

Environmental and Social Review Summary (ESRS) PANTALEON – Guatemala

Original language of the document: English
Publication date: May 2026
Updated: September 2026.

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

Pantaleón S.A. is one of the largest sugar mills in Guatemala and the main operation of Pantaleon Sugar Holdings (PSH), the largest sugar producer in Central America. Founded in 1901, the company operates an integrated agro-industrial platform encompassing sugarcane cultivation and the production of sugar, alcohol, molasses, and electricity generated from sugarcane by-products. In 2025, it processed approximately 4.9 million tons of sugarcane.

The financing's main development objectives include: (i) increasing the productivity and resilience of Pantaleón's sugarcane plantations to climate risk; (ii) reducing resource use in Pantaleón's production processes (water and fertilizers); and (iii) promoting productive linkages within Pantaleón's value chain, primarily through purchases from independent suppliers.

The environmental and social due diligence ("ESDD") process included: i) a visit to the Pantaleon Sugar Mill and nearby sugarcane farms in Escuintla, Guatemala; ii) interviews and meetings with Pantaleon employees responsible for managing the environmental, social, and health and safety risks and impacts of the Company's operations; iii) a meeting with representatives of communities near the Pantaleon Sugar Mill in Escuintla; and iv) the review of environmental and social ("E&S") and occupational health and safety ("OHS") information provided by the Company, such as Environmental Impact Assessments, Environmental Licenses, and E&S policies, plans, and procedures that form the Company's Environmental and Social Management System ("ESMS").

To ensure the Project's commitment to respect and protect human rights, its zero tolerance for retaliation, and its commitment to providing and guaranteeing a safe environment for stakeholders to voice their concerns without fear of retaliation, the ESDD process included the review of the following documents: i) Human Rights Policy; ii) Responsible Labor Conditions Policy; ii) Code of Ethics and Conduct; iii) community and worker grievance mechanisms; and iv) security management plan.

2. Environmental and Social Categorization and Rationale

The Project has been classified as a Category B operation according to IDB Invest's Environmental and Social Sustainability Policy, since it will likely generate, among others, the following impacts: i) air emissions; ii) water consumption; iii) waste; iv) wastewater; v) noise; vi) potential community health and safety impacts; and vii) occupational health and safety impacts. These impacts are deemed to be of medium intensity and are generally limited to the Project sites, are largely reversible, and can be mitigated via measures that are readily available and feasible to implement in the context of the operation.

The Performance Standards (“PS”) triggered by the Project are: i) PS1: Assessment and Management of Environmental and Social Risks and Impacts; ii) PS2: Labor and Working Conditions; iii) PS3: Resource Efficiency and Pollution Prevention; and iv) PS4: Community Health, Safety and Security.

3. Environmental and Social Context

3.1 General Characteristics of the Project’s Site

The Pantaleon Sugar Mill (*Ingenio Pantaleón*) and adjacent ethanol distillery, operated by Bio Etanol, S.A., are located in Escuintla, Guatemala. The Pantaleon Sugar Mill has been in operation since 1849. It currently has 31,000 metric tons of daily milling capacity and produced over 511,000 metric tons of sugar, 219,000 tons of molasses, and 219 GWh of electricity during the 2023/24 harvest season. The ethanol distillery produced over 58,000 m³ of alcohol.

The Escuintla region is characterized by small towns surrounded by agricultural fields. Some of the agricultural fields in the region are sugarcane farms owned by either Pantaleon, other sugar mills, or their suppliers. Other farms in the region grow banana and palm trees, among other crops. PSA has developed a relationship with over 100 communities in the region. The Project’s principal stakeholders are these communities, municipal governmental agencies, and other companies operating in the region.

3.2 Contextual Risks

Contextual risk indicators are generally higher in Guatemala than in other countries in Latin America and the Caribbean (“LAC”), especially reprisals, social cohesion, child and forced labor, inclusion, and access to finance. Escuintla has the second highest contextual risk among Guatemalan departments, with the highest indicators being reprisals and violent crime.

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

4.1 Assessment and Management of Environmental and Social Risks

4.1.a E&S Assessment and Management System

Pantaleon has a Quality, Health and Safety, and Environmental (“QHSE”) Integrated Management System (“IMS”) that is certified to comply with the requirements of ISO 9001:2015. The system is described in the company’s QHSE Integrated Management System Manual. The system is composed of the following 17 elements grouped according to the Plan, Do, Check, Act model.

Pantaleon’s IMS is well developed and adequate to manage the company’s environmental, social, and health and safety risks and impacts. The IMS and its IMS Manual were updated in 2021 to incorporate social elements, including the Company’s Community Relations Plan and community grievance mechanism, to ensure that it covers all elements required to comply with PS 1 standards.

4.1.b Policy

Pantaleon has an Integrated Management Policy that describes the principal objectives of its management system. PSA has banners that promote the policy in common work areas at the Pantaleon Sugar Mill. According to these banners, the policy is composed of the following elements: i) responsible transformation; ii) culture promotion; iii) legal compliance; iv) promotion of safe, high-quality products; v) taking care of the environment; vi) promotion of an occupational health and safety culture; and vii) communication of commitments.

Additional Pantaleon environmental and social policies, all of which are available on the Company's website, include: i) Guiding Principles for the Scientific Investigation and Communication of Results; ii) Environmental Management Plan; and iii) Compliance Policy.

4.1.c Identification of Risks and Impacts

In addition to EIAs, Pantaleon maintains and regularly updates risk matrices for its activities. An occupational health and safety risk matrix documents the identification, evaluation, and control of risks. The matrix is updated annually. There is a separate Risk Panorama for environmental risks.

Pantaleon has several documents in its IMS that describe its procedures for identifying, evaluating, and mitigating environmental, social and occupational health and safety risks and impacts. These include: i) Instructions for the Evaluation of Environmental Impacts for New Works; ii) Instructions for the Identification, Evaluation, and Registration of Environmental Aspects and Impacts and Control Measures; and iii) Identification of Hazards, Evaluation and Control of Risks, and Work Safety Opportunities.

4.1.c.i Direct and indirect impacts and risks

The most recent EIA for the Pantaleon Sugar Mill identifies the following direct and indirect impacts: i) air emissions; ii) water consumption; iii) solid waste; iv) noise; v) biodiversity impacts (monoculture); vi) energy consumption; vii) vehicle traffic; viii) wastewater (septic tanks); ix) occupational health and safety; and x) hazardous waste.

PSA's Environmental License for the sugar factory¹ is based on approval of an environmental impact assessment ("EIA")² and is valid from September 30, 2022, to September 29, 2027. Bio Etanol's Environmental License for the ethanol distillery³ is also based on an EIA⁴ and is valid from January 8, 2024, to January 7, 2029. In addition, PSA has Environmental Licenses for the sugarcane farms (*fincas*) (14 licenses) and water wells (24 licenses) that it operates, in compliance with Guatemalan law.⁵

¹ Licencia Ambiental No. 7888-2022/DIGARN.

² Diagnóstico Ambiental de la Manufactura de Azúcar y Derivados del Ingenio Pantaleón (2013).

³ Licencia Ambiental No. 1457-2024/DIGARN.

⁴ Actualización y Unificación de Instrumento Ambiental, Planta Destiladora de Alcohol (2021).

⁵ Decreto No. 68-86, Ley de Protección y Mejoramiento del Medio Ambiente, Acuerdo Gubernativo No. 137-2016 y sus reformas, Reglamento de Evaluación, Control y Seguimiento Ambiental.

4.1.c.ii Analysis of alternatives

Since the Project does not involve the construction of a specific facility, but rather the maintenance and improvement of existing facilities and operations, no alternatives analysis was conducted.

4.1.c.iii Cumulative impact analysis

Since the Project does not involve the construction of a specific facility, but rather the maintenance and improvement of existing facilities and operations, no cumulative impact assessment was conducted.

4.1.c.iv Gender risks

There is a significant gender gap, defined as the differential and unequal access to economic, political participation, educational, and occupational opportunities based on sex or gender, in LAC. This gender gap is reinforced by pervasive cultural norms regarding acceptable roles for men and women and is exacerbated by weak legal protections and/or inadequate social response. The gender gap leads to gender discrimination, unequal access to public services, educational differentials, pay and labor gaps, and lagging political participation rates. The gender gap index for Guatemala (0.71) is tied for the third most unequal among 21 countries in LAC.⁶

Gender-based violence and harassment (“GBVH”) is also a significant problem in LAC, which has the highest rate in the world.⁷ GBVH is higher in Escuintla than in other regions of the country.⁸

No specific gender risks have been identified for the Project. PSA, through its corresponding affiliates and/or subsidiaries, hires an all-male, non-local workforce of sugarcane cutters during the harvesting season, with these employees staying in a housing complex near the Pantaleon Sugar Mill. This workforce has diminished significantly in recent years, however, as PSA continues to increase the percentage of its mechanized harvesting (81% for the 2024/25 harvest season, with a goal of reaching 90% by 2027/28). Furthermore, PSA, through its corresponding affiliates and/or subsidiaries, hires local women for other types of manual labor, and Pantaleon has recently made significant strides in training and hiring local women (25 in Guatemala and 19 in Nicaragua in 2025) to operate its tractors and mechanized harvesters. Pantaleon has addressed the regional gender risks through strong policies of non-discrimination, equal opportunity, and intolerance for GBVH, as well as worker training on these topics.

⁶ [Gender gap index in Latin America 2025 | Statista.](#)

⁷ [Number of femicides in Latin America by country 2023 | Statista.](#)

⁸ <https://www.ine.gob.gt/sistema/uploads/2024/07/25/20240725150702CFwB5ymIjwZvXLFSlpWgq3rbZauORZg.pdf>.

4.1.c.v Climate change exposure

There is moderate to high exposure to a variety of acute and chronic hazards. The Project has high exposure to earthquakes, volcanic eruptions, and seasonal hurricane winds, the latter of which may be exacerbated as climate change continues. Another relevant climate-related hazard is heatwave exposure: the Project area faces high exposure to heatwaves under both the Representative Concentration Pathway (“RCP”) 4.5 (low emissions pathway) and RCP 8.5 (higher emissions pathway) climate scenarios. In addition, the area faces moderate exposure to droughts, with moderate changes to this exposure projected under the RCP 8.5 climate scenario. As a result of this profile, emergency preparedness and management of acute natural disaster hazards is crucial, particularly for the sugar plant and ethanol distillery, as is building resilience to droughts and heatwaves, particularly at the sugarcane farms. Pantaleon has responded to the heatwave risk through its heat stress prevention programs, and to drought risk through its program to reduce water consumption.

The Project’s exposure to transition risks is medium based on its principal characteristics. Exposure to transition risk is related to greenhouse gas (“GHG”) emissions, energy and water management, and the environmental impact of its supply chain. GHG emissions are the main driver of transition risk in the sugarcane industry due to emissions related to the burning of residues, the use of synthetic fertilizers, and fossil fuel combustion. The size of the sugarcane industry in Guatemala (it is the 4th largest exporter in the world) may increase the chance of political intervention, and the agricultural sector at large is targeted in the current Nationally Determined Contribution of the country. Pantaleon has responded to these transition risks through its efforts to increase its energy efficiency.

Based on an analysis conducted in accordance with the IDB Group Paris Alignment Implementation Approach, the Project is considered aligned with the Paris Agreement.

4.1.d Management Programs

Pantaleon has programs, plans, and procedures in place to manage all the environmental, social, labor, and health and safety risks and impacts identified in its EIAs and risk and impact matrices.

4.1.e Organizational Capacity and Competency

PSA has a QHSE Manager that reports directly to the company’s General Manager and indirectly to Pantaleon’s Corporate QHSE Manager. There are four teams that report to the QHSE Manager: i) an environmental team consisting of five Environmental Management Coordinators and two administrative assistants; ii) an occupational health team consisting of an Occupational Health Coordinator, three Temporary Occupational Doctors, and two nurses; iii) an OHS team consisting of an Occupational Health and Safety (“SSO”) Chief, five SSO Coordinators, an administrative assistant, and SSO monitors that report to the coordinators; and iv) a social development team consisting of a Social Development Chief and two Social Development Coordinators.

In addition, PSA's OHS specialists are supported by the OHS specialists of contractors. Any contractor working at the Pantaleon Sugar Mill with more than 10 employees must have an OHS specialist. The PSA and contractor OHS specialists work together to ensure work is conducted safely.

4.1.f Emergency Preparedness and Response

Pantaleon has a Corporate Guide for Emergency Management that provides general procedures for preparing and responding to emergencies at Pantaleon's facilities. The document also references the documents related to emergencies in each country in which it operates.

In 2022, PSA developed an Emergency Response Plan for its operations in Guatemala. The plan includes: i) roles and responsibilities; ii) a list of emergency contacts (internal and external); iii) emergency brigade training; iv) evacuation procedures (including encounters points); v) a list of emergency response equipment; vi) procedures for management hazardous materials; and vii) emergency response procedures for vehicle accidents, illnesses, explosions and fires, delinquent acts, and natural disasters. The plan applies to PSA's industrial and agricultural operations.

4.1.g Monitoring and Review

PSA's OHS specialists conduct daily inspections at the sugar mill and factory, ethanol distillery, and on the farms to assess compliance with OHS requirements. In addition, contractors at the factories conduct weekly inspections of other contractors, and Pantaleon audits this process.

PSA's inspection, incident investigation, and audit programs are described in several documents that are part of its IMS, including: i) Instruction for Carrying Out Internal Audits; ii) Incident Communication and Investigation; iii) Environmental Inspection Instructions; and iv) Inspection Implementation.

4.1.h Stakeholder Engagement

PSA has identified and developed relationships with 103 communities in 18 municipalities within the region. PSA's social development team maintains a matrix that lists these communities and their attributes, including points of contact. The team visits community leaders prior to each harvesting season to develop Responsible Operation Agreements with these communities. Compliance with the agreements is assessed during the harvest, and communities are asked to provide feedback after the harvest is complete.

In 2021, PSA developed a Community Relations Plan that describes their approach to engaging with local communities. The plan includes: i) identification and mapping of stakeholders; ii) a description of the company's approach to stakeholder engagement; iii) a list of stakeholder engagement activities and their frequency; iv) a description of social investment programs (education, health, and community development); v) an overview of the company's community grievance mechanism; vi) a section on monitoring and reporting; and vii) reference to associated procedures and forms.

Pantaleon has significant social investment programs for local communities. According to the most recent annual Responsible Development Report (2024), the Company supported 27 education projects, 24 health projects, 44 community development projects, and five water and sanitation projects in 2024. These projects resulted in \$4.85 million in community investment that directly benefited 89,500 people living in 62 communities.

Pantaleon supports, in partnership with the Pantaleon Foundation, educational centers and child development centers in Escuintla that benefited 1865 students in 2024. It also supports adult educational programs for employees and local communities members in Escuintla, including: i) online community education that benefited 22 people in 2024; ii) a weekend program that benefited 229 people in 2024; and iii) an adult education program for sugarcane cutters who wish to continue their primary, secondary, and computer studies that benefited 78 employees in 2024. Pantaleon also supports entrepreneurial programs, including: i) technical training that graduated 373 local community members in Guatemala and Mexico in 2024; and ii) a bootcamp in partnership with Enactus that benefited 35 Guatemalan businesspeople in 2024.

Pantaleon also supports the “Water for All” program, which supports communities with the drilling of wells, pump assemblies, installation of household networks, and storage and purification of water. The program was implemented in 18 communities benefitting 9,797 people in 2024.

4.1.h.i Disclosure of information

Pantaleon keeps local communities informed of all their activities with the potential to impact them, including aerial applications, controlled burns, harvesting, and truck transit, through regular stakeholder engagement activities as described in their Community Relations Plan. Pantaleon also periodically invites community members to tour their facilities to better understand the nature of their operations.

4.1.h.ii Informed Consultation and Participation

As mentioned above, PSA develops agreements with communities prior to each harvest season, monitors compliance with these agreements during the harvest, and requests feedback from the communities after the harvest is complete. During the 2025/26 harvest season, the company had agreements with 22 communities about traffic control, aerial applications of fertilizers and pesticides, fires, and harvesting.

4.1.h.iii Indigenous Peoples

The Project is not located near any indigenous communities and is not anticipated to impact any indigenous or native Guatemalan people.

4.1.i External Communication and Grievance Mechanisms

4.1.i.i External communication

During its January 2026 site visit, IDB Invest interviewed leaders from two communities near the Pantaleon Sugar Mill. The leaders indicated that they are in constant communication with PSA's social development team. They indicated that their preferred method of communication is by cell phone calls, followed by the WhatsApp platform. They have the cell phone number of the company's social development personnel and feel comfortable calling them at any time to discuss any issue of importance to the community.

Pantaleon produces an annual Responsible Development Report that is available to the public. The most recent report (2024) includes section on: i) the company (its history, operations, products, and markets); ii) people (workforce, working conditions, human rights due diligence, benefits, training, and occupational health and safety); iii) prosperity (social investment programs, stakeholder engagement, and communications); iv) the planet (environmental management, climate change risk management, energy and water consumption, climate strategy and GHG emissions, waste management, soil conservation, and biodiversity); and v) product (products and certifications, clients, and suppliers).

4.1.i.ii Community grievance mechanism

Pantaleon has a grievance mechanism for communities known as "Pantaleon Te Escucha," which is described in the Company's Instructions for the Management of Grievances from Communities and Other Stakeholders. The mechanism can be accessed by telephone, e-mail, website, mail, or in person. The mechanism is advertised via 18 billboards located at strategic points for communities. Grievances are treated with confidentiality and can be anonymous. In the case of anonymous complaints, the community leader of the complainant is informed about the grievance and the results of the investigation. PSA's social development team maintains a matrix recording the details of all grievances received and their outcomes.

In addition, Pantaleon's website includes information on how to contact the company, including phone numbers for each of its facilities and links to its social media sites (Facebook, YouTube, and Twitter). The website is available in Spanish and English.

According to Pantaleon's most recent annual Responsible Development Report, the Company received complaints related to controlled burns, road damage, water, transportation, damage to private or community property, aerial and ground applications, dust, molasses/odors, and emissions. 100% of these complaints were addressed within 72 hours.

4.1.i.iii Provisions for addressing vulnerable groups' grievances

Pantaleon has special procedures to address grievances from vulnerable groups, including alleged victims of workplace harassment, sexual harassment, and sexual assault. Such complaints are handled by the Company's Ethics and Conduct Committee, which reports directly to the Company's Board rather than management. Special care is taken to maintain confidentiality to protect the alleged victim, and to provide as much support and help as possible.

4.1.j Ongoing Reporting to Affected Communities

Pantaleon holds Impact Workshops with community leaders to share information on the processes in Pantaleon's operations that may have impacts on communities and the mechanisms adopted to mitigate these impacts. Pantaleon also provides tours for community members to learn about the company's operations. In addition, PSA discloses information to community members, leaders, and local authorities via articles in community newspapers, flyers, and banners located along roads utilized by communities.

4.2 Labor and Working Conditions

4.2.a Working Conditions and Management of Worker Relationships

According to its most recent annual Responsible Development Report, Pantaleon had an average of 14,546 employees in 2024 and had a peak of 17,800 employees during its 2023/24 harvest season. 89% of the former were male and 11% were female. Of the 8,535 employees in Guatemala, 43% were permanent and 57% were temporary, and 92% were male and 8% were female. The percentage of overall Pantaleon women employees varied by area, with women accounting for 37% of the 1015 administrative support positions, 23% of the 593 administrative positions, 13% of the 561 supervision/technical positions, and 8% of the 14,546 operational positions. The latter has increased significantly since 2019 (2%).

In Guatemala, permanent field employees are augmented by the hiring of non-local sugarcane cutters during the harvesting season. These cutters are recruited from highland communities. Approximately half are indigenous, although they all speak Spanish, and all of them are male. PSA does employ local women for other manual jobs, however, and has been training local women to operate tractors and harvesters to increase their female operational workers. The number of seasonal cutters has significantly decreased in recent years as the Company has augmented the percentage of its harvesting that is mechanized (81% for the 2024/25 harvest season, with a goal of reaching 90% by 2027/28).

PSA operates a housing complex near the Pantaleon Sugar Mill for non-local, seasonal cutters. The complex can house 600 people and has a medical clinic that is staffed by doctors and nurses, a cafeteria that serves breakfast and dinner and prepares lunches for employees to eat during the day in the field, beds and sleeping accommodations, community bathrooms with showers, and outdoor recreation areas. IDB Invest has visited the worker camp, most recently during its January 2026 site visit, and found that it complies with international worker accommodation standards.

4.2.a.i Human resources policies and procedures

Pantaleon has a Responsible Labor Conditions Policy, a Code of Ethics and Conduct, and a Human Rights Policy. In addition, PSA has a comprehensive Internal Work Regulation that was approved by the Ministry of Labor and Social Welfare on July 28, 2022, as compliant with the Guatemalan Work Code.

4.2.a.ii Working conditions and terms of employment

PSA's Internal Work Regulation requires the company to provide each employee with a photocopy of their employment contract authorized by the Ministry of Labor and Social Welfare. The contract provides details such as hours of work, payments, and obligations of employees and employers, in compliance with national and international labor laws. Pantaleon pays benefits to employees according to local legislation, including rest days, national holidays, vacations, bonuses, and Social Security contributions. All employees are paid above the minimum wage and can earn additional bonuses based on productivity. Salaries are deposited in bank accounts from which employees can access their money through debit cards, promoting financial inclusion and reducing security risks. In addition, employees can opt for benefits such as savings programs, daycare, and free education for their children in schools sponsored by Pantaleon. Non-local, seasonal employees receive additional benefits, such as housing in company-provided complexes, food, recreational services, and an educational program that allows them to complete elementary and high school education.

Benefits provided to employees include: i) personal protective equipment; ii) disability coverage; iii) training; iv) post-mortem assistance; v) pension plans; vi) uniforms; vii) medical insurance; viii) housing and accommodation; ix) nutrition and food; x) adult education; xi) life insurance; xii) savings bank account; xiii) medical clinics; xiv) educational centers; xv) consumer cooperation; xvi) transportation; and xvii) recreational programs.

4.2.a.iii Workers' organizations

Guatemala's Work Code guarantees the freedom of employees to form and join a labor union. PSA's Internal Work Regulation requires the company to comply with the Work Code, thereby guaranteeing the freedom of its employees to join a labor union. Pantaleon's most recent annual Responsible Development Report (2024) states that 100% of permanent employees at its Pánuco Mill (Mexico), 100% of permanent employees at its El Mante Mill (Mexico), and 42% of permanent employees at its Monte Rosa Mill (Nicaragua) are unionized.

4.2.a.iv Non-discrimination and equal opportunity

PSA's Internal Work Regulation prohibits discrimination on the basis of race, nationality, sex, age, disability, HIV/AIDS, and political opinions, and for any other reason according to law. PSA's Responsible Work Conditions Policy requires management to maintain work environments free of discrimination in any of its expressions by race, gender, age, nationality, ethnic or social origin, religion, disability, language, political orientation. Finally, Pantaleon's Code of Ethics and Conduct requires the Company to provide all employees with equal opportunities, regardless of race, sex, age, color, ethnic origin, sexual orientation, religion, or disability, in making selection, hiring, and development decisions in the Company.

PSA's Internal Work Regulation also has specific provisions aimed at women. For example, it states that it is the company's responsibility to maintain a childcare center run by a suitable person for the female employees' children under three years of age. It also states that the company is prohibited from dismissing female employees for being pregnant or breastfeeding.

4.2.a.v Retrenchment

PSA's Internal Work Regulation describes the company's policies regarding the termination of employment, which must be done in accordance with Guatemala's Work Code. Retrenchment is not relevant to this Project, however, as there will be no significant ramp up of personnel to execute it. Most of the activities to take place as part of the Project will involve PSA's permanent employees. PSA hires temporary staff during the harvest season, but this happens every year and the period of employment is well understood and agreed upon by those who are so hired.

4.2.a.vi Grievance mechanism

PSA's Internal Work Regulation states that all employees have the right to make a claim or request related to working conditions. Employees can lodge complaints or suggestions anonymously. The Human Resources department is responsible for handling complaints and suggestions, communicating complaints to the proper department for resolution, and supporting both the department in charge of resolving the complaint and the complainant. Resolution of complaints must be developed within one month, communicated to the complainant within two days of developing the resolution, and implemented within five days of developing the resolution.

Pantaleon's worker grievance mechanism is branded as a mechanism to report non-compliances with its Code of Ethics and Conduct. The code is broad in scope, however, and employees can lodge any type of grievance through the mechanism, even if it is not directly related to specific requirements of the code. The mechanism is open and applicable to both contractors as well as Pantaleon employees. The mechanism can be accessed via telephone numbers (one for each country), e-mail, website, or WhatsApp. Ethics-related complaints, including workplace and sexual harassment, are received, monitored, and resolved by Pantaleon's Ethics and Conduct Committee, which reports directly to the Company's Board of Directors. Other types of grievances are resolved by Human Resources and/or the relevant area of operations.

According to Pantaleon's reports, the company has received worker complaints related to : i) abuse and harassment; ii) labor agreements; iii) conflict of interest; iv) corruption and bribery; v) substance abuse; vi) equal opportunities; vii) information integrity; viii) mistreatment; ix) unethical business practices; x) theft; xi) health and safety; and xii) misuse of resources. All complaints are duly resolved.

4.2.b Protecting the Workforce

4.2.b.i Child labor

Pantaleon's Human Rights Policy, which applies to contractors and suppliers, prohibits the hiring of minors under the age of 18. Child labor is also prohibited by the Company's Code of Ethics and Conduct. This is supported by Pantaleon's most recent annual Responsible Development Report, which provides data on the age of its employees. The youngest age category is 18-29, which accounts for 31% of the workforce.

4.2.b.ii Forced labor

Pantaleon's Human Rights Policy, which applies to contractors and suppliers, prohibits forced or compulsory labor. In addition, forced labor is prohibited by the Political Constitution of the Republic of Guatemala and, by extension, it is prohibited by Guatemala's Work Code and thus PSA's Internal Work Regulation.

4.2.c Occupational Health and Safety

Pantaleon's Code of Ethics and Conduct states that its employees have the responsibility to not participate in work that they consider has the potential for an accident with potential human damage or material consequences. Instead, employees should clearly state their concern and encourage a review of the activities involved. Employees should stop work if they detect or foresee unsafe working conditions and that there is a possibility of an accident with potential human damage or material consequences. Employees are prohibited for working under the influence of drugs or alcohol and must communicate if they are aware of other employees working under the influence. Employees must also know and practice all company policies and procedures, and current regulations, related to environmental preservation and pollution prevention.

PSA's Internal Work Regulation addresses occupational health and safety. It lists obligations and prohibitions of workers and for the company to ensure the health and safety of the workforce. It also describes the composition, responsibilities, and activities of the company's Occupational Health and Safety Committee.

Pantaleon provides training, addresses unsafe practices, trains safety brigade members, and conducts third-party audits on occupational safety issues, occupational health and safety inductions for employees and third-party personnel, occupational health and safety campaigns, inspections, and drills. The report shows a reduction in the company's Accident Frequency Rate⁹ from 8.6 in 2012/13 to 1.55 in 2024/25.

All Pantaleon mills have health clinics that offer primary care, ophthalmology, and dentistry services as benefits to employees and their families, including: i) vaccination campaigns; ii) preventive health campaigns; iii) screenings for chronic degenerative disease; iv) pre-employment medical consultations; v) follow-up medical examinations; vi) health awareness campaigns; vii) daily health talks by health brigades; and viii) mobile units for preventive health care.

4.2.c.i Chronic Kidney Disease

In Central America, Chronic Kidney Disease of unknown origin ("CKDu") affects agricultural workers and is not associated with traditional causes of CKD, such as diabetes and hypertension. The disease was first identified in 2002 among sugarcane cutters, but also occurs in other occupational groups, including other agricultural workers, fishermen, miners, and construction workers. It also occurs at a lower frequency in women. While the causes have yet to be determined, heat stress and dehydration have become the favored explanation for the CKDu epidemic. Other possible causes

⁹ Accident Frequency Rate = Number of Lost Time Accidents / Total Hours worked by employees and contractors * 1,000,000.

include infection/inflammation, pesticides, non-steroidal anti-inflammatory drugs (NSAIDs), population genetics, and alcohol consumption.

In 2004, Pantaleon initiated a heat stress prevention program in Nicaragua for sugarcane cutters, which was replicated in Guatemala in 2009. The program currently covers all employees exposed to heat. During the hiring process, PSA performs overall health evaluations and creatinine tests of all its agricultural employees. Creatinine tests calculate the estimated glomerular filtration rate (“eGFR”); multiple tests are conducted to verify accuracy in cases of diminished eGFR. Only employees with eGFR above 90 are eligible to work in jobs with high heat exposure. Employees found to have diminished eGFR may be assigned to other jobs functions, have periodical medical check-ups by Pantaleon’s doctors, and/or be referred to the national health system for follow up, according to their condition.

Pantaleon’s Heat Stress Prevention Protocol includes mandatory breaks in shade and unexposed to the sun (three 20-minute breaks and a 1-hour lunch break), easy access to clean drinking water (10 liters per workday, adjusted for work hours and type of labor), rehydration solution (5 liters per day per worker), sanitary facilities, and transportation. Two health monitors accompany each work group and monitor the correct implementation of the mandatory breaks and hydration, educate employees on healthy habits, and provide first-aid response. Random urine tests are periodically performed to measure in-field hydration levels.

In 2016, Pantaleon initiated its Total Worker Health program, expanding its health programs to all employees, integrating policies, programs, and practices dedicated to protecting employees from work-related health and safety risks and promoting injury and illness prevention. This includes programs on wellness, drug and alcohol prevention, occupational health, and COVID-19 prevention.

In 2016, Pantaleon initiated a long-term collaboration with the University of Colorado’s Center for Health, Labor, and Environment to investigate the causes of CKDu. This research has focused on the following topics: i) identification of risk factors for non-communicable diseases, including chronic kidney disease; ii) evaluation of evidence-based practice to mitigate the risk of developing disease; and iii) evaluation and improvement of Pantaleon’s Total Worker Health program. Recommendations resulting from these studies include: i) work schedule adjustments; ii) implementation of a new serum formula; iii) mid- and end-of-harvest measurements; iv) use of creatinometers in the field; v) health monitoring of individuals with health issues; vi) chronic disease management; and vii) healthy living education program. In 2021, the Company initiated three additional studies financed by the United States National Institute of Health. These studies aim to evaluate the impact of particulate matter (dust) exposure on kidney health, off-work exposure and recovery in male sugarcane cutters, and the impact of air pollution on the kidney health of women.

4.2.d Provisions for People with Disabilities

As mentioned above, PSA’s Internal Work Regulation, Responsible Work Conditions Policy, and Pantaleon’s Code of Ethics and Conduct all prohibit discrimination against people with disabilities. PSA’s facilities include provisions and mechanisms for people with disabilities in accordance with Guatemalan law, including handicapped parking spaces and access ramps.

4.2.e Workers Engaged by Third Parties

Contractors with more than 10 employees working at the Pantaleon Sugar Mill are required to have an OHS specialist. PSA's SSO team manages all contractors working at the sugar factory to ensure their compliance with company policies and procedures. Contractors are managed via a software application, called Clever, specifically designed for this purpose.

Pantaleon also utilizes a tool to assess the OHS and environmental compliance of its contractors and suppliers. The system was utilized to manage and supervise contractor companies, contractor workers, and pieces of equipment (vehicles and machinery). The system is designed to ensure that contractors meet established requirements before being granted access to Pantaleon's facilities.

PSA has a Contractors Regulation that is part of its IMS. The regulation includes sections on: i) brief aspects of the management system; ii) contractor legal and formal requirements; iii) requirements for operation with responsible development; iv) high risk jobs and emergency plan; v) flammable material and use of pipes; vi) communication, incident reporting, and medical assistance; vii) short-term hired employees; viii) cleaning and waste management; ix) other responsibilities, obligations, and prohibitions; x) environmental provisions; xi) quality and safety measures; xii) sustainability measures; xiii) sanctions; and xiv) unforeseen situations.

4.2.f Supply Chain

Pantaleon's Code of Ethics and Conduct states that the company does not carry out commercial transactions with suppliers that "operate outside the law" or "demonstrate irresponsible social and/or environmental practices." It also states that suppliers must comply with Pantaleon's Supplier Code of Conduct, which prohibits child and forced labor.

According to Pantaleon's most recent annual Responsible Development Report, Pantaleon utilized 2,630 suppliers in 2025, of which 92% were local. The Company utilizes a technological tool to evaluate daily compliance with OHS requirements for supplier companies, their employees, machinery, and vehicles. Pantaleon has also implemented a Supplier Incubation Program since 2019, the objective of which is to help suppliers to develop a successful, innovative, and sustainable business model that contributes to the creation of employment and the improvement of living conditions.

PSA has a Suppliers Manual that sets forth its requirements for suppliers. Auditors are utilized to verify the compliance of suppliers with these requirements, including its prohibition of child labor.

4.3 Resource Efficiency and Pollution Prevention

4.3.a Resource Efficiency

According to Pantaleon's most recent annual Responsible Development Report, the company reused, recycled, or composted 99.97% of its non-hazardous waste in 2025, achieving a 49% reduction in waste generation since 2013. The Company has reduced its water consumption by 49% since 2013 through both agricultural and industrial reuse and reduction. The Company consumed 367,681 MWh of electricity in 2025, 96.5% of which was produced by its own cogeneration. In addition, 428,085 MWh of the electricity it produced was sold to the National Interconnected

Systems and/or energy markets, and 94.2% of the fuels used to produce electricity came from renewable sources (mostly bagasse).

4.3.a.i Greenhouse Gases

According to Pantaleon's most recent annual Responsible Development Report, the Company produced 204,297 metric tons of Scope 1 and 211,914 metric tons of Scope 2 GHG emissions in 2024. The source of the Scope 1 emissions was: i) mobile sources (40.7%); ii) fertilizer applications (20.7%); iii) biomass consumption (12.4%); iv) cane burning (10.5%); v) effluent treatment (8.1%); vi) stationary sources (5.8%); and vii) fugitive emissions (1.8%).

In Guatemala, the Institute for Climate Change, with the support of the U.S. Agency for International Development, analyzed the carbon footprint of the sugar industry and its GHG emissions reduction strategies over the last 20 years. Their study found that the sugar industry has reduced its carbon footprint through improvements in production practices. For example, the dose of nitrogen fertilizers per ton of cane has diminished by 11%. Transportation of sugarcane has also become more efficient, reducing the use of fossil fuels. In addition, 129% more energy is produced with the same ton of sugarcane compared to 20 years ago. The use of bagasse as renewable energy reduces the carbon footprint of sugar and provides renewable energy to the national electric power grid. Pantaleon also minimizes the burning of its fields through green mechanized harvesting (51.4% in 2024).

Pantaleon has voluntarily adopted the GHG Emissions Requirement add-on of its International Sustainability & Carbon Certification (ISCC 205-01). This is a calculation methodology and verification of GHG emissions in the supply chain that includes biomass production, conversion, transportation, and distribution.

4.3.a.ii Water Consumption

PSA has Environmental Licenses for the 24 water wells that it operates, in compliance with Guatemalan law.

According to Pantaleon's most recent annual Responsible Development Report, Pantaleon reduced its water consumption by 49% from 2013 to 2024. The principal measures adopted to achieve this reduction are: i) dry cane clearing; ii) lining of irrigation canals; iii) soil moisture measurements; iv) irrigation optimization through satellite imagery; v) infiltration irrigation; vi) water harvesting; vii) reuse of industrial water for agricultural irrigation (fertigation); viii) water recirculation system in the mills; and ix) real-time irrigation equipment monitoring. For example, an industrial water recirculation system was installed at the Pantaleon Sugar Mill several years ago that reduced its total consumption by 82%.

In 2024, Pantaleon made strategic investments to continue to improve its water consumption efficiency, including: i) almost \$200,000 in Mexico for the adaptation of intake canals and a measurement system; ii) more than \$128,000 in Guatemala for water analysis, reengineering of existing irrigation systems, and testing of new technologies; and iii) more than \$280,000 in Nicaragua for water analysis, recirculation projects, and implementation of new irrigation technologies.

4.3.b Pollution Prevention

PSA has an Atmospheric Emissions Environmental Control Instructive that describes procedures and parameters for monitoring fixed and mobile sources of emissions (including particulate matter/dust) in accordance with local regulations and international standards (i.e., applicable World Bank Group EHS Guidelines). The company also has Noise Operational Control Instructions to manage noise emissions.

4.3.b.i Waste Water

Industrial wastewater is treated in a wastewater treatment plant. The main effluent at the ethanol distillery is vinasse, which is treated and then utilized in the production of organic fertilizer. The quality of wastewater is monitored in accordance with local regulations.¹⁰ Domestic wastewater is discharged to septic tanks and treated with enzymes and strains of aerobic and anaerobic bacteria to help decomposition of organic matter before discharge into an infiltration field in accordance with local regulations. Pantaleon will prepare a Wastewater Management Plan to describe its wastewater treatment and monitoring procedures to comply not only with local regulations but also with World Bank Group EHS Guidelines for Sugar Manufacturing for vinasse and World Bank Group General EHS Guidelines for domestic wastewater.

4.3.b.ii Wastes

According to Pantaleon's most recent Responsible Development Report, the company reduced its waste production by 3% in 2025 and reutilized 99.97% of waste produced. This is possible because most of Pantaleon's waste is organic residue from sugarcane fields. This waste is reutilized to make byproducts and as a source of fuel (bagasse). According to the report, the company produced over 1.7 million metric tons of waste in 2025. Of this, 81.56 % was reused, 18.12% was composted, 0.26% was recycled, and less than 0.1% was disposed of at a dumpsite (212 metric tons) or landfill (1,420 metric tons) or was incinerated (354 metric tons).

PSA has Waste Operational Control Instructive with procedures for the classification of non-hazardous and hazardous waste, segregation and disposal of waste, and requirements for: i) waste receptacles and containers; ii) collection and transportation of waste; iii) temporary storage of waste; and iv) control over the final deposit of waste.

PSA also has a Hazardous and Non-Hazardous Waste, Effluent, and Atmospheric Emissions Plan. The section on solid waste lists the types of waste produced by the company and describes procedures for segregating, recycling, transporting, storing, and final disposal of non-hazardous and hazardous waste, including medical waste. It also includes information on the certified companies utilized by PSA for the final disposal of different types of solid waste.

During its January 2026 site visit, IDB Invest verified the existence of numerous waste disposal areas at PSA's facilities. All included color-coded bins for recycling in addition to those for general waste.

¹⁰ Artículo 21 del Acuerdo Gubernativo 236-2006.

These bins indicate that the company recycles plastic, aluminum, glass, cardboard and paper, and organic materials.

4.3.b.iii Hazardous Materials Management

The most significant hazardous materials utilized by Pantaleon are fuels and agrochemicals. Pantaleon has alliances with companies that are specialized and authorized by local authorities for the proper disposal of agrochemical containers. Pantaleon requires that agrochemical containers be triple rinsed and perforated when empty to prevent them from being reutilized and requires that employees that utilize chemicals are provided with and use adequate personal protective equipment.

PSA has Chemical Products Operational Control Instructions that include a section on roles and responsibilities and procedures for: i) acquisition and management of a new chemical product; ii) identification of chemicals (including labelling); iii) chemical storage; iv) control of chemical projects; v) secondary containment; vi) empty container provisions; and vii) training.

4.3.b.iv Pesticide Use and Management

PSA's IMS includes the following instructives related to the use of pesticides: i) Instructive for the Aerial Application of Liquid Products in Organic, Transitional, and Conventional Organic Sugarcane Production; ii) Instructive for Managing Agrochemicals and Fertilizers; iii) Instructive for the Transfer of Chemical Products; and iv) Instructive for Mixing Station Management. The company only utilizes agrochemicals that comply with national laws and regulations and that are approved for sugarcane by the laws of the United States and Europe. It does not use any agrochemicals from the prohibited lists of international conventions. Pantaleon does utilize a single pesticide to control rodents listed as a Class Ib pesticide by the World Health Organization ("WHO"). Pantaleon will conduct a study to determine if there are any practical alternatives to this pesticide and develop a plan to replace its use.

PSA makes every effort to utilize biological agents instead of agrochemicals for the control of pesticides. The company runs a biological laboratory next to the Pantaleon Sugar Mill that tests and develops new biological agents for use in their fields. The objective is to one day replace all agrochemicals with biological agents.

Pantaleon maintains the soil quality in its sugarcane farms through a program entitled "Live Soil." The program consists of the following four components: i) crop rotation; ii) adjusted fertilization; iii) liquid carbon; and iv) microbial inoculants. Rotation of crops with legumes naturally reduces pests that thrive on sugarcane and increases their natural predators. The microbial inoculants reduce pests through biological rather than chemical means, which reduces environmental impacts.

4.4 Community Health, Safety, and Security

4.4.a Community Health and Safety

4.4.a.i Infrastructure and equipment design and safety

The principal impacts of Pantaleon's operations are vehicular traffic, including trucks utilized to haul harvested sugarcane, and the application of agrochemicals to sugarcane fields by airplanes and drones, especially when there is an adjacent community. As mentioned above, these are the two most common topics of complaints received by the Company's community grievance mechanism.

To manage traffic risks and impacts, PSA has developed a Transportation Committee that monitors the speed of the company's vehicles as they pass through communities. PSA also has a road maintenance program and road signage program to minimize impacts. Pantaleon's traffic management procedures are aligned with international standards (i.e., applicable World Bank Group EHS Guidelines).

4.4.a.ii Hazardous materials management and safety

PSA's social development team negotiates agreements with local communities regarding aerial applications and notifies them of all such applications in advance. The company also invites community leaders to monitor the applications to ensure that they do not extend beyond their farms and into adjacent communities, as described in PSA's Community Relations Plan. All aerial applications are done in accordance with PSA's Instructive for Aerial Applications of Liquid Products.

To minimize the impacts of aerial applications, PSA has been increasingly utilizing drones, which are more effective at keeping applications within their intended areas. During IDB Invest's January 2026 site visit, representatives of local communities indicated that the use of drones by the company has significantly reduced the impact of and therefore the number of complaints related to aerial applications from their communities.

4.4.a.iii Ecosystem services

The Project will not involve the acquisition of any new lands. As a result, the only ecosystem service that the Project could impact is access to water. As mentioned above, Pantaleon reduced its water consumption by 49% from 2013 to 2024 and continues its efforts to reduce its water consumption. During IDB Invest's January 2026 site visit, representatives of local communities indicated that there is good communication between PSA, communities, and municipal authorities regarding the shared use of irrigation canals. This communication ensures that all people and entities that are entitled to utilize it obtain sufficient water to meet their needs. As a result, the Project's impact on this ecosystem service is expected to be negligible if not positive.

4.4.a.iv Community exposure to disease

PSA does not employ foreigners to work at the factories or on the farms in Guatemala. All factory employees and most of the farm employees live in the Escuintla region. As mentioned above, the company does hire non-local Guatemalans during the harvesting season each year. All employees are given a medical exam prior to beginning work. If a medical condition is identified during the exam, the condition must be managed before they are allowed to commence work. All employees, as well as their family members, are provided with free medical and dental services.

4.4.a.v Emergency preparedness and response

During IDB Invest's January 2026 site visit, representatives of local communities stated that there is a line of communication between PSA and their communities regarding potential emergencies. They stated that this line of communication was especially helpful to the community during the COVID-19 pandemic.

4.4.b Security Personnel

Access to the Pantaleon Sugar Mill, Bio Etanol distillery, and other facilities are controlled by security guards that carry arms. In 2022, PSA developed a Security Management Plan that describes the company's procedures for vetting security guards and contractors for past human rights violations, procedures for the use of force, and training requirements for security guards in the use of force and human rights.

4.5 Land Acquisition and Involuntary Resettlement

The Project will not involve the acquisition of any new land by Pantaleon. In fact, during IDB Invest's January 2026 site visit, Pantaleon stated that they intend to sell off some of their farms that are far away from the Pantaleon Sugar Mill and/or are in areas not conducive to mechanized harvesting (i.e., sloped and rocky areas) in the coming years, thereby decreasing the amount of land owned by the Company in Guatemala.

4.6 Biodiversity Conservation and Natural Habitats

4.6.a General

No new lands will be acquired and the habitat of no currently owned lands will be converted as part of the Project. As a result, the Project is not expected to impact biodiversity. Pantaleon is already implementing several biodiversity programs, however, which are described below.

4.6.b Protection and Conservation of Biodiversity

According to Pantaleon's most recent annual Responsible Development Report, the Company has developed biodiversity programs in partnership with external institutions that focus on forest production, reforestation, and conservation of natural forests. The Company had 3,333.72 hectares of conservation and riparian areas in 2024. In Guatemala, the Company restored 18 ha in riparian areas and biological corridors in the Acomé basin in 2024. In Mexico, restoration activities were carried out at El Mante Mill square, including the planting of 78 trees. From 2014 to 2024, Pantaleon's plant nursery at Monte Rosa Mill in Nicaragua produced more than 2 million plants to support reforestation campaigns. In addition, PSA conducts biodiversity monitoring of forest cover and diversity of arboreal flora, avifauna, and copronecrophagous beetles in the river basins in which its farms are located.

4.6.b.i Modified Habitat

The Project will only involve activities within Pantaleon's existing facilities and farms, all of which are modified habitat.

4.6.b.ii Supply chain

Pantaleon has a Responsible Supply Chain Program with the objective of bringing their sugarcane suppliers as close as possible to international standards of sustainable production and provides select suppliers with free technical support from specialists. As of 2024, 126 suppliers had participated in the program, covering more than 50% of the sugarcane received from third parties. Pantaleon maps and monitors the fields of all sugarcane suppliers to ensure no significant conversion of natural habitat.

5. Local Access of Project Documentation

General information on Pantaleon's operations, responsible development initiatives, and ethics and transparency can be accessed at the following website: <https://www.pantaleon.com>.

Pantaleon's most recent annual Responsible Development Report (2024) can be accessed at the following website: <https://www.Pantaleon.com/downloads/Pantaleon-Reporte-de-Desarrollo-Responsable-2024.pdf>.