

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, Austria, and sales representatives and agents in many countries.

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

We are a world reference in sustainable development. Our forestry and industrial activities are based on this concept to preserve the biodiversity and the ecological balance of the ecosystems of the regions where we operate. Our Sustainability policy integrates the entire production chain to offer the market a responsible product with the environment and in line with the UN Sustainable Development Goals.

Since 2014, Klabin has been part of the Corporate Sustainability Index (ISE) of the BM&FBovespa. In addition, we are 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.

Klabin reserves **43%** of its land for preserved native forests (48% of total forest areas). In addition, it maintains its own areas with planted forests for the manufacture of its products. A pioneer 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 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 **239,000 hectares** planted with pine and eucalyptus and **216,000 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. 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.

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.

Klabin invests in the territory so that all population benefits from initiatives in the areas of local development, education, culture and environmental education. For its employees, it offers programs that include personal development and volunteer activities.

An example is the Matas Sociais Program (Planning Sustainable Properties) where Klabin assists family farmers in sustainable planning and diversification of land use. It encourages family farming, development of the production and consumption chain and entrepreneurship. It has the partnership of the Brazilian Service of Support to Micro and Small Businesses (Sebrae), the international organization The Nature Conservancy (TNC) and Apremavi. The initiative has already benefited more than 400 properties.

The company creates **19,000** 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 cujos dados estão sendo divulgados.

	Data de início	Data de fim	Indicar se você está fornecendo dados de emissões para anos de referência passados	Selecionar o número de anos de referência anteriores para os quais serão fornecidos dados de emissões
Linha 1	Janeiro 1 2018	Dezembro 31 2018	Sim	1 ano

C0.3

(C0.3) Selecione os países/regiões cujos dados serão fornecidos.

Brasil

C0.4

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

BRL

C0.5

(C0.5) Selecione a opção que descreve o limite de divulgação 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 de Escopo 1 e de 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 divulgação atual de 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

Produto florestal madeireiro

% da receita dependente desse produto agrícola

Mais de 80%

Produzido ou extraído

Ambos

Por favor, 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 2018 for total production of Klabin S/A, wood represents 96.45% of the amount of the inputs. - Calculation: % Revenue = Total Quantity of Wood (thousand t / year) / Total Quantity of Input (thousand t / year) * 100 % Revenue = (12,076.48 / 12,520.41)*100 = 96.45% It is also important to mention that, considering all the inputs consumed by Klabin in 2018, 98.3% are from renewable origin

C1. Governança

C1.1

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

Sim

C1.1a

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

Cargo dos indivíduos	Por favor, explique
Diretor do Conselho	INDUSTRIAL TECHNOLOGY, INNOVATION, SUSTAINABILITY AND PULP BUSINESS OFFICER has the responsibility over Climate Change and its related studies on impacts and opportunities. Alongside him, the Environmental and Sustainability Corporate team is 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 Executive 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.
Comitê do conselho	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 Executive 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) Forneça mais detalhes sobre a supervisão pelo Conselho das questões relacionadas ao clima.**

Frequência na qual as questões relacionadas ao clima são um item da agenda programada	Mecanismos de governança nos quais as questões relacionadas ao clima estão integradas	Por favor, explique
Programado todas as reuniões	Análise e orientação de estratégia Análise e orientação de planos de ação maiores Análise e orientação de políticas de gestão de riscos Definição de objetivos de desempenho Monitoramento da implementação e do desempenho de objetivos Monitoramento e supervisão do progresso em relação às metas e objetivos para tratar das questões relacionadas ao clima	Issues related to climate change are part of the organization's sustainability policy and objectives. Item number 13 of Klabin S/A sustainability policy: "Ensure that the company's operations are constantly seeking to reduce greenhouse gas (GHG) emissions." Taking into consideration this, the organization's goals and objectives are defined based on the organization's principles. Klabin has restructured its team in 2018 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. 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 Executive 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. Items related to climate change and risks and opportunities are fixed agenda Items of critical analysis involving senior management (managers and directors). The aligned strategies and actions defined in the committee are guided by financial, legal, social and environmental themes. In general, all these items taken into consideration during these meetings are important issues for the definition of the organization's growth strategy, considering new technologies and new projects for the company in line with the UN Sustainable Development Goals.

C1.2**(C1.2) Forneça o(s) cargo(s) de gestão ou comitê(s) de nível mais alto com responsabilidade pelas questões relacionadas ao clima.**

Nome dos cargos e/ou comitês	Responsabilidade	Frequência de divulgação 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 encontra(m)-se este(s) cargo(s) e/ou comitê(s), quais são suas responsabilidades associadas e como são monitoradas as questões relacionadas ao clima (não inclua os nomes dos indivíduos).

1) Where in the organizational structure these position (s) and / or committee (s) meet 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 directors, with the Industrial Technology, Innovation, Sustainability and Pulp Business Officer as the sponsor. Sustainability and Environment Executive Manager is the technical responsible of the Committee. Also participate in this committee, Industrial Business Officer, People and Corporate Services Director, Forestry Director and Legal and Integrity Director.

Items related to climate change and risks and opportunities are fixed agenda items of critical analysis involving senior management (managers and directors). Has the objective of following both global and national Climate agendas and map its related risk and opportunities.

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

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

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

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

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

Klabin has restructured its team in 2018 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) Forneça mais detalhes sobre os incentivos oferecidos para a gestão de questões relacionadas ao clima (não inclua os nomes dos indivíduos).

Quem são os beneficiários desses incentivos?

Diretor do Conselho

Tipos de incentivos

Recompensa monetária

Atividade incentivada

Meta de redução de emissões

Comentários

Sustainability Director is responsible for Environmental, Climate and Social issues and has specific goals related: Klabin is continually investing to raise the use of renewable sources in our energy matrix and consequently develop products with lower carbon footprint. In recent years, it has 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 2018 we reached 89.12% 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.

Quem são os beneficiários desses incentivos?

Gerente de Energia

Tipos de incentivos

Recompensa monetária

Atividade incentivada

Meta de eficiência

Comentários

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 2018 we reached 89.12% 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.

Quem são os beneficiários desses incentivos?

Gerente Ambiental/de Sustentabilidade

Tipos de incentivos

Recompensa monetária

Atividade incentivada

Projeto de eficiência

Comentários

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.

Quem são os beneficiários desses incentivos?

Diretor de Compras (CPO)

Tipos de incentivos

Recompensa monetária

Atividade incentivada

Critérios ambientais incluídos nas compras

Comentários

The procurement area, in line with the sustainability area, have related goals for the sustainability of the business, where criteria related to environment, climate change, social responsibility and labor are linked to the process of evaluation of Klabin's supply chain. These assessment criteria include items related to business climate change. These goals directly influence the results of direct and indirect greenhouse gas emissions from Klabin SA, in addition to the correlation between the development of sustainable products with lowest carbon footprints.

Quem são os beneficiários desses incentivos?

Diretor de Compras (CPO)

Tipos de incentivos

Reconhecimento (não monetário)

Atividade incentivada

Engajamento da cadeia de fornecimento

Comentários

The procurement area, in line with the sustainability area, have related goals for the sustainability of the business, where criteria related to environment, climate change, social responsibility and labor are linked to the process of evaluation of Klabin's supply chain. These assessment criteria include items related to business climate change. These goals directly influence the results of direct and indirect greenhouse gas emissions from Klabin SA, in addition to the correlation between the development of sustainable products with lowest carbon footprints.

Quem são os beneficiários desses incentivos?

Todos os funcionários

Tipos de incentivos

Recompensa monetária

Atividade incentivada

Meta de eficiência

Comentários

All professionals participate in an awards program for the results of the organization, one of the items that compose this index are the environmental indicators of the specific unit. these indicators include environmental aspects that are directly linked to climate change, such as reducing energy consumption, reducing water consumption, and so on.

C2. Riscos e oportunidades

C2.1

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

	De (anos)	A (anos)	Comentários
Curto prazo	1	10	Short-term: Actions and goals in strategic planning of the organization for the current and following year (1 to 10 years horizon, it is considered short term)
Médio prazo	11	20	Medium-term: Medium-term actions and targets are those that have goals of 11 to at most 20 years horizon.
Longo prazo	21	30	Long-term: Long-term actions and goals are those that present longer periods than those described in the medium term, following long-term thoughts that may be longer than 20 years.

C2.2

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 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 and opportunities, 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 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 in 2018 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 with the representatives of each Klabin unit the risks and opportunities observed. All these identified opportunities are linked and correlated with the Sustainable Development Goals, a UN initiative that Klabin voluntarily joined in 2016, including these goals as an integral part of its management and growth planning for the coming years.

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.

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) Quais dos seguintes tipos de riscos são considerados nas avaliações de riscos relacionados ao clima da organização?

	Relevância e inclusão	Por favor, explique
Regulamentação atual	Relevante, sempre incluído	Klabin developed, together with a company specialized in the theme, a study to define its risks related to climate change. The steps of this study were separated into internal mapping (information gathering and temporal alignment), climate modeling study and identification of risks and opportunities. After defining the risks, they were classified according to their 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	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 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. The Technology Center has lines of research in the areas of forest base development, pulp development, paper, new forest-based technologies and reduction of environmental impacts. In 2018 we have expanded our focus on innovation and high technology to respond to the demands of the market and to seek new cycles of growth, aiming to develop initiatives aimed at sustainable management and operational excellence. Klabin announced another investment in innovation with the construction of a 'pilot plant park'. The space will be built with the contribution of 32 million BRL in research and development. In this park, studies and tests will be carried out on some research fronts. One of them will be with microfibrillated pulp (MFC), a renewable source, which will be incorporated into the company's paper production lines in the future to improve product quality and strength. Another research front will be the extraction and use of lignin in the products, a very resistant natural polymer extracted from trees. Of renewable origin, lignin and its derivatives can substitute raw materials of fossil origin, among other applications of high added value in industries and several segments.
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.
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. We constantly use the relationship with our stakeholders as a source of consultation for new lines of research and market demands in relation to the risks to the business and possible sustainable alternatives to be developed. From the trends, demands and constant updates of the market Klabin directed its new investment cycles. In 2018 we announced another investment in innovation with the construction of a 'pilot plant park'. The space will be built with the contribution of 32 million BRL in research and development of new products. In this park, studies and tests will be carried out on some research fronts. One of them will be with microfibrillated pulp (MFC), a renewable source, which will be incorporated into the company's paper production lines in the future to improve product quality and strength. Another research front will be the extraction and use of lignin in the products, a very resistant natural polymer extracted from trees. Of renewable origin, lignin and its derivatives can substitute raw materials of fossil origin, among other applications of high added value in industries and several segments which are directly linked to the consumer market and its trends.
Reputação	Relevante, sempre incluído	To understand the potential risks and opportunities to which its activities are subject, as well as the adaptive measures required to face such risks and opportunities, Klabin conducts studies on its vulnerabilities and possibilities regarding climate change. The 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. This is one of the types of risk that is integrated into the risk management assessment and is constantly updated through meetings with members of the sustainability committee, the Board of Directors, the commercial area and the board of directors, who discuss changes and make contributions on this subject. Reputational impacts are considered in the climate risks developed by the company and are measured / classified according to the risk management methodology that evaluates this impact according to the period of negative image exposure. Periods of damage to the public image: > 24 months - critical impact, 12 to 24 months - high impact, <12 months - medium impact, without damage to the public image - low impact 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	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 seedlings with higher resistant to cold and frost, focusing on increasing productivity and pulp volume yield.
Parâmetro físico crônico	Relevante, sempre incluído	Klabin developed, together with a company specialized in the theme, a study to define its risks related to climate change. The steps of this study were separated into internal mapping (information gathering and temporal alignment), climate modeling study and identification of risks and opportunities. After defining the risks, they were classified according to their reliability, magnitude and severity. 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.

	Relevância e inclusão	Por favor, explique
Processo anterior	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/opportunities to which its activities are subject, as well as the adaptive measures required to face such risks/opportunities, We conduct studies on its vulnerabilities and possibilities regarding climate change. The study is based on global models such as the IPCC Assessment Reports and focus on understanding risks and opportunities, especially those with 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 categories: physical, regulatory, reputational and financial. Klabin prioritizes adaptive measures related to reputational and financial risks. 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. 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. An example of outcome is the "Salvador" project, an equipment that operates installed in trucks that controls the speed and rotation of the vehicle in the best standard of efficient driving in regards to fuel economy. The main indicator evaluated is the increase in average productivity of drivers expressed in Km/L (vehicle autonomy). 122 equipment were installed in vehicles of our fleet. With the reduction of diesel consumption, we have a reduction of 920.43 tCO2eq/year.

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) Foi identificado 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 precificação de emissões de GEE

Tipo de impacto financeiro

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), Otacílio 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

É possível fornecer um potencial valor para o impacto financeiro?

Sim, uma faixa estimada

Valor potencial do impacto financeiro (moeda)

<Not Applicable>

Valor potencial do impacto financeiro – mínimo (moeda)

39600

Valor potencial do impacto financeiro – máximo (moeda)

298438782

Explicação do valor do impacto financeiro

Minimum and Maximum value (BRL) which represents a simulation of carbon pricing in Brazil, using as a reference the minimum and maximum global price of carbon tax multiplied by the total quantity emitted by Klabin in the year 2018 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

We will continue to participate in initiatives such as "Companies for the Climate" and in committees representing our sector in Brazil, which aim to articulate business leaders for the management and reduction of greenhouse gas emissions, climate risks and the proposal of policies in climate change and carbon pricing context. In 2018 we created a corporate area of Sustainability and Environment that aims the daily management of global/national climate agendas and its risks and opportunities. As a complement, Klabin presents a fixed sustainability committee composed of representatives of the organization's board of directors, whose objective is to discuss and insert issues related to sustainability (including climate change) in the organization's strategic planning. The sustainability and environment team is responsible for following the climate agendas and taking these issues to the decision making on the sustainability committee. In addition, the demands and decisions of this committee return the corporate team to operationalize and apply the actions to the environmental teams located in Klabin units. This ensures that issues related to our direct and indirect activities are tied to our climate change and organizational sustainability strategy. Cost of Management: BRL 45,736,382.04 which represents the total investment of Klabin SA in the year to environmental investments, including management, treatment of air emissions prevention costs and environmental management costs.

Custo de gestão

45736382.04

Comentários

BRL 45,736,382.04 which represents the total investment of Klabin SA in the year 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 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). The forest department of Klabin constantly monitors the climatic conditions of the regions where Klabin act. This monitoring aims to assess trends at the acute and chronic levels of climate variables that may interfere in our operations. In addition, Klabin have direct contact with the port teams to assess the climatic conditions and possible future trends. 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. This contact with the port helps Klabin with the strategic sales organization of the products. If there is an occurrence that makes it impossible to access the port, the Klabin team can look for alternatives to export the materials (other ports, such as Itajaí or Santos port) and / or search for the market in the national market.

Horizonte de tempo

Longo prazo

Probabilidade

Provável

Dimensão do impacto

Média

É possível fornecer um potencial valor para o impacto financeiro?

Sim, uma faixa estimada

Valor potencial do impacto financeiro (moeda)

<Not Applicable>

Valor potencial do impacto financeiro – mínimo (moeda)

5053798

Valor potencial do impacto financeiro – máximo (moeda)

6461583

Explicação do valor do impacto financeiro

Estimated cost of BRL 5,053,798 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. Until now, there has been no need for change in the organization's planning because of sea level rising. But in case of occurrences, we can stock our products in our spaces available in the warehouse and, if necessary, transport the products to other terminals (for example, Santos / SP or Itajaí / SC). Cost of management: BRL 80,106.66 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.

Custo de gestão

80106.66

Comentários

BRL 80,106.66 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 impacto financeiro

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, more than 70% of the fuel oil consumption is of the units of Klabin PUMA (39%), Monte Alegre (27%) and Correia Pinto (5%). 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

É possível fornecer um potencial valor para o impacto financeiro?

Sim, uma faixa estimada

Valor potencial do impacto financeiro (moeda)

<Not Applicable>

Valor potencial do impacto financeiro – mínimo (moeda)

31864

Valor potencial do impacto financeiro – máximo (moeda)

240140023

Explicação do valor do impacto financeiro

BRL minimum and maximum costs which represents a simulation of carbon pricing in Brazil, using as a reference the 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

We will continue to participate in initiatives such as "Companies for the Climate" and participation in the committees representing our sector in Brazil, which aim to articulate business leaders for the management and reduction of GHG emissions, climate risks and the proposal of policies in the context of climate change and carbon pricing. In 2018 we created a corporate area of Sustainability and Environment that aims the daily management of global/national climate agendas and the mapping of its risks and opportunities. As a complement, Klabin present a fixed sustainability committee composed by representatives of the organization's board of directors, whose objective is to discuss and insert items related to sustainability (including climate change) in the organization's strategic planning. The sustainability and environment team is responsible for following climate agendas and taking these issues to decision making on the sustainability committee. In addition, the demands/decisions of this committee return to the team to operationalize/apply the actions to the environmental teams located in Klabin units. This ensures that issues related to our direct/indirect activities are tied to our climate change and organizational sustainability strategy. Cost of management: BRL 45,736,382.04 which represents the total investment of Klabin SA in the year to environmental investments, including management, treatment of air emissions prevention costs and environmental management costs.

Custo de gestão

45736382.04

Comentários

BRL 45,736,382.04 which represents the total investment of Klabin SA in the year 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

Produtos e serviços

Principal fator de oportunidade relacionada ao clima

Capacidade de diversificar as atividades de negócios

Tipo de impacto financeiro

Aumento da receita por meio de novas soluções para as necessidades de adaptação (por ex., produtos e serviços de transferência de risco de seguro)

Descrição específica da empresa

The PUMA unit, located in the municipality of Ortiguera (Paraná - Brazil), produces more energy from renewable sources than the demand of its production requires, allowing Klabin to make this surplus available to the market, generating income through the commercialization of a new product (Renewable Energy) In order to maintain this opportunity, in 2018 the PUMA unit was the first unit in the country's pulp sector to achieve ISO 50001 certification, attesting to the unit's efforts to improve its performance and energy efficiency

Horizonte de tempo

Atual

Probabilidade

Virtualmente certo

Dimensão do impacto

Média-alta

É possível fornecer um potencial valor para o impacto financeiro?

Sim, uma estimativa de valor único

Valor potencial do impacto financeiro (moeda)

121151000

Valor potencial do impacto financeiro – mínimo (moeda)

<Not Applicable>

Valor potencial do impacto financeiro – máximo (moeda)

<Not Applicable>

Explicação do valor do impacto financeiro

Approximately BRL 121,151,000.00 related to the sale of energy produced and not consumed by the PUMA unit in Paraná in 2018. Calculation is equal to the amount of renewable energy distributed to the national grid multiplied by the 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 (888,686.03 MWh). In order to maintain this opportunity, in 2018 the PUMA unit was the first unit in the country's pulp sector to achieve ISO 50001 certification, attesting to the unit's efforts to improve its performance and energy efficiency Cost to realize opportunity: BRL 41,768,243.41 in relation to the total cost of production of surplus energy sold in 2018 by PUMA (Paraná State), considering an average cost of 888,686.03MWh (amount of energy sold in 2018).

Custo para materializar a oportunidade

41768243.41

Comentários

BRL 41,768,243.41 in relation to the total cost of production of surplus energy sold in 2018 by PUMA (Paraná State), considering an average cost of 888,686.03MWh (amount of energy sold in 2018).

Identificador

Opp2

Em que ponto da cadeia de valor ocorre a oportunidade?

Cadeia de fornecimento

Tipo de oportunidade

Produtos e serviços

Principal fator de oportunidade relacionada ao clima

Capacidade de diversificar as atividades de negócios

Tipo de impacto financeiro

Aumento da receita devidos à demanda por produtos e serviços com menor índice de emissões

Descrição específica da empresa

Opp: Cap and trade schemes: CDM projects Voluntary commitments. 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. We are also currently participating in a Brazilian emission trading simulation system, which organizations can simulate the operation of a cap and trade system with respect to greenhouse gas emissions and removals. In this system we can simulate the purchase of carbon credits by the direct emissions of the organization and, in addition, simulate the sale of carbon credits related to the removal of CO2 by our planted forests (8 million tons of CO2 in 2018). This simulation applies to the entire business of Klabin S.A. This platform assists the organization in the understanding and taking of actions in cases of regulations related to this topic.

Horizonte de tempo

Curto prazo

Probabilidade

Muito provável

Dimensão do impacto

Alta

É possível fornecer um potencial valor para o impacto financeiro?

Sim, uma faixa estimada

Valor potencial do impacto financeiro (moeda)

<Not Applicable>

Valor potencial do impacto financeiro – mínimo (moeda)

413511.98

Valor potencial do impacto financeiro – máximo (moeda)

3116353594.53

Explicação do valor do impacto financeiro

Annual financial positive implication: BRL minimum (413,511.98) and maximum (3,116,353,594.53) estimated. Rational: carbon removal credits (8,658,800.60 tons CO2-eq from planted forests), minus the total GHG emissions (Scope 1+2) from the production process (756,743.491 tons CO2-eq), multiplied by the minimum and maximum price per tonne of CO2 on carbon credit market simulation in 2018 (Minimum = BRL 0.0523 /ton CO2eq; Maximum = BRL 394.37/ton CO2eq).

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 forests. Currently, the company has 216 thousand hectares of preserved native woodlands in the Atlantic Rainforest. It is important to mention that Klabin is working on these opportunities with the realization of studies to valorise its biodiversity and its ecosystem services (such as the amount of CO2 stored). Cost to realize opportunity: BRL 45,736,283.04 which represents the total investment of Klabin SA in the year to environmental investments, including management, treatment of air emissions prevention costs and environmental management costs.

Custo para materializar a oportunidade

45736283.04

Comentários

BRL 45,736,283.04 which represents the total investment of Klabin SA in the year 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

Fonte de energia

Principal fator de oportunidade relacionada ao clima

Uso de fontes de energia com menor índice de emissões

Tipo de impacto financeiro

Redução dos custos operacionais (por ex., por meio do uso de abatimento com custo mais baixo)

Descrição específica da empresa

With PUMA unit located in the state of Paraná, the unit generates more energy from renewable sources than its production demand requires, allowing participation in renewable energy programs and adoption of energy efficiency measures. In 2018 the PUMA unit generated 888,686 MW of surplus energy, making this quantity available in the Brazilian National Interconnected System. This action reduces operating costs by increasing revenue from the sale of this energy, as well as providing energy from renewable sources contributing to a more renewable national energy matrix, aligning these actions with the UN Sustainable Development Goals. This surplus energy is sufficient to supply a city of approximately 500 thousand inhabitants.

Horizonte de tempo

Médio prazo

Probabilidade

Provável

Dimensão do impacto

Média-alta

É possível fornecer um potencial valor para o impacto financeiro?

Sim, uma estimativa de valor único

Valor potencial do impacto financeiro (moeda)

117776714.47

Valor potencial do impacto financeiro – mínimo (moeda)

<Not Applicable>

Valor potencial do impacto financeiro – máximo (moeda)

<Not Applicable>

Explicação do valor do impacto financeiro

Estimated value referring to the quantity of fuel oil that the organization would stop consuming (replacing with fossil fuels) if there were regulations that demand the reduction of atmospheric emissions and increase of the clean matrix of fuels for generation of energy. This value only estimates the replacement of the fuel by another renewable source (biomass residues). This impact is considered medium-high, since the estimated specific cost difference for fuel use is different (specific cost of estimated fuel oil is more expensive than cost with biomass). It is important to mention that this estimated value does not consider the costs necessary to change technologies for fuel substitution. This calculation considers the replacement of the total consumption of fuel oil by the organization (98 thousand tons per year) for biomass waste to produce the same amount of energy (GJ), considering the specific cost of the oil in approximately BRL 1,200 per ton.

Estratégia para materializar a oportunidade

Klabin purchase energy from renewable resources. Its energy matrix includes natural renewable sources. At the end of 2013, 80% of the energy used by the company was generated by these sources. Every year, strategies, targets and effective actions are defined in all the industrial plants for gains in energy efficiency. 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. In order to maintain this opportunity, in 2018 the PUMA unit was the first unit in the country's pulp sector to achieve ISO 50001 certification, attesting to the unit's efforts to improve its performance and energy efficiency. Cost to realize opportunity: BRL 3,401,301.29 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 An example of this opportunity was the replacement of fuel oil boilers by biomass boilers in the last 13 years in the Klabin units of Monte Alegre (PR), Otacílio Costa (SC), Correia Pinto (SC) and Angatuba (SP). reducing emissions of more than 100 thousand tons of CO2eq

Custo para materializar a oportunidade

3401301.29

Comentários

BRL 3,401,301.29 Estimated value representing the cost for the use of renewable fuel (biomass residue) in the replacement of fuel oil, not considering the need for replacement of new technology equipment

Identificador

Opp4

Em que ponto da cadeia de valor ocorre a oportunidade?

Operações diretas

Tipo de oportunidade

Produtos e serviços

Principal fator de oportunidade relacionada ao clima

Capacidade de diversificar as atividades de negócios

Tipo de impacto financeiro

Aumento da receita devidos à demanda por produtos e serviços com menor índice de emissões

Descrição específica da empresa

The PUMA unit, located in the municipality of Ortigueira (Paraná), produces more energy from renewable sources than demand for its production requires, allowing Klabin to generate International Renewable Energy Certificates (IRECs) for all the energy that was made available in the national system (888,686.03 MWh) To maintain this opportunity, in 2018 the PUMA unit was the first unit in the country's pulp sector to achieve ISO 50001 certification, attesting to the unit's efforts to improve its performance and energy efficiency. The I-REC Service is a global environmental energy attribute tracking system designed to facilitate reliable carbon accounting for Scope 2,

consistent with various international carbon accounting standards. For Klabin, registration at the I-REC Service is a way to obtain additional revenue from the sale of renewable energy certificates, contributing to a cleaner grid.

Horizonte de tempo

Curto prazo

Probabilidade

Virtualmente certo

Dimensão do impacto

Média

É possível fornecer um potencial valor para o impacto financeiro?

Sim, uma estimativa de valor único

Valor potencial do impacto financeiro (moeda)

1333029

Valor potencial do impacto financeiro – mínimo (moeda)

<Not Applicable>

Valor potencial do impacto financeiro – máximo (moeda)

<Not Applicable>

Explicação do valor do impacto financeiro

Approximately BRL 1,333,029.00 related to the sale of International Renewable Energy Certificates (IRECs) for all the energy that was made available in the national system (888,686.03 MWh) by PUMA unit. Calculation is equal to the amount of renewable energy distributed to the national grid multiplied by the IREC average sales value in the year. This impact is considered medium, since the sale of renewable energy certificates are considered as an additional revenue the main revenue obtained with the product "renewable energy" that is its sale and distribution with the national system.

Estratégia para materializar a oportunidade

To manage this opportunity Klabin energy matrix includes natural renewable sources such as black liquor, biofuel, and hydro (own electrical power). 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. In order to maintain this opportunity, in 2018 the PUMA unit was the first unit in the country's pulp sector to achieve ISO 50001 certification, attesting to the unit's efforts to improve its performance and energy efficiency. Cost to realize opportunity: This value (BRL 368,982.44) refers to the total rate of emission of the renewable energy certificate per MWh sold (BRL 0.4152 / MW) multiplied by the total renewable energy sold by the PUMA unit in 2018 (888,686.03 mW)

Custo para materializar a oportunidade

368982.44

Comentários

This value (BRL 368,982.44) refers to the total rate of emission of the renewable energy certificate per MWh sold (BRL 0.4152 / MW) multiplied by the total renewable energy sold by the PUMA unit in 2018 (888,686.03 mW)

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	So far, the organization understands that in the future (an estimate for the next 3 years) there may be changes in customer preferences that can lead to changes in the products and services provided. For example, increasing customer demand for ISO and FSSC-certified products in your production chain as a way to ensure the delivery of a quality and environmentally sound 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 the Klabin Technology Center in Telêmaco Borba (Paraná) is considered a positive impact for the organization, as it is taking the company's Research, Development and Innovation (R&D+I) activities to a new level studies and adaptations in renewable energies). The initiative was part of Klabin's three-year investment plan (2015 to 2017), which provides for the allocation of R \$ 70 million in R & D + I processes. Klabin understands that the magnitude of this impact for the organization is high, as the changes in preference for new products leads to new technologies on the part of the industry. To demonstrate the importance of this magnitude, it is importante to mention the 12.5% acquisition of the Israeli startup Melodea Bio Based Solutions, a pioneer in the technology of extraction of nanocrystalline cellulose (CNC), produced 100% from renewable sources and, in addition, the announced the construction of the Pilot Plant Park in Paraná (investment of 32 million BRL), next to the recently inaugurated Technology Center, which will allow to simulate a manufacturing unit, where studies and tests will be carried out on research fronts such as microfibrillated cellulose , which will be incorporated into the company's paper production lines in the future, increasing the quality and strength of the products; and the launch of a specific paper card for the market of cup stock, the "Klacup".
Cadeia de fornecimento e/ou cadeia de valor	Impactado para alguns fornecedores, instalações ou linhas de produtos	To follow more closely the impacts of possible climate change on the growth of forest plantations, we have created a Department of Forestry Productivity and Ecophysiology, capable of simulating adverse scenarios and recommending appropriate actions. It is worth noting in 2018 the construction of a new laboratory in the Forest Research for the research activities in Ecophysiology, Soil and Forest Nutrition, creating synergism within the studies directed to the Forest Management of the company. In the case of our most extensive forest areas in the state of Paraná, the most predictable climate change has been the intensification of rainfall in the region, which would make management more difficult but, on the other hand, would benefit tree growth and planting. productivity. This action is directly related to the study of the climate in the forest, industrial and logistic areas carried out by our teams. In order to demonstrate that Klabin considers the magnitude of the mentioned risks and opportunities important, we are investing new actions for monitoring and sustainability management in our supplier chain of Klabin SA in order to optimize our participation in our supply chain in issues related to sustainability (environment, climate change, labor ethics, social responsibility, among others). This is an investment with perspective of gradual growth over the years. The main benefits of this process for Klabin SA are the increase of the company's responsibility in the use of its resources, reduction of costs through collaborative actions (shared value), ease of access to capital and greater valuation, competitive advantage, better relationship with suppliers and engagement ODS 17 (Partnerships and Means of Implementation).
Atividades de adaptação e mitigação	Impactado	In order to follow the impacts of possible climatic risks more closely, we have created a Forestry Ecophysiology and Productivity Department, capable of simulating adverse scenarios and recommending appropriate actions. In the case of our most extensive forest areas in the state of Paraná, the most predictable climate change has been the intensification of rainfall in the region, which would make management more difficult but, on the other hand, would benefit tree growth and planting. productivity. This action is directly related to the study of the climate-related risks in the forest, industrial and logistic areas carried out in 2016 and was classified as medium magnitude impact. This was observed with simulations of climatic scenarios for the different regions of Brazil where there are Klabin units (all facilities were included in this study), pointing the climatic risks specific to each state from the present data for 2040 simulations. The steps and inputs of this study were separated into internal mapping (information gathering), climate modeling study, and identification of risks and opportunities. The major influences are in the units of the states of Santa Catarina, Paraná and São Paulo since the forest areas of the organization are in these states. As Klabin has more than 230,000 hectares of planted vegetation spread over a wide operating radius, the magnitude of this impact is considered to be medium, since it is a section of areas that can be impacted. One of the mitigation actions in 2018 was the allocation of resources to construction of a new laboratory in the Forest Research for the research activities in Ecophysiology, Soils and Forest Nutrition, creating synergism within the studies directed to the Forest Management of the company. In addition, in order to deal with these impacts, we have assigned a forest planning team to define the best operation logistics taking into account all possible aspects. With a broader and more strategic view, the R & D & I area acts in several links of the chain: - Improvement of planting and management processes to increase productivity; - Development of new products and improvements in processes to adapt them to customer needs or to better economic and environmental performance;
Investimento em P&D	Impactado	The Klabin Technology Center in Telêmaco Borba (Paraná) is considered to have a high positive impact on the organization, as it is taking the Research, Development and Innovation (R & D + I) activities of the company to a new level renewable). In addition, this allows us to develop new strategies for the organization: in 2013, the company began to study the most vulnerable aspects of its operations in relation to changing precipitation and temperature patterns, and the strength and constancy of the winds. The study results in internal action plans and proposals for adaptation measures aimed at preventing impacts on Klabin's operation (in forest and industrial units), as well as indications of possible external effects related to these climate changes, such as price and pressure on natural resources and their effects (for example, price of electricity). Potential short- and medium-term effects have already been added to the company's strategic planning (especially those requiring technological innovation to preserve forest growth) and are closely monitored by various groups, including the Sustainability Committee. One example of this is the creation of the Ecophysiology department responsible for monitoring current and future climate trends, such as changing precipitation patterns, winds and temperature, and anticipating possible impacts on forest productivity. The results of this analysis provide lines of action, for example, to the areas of R & D that become aware of the new developments or innovations they must pursue to address the threats and opportunities of Climate Change. In order to demonstrate that we consider this impact with high magnitude, besides the investment of R \$ 70 million between 2015 and 2017, Klabin will contribute about BRL 180 million in Industrial and Forestry Research in 2019-2021, including a new Pilot Plant fleet, aimed at developing new products. Klabin's area of Research, Development and Forest Innovation is based on the conduction of the projects inserted in different lines of research: Genetic Improvement; Forest Biotechnology, Phytosanitary Nutrition and Forestry; Ecophysiology.
Operações	Impactado	In 2013, we began to study the most vulnerable aspects of its operations in relation to changes in precipitation and temperature patterns, and the strength and constancy of the winds. The study results in internal action plans and proposals for adaptation measures aimed at preventing impacts on Klabin's operation (in forest and industrial units), as well as indications of possible external effects related to these climate changes, such as price and pressure on natural resources. (for example, price of electricity). Potential short- and medium-term effects have already been added to the company's strategic planning (especially those requiring technological innovation to preserve forest growth) and are closely monitored, including the Sustainability Committee. In the case of our most extensive forest areas in the state of Paraná, the most predictable climate change has been the intensification of rainfall in the region, which would make management more difficult but, on the other hand, would benefit tree growth and planting. productivity. The major influences are in the units of the states of Santa Catarina, Paraná and São Paulo since the forest areas of the organization are in these states. As Klabin has more than 230,000 hectares of planted vegetation spread over a wide operating radius, the magnitude of this impact is considered to be medium, since it is a section of areas that can be impacted. One example of this is the creation of the Ecophysiology department responsible for monitoring current and future climate trends and anticipating possible impacts on forest productivity. The results of this analysis provide lines of action, for example, to the areas of R&D that become aware of the new developments or innovations they must pursue to address the threats and opportunities of Climate Change. In order to demonstrate that we consider this impact with high magnitude, besides the investment of R \$ 70 million between 2015 and 2017, Klabin will contribute about BRL 180 million in Industrial and Forestry Research in 2019-2021, including a new Pilot Plant fleet, aimed at developing new products. So far, the operational costs with these impacts were not relevant, but the investments cited above reinforce the organization's preventive actions.
Outros, favor especificar	Não impactado	-x-

C2.6

(C2.6) Descreva onde e como os riscos e oportunidades identificados foram levados em consideração no seu processo de planejamento financeiro.

	Relevância	Descrição
Receitas	Impactado	Possible benefits of the 100% clean energy matrix, carbon credits (high magnitude) and sale of renewable energy certificates. The recovery in the carbon market after COP21 (Paris, December 2015) and a recently approved Brazilian Environmental Payment Law may bring benefits and financial opportunities due to Klabin's native and preserved forests. Currently, the company has 216 thousand hectares of native forests preserved in the Atlantic Forest. In order to maintain these "medium-high" magnitudes as defined, in 2018 the PUMA unit was the first unit in the country's pulp sector to achieve ISO 50001 certification, attesting the unit's efforts to improve its performance and energy efficiency. For the sale of energy certificates, this impact is considered medium, since the sale of renewable energy certificates is considered as an additional revenue the main revenue obtained with the product "renewable energy" that is its sale and distribution with the national system. This sale has a magnitude of average to high, since it represents a financial impact of BRL 121,151,000.00 (2018).
Custos operacionais	Não impactado ainda	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, Otaclio 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. 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 proposals 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 2018 Klabin invested about BRL 45,736,283.04 million for environmental investments, covering waste management, treatment of atmospheric emissions, costs of prevention and environmental management expenses. 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. In order to demonstrate that we consider this issue important, besides the investment of R \$ 70 million between 2015 and 2017, Klabin will contribute about BRL 180 million in Industrial and Forestry Research in 2019-2021, including a new Pilot Plant Park, aimed at developing new products. Klabin's area of Research, Development and Forest Innovation is based on the conduction of the projects inserted in different lines of research: Genetic Improvement; Forest Biotechnology, Phytosanitary Nutrition and Forestry; Ecoficiency.
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. It is importante to mention the 12.5% acquisition of the Israeli startup Melodea Bio Based Solutions, a pioneer in the technology of extraction of nanocrystalline cellulose (CNC), produced 100% from renewable sources and, in addition, the announced the construction of the Pilot Plant Park in Paraná (investment of 32 million BRL), next to the recently inaugurated Technology Center, which will allow to simulate a manufacturing unit, where studies and tests will be carried out on research fronts such as microfibrillated cellulose , which will be incorporated into the company's paper production lines in the future. Besides that, Klabin will contribute about BRL 180 million in Industrial and Forestry Research in 2019-2021, including a new Pilot Plant Park, aimed at developing new products. Klabin's area of Research, Development and Forest Innovation is based on the conduction of the projects inserted in different lines of research: Genetic Improvement; Forest Biotechnology, Phytosanitary Nutrition and Forestry; Ecoficiency.
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. In addition, Klabin considers this aspect as high magnitude. An example of this was that Klabin made a new issuance of green bonds in the amount of 500 million dollars and with a maturity of 30 years. This is the first time that a Brazilian company is able to raise funds from this category with this maturity. Green bonds are resources that companies seek in the market to finance their projects with a positive socio-environmental impact, such as those Klabin undertakes with mosaic forest management, biodiversity conservation, clean energy production and adequate waste disposal. To achieve this type of investment, companies need to demonstrate this commitment to sustainable principles and initiatives.
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 was 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. Besides that, Klabin will contribute about BRL 180 million in Industrial and Forestry Research in 2019-2021, including a new Pilot Plant Park, aimed at developing new products. 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 in a rigorous and constant manner 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 buy carbon credits due to increased atmospheric emissions due to new carbon pricing policies, which we estimate that this risk may occur in the next 3 years. For this, Klabin has environmental areas in each of its units, as well as a corporate environment and sustainability area (strategically located in the state of Paraná and close to Klabin's largest units (Puma, Monte Alegre, Otaclio Costa, Correia Pinto and Angatuba), which aims to carry out the daily monitoring and management of all items related to environmental issues and legality. Also, Klabin will continue to participate in initiatives such as "Companies for the Climate" (EPC – Empresas Pelo Clima) and participation in the committees representing our sector in Brazil, which aim to articulate business leaders for the management and reduction of greenhouse gas emissions, climate risks and the proposal of policies in the context of climate change and carbon pricing.
Outro	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) 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.

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

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

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

For several years, we have been committed to switching fossil fuel for biomass as an energy source. 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 2018, Klabin consumed 68.331.658,31 GJ of energy in its operations. We reduced the consumption of non-renewable fuels for energy generation by 7%, mainly from actions to reduce the consumption of fuel oil (-12% compared to 2017) and diesel (-31% compared to 2017).

Since 2017, Klabin began to record part of the indirect emissions through the Approach based on the choice of purchase (Marketbased). In this approach Klabin quantifies GHG emissions of scope 2 using the specific emission factor associated with each source of electricity generation that Klabin has chosen to acquire. In this year 2018, Klabin acquired 696.089,40 MWh from hydroelectric generation, with the appropriate Declaration of the generator. This represent a 58% 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	<p>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. Having a direct relationship in risk assessment of the organization, Klabin's area of Research, Development and Forestry Innovation is based on the conduction of the projects in different lines of research, such as Phytosanitary, Nutrition/Forestry and Ecophysiology. It is important to mention some highlights in 2018, such as the creation of the internal technical committee called FIR (Forest, Industry and Research), focused on understanding the quality characteristics of wood; the construction of a new laboratory in the Forest Research for the research activities in Ecophysiology, Soils and Forest Nutrition, creating synergism within the studies directed to the Forest Management of the company; Beginning of the creation of natural enemies in the laboratory and evaluation of its efficiency in controlling the main pests of Eucalyptus and Pinus. This Department of Forest Efficiency and Ecophysiology also monitors possible future climate scenarios, developing a modeling of data related to exposure to climatic parameters and assessing the impact of changes in planted forests, and recommends the necessary measures in case of adverse effects. As part of the expansion of the focus on Research, Development and Innovation to face a larger Klabin, the Company carries out a further investment cycle in the area. In addition to the investment of BRL 70 million between 2015 and 2017, Klabin will invest about BRL 180 million in Industrial and Forestry Research in the years 2019-2021. 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. 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).</p>
RCP 8.5	<p>Klabin continues to conduct studies to assess its risks and opportunities. In 2018, we carried out a study comparing climate change in relation to forest management in the regions of Telémaco Borba (PR), Otaclio Costa (SC) and Itapetininga (SP). This analysis of climatic variables used the climatic scenario RCP 8.5 based on the climatic history of the region (1981-2010), as well as evaluated reference scenarios on emissions of greenhouse gases for climate models - HadGEN2-ES. The climatologies for the reference period 1981 to 2010 were generated for the scenarios HadGEN2 of 2011-2020, 2021-2030 and 2031-2040. The main climatic risks evaluated were Quantity and frequency of intense drought, minimum temperature, average temperature, potential evapotranspiration and water deficit. Some of the results of this study show a general tendency of temperature increase in the study regions with mean increase of 0.32 °C per decade. Evaluating the impacts of the tendency of water deficit occurrence, it can be observed that the risks for the study regions (Telémaco Borba and Otaclio Costa) are classified as low. Having a direct relationship in risk assessment of the organization, Klabin's area of Research, Development and Forestry Innovation is based on the conduction of the projects in different lines of research, such as Phytosanitary, Nutrition/Forestry and Ecophysiology. It is important to mention some highlights in 2018, such as the creation of the internal technical committee called FIR (Forest, Industry and Research), focused on understanding the quality characteristics of wood; the construction of a new laboratory in the Forest Research for the research activities in Ecophysiology, Soils and Forest Nutrition, creating synergism within the studies directed to the Forest Management of the company; Beginning of the creation of natural enemies in the laboratory and evaluation of its efficiency in controlling the main pests of Eucalyptus and Pinus. This Department of Forest Efficiency and Ecophysiology also monitors possible future climate scenarios, developing a modeling of data related to exposure to climatic parameters and assessing the impact of changes in planted forests, and recommends the necessary measures in case of adverse effects. As part of the expansion of the focus on Research, Development and Innovation to face a larger Klabin, the Company carries out a further investment cycle in the area. In addition to the investment of BRL 70 million between 2015 and 2017, Klabin will invest about BRL 180 million in Industrial and Forestry Research in the years 2019-2021. 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. 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).</p>

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

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.

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.

To reaffirm our commitment to implementing actions to combat climate change, Klabin is the first Brazilian company in the sector of forests, pulp and paper to be part of the "Companies Taking Action" initiative of the validation of our goals based on Science Based Targets.

Science-based targets provide companies with a clearly defined pathway to future-proof growth by specifying how much and how quickly they need to reduce their greenhouse gas emissions.

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.

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 2018, Klabin consumed 68.331.658,31 GJ of energy in its operations. We reduced the consumption of non-renewable fuels for energy generation by 7%, mainly from actions to reduce the consumption of fuel oil (-12% compared to 2017) and diesel (-31% compared to 2017).

Since 2017, Klabin began to record part of the indirect emissions through the Approach based on the choice of purchase (Marketbased). In this approach Klabin quantifies GHG emissions of scope 2 using the specific emission factor associated with each source of electricity generation that Klabin has chosen to acquire. In this year 2018, Klabin acquired 696.089,40 MWh from hydroelectric generation, with the appropriate Declaration of the generator. This represent a 58% 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) Forneça detalhes de suas metas de emissões absolutas e do progresso em relação a essas metas.

Número de referência da meta

Abs 1

Escopo

Escopo 1

% de emissões de Escopo

100

Meta da % de redução a partir do ano-base

30.67

Ano-base

2004

Ano de início

2017

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

704000

Ano limite

2022

Esta meta tem base científica?

Sim, consideramos essa meta como sendo de base científica, mas ela não foi aprovada como sendo de base científica pela iniciativa Metas com Base Científica

% alcançada (emissões)

100

Status da meta

Em andamento

Por favor, explique

Until 2022 we aim to reduce emissions from scope 1. We reduced the consumption of non-renewable fuels for energy generation by 7%, mainly from actions to reduce the consumption of fuel oil (-12% compared to 2017) and diesel (-31% compared to 2017). To reaffirm our commitment to implementing actions to combat climate change, Klabin is the first Brazilian company in the sector of forests, pulp and paper to be part of the "Companies Taking Action" initiative of the validation of our goals based on Science Based Targets. Science-based targets provide companies with a clearly defined pathway to future-proof growth by specifying how much and how quickly they need to reduce their greenhouse gas emissions.

Número de referência da meta

Abs 2

Escopo

Escopo 3 (a montante e a jusante)

% de emissões de Escopo

100

Meta da % de redução a partir do ano-base

5

Ano-base

2017

Ano de início

2017

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

175368.08

Ano limite

2020

Esta meta tem base científica?

Sim, consideramos essa meta como sendo de base científica, mas ela não foi aprovada como sendo de base científica pela iniciativa Metas com Base Científica

% alcançada (emissões)

100

Status da meta

Em andamento

Por favor, explique

By 2020, with the new growth projects of Klabin SA, we aim not to increase by more than 5% the emissions of scope 3 in relation to the base year of 2017. In this year 2018, we reduced the emissions of upstream diesel oil by 27% compared to 2017 from the optimization of the routes to transport raw material to the production units. In addition, Klabin is restructuring its supplier assessment process based on a new sustainability assessment in the organization's supply chain. We will do the gradual evaluation of suppliers and their results in sustainability, with the goal of together building new targets for, for example, reducing greenhouse gas emissions in the supply chain. To reaffirm our commitment to implementing actions to combat climate change, Klabin is the first Brazilian company in the sector of forests, pulp and paper to be part of the "Companies Taking Action" initiative of the validation of our goals based on Science Based Targets. Science-based targets provide companies with a clearly defined pathway to future-proof growth by specifying how much and how quickly they need to reduce their greenhouse gas emissions.

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 de Escopo

100

Meta da % de redução a partir do ano-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 limite

2022

Esta meta tem base científica?

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

% alcançada da meta

100

Status da meta

Em andamento

Por favor, 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 Piracibaba unit. Then in 2008 we changed 2 to Heavy oil Boilers for a Biomass boiler in Monte Alegre Mill and did the same action in Otacilio Costa mill (2014), Correia Pinto mill (2012) and Angatuba mill (2015). With the improvements made in our processes, in 2018 we reached the target value until the year 2022, obtaining the result of 178.68 kgCO2eq per ton of product. We reduced the consumption of non-renewable fuels for energy generation by 7%, mainly from actions to reduce the consumption of fuel oil (-12% compared to 2017) and diesel (-31% compared to 2017). To reaffirm our commitment to implementing actions to combat climate change, Klabin is the first Brazilian company in the sector of forests, pulp and paper to be part of the "Companies Taking Action" initiative of the validation of our goals based on Science Based Targets. Science-based targets provide companies with a clearly defined pathway to future-proof growth by specifying how much and how quickly they need to reduce their greenhouse gas emissions.

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

3.91

% de mudança esperada em emissões absolutas de 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 limite

2022

KPI no ano de base

1143797.95

KPI no ano da meta

1086608.05

% alcançada no ano de referência

94.45

Status da meta

Em andamento

Por favor, explique

Based on the results obtained in 2017, Klabin has set a reduction target of up to 5% between 2018 and 2022. In 2018 we reduced the purchase of electricity by 1%. This shows that the actions carried out in the units in relation to the awareness of the operational teams present positive results for the achievement of this goal. Also the period had the following highlights: We reduced the consumption of non-renewable fuels for energy generation by 7%, mainly from actions to reduce the consumption of fuel oil (-12% compared to 2017) and diesel (-31% compared to 2017). In 2019, the area of sustainability and environment is holding events called "For a Renewable Future" where actions are carried out to raise awareness of operational teams, improve the results of environmental indicators and actions for sustainability and business continuity.

Parte da meta de emissões

(Int 1): Reduction for Scope 1+2 (location-based) reaching the value of 185 kg CO2 eq per ton of product.

Esta meta faz parte de uma iniciativa abrangente?

Outros, favor especificar (Sustainable Development Objectives (ODS))

Meta

Meta de energia renovável, incluindo eletricidade, aquecimento, vapor e refrigeração

KPI – Numerador métrico

Increase the share of renewable sources in the energy matrix to 88%

KPI – Denominador métrico (somente metas de intensidade)

-x-

Ano-base

2014

Ano de início

2014

Ano limite

2022

KPI no ano de base

86,5

KPI no ano da meta

88

% alcançada no ano de referência

100

Status da meta

Em andamento

Por favor, 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 2018, Klabin increased the energy index from renewable sources to 89.12% and reduced its consumption of fossil fuels by 7% mainly from actions to reduce the consumption of fuel oil (-12% compared to 2017) and diesel (-31% compared to 2017). In 2019, the area of sustainability and environment is holding events called "For a Renewable Future" where actions are carried out to raise awareness of operational teams, improve the results of environmental indicators and actions for sustainability and business continuity.

Parte da meta de emissões

(Abs1): reduce 1% of emissions from scope 1. (Int 1): Reduction for Scope 1+2 (location-based) reaching the value of 185 kg CO2 eq per ton of product.

Esta meta faz parte de uma iniciativa abrangente?

Outros, favor especificar (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 limite

2022

KPI no ano de base

59,8

KPI no ano da meta

65

% alcançada no ano de referência

100

Status da meta

Em andamento

Por favor, 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. In 2018, Klabin reached values of 77.3% of energy self-sufficiency.

Parte da meta de emissões

(Abs1): reduce 1% of emissions from scope 1. (Int 1): Reduction for Scope 1+2 (location-based) reaching the value of 185 kg CO2 eq per ton of product.

Esta meta faz parte de uma iniciativa abrangente?

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

	Número de iniciativas	Economia anual total estimada de CO2e em toneladas métricas de CO2e (somente para linhas marcadas com *)
Em fase de pesquisa	2	28036.75
A ser implementado*	1	47683.54
Implementação iniciada*	1	1163.24
Implementado*	3	52452.96
Não será implementado	0	0

C4.3b

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

Tipo de iniciativa

Reduções de emissões de processos

Descrição da iniciativa

Novos equipamentos

Economia anual estimada de CO2e (toneladas métricas de CO2e)

190

Escopo

Escopo 2 (com base na localização)

Voluntário/obrigatório

Voluntária

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

1694578

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

4660089

Período de retorno

1-3 anos

Duração estimada da iniciativa

11 a 15 anos

Comentários

In the Klabin Pilar unit, in 2018, we carried out the project of replacing all the lamps of the unit with led lamps and installed systems / sensors to control the intensity of illumination. The control system identifies the natural lighting of the environment and regulates the lamps according to the need for illumination that is lacking for this environment ("Smart Lighting" concept). This system generated the reduction of energy consumption by 72% in the unit. In addition to reducing energy consumption, this system reduced the unit's greenhouse gas emissions by 190 tonnes of CO2eq in the year.

Tipo de iniciativa

Reduções de emissões de processos

Descrição da iniciativa

Novos equipamentos

Economia anual estimada de CO2e (toneladas métricas de CO2e)

920.43

Escopo

Escopo 1

Voluntário/obrigatório

Voluntária

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

1381428

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

967000

Período de retorno

< 1 ano

Duração estimada da iniciativa

16 a 20 anos

Comentários

This project, carried out in the forest units of Paraná state, is named as the "Salvador", an equipment that operates installed in trucks that controls the rotation and speed of the vehicle in the best standard of efficient driving in regards to fuel economy. Even if the driver accelerates the vehicle, it limits the rotation by not letting it spend more fuel than is necessary. The main indicator evaluated is the increase in average productivity of drivers expressed in Km / L (vehicle autonomy). With the reduction of diesel oil consumption this project reduced greenhouse gas emissions (mobile combustion) by 920.43 tons of CO2eq per year.

Tipo de iniciativa

Aquisição de energia com baixos níveis de carbono

Descrição da iniciativa

Hidro

Economia anual estimada de CO2e (toneladas métricas de CO2e)

51342.53

Escopo

Escopo 2 (com base no mercado)

Voluntário/obrigatório

Voluntária

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

0

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

0

Período de retorno

Nenhum retorno

Duração estimada da iniciativa

> 30 anos

Comentários

On Indirect GHG emissions from energy acquisition - Scope 2, in 2017 Klabin began to record these emissions through the Market-based Approach. In this approach Klabin quantifies GHG emissions of scope 2 using the specific emission factor associated with each source of electricity generation that Klabin has chosen to acquire. In this year 2018, Klabin acquired 696,089.40 MWh, from hydroelectric generation, with the proper Declaration of the generator. This results in a reduction of Scope 2 emissions in 51,342.53, 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. This initiative does not involve costs for the organization because these are declarations issued by the concessions that Klabin SA consume energy from renewable sources.

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. The main methodology used by Klabin to assess the feasibility and prioritization of projects is the CANVAS model.

C-AC4.4/C-FB4.4/C-PF4.4**(C-AC4.4/C-FB4.4/C-PF4.4) Você implementa práticas de gestão em sua própria terra 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 sua própria terra 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)

34263.5

Por favor, 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 239,000 hectares planted with pine and eucalyptus and 216,000 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. This program had 59 new owners; 63,000 seedlings donated; 3,159.21 ha of demarcated areas of preservation. Using as base the value of 10.85 tCO₂eq / ha calculated according to the CO₂ sequestration of the native forests in relation to a total area that a Klabin has (Brazilian GHG Protocol Metodology used). As we have an amount in ha from Matas Legal we have: 3,159.21 ha * 10.85 tCO₂ / ha = 34,263.5 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 o(s) produto(s) como tendo baixos níveis de carbono ou para calcular as emissões evitadas

Outros, favor especificar (Carbon Footprint evaluation)

% da receita originária de produto(s) 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. 455,000 HECTARES OF OWN LAND: 239,000 hectares of planted forests and 216,000 hectares of preserved native forests and other third-part lands which has planted and preserved areas. Therefore, the company has the best numbers on Carbon Footprint. Using the methodology of the GHG Brazilian protocol and considering the scope 1, 2 and 3 of Klabin S.A we have the result of GHG emission intensity in 218.92 kgCO₂eq / ton of product produced. On the other hand, if we consider all the carbon removal and storage of our natural and planted forests we have the result of intensity of 2,640.8 kgCO₂eq /ton of product produced. We can conclude that Klabin has a significant 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. On Indirect GHG emissions from energy acquisition - Scope 2, in 2017 Klabin began to record these emissions through the Market-based Approach. In this approach Klabin quantifies GHG emissions of scope 2 using the specific emission factor associated with each source of electricity generation that Klabin has chosen to acquire

C5.2

(C5.2) Selecione o nome 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?

Ano de referência

Emissões brutas de Escopo 1 (toneladas métricas de CO2e)

668952.44

Data de início

Janeiro 1 2018

Data de fim

Dezembro 31 2018

Comentários

In this year of 2018 we reduced the consumption of non-renewable fuels for energy generation by 7%, mainly from constant actions to reduce the consumption of fuel oil (-12% in 2018 compared to 2017) and diesel (-31% in 2018, in relation to the previous year). We can also highlight the increase in hydroelectric power generation by 19%. These results demonstrate Klabin's commitment to increasingly search for sustainable solutions for the business. In 2018, we reduced absolute GHG emissions from scope 1 by 40,607.23 tCO2eq over 2017. This represents a reduction of 10.47 kgCO2eq for each ton of product produced.

Ano passado 1

Emissões brutas de Escopo 1 (toneladas métricas de CO2e)

709560.46

Data de início

Janeiro 1 2017

Data de fim

Dezembro 31 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. In 2018, we reduced absolute GHG emissions from scope 1 by 40,607.23 tCO2eq over 2017. This represents a reduction of 10.47 kgCO2eq for each ton of product produced.

C6.2

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

Linha 1

Escopo 2, com base na localização

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

Escopo 2, com base no mercado

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

Comentários

On Indirect GHG emissions from energy acquisition - Scope 2, in 2017 Klabin began to record these emissions through the Market-based Approach. In this approach Klabin quantifies GHG emissions of scope 2 using the specific emission factor associated with each source of electricity generation that Klabin has chosen to acquire. In this year 2018, Klabin acquired 696,089.40 MWh, from hydroelectric generation, with the proper Declaration of the generator. This results in a reduction of Scope 2 emissions in 51,342.54, when compared to location-based, which uses the average emission factor of the SIN (National Interconnected System). This demonstrates Klabin's commitment to opt for the purchase of renewable energy, in accordance with its Sustainability Policy.

C6.3

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

Ano de referência

Escopo 2, com base na localização

87791,05

Escopo 2, com base no mercado (se aplicável)

36448,51

Data de início

Janeiro 1 2018

Data de fim

Dezembro 31 2018

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 2018, Klabin acquired 696,089.40 MWh, from hydroelectric generation, with the proper Declaration of the generator. This results in a reduction of Scope 2 emissions in 51,342.54, 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.

Ano passado 1

Escopo 2, com base na localização

105828

Escopo 2, com base no mercado (se aplicável)

43664

Data de início

Janeiro 1 2017

Data de fim

Dezembro 31 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 divulgação 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 de 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 valor

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 de 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 valor

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 de 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 valor

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 de CO2e

62558.65

Metodologia de cálculo das emissões

GHG protocol brazil methodology

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

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 de CO2e

435.17

Metodologia de cálculo das emissões

GHG protocol brazil methodology

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

100

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. This Scope 3 category includes emissions from the treatment and / or final disposal of solid waste arising from the operations of the organization during the year, carried out in facilities owned or controlled by third parties. This category accounts for all future emissions (along the treatment and / or final disposal process) that result from the waste generated in the inventory year.

Viagens de negócios

Status da avaliação

Relevante, calculada

Toneladas métricas de CO2e

729.75

Metodologia de cálculo das emissões

GHG protocol brazil methodology

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

100

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. This category includes the calculation of emissions from the transportation of employees to activities related to the inventor's organization's business carried out on vehicles operated by or owned by third parties.

Viagens diárias (ida e volta do trabalho) de funcionários

Status da avaliação

Relevante, calculada

Toneladas métricas de CO2e

2363.61

Metodologia de cálculo das emissões

GHG protocol brazil methodology

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

100

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. This category includes the calculation of the emissions of the transport of employees in their movement between home and work, carried out in private vehicles of employees or public transportation.

Ativos arrendados a montante

Status da avaliação

Não relevante, calculada

Toneladas métricas de 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 valor

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 de CO2e

104378.81

Metodologia de cálculo das emissões

GHG protocol brazil methodology

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

100

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. This category of Scope 3 contemplates the emissions of transport and distribution of products (excluding fuels and energy products) in vehicles and facilities that are not owned or operated by the organization, when there is no relation of purchase or acquisition of these services by the inventory organization in the year inventories, as well as other outsourced transportation and distribution services (including both inbound and outbound logistics).

Processamento de produtos vendidos

Status da avaliação

Não relevante, calculada

Toneladas métricas de 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 valor

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 de 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 valor

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 de 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 valor

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 de 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 valor

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 de 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 valor

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 de 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 valor

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 de 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 valor

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 de 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 valor

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) É possível decompor suas emissões de Escopo 3 por área de atividade de negócios relevante?

Sim

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

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

Atividade

Distribuição

Categoria de Escopo 3

Transporte e distribuição a montante

Emissões (toneladas métricas de CO₂e)

62558.65

Por favor, explique

The Greenhouse gas inventory calculation was based on the Brazilian GHG Protocol methodology and was verified by third party, attesting to the veracity of the data, as well as the non-relevance of some emission sources for scope 3. The transportation and distribution (upstream) are related to the diesel consumption of the forest areas and are monitored in subdivided classes: Forestry Area of the Angatuba Unit: 956.64 t CO₂e Zona Florestal de Correia Pinto Unit: 6,199.26 t CO₂e Forest Area of the Otacílio Costa Unit: 8,134.10 t CO₂e Forest Area of Monte Alegre Unit ("Fábrica" Region): 10,057.79 t CO₂e Forest Area of Monte Alegre Unit ("Distrito" Region): 3,755.97 t CO₂e Forest Area of Monte Alegre Unit ("Cândido de Abreu" Region): 0.25 t CO₂e Forest Area of Monte Alegre Unit ("Aeroporto" Region): 613.15 t CO₂e Forest Area of Monte Alegre Unit ("Rio Novo" Region): 1,135.75 t CO₂e Forestry Area of the Monte Alegre Region ("Castro" Region): 44.35 t CO₂e Forest Area of the PUMA Unit: 21,206.89 t CO₂e Forest Area of Monte Alegre Unit ("Guarapuava" Region): 590.32 t CO₂e Forest Area of Monte Alegre Unit ("Ibaiti" Region): 25.87 t CO₂e Forestry Area of the Monte Alegre Region ("Jaguariaíva" Region): 661.78 t CO₂e Forest Area of Monte Alegre Unit ("Iratí" Region): 3.09 t CO₂e Forest Area of Monte Alegre Unit ("Palmas" Region): 148.16 t CO₂e Forest Area of Monte Alegre Unit ("Sengés" Region): 68.39 t CO₂e Forest Area of Monte Alegre Unit ("Maringá" Region): 105.82 t CO₂e Forest Area of Monte Alegre Unit ("Moquém" Region): 48.19 t CO₂e Forest Area of Monte Alegre Unit ("Itararé" Region): 6.08 t CO₂e In addition, there is also the rail transport of the PUMA unit that represents 8,796.95 t CO₂e

Atividade

Distribuição

Categoria de Escopo 3

Transporte e distribuição a jusante

Emissões (toneladas métricas de CO₂e)

104378.81

Por favor, explique

The Greenhouse gas inventory calculation was based on the Brazilian GHG Protocol methodology and was verified by third party, attesting to the veracity of the data, as well as the non-relevance of some emission sources for scope 3. 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: 176.956 t CO₂e Angatuba Industry: 3,784.215 t CO₂e Correia Pinto Industry: 6,327.53 t CO₂e Monte Alegre Industry: 19,474.63 t CO₂e Otacílio Costa Industry: 14,844.43 t CO₂e Goiana Recycled Paper: 4,361.06 t CO₂e Piracicaba Recycled Paper: 1,072.54 t CO₂e Warehouse - Jundiá DI: 7.12 t CO₂e Warehouse - Jundiá TP: 7.38 t CO₂e Third Party Storage: 11.47 t CO₂e KE Betim: 2,930.57 t CO₂e KE Feira de Santana: 1,084.23 t CO₂e KE Goiana: 6,673.52 t CO₂e KE Itajaí: 2,624.84 t CO₂e KE Jundiá 1 - TP: 1,433.19 t CO₂e KE Jundiá 2 - DI: 2,349.19 t CO₂e KE Manaus: 2,015.86 t CO₂e KE Piracicaba: 1,823.28 t CO₂e KE Rio Negro: 3,075.50 t CO₂e KE São Leopoldo: 1,331.64 t CO₂e Klabin PUMA: 9,106.82 t CO₂e Lages I: 8,890.48 t CO₂e Lages II: 451.97 t CO₂e SC Goiana: 2,127.10 t CO₂e Support Rio Negro: 0.084 t CO₂e Betim 61: 1.46 t CO₂e Sigma Warehouse: 2.25 t CO₂e Betim - LG02: 0.99 t CO₂e Betim - Sacos: 30.82 t CO₂e Angatuba (ANG): 147.45 t CO₂e Correia Pinto (CP01): 954.31 t CO₂e Lages 1 (LG01): 555.92 t CO₂e Ortigueira (OR30): 2,760.15 t CO₂e Otacílio Costa (OTA1): 2,167.21 t CO₂e Monte Alegre (MA01): 1,760.47 t CO₂e Jundiá (JU): 12.53 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.

Linha 1

Emissões do carbono biologicamente sequestrado (toneladas métricas de CO2)

5173826.48

Comentários

Biogenic emissions of Klabin SA in the year 2018 according to the methodology of quantification of greenhouse gases for Brazilian GHG Program

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)

2902.52

Metodologia

Fatores de emissão padrão

Por favor, explique

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

Remoções de CO2 da gestão do uso da terra

Emissões (toneladas métricas de CO2)

8658800.6

Metodologia

Fatores de emissão padrão

Por favor, explique

Removal of 8,658,800.6 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)

3463.5

Metodologia

Fatores de emissão padrão

Por favor, explique

Matas Legais - Developed in partnership with the Association of Preservation of Environment and Life (Apremavi), it promotes actions of rural property planning, conservation and environmental education in the states of Paraná and Santa Catarina. It guides small and medium-sized owners to perform more efficiently and with greater profitability, in addition to preserving ecosystems. Producers take courses, lectures and exchange visits and receive free seedlings of native plants. The program also encourages forestry with planted pine and eucalyptus forests, organic agriculture and ecotourism. This program had 59 new owners; 63,000 seedlings donated; 3,159.21 ha of demarcated areas of preservation. Using as base the value of 10.85 tCO2eq / ha calculated according to the CO2 sequestration of the native forests in relation to a total area that a Klabin has (Brazilian GHG Protocol Metodology used). As we have an amount in ha from Matas Legal we have: 3,159.21 ha * 10.85 tCO2 / ha = 34,263.5 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)

16475.3

Metodologia

Fatores de emissão padrão

Por favor, explique

Emissions of 16,475.301 t CO2e (biogenic) for mobile combustion (transport / machinery) The greenhouse gas inventory calculation was based on the Brazilian GHG Protocol methodology and was verified by third party, attesting to the veracity of the data, as well as the non-relevance of some emission sources for scope 3.

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

Emissões (toneladas métricas de CO2)

4995496.96

Metodologia

Fatores de emissão padrão

Por favor, explique

Emissions of 4,995,496.957 tCO2e (biogenic) relative to stationary combustion of biomass fuels (biodiesel, vegetable residues and Black Liquor). The greenhouse gas inventory calculation was based on the Brazilian GHG Protocol methodology and was verified by third party, attesting to the veracity of the data, as well as the non-relevance of some emission sources for scope 3.

Emissões de CO2 da combustão de biocombustível (outros)

Emissões (toneladas métricas de CO2)

161854.23

Metodologia

Fatores de emissão padrão

Por favor, explique

Emissions of 15,760.516 t CO2e (biogenic) for Scope 3 (Transportation and distribution -upstream-, Transport and distribution -downstream- and displacement of employees) and 146,093.712 for Scope 2. The greenhouse gas inventory calculation was based on the Brazilian GHG Protocol methodology and was verified by third party, attesting to the veracity of the data, as well as the non-relevance of some emission sources for scope 3.

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

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

Commodities agrícolas

Produto florestal madeireiro

A empresa coleta dados ou calcula as emissões de GEE para este produto?

Sim

Por favor, explique

Timber is considered to be the main raw material for Klabin's production process. For the calculations of the atmospheric emissions of this commodity, the stationary emissions (plant residues and black liquor) are considered as biomass and liquor for the boilers (GHG emissions equivalent to 55,458.7 t CO₂e and 4,995,317.34 tCO₂ biogenic in 2018) and, in addition, the emissions of greenhouse gases are calculated for the agricultural emissions processes considering Forest Planting for wood supply (GHG emissions of 2902.52 tCO₂e in 2018). These calculations are performed annually using the methodology of the Brazilian GHG Protocol.

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

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

Produto florestal madeireiro

Divulgando emissões por

Total

Emissões (toneladas métricas de CO₂e)

5050776.04

Denominador: unidade de produção

<Not Applicable>

Mudança desde o último ano de referência

Menor

Por favor, explique

Timber is considered to be the main raw material for Klabin's production process. For the calculations of the atmospheric emissions of this commodity, the stationary emissions (plant residues and black liquor) are considered as biomass and liquor for the boilers (GHG emissions equivalent to 55,458.7 t CO₂e and 4,995,317.34 tCO₂ biogenic in 2018). That's a reduction of 5,2% of CO₂ emissions from timber when compared to 2017. It is important to mention that this reduction was not due to the increase in the use of non-renewable fuels. In this year of 2018 we also reduced the consumption of non-renewable fuels for energy generation by 7%, mainly from constant actions to reduce the consumption of fuel oil (-12% in 2018 compared to 2017) and diesel stationary (-31% in 2018, in relation to the previous year). These calculations are performed annually using the methodology of the Brazilian GHG Protocol.

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

178.67

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

756743.49

Denominador métrico

Outros, favor especificar (metric ton of product)

Denominador métrico: Total de unidade

4235263.86

Valor de Escopo 2 usado

Com base na localização

% de variação em relação ao ano anterior

7.7

Direção da variação

Diminuiu

Motivo da variação

Klabin had an emission rate for the year 2017 of 193.53 kgCO2 / t product. in this year 2018 with the perationalization of the PUMA unit which raised the level of sustainability of the organization, the results of detection rate reached the values of 178.67 kgCO2 / t product, approximately 8% 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. In this year of 2018 we also reduced the consumption of non-renewable fuels for energy generation by 7%, mainly from constant actions to reduce the consumption of fuel oil (-12% in 2018 compared to 2017) and diesel stationary (-31% in 2018, in relation to the previous year).These calculations are performed annually using the methodology of the Brazilian GHG Protocol.

Valor da intensidade

0.000076

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

756743.49

Denominador métrico

receita total unitária

Denominador métrico: Total de unidade

10016000000

Valor de Escopo 2 usado

Com base na localização

% de variação em relação ao ano anterior

9.52

Direção da variação

Diminuiu

Motivo da variação

In this year 2018, 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 9.52% compared to 2017 (0.000084). 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 decompõe suas emissões de Escopo 1 por tipo de gás de efeito estufa?

Sim

C7.1a

(C7.1a) Desagregue seu total de emissões brutas globais de Escopo 1 por tipo de gás de efeito estufa e forneça a fonte de cada potencial de aquecimento de efeito estufa (Greenhouse Warming Potencial – GWP) utilizado.

Gás de efeito estufa	Emissões de Escopo 1 (toneladas métricas de CO2e)	Referência de GWP
CO2	604371.31	Quarto Relatório de Avaliação do IPCC (AR4 – 100 anos)
CH4	15767.47	Quarto Relatório de Avaliação do IPCC (AR4 – 100 anos)
N2O	46831.89	Quarto Relatório de Avaliação do IPCC (AR4 – 100 anos)
HFCs	1981.76	Quarto Relatório de Avaliação do IPCC (AR4 – 100 anos)

C7.2

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

País/Região	Emissões de Escopo 1 (toneladas métricas de CO2e)
Brasil	668952.44

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	2982.1	-23.565066	-48.359227
Betim	3781.1	-19.964755	-44.120758
Correia Pinto	29018.8	-27.551488	-50.364019
Feira de Santana	4472.7	-12.290827	-38.91198
Goiana	51979.1	-7.556655	-35.035038
Itajaí	3250.9	-26.891305	-48.709733
Jundiá Distrito Industrial	4622.3	-23.1752	-46.931352
Jundiá Tijuco Preto	3598.5	-23.266963	-46.865105
Lages	719.8	-27.808633	-50.363555
Manaus	1398.9	-3.0985	-59.943561
Monte Alegre	264293.7	-24.310186	-50.6079
Otacílio Costa	18639.2	-27.513275	-50.116602
Piracicaba	35040.3	-22.687536	-47.674963
Puma	241494.2	-24.258055	-50.746944
São Leopoldo	2711.1	-29.786711	-51.114425
Depósito Paranaguá	538.4	-25.539727	-48.535783
Rio Negro	409.4	-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 de Escopo 1?

Sim

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

(C-AC7.4a / C-FB7.4a / C-PF7.4a) Selecione o(s) formulário(s) em que você está divulgando 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) Relate as emissões de Escopo 1 relacionadas às atividades de negócios e explique eventuais exclusões. Se aplicável, desagregue as atividades agrícolas/florestais por categoria de emissões de GEE.

Atividade

Agrícola/Florestal

Categoria de emissões

Total

Emissões (toneladas métricas de CO2e)

2902.52

Metodologia

Fator de emissões padrão

Por favor, explique

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

Atividade

Processamento/Fabricação

Categoria de emissões

Total

Emissões (toneladas métricas de CO2e)

6.7

Metodologia

Fator de emissões padrão

Por favor, explique

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

Atividade

Distribuição

Categoria de emissões

Total

Emissões (toneladas métricas de CO2e)

170751.39

Metodologia

Fator de emissões padrão

Por favor, explique

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

Atividade

Processamento/Fabricação

Categoria de emissões

Total

Emissões (toneladas métricas de CO2e)

493302.95

Metodologia

Fator de emissões padrão

Por favor, explique

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

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	87791.05	36448.51	1150437.53	696089.4

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	8814.65	4661.1
Betim	468.51	468.51
Correia Pinto	8793.67	2615.67
Feira de Santana	378.72	378.72
Goiana	8755.68	8755.68
Itajaí	461.9	152.94
Jundiá Distrito Industrial	537.99	537.99
Jundiá Tijuco Preto	495.37	495.37
Lages	1013.18	1013.18
Manaus	176.8	176.8
Monte Alegre	45581.01	13861.38
Otacílio Costa	5198.91	1718.26
Piracicaba	5133.91	1578.18
Puma	1301.81	496.37
São Leopoldo	374.35	127.18
Despósito Paranaguá	23.83	23.83
Rio Negro	238.88	84.84
Escritório Sede	41.86	41.86

C7.9

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

Diminuiu

C7.9a

(C7.9a) Caso tenha ocorrido qualquer variação no total 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)	Por favor, explique os cálculos
Mudança no consumo de energia renovável	58644.86	Diminuiu	7.75	In 2018, we reduced 58,654.657 tCO2e related to scope 1 and 2 combined. It should be noted that this year, we reduced the consumption of non-renewable fuels for energy generation by 7%, mainly from constant actions to reduce consumption of fuel oil (-12% in 2018 compared to 2017) and diesel (-31% in 2018, in relation to 2017). We can also highlight the increase in hydroelectric power generation by 19%. These results indicate an energy matrix of 89% from renewable sources. In addition, we highlight the 4% increase over the previous year in the amount of energy generated by the PUMA unit that was made available for sale, contributing to a more renewable national energy matrix. 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 2018, Klabin acquired 696,089.40 MWh, from hydroelectric generation, with the proper Declaration of the generator. This results in a reduction of Scope 2 emissions in 51,342.53, 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. $\text{Escope 1+2} = 756,743.49$ tCO2e Reduction compared to 2017 = $58,644.86$ tCO2e % = $(58,644.86 / 756,743.49) * 100\% = 7.75\%$.
Outras atividades de redução de emissões	0	Sem alteração	0	No change
Desinvestimentos	0	Sem alteração	0	No change
Aquisições	0	Sem alteração	0	No change
Fusões	0	Sem alteração	0	No change
Mudança de resultado	0	Sem alteração	0	No change
Mudança de metodologia	0	Sem alteração	0	No change
Mudança de limite	0	Sem alteração	0	No change
Mudança das condições físicas de operação	1110.43	Diminuiu	0.15	Project 1: In the Klabin Pilar unit, in 2018, we carried out the project of replacing all the lamps of the unit with led lamps and installed systems / sensors to control the intensity of illumination. The control system identifies the natural lighting of the environment and regulates the lamps according to the need for illumination that is lacking for this environment ("Smart Lighting" concept). This system generated the reduction of energy consumption by 72% in the unit. In addition to reducing energy consumption, this system reduced the unit's greenhouse gas emissions by 190 tonnes of CO2eq in the year. Project 2: This project, carried out in the forest units of Paraná state, is named as the "Salvador", an equipment that operates installed in trucks that controls the rotation and speed of the vehicle in the best standard of efficient driving in regards to fuel economy. Even if the driver accelerates the vehicle, it limits the rotation by not letting it spends more fuel than is necessary. The main indicator evaluated is the increase in average productivity of drivers expressed in Km / L (vehicle autonomy). With the reduction of diesel oil consumption this project reduced greenhouse gas emissions (mobile combustion) by 920.43 tons of CO2eq per year. $\text{Escope 1+2} = 756,743.49$ tCO2e Reduction compared to 2017 = $1,110.43$ tCO2e % = $(1110.43 / 756,743.49) * 100\% = 0.15\%$.
Não identificado	0	Sem alteração	0	No change
Outro	0	Sem alteração	0	No change

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 25%, mas inferior ou igual a 30%

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)	14186041.81	1739323.28	15925365.09
Consumo de eletricidade comprada ou adquirida	<Not Applicable>	696089.4	454348.14	1150437.53
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>	63002.85	<Not Applicable>	63002.85
Consumo de energia total	<Not Applicable>	14945134.06	2193671.42	17138805.47

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	Não
Consumo de combustível para a geração de calor	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 trigerção	Sim

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

459591.65

Combustível MWh consumido para a autogeração de eletricidade

<Not Applicable>

Combustível MWh consumido para a autogeração de calor

0

Combustível MWh consumido para a autogeração de vapor

504073.55

Combustível MWh consumido para a autogeração de refrigeração

<Not Applicable>

Combustível MWh consumido para a autocogeração ou autotrigeração

0

Comentários

In 2018 we consume natural gas in our units for steam generation. this generated steam is used in the production process of our packaging. It should be noted that in this year of 2018 we reduced the consumption of non-renewable fuels for energy generation by 7%, mainly from constant actions to reduce fuel oil consumption (-12% in 2018 compared to 2017) and diesel stationary (-31% in 2018, through 2017). We can also highlight the increase in hydroelectric power generation by 19%. These results indicate an energy matrix of 89% from renewable sources.

Combustíveis (exceto matérias-primas)

Óleo combustível residual

Valor de aquecimento

LHV (menor valor de aquecimento)

Total de combustível MWh consumido pela organização

1144317.61

Combustível MWh consumido para a autogeração de eletricidade

<Not Applicable>

Combustível MWh consumido para a autogeração de calor

0

Combustível MWh consumido para a autogeração de vapor

23986.11

Combustível MWh consumido para a autogeração de refrigeração

<Not Applicable>

Combustível MWh consumido para a autocogeração ou autotrigeração

1071991.65

Comentários

In 2018 we consume fuel oil in our units for steam generation and mainly for cogeneration (steam and electricity) for the production process. It should be noted that in this year of 2018 we reduced the consumption of non-renewable fuels for energy generation by 7%, mainly from constant actions to reduce fuel oil consumption (-12% in 2018 compared to 2017) and diesel stationary (-31% in 2018, through 2017). We can also highlight the increase in hydroelectric power generation by 19%. These results indicate an energy matrix of 89% from renewable sources.

Combustíveis (exceto matérias-primas)

Resíduos de madeira

Valor de aquecimento

LHV (menor valor de aquecimento)

Total de combustível MWh consumido pela organização

4880151.39

Combustível MWh consumido para a autogeração de eletricidade

<Not Applicable>

Combustível MWh consumido para a autogeração de calor

0

Combustível MWh consumido para a autogeração de vapor

20739.25

Combustível MWh consumido para a autogeração de refrigeração

<Not Applicable>

Combustível MWh consumido para a autocogeração ou autotrigeração

4535953.83

Comentários

In 2018 we consume wood waste in our units for cogeneration (steam and electricity) for the production process and a small amount for steam production in our Rio Negro packaging unit. It should be noted that in this year of 2018 we reduced the consumption of non-renewable fuels for energy generation by 7%, mainly from constant actions to reduce fuel oil consumption (-12% in 2018 compared to 2017) and diesel stationary (-31% in 2018, through 2017). We can also highlight the increase in hydroelectric power generation by 19%. These results indicate an energy matrix of 89% from renewable sources.

Combustíveis (exceto matérias-primas)

Lixívia Negra

Valor de aquecimento

LHV (menor valor de aquecimento)

Total de combustível MWh consumido pela organização

9193570.52

Combustível MWh consumido para a autogeração de eletricidade

<Not Applicable>

Combustível MWh consumido para a autogeração de calor

0

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

9720491.98

Comentários

In 2018 we consume black liquor in our cogeneration units (steam and electricity) for the production process, which is the main raw material for energy generation (together with biomass residues). It should be noted that in this year of 2018 we reduced the consumption of non-renewable fuels for energy generation by 7%, mainly from constant actions to reduce fuel oil consumption (-12% in 2018 compared to 2017) and diesel stationary (-31% in 2018, through 2017). We can also highlight the increase in hydroelectric power generation by 19%. These results indicate an energy matrix of 89% from renewable sources.

Combustíveis (exceto matérias-primas)

Gás liquefeito de petróleo (LPG)

Valor de aquecimento

LHV (menor valor de aquecimento)

Total de combustível MWh consumido pela organização

127946.91

Combustível MWh consumido para a autogeração de eletricidade

<Not Applicable>

Combustível MWh consumido para a autogeração de calor

4846.46

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

120836.45

Comentários

In 2018 we consume LPG in our units for cogeneration (steam and electricity) for the production process and, in addition, we also consume a smaller amount for heat generation in our packaging units. It should be noted that in this year of 2018 we reduced the consumption of non-renewable fuels for energy generation by 7%, mainly from constant actions to reduce fuel oil consumption (-12% in 2018 compared to 2017) and diesel stationary (-31% in 2018, through 2017). We can also highlight the increase in hydroelectric power generation by 19%. These results indicate an energy matrix of 89% from renewable sources.

Combustíveis (exceto matérias-primas)

Óleo diesel

Valor de aquecimento

LHV (menor valor de aquecimento)

Total de combustível MWh consumido pela organização

7467.12

Combustível MWh consumido para a autogeração de eletricidade

<Not Applicable>

Combustível MWh consumido para a autogeração de calor

0

Combustível MWh consumido para a autogeração de vapor

274.82

Combustível MWh consumido para a autogeração de refrigeração

<Not Applicable>

Combustível MWh consumido para a autocogeração ou autotrigeração

7366.11

Comentários

In 2018 we consume diesel in our units for cogeneration (steam and electricity) and also a small amount for steam generation in our packaging units. It should be noted that in this year of 2018 we reduced the consumption of non-renewable fuels for energy generation by 7%, mainly from constant actions to reduce fuel oil consumption (-12% in 2018 compared to 2017) and diesel stationary (-31% in 2018, through 2017). We can also highlight the increase in hydroelectric power generation by 19%. These results indicate an energy matrix of 89% from renewable sources.

Combustíveis (exceto matérias-primas)

Hidrogênio

Valor de aquecimento

LHV (menor valor de aquecimento)

Total de combustível MWh consumido pela organização

41206.38

Combustível MWh consumido para a autogeração de eletricidade

<Not Applicable>

Combustível MWh consumido para a autogeração de calor

0

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

41206.38

Comentários

In 2018 we consume hydrogen in our PUMA unit for energy generation as a new alternative to use renewable sources instead of non-renewable sources (fuel oil). This shows the organization's commitment to increasingly seek renewable alternatives for power generation. It should be noted that in this year of 2018 we reduced the consumption of non-renewable fuels for energy generation by 7%, mainly from constant actions to reduce fuel oil consumption (-12% in 2018 compared to 2017) and diesel stationary (-31% in 2018, through 2017). We can also highlight the increase in hydroelectric power generation by 19%. These results indicate an energy matrix of 89% from renewable sources.

Combustíveis (exceto matérias-primas)

Alcatrão

Valor de aquecimento

LHV (menor valor de aquecimento)

Total de combustível MWh consumido pela organização

71113.52

Combustível MWh consumido para a autogeração de eletricidade

<Not Applicable>

Combustível MWh consumido para a autogeração de calor

0

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

71113.52

Comentários

In 2018 we consume tar in our units of Otacílio Costa and Correia Pinto (Santa Catarina state) for energy generation as a new alternative of using renewable sources instead of non-renewable sources (fuel oil). This shows the organization's commitment to increasingly seek renewable alternatives for power generation. It should be noted that in this year of 2018 we reduced the consumption of non-renewable fuels for energy generation by 7%, mainly from constant actions to reduce fuel oil consumption (-12% in 2018 compared to 2017) and diesel stationary (-31% in 2018, through 2017). We can also highlight the increase in hydroelectric power generation by 19%. These results indicate an energy matrix of 89% from renewable sources.

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 2018).

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

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

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

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

Alcatrão

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 2018).

Comentários

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

Resíduos de madeira

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 2018).

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	3619582.79	3881334.29	3225819.98	2337133.95
Aquecimento	4846.46	4846.46	0	0
Vapor	16118033.65	16118033.65	14389504.96	14389504.96
Refrigeração	0	0	0	0

C8.2f

(C8.2f) Forneça detalhes sobre os valores de eletricidade, calor, vapor e/ou resfriamento que foram contabilizados por um fator de emissão de baixo carbono no Escopo 2 com base no mercado relatado na C6.3.

Base para a aplicação do fator de emissão com baixos níveis de carbono

Contrato com fornecedores ou concessionárias (por ex., tarifa verde) com apoio de certificados de atributos energéticos

Tipo de tecnologia com baixos níveis de carbono

Hidrelétrica

Região de consumo da eletricidade, aquecimento, vapor ou refrigeração com baixos níveis de carbono

América Latina

MWh consumidos associados a eletricidade, aquecimento, vapor ou refrigeração com baixos níveis de carbono

696089.4

Fator de emissão (em unidades de toneladas métricas de CO2e por MWh)

0

Comentários

The Brazilian GHG Protocol Methodology considers hydroelectric energy with emission factor equal to zero. In 2017 Klabin began to record these emissions through the Market-based Approach. In this approach Klabin quantifies GHG emissions of scope 2 using the specific emission factor associated with each source of electricity generation that Klabin has chosen to acquire. In this year 2018, Klabin acquired 696,089.40 MWh, from hydroelectric generation, with the proper Declaration of the generator. This results in a reduction of Scope 2 emissions in 51,342.53, 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.

C9. Métricas adicionais

C9.1

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

Descrição

Uso de energia

Valor métrico

465063.19

Numerador métrico

GJ

Denominador métrico (apenas para métrica de intensidade)

-x-

% de variação em relação ao ano anterior

7

Direção da variação

Diminuiu

Por favor, explique

In this year of 2018 we reduced the consumption of non-renewable fuels for energy generation by 7%, mainly from constant actions to reduce the consumption of fuel oil (-12% in 2018 compared to 2017) and diesel stationary (-31% in 2018, in 2017). These results indicate an energy matrix of 89.17% from renewable sources. This reinforces Klabin's commitment to constantly seek to increase the share of renewable sources in the energy matrix.

Descrição

Resíduos

Valor métrico

103561.92

Numerador métrico

ton

Denominador métrico (apenas para métrica de intensidade)

-x-

% de variação em relação ao ano anterior

11

Direção da variação

Diminuiu

Por favor, explique

In 2018 we can highlight the reduction in the generation of non-hazardous waste destined for Landfill, as well as the percentage of hazardous waste generation that went from 0.24% in 2017 to 0.11% in 2018, showing the commitment of the company in achieving the goal of maintaining this number lower than 0,5%. In addition, we increased the waste recycling indicator from 91% (2017) to 92% (2018), reinforcing the commitment and focus on achieving the goal of maintaining waste reuse higher than 95% by 2022.

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 de Escopo 1 e/ou Escopo 2 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

C1709 Klabin VIE 2018 19 GPV 010-002 (DE) Declaração de Verificação - INGLES.pdf

Página/seção de referência

Page 2. 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 (GHG) reported by Klabin S/A in its emissions inventory, from January 1 to December 31, 2018, are verifiable and meet the requirements of the Brazilian Program GHG Protocol, detailed in the Specifications of the Brazilian GHG Protocol for the Accounting,

Norma pertinente

ISO14064-3

Porcentagem de emissões relatadas e verificadas (%)

100

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

C1709 Klabin VIE 2018 19 GPV 010-002 (DE) Declaração de Verificação - INGLES.pdf

Página/seção de referência

Page 2. 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 (GHG) reported by Klabin S/A in its emissions inventory, from January 1 to December 31, 2018, are verifiable and meet the requirements of the Brazilian Program GHG Protocol, detailed in the Specifications of the Brazilian GHG Protocol for the Accounting,

Norma pertinente

ISO14064-3

Porcentagem de emissões relatadas e verificadas (%)

100

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

C1709 Klabin VIE 2018 19 GPV 010-002 (DE) Declaração de Verificação - INGLES.pdf

Página/seção de referência

Page 2. 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 (GHG) reported by Klabin S/A in its emissions inventory, from January 1 to December 31, 2018, are verifiable and meet the requirements of the Brazilian Program GHG Protocol, detailed in the Specifications of the Brazilian GHG Protocol for the Accounting,

Norma pertinente

ISO14064-3

Porcentagem de emissões relatadas e verificadas (%)

100

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

1
C1709 Klabin VIE 2018 19 GPV 010-002 (DE) Declaração de Verificação - INGLES.pdf

Página/Seção de referência

Page 2. 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 (GHG) reported by Klabin S/A in its emissions inventory, from January 1 to December 31, 2018, are verifiable and meet the requirements of the Brazilian Program GHG Protocol, detailed in the Specifications of the Brazilian GHG Protocol for the Accounting,

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	Por favor, 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 performed the Life Cycle Analysis and calculated the carbon footprint for the company's 3 main products. These studies indicate that the amount of CO2 captured from the atmosphere during photosynthesis is greater than that emitted by Klabin's production process. We are currently carrying out new life cycle analysis studies to evaluate the paper produced by the organization, for the commercialized pulp which is produced in the PUMA unit and, in addition, we are conducting life cycle analysis studies for our industrial bags produced in the Lages unit.

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 three 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 divulgação?

Não

C11.3

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

Sim

C11.3a

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

Objetivo para implementação de um preço interno do carbono

Navegar pelas regulamentações de GEE

Motivar investimentos com baixos níveis de carbono

Fazer o teste de estresse nos investimentos

Identificar e aproveitar oportunidades com baixos níveis de carbono

Escopo de GEE

Escopo 1

Aplicação

We simulate that emissions from stationary sources (of our industrial units with annual emissions > 200.000 tonCO₂e) are regulated. In this case, the Klabin units apply the carbon pricing for the Monte Alegre and PUMA units, both located in the state of Parana.

Preços reais usados (moeda/tonelada métrica)

28

Varição de preços usada

± BRL 5.0

Tipo de preço interno do carbono

Preço-sombra

Preço implícito

Compensações

Impacto e implicação

1 - shadow price: Due the possible impacts of the carbon regulation, for example tax or ETS, Klabin use a shadow price to understand the financial impact on the business revenue and EBITDA. We simulate that emissions from stationary sources (of our industrial units with annual emissions > 200.000 tonCO₂e) are regulated. Impact & implication We conducted 'sensitivity analysis' based on: Colombia carbon tax – US\$ 7,0. The carbon price is converted to Real. Our stationary emissions X medium carbon tax (R\$ 28,00) = around R\$ 10 million. This represents an impact around 1% on the EBITDA (R\$ 1,005 bi - 1T2019). 2 - MACC - Klabin has been structuring a Marginal Abatement Cost Curves to identify the cost of the technologies and reduction emission potential. Impact & implication The MACC contributes to understand better the cost effective emission abatement of the company, contributing to identify and prioritize the emission reduction measures. In some cases, the cost of possible carbon regulation (in Brazil) will enable some investments. In additional, some technologies measures offers economic gains. 3 - Offsets – the company has an offset project base on restoration areas with planted forest. This project was submitted to UNFCCC and Brazilian government. It is expected the negotiation these offsets in future carbon market in Brazil. A percentage of the offsets can be used as a flexible mechanism in the regulated market. Impact & implication An expected economic gain from sales of offsets, to identify this opportunity we use the currently offset price (\$ 3 = BRL 11,58) X 4.645.740 tCO₂e expected offsets (it will be generated) = around BRL 53 million.

C12. Engajamento

C12.1

(C12.1) Há engajamento da empresa com a cadeia de valor nas questões relacionadas ao clima?

Sim, com nossos fornecedores

Sim, com nossos clientes

Sim, com outros parceiros da cadeia de valor

C12.1a

(C12.1a) 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

8.38

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

9.11

% 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 (6860 forest and industrial suppliers), is 8.38%. This calculation takes into account all suppliers regardless of the product supplied and/or their size. Thus, 575 suppliers of 6860 assets, represents 8.38%. 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 and Santa Catarina. 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

The measure of success of all the engagement programs that are carried out by Klabin with its suppliers is linked to the monitoring of the occurrence of deviations from the sustainability criteria evaluated in suppliers. The program presents promising results, since to date the participants perform positive, and no occurrences are reported. All Klabin forest stewardship units are certified by the FSC®, To ensure that good management practices and a commitment to sustainable development are extended to the timber supply chain, Klabin has since 2013 maintained the Forest Certification Program for Small and Medium-sized Rural Producers in the region of Campos Gerais, Paraná, 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: 575 Considering an investment BRL 956 million invested in the year with respect to forestry activities, operational continuity reported in the summary of the organization's financial results in 2018.

Tipo de engajamento

Conformidade e integração

Detalhes do engajamento

As mudanças climáticas estão integradas nos processos de avaliação de fornecedores

% de fornecedores por número

1.5

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

31

% 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 (6860 forest and industrial suppliers), is 1.5%. This calculation takes into account all suppliers regardless of the product supplied and/or their size. Thus, 103 suppliers of 6860 assets, represents 1.5%. In 2018, the supply chain and sustainability areas started the new supplier evaluation system. Starting in 2019, the reports will be carried out by an online platform and will be gradually selected the suppliers with potential environmental impact and greater annual expenditure. These evaluations of suppliers take into account all the pillars of sustainability, such as liability and labor law, business ethics, environment, among others. It is important to mention that this program of evaluating suppliers in execution presents a gradual planning of expansion. Therefore, in the coming years (2020 and 2021) we intend to increase the number of participants to 213 in the first year (representing 3.1% of suppliers and 69.44% of total spend) and 297 for the second year (representing 4.3% of suppliers and 80% of spend). This process demonstrates its success with the participating companies, obtaining notes above the minimum predicted value, as well as not presenting any sanction due to issues related to sustainability. After these years, the program will also present new plans for gradual expansion. This demonstrates Klabin's commitment to partnering with its supplier chain for joint growth in sustainability.

Impacto do engajamento, incluindo as medidas de sucesso

It is a solution that allows the monitoring of the environmental, social and ethical performance of the suppliers, formed by specialized software program and dedicated service to the data analysis of the supplier. This solution is integrated into Klabin's Supplier Management process, as one of the evaluation pillars, allowing to increase visibility into its supply chain and evolve its program to a level of excellence. This shared responsibility generates positive results as it also enables innovation from the supplier. The measures of success are punctuated by an evaluation of its pillars of environment, social, ethical and its chain of suppliers. Each evaluation item has specific weights (28% environmental, 36% social, 18% ethical and 18% supplier chain) where after the evaluation generates a general note of the partner. Results above 50 points indicate that the company presents understandable practices acceptable to the business.

Comentários

Number of suppliers for the first year: 103 Considering an investment BRL 956 million invested in the year with respect to forestry activities, operational continuity reported in the summary of the organization's financial results in 2018.

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)

% de clientes por número

100

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

100

Por favor, 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 develop practices of adequacy, conservation and environmental preservation in rural properties.

We adopt programs and plays the role of its region 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. These initiatives are applied to small and medium-sized owners who are not necessarily Klabin suppliers.

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.

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.

The implementation of these programs in 2018 for small and medium-sized producers located in the forest areas near the Klabin units in the state of Paraná and Santa Catarina generated positive results. For Matas legais program, we had 59 new partners, we also donated 63,000 seedlings to help in the regularization of preservation areas in these properties and also 3,159 ha of demarcated areas of preservation. The result of this action is the strengthening of the partnership between Klabin and the community, and the environmental regularization of the properties of these small and medium producers in the forest regions.

Its is also important to mention that this program reduced greenhouse gas emissions in 34,263.5 tCO₂eq using as base the value of 10.85 tCO₂eq / ha calculated according to the CO₂ sequestration of the native forests in relation to a total area that a Klabin has (Brazilian GHG Protocol Metodology used).

For the Planning Sustainable Properties (Matas Sociais) program, we serve 436 rural properties which klabin helps with the diversification of its properties, generating extreme income from these producers in the field.

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 seus fornecedores são incentivados a adotar 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

We develop practices of adequacy, conservation and environmental preservation in rural properties.

Seu papel na implementação

Financeiro

Compartilhamento de conhecimentos

Operacional

Compras

Explicação sobre o modo de incentivo à implementação

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

Benefício relacionado às mudanças climáticas

Reduções de emissões (mitigação)

Aumento do reservatório de carbono (mitigação)

Comentários

Matas legais program had 59 new owners; 63,000 seedlings donated; 3,159 ha of demarcated areas of preservation. Its is also important to mention that this program reduced greenhouse gas emissions in 34,263.5 tCO₂eq using as base the value of 10.85 tCO₂eq / ha calculated according to the CO₂ sequestration of the native forests in relation to a total area that a Klabin has (Brazilian GHG Protocol Methodology used). Fomento Florestal [Forest Development] - 3208 contracts formalized Planning Sustainable Properties (Matas Sociais) - Serves 436 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 públicas

Associações comerciais

Financiamento de organizações de pesquisa

Outro

C12.3a

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

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. 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.
<i>Cap and Trade</i>	Apoio	Klabin takes part, for the fourth 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 and 2018, we did a complex study of climate vulnerabilities which is on use to develop our 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 contextEnsuring access of Brazilian products to international markets, which are increasingly demanding in socio-environmental standardsBuilding a domestic market that is keen on technology development, innovation and business practices, with lower potential to release GHGPromote energy security in Brazil.For several years, we have been committed to switching fossil fuel for biomass as an energy source. In 2018, 89% 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

Por favor, 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

Por favor, 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 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 2018.pdf

Página/Seção de referência

Section "Environment"

Elementos do conteúdo

Governança
Estratégia
Riscos e oportunidades
Valores de emissões
Metas de emissões
Outras métricas

Comentários

This is the organization's sustainability report. The document presents the main information on the company's performance and management practices in the environmental, social and economic fields in the last year. The content was organized based on the correspondence between the nine themes most relevant to the business, pointed out in a materiality study carried out with Klabin's stakeholders and subsequently related to the United Nations (UN) Sustainable Development Goals (SDG). Since 2016, Klabin has voluntarily joined the SDG. This broad action plan, which engages diverse sectors of global society, assumes that solutions, technologies and business processes can be applied to address the major global challenges of sustainable development. In order to implement its commitment to the ODS, Klabin has supplemented its sustainability policy and assumptions to cover all these issues.

Publicação

Em comunicações voluntárias

Status

Completo

Anexar o documento

2
C1709 Klabin VIE 2018 19 GPV 010-002 (DE) Declaração de Verificação - INGLES.pdf

Página/Seção de referência

Section "Emissions"

Elementos do conteúdo

Valores de emissões

Comentários

This is the report for the Public Register of Emissions. This registry is a platform developed by the Brazilian GHG Protocol Program that assists in the publication of the inventories of greenhouse gas (GHG) emissions from member organizations of the Program. It is currently the largest database of corporate inventories in Latin America. Klabin has been participating in the program and has been publicly recording its emissions since 2010.

Publicação

Em outros relatórios normativos

Status

Completo

Anexar o documento

3
Demonstraes Financeiras Anuais Completas 2018 - Klabin.pdf

Página/Seção de referência

Section "Sustainability"

Elementos do conteúdo

Governança
Estratégia

Comentários

This is the report of the annual financial statements of the organization. In this report we report the company's financial statements in 2018, as well as addressing strategic issues such as sustainability, research and innovation.

C13. Outros impactos de gestão da terra

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

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

Sim

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

(C-AC13.1a/C-FB13.1a/C-PF13.1a) Forneça detalhes 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®. 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: 59 new owners; 63,000 seedlings donated; 3,159 ha of demarcated areas of preservation. Fomento Florestal [Forest Development] - 3208 active contracts Planning Sustainable Properties (Matas Sociais) - Serves 436 rural properties.

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

(C-AC13.2/C-FB13.2/C-PF13.2) Sabe-se se alguma das práticas de gerenciamento mencionadas no C-AC12.2a/C-FB12.2a/C-PF12.2a que foram implementadas pelos fornecedores têm outros impactos além da mitigação/adaptação às mudanças climáticas?

Sim

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

(C-AC13.2a/C-FB13.2a/C-PF13.2a) Forneça detalhes 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®. 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: 59 new owners; 63,000 seedlings donated; 3,159 ha of demarcated areas of preservation. Fomento Florestal [Forest Development] - 3208 active contracts Planning Sustainable Properties (Matas Sociais) - Serves 436 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	INDUSTRIAL TECHNOLOGY, INNOVATION, SUSTAINABILITY AND PULP BUSINESS OFFICER	Diretor do Conselho

SC. Módulo de cadeia de fornecimento

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, Austria, and sales representatives and agents in many countries.

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

We are a world reference in sustainable development. Our forestry and industrial activities are based on this concept to preserve the biodiversity and the ecological balance of the ecosystems of the regions where we operate. Our Sustainability policy integrates the entire production chain to offer the market a responsible product with the environment and in line with the UN Sustainable Development Goals.

Since 2014, Klabin has been part of the Corporate Sustainability Index (ISE) of the BM&FBovespa. In addition, we are 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.

Klabin reserves **43%** of its land for preserved native forests (48% of total forest areas). In addition, it maintains its own areas with planted forests for the manufacture of its products. A pioneer 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 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 **239,000 hectares** planted with pine and eucalyptus and **216,000 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. 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.

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.

Klabin invests in the territory so that all population benefits from initiatives in the areas of local development, education, culture and environmental education. For its employees, it offers programs that include personal development and volunteer activities.

An example is the Matas Sociais Program (Planning Sustainable Properties) where Klabin assists family farmers in sustainable planning and diversification of land use. It encourages family farming, development of the production and consumption chain and entrepreneurship. It has the partnership of the Brazilian Service of Support to Micro and Small Businesses (Sebrae), the international organization The Nature Conservancy (TNC) and Apremavi. The initiative has already benefited more than 400 properties.

The company creates **19,000** 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	10016000000

SC0.2

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

Sim

SC0.2a

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

	Código de país ISIN (duas letras)	Identificador numérico ISIN e dígito de verificação simples (10 números ao todo)
Linha 1	BR	KLBNC DAM18

SC1.1

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

Membro solicitante

L'Oréal

Escopo das emissões

Escopo 1

Nível de alocação

A empresa como um todo

Detalhes do nível de alocação

<Not Applicable>

Emissões em toneladas métricas de CO₂e

0.158

Incerteza (±%)

0.5

Principais fontes de emissões

This is the specific CO₂ emissions (ton CO₂e / ton of product) for Klabin S.A products scope 1 using the Brazilian GHG methodology. This allocation result is based on the specific emission of CO₂e for each ton of product supplied to the customer in 2018. Thus, total CO₂e emissions are composed of the multiplication between the reported value of emissions by the total quantity of product supplied to the customer. 72% of the emissions of CO₂e of scope 1 come from the category of stationary combustion for power generation and 25% of the emissions of this scope are of the category of mobile combustion related to the transport of raw material and use of light vehicles for displacement. The remainder (0.5%) are emissions related to the other categories of scope 1 (fugitive emissions, industrial processes, among others). It is important to mention that in this year 2018 we reduced the consumption of non-renewable fuels for energy generation by 7%, mainly from constant actions to reduce fuel oil consumption (-12% in 2018 compared to 2017) and stationary diesel -31% in 2018, compared to the previous year). These results indicate an energy matrix of 89% from renewable sources. This shows Klabin's commitment to increasingly seek sustainable business alternatives, in line with the UN Sustainable Development Goals.

Verificada

Sim

Método de alocação

Alocação com base no peso dos produtos adquiridos

Por favor, 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 (ton CO₂e / ton of product) for Klabin S.A products using the Brazilian GHG methodology. This allocation result is based on the specific emission of CO₂e for each ton of product supplied to the customer in 2018. The GHG Protocol is a tool used to understand, quantify and manage GHG emissions. is now the most widely used method worldwide by companies and governments to conduct GHG inventories. It is also compatible with ISO 14.064 and the methods of quantification of the Intergovernmental Panel on Climate Change (IPCC). This inventory of greenhouse gases is verified and audited by third parties (scopes 1, 2 and 3), attesting the veracity of the data and publicly reported results. Klabin conducts its inventory of greenhouse gases and reports this information publicly since 2010. As the program is already consolidated within the organization there are no limitations to the inventory, since all the data generated internally are available for elaboration of the inventory.

Membro solicitante

PepsiCo, Inc.

Escopo das emissões

Escopo 1

Nível de alocação

A empresa como um todo

Detalhes do nível de alocação

<Not Applicable>

Emissões em toneladas métricas de CO₂e

0.158

Incerteza (±%)

0.5

Principais fontes de emissões

This is the specific CO₂ emissions (ton CO₂e / ton of product) for Klabin S.A products scope 1 using the Brazilian GHG methodology. This allocation result is based on the specific emission of CO₂e for each ton of product supplied to the customer in 2018. Thus, total CO₂e emissions are composed of the multiplication between the reported value of emissions by the total quantity of product supplied to the customer. 72% of the emissions of CO₂e of scope 1 come from the category of stationary combustion for power generation and 25% of the emissions of this scope are of the category of mobile combustion related to the transport of raw material and use of light vehicles for displacement. The remainder (0.5%) are emissions related to the other categories of scope 1 (fugitive emissions, industrial processes, among others). It is important to mention that in this year 2018 we reduced the consumption of non-renewable fuels for energy generation by 7%, mainly from constant actions to reduce fuel oil consumption (-12% in 2018 compared to 2017) and stationary diesel -31% in 2018, compared to the previous year). These results indicate an energy matrix of 89% from renewable sources. This shows Klabin's commitment to increasingly seek sustainable business alternatives, in line with the UN Sustainable Development Goals.

Verificada

Sim

Método de alocação

Alocação com base no peso dos produtos adquiridos

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

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Membro solicitante

Tesco

Escopo das emissões

Escopo 1

Nível de alocação

A empresa como um todo

Detalhes do nível de alocação

<Not Applicable>

Emissões em toneladas métricas de CO2e

0.158

Incerteza (±%)

0.5

Principais fontes de emissões

This is the specific CO2 emissions (ton CO2e / ton of product) for Klabin S.A products scope 1 using the Brazilian GHG methodology. This allocation result is based on the specific emission of CO2e for each ton of product supplied to the customer in 2018. Thus, total CO2e emissions are composed of the multiplication between the reported value of emissions by the total quantity of product supplied to the customer. 72% of the emissions of CO2e of scope 1 come from the category of stationary combustion for power generation and 25% of the emissions of this scope are of the category of mobile combustion related to the transport of raw material and use of light vehicles for displacement. The remainder (0.5%) are emissions related to the other categories of scope 1 (fugitive emissions, industrial processes, among others). It is important to mention that in this year 2018 we reduced the consumption of non-renewable fuels for energy generation by 7%, mainly from constant actions to reduce fuel oil consumption (-12% in 2018 compared to 2017) and stationary diesel -31% in 2018, compared to the previous year). These results indicate an energy matrix of 89% from renewable sources. This shows Klabin's commitment to increasingly seek sustainable business alternatives, in line with the UN Sustainable Development Goals.

Verificada

Sim

Método de alocação

Alocação com base no peso dos produtos adquiridos

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Membro solicitante

Unilever plc

Escopo das emissões

Escopo 1

Nível de alocação

A empresa como um todo

Detalhes do nível de alocação

<Not Applicable>

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Membro solicitante

L'Oréal

Escopo das emissões

Escopo 2

Nível de alocação

A empresa como um todo

Detalhes do nível de alocação

<Not Applicable>

Emissões em toneladas métricas de CO2e

0.021

Incerteza (±%)

0.5

Principais fontes de emissões

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Verificada

Sim

Método de alocação

Alocação com base no peso dos produtos adquiridos

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Membro solicitante

PepsiCo, Inc.

Escopo das emissões

Escopo 2

Nível de alocação

A empresa como um todo

Detalhes do nível de alocação

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Membro solicitante

Tesco

Escopo das emissões

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A empresa como um todo

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Membro solicitante

Unilever plc

Escopo das emissões

Escopo 2

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A empresa como um todo

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Membro solicitante

L'Oréal

Escopo das emissões

Escopo 3

Nível de alocação

A empresa como um todo

Detalhes do nível de alocação

<Not Applicable>

Emissões em toneladas métricas de CO2e

0.04

Incerteza (±%)

0.5

Principais fontes de emissões

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Verificada

Sim

Método de alocação

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Membro solicitante

PepsiCo, Inc.

Escopo das emissões

Escopo 3

Nível de alocação

A empresa como um todo

Detalhes do nível de alocação

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Membro solicitante

Tesco

Escopo das emissões

Escopo 3

Nível de alocação

A empresa como um todo

Detalhes do nível de alocação

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Membro solicitante

Unilever plc

Escopo das emissões

Escopo 3

Nível de alocação

A empresa como um todo

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SC1.2

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

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

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

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

The results can be found on the website:

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

SC1.3

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

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

SC1.4

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

Sim

SC1.4a

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

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

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

Klabin performed the Life Cycle Analysis and calculated the carbon footprint for the company's 3 main products. These studies indicate that the amount of CO2 captured from the atmosphere during photosynthesis is greater than that emitted by Klabin's production process.

We are currently carrying out new life cycle analysis studies to evaluate the paper produced by the organization, for the commercialized pulp which is produced in the PUMA unit and, in addition, we are conducting life cycle analysis studies for our industrial bags produced in the Lages unit.

SC2.1

(SC2.1) Proponha algum projeto climático mutuamente benéfico no qual você possa colaborar junto com membros específicos da cadeia de fornecimento do CDP.

Membro solicitante

L'Oréal

Tipo de grupo de projetos

Mudança nas operações do fornecedor

Tipo do projeto

Aumento dos níveis de energia renovável adquirida

Meta de emissão

Ações que reduziram nossas próprias emissões e as de nossos clientes

Cronograma estimado para materializar as reduções de carbono

1-3 anos

Duração estimada da economia de CO2e

36448.51

Retorno financeiro (<i>payback</i>) estimado

0 a 1 ano

Detalhes da proposta

The PUMA unit, located in the municipality of Ortiguera (Paraná), produces more energy from renewable sources than demand for its production requires, allowing Klabin to generate International Renewable Energy Certificates (IRECs) for all the energy that was made available in the national system (888,686.03 MWh) To maintain this opportunity, in 2018 the PUMA unit was the first unit in the country's pulp sector to achieve ISO 50001 certification, attesting to the unit's efforts to improve its performance and energy efficiency. The I-REC Service is a global environmental energy attribute tracking system designed to facilitate reliable carbon accounting for Scope 2, consistent with various international carbon accounting standards. For Klabin, registration at the I-REC Service is a way to obtain additional revenue from the comercialization of renewable energy certificates, contributing to a cleaner energy matrix. This demonstrates Klabin's commitment to the purchase of renewable energy, in accordance with its Sustainability Policy. This can be an important partnership between Klabin and its customers in pursuit of joint projects to reduce GHG emissions from scope 2 of our partners.

Membro solicitante

PepsiCo, Inc.

Tipo de grupo de projetos

Mudança nas operações do fornecedor

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Aumento dos níveis de energia renovável adquirida

Meta de emissão

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Membro solicitante

Tesco

Tipo de grupo de projetos

Mudança nas operações do fornecedor

Tipo do projeto

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Membro solicitante

Unilever plc

Tipo de grupo de projetos

Mudança nas operações do fornecedor

Tipo do projeto

Aumento dos níveis de energia renovável adquirida

Meta de emissão

Ações que reduziriam nossas próprias emissões e as de nossos clientes

Cronograma estimado para materializar as reduções de carbono

1-3 anos

Duração estimada da economia de CO2e

36448.51

Retorno financeiro (<i>payback</i>) estimado

0 a 1 ano

Detalhes da proposta

The PUMA unit, located in the municipality of Ortiguera (Paraná), produces more energy from renewable sources than demand for its production requires, allowing Klabin to generate International Renewable Energy Certificates (IRECs) for all the energy that was made available in the national system (888,686.03 MWh). To maintain this opportunity, in 2018 the PUMA unit was the first unit in the country's pulp sector to achieve ISO 50001 certification, attesting to the unit's efforts to improve its performance and energy efficiency. The I-REC Service is a global environmental energy attribute tracking system designed to facilitate reliable carbon accounting for Scope 2, consistent with various international carbon accounting standards. For Klabin, registration at the I-REC Service is a way to obtain additional revenue from the commercialization of renewable energy certificates, contributing to a cleaner energy matrix. This demonstrates Klabin's commitment to the purchase of renewable energy, in accordance with its Sustainability Policy. This can be an important partnership between Klabin and its customers in pursuit of joint projects to reduce GHG emissions from scope 2 of our partners.

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?**

Sim

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

L'Oréal

ID da iniciativa

2018-ID1

Tipo de grupo de projetos

Reduzir emissões de logística

Tipo do projeto

Logística consolidada

Descrição da iniciativa de redução

With the construction of the PUMA unit and with the objective of improving the logistics of distribution of the pulp produced in the unit to the port terminal for commercialization, Klabin built a stretch of railroad to transport the pulp. The use of pulp rail transport in the Klabin PUMA stretch and the city of Paranaguá (Parana state) in the year 2018 prevented approximately 28 thousand truck transportation on the BR376 highway in one year. This corresponds to a reduction of 978 tonnes of CO2e when we compare the emission of heavy vehicles with the railway emission.

Redução de emissões no ano de referência em toneladas métricas de CO2e

978

Você identificou esta oportunidade como parte da iniciativa Action Exchange da cadeia de fornecimento do CDP?

Sim

Você gostaria que os membros CDP da cadeia de fornecimento realçassem este trabalho em suas comunicações externas?

Sim

Membro solicitante

Unilever plc

ID da iniciativa

2018-ID2

Tipo de grupo de projetos

Reduzir emissões de logística

Tipo do projeto

Logística consolidada

Descrição da iniciativa de redução

With the construction of the PUMA unit and with the objective of improving the logistics of distribution of the pulp produced in the unit to the port terminal for commercialization, Klabin built a stretch of railroad to transport the pulp. The use of pulp rail transport in the Klabin PUMA stretch and the city of Paranaguá (Parana state) in the year 2018 prevented approximately 28 thousand truck transportation on the BR376 highway in one year. This corresponds to a reduction of 978 tonnes of CO2e when we compare the emission of heavy vehicles with the railway emission.

Redução de emissões no ano de referência em toneladas métricas de CO2e

978

Você identificou esta oportunidade como parte da iniciativa Action Exchange da cadeia de fornecimento do CDP?

Sim

Você gostaria que os membros CDP da cadeia de fornecimento realçassem este trabalho em suas comunicações externas?

Sim

Membro solicitante

L'Oréal

ID da iniciativa

2018-ID3

Tipo de grupo de projetos

Avaliação de sustentabilidade nos relacionamentos

Tipo do projeto

Alinhamento de objetivos a incluir nas metas e ambições dos clientes

Descrição da iniciativa de redução

It is important to mention that, according to Klabin's objectives and commitments, in this year 2018 we reduced the consumption of non-renewable fuels for energy generation by 7%, mainly from constant actions to reduce the consumption of fuel oil (-12% in 2018 compared to 2017) and diesel (-31% in 2018, in relation to 2017). We can also highlight the increase in hydroelectric power generation by 19%. These results indicate an energy matrix of 89.17% from renewable sources. In relation to scope 1 of the GHG emissions of Klabin S / A, this result corresponds to a reduction of 40,299 tCO2e.

Redução de emissões no ano de referência em toneladas métricas de CO2e

40299

Você identificou esta oportunidade como parte da iniciativa Action Exchange da cadeia de fornecimento do CDP?

Sim

Você gostaria que os membros CDP da cadeia de fornecimento realçassem este trabalho em suas comunicações externas?

Sim

Membro solicitante

Unilever plc

ID da iniciativa

2018-ID4

Tipo de grupo de projetos

Avaliação de sustentabilidade nos relacionamentos

Tipo do projeto

Alinhamento de objetivos a incluir nas metas e ambições dos clientes

Descrição da iniciativa de redução

It is important to mention that, according to Klabin's objectives and commitments, in this year 2018 we reduced the consumption of non-renewable fuels for energy generation by 7%, mainly from constant actions to reduce the consumption of fuel oil (-12% in 2018 compared to 2017) and diesel (-31% in 2018, in relation to 2017). We can also highlight the increase in hydroelectric power generation by 19%. These results indicate an energy matrix of 89.17% from renewable sources. In relation to scope 1 of the GHG emissions of Klabin S / A, this result corresponds to a reduction of 40,299 tCO2e.

Redução de emissões no ano de referência em toneladas métricas de CO2e

40299

Você identificou esta oportunidade como parte da iniciativa Action Exchange da cadeia de fornecimento do CDP?

Sim

Você gostaria que os membros CDP da cadeia de fornecimento realçassem este trabalho em suas comunicações externas?

Sim

Membro solicitante

L'Oréal

ID da iniciativa

2018-ID5

Tipo de grupo de projetos

Mudança nas operações do fornecedor

Tipo do projeto

Aumento dos níveis de energia renovável adquirida

Descrição da iniciativa de redução

Since 2017, Klabin began to record part of the indirect emissions through the Approach based on the choice of purchase (Marketbased). In this approach Klabin quantifies GHG emissions of scope 2 using the specific emission factor associated with each source of electricity generation that Klabin has chosen to acquire. In this year 2018, Klabin acquired 696.089,40 MWh from hydroelectric generation, with the appropriate Declaration of the generator. This represent a 58% reduction of the Scope 2 emissions (51,342 tCO2e), when compared to the Location-based Approach, which uses the average emission factor of the SIN (National Interconnected System).

Redução de emissões no ano de referência em toneladas métricas de CO2e

51342

Você identificou esta oportunidade como parte da iniciativa Action Exchange da cadeia de fornecimento do CDP?

Sim

Você gostaria que os membros CDP da cadeia de fornecimento realçassem este trabalho em suas comunicações externas?

Sim

Membro solicitante

Unilever plc

ID da iniciativa

2018-ID6

Tipo de grupo de projetos

Mudança nas operações do fornecedor

Tipo do projeto

Aumento dos níveis de energia renovável adquirida

Descrição da iniciativa de redução

Since 2017, Klabin began to record part of the indirect emissions through the Approach based on the choice of purchase (Marketbased). In this approach Klabin quantifies GHG emissions of scope 2 using the specific emission factor associated with each source of electricity generation that Klabin has chosen to acquire. In this year 2018, Klabin acquired 696.089,40 MWh from hydroelectric generation, with the appropriate Declaration of the generator. This represent a 58% reduction of the Scope 2 emissions (51,342 tCO2e), when compared to the Location-based Approach, which uses the average emission factor of the SIN (National Interconnected System).

Redução de emissões no ano de referência em toneladas métricas de CO2e

51342

Você identificou esta oportunidade como parte da iniciativa Action Exchange da cadeia de fornecimento do CDP?

Sim

Você gostaria que os membros CDP da cadeia de fornecimento realçassem este trabalho em suas comunicações externas?

Sim

SC3.1

(SC3.1) Gostaria de se inscrever na iniciativa Action Exchange 2019-2020 do CDP?

Sim

SC3.1a

(SC3.1a) Identifique quais membros, se houver algum, motivaram você a participar do Action Exchange neste ano.

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SC3.1b

(SC3.1b) Selecione os tipos de atividades de redução de emissões que sua empresa gostaria de apoiar na análise ou implementação no próximo ano de referência.

Eficiência energética: Revestimento de construção
Eficiência energética: Processos
Aquisição de energia com baixos níveis de carbono
Instalação de energia com baixos níveis de carbono
Reduções de emissões de processos
Design do produto
Financiamento de projetos ecológicos

SC3.1c

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

Sim

SC3.2

(SC3.2) Sua empresa é uma fornecedora participante da iniciativa Action Exchange 2018-2019 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, por favor, explique por que não na segunda coluna.

	Tipo do projeto	Detalhes da proposta
Linha 1	Eficiência energética: Processos de aquisição de energia com baixos níveis de carbono Instalação de energia com baixos níveis de carbono Reduções de emissões de processos Transporte: uso	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 2018, 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. In this year 2018, Klabin acquired 696.089,40 MWh from hydroelectric generation, with the appropriate Declaration of the generator. This represent a 58% 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). In this year the results of emissions rate reached the values of 178.75 kgCO2/ton product (scope 1+2), approximately 7.6% 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. It is important to mention that, in this year 2018 we reduced the consumption of non-renewable fuels for energy generation by 7%, mainly from constant actions to reduce the consumption of fuel oil (-12% in 2018 compared to 2017) and diesel (-31% in 2018, in relation to 2017). These results indicate an energy matrix of 89.17% from renewable sources. In relation to scope 1 of the GHG emissions of Klabin S/A, this result corresponds to a reduction of 40,299 tCO2e. Also, the use of pulp rail transport in the Klabin PUMA stretch and the city of Paranaguá (Parana state) in the year 2018 prevented truck transportation on the BR376 highway, corresponding to a reduction of 978 tonnes of CO2e. As part of the expansion, Klabin will contribute about BRL 180 million in Industrial and Forestry Research in the years 2019-2021. Many of these actions and results are directly linked to the growth that the sustainability theme is gaining proportions within the organization and the market. Klabin S/A's voluntary adherence in 2016 to the UN's sustainable development goals has increasingly leveraged projects that present gains in sustainability for the entire business chain aligned with the growth strategy and business continuity.

SC4.1

(SC4.1) Você está fornecendo dados no nível do produto para os bens ou serviços da sua organização?

Sim, fornecerei os dados

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 2018

Explicação sobre a variação

No significant change Klabin performed the Life Cycle Analysis and calculated the carbon footprint for the company's 3 main products. These studies indicate that the amount of CO2 captured from the atmosphere during photosynthesis is greater than that emitted by Klabin's production process. We are currently carrying out new life cycle analysis studies to evaluate the paper produced by the organization, for the commercialized pulp which is produced in the PUMA unit and, in addition, we are conducting life cycle analysis studies for our industrial bags produced in the Lages unit.

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 2018

Explicação sobre a variação

No significant change Klabin performed the Life Cycle Analysis and calculated the carbon footprint for the company's 3 main products. These studies indicate that the amount of CO2 captured from the atmosphere during photosynthesis is greater than that emitted by Klabin's production process. We are currently carrying out new life cycle analysis studies to evaluate the paper produced by the organization, for the commercialized pulp which is produced in the PUMA unit and, in addition, we are conducting life cycle analysis studies for our industrial bags produced in the Lages unit.

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 2018

Explicação sobre a variação

No significant change Klabin performed the Life Cycle Analysis and calculated the carbon footprint for the company's 3 main products. These studies indicate that the amount of CO2 captured from the atmosphere during photosynthesis is greater than that emitted by Klabin's production process. We are currently carrying out new life cycle analysis studies to evaluate the paper produced by the organization, for the commercialized pulp which is produced in the PUMA unit and, in addition, we are conducting life cycle analysis studies for our industrial bags produced in the Lages unit.

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 usados

Primário e secundário

Qualidade dos dados

It is important to mention that this result is POSITIVE, which means that the emission for the LPB product is -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

The data were verified and validated according to the STANDARD ISO 14044 methodology

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 usados

Primário e secundário

Qualidade dos dados

It is important to mention that this result is POSITIVE, which means that the emission for the LPB product is -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

The data were verified and validated according to the STANDARD ISO 14044 methodology

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 usados

Primário e secundário

Qualidade dos dados

It is important to mention that this result is POSITIVE, which means that the emission for the LPB product is -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

The data were verified and validated according to the STANDARD ISO 14044 methodology

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	In the year 2018, we reduced the consumption of fuel oil by 2,548,747 liters through actions for operational continuity and reduction of the use of fossil fuels in the Monte Alegre unit, responsible for the production of these products. These actions resulted in a reduction of 1195 tCO2e compared to the year 2017, which is equivalent to a reduction of 1.22 kg of CO2 for each ton of product produced.	Realizada	1.22

SC4.2d

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

Não

Envie sua resposta

Sua resposta está sendo enviada em qual idioma?

Inglês

Confirme como a sua resposta deve ser gerenciada pela 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	Público	Investidores Clientes	Sim, enviar as perguntas sobre a cadeia de fornecimento agora

Confirme abaixo

Li e aceito os Termos aplicáveis