



Second-Party Opinion Klabin Sustainability-Linked Bond Framework

Evaluation Summary

Sustainalytics is of the opinion that the Klabin Sustainability-Linked Bond Framework aligns with the Sustainability Linked Bond Principles 2020 and considers the KPIs to be relevant and material to the issuer and the SPTs to be impactful. This assessment is based on the following:



Selection of Key Performance Indicators (KPIs) Klabin has selected three KPIs – (i) water consumption intensity, (ii) waste reuse, and (iii) reintroduction and/or reinforcement of wild species into the ecosystem – for the Sustainability Linked Bond (SLB). Sustainalytics considers the KPIs chosen to be relevant and material for Klabin, and further considers the KPIs to be clear and credible.



Calibration of Sustainability Performance Targets (SPTs) Klabin has established SPTs to reduce water consumption by 16.7% against a 2018 baseline (equal to 3.68 m³/t of product), increase total waste reuse and recycling by 3.2% (equal to 97.5% of all hazardous and non-hazardous waste) against a 2017 baseline, and to reintroduce or reinforce at least two extinct or threatened species against the initiation year of 2019. Sustainalytics considers the SPTs to be aligned with the Issuer's sustainability strategy. Sustainalytics further considers SPT 1 and SPT 2 as ambitious and SPT 3 as moderately ambitious. The SPTs contribute to SDGs 6, 12 and 15.



Bond Characteristics Klabin has disclosed that failure to achieve any one of the SPTs will trigger the coupon rate to increase on the observation date as follows: 12.5 bps coupon increase if KPI 1 does not meet its stated target on increase water efficiency; 6.25 bps coupon increase if KPI 2 does not meet its stated waste reuse target; and 6.25 bps coupon increase if KPI 3 does not meet its stated target for species reintroduced and/or reinforced. All KPIs will be assessed against its SPT on the observation date of December 31, 2025.



Reporting Klabin commits to report on an annual basis, or in the event of a material change, on its performance on the KPIs in its Sustainability-Linked Securities update included within its Sustainability Annual Report, which is aligned with market expectations.



Verification Klabin commits to obtain a limited assurance from a reviewer with relevant expertise on a yearly basis, and in case of any date or period relevant for assessing the KPI performance leading to a potential coupon adjustment on the observation date. This verification will be performed until the trigger event date of the bond has been reached. The information will be publicly shared on the Company's website. This is aligned with market expectations.

Evaluation date	December 24, 2020
Issuer Location	São Paulo, Brazil

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Introduction

Klabin S.A. ("Klabin", the "Company" or the "issuer") is a pulp, paper and packaging company with approximately 557,000 hectares of forest area under management. The company has an annual production capacity of 2 million tons of annual paper production and 1.5 million tons of market pulp production per year, with 19 industrial units, 18 in Brazil and 1 in Argentina. Headquartered in São Paulo, Brazil, Klabin is the country's largest paper producer and exporter, the leading manufacturer of paper and board for packaging, corrugated board packaging and industrial bags, and also markets timber in logs. It is the only Brazilian company to simultaneously supply hardwood pulp (eucalyptus), softwood pulp (pine) and fluff pulp to the market.

Klabin intends to issue a Sustainability-Linked Bond (SLB) in January 2021, where the coupon rate of the bond is tied to the achievement of Sustainability Performance Targets (SPTs) that are based on Key Performance Indicators (KPIs) related to water consumption intensity, waste reuse and rewilding efforts.

Klabin has engaged Sustainalytics to review the SLB and provide an opinion on the alignment of the bond with the Sustainability-Linked Bond Principles (SLBP).¹

Scope of work and limitations

Sustainalytics' Second-Party Opinion reflects Sustainalytics' independent² opinion on the alignment of the reviewed SLB with the Sustainability Linked Bond Principles 2020, as administered by ICMA.

As part of this engagement, Sustainalytics exchanges information with various members of Klabin's management team to understand the sustainability impact of their business processes and SPTs, as well as reporting and verification processes of aspects of the SLB. Klabin representatives have confirmed that:

- (1) They understand it is the sole responsibility of Klabin to ensure that the information provided is complete, accurate or up to date;
- (2) They have provided Sustainalytics with all relevant information; and
- (3) Any provided material information has been duly disclosed in a timely manner.

Sustainalytics also reviewed relevant public documents and non-public information. This document contains Sustainalytics' opinion of the Bond and should be read in conjunction with the Bond Documents. Any update of the present Second-Party Opinion will be conducted according to the agreed engagement conditions between Sustainalytics and Klabin. Sustainalytics' Second-Party Opinion, while reflecting on the alignment of the Bond with market standards, is no guarantee of alignment nor warrants any alignment with future versions of relevant market standards. Furthermore, Sustainalytics' Second-Party Opinion addresses the anticipated SPTs of KPIs but does not measure the KPIs. The measurement and reporting of the KPIs is the responsibility of the Bond issuer. No information provided by Sustainalytics under the present Second-Party Opinion shall be considered as being a statement, representation, warrant or argument either in favor or against, the truthfulness, reliability or completeness of any facts or statements and related surrounding circumstances that Klabin has made available to Sustainalytics for the purpose of this Second-Party Opinion.

¹ The Sustainability Linked Bond Principles (SLBP) were launched by ICMA in June 2020. They are administered by the ICMA and are available at: <https://www.icma.org/assets/documents/Regulatory/Green-Bonds/June-2020/Sustainability-Linked-Bond-PrinciplesJune-2020-100620.pdf>

² When operating multiple lines of business that serve a variety of client types, objective research is a cornerstone of Sustainalytics and ensuring research independence is paramount to producing objective, actionable research. Sustainalytics has therefore put in place a robust conflict management framework that specifically addresses the need for analyst independence, consistency of process, structural separation of commercial and research (and engagement) teams, data protection and systems separation. Last but not the least, analyst compensation is not directly tied to specific commercial outcomes. One of Sustainalytics' hallmarks is integrity, another is transparency.

Sustainalytics' Opinion

Section 1: Sustainalytics' Opinion on the Alignment of the Klabin Sustainability-Linked Bond Framework with the Sustainability-Linked Bond Principles.

Sustainalytics is of the opinion that the Sustainability-Linked Bond aligns with the five core components of the Sustainability-Linked Bond Principles 2020 (SLBP). The KPIs and SPTs used by Klabin are defined in Tables 1 and 2 below.

Table 1: KPI definitions

KPI	Definition
KPI 1: Water consumption intensity (m ³ /t)	<p>Water consumption³ intensity is calculated annually as the difference between water withdrawal and water discharge intensities in cubic meters per tonne of product (m³/t) from all of Klabin's industrial (manufacturing) facilities. Water consumption intensity baseline is verified by an AA1000 guarantee.⁴</p> <p>The KPI includes the water consumption intensity from all of Klabin's manufacturing facilities, including from pulping processes (softwood/eucalyptus, hardwood/pine and fluff pulp), paper processing and papermaking (paperboard, Kraft paper and recycled papers) and packaging (Sack Kraft packaging and corrugated board packaging). Klabin's forestry operations, which represents approximately 7% of the Company's total water consumption intensity in 2018, is not considered in this calculation.⁵</p>
KPI 2: Waste reuse (% reuse and recycling)	<p>The KPI measures the percentage of reuse and recycling of solid waste streams, including wastes used for energy recovery purposes, calculated as the proportion of reused and recycled solid wastes in tonnes compared to the total solid waste generated in tonnes from Klabin's forestry operations, and pulp and paper manufacturing.</p> <p>Klabin has confirmed that this calculation includes both hazardous and non-hazardous waste streams from its operations. These wastes are classified according to the NBR 10004 standard.</p> <p>Sustainalytics notes that the waste reuse 2017-19 baseline data is not verified by an external party. However, Klabin has committed to annually report and verify the KPI performance as of 2020.</p>
KPI 3: Reintroduction and/or reinforcement of wild species into the ecosystem	<p>The KPI measures the successful reintroduction/reinforcement⁶ of extinct or threatened species into the ecosystem. Klabin confirmed that the indicator considers reintroduction/reinforcement of native fauna species only.</p> <p>Klabin relies on the International Union for Conservation of Nature (IUCN) definition of reintroduction or reinforcement of species. As per the IUCN, as activities of population restoration within indigenous range, reintroduction of species is defined as "the intentional movement and release of an organism inside its indigenous range from which it has disappeared", while reinforcement is defined as "the intentional movement and release of an organism into an existing population of conspecifics."⁷</p>

³ Water consumption accounts for water withdrawals, evaporation from dryers, evaporation from wastewater treatment plants, water left in end products and water discharges

⁴ The AA1000AP (2018) is methodology used for sustainability-related assurance engagements that incorporates wide-angle, integrated, and a forward-looking view of a company's overall sustainability management, performance, and reporting practices. At: <https://www.accountability.org/standards/aa1000-assurance-standard>.

⁵ Klabin provided this information and Sustainalytics assessed it on a confidential basis.

⁶ Reinforcement is the intentional movement and release of an organism into an existing population of conspecifics; it aims to enhance population viability, for instance by increasing population size, by increasing genetic diversity, or by increasing the representation of specific demographic groups or stages. Reintroduction is the intentional movement and release of an organism inside its indigenous range from which it has disappeared; it aims to re-establish a viable population of the focal species within its indigenous range. As per the IUCN, at: http://www.issg.org/pdf/publications/rsg_issg-reintroduction-guidelines-2013.pdf.

⁷ IUCN, "Guidelines for Reintroductions and Other Conservation Translocations", at: http://www.issg.org/pdf/publications/rsg_issg-reintroduction-guidelines-2013.pdf

Table 2: SPTs and Past Performance

KPI 1	2018 (baseline)	2019	2020 ⁸	SPT observed as of Dec 2025
Water consumption intensity (m ³ /t product)	4.42	3.96	3.91	At or below 3.68 m ³ /t (an estimated 16.7% reduction of water consumption).
KPI 2	2017 (baseline)	2018	2019 ⁹	SPT observed as of Dec 2025
Waste reuse (% reuse and recycling)	94.3%	96.6%	96.7%	At or above 97.5%
KPI 3	2019 (initiation year)			SPT observed as of Dec 2025
Reintroduction and/or reinforcement of wild species into the ecosystem (rewilding)	Status of <i>Aburria jacutinga</i> species reintroduction process started in the end of 2019. Based on the IUCN Red List of Threatened Species, ¹⁰ Klabin will decide on the native species that will be reintroduced/reinforced. Klabin has disclosed a list based on data collected from their Biodiversity Monitoring Program. ¹¹			Successfully reintroduce/reinforce at least 2 extinct or threatened species

1) Selection of Key Performance Indicators (KPIs)

Definition and methodology of KPIs

- The Klabin Sustainability-Linked Bond Framework includes three KPIs: (i) Water consumption intensity (m³/t); (ii) Waste reuse (reuse and recycling); and (iii) Reintroduction and/or reinforcement of wild species into the ecosystem. Sustainalytics considers the definition and calculation methodology of the KPIs to be clear and credible. (See Table 1 above for further detail).

Relevance and Materiality of KPIs

- For KPI 1 (water consumption intensity), Sustainalytics considers that water consumption is a relevant and material issue for Klabin. Belonging to the paper packaging subindustry, water is a key input in forestry operations and the manufacturing process for paper packaging products. Pulp production involves chemical and mechanical processes to separate and recover cellulose fibers from lignin and other wood constituents. These processes are known to involve large amounts of fresh water. Water at pulping plants is used for chemical make-up, transport of material flows throughout the production process, materials separation, and cooling. Water used in processing and cooling is the most significant demand. For companies that manage their forests, water is used to harvest, replant, and pesticide application. Klabin has shared with Sustainalytics that its forestry operations are not included in the KPI. These operations account for approximately 7% of total water consumption intensity from overall operations, including pulp and paper manufacturing.
- For KPI 2 (waste reuse), Sustainalytics considers that solid waste generation is a relevant and material issue for Klabin. Pulp and paper production involve significant quantities of non-hazardous solid wastes along with a minority of hazardous wastes, including from debarking of wood, pulping and recovery and treatment facilities. Such operations have the potential to reduce waste directed to landfills by utilizing byproducts of its main production through reuse, recycling as well as energy recovery from biomass such as wood bark and sludge.
- For KPI 3 (reintroduction and/or reinforcement of wild species into the ecosystem), Sustainalytics considers biodiversity impact to be a relevant and material issue. The paper and pulp industry has a large environmental footprint, including a substantial impact on biodiversity. Sustainalytics notes that, while the

⁸ As of September 2020.

⁹ Klabin began to consider as waste all the barks generated and burned in the boilers as biomass.

¹⁰ IUCN, "The IUCN Red List of Threatened Species", at: <https://www.iucnredlist.org/>.

¹¹ Klabin " Programa ambiental da Klabin preserva espécies da fauna e da flora em Santa Catarina", (2017), at: <https://klabin.com.br/sala-de-noticias/press-release/programa-ambiental-da-klabin-preserva-especies-da-fauna-e-da-flora-em-santa-catarina/>

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measurement of the reintroduction of extinct species provides a partial indication of the Company's impact on biodiversity and does not represent the overall scope of ongoing, direct impact of the Company's operations on biodiversity. Despite this, Sustainalytics considers the KPI to be relevant and material to the Company's performance in the area of biodiversity.

Ability to be benchmarked

Sustainalytics notes the following:

- KPI 1 and 2, i.e., reduction of water consumption intensity and increase waste reuse, can be benchmarked against the best practices outlined in the external reference documents, including IFC's Environmental, Health, and Safety Guidelines for Pulp and Paper Mills (2007),¹² and the European Commission's Best Available Techniques (BAT) Reference Document for the Production of Pulp, Paper and Board under the Industrial Emissions Directive 2010/75/EU (Integrated Pollution Prevention and Control).¹³
- KPI 3, i.e., reintroduction and/or reinforcement of wild species into the ecosystem, does not lend itself well to comparison against external benchmarks or peer performance. However, Sustainalytics views positively Klabin' rewilding efforts to achieve a positive environmental impact and has commented further in the section below on Klabin' approach to benchmarking.

Overall assessment

In Sustainalytics' opinion the selected KPIs are relevant and material to the Company. Sustainalytics considers the definition of the KPIs to be clear and credible. Although KPI 3 measures an activity that cannot be externally benchmarked, it measures an activity that intends to achieve positive impact.

2) Calibration of Sustainability Performance Targets (SPTs)

Alignment with issuer's sustainability strategy

- Klabin has set the following SPTs for its KPIs:
 - SPT 1: Reduce the water consumption intensity to 3.68 m³/t product by 2025
 - SPT 2: Increase waste reuse to 97.5% by 2025
 - SPT 3: Reintroduce and/or reinforce at least two extinct or threatened native species by 2025.
- Sustainalytics considers the SPTs to be aligned with Klabin's sustainability strategy (please refer to Section 2 for analysis of the credibility of Klabin's sustainability strategy). Klabin has aligned its sustainability strategy with the United Nations 2030 Agenda, and has determined short-, medium- and long-term goals for reducing water consumption and increase the reuse of solid waste through 2030. Among these the following three are particularly aligned with the SPTs:
 - To ensure greater availability of natural resources while maintaining specific industrial water consumption below 3.5 m³/t.
 - To achieve zero industrial waste going to landfills by 2030.
 - To reintroduce at least two extinct and four threatened species into the ecosystem.

Strategy to achieve the SPTs

- Klabin intends to achieve the SPT through the following strategies:
 - Klabin has guidelines and policies for its activities and operations towards the management of water security. In addition, Klabin's Environmental Management System is ISO 14001 certified and further supported by the Company's Sustainability Policy. Klabin intends to keep water extraction below 105million m³/year until 2022. The Company periodically reconditions equipment for maintenance and avoidance of leaks, acquiring new technology and machinery readjustment aimed at reducing water waste. Klabin is involved in the monitoring committees of river basins with local stakeholders which establish river basin management plans.
 - Klabin has in place a series of waste co-processing initiatives focused on strengthening the circularity of its resources. As such, Klabin has a Solid Waste Processing Plant at the Puma Unit in which they reuse 91% of all waste generated.
 - Klabin has been gathering conservation data from High Conservation Value areas to assess the success of its rewilding initiative based on (i) the observations monitoring the species reproduction cycle, and (ii) the monitoring time as indicated by the National Action Plan for Endangered Species

¹² IFC, "Environmental, Health, and Safety Guidelines Pulp and Paper Mills", (2007), at: <https://www.ifc.org/wps/wcm/connect/2310ee34-7432-4546-8898-03372c9b51e2/Final%2B-%2BPulp%2Band%2BPaper%2BMills.pdf?MOD=AJPERES&CVID=jkD2FLw>.

¹³ European Commission, "Best Available Techniques (BAT) Reference Document for the Production of Pulp, Paper and Board", (2015), at: https://eippcb.jrc.ec.europa.eu/sites/default/files/2019-11/PP_revised_BREF_2015.pdf.

(developed by ICMBio).¹⁴ Klabin has confirmed that it has the resources and expertise to rescue, rehabilitate and release wild animals at its Ecological Park.

Ambitiousness, Baseline and Benchmarks

- For KPI 1, Klabin has reported water withdrawal of 25.83 m³/t product and wastewater discharge intensities of 21.41 m³/t product in 2018, its baseline year. As discussed above, Klabin intends to achieve water withdrawal and wastewater discharge intensities that will result in overall water consumption intensity of 3.68 m³/t or less by 2025.
 - Sustainalytics notes that best available technology in pulp and paper manufacturing has a reference water withdrawal intensity in the range of 20-100 m³/t product for its chemical pulping route and 4-50 m³/t product for its mechanical pulping route. Additionally, wastewater flow intensity for such facilities ranges from 14 to 90 m³/t product for its chemical pulping route and from 9 to 27.2 m³/t product for mechanical pulping route.^{15,16} Klabin also confirmed that their own methodology to calculate water withdrawal and wastewater flow intensities is in line with the benchmark calculation methodology.
 - Although, as noted above, the water consumption and discharge intensities are dependent on the type of pulping process and paper packaging manufactured, Sustainalytics highlights that Klabin's water consumption intensity is in line with the ranges of best available technology and thus, considers Klabin's SPT 1 as ambitious.
- For KPI 2, Klabin has reported a rate of solid waste reuse and recycling (including energy recovery) of 94.3% in 2017. As discussed above, Klabin intends to achieve 97.5% by 2025.
 - Sustainalytics notes that, for best available technology within pulp and paper manufacturing, large amounts of solid waste/residues can be reused, recycled or recovered through energy conversion, and that the amount of non-hazardous waste landfilled can be reduced to a very low value of between 15-38 kg/t product (close to zero).¹⁷ Klabin has communicated that its solid waste generation intensity was 33 kg/t product as of 2019 and that its target is to achieve 25 kg/t product by 2025. This is in line with the benchmark of close to zero waste to landfill goal and therefore, Sustainalytics considers SPT 2 to be ambitious. Sustainalytics encourages the Company to publicly report solid waste generation intensity, along with proportion reused and recycled, which the Company has already committed to verify through limited assurance.
 - As of 2019, Klabin began to consider all the barks generated and burned in the boilers as biomass waste, thus also counting its proportion for meeting the targets from 2019 onwards. The Company will continue to consider barks within energy recovery consistently to measure performance related to this KPI. Since Sustainalytics has utilized an external benchmark for comparison with global best practices, instead of comparison with Klabin's historical performance, the change in calculation of the proportion of waste reuse in 2019 has no bearing on the ambitiousness of the targets set for 2025 and 2030. Sustainalytics encourages Klabin to disclose any foreseeable changes in the calculation of the indicator in future.
- For KPI 3, Klabin communicated that the company initiated the reintroduction of a native wildlife species, *Aburria jacutinga*, at the end of 2019. Klabin intends to reintroduce and/or reinforce two species by 2025.
 - As noted previously, KPI 3 cannot be benchmarked, either against an external reference or the Company's past performance, and therefore it is difficult to assess the level of ambition of the SPT 3. However, given the extent of the efforts required to successfully reintroduce a species to an area from which it has been extirpated (see Section 2 for further discussion regarding the complex and multi-faceted nature of such an effort, including the risks and uncertainties that need to be managed), Sustainalytics nonetheless considers this target to be moderately ambitious.

Overall Assessment

Sustainalytics is of the opinion that Klabin's SPTs are consistent with its overall sustainability strategy, which is viewed as credible and industry-leading (as per Section 2) and considers SPT 1 and SPT 2 to be ambitious, both based on external benchmarks, and SPT 3 to be moderately ambitious as discussed above. Sustainalytics nonetheless views SPT 3 as a meaningful measure of positive environmental impact. Overall, Sustainalytics

¹⁴ Proespecies, "National Strategy for the Conservation of Threatened Species Project", at: http://proespecies.eco.br/wp-content/uploads/2019/09/FULL_PROJECT_GEF_Project9271_Pro_Especies_English.pdf

¹⁵ IFC, "Environmental, Health, and Safety Guidelines Pulp and Paper Mills", (2007), at: <https://www.ifc.org/wps/wcm/connect/2310ee34-7432-4546-8898-03372c9b51e2/Final%2B-%2BPulp%2Band%2BPaper%2BMills.pdf?MOD=AJPERES&CVID=jkD2FLw>.

¹⁶ European Commission, "Best Available Techniques (BAT) Reference Document for the Production of Pulp, Paper and Board", (2015), at: https://eippcb.jrc.ec.europa.eu/sites/default/files/2019-11/PP_revised_BREF_2015.pdf.

¹⁷ European Commission, "Best Available Techniques (BAT) Reference Document for the Production of Pulp, Paper and Board", (2015), at: https://eippcb.jrc.ec.europa.eu/sites/default/files/2019-11/PP_revised_BREF_2015.pdf.

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believes that Klabin has robust planning, assessment and program in place to measure, verify and report on the final outcomes of its well-intended initiative.

3) Bond characteristics

The coupon rate of Klabin's SLB will be adjusted if the Company fails to reach any one of the following SPTs at its observation date of December 31, 2025:

- SPT 1: 12.5 bps (0.125%) increase if SPT on reduction of water consumption intensity is not met at its observation date.
- SPT 2: 6.25 bps (0.0625%) increase if SPT on increase waste reuse is not met at its observation date.
- SPT 3: 6.25 bps (0.0625%) increase if SPT on reintroduction of one or more wild species into the ecosystem is not meet at its observation date.

4) Reporting

Klabin commits to report on an annual basis, or in case of any relevant date for assessing the trigger of a coupon adjustment, on its performance on the KPIs against the SPTs. The reporting will be shared in its Sustainability Annual Report, which is aligned with the SLBP. The information reported will include (i) information on the performance of the selected KPIs and pertaining baseline where relevant; (ii) a verification assurance report relative to the KPI outlining the performance against the SPT and the related impact; and (iii) other pertinent information to enable investors to monitor the progress of the SPT.

In addition, Klabin intends to include additional information, when feasible and possible, such as the qualitative or quantitative description of the contribution of the main factors behind the changes of the KPI performance on an annual basis; a description of the positive sustainability impacts of the performance improvement; and any information about the re-assessments of KPIs, a restatement of the SPT, or a pro-forma adjustment of baselines or KPI scope.

5) Verification

Klabin commits to have a limited assurance external verification, from a qualified verifier with relevant expertise, provide an annual assessment as to the performance level against the SPTs for the stated KPIs, and in case of any date or period relevant for assessing a potential coupon adjustment. The verification of the performance against the SPT will be made publicly available on the Company's website.

Alignment with Sustainability Linked Bond Principles 2020

Sustainalytics has determined that the Klabin Sustainability-Linked Bond Framework (December 2020) aligns with the five core components of the Sustainability Linked Bond Principles (2020).

Section 2: Assessment of Klabin's Sustainability Strategy

Credibility of Klabin's sustainability strategy

Overall Sustainalytics considers that Klabin is leading in managing ESG risks among its industry peers and views the Company's overall management of material ESG issues as strong.¹⁸ The Company's ESG-related issues are overseen by a dedicated Sustainability Management Committee¹⁹ with oversight from the Board of Directors, suggesting that these considerations are integral to its core business strategy.

Klabin's sustainability strategy is focused on promoting sustainable development through sustainable consumption and by fostering a circular economy model. The Company has formalized its mission by reporting on its progress and sustainability efforts on an annual basis since 2012.²⁰ In its last 15 years of operations, the Company successfully reduced its emissions by 60%, as measured by CO₂eq/t, and since 2004 GHG emissions associated with Klabin's operations have been audited and publicly available according to the Brazilian GHG Protocol parameters.²¹ As part of this strategy, Klabin has invested in the full optimization of resources to avoid waste generation. This has resulted in the reduction of overall waste and has served to

¹⁸ This assessment has been derived from Sustainalytics' ESG Risk Rating.

¹⁹ Klabin, 'Sustainability: Continuous Value Creation', at: <https://rs.klabin.com.br/sustentabilidade/criacao-continua-de-valor/>

²⁰ Klabin, 'Klabin releases its 2019 Sustainability Report', at: <https://klabin.com.br/en/newsroom/press-release/klabin-releases-its-2019-sustainability-report/>

²¹ FGB EAESP, 'Brazil GHG Protocol Program', at: <https://www.ghgprotocolbrasil.com.br/brazil-ghg-protocol-program-2?locale=en>

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increase the share of its renewable energy by utilizing biomass and organic solids of black liquor from its operations.²²

Klabin's most recent Sustainability Report, published in 2020 with reporting data from 2019,²³ outlines its commitment to the 'Klabin Sustainable Development Goals ("KSDGS") Agenda' – a series of short-, medium – and long-term goals which aim to address 14 of the 17 SDGs established by the UN. Following this announcement, in 2020, Klabin set 23 publicly disclosed quantitative targets which focus on several environmental and social areas, some of which include: Energy Usage, Water Use, Waste, Climate Change, Local Development, Supplier Social and Environmental Performance, Customers and Products, and Biodiversity.²⁴ For each of these areas, the Company has set specific targets to be achieved by 2030, including, but not limited to: (i) reducing the share of fossil fuels to generate an energy matrix of at least 92% renewables; (ii) purchase 100% of renewable energy from certified sources; (iii) reduce the specific consumption of industrial water by 20% (as measured in m³/t), (iv) zero destination of industrial waste to landfills and (v) introducing at least two species that are proven to be extinct locally and promote the population reinforcement of four other threatened species.²⁵ Since joining the UN's 'Business Ambition for 1.5°C',²⁶ Klabin has also committed to the Science Based Targets Initiative (SBTi) and is currently in the process of setting GHG emission reduction targets under SBTi.

Given Klabin's quantitative goals and corporate-wide sustainability agenda, Sustainalytics is of the view that the SPTs, KPIs, and investments identified as part of this issuance will further support the Company's ability to advance sustainability strategy.

Klabin's environmental and social risk management

While Sustainalytics recognizes that Klabin's defined targets are impactful, it is acknowledged that the Company's investments in these activities may pose environmental and social risks. Some key risks include lack of sustainable forestry practices and biodiversity, appropriate management of waste and effluents, increased freshwater consumption, occupational health and safety. In the following section Sustainalytics comments on Klabin's ability to mitigate such potential risks:

- With respect to sustainable forest management, 100% of the wood used in Klabin's production processes is evaluated by FSC standards to ensure sustainable forestry practices maintained in its operations.²⁷ As of 2019, all of the Company's owned and leased forests (approximately 484,963 hectares) are FSC-certified.²⁸ In 2017, the Company also earned CERFLOR (Brazilian Forestry Certification Program),²⁹ a PEFC verified certification, for its Paraná forestry unit which in 2019 represented 342,305 hectares certified.³⁰ The Company's forest management unit follows the mosaic management concept which consists of integrating landscapes such as planted areas with preserved native forests to create ecological corridors.³¹ Klabin has also identified other measures including the control of exotic species for which it has field workers who maintain these species under control.
- Regarding waste and emissions-related risk management, Klabin has implemented an ISO 14001-certified Environmental Management system.³² The Company's Puma Unit in Ortiguera also achieved the ISO 15001 certification in 2018 due to its good practices related to energy management, waste reduction, responsible consumption, and prioritization of the use of energy from renewable energy.³³
- Klabin has identified water stressed sites according to the WRI Aqueduct tool to help monitor freshwater consumption.³⁴ To mitigate the impact on localities considered as water stressed, the Company has formulated strategic responses, such as searching for alternative water sources, for the factories located in these areas.³⁵
- Since 2013, Klabin has assessed critical suppliers in the industrial area by using a 'Criticality and Sustainability Matrix', allowing it to identify potential risks both prior to engaging with a supplier, and after

²² Klabin, "Sustainability Report 2019", at: <https://rs.klabin.com.br/?lang=en>.

²³ Klabin, 'Sustainability Report 2019', at: <https://rs.klabin.com.br/>

²⁴ Klabin, 'Klabin 2030 Agenda', at: <https://kods.klabin.com.br/?l=PT>

²⁵ Klabin, 'Klabin 2030 Agenda', at: <https://kods.klabin.com.br/?l=PT>

²⁶ United Nations Global Compact, 'Business Ambition for 1.5°C', at: <https://www.unglobalcompact.org/take-action/events/climate-action-summit-2019/business-ambition>

²⁷ Klabin, 'Sustainability Report 2019', at: <https://rs.klabin.com.br/>

²⁸ This figure has been verified by Klabin.

²⁹ Klabin, 'Sustainability Report 2017', at: <https://rs2017.klabin.com.br/en/certifications/>

³⁰ FSC, Klabin S.A – 'Klabin Florestal Parana' (2019), at: fsc.force.com/servlet/servlet.FileDownload?file=00P300000zbXa1EAE

³¹ FAO, "The Economics of Climate Change Mitigation Options in the Forest Sector", at: <http://www.fao.org/forestry/42959-04f21a0c630b8b7e345043fffd99378f.pdf>.

³² Klabin, 'Sustainable Report 2018', at: <https://rs2018.klabin.com.br/en/environment/>

³³ Klabin, 'Sustainable Report 2018', at: <https://rs2018.klabin.com.br/en/environment/>

³⁴ WRI, "Aqueduct", at: <https://www.wri.org/aqueduct>.

³⁵ CDP, "Klabin S/A - Water Security 2020", at:

https://www.cdp.net/en/formatted_responses/responses?campaign_id=70692137&discloser_id=854021&locale=en&organization_name=Klabin+S%2FA&organization_number=10202&program=Water&project_year=2020&redirect=https%3A%2F%2Fcdp.credit360.com%2Fsurveys%2Fbctdjc9%2F82533&survey_id=68887528.

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the fact once the supplier has signed on.³⁶ One of the key impact areas the tool assesses is water consumption and effluent generation.

- As outlined in the Company's Code of Conduct³⁷ (the "Code"), one of Klabin's guiding principles is to ensure "effective participation in the communities where it has operations".³⁸ In this regard, Klabin aims to work alongside local communities to provide support to socioeconomic development in the regions in which it operates. The Code also outlines Klabin's commitments to continually upgrade its plants and adjust practices to exceed environmental legislation
- Klabin is committed to protecting and supporting worker health and safety for its employee, suppliers, and contractors. The Company has appointed a Safety Committee, comprised of managers from every plant and respective directors, to oversee and monitor programs.³⁹ All of Klabin's plants have an 'Internal Commission of Accident Prevention' program in place, in compliance with Brazilian legislation' which includes behavior auditing, inspections of installations, and training and development of leaders.⁴⁰

Sustainalytics recognizes the unique challenges of Klabin's rewilding initiative. The achievement of rewilding efforts is inherently interrelated to and depends on the regional ecological community/ecosystem response to such efforts. Additionally, biodiversity conservation, even on a regional scale, requires a multi-stakeholder undertaking to allow for concerted efforts and underlying investments that are beyond the influence or control of a particular stakeholder. Such large-scale, inter-temporal initiatives may have unintended/unknown outcomes for the species, or ecological community at large, during the phases of release/reintroduction of species, or at later stages as reintroduced species adapt and survive in an ecosystem which would be relatively distinct from the past in which those species evolved over time (timeframe mismatch).⁴¹ Further, a few numbers of species reintroduced into the ecosystem does not necessarily imply a successful outcome as their survival depends on the impact on the local food chain (and balancing feedback loop), and re-establishment of viable populations of focal species within their indigenous range in case of reintroduction.

Sustainalytics notes that Klabin's initiative involves a wide range of internal and external subject matter experts who will follow international and regional best conservation guidelines⁴² related to identifying regionally extinct and threatened species with an aim to reduce or reverse the biodiversity loss/damage along with an integrated sustainable forest management plan. In order to follow best practices regarding biodiversity conservation, Klabin also conducts research, planning, feasibility and risk assessments for the captive breeding and translocations of the identified species, and has forest planning program for food, shelter and ecosystem services before species are released into the ecosystem. After the release of species, Klabin will continue to ensure the implementation of extensive monitoring, such as through camera traps, brigades and tracking collars, and reporting and verification arrangements in compliance with the national laws and the requirements set under FSC-certification scheme for the company' forestry operations.⁴³

In addition to the above, Sustainalytics notes that it has found no evidence of any major environmental or social controversies related to Klabin..

Overall, Sustainalytics considers that Klabin has strong management programs and policies to manage and mitigate environmental and social risks commonly associated with its operations.

Section 3: Impact of the SPTs chosen

The importance of increasing water use efficiency in the context of Brazil

According to the OECD, Brazil is endowed with approximately 12% of the world's freshwater resources.⁴⁴ Despite this, the country faces critical water resource challenges related to lack of protection for water-related

³⁶ Klabin, 'Sustainability Report 2019', at: <https://rs.klabin.com.br/>

³⁷ Klabin, 'Code of Conduct': at: https://klabin.com.br/en/wp-content/uploads/sites/2/2019/10/manual_codigo_de_conduta_ing-v2.pdf

³⁸ Klabin, 'Code of Conduct': at: https://klabin.com.br/en/wp-content/uploads/sites/2/2019/10/manual_codigo_de_conduta_ing-v2.pdf

³⁹ Klabin, 'Occupational Health and Safety (OHS)', at: <http://rs2012.klabin.com.br/en/social-performance/managing-people/occupational-health-and-safety-ohs/>

⁴⁰ Klabin, 'Occupational Health and Safety (OHS)', at: <http://rs2012.klabin.com.br/en/social-performance/managing-people/occupational-health-and-safety-ohs/>

⁴¹ Byrne, Justin, and Pitchford, Jonathan, (2016), "Species reintroduction and community-level consequences in dynamically simulated ecosystems", The International Journal of Student Research, at: <https://academic.oup.com/biohorizons/article/doi/10.1093/biohorizons/hzw009/2526819>

⁴² http://www.issg.org/pdf/publications/rsg_issg-reintroduction-guidelines-2013.pdf

⁴³ The Principles under FSC certification scheme requires the company to maintain and/or enhance the High Conservation Values in the Management Unit through the application of precautionary approach, and to maintain, conserve and/or restore ecosystem services and environmental values while avoiding, repairing or mitigating negative environmental impacts. At:

https://unece.org/fileadmin/DAM/timber/meetings/20151102/presentations/item_5_Hontelez.pdf.

⁴⁴ OECD, Environmental Performance Review, "Brazil: Highlights 2015", at: <https://www.oecd.org/environment/country-reviews/OECD-EPR-Highlights-in-English-light.pdf>.

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ecosystems, pollution in urban areas without adequate wastewater collection and treatment services, and droughts and floods.⁴⁵ Low rainfall and inefficient water use in recent years have further aggravated these challenges. For example, the 2014-2015 water shortages in the southeast region affected millions of people, damaging agriculture, industry, and hydropower production, while more than a third of abstracted freshwater is lost before reaching consumers as a result of inadequate infrastructure.⁴⁶ In this context, Sustainalytics views positively Klabin's efforts to increase the water use efficiency of its operations through hydrosolidarity⁴⁷ and expects that these investments will contribute positively to restoring Brazil's water-related ecosystems.

The impact of promoting waste reuse in Brazil

In 2010, Brazil established the National Policy on Solid Waste (NPSW), stemming from the legislation and programs established in more developed countries in the 1970s.⁴⁸ While the NPSW has helped in implementing sound management principles, the OECD cites that recycling infrastructure, waste data and institutional capacity at the local level are still insufficient to ensure effective waste management across sectors.⁴⁹ Historically, pulp and paper mills waste, such as ash, dregs, grits, and lime mud, have been sent to landfills and/or incinerated.⁵⁰ With increased environmental awareness, some companies are working towards optimizing resources such that when waste is reintroduced in production systems it generates value, rather than harm. Klabin aims to achieve this primarily through reuse/recycle and energy recovery for non-hazardous wastes and by reducing the disposal of hazardous wastes in all areas in which it operates.⁵¹ The Company has also invested in waste management infrastructure, including through the purchase of bins, waste dumpsters, and improvements in recycling plants.⁵²

Based on the above, Sustainalytics is of the opinion that Klabin's financing in this area can contribute positively to the Company's ability to fulfill its zero-industrial waste to landfills goal, while also contributing positively to Brazil's waste management efforts more broadly through transparent monitoring and reporting.

The impact of restoring biodiversity and rewilding in Brazil

Approximately 44% of Brazil's total emissions in 2019 were due to deforestation, followed by agriculture and industrial processes.⁵³ In order to combat this, ICMBio, a federal agency for biodiversity conservation, has enacted the National Action Plan⁵⁴ with the following goals: (i) reduce and reverse biodiversity loss and damage; (ii) list all the regionally extinct and threatened species; and (iii) implement action plans of integrated management by creating ecological corridors. Klabin aims to contribute to this Plan through its Ecological Park project. Consisting of more than eleven thousand hectares, Klabin's Ecological Park serves as a reference point for studies on regional biodiversity, including local fauna and flora.⁵⁵ In 2019, 5 animals from 3 species were born at the park, and 159 animals successfully returned to the wild. In total, Klabin employees conducted 9,600 hours of monitoring within its forests, and provided surgeries, care, and feeding when needed. Based on the information available, and the conversations held with Klabin employees, Sustainalytics expects Klabin's investments in reintroducing/reinforcing native wild species to support the Plan's efforts in reducing biodiversity loss and restoring wildlife.

Alignment with/contribution to SDGs

The Sustainable Development Goals (SDGs) were set in September 2015 and form an agenda for achieving sustainable development by the year 2030. This sustainability linked bond advances the following SDG goals and targets:

⁴⁵ OECD, Environmental Performance Review, "Brazil: Highlights 2015", at: <https://www.oecd.org/environment/country-reviews/OECD-EPR-Highlights-inEnglish-light.pdf>.

⁴⁶ OECD, Environmental Performance Review, "Brazil: Highlights 2015", at: <https://www.oecd.org/environment/country-reviews/OECD-EPR-Highlights-inEnglish-light.pdf>.

⁴⁷ Klabin has confirmed that the concept of hydrosolidarity is based on the shared management of a hydrographic basin, which takes into consideration the amount of water demanded and the amount of water available in the basin. Through this process, Klabin aims to ensure that its operations use water resources in a sustainable way, both for forests, as well as for companies and people who depend on this water. The process consists of verifying the best forest management practices to extinguish or minimize impacts on tertiary basins. Based on the studies, it is established whether it is more appropriate to plant eucalyptus or pine, for instance, in consideration of the local water supply.

⁴⁸ Mondaq, "Brazil: National Policy on Waste Management" (2010), at: <https://www.mondaq.com/brazil/waste-management/108050/national-policy-on-waste-management>.

⁴⁹ OECD, Environmental Performance Review, "Brazil: Highlights 2015", at: <https://www.oecd.org/environment/country-reviews/OECD-EPR-Highlights-inEnglish-light.pdf>.

⁵⁰ ResearchGate, "Wastes from pulp and paper mills -A review of generation and recycling alternatives" (2018), at:

https://www.researchgate.net/publication/326683862_Wastes_from_pulp_and_paper_mills_A_review_of_generation_and_recycling_alternatives.

⁵¹ Klabin, 'Sustainability Report 2019', at: <https://rs.klabin.com.br/>.

⁵² Klabin, 'Sustainability Report 2019', at: <https://rs.klabin.com.br/>.

⁵³ SEEG, "Gases de Efeito Estufa" (2020), at: http://www.observatoriodoclima.eco.br/wp-content/uploads/2020/11/OC_RelatorioSEEG2020_final.pdf.

⁵⁴ ICMBio, Brazilian Government, Ministry of Environment, "National Action Plans", at: <https://www.icmbio.gov.br/portal/fauna/brasileira/planos-de-acao-nacional>.

⁵⁵ Biodiversity in Good Company, 'Klabin', at: <https://www.business-and-biodiversity.de/en/topicsactivities/archives/touring-exhibition/projects/klabin/>.

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KPI	SDG	SDG target
Water consumption intensity (m ³ /t)	6. Clean Water and Sanitation	6.4 By 2030, substantially increase water-use efficiency across all sectors and ensure sustainable withdrawals and supply of freshwater to address water scarcity and substantially reduce the number of people suffering from water scarcity
Waste reuse (% reuse and recycling)	12. Responsible Consumption and Production	12.5 By 2030, substantially reduce waste generation through prevention, reduction, recycling, and reuse
Reintroduction and/or reinforcement of wild species into the ecosystem	15. Life on Land	15.5 Take urgent and significant action to reduce the degradation of natural habitats, halt the loss of biodiversity and, by 2020, protect and prevent the extinction of threatened species

Conclusion

Klabin intends to issue a Sustainability-Linked Bond which will tie the coupon rate to the achievements of the following SPTs:

- Reduce the water consumption intensity from 4.42 m³/t (2018 baseline) for all of Klabin's pulp and paper manufacturing operations to be equal to or below 3.68 m³/t (equivalent of 16.7% reduction or more) by 2025.
- Increase waste reuse from 94.3% in 2017 (baseline) to 97.5% by 2025, including hazardous and non-hazardous solid waste from Klabin's entire operations, incl. forestry operations, and pulp and paper manufacturing.
- Reintroduce/reinforce at least two extinct or threatened native species by 2025.

Sustainalytics performed a review of the SLB information and considers the KPIs to be relevant and material and aligned with Klabin's sustainability strategy. Further, Sustainalytics considers SPT 1 and SPT 2 as ambitious, both based on external benchmarks, and SPT 3 as moderately ambitious, while acknowledging its associated positive environmental impact. Furthermore, Sustainalytics considers reporting and verification commitments to be aligned with market expectations.

Based on the above, Sustainalytics considers Klabin's SLN to be in alignment with the five core components of the SLBP and the prospective achievement of the SPTs to be impactful.

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The Green Bond Principles