

Sector Policy: Steelworks and Metallurgy

December 2023



Table of Contents

- 1. Policy’s Purpose.....3
- 2. Application Scope.....3
- 3. Notes on the Sector3
- 4. Social and Environmental Aspects3
 - 4.1. Environmental Impacts and Respective Mitigation Programs.....4
 - 4.2. Atmospheric Emissions.....4
 - 4.3. Climate Change5
 - 4.4. Solid Waste Management.....5
 - 4.5. Occupational Health and Safety6
 - 4.6. Community6
 - 4.7. Human Rights7
- Annex: Sector Categorization Matrix - Social, Environmental and Climate Risk Document8

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 Steelworks and Metallurgy Policy ("Policy") establishes the seven social and environmental aspects relevant to the metallurgy and steel industry 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 of relevance and proportionality principles in all segments of BTG Pactual, worldwide, that have entered or intend to enter into a relationship with legal entities and/or individuals in the metallurgy and steelworks sector, including, but not limited to, those that carry out activities related to obtaining raw materials, construction, production, distribution and commercialization.

3. Notes on the Sector

The activities of the steelworks and metallurgy industries are related to metal production. While metallurgy produces several metals such as aluminum, copper, titanium, and iron, the steelworks specializes only in iron and steel production.

The production of these two segments is based on different processes to eliminate impurities from the ore. One of these main processes is called "reduction" and comprises the elimination of the oxygen atoms making up the ore, and the use of a different melting temperature (e.g., iron requires approximately 1300°C ovens to merge) is required for each type of metal.

These segments are known as base industries, as their products are used by other industries such as civil construction, autoparts, automobile and shipbuilding.

4. Social and Environmental Aspects

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

4.1. Environmental Impacts and Respective Mitigation Programs

The social and environmental diligence will analyze the Environmental Impact Study and/or programs to mitigate and compensate for the environmental impacts caused by the project and/or the counterparty. The most relevant environmental impacts are listed below which should be verified during the analysis.

During the implementation phase of projects in this segment, the main environmental impacts are related to increased noise generation (as a result of vehicle maintenance and the use of machines, which can drive local fauna away), change in water and air quality (which may cause loss of aquatic biota for changes in the chemical composition of the environments in which they live), and suppression of vegetation (which could cause loss of biodiversity in the region) and removal of topsoil.

For the operation phase, the main environmental impacts observed are:

- Change in air quality from the emission of particulate material from chimneys, raw material piles, conveyor belts, in addition to the emission of combustion gases from vehicles.
- Change in water quality from emission of sanitary sewage and untreated wastewater, leakage of oil and fuel from vehicles and equipment, liquid and solid waste.
- Noise from vehicles and equipment (belts, ore and coal conveyor belts, vibrating screens) and ore transportation by locomotives and trucks.
- Driving the fauna away resulting from the movement of machines with unwanted noise and/or change in the behavior of animals (most of the reserved cases).

Special attention must be given to emission monitoring programs and compliance with the emission standards defined in the applicable legislation.

Any failures in the preparation of studies and monitoring of the environmental impacts generate legal and operational risks from possible administrative and civil liability, resulting in the stoppage of activities until the damage to the environment is remedied.

4.2. Atmospheric Emissions

Despite having mentioned this topic in the previous section, given its relevance for the segment, we list below the main types of pollutants generated by its production activities.

- Particulate Material: the most frequent pollutant in these activities, and its main sources are the flue chimneys of combustion processes and environmental control systems.
- Sulfur Dioxide: related to processes using mineral coal as a raw material or combustion processes using fuels with sulfur.
- Nitrogen Oxide: referring to combustion processes.
- Carbon monoxide: related to combustion and reduction processes in the blast furnace (production of pig iron).

The social and environmental diligence will verify the existence of emissions monitoring, compliance with the emission standards provided in the environmental regulations (e.g., Resolution 382/2006 of

the Brazilian Environmental Council), and action plans to correct any identified deviations. Any failure to comply with control and corrective measures may present legal (fines) and operational (interruption of activities resulting from administrative embargoes and/or suspensions determined in court) risks.

These are examples of good practices in the segment:

- Cyclones: particles are separated from the exhaust gas by the action of centrifugal forces.
- Electrostatic Precipitators: the electrical charge is applied to the particles present in the gas, allowing these emissions to be attracted and captured by a collector electrode.
- Gas Washers: separation of effluents after “washing” the exhaust gas with water spray.
- Bag Filters: particles are separated from the gas by exhaustion through a porous material.

In general, the emission of these pollutants causes damage: (i) to workers, (ii) the surrounding community, and (iii) the vegetation, since when they adhere to the plant surface, impair processes such as photosynthesis, transpiration and respiration.

4.3. Climate Change

The sector is responsible for around 7%¹ of anthropogenic greenhouse gas emissions. In addition to being very energy-intensive, the sector has emissions-intensive operations, mainly from the use of coal in steel manufacturing. Besides enabling the chemical reduction reaction of iron, coal also provides heat and carbon for steel.

Socio-environmental due diligence should verify whether the counterparty has a materiality matrix and greenhouse gas inventory, has decarbonization commitments and a transition plan, if it offsets its emissions, and how it analyzes and manages the risks and opportunities related to climate change.

Good practices are the substitution of coal with biomass, replacement of natural gas with biomethane, use of scrap, cogeneration systems, reuse of blast furnace and steel mill gas, and use of electric arc furnaces.

4.4. Solid Waste Management

The social and environmental diligence will verify if the counterparty has a solid waste management² plan and if it carries out periodic training with its employees and collaborators. Examples of the industry's main residues and debris include (i) chips (one of the residues generated in the machining process giving the ore its shape, dimensions, or finish); (ii) scrap, cast iron, aluminum; (iii) contaminated packaging; (iv) ink sludge; and (v) paint residues and sanding discs.³

¹ Jinsoo Kim, Benjamin K. Sovacool, Morgan Bazilian, Steve Griffiths, Junghwan Lee, Minyoung Yang, Jordy Lee, Decarbonizing the iron and steel industry: A systematic review of sociotechnical systems, technological innovations, and policy options, Energy Research & Social Science, vol. 89, 2022.

² Brazilian Solid Waste Policy provides on the solid waste management plan, with the following minimum content: (i) description of the enterprise or activity; (ii) diagnosis on solid waste generated or administered, with the origin, volume and characterization of the waste, including the environmental liabilities related thereto; (iii) identification of the solutions associated or shared with other generators; (iv) preventive and corrective measures to be implemented in incorrect management situations or accidents.

³ Indication of residues from the study: RODRIGUES, Franciele. Diagnóstico Ambiental em uma Indústria Metalúrgica de Imbituva – PR.. Available at: <<https://www.semanticscholar.org/paper/Diagn%C3%B3stico-ambiental-em-uma-ind%C3%BAstria-metal%C3%BAgica-Rodrigues/41e43c33a3d4c937528b97d16b586a3aadbfa00d>>.

No environmentally sound management of these residues and tailings can cause contamination in the soil and groundwater, possible costs for remediation (credit risk) and compensation for environmental damage (legal risk).

4.5. Occupational Health and Safety

The social and environmental diligence will verify how the counterparty manages aspects related to occupational health and safety, such as (i) preparation of ERPP and OMHCP⁴ with identification of risks and mitigating factors⁵; (ii) existence and training of a team dedicated to this topic; (iii) drafting internal safety and education procedures; (iv) frequency and scope of training and reviews of internal procedures; and (v) system including the monitoring of failures identified in the management of these aspects or the occurrence of accidents and respective action plans.

According to the literature, workers in this sector have a higher incidence of hearing loss and risks linked to the inhalation of metallic dust and welding fumes, which can cause damage to health (lung diseases).⁶ Accidents in this segment are related to superficial skin cuts, crushing fingers and cutting fingers in a guillotine machine.

Furthermore, the literature indicates a series of toxic substances to which workers may be exposed, the most relevant being benzene, nickel and polycyclic aromatic hydrocarbons. Acute exposure to these gases can result in neurological and gastrointestinal toxicity⁷. Risk and mitigation assessments must consider all toxic substances used in the production process.

4.6. Community

In the implementation of projects in this sector, there may be an increase in migratory flow to the location where it will be implemented. In addition to overloading social services (health, education, security and social assistance), there may be an increase in cases of sexual exploitation and/or prostitution of children and/or adolescents, an increase in rates of STI's⁸, excessive use of alcohol and other illicit drugs, violence and violence against women.

During the operation phase, the main risks to the community are observed: (i) the emission of gases (emissions from the chimneys of steel mills) can affect the health of the population⁹; (ii) the increase in traffic accidents resulting from the increase in the circulation of vehicles to meet the productive

⁴ ERPP: Environmental Risk Prevention Program

OHMCP: Occupational Health Medical Control Program

⁵ Industry Code of Good Practice: Code of practice on safety and health in the iron and steel industry published by the World Labor Organization. For more information, access: < https://www.ilo.org/global/topics/safety-and-health-at-work/normative-instruments/code-of-practice/WCMS_112443/lang-en/index.htm >.

⁶ Regarding damage from the metallurgical segment, Régis et al (2013) prepared a paper on the incidence of hearing loss in workers in a metallurgical industry. The research was carried out with the participation of 1499 workers who underwent audiometric tests. The statistical study applied to a sample of 763 workers indicated that noise-induced hearing loss was greater in workers over 45 years old and with more than 21 years of work, which led to the conclusion that the prevalence and incidence of hearing loss increased with age and length of service.

For more information access: SANTOS, MARIA BETANIA. DA SILVA, TAISE. COLACO, STELLA. RANGEL, MARIANA. DA CUNHA, JORDAYNE. Análise

Preliminar dos Riscos em uma Indústria Metalúrgica: <http://www.abepro.org.br/biblioteca/TN_STO_241_399_33786.pdf>.

⁷ For more information, access the Oswaldo Cruz Foundation publication: "

Avaliação dos Impactos Socioambientais e de Saúde em Santa Cruz decorrentes da instalação e operação da empresa TKCSA", available at: < http://www.epsiv.fiocruz.br/upload/d/Relatorio_TKCSA.pdf >.

⁸ Sexually Transmitted Infections

⁹ In projects in this segment, there are reports from the local community that a series of respiratory, dermatological and respiratory problems has arisen or worsened.

activities of industries and the transportation of goods; and (iii) increased noise from machinery and railroad lines (for example).

The social and environmental due diligence should understand how these risks are assessed by the company and measures taken to mitigate them, as well as observe the existence of a communication channel and a specific team to respond to community demands, through an impartial, transparent, and pre-defined process, including analysis, investigation, closure, and feedback of the demands.

4.7. Human Rights

According to International Conventions,¹⁰ human rights include rights to work, free choice of employment, fair and favorable working conditions, no type of forced labor, effective abolition of slave labor, property, and health.

During social and environmental diligence, verification is made on due diligence carried out on human rights matters, which include: (i) assessment of risks and impacts to human rights in its business; (ii) support the effective adoption of prevention and control measures; (iii) monitor new risks and the effectiveness of the control measures adopted; and (iv) promote transparency and accountability about the company's commitments to respect human rights in the workplace, along with the chains and the surrounding.¹¹

¹⁰Human 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.

¹¹Human Rights Impact Assessment Guide prepared by FGV with the NGO Childhood details how DD in human rights can be done. Guide available at: <https://www.childhood.org.br/publicacao/Guia_de_avaliacao_de_impacto_em_direitos_humanos.pdf>.

Observe Decree 9571/2018 establishing national guidelines on business and human rights. Access at:< http://www.planalto.gov.br/ccivil_03/_ato2015-2018/2018/Decreto/D9571.htm>.

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

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