btg pactual

Sector Policy: Pulp and Paper

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1. Policy's Purpose

BTG Pactual drafted this Policy with several policies to identify the social, environmental and climate risks of its many operating segments, complying with the principles and grounds outlined in its Social, Environmental and Climate Responsibilities Policy.

To prepare each Sector Policy, a detailed analysis was carried out of the social and environmental issues involving BTG Pactual's many operating segments during all stages of its production processes, i.e., from opening new areas and obtaining raw materials, throughout the production, distribution and closing of all business activities. To this end, reports and documents were consulted from the sector's main players, such as IFC guidelines, international references for social and environmental risk analysis and technical knowledge of BTG Pactual's internal team.

The Pulp and Paper Policy ("Policy") establishes the eight social and environmental aspects relevant to the sector and classifies them according to their relevance regarding risks and opportunities for this economic segment. This policy will be reviewed periodically within a period no longer than 3 (three) years.

2. Application Scope

This Policy must be applied by the ESG team, considering the relevance and proportionality principles in all segments of BTG Pactual, worldwide, that have entered or intend to enter into relationships with legal entities and/or individuals in the pulp and paper sector and other by-products (e.g.: biomass, rubber, pellets, charcoal, etc.), including, but not limited to, those carrying out planting, cultivation, harvesting, transportation and marketing activities.

3. Notes on the Sector

According to the Brazilian Technical Association of Pulp and Paper data, the pulp and paper sector comprises 220 companies with activities in 540 municipalities located in 18 Brazilian states, generating 128k direct jobs and 640k indirect ones.[1] The pulp industry in Brazil is the 4th largest in the world regarding production volume, while the country's paper industry occupies the 9th position in the ranking of world manufacturers[2].

A study by the Brazilian Bank for Economic and Social Development ("BNDES") highlights that the pulp produced by Brazilian companies is mainly derived from eucalyptus. These companies are used as references for best international practices in this segment.[3] This study also highlights Brazil has low participation in world paper production as a result of the deficient logistical infrastructure and the high and complex tax burden.

[1] Information available at:< https://www.abtcp.org.br/quem-somos/osetor/o-setor >.
[2] Information available at:< https://www.abtcp.org.br/quem-somos/osetor/o-setor >.
[3]The above study highlighted as main factors (i) productive forest base integrated to the industry (ii) high production scale and low technological age of industrial plants (iii) qualified staff in Forestry Research and Development.
Study Data:
DA HORA, André Barros. Manager of the Planted Forest Base, Pulp and Paper Industry Department (DEPACEL) of the BNDES Base Industries Area. 2030 Segment Programs: Pulp and paper. Available at:< https://web.bndes.gov.br/bib/jspui/bitstream/1408/14241/2/Panoramas%20Setoriais%202030%20-%20Papel%20e%20celulose_P.pdf>.

Companies in this sector usually integrate all stages of the production process, from forestry exploration to commercialization. The segment estimates the expansion of the forest base will be performed through partnerships involving small and medium forest producers, given the high cost of purchasing rural properties[4].

The production process in the pulp and paper sector can be divided into the following steps:[5]

- Harvesting wood. Wood in the form of logs is peeled and chopped into chips.
- The troughs are transferred to a digester belt, where they go through a "cooking" process (the addition of sodium sulfate and caustic soda) called the Kraft Process. The result of this process is the pulp.
- The pulp goes through a washing process in tanks and centrifuges, and the undigested chips are eliminated.
- Pulp is separated in other tanks (bleaching) to separate the pulp from other residues.
- Cellulose can be marketed or proceed to paper processing steps.
- Paper processing involves drying, pressing and chemical processes to stabilize the product.

4. Social and Environmental Aspects

Below, we list the eight most relevant topics in this segment that BTG Pactual will analyze.

4.1. Supply Chain

The social and environmental team will verify if the counterparty develops and implements specific procedures for suppliers addressing environmental, work safety, and social aspects, which may mitigate legal (supply chain responsibility) and reputational risks. These procedures may involve, in addition to the initial check and technical visit documents, the periodic follow-up of those suppliers considered more critical and/or having some point of attention identified in the social and environmental assessment (in this case, monitoring may include the progress of some action plan and/or technical qualification program for suppliers).

The company's relationship with suppliers holding forest certifications such as the Forest Stewardship Council (FSC) is a good practice and an advantage in the market. ESG Team will verify the existence of these certifications.

4.2. Consumption of Natural Resources

The sector is responsible for high water consumption. To avoid legal and operational risks (with fines and suspensions of industrial plants), recommendation is to obtain authorization for the consumption of water resources from the responsible environmental agencies, in addition to complying with any obligations established in these authorizations.

[4]Information from the Banco do Brasil publication "Banco do Brasil Sustainability Guidelines for Credit – Pulp and Paper".
[5] Description from the following website:< https://eqjunior.com.br/blog/impactos-ambientais-na-industria-de-papel-e-celulose/>.

The social and environmental team must verify the counterparty's good practices, which may include monitoring and periodic reporting of water consumption (which may include catchment points), wastewater, emissions and waste, in addition to the development of eco-efficiency solutions for saving these resources and the establishment of goals for the reduction of waste to landfill, replacement of fossil fuels by renewable ones.

Furthermore, to avoid competition in the use of water resources with human consumption in an eventual water crisis[6], the location of the industrial unit can be verified in respect to locations where there is a lack of water or an expectation of water scarcity. Good practices in this regard include programs and plans designed to anticipate these problems and measures to develop technologies to reduce water consumption, if necessary.

4.3. Effluents and Solid Waste Management

Effluents from the pulp and paper segment has high content of suspended solids, organic compounds, and COD content. Examples of waste generated are:

- Lubricants and fuels used in machines and/or their maintenance.
- "Dregs" and "gits" from the Kraft process for pulp extraction.
- Lime mud and organic sludge resulting from effluent treatment.
- Eucalyptus bark from the debarking process.
- Ash from burning biomass in boilers to obtain energy.[7]

Failure to prepare a solid waste management plan (when applicable)[8] and/or failure to package and manage waste, tailings and wastewater in an environmentally sound manner may lead to fines and interruption of activities due to the risk of soil and/or underground water contamination

4.4. Fire

There is a risk of fire for industries in the pulp paper sector in events taking place during machine operations and possible short circuits in electrical installations. Fires can create operational and reputational risk.

In the social and environmental risk analyses, the implementation of a firefighting system will be verified through a network of portable fire hydrants and extinguishers, approved and certified (through inspection records) by the Fire Department. Good practice for the sector is to keep procedures for service and firefighting up to date and offer periodic training for direct and indirect employees.

4.5. Climate Change

[6]The Brazilian Water Resources Policy points out that in situations of water scarcity, the priority use of water resources will be for human consumption and animal watering. For more information, access: <http://www.planalto.gov.br/ccivil_03/leis/l9433.htm>.
[7]Last 4 residues mentioned in the publication ""Compostos de resíduos da fabricação de papel e celulose na produção de mudas de eucalipto"" of the Revista Brasileira de Engenharia Agrícola e Ambiental volume 19, n. 7. Available at:< https://www.scielo.br/pdf/rbeaa/v19n7/1415-4366-rbeaa-19-07-0711.pdf>.
[8]According to the Brazilian Solid Waste Policy, the solid waste management plan must: (i) describe the enterprise; (ii) diagnose the solid waste generated or managed, with the origin, volume and characterization of the waste, including the environmental liabilities related thereto; (iii) indicate those responsible for each stage of solid waste management; (iv) define operational procedures related to the stages of solid waste management under the responsibility of the generator; (v) - preventive and corrective actions to be taken in situations of incorrect management or accidents. For more information, see: < http://www.planalto.gov.br/ccivil_03/_ato2007-2010/2010/lei/l12305.htm>.

As a result of the supply chain, the high heat generation required for paper production and the large amounts of water evaporated, the sector is moderately exposed to climate change risks. Physical climate risks related to extreme events (such as storms) or perennial changes in rainfall patterns make cellulose logistics challenging. Furthermore, these risks also manifest themselves in the raw material supply chain, for example with forest fires in eucalyptus forests.

Examples of good practices the social and environmental team should verify are: (i) materiality matrix and greenhouse gas emissions inventory; (ii) establishment of science-based greenhouse gas emission reduction targets; (iii) use of biotechnology in the selection of more resilient seedlings (actions linked to climate change adaptation); and (iv) development of transportation logistics and energy efficiency projects (substituting fossil fuels with renewables, cogeneration); modern fire monitoring and action systems against forest fires.

4.6. Occupational Health and Safety

During the socio-environmental analysis in forest areas, compliance with occupational health and safety standards should be verified, especially those dealing with (i) living areas (ii) accommodation (iii) changing rooms (iv) restrooms (v) dining facilities (iv) provision of drinking water (v) wearing personal protective equipment (vi) ergonomics (vii) compliance with Regulatory Standards 24 and 31 of the Ministry of Labor.

Below are the main risks by activities and mitigants. Recommendation is to raise these and address them through the preparation of Environmental Risk Prevention Programs (ERPP) and Occupational Health Medical Control (OMHC). It is further recommended to review risks using other relevant regulatory standards of the Labor Department and periodic and specific training on activities and wearing personal protective equipment.

	Activity	Risk	Mitigators
1	Handling and application of chemicals (e.g., materials used in the Kraft process, chlorine)	Difficulty breathing, illness	-Automate operations so that operators can monitor processes in rooms with isolated controls. -Install gas leak alarms/hazardous products. -Maintain a database of all chemicals used in the industrial plant, including data on hazardous products (e.g., toxicology, biological properties). -Label, mark, package and store all hazardous chemicals and materials according to applicable regulations. -Periodic training, including wearing protective equipment and handling of chemical products.
2	Work at height or movement of workers in the industrial unit	Falls	-Use of non-slip surface. -Quickly clean up spills, offering adequate and periodic training for these situations. -Install protection rails on walkways adjacent to production lines. -Establish routines to ensure that crane over people does not move heavy loads.
3	Machine operation	Machine safety, crushing	-Equipment with moving parts must be equipped with safety devices or interlocks capable of preventing access to moving parts. -Efficient training of workers.

	Activity	Risk	Mitigators
			-Equipment must be inspected and maintained regularly to avoid equipment failure. -All personnel operating equipment must wear Personal Protective Equipment goggles. -Complete mechanization of all log yard activities to reduce human contact. -Transportation routes within the yards must be outlined, and vehicle movement must be strictly controlled. -Stacks of logs must not be greater than a safe height defined by risk assessment, which must take into account specific circumstances on-site, including stacking methodology. -Access to log yards must be restricted to personnel.
4	Dust from paper and hazardous substances	Breathing difficulty	-Consider closed chip storage. -Avoid using compressed air to clean dust and wood residues. - Regularly inspect and clean dusty areas to minimize dust and explosion hazards.
5	Development of microorganisms in the closed-loop systems of paper machines, biological wastewater treatment plants from mills and cooling towers	Some of these microorganisms (fungi) can cause disease	-Use of biocides in cooling waters and in pulping and papermaking processes to minimize microorganism growth.
6	Rest of the woods, a paper machine can cause noise	Noise	-Use of control rooms. -Wearing Personal Protective Equipment.

4.7. Community

The main inconveniences to communities in this segment can be generated by: (i) fires; (ii) unpleasant odors (especially from the kraft process); and (iii) transportation of wood by trucks and possible emission of particulate material.

Attentive and constant dialogue with communities can represent the main mitigator of reputational risk (e.g., communication about wood transport, use of water to disperse particulate matter).

Best practices include:

- Establishment of an ombudsman channel, in which the community can present complaints/requests, which is impartial, transparent and pre-defined, with analysis, investigation, closure and feedback of each demand.
- Processes for identifying the profiles and needs of each community and establishing action plans (education and income generation actions).
- Avoidance of aerial application of agrochemicals.
- Implementation of community warning systems on agrochemicals application.

4.8. Human Rights

According to International Conventions, human rights can be classified as the right to work, free choice of employment, fair and favorable working conditions, and the elimination of all forms of forced labor

and the effective abolition of child labor.[9] Good practice is to continuously engage with suppliers on issues of workplace safety and the non-use of slave and child labor, in addition to complying with occupational health and safety standards, as well as making payments of wages and benefits according to the labor legislation, guaranteeing the fundamental rights of the worker.

[9]Human rights are those mentioned in (i) UN Universal Declaration of Human Rights – United Nations; (ii) Declaration on Fundamental Principles and Rights at Work of the International Labour Organization; (iii) UN International Covenant on Economic, Social and Cultural Rights (iv) UN International Covenant on Civil and Political Rights.
Brazilian Decree 9571 of November 21, 2018 establishes the Brazilian Guidelines on Companies and Human Rights.

Annex: Sector Categorization Matrix - Social, Environmental and Climate Risk Document

Risks	Description	Category
Social Risk	Consolidated assessment	High
	Slave labor	Medium
	Child labor	Low
	Occupational health and safety	High
	Damage to populations or communities	Medium
	Other factors	Medium
Environmental Risk	Consolidated assessment	Average
	Energy: use and conservation	Low
	Water: use and conservation	Medium
	Water: pollution	Medium
	Waste: management and disposal	Medium
	Air: pollution	Low
	Biodiversity and natural resources: use and conservation	Medium
	Hazardous materials: disasters	Irrelevant
	Soil: contamination	Medium
	Other factors	Medium
Physical Climate Risk	Consolidated assessment	Medium
	Adverse weather conditions	Medium
	Long-term changes	Low
	Other factors	Irrelevant
Climate Transition Risk	Consolidated assessment	Low
	Public policies/Legislation	Low
	Technology	Low
	Markets/Consumers	Irrelevant
	Other factors	Irrelevant