Klabin S/A - Water Security 2022

W0. Introduction

W0.1

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

For 123 years, Klabin has been part of the daily lives of millions of people by creating customized sustainable solutions for various industrial sectors. Klabin is the Brazil's largest paper manufacturer and exporter and the country's leading producer of papers and paperboard for packaging, industrial bags and corrugated board packaging. Moreover, we are the only Brazilian company to simultaneously supply hardwood pulp (eucalyptus), softwood pulp (pine) and fluff pulp to the market.

Founded in Brazil in 1899, currently has 23 industrial units, with 22 units distributed in ten Brazilian states and one in Argentina. Klabin also has commercial offices in various Brazilian states, a branch office in the United States, Austria, and sales representatives and agents in many countries. Recently, in 2020, Klabin acquired five units from International Paper.

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

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

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

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

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

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

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

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

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

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 2021	December 31 2021

W0.3

(W0.3) Select the countries/areas in which you operate.

Argentina
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

W0.7

(W0.7) Does your organization have an ISIN code or another unique identifier (e.g., Ticker, CUSIP, etc.)?

Indicate whether you are able to provide a unique identifier for your organization.	Provide your unique identifier
Yes, an ISIN code	BRKLBNACNPR9

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. Klabin uses only fresh surface water in its processes and our products comply with strict food safety regulations. This is why the importance of good quality freshwater availability is vital. In 2021, Klabin's total water withdrawals was 114,624.39 megaliters, with 99.6% of surface water from rivers, 0.2% of third-party water and 0.2% of groundwater. The small share of groundwater and third party sources (ca. 0.4%) was used for drinking and hygiene purposes only. 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. As we report in last year about the future dependency, Klabin adquired five units from International Paper and finish the construction of phase I of Puma II project (packaging paper machine) and this is responsible to increase in our water withdrawals result in 2021. Considering the future dependency, Klabin will have an increase in water consumption of direct use due to the phase II expansion cycle involves the construction of one paperboard machine which will be built on the same site as the Puma unit. - Indirect Use: Freshwater is vital raw material to our suppliers, principally chemical industry (i.g sodium hydroxide, sulfuric acid and aluminium sulphate). Klabin wood suppliers also have a water dependency for irrigation and wood represents the main raw material of Klabin's incoming supply chain. Therefore, the fresh water available for use are especially important for us. Considering the future dependency, the freshwater will continue being vital to our chemical and wood suppliers because Klabin has an ongoing expansion and our suppliers needs to be together with us. According freshwater is especially important to us, Klabin started in 2019 an Environmental and Social Responsibility Program that assess the water management of our suppliers.
Sufficient amounts of recycled, brackish and/or produced water available for use	Vital	Neutral	- Klabin do not used the brackish and produced water to direct and indirect use. - Direct Use: Recycled water is vital in pulp and paper industry. In 2021, Klabin's total water recycled was 245,646.55 megaliters, which represents 68.2% of the total water withdrawals utilized in 2021. Puma unit, located in the state of Paraná, use the same water around 5 times before returning approximately 81.7% of total 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 one paperboard machine which will be built on the same site as the Puma unit. The new machine will have annual production capacity more than 400,000 tons of paper. - Indirect Use: Indirect use of recycled water is of neutral importance because Klabin's supply chain does not significantly rely on recycled water. However, there are opportunities for recycled water use in our suppliers located in water stress areas. Considering the future dependency, we expect indirect use of recycled water will be important because we have been observed more frequently water shortage events in locations where there are not classified of water stressed areas. Even that the forests we are getting our timber from are sustainably managed, Klabin expected that the recycled water will be important to us in soon 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 measures 100% of water withdrawals - total volumes ensuring company will not withdraw higher volumes than the source regenerative capacity in order to ensure future availability of the resource. The total volumes of water withdrawals are monitored continuously (daily basis). The method of monitoring is based in flowmeters. After that, the monthly data is consolidated in the SAP system or other Klabin's internal database where we generate the reports. Due to environmental and water permits figures are reported by annually basis to the authorities.
Water withdrawals – volumes by source	100%	100% of water withdrawals by source is measured because it is important to company knows how is its impact in each source and how the company can improve the water quantity and quality available in each source. Klabin uses water from rivers (more than 99% of total water), renewable groundwater and third party sources. The water volume by source is monitored continuously (daily basis). The method of monitoring is based in flowmeters. After that, the monthly data is consolidated in the SAP system or other Klabin's internal database where we generate the reports. 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 sector]	<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 monitors continuously 100% of the water quality (eg. BOD, COD, P, N, TSS, temperature). For example, BOD and COD concentrations is measured according to standards APHA Standards Methods (5220). Klabin is measuring the quality of its water withdrawals for all of its operations on a daily basis. The data are consolidated by local database on monthly basis. Due to environmental and water permits figures are reported by annually basis to the authorities.
Water discharges – total volumes	100%	Klabin measures 100% of total volume of water discharged. The volume discharged in all sources is monitored continuously (daily basis). The total volumes of water discharges are monitored continuously (daily basis). The method of monitoring is based in flowmeters. After that, the monthly data is consolidated in the SAP system or other Klabin's internal database where we generate the reports. 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 volume discharged in all sources is monitored continuously on daily basis. The method of monitoring is based in flowmeters. After that, the monthly data is consolidated in the SAP system or other Klabin's internal database where we generate the reports. 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. After that, the monthly data is consolidated in the SAP system or other Klabin's internal database where we generate the reports. Due to environmental and water permits figures are reported by annually basis to the authorities.
Water discharge quality – by standard effluent parameters	100%	Klabin monitors continuously 100% of the water discharge quality (eg. BOD, COD, P, N, TSS, temperature). For example, BOD and COD concentrations is measured according to standards APHA Standards Methods (5220). Klabin is measuring the quality of its discharged water for all of its operations on a daily basis. The data are consolidated by local database on monthly basis. Due to environmental and water permits figures are reported by annually basis to the authorities.
Water discharge quality – temperature	100%	Klabin continuously monitors and measures temperature of its wastewater released during and after wastewater treatment plant. We use sensors specifically designed to monitor temperature in wastewater and industrial effluent treatment applications. The online sensors (thermometers) are factory calibrated and regularly maintained. Each factory control the quality data of water discharged locally on daily basis. The consolidated data are registered by local database on monthly basis. Due to environmental and water permits figures are reported by annually basis to the authorities.
Water consumption – total volume	100%	Klabin calculates the total water consumption in all its operations and facilities. Water consumption is calculated by monthly 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. The water consumption is calculated by water withdrawals volumes minus water discharges volumes. After that, the monthly data is consolidated in the SAP system or other Klabin's internal database where we generate the reports.
Water recycled/reused	100%	The use of water recycled/reused is vital to Klabin. 100% of water recycled/reuse is monitored continuously (daily basis). The method of monitoring is based in flowmeters. The data is registered on the Klabin's internal 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 units.
The provision of fully-functioning, safely managed WASH services to all workers	100%	Klabin is working in its operations in compliance with international hygiene standards and according Brazilian law. 100% of Klabin production units monitors by daily basis the volume water provided for fully-functioning, safely managed WASH services. The method of monitoring is based in flowmeters. Due to environmental and water permits figures are reported by annually basis to the authorities.

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	114624.39	Higher	First of all, it is important to consider Klabin acquired five units from International Paper and the data was included in this report. Further, as we report in last year, Klabin finished the phase I construction of Puma project with startup of new packaging paper machine. That's why, the Klabin's total production has increased by 16.2% and the total water withdrawals was higher just by 8.2% in 2021 compared to 2020. To Klabin, much higher is more than 10% of increase between 2020 and 2021. Even with an increase in our water withdrawals, we consider this like a good work because Puma unit was responsible for increase more than 7,000 megaliters and the new units acquired from International Paper were responsible for more than 1,300 megaliters in 2021. Fresh surface water is vital to Klabin because this volume represents 99.6% of all withdrawn water. All volumes for each source are sourced from direct measurements and are monitored by Klabin, quantitative and qualitatively. With the Puma unit expansion on going (phase I was completed and the phase II is on going), the total withdrawals water is estimated to be increased by 10 to 15% in the next two years. The total volume of water withdrawn is verified by a third party and the results are publicly available in our 2021 sustainability report.
Total discharges	95232.97	Higher	The total water discharge was higher by 6.1% in 2021 compared to 2020 even as Klabin's production has increased by 16.2%. With the increase in our total production due to startup of new packaging paper machine in Puma unit and to acquire five units from International Paper, Klabin has increased the volume of water withdrawals and water discharged what is a good thing because it shows that our water consumption was controlled. To Klabin, much higher is more than 10% of increase between 2020 and 2021. All volumes for each source are sourced from direct measurements and are monitored by Klabin, quantitative and qualitatively. Puma unit has one of the largest amounts of water discharged in the Tibagi River. However, its treatment process is one of the most robust in the company. With tertiary treatment, the water discharged into the river has a much higher quality than the required environmental limits. The water withdrawals point is downstream from the water discharge point, which demonstrates our commitment with the best available practices. With the Puma unit expansion on going (phase I was completed and the phase II is on going), the total water discharge is estimated to be increased by 10 to 15% in the next two years. The total volume of water discharged is verified by a third party and the results are publicly available in our 2021 sustainability report.
Total consumption	19391.42	Much higher	Klabin's total water consumption (C) is calculated by difference between the total withdrawals (W) and discharge (D) water from Klabin's units (C = W - D). To Klabin, much higher is more than 10% of increase between 2020 and 2021. The total consumption of water has increased by 19.6% in 2021 compared to 2020. This has been caused due to increase of water withdrawal has been higher than water discharge in the same period. To us, this is not a big problem because we have a lot of ongoing plan actions that will reduce the water consumption in the next years. In this year, we had an important impact by the startup of new packaging paper machine in Puma unit and the acquisition of five units from International Paper. The water consumption volume considers: (i) the volume incorporated into products and residues; (ii) the evaporated volume; and (iii) the volume consumed by human beings. In near future, we expect a reduction of water consumption due to our commitment to improving our water reuse and water use efficiency, especially in operations located in water-stressed areas in the states of Pernambuco, Ceará, Goiás and São Paulo. In addition, the Puma unit expansion will have a significant impact on total water consumption due to higher water reuse in this unit.

W1.2d

(W1.2d) Indicate whether water is withdrawn from areas with water stress and provide the proportion.

	Withdrawals are from areas with water stress	% withdrawn from areas with water stress	Comparison with previous reporting year	Identification tool	Please explain
Row 1	Yes	1-10	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. All water stressed areas are measured at a minimum catchment level. No exclusions were considered. To Klabin, much higher is more than 10% of increase between 2020 and 2021. In 2018, this criterion had only one site as being located in water stressed areas: Goiana unit, located in Pernambuco/Brazil. Goiana's withdrawals water represented 0.89% (976.50 megaliters) of total withdrawals water by Klabin. In 2019, this criterion had more two sites as being classified in water stressed areas: Jundiaí DI e Jundiaí TP units, both located in the São Paulo state. In 2019, the three sites now classified as water stressed areas withdrawn 1,201.41 megaliters what represent 1.1% of total withdrawals water by Klabin. It represents an increase by 23% between 2018 and 2019. In 2020, this criterion had more one site as being classified in water stressed areas: the new unit of Horizonte, located in the Ceará state. In 2020, the four sites now classified as water stressed areas withdrawn 928.86 megaliters what represent 0.9% of total withdrawals water by Klabin. It represents a decrease by 23% between 2019 and 2020. In 2021, this criterion had more three sites as being classified in water stressed areas: the three units were acquired from International Paper on the last year (Franco da Rocha, Rio Verde and Suzano units). In 2021, the seven sites now classified as water stressed areas withdrawn 1,346.41 megaliters what represent 1.2% of Klabin's total withdrawals water. Even it represents an increase by 32% between 2020 and 2021, the volume of water withdrawals in water stressed areas is very small. The percentage of water withdrawn from areas with water stressed areas in column 2, even that small, is very important to Klabin. All units located on water stressed areas have an action plans to improve the water efficiency, increase the reuse of water and get an alternative water source.

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	114167.09	Higher	To Klabin, much higher is more than 10% of increase between 2020 and 2021. Fresh surface water is vital to Klabin because this volume represents 99.6% of all withdrawn water. The total fresh surface water is from rivers. All volumes for each source are sourced from direct measurements through flowmeters and are monitored by Klabin, quantitative and qualitatively. The volume of fresh surface water is higher by 8% between 2021 and 2020. In the same period, the Klabin's total production was higher by 16%. It is important to consider Klabin adquired five units from International Paper and the data was included in this report (more than 1,300 megaliters). Further, as we report in last year, Klabin finished the phase I construction of Puma project with startup of new packaging paper machine (more than 7,000 megaliters). With the Puma unit expansion on going, the total withdrawals water is estimated to be increased by 10 to 15% in the next two 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.
Groundwater – renewable	Relevant	190.14	Much higher	To Klabin, much higher is more than 10% of increase between 2020 and 2021. The groundwater (renewable) use has increased by 53% in 2021 compared to 2020 because Klabin adquired five new units from International Paper. The groundwater is relevant to Klabin because around 58% of total groundwater withdrawals are located in water stressed area. The groundwater use represents only 0.2% of all water intake. All volumes for each source are sourced from direct measurements through flowmeters and are monitored by Klabin, quantitative and qualitatively. Considering possible future trends, Klabin may have an increase of groundwater withdrawn due to possibility of expansion on Goiana unit which uses groundwater (renewable). As we report in last year, Klabin expected to include the consolidated data for the units acquired from International Paper and it was occured.
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	267.16	Much higher	Even its represents only 0.2% of total water used, the water intake from third party is very relevant to Klabin because 24% of total third party source withdrawals are located in water stressed area. To Klabin, much higher is more than 10% of increase between 2020 and 2021. In a few units we also used this water to packaging production (e.g Feira de Santana and Jundiaí units). 100% of third party source is from municipal/state supplier. The water intake from third party sources has increased by 23% in 2021 compared to 2020 because Klabin acquired five units from International Paper and three of them use water from third party sources. All volumes for each source are sourced from direct measurements through flowmeters and are quantitave monitored by Klabin. 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	95044.92	Higher	The fresh surface water discharge is relevant to Klabin because 99.8% of total discharge is into the fresh surface water. There was an increase by 6% between 2020 and 2021. In the same period, the Klabin's total production was higher by 16%. In 2020, Klabin has discharged 89,584.69 megaliters. In 2021, Klabin has discharged 95,044.92 megaliters. To Klabin, much higher is more than 10% of increase between 2020 and 2021. All volumes for each source are sourced from direct measurements through flowmeters and are monitored by Klabin, quantitative and qualitatively. It is important to consider Klabin acquired five units from International Paper and the data was included in this report. Further, as we report in last year, Klabin finished the phase I construction of Puma project with startup of new packaging paper machine. With the Puma unit expansion on going, the total water discharge is estimated to be increased by 10 to 15% in the next two 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	188.05	Higher	Even its represents only 0.2% of total water discharged, the water discharge in third party sources is very relevant to Klabin because 6.5% of total water discharged in third party source are located in water stressed area. This only happens for plant that are close to urban areas. 100% of third party sources is in municipal/state supplier. The water discharge in third party sources has increased by 8% in 2021 compared to 2020 because, in 2021, we consolidated the data from five units that Klabin acquired from International Paper (one of them discharge water in third party sources). To Klabin, much higher is more than 10% of increase between 2020 and 2021. All volumes for each source are sourced from direct measurements through flowmeters and are monitored by Klabin, quantitative and qualitatively. Considering possible future trends, Klabin will have a stability of third party sources destination.

W1.2j

(W1.2j) Within your direct operations, indicate the highest level(s) to which you treat your discharge.

	Relevance of treatment level to discharge	Volume (megaliters/year)	Comparison of treated volume with previous reporting year	% of your sites/facilities/operations this volume applies to	Please explain
Tertiary treatment	Relevant	43120.08	Much higher	11-20	The volume of water discharged with tertiary treatment is relevant to Klabin because represents more than 45% of total water discharged. 4 of 23 industrial units of Klabin have tertiary treatment: Itajaí, Jundiaí TP, Puma and São Leopoldo units. Tertiary treatment follows secondary and primary treatment. In these facilities, there are regulatory standards and requirements from Environmental Agency more restrictive than other locals. For that, Klabin has considered the tertiary treatment in theses facilities. This is our rationale to select the level of treatment. The total volume of water discharged in 2020 was 36,184.05 megaliters. The total volume of water discharged in 2021 was 43,120.08 megaliters. The volume of water discharged with tertiary treatment has increased by 19% between 2020 and 2021. To Klabin, much higher is more than 10% of increase between 2020 and 2021. With the phase II of Puma unit expansion on going, the total water discharge is estimated to be increased more by 10 to 15% in the next two years.
Secondary treatment	Relevant	51986.54	Lower	61-70	The volume of water discharged with secondary treatment is relevant to Klabin because represents more than 54% of total water discharged. 16 of 23 industrial units of Klabin have secondary treatment: Angatuba, Betim, Correia Pinto, Feira de Santana, Franco da Rocha, Goiana, Horizonte, Jundiaí DI, Lages 1, Manaus, Manaus II, Monte Alegre, Otacílio Costa, Paulínia, Rio Verde and Suzano units. Secondary treatment follows primary treatment. In these facilities, there are regulatory standards and requirements from Environmental Agency more restrictive than other locals but not so much like the tertiary treatment. For that, Klabin has considered the secondary treatment in theses facilities. This is our rationale to select the level of treatment. The total volume of water discharged in 2020 was 53,459.13 megaliters. The total volume of water discharged in 2021 was 51,986.54 megaliters. The volume of water discharged with secondary treatment has decreased by 3% between 2020 and 2021. To Klabin, much lower is more than 10% of decrease between 2020 and 2021. Considering possible future trends, Klabin will have a stability of water discharged with secondary treatment.
Primary treatment only	Relevant	126.34	Higher	1-10	The volume of water discharged with primary treatment is relevant to Klabin because the primary treatment is the first step of treatment even so representing only 0.1% of Klabin's total water discharged. 2 of 23 industrial units of Klabin have primary treatment: Piracicaba and Rio Verde units. In these facilities, there are no restrictive regulatory standards and requirements from Environmental Agency because normally we discharge water in third party sources. For that, Klabin has considered the primary treatment in theses facilities. This is our rationale to select the level of treatment. The total volume of water discharged in 2020 was 116.40 megaliters. The total volume of water discharged in 2021 was 126.34 megaliters. The volume of water discharged with primary treatment has increased by 9% between 2020 and 2021. To Klabin, much higher is more than 10% of increase between 2020 and 2021. Considering possible future trends, Klabin will have a stability of water discharged with primary treatment.
Discharge to the natural environment without treatment	Relevant	0	About the same	Less than 1%	As it is a disposal of untreated water that can have an impact on the environment, this type of treatment is relevant for Klabin. However, Klabin does not dispose of water without treatment to the environment. We had no changes between 2020 and 2021. Considering the future scenarios, Klabin will not discard untreated water in the environment.
Discharge to a third party without treatment	Relevant	0	About the same	Less than 1%	As it is a disposal of untreated water for third parties and that can cause impacts on the environment, this type of treatment is relevant for Klabin. However, Klabin does not dispose of untreated water on third party sources. We had no changes between 2020 and 2021. Considering the future scenarios, Klabin will not discard untreated water on third-party sources.
Other	Relevant	0	About the same	1-10	As it is an other ways to water treatment and that can cause impacts on the environment, this type of treatment (spray drying process) is relevant to Klabin. One unit of Klabin, located on Buenos Aires, Argentina, tranform their wastewater in solid waste through spray drying process. That's why, this unit has not volume of water discharge. We had no changes between 2020 and 2021. Considering the future scenarios, Klabin will not expect any changes.

W1.3

(W1.3) Provide a figure for your organization's total water withdrawal efficiency.

	Revenue	Total water withdrawal volume (megaliters)	Total water withdrawal efficiency	Anticipated forward trend
Row 1	16481000000	114624.39	143782.66266019	We expect that this number will decrease in the next two years due to increase of Klabin's revenue be lower than an increase of water withdrawals with the phase II of Puma unit expansion. After that (4-5 years), we expect the number will increase due to water efficiency improving and water reuse that will decrease of water withdrawals.

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
1-25

% of total procurement spend
51-75

Rationale for this coverage
Klabin took an important step in improving supply chain management in 2019 with the adoption of the EcoVadis methodology for supplier assessment, aimed at classifying sustainability in several aspects: financial, labor & human rights, environment and social issues. Klabin has selected 453 strategic suppliers from our portfolio (around 7,000 suppliers), representing 6.5% by number and 84% of total procurement spend of supply chain, to participate in the assessment, which considers questions grouped into four major themes: environment (climate and water management, for example), labor and human rights, ethics and sustainable procurement. The strategic suppliers were selected according to criticality matrix of supply chain team that assesses aspects-related to total spend, recurrence greater than 6 months a year and potential impacts on business. Further, this strategy also considers our social and environmental responsibility matrix that it includes environmental potential impacts, issues of diversity, ethic and human rights and health and safety impacts. Our suppliers are incentivized to participate the Ecovadis assessment through our supply contracts which request that they comply with the sustainability standards as defined in our Supplier Code. During three phases already ocurred, we evaluated 264 suppliers representing 4% by number and 54% of total procurement spend.

Impact of the engagement and measures of success
Considering the three phases of our Corporate Social Responsibility Program, Klabin already evaluated and rated 264 strategic suppliers which it represents more than 58% of way that we get to reach our target until 2030 (100% of strategic suppliers evaluated by CSR Program). The 264 suppliers represent 4% by number and 54% of total procurement spend. The consolidated engagement rate of this Program was 85% what it represents a very good result because it is much higher than EcoVadis' engagement rate (56%). The average score from Klabin's suppliers was 42.5 of 100. To suppliers maintain within our procurement strategy, Klabin requires all selected suppliers to report their informations and results related the last year including direct use of water, water-related actions and water-related risks and opportunities. In situations where the result of this reporting is lower than minimum score required by Klabin (score <35), suppliers are requested to elaborate an action plans to improve your score. In case of this score be critical (score <25), Klabin realizes a follow-up audits in suppliers. We have found this assessment has helped us to identify on our supply chain the major water-related risks who we are exposed. The water-related success of this Program is measured by number of suppliers with any water actions every year.
In 2019, 72% of 86 evaluated suppliers report that they had any specific water-related actions in their water management.
In 2020, 75% of 84 evaluated suppliers report that they had any specific water-related actions in their water management.
In 2021, 76% of 94 evaluated suppliers report that they had any specific water-related actions in their water management.

Comment
EcoVadis is a collaborative platform that allows measuring the quality of a company's Corporate Social Responsibility management system through its policies, actions and results. More than 90 thousand companies in the world were rated until 2021. In 2021, the participation is voluntary and requires an investment by suppliers. For this reason, Klabin financed the participation of smaller companies.

W1.4b

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

Type of engagement
Onboarding & compliance

Details of engagement
Requirement for water-related targets is included in your supplier selection mechanism

% of suppliers by number
51-75

% of total procurement spend
76-100

Rationale for the coverage of your engagement
The Klabin forestry units have a Controlled Wood Program where the wood suppliers are evaluated by specific forestry team, based on specific methodology related to the FSC® chain of custody certification. These suppliers were selected because they represent an important part of our supply chain due to high risks this sector represents.
In 2021, Klabin purchased 5.4 million of tonnes with 71% from certified sources representing 73% of total spend. All these certified suppliers were evaluated in water-related issues by FSC® certification.
Further, 709 audits have evaluated in 168 non-certified wood suppliers and 40 certified wood suppliers in Paraná and Santa Catarina states. These suppliers represented 63% of Klabin's wood suppliers by number. In total procurement spend, these suppliers represented 27% of total wood suppliers.
All suppliers of the forestry units are audited by Klabin on a quarterly basis. In case of non-compliance with the water-related targets or guidelines, Klabin stops supplying immediately and sends a recommendation of adequacy. After fulfilling the recommendations, the supplier is audited again and, in the event of no pending issues, the supply contract is resumed.

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. This checklist has labor and human rights, environmental (water, solid wastes, emissions) and social aspects and it is used to measure of success of the engagement. In 2021, 82.7% of the evaluated items in the Parana properties involved were attended. This shows that the properties of Klabin's wood suppliers, almost entirely, meet the assessed requirements. In 2021, only 2 of 709 audits has blocked the wood suppliers because causing negative significant impacts. With this engagement, Klabin could assess the progress in careful and protection to build water resilience in your wood suppliers.

Comment
In Parana, the percentage of audits identified in 2021 as causing significant and negative impacts which improvements were verified and resolved: 0.4% (2 audits).

W2. Business impacts

W2.1

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

No

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?

No

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.

Value chain stage
Direct operations
Supply chain

Coverage
Full

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

Frequency of assessment
More than once a year

How far into the future are risks considered?
More than 6 years

Type of tools and methods used
Tools on the market
Enterprise risk management

Tools and methods used
EcoVadis
WRI Aqueduct
ISO 31000 Risk Management Standard

Contextual issues considered
Water availability at a basin/catchment level
Water quality at a basin/catchment level
Stakeholder conflicts concerning water resources at a basin/catchment level
Implications of water on your key commodities/raw materials
Water regulatory frameworks
Status of ecosystems and habitats
Access to fully-functioning, safely managed WASH services for all employees

Stakeholders considered
Customers
Employees
Investors
Local communities
NGOs
Regulators
Suppliers
Water utilities at a local level
Other water users at the basin/catchment level

Comment
About the direct operations, the risk assessment department has updated the Klabin's risk policy in 2019. However, Klabin's factories have already developed a risk matrix for each unit with the main strategic, operational, financial, environmental and regulate risks. According ISO 31000 and WRI Aqueduct tool, Klabin assesses the water-related risks of all our units and present to Risk Committee where the company's directors discuss them. When the risks have assessed as high or critical, the industrial units develop an action plan for control and risk management.
About the value chain, since 2019, Klabin assesses the water-related risks of all our suppliers (wood and industrial suppliers) through of Ecovadis platform (ISO 31000) which has some specifics KPIs to water-related issues. Further, Klabin uses the WRI Aqueduct to assess the water-related risks of supply chain.
Klabin has not assessments other stages of the value chain.

W3.3b

(W3.3b) 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.

In order to identify and map climate and water-related risks and opportunities, Klabin developed specific studies considering future climate scenarios for the regions in which it operates, based on studies available in the literature and Klabin's history and records with already experienced climate events. The identified risks were prioritized according to the Klabin's risk management criteria and metrics. The criticality analysis tool considers both aspects related to impact (financial, reputation, environment and health and safety) and vulnerability (occurrence, internal controls and occurrence perspective). After identification and analysis, the risks are assessed and the dealings defined. The Risk Committee is made up of Directors and Managers, and the Risk Management and Internal Controls are responsible for monitoring, evaluating and communicating risks and respective action plans. The applied methodologies are based on ISO 31000, WRI Aqueduct tool and Ecovadis platform, where Klabin determines the evaluation criteria of impact and vulnerability of each listed risk, considering a heat map for the impact classification and vulnerability.

The stakeholder conflicts concerning water resources at a basin/catchment level are relevant because the decisions can impact directly the operational costs, water quality and availability of Klabin. For that, Klabin's suppliers are monitored and evaluted through Ecovadis platform by annually. Further, Klabin has a Community Relationship Area that is responsible by monitors potential conflicts with stakeholders due to increasing of pressure on natural resources.

Klabin's water-related risk assessment considers our supplies of our raw materials. The most significant risk to be impacted by water would be our energy consumption. Using the WRI Aqueduct, coupled with the evaluation of Ecovadis (market tool) on our suppliers, we forecast whether a decrease in the availability of water locally will affect the capacity to generate energy.

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.

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. The access to fully-functioning, safety managed WASH services is relevant to Klabin because this has impact directly in the employees health and safety. All the water to personal consumption is bought.

Rise of awareness on natural resources pressure tend to make stakeholders 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 use and the main reason why these stakeholders are relevant to Klabin. Therefore, Klabin maintains a close relationship with its customers, employees, suppliers, investors, NGOs, local communities and regulators to seeks to understand what their needs and expectations through of materiality analysis.

Internally the frequency of water-related risks assessment is at least twice a year. With our suppliers, the frequency of assessment is by annually using the Ecovadis platform.

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.

Also, Klabin units were evaluated using the WRI Aqueduct tool. To be considered as being exposed to substantive water risk the facilities need to classify on baseline water stress score of 20% or more in WRI Aqueduct tool. According WRI Aqueduct tool, baseline water stress measures the ratio of annual total water withdrawals to annual total available renewable supply, accounting for upstream consumptive use. Higher values indicate more competition among users. In 2021, this criterion had more three sites as being classified in water stressed areas: Franco da Rocha, Rio Verde and Suzano units located in São Paulo e Goiás states. In 2021, the seven sites now classified as water stressed areas withdrawn 1,346.41 megaliters which represent 1.17% of total withdrawals water by Klabin.

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?

Klabin has a specific area for risk management and controls of the wide organization and supply chain. In order to identify and map climate and water-related risks and opportunities, Klabin developed specific studies considering future climate scenarios for the regions in which it operates, based on studies available in the literature and Klabin's history and records with already experienced climate events. The identified risks were prioritized according to the company's risk management criteria and metrics - criticality analysis - which crosses the impact analysis (financial, reputational, environment and health and safety) with vulnerability analysis (occurrence, internal controls and perspective of occurrence).

To Klabin, substantive financial impacts are classified: > 700 MM: critical impact; > 400 MM and < 700 MM: high impact; > 150 MM and < 400 MM: medium impact; < 150 MM: low impact.

After identification and criticality analysis, the risks are: (i) treating: how to deal with each risk in order to structure action plans; (ii) monitoring: monitoring and reviewing risks and action plans; definition of indicator; and (iii) creating contingency plan: contingency plans and crisis management.

The company also has a Risk Committee composed by Executive Directors, with a quarterly agenda for discussion and decision-making. This ensures the governance of the businesses risks in the company, and climate risks are included.

The applied methodologies are based on ISO 31000, WRI Aqueduct tool and Ecovadis platform, where Klabin determines the evaluation criteria of impact and vulnerability of each listed risk, considering a heat map for the impact classification and vulnerability. This is applied to all direct operations and supply chain.

We classified all our facilities using WRI Aqueduct tool. To be considered as being exposed to substantive water risk the industrial units need:

- to have by 20% or more on baseline water stress score in WRI Aqueduct tool; and

- to represent more than 5% of Klabin's total revenue.

For example: In 2021, seven facilities (Horizonte, Rio Verde, Franco da Rocha, Suzano, Jundiaí DI, Jundiaí TP and Goiana units) were classified on water stressed areas (20% or more on baseline water stress score in WRI Aqueduct tool). However, only Goiana unit represent more than 5% of Klabin's total revenue (8% of total revenue of 2021). That’s why only Goiana unit is exposed to water risk with the potential to have a substantive financial or strategic impact on our business.

During 2020 and 2021, the company developed a robust study to integrate all information and data from the company's climate risk management to communicate in a transparent and objective manner how it adopts the TCFD recommendations.

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	1	1-25	To Klabin, our definition of “facility” is the same as definition for a factory, unit or site, so there could be different types of factories operating in the same basin/area. We classified all our facilities using WRI Aqueduct tool. To be considered as being exposed to substantive water risk the facilities need to classify on baseline water stress score of 20% or more in WRI Aqueduct tool and to represent more than 5% of Klabin's total revenue. Klabin has 23 industrial units (considering new units that Klabin adquires from International Paper), being seven facilities (Horizonte, Rio Verde, Franco da Rocha, Suzano, Jundiaí DI, Jundiaí TP and Goiana units) located on water stressed areas. However, only Goiana unit represent more than 5% of Klabin's total revenue. So, Goiana unit is exposed to water risk with the potential to have a substantive financial or strategic impact on our business. The other units do not have a substantive financial or strategic impact on our business. Additional information: Jundiaí DI and Jundiaí TP units represent around 3% of total production and 4% of Klabin's total revenue. Goiana unit represents around 7% of Klabin’s total production and 8% of total revenue. Horizonte unit represents around 0.1% of Klabin’s total production and 0.2% of total revenue. Franco da Rocha unit represents around 1% of Klabin’s total production and 1% of total revenue. Rio Verde unit represents around 1.5% of Klabin’s total production and 2% of total revenue. Suzano unit represents around 2% of Klabin’s total production and 3% of total revenue.

W4.1c

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

Country/Area & River basin

Brazil	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
1-10

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

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/Area & River basin

Brazil	Other, please specify (Goiana River Basin)

Type of risk & Primary risk driver

Chronic physical	Water stress

Primary potential impact
Reduction or disruption in production capacity

Company-specific description
Goiana unit is located in water stressed area classified by WRI Aqueduct tool. Klabin has found the increased water stress in the Capibaribe-Mirim river to be a risk to meet the water demand to production of the recycled paper, corrugated board and paper bags. Goiana unit represents around 7% of Klabin's global production and 8% of total revenue at 2021. Goiana unit intake water from two sources: groundwater and surface water. Together, the water sources intake represents 1% of total water intake of Klabin.
Considering that the water stress is measured for the ratio of total water withdrawals to available renewable surface and groundwater supplies, the water stress risk can affect the available water to Goiana's use what it will impact directly in Klabin's production capacity. This scenario is more impacted in the months of October, November and December, when there is a drought period.
Further, a study conducted by Klabin has realized that the interruption by 20% of total water withdrawals per day during one month is the maximum period can be impacted for this risk.
So, we use this information to calculate the potential financial impact. In additional, the magnitude of potential impact has considered that Goiana unit is the only Klabin unit that produces recycled paper, corrugated board and paper bags. The worst scenario considers the total interruption on production during one month.
Today, the unit has a contingency plan for emergency cases like this, but as a worst-case scenario we are considering the interruption by 20% of total water withdrawals per day during one month.

Timeframe
1-3 years

Magnitude of potential impact
Medium-low

Likelihood
Likely

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

Potential financial impact figure (currency)
19689863

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

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

Explanation of financial impact
The financial impact was estimated considering the reduction of production capacity during the interruption by 20% of total water withdrawals per day during one month. Further, we consider that the interruption by 20% of total water withdrawals impact by 20% of total production capacity.
In 2021, the total revenue of Goiana unit was BRL 1,197,800,000.00. The financial impact of reduction of production capacity during this period is BRL 19,689,863 (1,197.8 million of total revenue per year / 365 working days per year * interruption by 20% of total water withdrawals * 30 days/month).

Primary response to risk
Develop drought emergency plans

Description of response
Surface fresh water is very important to recycled paper production on Goiana unit, even representing only 1% of Klabin's total water withdrawals. Goiana is located in the water stressed area. Between 2020 and 2021, this unit has increased the water withdrawals by 2% even with an increase by 6% of total production in the same period. It is an excellent result but even so the unit is developing a drought emergency plan. This plan considers the drilling of three renewable deep wells (with 200-250 meters) in the region to supply the unit's water demand. In 2022, the average fresh water intake per day is around 100 m3/h, with more than 95% of this volume coming from surface water. In addition, the plan envisages reducing the unit's specific water use from 3.8 m3/t to less than 2.0 m3/t. Currently, more than 60% of the wastewater treated at the unit are returned to recycled paper production machines, which further reduce the need to fresh water withdrawals. The cost involved for this plan is BRL 750,000 to drilling of three renewable deep wells. The actions to implement the plan has started in the end of 2021 and one renewable deep well was already drilled on March 2022. The next deep well is scheduled to be drilled by December 2022 and the last one will only be drilled if the flow of the previous ones does not guarantee 50% of the total surface water used in unit.
It is important to mention that Goiana unit already has back up water lagoon that could be offer water for around 20 days of lack of water in case of drought.

Cost of response
750000

Explanation of cost of response
This cost of response considers the drilling of three renewable deep wells on Brazilian northeast. Each deep wells cost around BRL 250,000. So, three renewable deep wells costs BRL 750,000. The investments to improve wastewater treatment system and new investments consider the change of equipment on primary treatment like floater that is very small to our process. So, with these investments, Goiana unit will be more potential to reuse of water and will have other possible to supply our demand of water in case of increase water stress in this location.

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/Area & River basin

Brazil	Other, please specify (Tibagi River Basin)

Stage of value chain
Supply chain

Type of risk & Primary risk driver

Chronic physical	Water stress

Primary potential impact
Increased operating costs

Company-specific description
Klabin's wood suppliers are exposed to the risk potential acceleration of the growth rate of forest pests due to increased thermal stress on plantations located on Paraná state where Klabin has the two largest produce unit, Monte Alegre and Puma units. Our tool for identifying and assessing forest risks that used future climate scenarios to identify risks to forest productivity has evaluated 100% of wood suppliers are exposed to this risk. This risk can increase Klabin's operating costs because it will make Klabin buy wood from greater distances than it currently has.
Therefore, Klabin has a specific department to take care that. The presence of forest pests can reduce the productivity of the forest from suppliers and consequently disruption the feeding of wood to the two largest units of Klabin located in Paraná state.
Considering future projections of average annual loss of supplier production per pest on eucalyptus, without control activity, at 14% and the average supplier planted area affected by pest at 21%, the volume of wood from suppliers exposed to pests was calculated in 196,110.97 tons. This tool was used by Forest Eco-physiology and Healthy Forest Departments. Klabin has invested in forestry research with testing of different materials of pine and eucalyptus, which are more resistant, for example, water deficit or pests. This investment is part of the general investment in the Klabin's forestry research and development area. The Klabin's Forest Eco-physiology and Healthy Forest Departments recommends the necessary measures in case of adverse effects for both, Klabin and supplier forests.

Timeframe
More than 6 years

Magnitude of potential impact
Medium-low

Likelihood
Unlikely

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

Potential financial impact figure (currency)
35300000

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

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

Explanation of financial impact
Considering future projections of average annual loss of supplier production per pest on eucalyptus, without control activity, at 14% and the average supplier planted area affected by pest at 21%, the volume of wood from suppliers exposed to pests was calculated in 196,110.97 tons.
This volume of wood was obtained by the product between the weighted average of the production loss projections by pests and the average area affected by the pests "Gorgulho, Vespa da Galha, Psilídeo de Concha, Percevejo Bronzeado, Fungos/Bactérias e Formigas Cortadeiras" (equivalent to 21 %), multiplied by a rate of increase in the reach of pests aggravated by climate change of 10%, multiplied by the volume of eucalyptus (852,551.35 tonnes of eucalyptus) which represents the amount of wood from suppliers used by the Puma and Monte Alegre units.
This lost volume of 196,110.97 tons is multiplied by the cost of eucalyptus, plus 20% of its value, considered the premium on the input due to the possibility of the need to acquire it from the market. The price of BRL 150 per ton of eucalyptus - a value projected by the strategy area for the 2040 horizon - is considered for the expansion of new projects.
The total financial impact is estimated at BRL 35,300,000.

Primary response to risk

Direct operations	Increase capital expenditure

Description of response
The identified risk is the increase in temperature and the frequency of intense heat waves that can increase the growth of forest pests due to increased thermal stress on plantations. This risk can affect Klabin and supplier forests. For this, Klabin create the Forest Eco-physiology and Healthy Forest Departments, located in Paraná state, which monitors possible future climate scenarios, developing data modelling related to climate parameters and assessing the impact of planted forests. The Department recommends the necessary measures in case of adverse effects for both, Klabin and supplier forests.
Klabin has an important influence on yours wood suppliers because we have a good relationship with them. Klabin constantly monitors the suppliers' forests to identify possible pests. Klabin has a specific department (Wood Comercialization Departament) responsible for monitoring the forests of Klabin's wood suppliers, based on specific methodology related to the FSC® chain of custody certification.
For act in its wood suppliers, Klabin needs to increase its capital expenditure because increase the total monitored area searching to identify possible pests on wood suppliers forests. So, in this case, Klabin needs more technicians and specialists to make it happens.
However, for suppliers' forests, Klabin only recommends the products and the application methodology based on Forest Eco-physiology and Healthy Forest Departments, and the supplier is responsible for pest control. This monitoring is a continuous activity on Klabin.

Cost of response
500000

Explanation of cost of response
The cost presented (BRL 500,000) refers to the annual cost of the Environmental Responsibility team (Wood Comercialization Departament) responsible for monitoring the forests of Klabin's wood suppliers. This department's team performs quarterly basis audits on suppliers and provides communication materials on best practices and products to be used at specific periods (drought/flood) of the year. This cost considers all involved people and monitoring cost in 2021.
In 2021, Klabin purchased 5.4 million of tonnes with 71% from certified sources representing 73% of total spend. All these certified suppliers were evaluated in water-related issues by FSC® certification.
Further, 709 audits have evaluated in 168 non-certified wood suppliers and 40 certified wood suppliers in Paraná and Santa Catarina states. These suppliers represented 63% of Klabin's wood suppliers by number. In total procurement spend, these suppliers represented 27% of total wood suppliers.
In case of non-compliance with the water-related targets or guidelines, Klabin stops supplying immediately and sends a recommendation of adequacy. After fulfilling the recommendations, the supplier is audited again and, in the event of no pending issues, the supply contract is resumed.

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
Klabin has a technical group that it is working on water reduction actions. The group already identified more than 60 actions in all Klabin's units. The goal of this group is reduce water withdrawals and reduce water consumptive use because Klabin has a 2030 target. 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. In addiction, after Puma unit expansion, this facility will increase recycled water with the construction of one more cooling tower. We expect that this activity increase by 15% the total recycled water on all Klabin units. Other 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
Low-medium

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 2021 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 [3,150,000 * (0.2 + 1.21)], we can reduce the costs by, at least, BRL 4,441,500 per year.

W5. Facility-level water accounting

W5.1

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

Facility reference number
Facility 1

Facility name (optional)
Goiana

Country/Area & River basin

Brazil	Other, please specify (Goiana River Basin)

Latitude
-7.556655

Longitude
-35.035038

Located in area with water stress
Yes

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)
874.8

Comparison of total withdrawals with previous reporting year
Higher

Withdrawals from fresh surface water, including rainwater, water from wetlands, rivers and lakes
851.11

Withdrawals from brackish surface water/seawater
0

Withdrawals from groundwater - renewable
23.69

Withdrawals from groundwater - non-renewable
0

Withdrawals from produced/entrained water
0

Withdrawals from third party sources
0

Total water discharges at this facility (megaliters/year)
454.04

Comparison of total discharges with previous reporting year
Lower

Discharges to fresh surface water
454.04

Discharges to brackish surface water/seawater
0

Discharges to groundwater
0

Discharges to third party destinations
0

Total water consumption at this facility (megaliters/year)
420.76

Comparison of total consumption with previous reporting year
Much higher

Please explain
This facility is within a region of water stress. Klabin units were evaluated using the WRI Aqueduct tool. 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.
For this facility, the fresh surface water from river and the groundwater are the only water intakes. For future trend, we do not expect any increase to water intake. All volumes for each source are sourced from direct measurements and are monitored by Klabin, quantitative and qualitatively. No brackish surface water/seawater intake, no produced water intake, no non-renewable groundwater intake for any use, considering now and future trends.
To Klabin, much higher is more than 10% of increase and much lower is more than 10% of decrease between 2020 and 2021.
In 2021, the total volume of withdrawals water was 874.80 megaliters what has represented 2% of increase compared to 2020. Additionally, the total volume of discharged water was 454.04 megaliters what has represented 9.8% of decrease compared to 2020. The water consumption was calculated using withdrawals minus discharges water. This water consumption refers to partly by volume of incorporated water into products and partly by volume of evaporated water. The water consumption was much higher by 18% due to considerable decrease on water discharged water due to higher recirculation/reuse of water.

W5.1a

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

Water withdrawals – total volumes

% verified
76-100

Verification standard used
Conecta Consulting conducted the process of independent verification of the Klabin Sustainability Report 2021 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.

Please explain
<Not Applicable>

Water withdrawals – volume by source

% verified
76-100

Verification standard used
Conecta Consulting conducted the process of independent verification of the Klabin Sustainability Report 2021 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.

Please explain
<Not Applicable>

Water withdrawals – quality by standard water quality parameters

% verified
76-100

Verification standard used
Conecta Consulting conducted the process of independent verification of the Klabin Sustainability Report 2021 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.

Please explain
<Not Applicable>

Water discharges – total volumes

% verified
76-100

Verification standard used
Conecta Consulting conducted the process of independent verification of the Klabin Sustainability Report 2021 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.

Please explain
<Not Applicable>

Water discharges – volume by destination

% verified
76-100

Verification standard used
Conecta Consulting conducted the process of independent verification of the Klabin Sustainability Report 2021 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.

Please explain
<Not Applicable>

Water discharges – volume by final treatment level

% verified
76-100

Verification standard used
Conecta Consulting conducted the process of independent verification of the Klabin Sustainability Report 2021 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.

Please explain
<Not Applicable>

Water discharges – quality by standard water quality parameters

% verified
76-100

Verification standard used
Conecta Consulting conducted the process of independent verification of the Klabin Sustainability Report 2021 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.

Please explain
<Not Applicable>

Water consumption – total volume

% verified
76-100

Verification standard used
Conecta Consulting conducted the process of independent verification of the Klabin Sustainability Report 2021 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.

Please explain
<Not Applicable>

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

	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 Commitment to safely managed Water, Sanitation and Hygiene (WASH) in the workplace Commitment to safely managed Water, Sanitation and Hygiene (WASH) in local communities 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 pollution, water security and water risks (energy, climate change and biodiversity are included too) are within our Sustainability Policy and 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. In 2020, Klabin approved new goals and targets to incorporate both issues relevant to our business and the issues on this global agenda to the Klabin Sustainability Strategy. Our Innovation team is always looking for water-related innovations on the market, i.e. 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. Klabin is also committed to safely managed Water, Sanitation and Hygiene (WASH) in the workplace, valuing quality water for employees and the community through the preservation of forest areas and the sustainable management of its forests.

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
Chief Sustainability Officer (CSO)	The director of industrial technology, innovation and sustainability officer (CSO) has the responsibility over water security and its water-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. In 2019, the CSO decided the targets (including water-related targets) of Klabin's Sustainability Development Goals that it is into 2030 Klabin Agenda (https://kods.klabin.com.br/?l=EN). In 2020, the CSO approved three water-related targets until 2030: 1. 100% of the locations where we operate with initiatives to increase territorial water safety. 2. 100% of forest operations under its management with hydrosolidarity management. 3. Reduce the specific consumption of industrial water by 20%.

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 - some 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	The Fixed Sustainability Commission, formed by the company's statutory and non-statutory directors, meets quarterly to debate and decide on the company's social and environmental issues. At these events, the results of the monitoring of new projects and the environmental performance of the units and the climatic and water risks of the units are presented and discussed, mainly related to the assessment of water stress in the regions where Klabin operates. Based on these discussions and analyses, the directors guide budget issues related to water security, investments and management of action plans to control and mitigate the assessed risks. In 2020, the Commission approved three new targets related to water until 2030 that make up Klabin's medium and long-term Goals, related to the UN Sustainable Development Goals. The approved targets were: 1. 100% of the locations where we operate with initiatives to increase territorial water security. 2. 100% of forest operations under its management with hydrosolidarity management. 3. Reduce the specific consumption of industrial water by 20%. Recently, the Fixed Sustainability Commission discussed Klabin's units located in areas of water stress, classified according to the WRI Aqueduct tool. At this meeting, actions were created for each unit in order to maintain water availability even in current or future situations of water scarcity. All the contents of the meetings are passed on to the managers involved, who are responsible for structuring the action plan and monitoring these actions. The approval of the content discussed and the actions created is the responsibility of the Chief of Sustainability Officer (CSO).

W6.2d

(W6.2d) Does your organization have at least one board member with competence on water-related issues?

	Board member(s) have competence on water-related issues	Criteria used to assess competence of board member(s) on water-related issues	Primary reason for no board-level competence on water-related issues	Explain why your organization does not have at least one board member with competence on water-related issues and any plans to address board-level competence in the future
Row 1	Yes	Company's management is accomplished by Executive Board and Board of Directors. Company's Board of Directors is composed of a minimum of 13 and a maximum of 18 members, elected and dismissed by the General Meeting, in accordance with the legislation in force, with a unified term of office of one year, reelection being permitted. Among the board members elected, at least 20% must be independent members, as defined in the Level 2 Regulation. The Board of Directors has an Internal Regulation approved in May 2021, which regulates the functioning and competence of the body: establishing the Company's business objectives; oversee the management of directors, elect and dismiss the company's directors, establishing their attributions; observing the provisions of the Bylaws; etc. Klabin has three non-statutory advisory committees to Board of Directors, created in October 2020, which are permanently linked to it: Audit and Related Parties Committee, People Committee and Sustainability Committee. Such committees are formed, individually, by three members, elected by the Company's Board of Directors for a term of office of one year; reelection being permitted. The attributions and operating rules of Klabin's Committees are provided for their respective Internal Regulations, which are available for consultation on Company's IR website (https://ri.klabin.com.br/governanca-corporativa/estatuto-codigos-e-politicas/). Composed of three members with competence onwater-related issues, elected by the Company's Board of Directors, the Sustainability Committee is the competent body to analyze the following matters, among other attributions that may be established by the Board of Directors: recommend and monitor adoption of best standards for sustainable development; recommend guidelines for the creation and/or adherence by the Company to institutional campaigns related to environmental or social issues; examine market opportunities or new business formats to strengthen the Company's sustainable growth strategy and recommend to the Board of Directors; among others. Klabin considers the water-related issues experience like a main criteria used to assess the board member(s). The ESG issues experience is also important but it is not enough. Klabin's criterias are looking for real water-related issues experience like a participation on real water-related cases or projects and/or participation on water-related risk assessment.	<Not Applicable>	<Not Applicable>

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
Assessing future trends in water demand
Assessing water-related risks and opportunities
Managing water-related risks and opportunities

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

Please explain
Director of Industrial Technology, Innovation and Sustainability is the highest level of the organization, responsible for the execution of the Board of Directors' deliberations and approvals of water-related issues. He is the sponsor of the Sustainability Committee whose role is to define guidelines and assess the need for investments and prioritize initiatives, including water security and water-related impacts and opportunities.
The frequency of reporting to the board on water-related issues is quarterly.
Items related to water security and risks and opportunities are fixed agenda.
The nature of the report to the board aims to disclose and update Klabin's directors and officers on:
- the volumes of water withdrawn and discharged;
- monitoring of short, medium and long term targets;
- assessment and managing of water-related risks and opportunities and future trends;
- the units located in areas of water stress and their action plans to reduce and mitigate these water risks.

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

Responsibility
Assessing future trends in water demand
Assessing water-related risks and opportunities
Managing water-related risks and opportunities

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

Please explain
The Environment / Sustainability Executive Manager is positioned in the organizational structure below the director, responsible for consolidating, managing 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 assessing and 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.

W6.4

(W6.4) Do you provide incentives to C-suite employees or board members for the management of water-related issues?

	Provide incentives for management of water-related issues	Comment
Row 1	Yes	Since 2021, all company managers have been able to link their variable compensation to the company's performance for the Klabin Goals for Sustainable Development. In 2021, 56 sponsor managers and 50% of the executive directors linked their compensation to goals related to water use. In 2022, all executive directors started to consider a Sustainability Index in their variable compensation, created to prioritize the company's annual goals - among them, water consumption. Additionally, up to 10% of the variable remuneration can be converted into units, and it is doubled by the company, giving it a long-term commitment to the achievement of goals which, in turn, are linked to the performance of Klabin's goals (KSDG). In 2022, this benefit was extended to all employees, providing 100% coverage of a long-term incentive linked to the company's ESG performance.

W6.4a

(W6.4a) What incentives are provided to C-suite employees or board members for the management of water-related issues (do not include the names of individuals)?

	Role(s) entitled to incentive	Performance indicator	Please explain
Monetary reward	Chief Sustainability Officer (CSO)	Reduction in consumption volumes	Water is vital in pulp and paper industry. That's why Klabin is very committed to reduce water withdrawals and reduce impact on water resources, advancing sustainable water management practices across all facilities. This is included in our strategy until 2030 and incorporated into incentives provided to C-suite, directors, managers and coordinators. Until 2030, our water-related target is reduce the specific consumption of industrial water by 20%. Klabin has a short-term variable incentive policy that establish guidelines for the management of variable incentive, ensuring alignment with the strategy and policy established by the company. For C-suite employees, the variable incentive may vary according definition by Chair Board, according to the indicators results and performance. Since 2021, all company managers have been able to link their variable compensation to the company's performance. In 2021, 56 managers and 50% of the executive directors linked their compensation to goals related to water use. In 2022, all executive directors started to consider a Sustainability Index in their variable compensation, created to prioritize the company's annual goals - among them, water consumption. For that, one indicator from Sustainability Index is: decrease by 0.5% of water consumption in 2022. A salary bonus is related if Sustainability Index reach the targets assumed in this year. Bonus payment occurs in February of the current year referring to the previous year's performance.
Non-monetary reward	No one is entitled to these incentives	<Not Applicable>	No comments.

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

Yes, trade associations

Yes, funding research organizations

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 sustainability policy and strategy planning of Klabin. 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 sustainability policy and strategy planning of Klabin.

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 guidelines that orientates its activities planning and operations towards the management of Water Security and its related issues. Its pillars 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. 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). The potential short and medium terms effects were already added to company's strategic planning and are closely monitored by multiple groups, including the Sustainability Committee. The time horizon chosen was selected because the eucalyptus and pinus wood growth are 7 and 15 years and our goals are based on UN Sustainable Development Goals (SDGs) until 2030. In 2020, Klabin approved three new targets related to water until 2030 that make up Klabin's medium and long-term Goals, related to the SDGs. The approved targets were: - 100% of the locations where we operate with initiatives to increase territorial water security. - 100% of forest operations under its management with hydrosolidarity management. - Reduce the specific consumption of industrial water by 20%.
Strategy for achieving long-term objectives	Yes, water-related issues are integrated	11-15	In 2020 and 2021, Klabin carried out a study to integrate all information and data on the company's climate risk management and strategy to communicate to the market in a transparent and assertive manner how it meets the TCFD recommendations.The financial impact is inserted in the company's financial planning.The impact is calculated by a multidisciplinary team that involves the areas of strategy, investor relations, risk management and sustainability. 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 17 Sustainable Development Goals (SDG) set out the global priorities and aspirations for 2030 and represent an opportunity to put the world on a sustainable path. To implement this commitment, Klabin has developed new objectives and targets to incorporate both the issues that are relevant to its business and general issues of the global agenda into its Sustainability Strategy.The time horizon chosen was selected because the eucalyptus and pinus wood growth are 7 and 15 years and our goals are based on SDGs of ONU until 2030.
Financial planning	Yes, water-related issues are integrated	11-15	Klabin has implemented the TCFD methodology. Therefore, scenarios for the main drivers of change in the economy contemplated by the TCFD.Due to the nature of the business, three drivers are considered to be the main drivers:energy price,technological advancement and regulation.Klabin's scenarios are designed considering: physical scenarios, related to physical climate changes, macroeconomic scenarios with a focus on energy, technology and regulation drivers.The company's operations and wood supplier operations are directly related to the physics of the climate.The climatic risks identified by the scenarios are assessed and prioritized by the company's risk management criteria and metrics and mitigation plans are defined.Water scarcity and average temperature rise are the two main risks identified with a significant impact on operations.The increase in temperature can intensify the risk of a forest fire.The identification of physical risks with mitigation plans helps the company to prepare itself to support, without prejudice, the intensification of the impacts of climate change.Further, Klabin announced the issuance of a debt bond linked to sustainability goals reinforcing our ability to generate returns for investors.The transaction, in the amount of USD 500 million, has a maturity of ten years and a rate of 3.2% per year.The time horizon chosen was selected because the eucalyptus and pinus wood growth are 7 and 15 years and our goals are based on SDG of ONU until 2030.

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)

-68

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

-25

Water-related OPEX (+/- % change)

31

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

10

Please explain

MM = Million
CAPEX:
2020: BRL 230.5 MM
2021: BRL 72.6 MM
2022 estimated: BRL 54.5 MM
In 2021, Klabin reduced water-related investments (CAPEX) by 68%, as the disbursement of the Puma II project in wastewater treatment plant and water treatment plant occurred largely in 2020. In addition to the end of the disbursement of the Puma II project, in 2021, other investments some improvements were made to the water treatment plant at the Monte Alegre unit and improvements to the wastewater treatment plant at the Correia Pinto unit.
OPEX:
2020: BRL 91.5 MM
2021: BRL 119.4 MM
2022 estimated: BRL 131.3 MM
In 2021, Klabin increased its operating cost (OPEX) with water and wastewater by 31% due to the start-up of the expansion of the Puma unit, which increased the water withdrawals, consequently, the treatment of water and wastewater with use of chemicals products. Also, Klabin acquired five units from International Paper what increased the total operational cost of Klabin in 2021.

W7.3

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

	Use of 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) Provide details of the scenario analysis, what water-related outcomes were identified, and how they have influenced your organization's business strategy.

	Type of scenario analysis used	Parameters, assumptions, analytical choices	Description of possible water-related outcomes	Influence on business strategy
Row 1	Climate-related	Klabin 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. In Brazil, it was projected the changes of the main climatic factors for eucalyptus and pinus growth - precipitation, evapotranspiration and deficit / surplus water. However, 100% of forest areas of Klabin (SP, PR and SC states) are concentrated in little affected areas because in here we have a good water availability and good precipitation. 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.	Increase of more intensive rains was identified, although it does not affect forest productivity, but can affect the logistic and transportation due to access to Klabin's harvest areas is not possible in time of intensive rains. In Paraná and Santa Catarina. the Klabin's forest operations are impacted and do not work in time of intensive rains. Therefore, this events cause an increase of operational costs to Klabin. It is estimated in the next 10 years around 3% of annual eucaliptus wood production and 5% of annual pinus wood production is affected by climate change, if no adaptation measures are taken. The main physical risk is the change in climatic variables related to the growth of pine and eucalyptus (Klabin's main input). Example of studied climatic variables: amount and frequency of intense drought, minimum temperature, average temperature, potential evapotranspiration and water deficit. Analyzes of climatic variables are made based on the history of regions with planted forests, between 1981- 2010; and also based on future scenarios (2021-2040) operated on models with MIROC 5 and Hadgen.	It is estimated in the next 10 years around 3% of annual eucaliptus wood production and 5% of annual pinus wood production is affected by climate change, if no adaptation measures are taken. In 2021, Klabin made an investment of approximately BRL 3,130,550 in forestry research linked with climate change and forest impact. All lines of forestry research work directly or indirectly to develop solutions to mitigate the impacts of climate change on forest production. The work involves different lines such as biotechnology, genetic improvement, phytosanitary and forest management, which develops pine and eucalyptus clones with the aim of increasing forest productivity and the species' resistance to the impacts of climate change. The department is also responsible for the elaboration and assessment of Climate Scenarios. For this, it works with a data model related to exposure to climatic parameters, evaluating the impact of changes in planted forests and recommending the necessary measures in case of adverse effects. The main actions of the Department of Forestry Research are: - Development of biotechnological protocols aimed at drought tolerance in Eucalyptus; - Genetic improvement of the genera of Pinus and Eucalyptus with tropical and subtropical species; - Genetic improvement of Corymbia and Eucalyptus species aiming at drought tolerance; - Genetic conservation of species (Eucalyptus/Corymbia and Pinus).

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

At the moment, just one Klabin unit pay to withdraw or discharge fresh surface water (e.g. Piracicaba unit). Due to this, Klabin adopt a internal price in your units. 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. For example, in 2021, Puma unit has used 51,463.73 megaliters of treated water and had a cost of BRL 28,385,873.4. Therefore, for each m3 of water treated, the Puma unit paid in average BRL 0.55. This number is the internal price used by Puma unit. Each area in Puma unit uses this internal price to pay by your water consumption.

W7.5

(W7.5) Do you classify any of your current products and/or services as low water impact?

	Products and/or services classified as low water impact	Definition used to classify low water impact	Primary reason for not classifying any of your current products and/or services as low water impact	Please explain
Row 1	Yes	Klabin defines low water impact products are considered as having a lower water footprint than the other Klabin's products compared. We use ABNT NBR ISO 14046 stardard to calculate the water footprint of Klabin's products. Klabin already calculated the water footprint from: - kraftliner paper - liquid packaging board paper - carrier board paper - hardwood bleached pulp - softwood bleached pulp - eukaliner paper - industrial sacks When we compare the direct use with indirect use phases, the Klabin's impact is usually much more lower than indirect use impact. For example, kraftliner paper from Monte Alegre unit uses 2.44 cubic meters per tonne of paper (direct use) while the indirect use is 16.31 cubic meters per tonne of paper.	<Not Applicable>	Klabin defines low water impact products are considered as having a lower water footprint than the other Klabin's products compared. We use ABNT NBR ISO 14046 stardard to calculate the water footprint of Klabin's products.

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 Site/facility 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 Committe (related with Board of Directors) 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 report on Power BI tool which it assist the environmental management, the targets and goals, envolving all Klabin's units. Environmental team of each unit analyzes the indicators monitored on the environmental critical analysis and create an action plan when the results does not reach the monthly target.

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 consumption

Level
Company-wide

Primary motivation
Commitment to the UN Sustainable Development Goals

Description of target
Our target is reduce water consumption by 20% in company-wide until 2030.

Quantitative metric
% reduction in total water consumption

Baseline year
2018

Start year
2020

Target year
2030

% of target achieved
80

Please explain
The target for reducing water consumption by 2030 is 20%. In 2021, we already reduced the water consumption by 16% compared with 2018, what it represents that 80% 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. According we consider in the last report, the Puma unit expansion startup and the five units from International Paper has impacted our water consumption result at 2021 but in the next years we will increase our percentage of target achieved.

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
Our 2030 goal is to have all critical and relevant suppliers participating in the Sustainable Supply Chain Management Program.
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.
The evaluation of Klabin critical suppliers will cover all suppliers, gradually, through the Ecovadis platform. For that, the chosen level is company-wide.
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
2018

Start year
2019

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 2021, Klabin evaluated 94 wood and industrial suppliers that they scored from 0 to 100 regarding 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. The threshold of success is to score higher than 35 on sustainability performance. In 2019, 41 of 86 (48%) suppliers obtain score lower than 35 points. In 2020, 25 of 84 (30%) suppliers obtain score lower than 35 points on sustainability performance. In 2021, 29 of 94 (31%) suppliers obtain score lower than 35 points on sustainability performance.
In addition, 76% of total evaluated suppliers has water-related actions in your processes at 2021 (2019: 72%; 2020: 75%). In total, 196 of 264 evaluated suppliers has already water-related actions in your processes.

W9. Verification

W9.1

(W9.1) Do you verify any other water information reported in your CDP disclosure (not already covered by W5.1a)?

Yes

W9.1a

(W9.1a) 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 2021 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 2021 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	The data verified are company-wide governance.	AA1000AS	Conecta Consulting conducted the process of independent verification of the Klabin Sustainability Report 2021 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 2021 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.

W10. 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.

No comments.

W10.1

(W10.1) Provide details for the person that has signed off (approved) your CDP water response.

	Job title	Corresponding job category
Row 1	Statutory Director on board.	Director on board

W10.2

(W10.2) 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	16481000000

SW1.1

(SW1.1) Could any of your facilities reported in W5.1 have an impact on a requesting CDP supply chain member?

This is confidential

SW1.2

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

	Are you able to provide geolocation data for your facilities?	Comment
Row 1	Yes, for all facilities	We have 100% of geolocation data for our facilities.

SW1.2a

(SW1.2a) Please provide all available geolocation data for your 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.
Lages 1 unit	-27.808633	-50.363555	No comments.
Pilar unit (Argentina)	-34.41692	-58.96018	No comments.
Manaus I unit	-3.071521	-59.912241	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.
Puma unit	-24.258055	-50.746944	No comments.
Monte Alegre unit	-24.310186	-50.6079	No comments.
Piracicaba unit	-22.687536	-47.674963	No comments.
Horizonte unit	-4.070883	-38.50081	No comments.
Jundiaí DI unit	-23.1752	-46.931352	No comments.
Jundiaí TP unit	-23.266963	-46.865105	No comments.
Rio Verde unit	-17.817519	-51.003516	No comments.
Paulínia unit	-22.757154	-47.163636	No comments.
Franco da Rocha unit	-23.325001	-46.756239	No comments.
Suzano unit	-23.656859	-46.329985	No comments.
Manaus II unit	-3.116783	-59.971282	No comments.

SW2.1

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

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.

Product name
Pulp - Puma unit

Water intensity value
29.2

Numerator: Water aspect
Water withdrawn

Denominator
tonne

Comment
The water withdrawals per tonne of pulp was 29.2 m3/tonne in 2021.

Product name
Paper - Monte Alegre unit

Water intensity value
39.7

Numerator: Water aspect
Water withdrawn

Denominator
tonne

Comment
The water withdrawals per tonne of paper was 39.7 m3/tonne in 2021.

Submit your response

In which language are you submitting your response?
English

Please confirm how your response should be handled by CDP

	I understand that my response will be shared with all requesting stakeholders	Response permission
Please select your submission options	Yes	Public

Please confirm below
I have read and accept the applicable Terms