Klabin S/A - Water Security 2019

W0. Introduction

W0.1

(W0.1) Give a general description of and introduction to your organization.

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.

W0.2

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

	Start date	End date
Reporting year	January 1 2018	December 31 2018

W0.3

(W0.3) Select the countries/regions for which you will be supplying data.

Brazil

W0.4

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

BRL

W0.5

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

Companies, entities or groups over which financial control is exercised

W0.6

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

No

W1. Current state

W1.1

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

	Direct use importance rating	Indirect use importance rating	Please explain
Sufficient amounts of good quality freshwater available for use	Vital	Vital	- Direct Use: Water is vital in pulp and paper industry. In 2018, Klabin's total water withdrawals was 109,413.52 megaliters, with 99.7% of surface water from rivers and lakes, 0.2% of municipal water and 0.1% of groundwater consumption. The reason for the chosen importance can be explained by the high water quantity required in our process, for example, on the timber debarking and on the fiber line of the pulp process. Considering the future dependency, Klabin will have an increase in water consumption of direct use due to the new expansion cycle involves the construction of two packaging paper (kraftliner) machines, with integrated pulp production, which will be built on the same site as the Puma Unit, its pulp mill inaugurated in 2016. The new machines will have combined annual production capacity of 920,000 tons of paper. - Indirect Use: Freshwater is vital raw material to our suppliers, principally chemical industry. Klabin wood suppliers do not use any irrigation water and wood represents the main raw material of Klabin's incoming supply chain. However, the chemical industries uses a lot of freshwater in your processes and the chemical products i.g sodium hydroxide, sulfuric acid and aluminium sulfate are very important for us. Considering the future dependency, the freshwater will continue being vital to our chemical suppliers because is very important raw material utilized in yours processes.
Sufficient amounts of recycled, brackish and/or produced water available for use	Vital	Important	- Klabin no used the brackish and produced water to direct and indirect use. - Direct Use: Recycled water is vital in pulp and paper industry. In 2018, Klabin's total water recycled was 232.865,32 megaliters, which represents 68% of the total water utilized in 2018. Puma factory use the same water around 5 times before returning approximately 82% of withdrawn water. Internal water recycling is crucial for Klabin, it allows company save money and energy, and reduces risks of water dependency and legal restrictions. Another example can be the use of recycled water in Klabin's forest nurseries that reuses water for irrigation of seedlings. Considering the future dependency, Klabin will have an increase in water consumption of direct use due to the new expansion cycle involves the construction of two packaging paper (kraftliner) machines, with integrated pulp production, which will be built on the same site as the Puma Unit, its pulp mill inaugurated in 2016. The new machines will have combined annual production capacity of 920,000 tons of paper. - Indirect Use: Recycled water is important raw material to our suppliers, principally chemical industry. Some chemical industries has been used recycled water in your processes to reduce the water withdrawals. It allows company save money and energy, and reduces risks of water dependency and legal restrictions. Considering the future dependency, the recycled water will continue being important to all our suppliers because the water withdrawals can be more expensive in the near future.

W1.2

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

	% of sites/facilities/operations	Please explain
Water withdrawals – total volumes	100%	Klabin measure 100% of water withdrawals ensuring company will not withdraw higher volumes than the source regenerative capacity in order to ensure future availability of the resource. The frequency of monitoring is daily. The method of monitoring is based in flowmeters. The consolidated data are registered in the Resource Advisor database. Due to environmental and water permits figures are reported by annually basis to the authorities.
Water withdrawals – volumes from water stressed areas	100%	Klabin measure 100% of water withdrawals of water stressed areas ensuring company will not withdraw higher volumes than the source regenerative capacity in order to ensure future availability of the resource. The frequency of monitoring is daily. The method of monitoring is based in flowmeters. The consolidated data are registered in the Resource Advisor database. Due to environmental and water permits figures are reported by annually basis to the authorities.
Water withdrawals – volumes by source	100%	Klabin measure 100% of water withdrawals by sources ensuring company will not withdraw higher volumes than the source regenerative capacity in order to ensure future availability of the resource. The frequency of monitoring is daily. The method of monitoring is based in flowmeters. The consolidated data are registered in the Resource Advisor database. Due to environmental and water permits figures are reported by annually basis to the authorities.
Entrained water associated with your metals & mining sector activities - total volumes [only metals and mining sectors]	<Not Applicable>	<Not Applicable>
Produced water associated with your oil & gas sector activities - total volumes [only oil and gas sector]	<Not Applicable>	<Not Applicable>
Water withdrawals quality	100%	Klabin measure 100% of the quality (eg. BOD, COD, P, N, TSS, temperature, etc) of its water withdrawals for all operations by daily basis. The quality is rigorously monitored in accordance with quantity and quality standards set by environmental law. Each factory control the quality data of water withdrawal locally. The consolidated data are registered in the Resource Advisor database. Due to environmental and water permits figures are reported by annually basis to the authorities.
Water discharges – total volumes	100%	Klabin measure 100% of total volume of water discharged. The frequency of monitoring is daily. The method of monitoring is based in flowmeters. The consolidated data are registered in the Resource Advisor database. Due to environmental and water permits figures are reported by annually basis to the authorities.
Water discharges – volumes by destination	100%	Klabin measure 100% of water discharged by destination (eg. surface water, irrigation of land, for recycling & reuse or third party destinations). The frequency of monitoring is daily. The method of monitoring is based in flowmeters. The consolidated data are registered in the Resource Advisor database. Due to environmental and water permits figures are reported by annually basis to the authorities.
Water discharges – volumes by treatment method	100%	Klabin measure 100% of water discharged by treatment method (eg. only physical treatment or physical and biological treatment). The frequency of monitoring is daily. The method of monitoring is based in flowmeters. The consolidated data are registered in the Resource Advisor database. Due to environmental and water permits figures are reported by annually basis to the authorities.
Water discharge quality – by standard effluent parameters	100%	Klabin measure 100% of the quality (eg. BOD, COD, P, N, TSS, temperature) of its water discharged for all operations by daily basis. The quality is rigorously monitored in accordance with quantity and quality standards set by environmental law. Each factory control the quality data of water discharged locally. The consolidated data are registered in the Resource Advisor database. Due to environmental and water permits figures are reported by annually basis to the authorities.
Water discharge quality – temperature	100%	Klabin measure 100% of the quality (eg. BOD, COD, P, N, TSS, temperature) of its water discharged for all operations by daily basis. The quality is rigorously monitored in accordance with quantity and quality standards set by environmental law. Each factory control the quality data of water discharged locally. The consolidated data are registered in the Resource Advisor database. Due to environmental and water permits figures are reported by annually basis to the authorities.
Water consumption – total volume	100%	Klabin measure/calculate 100% of the total water consumption. Water consumption is calculated annually using a water balance which considering: water withdrawals, evaporation from dryers, evaporation from wastewater treatment plants, water left in our end products and water discharges.
Water recycled/reused	100%	The use of water recycled/reused is vital to Klabin. 100% of water recycled/reuse is measured and registered on the Resource Advisor database by monthly basis. Recycling of water takes place in many ways in our factories: 1. In process to cooling water, we reuse the same water several times before discharged. 2. Some treated process waters are recycled for use as water intake as new process water. 3. Condensate water is also recycled within the mills.
The provision of fully-functioning, safely managed WASH services to all workers	100%	100% of Klabin production units have appropriate changing/dressing facilities for employees. They are equipped with showers and toilets. Klabin is working in yours operations in compliance with international hygiene standards and according national law.

W1.2b

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

	Volume (megaliters/year)	Comparison with previous reporting year	Please explain
Total withdrawals	109413.52	Lower	The total withdrawals of water has decreased by 3% in 2018 compared to 2017, even as Klabin's paper and pulp production has increased. This is due to the work of reducing water consumption in factories, especially in paper units (Angatuba and Monte Alegre units). Because of increasing production (expansion of Puma unit), the total withdrawals water is estimated to be increase in near future (2-4 years).
Total discharges	90677.54	Lower	The total water discharge has decreased by 9% in 2018 compared to 2017, mainly because the Puma unit decreased roughly 20%. Because of increasing production (expansion of Puma unit), the total discharge water is estimated to be increase in near future (2-4 years).
Total consumption	18735.98	Higher	Total water consumption of Klabin is calculated on a company-wide calculation taking the difference between the total withdrawals and discharge from Klabin's units. The total consumption of water has increased by 53% in 2018 compared to 2017 because given the overall decrease in water withdrawal and significant decrease in discharge. There are not anticipated significant changes in consumption rates.

W1.2d

(W1.2d) Provide the proportion of your total withdrawals sourced from water stressed areas.

	% withdrawn from stressed areas	Comparison with previous reporting year	Identification tool	Please explain
Row 1	0.89	Higher	WRI Aqueduct	Klabin units were evaluated using the WRI Aqueduct tool. Water stressed sites were defined as having a baseline water stress score of 20% or more. According WRI Aqueduct tool, baseline water stress measures the ratio of total annual water withdrawals to total available annual renewable supply, accounting for upstream consumptive use. Higher values indicate more competition among users. This criterion had only one site as being located in water stressed areas: Goiana/PE. In 2018, Goiana's withdrawals water represented 0.89% of total withdrawals water by Klabin. In 2017, Goiana's withdrawals water represented 0.76%. This increase was because there was no significant increase on water withdrawals in Goiana but the Klabin SA total water withdrawals has decreased. Goiana unit has defined an action plan to treating the identified risk. Other Klabin units are being monitored because they were classified among 10-20% baseline stressed water (Jundiaí DI, Jundiaí TP and Piracicaba).

W1.2h

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

	Relevance	Volume (megaliters/year)	Comparison with previous reporting year	Please explain
Fresh surface water, including rainwater, water from wetlands, rivers, and lakes	Relevant	109133.55	Lower	Fresh surface water is vital to Klabin because this volume represents 99.7% of all water intake. The volume of fresh surface water has decreased by 3% in 2018 compared to 2017. This is due to the work of reducing water consumption in factories, especially in paper units (Angatuba and Monte Alegre units). Because of increasing production (expansion of Puma unit), the fresh surface water is estimated to be increased by 10% in near future (2-4 years).
Brackish surface water/Seawater	Not relevant	<Not Applicable>	<Not Applicable>	No brackish surface water/seawater intake for any use. The brackish surface water is not relevant because is impossible due costs and distance. Considering possible future trends, Klabin will not consume brackish surface water/seawater intake.
Groundwater – renewable	Relevant	110.63	Higher	The groundwater (renewable) has increased by 9% in 2018 compared to 2017 and so it is relevant to Klabin, even its represents only 0.1% of all water intake. Considering possible future trends, Klabin will not have an increase of groundwater.
Groundwater – non-renewable	Not relevant	<Not Applicable>	<Not Applicable>	Klabin is not using non-renewable groundwater sources. The non-renewable groundwater is not relevant because this use has environmental impacts. Considering possible future trends, Klabin will not consume non-renewable groundwater.
Produced/Entrained water	Not relevant	<Not Applicable>	<Not Applicable>	Klabin is not consume the produced water and so it is not relevant for us. Considering possible future trends, Klabin will not consume produced water.
Third party sources	Relevant	169.34	Lower	The third party sources consumption has decreased by 9% in 2018 compared to 2017 and so it is relevant to Klabin, even its represents only 0.2% of all water intake. Considering possible future trends, Klabin will have a stability of third party sources consumption.

W1.2i

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

	Relevance	Volume (megaliters/year)	Comparison with previous reporting year	Please explain
Fresh surface water	Relevant	90574.93	Lower	The fresh surface water discharge is relevant to Klabin because there was a decrease of 9% compared with last year. The company discharged 90574.93 megaliters of water in fresh surface water in 2018. This is due to the work of reducing water consumption in factories, especially in paper units (Angatuba and Monte Alegre units). Because of increasing production (expansion of Puma unit), the fresh surface water discharge is estimated to be increased by 10% in near future (2-4 years).
Brackish surface water/seawater	Not relevant	<Not Applicable>	<Not Applicable>	Klabin is not discharge water in seawater and so it is not relevant for us. Considering possible future trends, Klabin will not discharge in seawater.
Groundwater	Not relevant	<Not Applicable>	<Not Applicable>	Klabin is not discharge water in groundwater and so it is not relevant for us. Considering possible future trends, Klabin will not discharge in groundwater.
Third-party destinations	Relevant	102.61	Higher	There was a little increase (2%) of discharge water in third party sources, so it is relevant to Klabin. Considering possible future trends, Klabin will not have increase of discharge water in third party sources.

W1.2j

(W1.2j) What proportion of your total water use do you recycle or reuse?

	% recycled and reused	Comparison with previous reporting year	Please explain
Row 1	51-75	About the same	- The total reuse water in 2018 was 232,865.32 megaliters. It represents 68% of the total consumes water due to the increased of energy generation in Puma unit and the closed loops allowing water to be reused in the same process, as in the cases of cooling water, return of condensate and white water consumption by fiberline (reused water / (reused water + water withdrawals)). After stabilization of the Puma unit, the reused water volume increased significantly. For comparison, the organization's reused water in the year 2016 was 26% and in the 2017 was 69% (the startup of Puma unit was at march of 2016). - This demonstrates the organization's commitment to its economic development in conjunction with social and environmental aspects. The reuse of water is important for organization because allows the availability of the natural resource for a greater longevity, since, besides the social and environmental aspect, it reduce dependence of fresh surface water. - With the better performance of Puma unit, the results of reused water tends to increase in the next year. Still we can closed the softwood process (e.g. white water) to reduce the withdrawals water. Further, the Puma expansion will not increase reused water because it also will have increase of withdrawals water.

W1.4

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

Yes, our suppliers

W1.4a

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

Row 1

% of suppliers by number

26-50%

% of total procurement spend

26-50

Rationale for this coverage

Klabin controls two groups of suppliers: 1.Wood suppliers and 2.Others Suppliers. 1.In 2018, Klabin's forest area carried out 813 audits in 575 suppliers (1% by number and 9% of total procurement spend) of wood from states of PR, SP and SC. As the most important raw material for Klabin, all wood suppliers were audited. Suppliers are encouraged to participate in the program because Klabin assists them in the legal and technical management of their properties. Klabin use CDP Supply Chain. 2.In 2018, the supply chain and sustainability areas started the new supplier evaluation system. In 2018/19, the reports will be carried out by the platform and will be gradually selected the suppliers with potential environmental impact and greater annual expenditure (1.5% by number and 31% of total procurement spend). The incentive for vendors is based on the company's score, and may leave or continue on Klabin's suppliers list. This program of evaluating suppliers has a gradual planning of expansion.

Impact of the engagement and measures of success

Group 1. Audits carried out on wood suppliers evaluate issues related to human rights, environmental aspects, protection of water bodies, social aspects and compliance with labor legislation. Wood suppliers are chosen to submit to the audit, which replaces the report by the supplier. In case of non-compliance with any of the requirements, Klabin immediately interrupts the purchase and sends a recommendation for suitability. The success is measured by number of interruptions the wood purchase. Group 2. The Ecovadis platform covers issues related to: 1. Environmental (water, emissions, energy), 2. Labor and Human Rights, 3. Ethics and 4. Sustainable Procurement (supplier environmental practices and supplier social practices). The Ecovadis platform compiles to the suppliers reports and provides the results of easy way and ready for decision making by assessing each supplier's scores. The success is measured by sustainability performance on the Ecovadis report.

Comment

- Klabin has a total of 6860 forest and industrial suppliers. - Klabin requires its suppliers' operations to be sustainable and to have responsible operations. - 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). After 2021, the program will also present new plans for gradual expansion.

W1.4b

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

Type of engagement
Innovation & collaboration

Details of engagement
Encourage/incentivize innovation to reduce water impacts in products and services
Encourage/incentivize suppliers to work collaboratively with other users in their river basins
Educate suppliers about water stewardship and collaboration

% of suppliers by number
1-25

% of total procurement spend
1-25

Rationale for the coverage of your engagement
The Klabin Legal Forest Program assists Klabin's wood suppliers in the water management of property, especially in the legal issues of springs and in the protection of water bodies, as well as in minimizing water-related impacts through of encourage and education training. This Program serves all Klabin wood suppliers (its represents 1% of suppliers by number and 9% of total procurement spend. 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.

Impact of the engagement and measures of success
Klabin measures the success by compliance percentage of all sustainability parameters on properties involved in the Program. In 2018, 97.5% of the evaluated items in the properties involved were attended. This shows that the properties of Klabin's wood suppliers, almost entirely, meet the assessed requirements. In 2018, 13 audits blocked wood suppliers because causing significant and actual negative impacts.

Comment
Percentage of audits identified in 2018 as causing significant and actual negative impacts with which improvements were agreed upon as a result of the evaluation: 1.6% (13 audits).

W2. Business impacts

W2.1

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

W2.1a

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

Country/Region
Brazil

River basin
Other, please specify (Tibagi River Basin)

Type of impact driver
Physical

Primary impact driver
Pollution incident

Primary impact
Brand damage

Description of impact
In 2018, 20 m3 of sodium hydroxide was leaked to the coal refuse industrial landfill, located at Monte Alegre farm. Leakage occurred due to drainage of the sodium hydroxide tank that was used to treat the effluent from this landfill. The leak was considered as non-sinigficative because it was verified that the contaminant material was only retained in the soil surface and Klabin scraped the contaminated soil and destined it properly. In addition, Klabin has carried out the replanting of the vegetation and constantly monitors the area that does not show signs of alteration in the environmental parameters.

Primary response
Pollution abatement and control measures

Total financial impact
101020

Description of response
- Klabin informed the Parana Environmental Institute (PEI) via the self-report canal that this leak occurred due to third party action (vandalism), since there was a manual activation of the dosing valves and damage to the control equipment of the product dosing system. - Among the remediation measures adopted are the removal of contaminated soil and landfill, the fertilization and recovery of vegetation, the containment and transmission of the effluent to the Wastewater Treatment Plant in Monte Alegre unit. The total financial impact to recovery the affected area was BRL 101,020.00. - After the event, the company has been constantly monitoring the conditions of the affected area. All recovery steps have been completed and reported to the Parana Environmental Institute.

W2.2

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

Yes, fines

W2.2a

(W2.2a) Provide the total number and financial value of all water-related fines.

Row 1

Total number of fines

1

Total value of fines

18589.57

% of total facilities/operations associated

6

Number of fines compared to previous reporting year

Higher

Comment

- In 2018, Klabin received a fine. It refers the water discharge at the Piracicaba unit (SP) with BOD5 and SS concentration above legal limits. - In previous years, Klabin had not suffered any monetary or non-monetary sanctions.

W2.2b

(W2.2b) Provide details for all significant fines, enforcement orders, and/or penalties for water-related regulatory violations in the reporting year, and your plans for resolving them.

Type of penalty

Fine

Financial impact

18589.57

Country/Region

Brazil

River basin

Other, please specify (Piracicaba River Basin)

Type of incident

Effluent limit exceedances

Description of penalty, incident, regulatory violation, significance, and resolution

- In 2018, Klabin received a fine in the amount of BRL 18,589.57. It refers the water discharge at the Piracicaba unit (SP) with BOD5 and SS concentration above legal limits. - In previous years, Klabin had not suffered any monetary or non-monetary sanctions. - This non-compliance was due to the drag of solids from the decanted sludge, causing variations in the wastewater treatment process, which led to a momentary increase in the BOD5 value of the treated water. - As an action, and even before we were notified, corrective measures were taken to reestablish the wastewater treatment system. In addition, the water discharge was interconnected in the Municipal Water System of Piracicaba city (SEMAE), eliminating the discharge to the Piracicaba river in a definitive way, according to contract 056/2018, in compliance with São Paulo Environmental Legal Agency determination (CETESB).

W3. Procedures

W3.3

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

Yes, water-related risks are assessed

W3.3a

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

Direct operations

Coverage
Full

Risk assessment procedure
Water risks are assessed as part of an enterprise risk management framework

Frequency of assessment
Six-monthly or more frequently

How far into the future are risks considered?
>6 years

Type of tools and methods used
Tools on the market
Enterprise Risk Management
Databases

Tools and methods used
WRI Aqueduct
COSO Enterprise Risk Management Framework
ISO 31000 Risk Management Standard
Regional government databases

Comment
The risk assessment department has updated the Klabin's risk policy. However, Klabin's factories have already developed a risk matrix for each unit with the main operational and governmental risks. The COSO Enterprise Risk Management Framework carries out the valuation and the risks has taken to the Klabin Risk Committee where the company's directors discuss them. When the risks has assessed as high or very high, the facilities develop an action plan for control and risk management. Some risks related to social and regulatory risks, Klabin uses some internal methods and some regional databases to identify related risks.

Supply chain

Coverage
Full

Risk assessment procedure
Water risks are assessed in an environmental risk assessment

Frequency of assessment
Annually

How far into the future are risks considered?
>6 years

Type of tools and methods used
Tools on the market
Enterprise Risk Management
Other

Tools and methods used
COSO Enterprise Risk Management Framework
ISO 31000 Risk Management Standard
Internal company methods

Comment
Klabin assessments the risks of yours wood suppliers based on intern methods and tools which take into account the Brazilian legislation, environmental aspects and water and soil risks assessments. Since 2018/2019, Klabin assessments the risks of all your suppliers through of Ecovadis platform.

Other stages of the value chain

Coverage
None

Risk assessment procedure
<Not Applicable>

Frequency of assessment
<Not Applicable>

How far into the future are risks considered?
<Not Applicable>

Type of tools and methods used
<Not Applicable>

Tools and methods used
<Not Applicable>

Comment
Klabin has not assessments other stages of the value chain.

W3.3b

(W3.3b) Which of the following contextual issues are considered in your organization's water-related risk assessments?

	Relevance & inclusion	Please explain
Water availability at a basin/catchment level	Relevant, always included	- The principals Klabin mills are located in areas with abundant water resources, located alongside a river in order to easily get enough water for the mill. - In 2018 almost all water, 99%, used was surface water from rivers. The groundwater is used the intake volume is determined and carefully controlled according to each mill's environmental permit. Data from municipal and regional government databases have been used. - In Puma unit, the level of the Tibagi River during the dry season of 2017 was very low and threatened to stop production at the plant. - The tool utilized was the COSO Enterprise Risk Management Framework which asses the risks in Klabin units.
Water quality at a basin/catchment level	Relevant, always included	- The water quality is very too important to Klabin because it has a water treatment cost . At Klabin in 2018, the treatment cost was around BRL 210.3 per liter of water treated. The lower water quality at basin, the higher the treatment cost to can utilize in process. - The tool utilized was the COSO Enterprise Risk Management Framework which asses the risks in Klabin units.
Stakeholder conflicts concerning water resources at a basin/catchment level	Relevant, always included	- The stakeholder conflicts concerning water resources at a basin/catchment level are relevant because the decisions can impact directly Klabin costs. - Klabin has a Community Relation area that is responsible by monitors potential conflicts with stakeholders due to increasing of pressure on natural resources. - Further, Klabin participates of Hydrographic Basin Committee of Tibagi River (Paraná) and Canoas River (Santa Catarina) helping in decision-making processes on the management of water basins and water use. - The tool utilized was the COSO Enterprise Risk Management Framework which asses the risks in Klabin units.
Implications of water on your key commodities/raw materials	Relevant, always included	- The implications of water on your key commodities/raw materials are relevant because the changes can impact directly Klabin operations and costs. - A study on Climate Change vulnerabilities was developed in order to asses risks related to change in the rain pattern in the next coming years and the growth of Klabin's forests. - Please, consider that Klabin's forests growth in cycles that varies from 7 up to 16 years, so our understanding of "current" is quite wide. - The tool utilized was the COSO Enterprise Risk Management Framework which asses the risks in Klabin units.
Water-related regulatory frameworks	Relevant, always included	- The water-related regulatory frameworks are relevant because the new requirements can impact directly Klabin operations and costs. - Klabin follows the increasing on water regulatory pressure. - Further, it has performed studies in order to identify future water potential costs and its impact on production and on the value of the final products. - The tool utilized was the COSO Enterprise Risk Management Framework which asses the risks in Klabin units.
Status of ecosystems and habitats	Relevant, always included	- The quantity and quality of the populations, endangered species and habitats are important to Klabin because the forests is vital to our operations. Therefore, Klabin monitors through diagnoses and follow-up of emissions, and corrective actions are taken in the case of deviations. - Every year, a Stewardship Plan of the forestry units is prepared, which includes data on the biodiversity, in order to reduce negative impacts and increase positive ones, as well as to restore areas and improve environmental conditions of the native reserves. - An example is the annual monitoring programs of Wild Fauna and environmental social programs developed with the communities where the factories are located. - The tool utilized was the COSO Enterprise Risk Management Framework which asses the risks in Klabin units.
Access to fully-functioning, safely managed WASH services for all employees	Relevant, always included	- 100% of Klabin units who are intended for food contact are certified according to FSSC 22000 hygiene management systems that are also in use as management systems in the food industry, thus high hygiene requirements are in place at these Klabin units. -100% of Klabin units has a water treatment plant before water use by employees. In addition, after use, has a wastewater treatment plant before water discharge. - All the water to personal consumption is bought. - Regional government databases are used at the evaluation.
Other contextual issues, please specify	Not considered	-x-

W3.3c

(W3.3c) Which of the following stakeholders are considered in your organization's water-related risk assessments?

	Relevance & inclusion	Please explain
Customers	Relevant, always included	- Rise of awareness on natural resources pressure tend to make customers more critical on that matter and therefore more selective when choosing products and its components. This movement causes a wave that encourage the whole value chain to act. This is one of the drivers for Klabin's continuous improve efficiency on water consumption. - Therefore, Klabin maintains a close relationship with its customers and seeks to understand what their needs and expectations through of Klabin's Commercial area. Customers' expectations are available in the factories through the integrated management system. That is why Klabin takes into account to customers opinions in yours risks assessments. - The tool utilized was the COSO Enterprise Risk Management Framework which asses the risks in Klabin units.
Employees	Relevant, always included	- Klabin has goals for reducing water consumption in all its units, including offices. Communication programs that seek to raise awareness on employees about water consumption and the instructions on what to do in order to meet the targets are frequently put in place. - Therefore, Klabin maintains a close relationship with its employees and seeks to understand what their needs and expectations through of Klabin's Communication area. Employee's expectations are available in the factories through the integrated management system.
Investors	Relevant, always included	- Rise of awareness on natural resources pressure tend to make investors more critical on that matter and therefore more selective when choosing your investments. This movement causes a wave that encourage the whole value chain to act. This is one of the drivers for Klabin's continuous improve efficiency on water consumption. - Therefore, Klabin maintains a close relationship with its investors and seeks to understand what their needs and expectations through of Klabin's Commercial area. - In 2018, for the sixth consecutive time, a Klabin has integrated the B3 Corporate Sustainability Index, which brings together the actions of companies that stand out because of the high level of commitment sustainability of business and the country.
Local communities	Relevant, always included	- Klabin has a Community Relation area that is responsible by monitors potential conflicts with local communities due to increasing of pressure on natural resources and impacts. Klabin evaluates the needs and expectations of the local communities and its services are prioritized according to the impacts caused. - Klabin has a communication matrix that presents the monitoring plan to attend the needs and expectations of all stakeholders, including the local communities. - For example, the Klabin's Wastes Project has begun in 2014 and it is contributing with more than 7 cities around two Klabin units in Paraná. - The area of Community Relation of Klabin has an internal method to assessment the impacts of our processes on the local communities. - Further, Klabin implements and supports programs aligned with its social investment platform, focused on the lines of action of local development, education and culture, and aims to generate positive socio-environmental impact and potencialize the assets of the communities where it operates. Throughout 2018, the Company invested more than BRL 26 millions in socio-environmental and cultural projects.
NGOs	Relevant, always included	- Klabin has a Community Relation area that is responsible by monitors potential conflicts with stakeholders, as NGOs, due to increasing of pressure on natural resources. - Klabin evaluates the needs and expectations of the NGOs and its services are prioritized according to the impacts caused. - The area of Community Relation of Klabin has an internal method to assessment the impacts of our processes on NGOs.
Other water users at a basin/catchment level	Relevant, always included	- Klabin monitors potential conflicts with stakeholders due to increasing of pressure on natural resources. The Klabin participates in the committee of the hydrographic basins, where they are represented major consumers of water from Brazil's water basins. In the committee the risks of the basins are discussed, the reduction of water consumption, the water pricing, etc. - The tool utilized was the COSO Enterprise Risk Management Framework which asses the risks in Klabin units, for example, the water pricing.
Regulators	Relevant, always included	- Rise of awareness on natural resources pressure tend to make Regulators more critical on that matter and therefore more rigorous when they elaborate new regulations. The Klabin participates in the committee of the hydrographic basins, where they are represented major consumers of water from Brazil's water basins. In the committee the risks of the basins are discussed, the reduction of water consumption, the water pricing, etc. - This movement causes a wave that encourage the whole value chain to act. This is one of the drivers for Klabin's continuous improve efficiency on water consumption. - All water catchment projects are awarded following guidelines of the regulators. - The tool utilized was the COSO Enterprise Risk Management Framework which asses the risks in Klabin units, for example, the possible changes on regulations.
River basin management authorities	Relevant, always included	- The water collected at each site is granted by the responsible government agency, to ensure the sustainable funding of the resource in the region where the site is located. - The Klabin participates in the committee of the hydrographic basins, where they are represented major consumers of water from Brazil's water basins. In the committee the risks of the basins are discussed, the reduction of water consumption, the water pricing, etc. - The tool utilized was the COSO Enterprise Risk Management Framework which asses the risks in Klabin units, for example, the water pricing.
Statutory special interest groups at a local level	Relevant, always included	- Klabin monitors potential conflicts with statutory special interest groups at a local level due to increasing of pressure on water natural resources. The Klabin participates in the committee of the hydrographic basins, where they are represented major consumers of water from Brazil's water basins, inclusive the these special groups. In the committee the risks of the basins are discussed, the reduction of water consumption, the water pricing, etc. - The tool utilized was the COSO Enterprise Risk Management Framework which asses the risks in Klabin mills, for example, the water pricing.
Suppliers	Relevant, always included	- The suppliers of the industrial area considered critical for Klabin from a financial and sustainability point of view are monitored through a critical matrix that assesses impacts related to eco-efficiency initiatives, greenhouse gas inventory (GHG), operations sites , water consumption and generation of effluents, rights in labor relations, compliance with legislation, training on environmental norms and health and occupational safety, control of injury rates, diseases, absenteeism, deaths, anti-discrimination practices and prevention of corruption, legal and labor compliance, environmental licensing, type and danger of material supplied, type of supplier and participation in discussions with communities for local development. One hundred percent of the new contractors hired in 2018, considered representative from an economic and financial point of view, were evaluated taking into consideration the legal compliance with environmental aspects, labor practices and human rights. - The forest units have the Controlled Wood Program in which the suppliers are evaluated by the Forest area, based on a specific methodology related to the certification of the FSC® chain of custody. In 2018, 813 visits to certified and non-certified wood suppliers were made in Paraná and Santa Catarina. Klabin audits all forest suppliers on a quarterly basis, which considers elements of human rights, environmental aspects, social aspects, adaptation to labor legislation, working conditions analogous to slavery and child labor, as well as other aspects that may undermine human dignity. In the event of non-compliance, Klabin immediately discontinues delivery and sends a recommendation for suitability. After complying with the recommendations, the supplier is audited again and, if there is no pending, the supply contract is resumed. - In 2018, Klabin realized an event called "Inova Klabin" that gathered many suppliers to present the innovation ideas and the sustainability activities.
Water utilities at a local level	Relevant, always included	- Klabin monitors potential conflicts with stakeholders due to increasing of pressure on natural resources. The Klabin participates in the committee of the hydrographic basins, where they are represented major consumers of water from Brazil's water basins. In the committee the risks of the basins are discussed, the reduction of water consumption, the water pricing, etc. - The tool utilized was the COSO Enterprise Risk Management Framework which asses the risks in Klabin mills, for example, the water pricing.
Other stakeholder, please specify	Not considered	-x-

W3.3d

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

- 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, etc. The risks listed in Klabin's risk matrix take into account strategic, financial, operational, regulatory and environmental aspects.

- The applied methodology is based on the COSO Enterprise Risk Management Framework, 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.

- 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 time frame 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.

W4. Risks and opportunities

W4.1

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

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

W4.1a

(W4.1a) How does your organization define substantive financial or strategic impact on your business?

- In Klabin's process, risks with substantive financial impacts is over 30% of EBITDA, which may have national and international reputation impact, environmental accidents with difficult remediation and occupational accidents are considered as substantial strategic or financial impact.

- Example of metric used to identify substantive change:

- Periods of damage to the public image:

* >24 months - critical impact

* 12 - 24 months - high impact

* <12 months - medium impact

* Without damage to the public image - low impact

- Financial:

* >700 MM - critical impact

* >400 MM and <700 MM - high impact

* >150 MM and >400 MM - medium impact

- This is applied to direct operations and supply chain – both.

- Follow below one example of a possible impact that is monitored by the company.

- A surplus water could affect the Klabin's forestry productivity; around 7% productivity (>400 MM and < 700 MM) loss can be expected without adaptation/mitigation measure. It would represent high financial impact (> 30% EBITDA), considering the replacement cost of wood (cost of wood purchase in the market).

- It relevant to inform that current conditions and projections do not evidence deficit or surplus water in Klabin forestry region (until 2040), but due the relevance of water for productivity it is monitored and there is investment to genetic improvement.

W4.1b

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

	Total number of facilities exposed to water risk	% company-wide facilities this represents	Comment
Row 1	4	1-25	- Puma unit - Monte Alegre unit - Piracicaba unit - Goiana unit The four units represents 22% of total units. Klabin has 17 industrial units in Brazil and one in Argentina.

W4.1c

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

Country/Region
Brazil

River basin
Other, please specify (Tibagi River Basin)

Number of facilities exposed to water risk
2

% company-wide facilities this represents
1-25

Production value for the metals & mining activities associated with these facilities
<Not Applicable>

% company's annual electricity generation that could be affected by these facilities
<Not Applicable>

% company's global oil & gas production volume that could be affected by these facilities
<Not Applicable>

% company's total global revenue that could be affected
51-75

Comment
More than 70% of global revenues can be affected within the Tibagi River Basin. The two major factories are Puma (34%) and Monte Alegre (23%) units that represents more than 57% of Klabin's total production.

Country/Region
Brazil

River basin
Other, please specify (Piracicaba River Basin)

Number of facilities exposed to water risk
1

% company-wide facilities this represents
1-25

Production value for the metals & mining activities associated with these facilities
<Not Applicable>

% company's annual electricity generation that could be affected by these facilities
<Not Applicable>

% company's global oil & gas production volume that could be affected by these facilities
<Not Applicable>

% company's total global revenue that could be affected
1-25

Comment
Piracicaba unit represents more than 5% of Klabin's total production.

Country/Region
Brazil

River basin
Other, please specify (Goiana River Basin)

Number of facilities exposed to water risk
1

% company-wide facilities this represents
1-25

Production value for the metals & mining activities associated with these facilities
<Not Applicable>

% company's annual electricity generation that could be affected by these facilities
<Not Applicable>

% company's global oil & gas production volume that could be affected by these facilities
<Not Applicable>

% company's total global revenue that could be affected
1-25

Comment
Goiana unit represents more than 8% of Klabin's total production.

W4.2

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

Country/Region
Brazil

River basin
Other, please specify (Tibagi River Basin)

Type of risk
Physical

Primary risk driver
Severe weather events

Primary potential impact
Reduction or disruption in production capacity

Company-specific description
- Klabin identified a potential acceleration of the growth rate of forest pests due to increased thermal stress on plantations based on its tool for identifying and assessing forest risks that used future climate scenarios to identify risks to forest productivity. - The presence of forest pests can reduce the productivity of the forest and consequently disruption the feeding of wood to the two largest units of Klabin.

Timeframe
More than 6 years

Magnitude of potential impact
High

Likelihood
More likely than not

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

Potential financial impact figure (currency)
29222550

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

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

Explanation of financial impact
- The amounts presented below refer to the revenue from the sale of pulp and paper from the Puma and Monte Alegre units for one day. Puma unit: Average hard wood price of pulp: $ 1037 per ton Average soft wood price pulp: $ 1166 per ton Dollar: $ 3.5 per BRL Hard wood quantity: 3700 tonnes per day Soft wood quantity: 1400 tons per day Total: BRL 19,142,550 per day Monte Alegre unit: Average kraft paper price: $ 900 per ton Dollar: $ 3.5 per BRL Quantity: 3200 tonnes per day Total: BRL 10,080,000 per day Therefore, the potential financial impact for Klabin's two largest units per day is BRL 29,222,550.

Primary response to risk
Increased capital expenditure

Description of response
- The Klabin forest unit constantly monitors the forests to identify possible pests. With the increase of thermal stress, there is a potential increase in the rate of pests in plantations, causing an increase in capital expenditure to combat these identified pests. - The forestry units located on Santa Catarina, São Paulo and Paraná already has been impacted for theses identified pests in 2018.

Cost of response
5217350.4

Explanation of cost of response
- When Klabin's forest unit identifies a new pest in its forests, the forest research team is quickly mobilized to assess the total forest area to be reclaimed. The most commonly used mechanism is aerial combat through chemicals that act directly on forest pests. The cost is high and is calculated as follows: Pest: Wood wasp (vespa da madeira) Loss estimative: 2% Control Available: Biological Average cost of the chemical: BRL 0.22/ha Application cost:: BRL 25.00/ha Cost total: BRL 25.22/ha Only one application Klabin total area: 216,000 ha Impacted area: 4,320 ha Cost total expenditure: BRL 108,950.40 / campaign Pest: Cutter ant (formiga cortadeira) Loss estimative: 10-25% Control Available: Chemical Average cost of the chemical: BRL 19.60/ha Application cost:: BRL 75.00/ha Cost total: BRL 94.60/ha Only one application Klabin total area: 216,000 ha Impacted area: 54,000 ha Cost total expenditure: BRL 5,108,400.00 / campaign 2018 total cost: BRL 5,217,350.40

Country/Region
Brazil

River basin
Other, please specify (Tibagi River Basin)

Type of risk
Regulatory

Primary risk driver
Higher water prices

Primary potential impact
Increased operating costs

Company-specific description
- Klabin's two largest units are located in the Tibagi River Basin. Currently there is no payment for water withdrawal, only the cost with water treatment. Based on the COSO Enterprise Risk Management Framework methodology, the risk identification and assessment tool identifies the water pricing is critical to determining the increase in operating costs of Klabin units. - This risk directly affects Klabin's operations because 99% of the water withdrawn by Klabin are from surface water.

Timeframe
4 - 6 years

Magnitude of potential impact
High

Likelihood
Likely

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

Potential financial impact figure (currency)
4386885

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

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

Explanation of financial impact
- In 2018, the total water withdrawn at the Puma and Monte Alegre unit was 87,737.7 megaliters. This represents 80% of the total water withdrawn by Klabin in the year. - Considering that an average price for water withdrawal of BRL 0.05 per m3 (amount payed on Piracicaba unit) would be implemented, Klabin in 2018 would have paid BRL 4,386,885.00 in the two largest units.

Primary response to risk
Adopt water efficiency, water re-use, recycling and conservation practices (Water efficiency and Reuse Projects)

Description of response
- Klabin already has an internal price for water, the best response to the risk would be to intensify studies to reuse water, improve process efficiency and seek alternatives to water. - For this, Klabin has an environmental team that evaluates and studies new projects to increase process efficiency and increase water reuse.

Cost of response
1500000

Explanation of cost of response
The structure of environmental team is: - Two Environmental Engineers. - One Technical Assistent. - Technical Control Manager. The personal cost of this team per year is BRL 1,500,000.00.

Country/Region
Brazil

River basin
Other, please specify (Goiana River Basin)

Type of risk
Physical

Primary risk driver
Increased water stress

Primary potential impact
Constraint to growth

Company-specific description
- The Goiana unit is located in a water stress area, according to WRI Aqueduct methodology. In 2018, the unit withdrawn 955.9 megaliters of water from the water body. - Klabin is the only unit that produces recycled paper, packaging and paper bags. - There is a process in progress to increase the granting of water abstraction for expansion of the unit. However, the National Water Agency has not yet allowed the increase because the area is classified as a water stress area.

Timeframe
1 - 3 years

Magnitude of potential impact
High

Likelihood
Likely

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

Potential financial impact figure (currency)
300000

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

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

Explanation of financial impact
- Considering that a problem with the water withdrawal on Goiana unit can be interruption the operations, the potential financial impact was calculated: - Interruption of one day in Goiana unit represents a stopped production of paper recycled, corrugated boad and industrial bags produces. Therefore, the potential financial impact for Goiana unit per day is BRL 300.000,00. This represents the loss of a day's production sale.

Primary response to risk
Secure alternative water supply

Description of response

- As the unit may not be able to increase the concession, Klabin is already evaluating the possibility of reusing 100% of the treated water after use, fetching water from another water body or supplying the plant with water from the public grid. - Any of the options listed will have a high cost and therefore Klabin is also evaluating the possibility of expanding another unit.

Cost of response
3823600

Explanation of cost of response
- To identify the cost of risk response, we consider that the unit chooses to consume water from the third party sources. - Thus, the approximate cost of water is BRL 20.00 per m3 consumed. Thus, considering a 20% increase in the unit's current capacity, we have an increase of 191.2 megaliters of water which represents a cost of BRL 3,823,600.00 per year.

W4.2a

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

Country/Region
Brazil

River basin
Other, please specify (Tibagi River Basin)

Stage of value chain
Supply chain

Type of risk
Physical

Primary risk driver
Severe weather events

Primary potential impact
Reduction or disruption in production capacity

Company-specific description
- Klabin's suppliers of wood are also exposed to the risk potential acceleration of the growth rate of forest pests due to increased thermal stress on plantations based on our tool for identifying and assessing forest risks that used future climate scenarios to identify risks to forest productivity. - The presence of forest pests can reduce the productivity of the forest and consequently disruption the feeding of wood to the two largest units of Klabin.

Timeframe
>6 years

Magnitude of potential financial impact
High

Likelihood
More likely than not

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

Potential financial impact figure (currency)
29222550

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

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

Explanation of financial impact
- The amounts presented below refer to the revenue from the sale of pulp and paper from the Puma and Monte Alegre units for one day. Puma unit: Average hard wood price of pulp: $ 1037 per ton Average soft wood price pulp: $ 1166 per ton Dollar: $ 3.5 per BRL Hard wood quantity: 3700 tonnes per day Soft wood quantity: 1400 tons per day Total: BRL 19,142,550 per day Monte Alegre unit: Average kraft paper price: $ 900 per ton Dollar: $ 3.5 per BRL Quantity: 3200 tonnes per day Total: BRL 10,080,000 per day Therefore, the potential financial impact for Klabin's two largest units per day is BRL 29,222,550.

Primary response to risk
Infrastructure investment

Description of response
- Klabin constantly monitors the suppliers' forests to identify possible pests. With the increase of thermal stress, there is a potential increase in the rate of pests in plantations, causing an increase in capital expenditure to combat these identified pests. - However, for suppliers' forests, Klabin only recommends the products and the application methodology, and the supplier is responsible for pest control.

Cost of response
400000

Explanation of cost of response
The cost presented (BRL 400,000.00) refers to the cost of the wood commercialization area, responsible for monitoring the forests of Klabin's wood suppliers. This cost takes into account the cost of people and the entire cost for monitoring in 2018.

W4.3

(W4.3) Have you identified any water-related opportunities with the potential to have a substantive financial or strategic impact on your business?
Yes, we have identified opportunities, and some/all are being realized

W4.3a

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

Type of opportunity
Efficiency

Primary water-related opportunity
Cost savings

Company-specific description & strategy to realize opportunity
- In Puma unit, there is a project to reduce water consumption. This project involves the areas of automation, environmental and process department. The project foresees a reduction of 2.1 m3 / tonne of water that would represent about 3,150,000 m3 per year (7% of total withdrawals water). Therefore, there will be a reduction the cost with water treatment in the order of BRL 4,441,500.00 per year. - The strategy of this study is close the white water circuit of softwood line and automate of make-up water on cooling towers. For example, Angatuba unit reduced the water withdrawals by 3.1 m³/tonne between 2017 and 2018 with water reduction projects, water reuse of paper machines and water circuit closure. Specific consumption decreased from 16.5 m³/tonne to 13.4 m³/tonne.

Estimated timeframe for realization
1 to 3 years

Magnitude of potential financial impact
High

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

Potential financial impact figure (currency)
4441500

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

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

Explanation of financial impact
Considering in 2018 the cost of water treatment was BRL 0.20 per m3 and the cost of wastewater treatment was BRL 1.21 per m3, and considering that reduce would be the total amount of 3,150,000 m3, we can reduce the costs by, at least, BRL 4,441,500.00 per year.

W5. Facility-level water accounting

W5.1

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

Facility reference number
Facility 1

Facility name (optional)
Puma unit

Country/Region
Brazil

River basin
Other, please specify (Tibagi River Basin)

Latitude
-24.258055

Longitude
-50.746944

Primary power generation source for your electricity generation at this facility
<Not Applicable>

Oil & gas sector business division
<Not Applicable>

Total water withdrawals at this facility (megaliters/year)
46913.1

Comparison of withdrawals with previous reporting year
Higher

Total water discharges at this facility (megaliters/year)
34904.7

Comparison of discharges with previous reporting year
Much lower

Total water consumption at this facility (megaliters/year)
12008.4

Comparison of consumption with previous reporting year
Higher

Please explain
- The water withdrawal in Puma unit increased by 2% but the water discharge decreased by 17%.

Facility reference number
Facility 2

Facility name (optional)
Monte Alegre unit

Country/Region
Brazil

River basin
Other, please specify (Tibagi River Basin)

Latitude
-24.310186

Longitude
-50.6079

Primary power generation source for your electricity generation at this facility
<Not Applicable>

Oil & gas sector business division
<Not Applicable>

Total water withdrawals at this facility (megaliters/year)
40824.6

Comparison of withdrawals with previous reporting year
Lower

Total water discharges at this facility (megaliters/year)
36671.6

Comparison of discharges with previous reporting year
Higher

Total water consumption at this facility (megaliters/year)
4153

Comparison of consumption with previous reporting year
Lower

Please explain
- The water withdrawal in Monte Alegre unit decreased by 6% but the water discharge increased by 6%.

Facility reference number
Facility 3

Facility name (optional)
Piracicaba unit

Country/Region
Brazil

River basin
Other, please specify (Piracicaba River Basin)

Latitude
-22.687536

Longitude
-47.674963

Primary power generation source for your electricity generation at this facility
<Not Applicable>

Oil & gas sector business division
<Not Applicable>

Total water withdrawals at this facility (megaliters/year)
300.2

Comparison of withdrawals with previous reporting year
Lower

Total water discharges at this facility (megaliters/year)
104.7

Comparison of discharges with previous reporting year

Lower

Total water consumption at this facility (megaliters/year)
195.5

Comparison of consumption with previous reporting year
Higher

Please explain
- The water withdrawal in Piracicaba unit decreased by 32% but the water discharge decreased by 17%.

Facility reference number
Facility 4

Facility name (optional)
Goiana unit

Country/Region
Brazil

River basin
Other, please specify (Goiana River Basin)

Latitude
-7.556655

Longitude
-35.035038

Primary power generation source for your electricity generation at this facility
<Not Applicable>

Oil & gas sector business division
<Not Applicable>

Total water withdrawals at this facility (megaliters/year)
976.5

Comparison of withdrawals with previous reporting year
Higher

Total water discharges at this facility (megaliters/year)
686.9

Comparison of discharges with previous reporting year
Higher

Total water consumption at this facility (megaliters/year)
289.6

Comparison of consumption with previous reporting year
Higher

Please explain
- The water withdrawal in Goiana unit increased by 15% but the water discharge increased by 4%.

W5.1a

(W5.1a) For each facility referenced in W5.1, provide withdrawal data by water source.

Facility reference number
Facility 1

Facility name
Puma unit

Fresh surface water, including rainwater, water from wetlands, rivers and lakes
46913.1

Brackish surface water/seawater
0

Groundwater - renewable
0

Groundwater - non-renewable
0

Produced/Entrained water
0

Third party sources
0

Comment
Puma unit has withdrawn water only from the Tibagi River.

Facility reference number
Facility 2

Facility name
Monte Alegre unit

Fresh surface water, including rainwater, water from wetlands, rivers and lakes
40824.6

Brackish surface water/seawater
0

Groundwater - renewable
0

Groundwater - non-renewable
0

Produced/Entrained water
0

Third party sources
0

Comment
Monte Alegre unit has withdrawn water only from the Tibagi River.

Facility reference number
Facility 3

Facility name
Piracicaba unit

Fresh surface water, including rainwater, water from wetlands, rivers and lakes
292.6

Brackish surface water/seawater
0

Groundwater - renewable
0

Groundwater - non-renewable
0

Produced/Entrained water
0

Third party sources
7.6

Comment
Piracicaba unit has withdrawn 97% of the needed water by surface water and 3% by third party source.

Facility reference number
Facility 4

Facility name
Goiana unit

Fresh surface water, including rainwater, water from wetlands, rivers and lakes
955.9

Brackish surface water/seawater
0

Groundwater - renewable
20.6

Groundwater - non-renewable
0

Produced/Entrained water
0

Third party sources
0

Comment
Goiana unit has withdrawn 98% of the needed water by surface water and 2% by groundwater source.

W5.1b

(W5.1b) For each facility referenced in W5.1, provide discharge data by destination.

Facility reference number
Facility 1

Facility name
Puma unit

Fresh surface water
34904.7

Brackish surface water/Seawater
0

Groundwater
0

Third party destinations
0

Comment
Puma unit has discharged water only from the Tibagi River.

Facility reference number
Facility 2

Facility name
Monte Alegre unit

Fresh surface water
36671.6

Brackish surface water/Seawater
0

Groundwater
0

Third party destinations
0

Comment
Monte Alegre unit has discharged water only from the Tibagi River.

Facility reference number
Facility 3

Facility name
Piracicaba unit

Fresh surface water
9

Brackish surface water/Seawater
0

Groundwater
0

Third party destinations
95.7

Comment
Piracicaba unit has discharged 9% of water on surface water and 91% on third party destination.

Facility reference number
Facility 4

Facility name
Goiana unit

Fresh surface water
686.9

Brackish surface water/Seawater
0

Groundwater
0

Third party destinations
0

Comment
Goiana unit has discharged only on surface water.

W5.1c

(W5.1c) For each facility referenced in W5.1, provide the proportion of your total water use that is recycled or reused, and give the comparison with the previous reporting year.

Facility reference number
Facility 1

Facility name
Puma unit

% recycled or reused
76-99%

Comparison with previous reporting year
About the same

Please explain
The volume of reused water in 2017 on Puma unit was 221,109.1 megaliters that it represents 83% of total water. In 2018, the volume of reused water was 219,440.4 megaliters that it represents 82% of total water (reused + withdrawals water). The use calculation is: Reused water / (Reused water + Withdrawals water).

Facility reference number
Facility 2

Facility name
Monte Alegre unit

% recycled or reused
11-25%

Comparison with previous reporting year
Lower

Please explain
The volume of reused water in 2017 on Monte Alegre unit was 22,865.9 megaliters that it represents 34% of total water. In 2018, the volume of reused water was 10,992.3 megaliters that it represents 21% of total water (reused + withdrawals water). The use calculation is: Reused water / (Reused water + Withdrawals water).

Facility reference number
Facility 3

Facility name
Piracicaba unit

% recycled or reused
76-99%

Comparison with previous reporting year
Higher

Please explain
The volume of reused water in 2017 on Piracicaba unit was 1,860.2 megaliters that it represents 82% of total water. In 2018, the volume of reused water was 1,527.9 megaliters that it represents 84% of total water (reused + withdrawals water). The use calculation is: Reused water / (Reused water + Withdrawals water).

Facility reference number
Facility 4

Facility name
Goiana unit

% recycled or reused
51-75%

Comparison with previous reporting year
Lower

Please explain
The volume of reused water in 2017 on Goiana unit was 1,557.7 megaliters that it represents 65% of total water. In 2018, the volume of reused water was 1,557.7 megaliters that it represents 61% of total water (reused + withdrawals water). The use calculation is: Reused water / (Reused water + Withdrawals water).

W5.1d

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

Water withdrawals – total volumes

% verified
76-100

What standard and methodology was used?
Conecta Consulting conducted the process of independent verification of the Klabin Sustainability Report 2018 preparing process, developed in accordance with the GRI with verification process with adherence to the principles of the AA1000; and sustainability management company. In addition, we have ISO 14.000 certification standards, which represents the guarantee of sampling methods, recycling systems and a wide management.

Water withdrawals – volume by source

% verified
76-100

What standard and methodology was used?
Conecta Consulting conducted the process of independent verification of the Klabin Sustainability Report 2018 preparing process, developed in accordance with the GRI with verification process with adherence to the principles of the AA1000; and sustainability management company. In addition, we have ISO 14.000 certification standards, which represents the guarantee of sampling methods, recycling systems and a wide management.

Water withdrawals – quality

% verified
76-100

What standard and methodology was used?
Conecta Consulting conducted the process of independent verification of the Klabin Sustainability Report 2018 preparing process, developed in accordance with the GRI with verification process with adherence to the principles of the AA1000; and sustainability management company. In addition, we have ISO 14.000 certification standards, which represents the guarantee of sampling methods, recycling systems and a wide management.

Water discharges – total volumes

% verified
76-100

What standard and methodology was used?
Conecta Consulting conducted the process of independent verification of the Klabin Sustainability Report 2018 preparing process, developed in accordance with the GRI with verification process with adherence to the principles of the AA1000; and sustainability management company. In addition, we have ISO 14.000 certification standards, which represents the guarantee of sampling methods, recycling systems and a wide management.

Water discharges – volume by destination

% verified
76-100

What standard and methodology was used?
Conecta Consulting conducted the process of independent verification of the Klabin Sustainability Report 2018 preparing process, developed in accordance with the GRI with verification process with adherence to the principles of the AA1000; and sustainability management company. In addition, we have ISO 14.000 certification standards, which represents the guarantee of sampling methods, recycling systems and a wide management.

Water discharges – volume by treatment method

% verified
76-100

What standard and methodology was used?
Conecta Consulting conducted the process of independent verification of the Klabin Sustainability Report 2018 preparing process, developed in accordance with the GRI with verification process with adherence to the principles of the AA1000; and sustainability management company. In addition, we have ISO 14.000 certification standards, which represents the guarantee of sampling methods, recycling systems and a wide management.

Water discharge quality – quality by standard effluent parameters

% verified
76-100

What standard and methodology was used?
Conecta Consulting conducted the process of independent verification of the Klabin Sustainability Report 2018 preparing process, developed in accordance with the GRI with verification process with adherence to the principles of the AA1000; and sustainability management company. In addition, we have ISO 14.000 certification standards, which represents the guarantee of sampling methods, recycling systems and a wide management.

Water discharge quality – temperature

% verified
76-100

What standard and methodology was used?
Conecta Consulting conducted the process of independent verification of the Klabin Sustainability Report 2018 preparing process, developed in accordance with the GRI with verification process with adherence to the principles of the AA1000; and sustainability management company. In addition, we have ISO 14.000 certification standards, which represents the guarantee of sampling methods, recycling systems and a wide management.

Water consumption – total volume

% verified
76-100

What standard and methodology was used?
Conecta Consulting conducted the process of independent verification of the Klabin Sustainability Report 2018 preparing process, developed in accordance with the GRI with verification process with adherence to the principles of the AA1000; and sustainability management company. In addition, we have ISO 14.000 certification standards, which represents the guarantee of sampling methods, recycling systems and a wide management.

Water recycled/reused

% verified
76-100

What standard and methodology was used?
Conecta Consulting conducted the process of independent verification of the Klabin Sustainability Report 2018 preparing process, developed in accordance with the GRI with verification process with adherence to the principles of the AA1000; and sustainability management company. In addition, we have ISO 14.000 certification standards, which represents the guarantee of sampling methods, recycling systems and a wide management.

W6. Governance

W6.1

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

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

W6.1a

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

	Scope	Content	Please explain
Row 1	Company-wide	Description of business dependency on water Description of business impact on water Description of water-related performance standards for direct operations Description of water-related standards for procurement Reference to international standards and widely-recognized water initiatives Company water targets and goals Commitment to align with public policy initiatives, such as the SDGs Commitments beyond regulatory compliance Commitment to water-related innovation Commitment to stakeholder awareness and education Commitment to water stewardship and/or collective action Acknowledgement of the human right to water and sanitation Recognition of environmental linkages, for example, due to climate change	Klabin's Environmental Management System is certified by ISO 14001 and supported by the company's Sustainability Policy. Aspects such as water, energy, climate change and biodiversity are considered in all operations, reaffirming the company's commitment to the conservation of natural resources, with the constant reduction of resource use non-renewable and with the control and mitigation of environmental impacts. These aspects are monitored by indicators, whose management since 2018 has been consolidated in the Resource Advisor platform, facilitating the traceability of information. The indicators and targets are defined by the Sustainability Committee, formed by director and representatives of industrial operations, and deployed in specific goals for each business. Since 2016, Klabin has voluntarily joined the Sustainable Development Goals (ODS), a United Nations initiative that brings together governments, civil society and the private sector on a global agenda with 17 goals and 169 goals in favor of people, the planet, peace and prosperity. ODS sets global priorities and aspirations by 2030 and represents an opportunity to eliminate extreme poverty and put the world on a sustainable path. Klabin has developed new goals and targets to incorporate both issues relevant to our business and the issues on this global agenda to the Klabin Sustainability Strategy. The entire management of the company is oriented to Sustainable Development, seeking integrated and responsible growth, which combines profitability, social development and environmental commitment. Since 2014, Klabin has been integrating the Business Sustainability Index (ISE) of B3. It is also a signatory to the UN Global Compact and the National Pact for the Eradication of Slave Labor, seeking suppliers and business partners who follow the same values of ethics, transparency and respect for the principles of sustainability.

W6.2

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

Yes

W6.2a

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

Position of individual	Please explain
Director on board	DIRECTOR OF INDUSTRIAL TECHNOLOGY, INNOVATION, SUSTAINABILITY AND PULP BUSINESS OFFICER, has the responsibility over Water Security and its related studies on impacts and opportunities. Alongside him, the Environmental and Sustainability Corporate team is also responsible for the day-to-day management of the issue with the responsibility of monitoring global and national water security agendas and mapping their related risks and opportunities. It is worth mentioning that Klabin maintains a fixed sustainability committee main composed of directors. Also, participate in this committee, managers of people and corporate services, legal directory, industrial directory of papers and forest management areas.

W6.2b

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

	Frequency that water-related issues are a scheduled agenda item	Governance mechanisms into which water-related issues are integrated	Please explain
Row 1	Scheduled - all meetings	Monitoring implementation and performance Overseeing acquisitions and divestiture Overseeing major capital expenditures Providing employee incentives Reviewing and guiding annual budgets Reviewing and guiding business plans Reviewing and guiding major plans of action Reviewing and guiding risk management policies Reviewing and guiding strategy Reviewing and guiding corporate responsibility strategy Reviewing innovation/R&D priorities Setting performance objectives	- Issues related to water security are part of the organization's sustainability policy and objectives. Item number 7 of Klabin's sustainability policy: "Seek to apply the most efficient and current technologies and engineering solutions in the implementation of new projects and ventures, ensuring the protection of human health, natural resources and the environment". - 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 water security 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.

W6.3

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

Name of the position(s) and/or committee(s)
Chief Sustainability Officer (CSO)

Responsibility
Both assessing and managing water-related risks and opportunities

Frequency of reporting to the board on water-related issues
Quarterly

Please explain
- 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 water security and its related studies on impacts and opportunities.

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

Responsibility
Both assessing and managing water-related risks and opportunities

Frequency of reporting to the board on water-related issues
Quarterly

Please explain
- 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 responsable 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 water security 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. - 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.

Name of the position(s) and/or committee(s)
Environment/Sustainability manager

Responsibility
Both assessing and managing water-related risks and opportunities

Frequency of reporting to the board on water-related issues
More frequently than quarterly

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

W6.5

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

W6.5a

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

- Only a few people are allowed to speak on behalf of the company.

- These people are trained by the communication area following the internal procedure (spokesperson internal procedure).

- Further, when the subject is water security, the sustainability area provides the necessary information to assist based on Klabin's sustainability policy.

- All employees are receiving training on Klabin's sustainable practices so they can always take correct information when they talk about the company.

- If an inconsistency is discovered, the person involved will be re-trained so that their actions are based on Klabin's sustainability policy.

W6.6

(W6.6) Did your organization include information about its response to water-related risks in its most recent mainstream financial report?
Yes (you may attach the report - this is optional)

W7. Business strategy

W7.1

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

	Are water-related issues integrated?	Long-term time horizon (years)	Please explain
Long-term business objectives	Yes, water-related issues are integrated	11-15	Klabin has clear guidelines that orientates its activities planning and operations towards the management of Water Security and its related issues. Its pillars, basically, relies on making constant improvements to make its operations more efficient in terms of use, reuse and emissions, the establishment of targets for water withdrawals and the assessment of business vulnerabilities in face of the Water Security. Based on that, in 2013 the company started to study the most vulnerable aspects of its operations regarding change in rainfall and temperatures patterns, droughts and flooding. 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 factories), as well as indications on possible external effects related to these water security such as price and pressure on natural resources and its effects. The potential short and medium terms effects were already added to company's strategic planning (especially those ones which require technological innovation to preserve forests growth) and are closely monitored by multiple groups, including the Sustainability Committee and the Climate Committee. The time horizon chosen was selected because the eucalyptus and pinus wood growth are 7 and 14 years.
Strategy for achieving long-term objectives	Yes, water-related issues are integrated	11-15	An example of outcome is the creation of 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 threats and opportunities of the water use. The adequate use and reuse of water and natural resources are also one of the commitments of the organization, inserted in its Sustainability Policy (item number 7). 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. Our concern with the reuse and use of water extends to strategic decisions to the recently built Puma Unit in Ortigueira, PR. The time horizon chosen was selected because the eucalyptus and pinus wood growth are 7 and 14 years.
Financial planning	Yes, water-related issues are integrated	11-15	Klabin invested BRL 956 millions in 2018. Of this amount, BRL 272 millions were destined to forest operations, BRL 462 millions were allocated to the operational continuity of the plants, and BRL 222 millions were invested in special projects and expansions, especially in high-return projects that seek to improve the Company's performance in all segments in which it operates. Also 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 millions between 2015 and 2017, Klabin will contribute approximately BRL 180 millions in Industrial and Forestry Research in the years 2019-2021, including a new Pilot Plant, aiming at the development of new products , in addition to agreements with research institutes and national and international universities. The Research & Development and Innovation area develops researches in five routes of action: - Development of the forest raw material for pulp, paper and new materials; - Biorefinery (multiple uses of forest base, mainly lignin); - Optimization of processes in: environment, reuse of products generated in the process, reduction of water, energy and steam consumption; - Nanotechnology - cellulose fractions in micro or nano-scale and application in new products. The time horizon chosen was selected because the eucalyptus and pinus wood growth are 7 and 14 years.

W7.2

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

Row 1

Water-related CAPEX (+/- % change)

3

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

10

Water-related OPEX (+/- % change)

11

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

6

Please explain

Water-related CAPEX 2017: BRL 47.2 MM (total Klabin: BRL 925 MM) Water-related CAPEX 2018: BRL 48.6 MM (total Klabin: BRL 956 MM) Water-related CAPEX 2019 estimated: BRL 53.5 MM (total Klabin: BRL 1,052 MM) Water-related OPEX 2017: BRL 65.5 MM (total Klabin: BRL 1,197 MM) Water-related OPEX 2018: BRL 72.7 MM (total Klabin: BRL 1,325 MM) Water-related OPEX 2019 estimated: BRL 77.1 MM (total Klabin: BRL 1,400 MM) MM = Millions

W7.3

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

	Use of climate-related scenario analysis	Comment
Row 1	Yes	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 and water security. 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.

W7.3a

(W7.3a) Has your organization identified any water-related outcomes from your climate-related scenario analysis?

Yes

W7.3b

(W7.3b) What water-related outcomes were identified from the use of climate-related scenario analysis, and what was your organization's response?

	Climate-related scenario(s)	Description of possible water-related outcomes	Company response to possible water-related outcomes
Row 1	Other, please specify (RCP 4.5 / RCP 8 / RCP 8.5)	- Klabin (especially forestry unit) has a complete study on: (i) current and future climate conditions (ii) and the impact of climate change for the business. Thus defining the relevant climate risks and its mitigation plans, integrating the Klabin risk management. It is projected the changes of the main climatic factors for eucalyptus and pinus growth - precipitation, evapotranspiration and deficit / surplus water. - The analyses of climatic variables are based on historical climate data in the region (1981-2010); and reference scenarios on GHG emissions - RCP 8 - for climate models - MIROC 5 and Hadgen, in the period of 2021-2040. For some industrial units we also use the Aqueduct Water Risk based on two climate scenarios, RCP 4.5 and RCP 8.5. - For the Klabin's forestry units (located in PR, SP and SC states) have not been identified substantive change in the water variables (precipitation, evapotranspiration and deficit / surplus water) that interfere with the growth of eucalyptus and pinus, in the analyzed period. - Increase of more intensive rains was identified, although it does not affect forest productivity, but can affect the logistic (forest to industry, and industry to market). - Moreover, Klabin has one unit that converting paper to packaging, Goiana, located in area with risk of water shortage – identified in the Klabin climate study and Aqueduct Water Risk.	- Due the relevance of water for forestry productivity, the Research, Development and Innovation area considers some changes and their impacts on research routes (prevention measures), searching solutions and adaptation measures. Research routes: genetic improvement, wood quality, soil and climate studies, genetic adaptation, pest control, biotechnology and others. - According to the future scenarios identified through the Aqueduct Water Risk methodology, Klabin evaluates the water stress of its units to anticipate actions to risks mitigate or reduce linked to areas considered as water stress.

W7.4

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

Row 1

Does your company use an internal price on water?

Yes

Please explain

- Klabin has a cost to treat the water on Water Treatment Plant. After of water treatment, all the operational areas of unit pay for the volume water consumes. - In 2018, Puma unit use 46,913.1 megaliters of treated water and had a cost of BRL 9,509,549. Therefore, for each m3 of water treated, the Puma unit paid in average BRL 0.203. For example, in December of 2018, Fiber Line area consumed 1,482.0 megaliters of water and paid BRL 0.413 per m3 of treated water. Therefore, the Fiber Line area paid on December of 2018 amount BRL 612,066 for the treated water. - Klabin no pay to withdrawals water.

W8. Targets

W8.1

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

	Levels for targets and/or goals	Monitoring at corporate level	Approach to setting and monitoring targets and/or goals
Row 1	Company-wide targets and goals Business level specific targets and/or goals Activity level specific targets and/or goals Site/facility specific targets and/or goals Brand/product specific targets and/or goals Country level targets and/or goals Basin specific targets and/or goals	Targets are monitored at the corporate level Goals are monitored at the corporate level	- Klabin's targets and goals related to water security are defined by the Sustainability Committee and based on company strategy and environmental requirements. - The corporation targets and goals are monitored by environmental and sustainability team that it is responsible to monitors the corporation indicators. There is an environmental platform (Resource Advisor) which it assist the environmental management, the targets and goals. - Environmental team of each unit analyzes the indicators monitored on the environmental critical analysis.

W8.1a

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

Target reference number
Target 1

Category of target
Water withdrawals

Level
Company-wide

Primary motivation
Commitment to the UN Sustainable Development Goals

Description of target
Reduce 5% of the total water withdrawals in company-wide.

Quantitative metric
% reduction in total water withdrawals

Baseline year
2017

Start year
2018

Target year
2022

% achieved
50.8

Please explain
The target for reducing water withdrawal by 2022 is 5%. In 2018, we reduced the total water withdrawals by 2.54%, what it represents that 50.8% of the target has already been achieved. This target of Klabin SA contributes to water security through better management of water resources and meeting the UN Sustainable Development Goals.

W8.1b

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

Goal
Engagement with suppliers to reduce the water-related impact of supplied products

Level
Company-wide

Motivation
Reduced environmental impact

Description of goal
- This goal is very important to Klabin. The adequate water consumption by suppliers avoid the supply interruption of water and the interruption the Klabin production. - If the goal will be achieved, Klabin can avoid the pulp and paper production interruption. - The evaluation of Klabin suppliers will cover all suppliers, gradually, through the Ecovadis platform. For that, the chosen level is company-wide. - Klabin's wood suppliers do not use water but Klabin aims to engage these suppliers on the importance of keeping the springs and quality of the water bodies present on their properties. For industrial suppliers, Klabin seeks to encourage them to reduce water consumption and the impacts related to their products. - Klabin's supplier evaluation platform presents the results of each supplier and allows the development of an action plan for the supplier to work during the year.

Baseline year
2015

Start year
2016

End year
2030

Progress
- Klabin evaluates the environmental indicators of its suppliers, based on water withdrawal, identification and evaluation of the risks related to water and definition of its objectives and targets related to water. - In 2018, 97.5% of the items verified in the audits performed on wood suppliers were attended. In 2018, industrial suppliers will also be scored from 0 to 100 regarding environmental performance, water withdrawal, identification and assessment of risks and setting goals and objectives. - The success is measured by number of interruptions the wood purchase. - The Ecovadis platform covers issues related to: 1. Environmental (water, energy consumption, emissions, etc.), 2. Labor and Human Rights (employee health and safety, working conditions, etc.), 3. Ethics (corruption, anti-competitive practices, etc.) 4. Sustainable Procurement (supplier environmental practices and supplier social practices). The Ecovadis platform compiles to the suppliers reports and provides the results of easy way and ready for decision making by assessing each supplier's scores. The success is measured by sustainability performance on the Ecovadis report.

W9. Linkages and trade-offs

W9.1

(W9.1) Has your organization identified any linkages or tradeoffs between water and other environmental issues in its direct operations and/or other parts of its value chain?

Yes

W9.1a

(W9.1a) Describe the linkages or tradeoffs and the related management policy or action.

Linkage or tradeoff

Linkage

Type of linkage/tradeoff

Environmental restoration

Description of linkage/tradeoff

- Mosaic forest management is a technique used to increase the productivity of the forest because it uses the soil and the water resource properly. However, this technique increases the biodiversity of the region and improve the water indicators. Klabin's forest units are located in Paraná, Santa Catarina and São Paulo. - The main result obtained through this linkage are the hydrological indicators, which generate information on the environmental impacts caused by the management of planted forests, constituting one of the main tools for analysis of continuous improvement of the operations carried out in the forest enterprise. - It is a field routine that the area supervisor performs the maintenance and inspection of the equipment, as well as rescue the climatic and water level data that are previously stored in a datalogger installed in the spillways. These data are sent to the technical team of consulting company to carry out the relevant analyzes.

Policy or action

- Mosaic forest management is integrated with item 4 of Klabin's Sustainability Policy, which ensure the sustainably supply of wood planted for its industrial units without adversely affecting the associated natural ecosystems in both own operations and those of producers under development programs. Committed to sustainable development, mosaic forest management is our trademark, a system that blends vast areas of preserved native forests with forests planted at different ages. - Below is a summary of the results already acquired through the monitoring of the river basin in question, from 2014 to 2018: 1. The precipitated volume in the studied region was higher than the expected normal precipitation volume for the same period, indicating good climatic conditions for the development of plantings and other vegetation cover in the river basin. 2. Regarding the indexes of hydrological processes, the index of consumption of plantations shows good conditions for the growth of the forest plantations due to the succession of positive values throughout the monitoring. 3. Practically none of the water quality parameters monitored in the river basin were outside the limits stipulated by current legislation. The phosphorus concentration was 0.11 mg/L, but the concentration did not reflect the behavior of the other parameters analyzed. 4. Monitoring of water quality parameters demonstrates good quality of silvicultural operations performed by the company during the monitored period.

W10. Verification

W10.1

(W10.1) Do you verify any other water information reported in your CDP disclosure (not already covered by W5.1d)?

Yes

W10.1a

(W10.1a) Which data points within your CDP disclosure have been verified, and which standards were used?

Disclosure module	Data verified	Verification standard	Please explain
W1. Current state	The data verified are volumes total withdrawals water, discharges wastewater and total consumption water.	AA1000AS	Conecta Consulting conducted the process of independent verification of the Klabin Sustainability Report 2018 preparing process, developed in accordance with the GRI with verification process with adherence to the principles of the AA1000; and sustainability management company. In addition, we have ISO 14.000 certification standards, which represents the guarantee of sampling methods, recycling systems and a wide management.
W4. Risks and opportunities	The data verified are risks and opportunities of company-wide.	AA1000AS	Conecta Consulting conducted the process of independent verification of the Klabin Sustainability Report 2018 preparing process, developed in accordance with the GRI with verification process with adherence to the principles of the AA1000; and sustainability management company. In addition, we have ISO 14.000 certification standards, which represents the guarantee of sampling methods, recycling systems and a wide management.
W8. Targets	The data verified are targets and gols of company-wide.	AA1000AS	Conecta Consulting conducted the process of independent verification of the Klabin Sustainability Report 2018 preparing process, developed in accordance with the GRI with verification process with adherence to the principles of the AA1000; and sustainability management company. In addition, we have ISO 14.000 certification standards, which represents the guarantee of sampling methods, recycling systems and a wide management.

W11. Sign off

W-FI

(W-FI) Use this field to provide any additional information or context that you feel is relevant to your organization's response. Please note that this field is optional and is not scored.

There is no additional information.

W11.1

(W11.1) Provide details for the person that has signed off (approved) your CDP water response.

	Job title	Corresponding job category
Row 1	Director of Industrial Technology, Innovation, Sustainability and Pulp Business Officer	Director on board

W11.2

(W11.2) Please indicate whether your organization agrees for CDP to transfer your publicly disclosed data on your impact and risk response strategies to the CEO Water Mandate's Water Action Hub [applies only to W2.1a (response to impacts), W4.2 and W4.2a (response to risks)].

Yes

SW. Supply chain module

SW0.1

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

	Annual revenue
Row 1	10016461000

SW0.2

(SW0.2) Do you have an ISIN for your organization that you are willing to share with CDP?

Yes

SW0.2a

(SW0.2a) Please share your ISIN in the table below.

	ISIN country code	ISIN numeric identifier (including single check digit)
Row 1	BR	KLBNCDAM18

SW1.1

(SW1.1) Have you identified if any of your facilities reported in W5.1 could have an impact on a requesting CDP supply chain member?

Yes, CDP supply chain members buy goods or services from facilities listed in W5.1

SW1.1a

(SW1.1a) Indicate which of the facilities referenced in W5.1 could affect a requesting CDP supply chain member.

Facility reference number
Facility 2

Facility name
Monte Alegre unit

Requesting member
Unilever plc

Description of potential impact on member
Reduction or disruption in production capacity

Comment
The impact of the lack of water in paper production can be very significant, however, in the current situation and medium term is unlikely, because the Klabin factories use river water with high flow rates.

SW1.2

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

SW1.2a

(SW1.2a) Please provide all available geolocation data for your site facilities.

Identifier	Latitude	Longitude	Comment
Betim unit	-19.964755	-44.120758	No comments.
Feira de Santana unit	-12.290827	-38.91198	No comments.
Itajaí unit	-26.891305	-48.709733	No comments.
Jundiaí DI unit	-23.1752	-46.931352	No comments.
Jundiaí TP unit	-23.266963	-46.865105	No comments.
Lages 1 unit	-27.808633	-50.363555	No comments.
Lages 2 unit	-27.797544	-50.291533	No comments.
Manaus unit	-3.0985	-59.943561	No comments.
São Leopoldo unit	-29.786711	-51.114425	No comments.
Rio Negro unit	-26.083283	-49.77273	No comments.
Correia Pinto unit	-27.551489	-50.364019	No comments.
Angatuba unit	-23.565067	-48.359227	No comments.
Otacílio Costa unit	-27.513275	-50.116603	No comments.

SW2.1

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

Requesting member
Unilever plc

Category of project
Communications

Type of project
Joint case studies or marketing campaign

Motivation
Klabin can carry out a life-cycle evaluation of the paper bag or the carton packaging compared to other types of bags and packaging.

Estimated timeframe for achieving project
2 to 3 years

Details of project
Evaluation of the production of paper, packaging or bag from cradle to grave and compare with other products on the market.

Projected outcome
Evaluation of the production of paper, packaging or bag from cradle to grave and compare with other products on the market.

SW2.2

(SW2.2) Have any water projects been implemented due to CDP supply chain member engagement?
No

SW3.1

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

Product name
Cellulose - Puma unit

Water intensity value
32.5

Numerator: Water aspect
Water withdrawn

Denominator: Unit of production
tonne

Comment
The water withdrawals per tonne of cellulose was 32.5 m3/tonne in 2018.

Product name
Kraftpaper - Monte Alegre unit

Water intensity value
40.6

Numerator: Water aspect
Water withdrawn

Denominator: Unit of production
tonne

Comment
The water withdrawals per tonne of kraftpaper was 40.6 m3/tonne in 2018.

Submit your response

In which language are you submitting your response?
English

Please confirm how your response should be handled by CDP

	Public or Non-Public Submission	I am submitting to	Are you ready to submit the additional Supply Chain Questions?
I am submitting my response	Public	Investors Customers	Yes, submit Supply Chain Questions now

Please confirm below
I have read and accept the applicable Terms