

Environmental and Social Review Summary (ESRS) Project 13935-01 – Aroeira Bioenergética

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1. General Information of the Project and Overview of Scope of IDB Invest’s Review

Bioenergética Aroeira (“Bioaroeira”, the “Company” or the “Project”) is a Company producing sugar and ethanol, further engaged in the cogeneration of electric power based in the city of Tupaciguara, State of Minas Gerais, Brazil. The Company operates three power stations with a combined sugar milling capacity of 3 million tons. Every year, the Company produces about 219,000 tons of very high polarity (VHP) sugar, 82,400 m³ of ethanol (mainly sold as fuel for light vehicles) and 224 GWh of electric power through the cogeneration of bagasse, 67% of which is sold to third parties.

The proposed credit Transaction (the “Transaction” or the “Financing”) will be used to increase by 40 MWh the current cogeneration capacity of the Company, bringing its annual milling capacity to 4 million tons (an approximate 33% increase), and to enhance its sugarcane production and storage capabilities. For that purpose, the Project involves the acquisition of a new boiler and a 40 Mwh turbogenerator.

The Environmental and Social Due Diligence (ESDD) process included on-site technical visits by the IDB team, interviews and meetings with employees, managers and senior executives, as well as representatives of the Association of Cane Suppliers of Bioenergética Aroeira (Associação de Fornecedores de Cana da Bioenergética Aroeira, Canaroeira). The ESDD process further included a review of relevant environmental, social, and health and safety information furnished by the Company, comprising mainly: i) business strategy; ii) environmental and social (“E&S”) management policies and procedures; iii) management of occupational health and safety (“OHS”) programs; iv) supply-chain management; v) management of solid waste and effluents; vi) air emissions (from bagasse cogeneration and dust from transportation activities); and vii) potential safety risks for the local communities owing to the traffic of vehicles used to transport sugar cane. In addition, other E&S aspects were addressed under Brazilian regulatory requirements and international good practices.

2. Environmental and Social Categorization and Rationale

Under IDB Invest’s Environmental and Social Sustainability Policy (“ESSP”), the Project was classified as a Category B transaction as it presents low to medium risks and impacts, which may be mitigated using the measures available and feasible within the context of the proposed transaction. The main risks and impacts identified include: i) possibility of industrial and agricultural fires (the latter being related to third parties); ii) risk of occupational accidents both while performing farming activities and at industrial facilities; iii) loss of biodiversity related mainly to the supply chain and compliance to the Brazilian Forestry Code; iv) management of waste, effluents (mainly vinasse) and hazardous products; v) air emissions; and vi) traffic risks related to sugarcane transportation.

The Performance Standards (PS) applicable to the Project are: PS1: Assessment and Management of Environmental and Social Risks and Impacts; PS2: Labor and Working Conditions; PS3: Resource Efficiency and Pollution Prevention; PS4: Community Health and Safety; and PS6: Biodiversity Conservation and Sustainable Management of Living Natural Resources.

3. Environmental and Social Context

3.1 Project Site Overview

The plant area is located in the Municipality of Tupaciguara. As to the cultivation areas, most of them are in the Municipality of Monte Alegre de Minas, also in the State of Minas Gerais. Those municipalities lie in south-east Brazil and belong to the Intermediate Geographic Region (Região Geográfica Intermediária) of Uberlândia. According to the Brazilian Geography and Statistics Institute (Instituto Brasileiro de Geografia e Estatística, IBGE), the population of the Municipality of Tupaciguara—which is located in the Paranaíba River basin, an area with Cerrado biome prevalence—stands at 24,188.

Also according to the IBGE, the Mineiro Triangle (Triângulo Mineiro) anthropic occupation dates back to the 1960s, with predominance of urban centers, agriculture and livestock farming activities. Albeit with a considerably modified vegetation cover, information obtained with the use of the Integrated Biodiversity Assessment Tool (“IBAT”)¹ indicates the possible occurrence of threatened species in the region.

The industrial facilities of Bioaroeira may be accessed via highway BR-452, which exhibits good states of conservation and trafficability. The surroundings are occupied by field crops, particularly sugarcane and corn, and extensive livestock production. The closest urban area is the city of Tupaciguara, distant approximately 20 kilometers from the Project.

3.2 Contextual risks

In relation to social aspects, the region of operation of the Company is relatively quiet with no records of public demonstrations against the Company or similar projects having been found.

Based on data published by the Ministries of Labor and Social Security and Economy, evidence of use of forced labor and child labor may still be found in Brazil's sugarcane industry. While harvesting activities in the Project region are already 100% mechanized, some farms have been found to still use manual activities for the planting stage; hence, extra caution must be exercised to avoid risks related to this issue.

In relation to environmental issues, the risks related to the effects of climate change and, in particular, rainfall variability, which can impact sugarcane production in the region, are highlighted. More details are discussed below in this document.

¹ Available at <https://www.ibat-alliance.org/>

4. Environmental Risks and Impacts and Proposed Mitigation and Compensation Measures

4.1 Assessment and Management of Environmental and Social Risks and Impacts

4.1.a E&S Assessment and Management System

Bioaroeira manages the environmental, social and health and safety aspects of its operations with a focus on ensuring compliance with Brazilian legal and regulatory requirements. The Company developed E&S management procedures covering specific issues related to operational, monitoring and legal compliance aspects. A specific software has been used to manage environmental constraints.

The Company has obtained appropriate licenses and permits required for its operations (environmental licenses, water capture, fire safety, waste, vinasse application, etc.). In early 2022, as part of its operational excellence program, the Company initiated the implementation of an Integrated Management System (“IMS”) based on ISO 9001², ISO 14001³ and ISO 45001 standards⁴. The implementation of the IMS is being monitored by a specialized external consulting firm, and Bioaroeira intends to seek certification in such standards by the end of 2022.

Since 2018, the Company has held the Bonsucro certification⁵, covering the scope of its own sugarcane production in its operations. Adherence to the Bonsucro principles is verified through independent external auditors.

4.1.b Policy

As part of the implementation of its IMS and the Bonsucro certification process, the Company has developed an integrated management policy addressing several E&S aspects, including its mission, vision and value statements, as well as the internalization of all the guidelines and PS1 requirements. The following elements stand out among the IMS Policy components: i) quality and compliance in all products; ii) customer and shareholder satisfaction; iii) interaction with society and communities in a sustainable manner; iv) respect for life and the environment; v) compliance with current legislation; vi) promotion of a OHS culture.

As part of the implementation of its management system, Bioaroeira will publicly disclose its IMS policy through the company’s corporate website, external and internal stakeholder engagement activities, as well as in contracts with suppliers and providers. Moreover, the Code of Conduct implemented by Bioaroeira includes environmental, social and economic accountability principles.

² The term ISO 9001 designates a group of technical standards establishing a quality management model for organizations in general.

³ This standard is aimed to guide the implementation of environmental management systems in organizations.

⁴ International standard for Occupational Health and Safety Management System (OHSMS), which focuses on improving companies' performance in terms of OHS.

⁵ Bonsucro is an organization created to help reduce the E&S impacts of sugarcane production by developing a standard and certification program for the industry. More information available at www.bonsucro.com.

4.1.c Identification of Risks and Impacts

Identification of risks and impacts, with a focus on preventing the chemical, physical and biological hazards of Bioaroeira's operations, are included in the Environmental Management Plan ("EMP") and in the Risk Management Program ("RMP") required by Brazilian regulations. Throughout the year, environmental, health and safety ("EHS") professionals inspect the work environment to assess safety and environmental conditions, in both industrial and agricultural areas. Environmental parameters in the workplace are measured, including noise, lighting, temperature, air quality and humidity. In addition, the Company carries out environmental assessments of its sugarcane fields and develops programs to monitor biodiversity, ecosystem services, soil, water quality, and use of chemicals, among other aspects.

Bioaroeira has procedures in place to identify OHS risks, in both industrial and agricultural areas, and those procedures are being expanded to cover E&S risks and aspects, namely: ground and surface water pollution and soil pollution, air emissions, generation of solid waste, loss of soil quality, causing erosion and sedimentation, changes in surface run-off, and interference with local fauna.

Under its IMS, Bioaroeira will develop detailed E&S risk and impact assessment matrices, and define the procedures, schedule and technical team necessary for conducting, reviewing and improving risk assessment, including both industrial facilities and agricultural areas. In addition, E&S indicators will be monitored by the Company's Board of Directors.

4.1.c.i Gender Risks

Overall, Brazil exhibits high rates of gender violence, as compared to other countries in the region, and a significant increase in the number of cases of domestic violence has been shown in recent years due to the worsening of the socioeconomic conditions caused by the COVID-19 pandemic.

According to IPEA⁶ feminicides in Minas Gerais in the period between 2009 and 2019 ranged from 402 to 295 per year, respectively, with a 26.6% reduction in the period considered. Despite the decline in this rate in recent years, the figures are still significant, outnumbering those of many other countries in the region. In the municipality of Tupaciguara (Project area), feminicides per year in the same period ranged from 4.05 to 27.08, without a clear declining trend, contrarily to the state average. Thus, gender violence is an important issue in the Project's area of influence.

Most of the labor hired for the Project consists of local workers from Tupaciguara and the region. Thus, there is no need to provide accommodation, which prevents overcrowding of host communities and the risk of introducing external vectors.

On the other hand, based on regional data, and to prevent cases of gender violence in the communities where it operates, Bioaroeira will develop specific educational content and conduct internal awareness campaigns addressed to the workforce assigned to the Project.

⁶ Data extracted from the Atlas of Violence (2021) prepared by the Institute for Applied Economic Research (Instituto de Pesquisa Econômica Aplicada, IPEA). This document may be accessed at <https://www.ipea.gov.br/atlasviolencia/publicacoes>.

4.1.c.ii Exposure to Climate Change

The main physical risk for this Project is related to the production of sugarcane, as growth and yield of this crop may be affected by climate change. Within a 25-kilometer radio of the plant, where the main plantation areas are located, there is exposure to possible droughts that may be worsened by climate change. Some climate models⁷ project that changes in rainfall patterns may be moderate until the end of the century, considering a conservative climate scenario.

To address climate change concerns, the Company has considered increasing irrigation in the cultivation areas, using not only vinasse and wastewater from the mill, but also capturing water from the proximities of the cultivation areas. Bioaroeira has hired an independent consulting firm to assess the feasibility of this initiative and develop a water management plan, choosing the most suitable technical option (pivot, drip etc.), considering local conditions.

An assessment of the Project area conducted using the *Aqueduct*⁸ tool has shown that there is a low risk of water stress nowadays, and low to medium risk by 2030 in irrigated sugarcane production.

4.1.d Management Programs

Bioaroeira's management programs are currently mostly focused on Brazilian legal compliance requirements, the conditions of the environmental licenses for the Company's mill and fields and the Bonsucro certification criteria, with practices for managing and monitoring environmental quality and OHS parameters.

Environmental management programs include management of effluents, monitoring of air emissions, monitoring of surface water quality, vinasse application program, waste management and use of chemical products, among other aspects. Bioaroeira has further implemented environmental programs and procedures designed to reduce the amount of industrial effluents and waste by turning them into fertilizers for sugarcane plantations. As part of a broader transition in the Brazilian sugar industry away from manual farm labor reliance, Bioaroeira has already fully mechanized its harvesting operations, even eliminating burning practices, as required by the State of Minas Gerais.

The Company also has a series of procedures to manage human resources ("HR") and OHS issues, applicable also to contractors, such as the Risk Prevention Program ("PGR"), the Occupational Health Medical Control Program ("PCMSO") and the Hearing Protection Program. The OHS procedures and practices are detailed under the section related to PS2.

⁷ Such as the GFDL-CM3, developed by the U.S. National Oceanic and Atmospheric Administration (NOAA).

⁸ Aqueduct is a data platform managed by the World Resources Institute, an organization involved in environmental research. Aqueduct is comprised of tools that help businesses, governments and the civil society understand and respond to water risks, such as water stress, seasonal variability, pollution and access to water. More information about this tool may be obtained at <https://www.wri.org/aqueduct>.

4.1.e Organizational Capacity and Competency

Bioaroeira has EHS staff, who report directly to the Administrative, Financial and Commercial Management and are responsible for E&S, OHS and quality management issues. The team is further made up of environment analysts and OHS technicians.

In addition to having an in-house EHS team, the Company also hires environmental consulting firms to carry out specific assignments, such as the monitoring of fauna and air emissions. The results are consolidated in reports and discussed in periodic management meetings or at face-to-face discussions between the environmental and sustainability staff and the department managers of each area. In the event of recidivism, the environmental team develops awareness campaigns among the workers. External consultants also support the Company in environmental licensing processes and compliance with legal requirements. The industrial site has also a health care team consisting of a physician and a nursing technician.

IMS implementation and the certifications to be obtained will require a more intensive internal document and process control. In view of that, Bioaroeira will reevaluate its EHS staff and, if needed, expand its team to meet future demand.

4.1.f Emergency Preparedness and Response

Bioaroeira has developed an Emergency Response Plans (ERP)⁹, establishing the guidelines necessary to respond to emergency situations that are likely to generate incidents inside and outside the operational unit. The possible emergency scenarios include fires, explosions and product spilling. In the event of accidents involving poisonous animals, the worker is referred to the nearest health facility (city of Tupaciguara). In addition, the Company has joined the Mutual Aid Plan (PAM)¹⁰, which is being coordinated by the Fire Brigade of the city of Tupaciguara and includes members from other local companies.

Drills are conducted on a regular basis, and Bioaroeira, in compliance with local Fire Department requirements, has an on-site fire brigade and is equipped with a fire-fighting system. The Company undertakes several preventive actions, such as implementation of fire belts, theoretical and practical training, fire protection systems in harvesters, fire control and fighting equipment in the event to combat potential fires, such as fire-fighting equipment at the plant and ethanol tanks, tanker trucks, satellite-traced fleet and radio channel communication systems.

Industrial units have obtained a valid inspection certificate (Auto de Vistoria) issued by the Minas Gerai's State Fire Department and have in place emergency signage and fire prevention and combat equipment, such as smoke detectors, alarms, sprinklers, foam chambers and portable fire extinguishers.

⁹ This document is internally called Fire Intervention Plan (Plano de Intervenção de Incêndio, PII), in keeping with the laws of the State of Minas Gerais. However, the PII covers different emergency scenarios not necessarily involving the presence of fire, in line with the typical scope of an Emergency Response Plan (ERP).

¹⁰ In 2018, the name Mutual Aid Plan was changed to Integrated Emergency Network (Rede Integrada de Emergências, RINEM).

4.1.g Monitoring and Review

Bioaroeira has implemented relevant environmental monitoring programs as per environmental licensing requirements, including, for example, monitoring of air emissions from boiler combustion, surface and ground water quality monitoring and soil monitoring. The effluents resulting from the industrial process (vinasse) are used in cultivation processes as per the Vinasse Application Plan developed by the Company.

As reported above and to meet PS1 requirements within the framework of its ESMS, Bioaroeira will follow up on the development and implementation of procedures designed to monitor and measure the effectiveness of the management program as well as compliance with any legal and/or contractual obligations and regulatory requirements. The Company should also appoint a professional in charge of the monitoring activities, an internal audit procedure and a periodic review schedule.

4.1.h Stakeholder Engagement

In 2018, Bioaroeira developed a Stakeholder Engagement and Communication Procedure intended to build relationships with the different stakeholder groups and improve and facilitate communication as well as strategic decision making.

As shown during the ESDD, the Company has made reasonable efforts to hold consultation meetings with some stakeholder groups. In the last meeting, for instance, issues such as the following ones were addressed: i) interaction of stakeholders with the Company's activities; ii) presentation of the social and environmental projects; iii) discussion of the E&S impacts of the plant on the community; iv) disclosure of communication channels/grievance resolution mechanism.

4.1.i External Communication and Grievance Mechanisms

Bioaroeira has an external communication program and grievance mechanism in place, providing for a communication space to deal with suggestions, grievances and claims of violations of and deviations from policies, procedures and the Code of Ethics of the Company.

The program comprises four communication channels: i) telephone contact at (034) 3281-0500; ii) e-mail: aroeira@bioaroeira; iii) contact form available at the corporate website, www.bioaroeira.com.br; and iv) suggestion boxes set up at the industrial park and worker resting facilities.

Feedback received through these channels is analyzed confidentially and anonymously by the Company's Ethics Committee. All Bioaroeira stakeholders –including its employees, suppliers, customers, consumers and society– may use available communication channels. Within the ESMS implementation process, the Company will establish a procedure for the periodic evaluation of the system and its results by management and the technical team.

In addition to the channels already developed and implemented, within the framework of the ESAP, the Company will disclose in its website periodic E&S reports.

4.2 Labor and Working Conditions

4.2.a Working Conditions and Management of Worker Relationships

Bioaroeira has a clear approach to recruiting, training, and retaining a highly qualified workforce. The Company's workforce is made up of approximately 1,150 payroll workers assigned to both plant and the plantation areas.

The Company has established HR procedures in relation to recruitment, hiring, training, jobs and salaries, among other aspects. Bioaroeira has also developed a Code of Ethical Conduct clearly banning any form of forced, child or compulsory labor, discrimination, threat, coercion, abuse or harassment in the work environment. Within the scope of the proposed transaction, the Company will consolidate a Human Resources Policy contemplating the elements in PS2, including principles in relation to workers engaged by third parties and supply chain workers.

Working conditions are defined in the contracts signed by Bioaroeira and its employees and are consistent with Brazilian labor laws. The Company offers its personnel competitive salaries, all the basic benefits guaranteed under Brazilian legislation as well as additional benefits (such as access to private healthcare, life insurance, transportation, luncheon tickets and scholarships, among others) in order to attract and retain workers and improve their performance. Bioaroeira also has a properly structured, well-documented approach to hiring, onboarding, managing, training and promoting its work force. There are also procedures to terminate labor contracts if necessary.

Bioaroeira has a formal onboarding process whereby new hires are received by an HR professional on their first day of work and presented with the mission, vision and values of the Company, its Code of Ethical Conduct and compensation and benefits policy.

The employment terms and conditions are clearly defined in the contracts and collective bargaining agreements to which the Company is subject. The rights of workers in Brazil, including the rights of association and creation of trade unions, are safeguarded by the 1988 Constitution and the Consolidation of Labor Laws, which are aligned with International Labor Organization (ILO) guidelines. Under Brazilian labor laws, all workers have the right to join a workers' union and Bioaroeira's personnel benefit from the existence of sectoral collective bargaining agreements. The Company does not limit the right of association to trade unions, meets terms of collective bargaining agreements and complies with labor rights. The workers, for the most part, are enrolled in two unions: i) Rural Workers' Union of Tupaciguara; and ii) Union of Workers in the Manufacturing Industries of Alcohol, Plastics, Cosmetics, Fertilizers, Chemicals and Pharmaceuticals of Uberaba and the region.

Workers are hired regardless of gender, race, nationality, ethnic, social or native origin, religion or creed, disability, age or sexual orientation, but based on technical skills and behavior. In relation to gender equality, currently only 13.3% of all employees are women, mainly assigned to administrative roles.

To promote greater gender equality, the Company is studying alternatives for advancing this process. IDB Invest, through its technical consultancy division, will assist Bioaroeira in the implementation of a sustainability strategy, which should focus on material issues for the Company's operations and its supply chain. Such program will be implemented during the course of 2022-23 and will be led by the Company's sustainability area, with broad participation of other internal departments.

4.2.a.i Grievance Mechanism

Bioaroeira's Grievance Mechanism provides four channels through which concerns can be received: i) a telephone line (Fale Conosco): 34 3281-0500; ii) e-mail address and contact form available at the corporate website; iii) via WhatsApp chat number; and iv) suggestion and complaint boxes set up at the mill and plantation workers' resting facilities.

Communication channels are made known to the internal and external stakeholders via bulletin boards, posters and e-mail communications, and, to external stakeholders, through the corporate website and social media. The concerns received through the channels created for raising grievances are recorded and systematized in a grievance form and followed up by the HR department. In order to meet the requirements of PS2, a procedure will be established for channeling and addressing the concerns received, including a response timeframe and the names of those responsible for communication management, in addition to the other requirements contemplated in PS2.

4.2.b Protecting the Work Force

The contracts entered into by Bioaroeira and its employees are consistent with local labor laws and cover, among other aspects, working hours, work schedule, overtime, paid leave, minimum wage, benefits, statutory allowances and minimum OHS aspects. Such aspects are also considered in contracts with service providers and contractors.

Bioaroeira's hiring procedures are compliant with the minimum working age requirement of 18 years, except for apprenticeships, which are intended for young people aged 16 and over.

4.2.b.i Child Labor and Forced Labor

Based on data published by the Ministries of Labor and Social Security and Economy, evidence of use of forced labor¹¹ and child labor may still be found in Brazil's sugarcane industry. While harvesting activities in the Project region are already 100% mechanized, some farms have been found to still use manual activities for the planting stage; hence, extra caution must be exercised to avoid risks related to this issue.

¹¹ In Brazil, forced labor is characterized as work "analogous with slavery", according to section 149 of the Brazilian Criminal Code. The following elements define such typology: degrading work conditions (incompatible with human dignity, characterized by the violation of fundamental rights that threaten workers' health and life), exhausting work days (where workers are subject to excessive effort or overworked, as a result of which workers' health is damaged or their life is threatened), forced labor (keeping the person at work through fraud, geographical isolation, threats and physical and psychological violence) and debt servitude (having a worker illegally contract a debt and forcing him/her to stay in service). Those elements can occur jointly or separately.

Bioaroeira has a Sugarcane Growing and Harvesting Instructions Manual, which sets out detailed requirements relating to labor and EHS issues that the Company's suppliers must meet to comply with the Company's internal regulations and Brazilian laws. This manual is reviewed with suppliers upon signature of the supply contract and Bioaroeira performs periodic work site inspections. In addition, the contract with its suppliers clearly prohibits the use of child labor and labor analogous with slavery.

The Company also holds periodic workshops for its suppliers, in order to disseminate good practices and ensure that information and technical requirements regarding sugarcane cultivation is consistently understood and reviewed. In early 2022, for example, the Company held a themed workshop on basic rules and good labor and health and safety practices in the rural environment. During the event, the Company discussed the risks involved, and demonstrated examples of good practices and nonconformities that should be avoided, ranging from passenger transportation to conditions of accommodation provided to workers. Moving forward, and under the proposed transaction, those events will be held annually.

During the ESDD process, the Company declared that there was no evidence of child and forced labor in its operations or supply chain.

More details about the Company's supplier management practices are included in section 4.2.e below.

4.2.c Occupational Health and Safety

Brazil has in place a group of detailed and prescriptive OHS standards known as “Normas Regulamentadoras” (“NR”) (Regulatory Standards). The main NRs applicable to the Company's operations and that should be met permanently are: Specialized Service in Safety Engineering and Occupational Medicine, (NR-4); Internal Accident Prevention Commission, (NR-5); Personal Protection Equipment (NR-6); Occupational Health Medical Check-up Program, (NR-7); Assessment and Control of Occupational Exposures to Physical, Chemical and Biological Agents (NR-9); Material Transportation, Movement, Storage and Handling (NR-11); Boilers, Pressure Vessels, and Pipes and Metallic Storage Tanks (NR-13), in addition to those related to electrical installations, work at height and fire protection, among others.

The RMP defines the medical tests necessary for employee hiring, periodical check-ups and termination, which are defined based on the related occupational risk profile (through the PCMSO).

As noted in the ESDD process, Bioaroeira has invested in OHS teams' awareness raising and engagement efforts. The main tools used by the Company are as follows: Preliminary Risk Analysis (“APR”); verification of the OHS laws applied; environmental assessment and biological monitoring; training and awareness raising; employee communication, engagement and consultation; supply of workwear and personal and collective protection equipment; control of access credentials; emergency preparedness and response, nonconformity records and investigation of occupational accidents and near misses.

Industrial processes are mostly automated and, hence, only a limited number of workers is present at the operational area, which results in a reduced exposure to inherent risks typically found in a sugar and ethanol plant. All confined spaces have been identified and marked with safety signs, and workers are trained in how to follow safety rules for working in confined spaces that are consistent with Brazilian safety requirements.

Fall prevention measures have been provided for work at heights at the plant including railings, lifelines and platforms. Overall, the Company has provided adequate preventive safety measures, which were observed during the technical visit to its facilities and include machine guarding, emergency stops, handrails, emergency signs, etc.

As regards planting and harvesting operations areas, good general conditions were verified during the work site visit. Workers wore adequate personal protective equipment, transport vehicles were found to be in good state of conservation, chilled water was available, and mobile roofed rest and meal space equipped with tables and chairs were observed. Toilets exhibited gender identification signs, good condition of hygiene, and basic supplies were available (soap, toilet paper, water etc).

The documents assessed during the ESDD demonstrate that the Company has made significant effort to improve the safety conditions of its workers. In this context, the Company checked its facilities for compliance with NRs and developed an action plan towards full adequacy, which has been underway over the last two years. As part of the proposed transaction, the Company will continue to implement the proposed action plan to ensure full compliance with the requirements of applicable technical standards.

4.2.d Workers Engaged by Third Parties

In general, Bioaroeira does not engage any outsourced labor on a permanent basis; the Company only contracts for services required based on maintenance and/or operational sector needs. The only permanently outsourced workers are those assigned to cane transportation, cafeteria and security. The companies providing outsourced workers are assessed by the procurement department to inquire about compliance with labor and OHS regulations, payment of social security taxes, and history of labor lawsuits, among others. Standard EHS requirements are included in the contracts and Bioaroeira makes payments only upon evidence having been provided of compliance with those requirements. The internal grievance mechanism may also be used by outsourced workers whether through secure e-mail or telephone.

4.2.e Supply Chain

Bioaroeira obtains approximately 45% of processed sugar cane from 15 suppliers who grow sugar cane in their own lands and/or rented farms. Such producers, on their own account, hire and manage their own labor force and machinery.

All third-party producers are part of an association called Canaroeira¹², through which Bioaroeira conducts engagement and training activities on a unified basis, with a view to ensuring good practice

¹² Association of Cane Suppliers of Bioenergética Aroeira (Associação dos Fornecedores de Cana da Bioenergética Aroeira).

alignment across the Company's partners. Third-party producers have also undergone the mechanization process mentioned above, thus eliminating the need for temporary manual labor (usually migrant) for sugarcane harvesting. Yet, temporary manual labor is still relied upon for planting, in spite of the growing trend towards mechanization.

As part of its engagement process, Bioaroeira evaluates its supply chain and requires that its suppliers submit valid documentary evidence of land ownership, and compliance with federal and state environmental regulations, Brazilian labor laws and OHS regulations. The Company also assists producers in remaining compliant with laws and regulations should they be altered, providing information and referring them to the adequate professional services. The contracts of producers not meeting the Company's requirements are terminated and/or not renewed.

Under the proposed transaction, Bioaroeira will consolidate a public manual of good EHS management practices intended for its suppliers, to whom the Company will further communicate its Code of Ethics and Professional Conduct, which will be annexed to the supply contracts made with partner producers. In addition, as part of its supplier assessment and approval process, the Company will consult the list of employers who have been caught having their workers subject to conditions akin to slave labor.¹³

4.3 Resource Efficiency and Pollution Prevention

4.3.a Resource Efficiency

Sugarcane growing in Bioaroeira's operations relies on natural rain and irrigation with wastewater (fertigation) derived from its industrial processes. The water used in Bioaroeira's production process is captured from groundwater wells and surface points, according to the permit granted by the Minas Gerais Water Management Institute (Instituto Mineiro de Gestão das Águas, IGAM).

Bioaroeira holds a permit issued by the IGAM to capture 342 m³/h of surface water, as well as IGAM certificates authorizing it to capture groundwater from five points, with flow rates ranging from 4.1 to 22.62 m³/h.

Bioaroeira has recently implemented a water recycling process at its mills to enhance the industrial process. The consumption of water per ton of produced sugar cane is consistent with the benchmark values in World Bank Group's EHS Guidelines.

In addition, the Company focused on improving its resource (power, water, inputs) efficiency and incorporating cleaner production principles to the production and manufacturing process. Moreover, energy efficiency is a fundamental aspect of the Company's business strategy. In addition to generating all its energy demand by cogenerating electricity from bagasse, Bioaroeira sells its surplus electricity to third parties and distributes it through the National Interconnected System ("SIN"). With the expansion of its energy production capacity, the Company will have a licensed generation capacity of up to 91 MWh.

¹³ Also known as "Dirty List of Slave Labor" (Lista Suja do Trabalho Escravo), regularly disseminated by the Ministry of Labor and Social Security.

Bagasse burning produces emissions of combustion gas, nitrogen oxides and particulate matter. Particulate matter results from deficient boiler handling or adverse effects of combustion, which may lead it to spark if not fully burnt in the process. The emission of NOx from boilers results in flames at high temperatures and arises from the reaction between the nitrogen and oxygen in the air. The emission of carbon dioxide is mitigated through the absorption of growing sugarcane. Details about follow-up and monitoring of air emissions are presented below.

4.3.a.i Greenhouse Gases

Bioaroeira is a player in the RenovaBio program, which issues tradable carbon credits known as CBIOS conferred to certified producers. RenovaBio is a program of the federal government designed to reduce carbon emissions by at least 10% by 2028, in line with the UN Paris Agreement on climate change. The process is reviewed by independent auditors and approved by the National Petroleum, Natural Gas and Biofuel Agency (Agência Nacional do Petróleo, Gás Natural e Biocombustíveis, ANP). In the 2021-2022 harvest the Company obtained 67,977 certified CBIOS, equivalent to 68 tons of emissions avoided in the period.

Greenhouse gas (GHG) emissions may be considered minimal as sugarcane biomass is a source of renewable energy. In addition, since this is renewable energy from sugarcane plantations, most of Bioaroeira's GHG emissions are recaptured from the air through sugarcane cultivation and, hence, naturally offset. Moving forward, Bioaroeira will make an inventory of its GHG emissions and include the main conclusions in its periodic E&S performance reports.

4.3.b Pollution Prevention

The main byproducts of the sugar and ethanol agro-industry are sugarcane straw, bagasse, vinasse, filter cake, ashes from boilers and soot. The secondary byproducts, which a few years ago were considered waste, were incorporated into the process through technologies enabling their reuse in an environmentally-friendly manner, as raw material or source of energy in their own power generation or by third parties.

4.3.b.i Wastes

Bioaroeira has a procedure for managing waste, which is classified according to the technical standards of the Brazilian Technical Standards Association (Associação Brasileira de Normas Técnicas, ABNT), the resolutions of the National Environment Council (Conselho Nacional de Meio Ambiente, Conama) and the National Health Surveillance Agency (Agência Nacional de Vigilância Sanitária, Anvisa). The Company periodically produces a list of waste generated during the production process, mainly bagasse, ferrous metals, batteries, recyclable materials, oils and grease, light bulbs, contaminated packaging, rubber, solvents, and trash. Thus, the Company is responsible for collecting, segregating, temporarily storing and correctly disposing of the above, depending on the type of material.

Bagasse is the solid material obtained from sugarcane after the extraction of the juice, and it consists of about 50% moisture, 45% fiber, 4.5% sucrose, 0.5% invert sugar and 1.5% ash. In practice,

estimates indicate that around 270 kg of bagasse is produced per ton of sugarcane. Bagasse is used in the energy cogeneration units, while vinasse is applied to soils as a fertilizer.

Gas washwaters are important in connection with water consumption given the amount of water used in this system and its replacement due to evaporation losses. It is a closed-loop process and there is no waste water from the system (only the evaporation loss upon the wash water contact with hot gases).

In relation to hazardous waste, especially that containing oil (e.g., sand box sediments, cotton waste and used oils, etc.), the Company has arrangements in place for it to be stored temporarily in drums (covered and waterproofed) set up at the plant yard until it is finally disposed of properly –by incineration or co-processing– under a contract with a specialized company accredited with the local environmental authority.

4.3.b.ii Pesticide Use and Management

Agrochemicals are stored in pallets in an area accessible only by authorized personnel. During the technical visit, the storage area was found to have reached its capacity limit. Thus, in the context of the Transaction, the space will be expanded to meet current and future demand.

Empty containers used for chemical solid waste are sent or returned to suppliers through channels accredited by the Minas Institute of Agriculture (Instituto Mineiro de Agropecuária, IMA) after being cleaned, washed three times, and rendered unusable. The final disposal of empty pesticide containers occurs at a central site in the Municipality of Uberaba, State of Minas Gerais.

Agricultural pesticides are classified by target organism: insecticides, nematocides (control of nematodes), fungicides, rodenticides (control of rodents) and herbicides (control of invasive plants) Herbicides are the most widely-used products at the sugarcane fields since invasive plants from the reed bed interfere in sugarcane development by competing for vital elements (water, light, CO₂ and nutrients) and through allelopathy (chemical inhibition). They are usually applied in the soil or directly on the leaves. These pesticides may be transported by volatilization, lixiviation and surface runoff thus polluting surface and underground water as well as the soil.

To minimize these impacts, Bioaroeira is using sugarcane varieties that are more resistant to pests, taking all necessary precautions, even at the nursery before planting, to prevent excessive use of agrochemicals. Other actions taken include using biological controls to eliminate certain insects. Bioaroeira has implemented a biological pest control system as a means of reducing pesticide use and obtaining a more efficient result by producing *Cotesia flavipes*, a kind of wasp, to attack the sugarcane borer (*Diatrea sacchralis*) at the mill's laboratory. This type of pest control is performed at Bioaroeira-owned fields, while its suppliers are in the process of implementing this technology.

All materials are properly labeled, and product safety data sheets (SDS) are available for consultation. Handling, storage and use of chemical products is done in accordance with national regulations and workers involved in pest control activities are trained on a regular basis. To be aligned with the requirements of PS3, the Company undertakes to use only approved chemical

products, which must not be categorized as Class Ia (extremely hazardous) and Class Ib (highly hazardous) by the World Health Organization (WHO)¹⁴.

In addition to pesticides, in sugarcane cultivation, it is necessary to apply nutrients, such as nitrogen, an essential component for crop growth, potassium, a fundamental component for photosynthesis, and products to correct acidity through liming.

In order to minimize mineral fertilizer use, Bioaroeira recycles nutrients that were extracted from the soil by cultivating sugarcane, i.e., reapplying by aspersion the mill's byproducts, such as vinasse. A Vinasse Application Plan is thus prepared for each picking season, which provides for the elimination of risks of soil, and surface and underground water pollution by a rational and agronomically controlled application based on the hydric and nutritional needs of the sugarcane crop.

4.4 Community Health and Safety

4.4.a Community Health and Safety

The transportation of sugarcane, raw materials, and products may interfere –mainly during the harvest season– with traffic on the main local roads that give access to the operational units.

In terms of heavy vehicle transportation, Bioaroeira's logistics procedures follow the highway safety rules established by the National Transportation Infrastructure Department (Departamento Nacional de Infraestrutura de Transporte, DNIT). The Company has an operational control center for the logistic management of its fleet, where all vehicles are tracked, and the road verification and speed control are conducted. Since the plant is located at a considerable distance from urban centers and communities, the possible impacts caused by the traffic of Company vehicles may be deemed to be hardly representative.

Sugarcane field fires may not always be avoided due to intentional, accidental or natural events resulting from the combination of hot and dry weather conditions. Regardless of the cause, Bioaroeira's priority to ensure the sustainability of its operations is fire prevention and combat, in relation to which awareness programs and campaigns have been developed. Also, the Company has joined efforts with the Fire Brigade, in addition to leading the region's Mutual Aid Plan, providing equipment and technical advice.

Bioaroeira conducts air pulverization through contracts with specialized firms. Those firms follow a specific procedure to avoid risks that threaten health and other crops associated to chemical air pulverization. This involves monitoring weather conditions during pulverization and setting up buffer zones designed to protect neighboring farms and communities.

¹⁴ The WHO Recommended Classification is available at <https://www.who.int/publications/i/item/9789240005662> .

4.4.a.i Infrastructure and Equipment Design and Safety

Law No. 14,130 of 2001 deals with fire and panic prevention in the State of Minas Gerais, having been implemented by decrees and other subsequent legal provisions establishing the licensing procedures applicable to the request for permits from the Military Fire Department of Minas Gerais (Corpo de Bombeiros Militar de Minas Gerais). Bioaroeira has obtained the required Fire Inspection Certificate (Auto de Vistoria, AVCB) from the Fire Brigade.

According to NR-10, industrial facilities and other high-risk areas (such as distilleries, sugar warehouses or crop silos, flammables storage tanks) must be protected from fire or explosion risks. Bioaroeira has fire safety operational equipment such as smoke detectors, alarm systems, fire pumps and water storage tanks, fire hydrants, portable extinguishers and firefighting foam solution to be applied to ethanol tanks, in accordance with the Normative Instructions of the Fire Brigade of the State of Minas Gerais.

As mentioned above, the Company's operational area is far from neighboring communities or roads with traffic circulation; hence, communities are not likely to be affected by any emergency situations occurring at the mill.

4.4.b Security Personnel

Bioaroeira uses armed security personnel due to the increase in cases of agrochemical thefts at industrial facilities in the area. The rules that govern the security team are consistent with the national rules and regulations issued by the Brazilian Federal Police, and the Company trains its personnel in the use of non-lethal weapons and the appropriate use of force. The external grievance mechanism is available for the population in general, who may express its concerns related to potential abuse by security personnel.

4.5 Land Acquisition and Involuntary Resettlement

The Project will not cause any physical or economic resettlement of the population. The plots used by Bioaroeira are owned by the Company and/or leased for sugarcane production. Most of such plots have been given the same use for decades without any major land and/or crop variations.

4.6 Biodiversity Conservation and Sustainable Management of Living Natural Resources

4.6.a General Requirements

The vegetation that formerly predominated in the plant's and surrounding area is now reduced to small scattered patches. Land occupation originally involved coffee plantations and other perennial crops at a smaller scale. Now the land is used mainly for sugarcane farming and pasture.

Since the mills are located in areas already engaged in agricultural activities, there will be no need for any vegetation to be removed. The modification of terrestrial fauna conditions caused by the Project under analysis relates to different factors, such as machinery, vehicle and equipment movement which may disturb fauna due to the fact that animals may be run over by trucks or other

vehicles. Any disturbance as may occur is followed up through the Fauna Monitoring Program, which has been in place at the Company since 2009.

4.6.b Protection and Conservation of Biodiversity

The Environmental Impact Survey developed at the time when the mill was set up determined that remnant native vegetation in the region is rare, thus representing highly valuable areas that need to be preserved. In view of that, Bioaroeira has taken steps in this respect, such as the definition of Legal Reserve Area, the development of a project to set up environmental corridors and the Technical Project for Flora Reconstitution.

In addition to those measures, the Company is also implementing the Flora Enrichment Program, which seeks to protect native vegetation areas and recover flora with more than 12,000 seedlings having been planted, with a view to ensuring biodiversity conservation. One of the conditions for operation licenses to remain valid is the demonstration, by means of technical photo reports, of effective implementation and progress in improvement and recovery actions in Permanent Preservation Areas and Legal Reserve Areas, and the implementation of compensatory measures and formation of environmental corridors across fragments.

4.6.c Sustainable Management of Living Natural Resources

Both Permanent Preservation Areas and Legal Reserve Areas were mapped in order to identify and manage plantation fields.

4.6.d Supply Chain

Bioaroeira includes environmental protection clauses in its contracts with suppliers and partners, and provides technical advisory services for implementations compliant with environmental requirements. In view of the site where the Project is inserted and the past agricultural context, no new pressures on biodiversity are expected to be caused by firms in their supply chain.

4.7 Indigenous People

The Project will not intercept any indigenous areas or territories nor will it have any direct impact on any indigenous people.

4.8 Cultural Heritage

The Company's plantation fields are located in consolidated crop production areas. Consequently, PS8 is not applicable to this Project.

5. Local Access to Project Documentation

Any Project-related documentation can be accessed at IDB Invest's web page (<https://idbinvest.org/es/projects>) and further information on the Company may be obtained at <http://www.bioaroeira.com.br>.