fazendo isso

ISO STANDARD ISO 14044

Nome do bem/serviço

Kraftliner

Selecione o escopo

Escopo 1, 2 e 3

Selecione a fase do ciclo de vida

<i>Cradle-to-gate</i> ("do berço ao portão")

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

1244

Esta fase está sob sua responsabilidade ou controle?

Sim

Tipo de dados utilizados

Primário e secundário

Qualidade dos dados

It is important to mention that this result is POSITIVE, which means that the emission for the Kraft product is -1,244 kg CO2eq / tonne of paper produced The discrepancy calculated in the model used was 11% which is an acceptable value

Caso esteja verificando/assegurando os dados de emissão deste produto, informe como está fazendo isso

ISO STANDARD ISO 14044

SC4.2c

(SC4.2c) Detalhe 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
Liquid Paper Board (LPB), Carrier Board and Kraftliner	Iniciativa 1	The results obtained showed that the carbon footprint of klabin products are negative, that is, for production of the product in the productive chair, there is more carbon sequestration than emission (considering a cycle from the cradle to the gate) which are already excellent results . For this reason Klabin's objective is to maintain these positive results.	Realizada	0

SC4.2d

(SC4.2d) Alguma das iniciativas descritas em SC4.2c foi motivada por membros da Cadeia de Fornecimento do CDP?

Não

Submeta sua resposta

Sua resposta está sendo enviada em qual idioma?

Inglês

Confirme como a sua resposta deve ser gerenciada pelo CDP

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

Leia e aceite os Termos e Condições do CDP

Eu aceito os Termos e Condições