

## **Environmental and Social Review Summary (ESRS) Butantan Foundation Project – BRAZIL**

Original language of the document: Portuguese  
Issue date: September 2022

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

Butantan Foundation (the “Client,” “Butantan” or the “Foundation”) is seeking financing to build two new vaccine manufacturing and processing units: i) the Egg-based Vaccine Research Center (“CPVO II”), consisting of an Influenza vaccine manufacturing plant; and ii) the Final Processing Center for Immunobiologicals (“CPFII”), which consists of a plant for formulating, filling, lyophilizing, crimping, labeling, and packaging pharmaceutical products (the “Project”).

The Environmental and Social Due Diligence Project (“DDAS”) covered document analysis, a visit to the sites where the Project will be implemented, and meetings with the Client and its environmental and social team. Information was provided on the following as well as other topics: i) environmental licensing; ii) risk management and environmental and social impacts; iii) worker health and safety; iv) solid waste and sewage control; v) working conditions; and vi) contractor management.

### **2. Environmental and Social Categorization and Rationale**

In accordance with the IDB Invest’s Environmental and Social Sustainability Policy, the Project was classified in Category B because it may produce, among other things, the following impacts, and risks: i) solid waste; ii) industrial waste; iii) risks of accidents for workers; iv) loss of vegetation; and v) noise and vibrations. It is believed that these impacts and risks are of medium to low intensity, and that they are limited to the vicinity of the Project. They can be reversed and mitigated by implementing viable control measures that are used extensively in the industry.

The Project Performance Standards (PS) activated 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 project will be built inside an existing industrial area that has been zoned and approved by the São Paulo city municipal government. The area is inside the Butantan Institute, which in turn borders on the Cidade Universitária of the Federal University of São Paulo (“USP”).

### 3.2 Contextual risks

The industrial area where the Project will be built is on Butantan Institute property and is surrounded by the Institute's own facilities, including: i) the Biology Museum; ii) the Microbiology Museum; iii) the Horto Oswaldo Cruz; iv) the Serpentarium; v) the Monkey House; vi) Casa Afrânio do Amaral; vii) the Vaccine Museum; viii) the Historical Museum; and ix) other areas open to the public for visits.

The location in the industrial area uses the natural topography of the land, as the buildings there are lower than the structures that comprise the area that is open to the public for visits. This makes it difficult to see the industrial sector from the visitor area and minimizes potential visual, noise, traffic, sunlight-blocking and ventilation impacts and other possible interferences from the Project on its surroundings.

Given its location, the Project will not potentially impact the neighborhood or interfere significantly with activities conducted around it. Since the Project will be implemented in an area that was previously zoned and occupied by other industrial buildings, it will not cause any significant change in land use or occupancy or the access roads to the Butantan Institute.

The safety risk level in the Project area is low because it is close to the perimeter of the USP Cidade Universitária. There may be mobilizations and protests, but they are not frequent in the area.

## 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

The Client complies with all statutory and regulatory requirements for São Paulo State environmental licensing procedures. It submits projects for analysis to CETESB<sup>1</sup> and other entities such as SVMA.<sup>2</sup> The Client has a structured Environment, Health, and Occupational Safety Department ("SMA") that deals with compliance with environmental, health and safety rules. The department implements the Environmental, Health and Occupational Safety Policy and takes steps to prevent environmental impacts, health and safety management and the rational use of natural resources.

There will be specific environmental licensing processes with CETESB for the Project's industrial plants once engineering executive projects are finalized.

---

<sup>1</sup> Companhia Ambiental do Estado de São Paulo (São Paulo State Environmental Company - CETESB) is the State entity in charge of licensing and environmental supervision of enterprises.

<sup>2</sup> The Municipal Green and Environmental Office (SVMA) is responsible for conducting environmental licensing and supervision activities. It also promotes activities in the areas of environmental education, standardization, control, regularization, protection, conservation, and recovery of natural resources, among other duties.

#### 4.1.b Policy

The Client has an Environmental, Health and Occupational Safety Policy (“PMASS”) with the following key objectives: i) protect the environment, prevent pollution and foster the conscientious use of natural resources; ii) provide safe working conditions for employees; iii) meet client expectations; iv) comply with the statutory and regulatory requirements that govern processes and products; v) raise awareness and train employees, contractors and the community on their responsibility concerning the environment, health and safety; vi) provide adequate mechanisms to consult employees and have them participate in the development of health and environmental programs; and vii) ensure ongoing improvements in the institution’s environmental and health and safety performance.

#### 4.1.c Identification of Risks and Impacts

##### 4.1.c.i Direct and Indirect Impacts and Risks

The Project may generate a few socioenvironmental localized risks and impacts, including: i) soil contamination risks linked to waste generation; ii) other parties may be inconvenienced by noise and vibrations during the construction; iii) air quality may be altered due to air emissions from generators and boilers; iv) risks of accidents involving workers; v) localized delays caused by heavy vehicle traffic; and vi) generate direct jobs. In general, these impacts, which will occur in the immediate Project vicinity, can be mitigated using effective measures that are frequently used in civil works in industrial plants.

The indirect impacts of the Project include, among others: i) indirect jobs generation; ii) improve public health indicators in Brazil and other countries; and iii) strengthen the Client’s position as a center of international excellence in vaccine production.

##### 4.1.c.ii Analysis of Alternatives

The Project’s location alternatives were analyzed to verify the positioning of the facilities in the Butantan Institute Master Plan, in which the planning for current structures and those that are scheduled to be built in the next five years were verified. The following issues were considered: topography; existence of infrastructure (sewers, water, and pipe-racks); heights of buildings in the approved zoning; and timelines for making areas available according to plans for future structures and interferences with other structures to be built. Based on the above data and the area needed to build the structures, the locations that were selected were those that produced the least impact and risk.

##### 4.1.c.iii Cumulative Impact Analysis

The Client did not conduct a formal analysis of cumulative impacts. However, the Socioenvironmental Value Components (“VEC”) that may be subject to cumulative impacts due to the presence of the Project and other past, present, and future developments, are mainly air quality and vehicular traffic. Fortunately, the management measures for the industrial area include provisions to manage these impacts on these VECs.

#### 4.1.c.iv Gender Risks

Currently, 48% of the Client's 3,236 employees are women, 11 of whom are in executive and senior management positions.

The Client's Integrity Code expressly prohibits any type of harassment. In addition, a specific document was recently drafted and disseminated to prevent moral and sexual harassment.

Since the works will be conducted inside the Client's industrial complex and on its property, where circulation of employees and authorized personnel is frequent, it is believed that the risks of gender violence are relatively minor. However, the Client will include the following clauses in its contracts with building contractors for the Project: i) diversity; ii) prevention of moral and sexual harassment; and iii) prevention of the use of forced and child labor.

#### 4.1.c.v Climate Change Exposure

The location of the Project is not exposed to the risks that could normally generate direct effects on the infrastructure. Therefore, it was classified as having low exposure to climate change risks.

#### 4.1.d Management Programs

In addition to the PMASS, the Client has a Manual of Basic Health, Safety and Environmental Procedures ("MPBSSMA") which includes: i) objectives; ii) responsibilities; iii) definitions and abbreviations; iv) basic health, safety and environmental procedures; v) collective and personal protective equipment ("PPE"); vi) procedures in case of changes in work-related activities; vii) Safe Work Permit ("PTS"); viii) training in the Ministry of Labor regulatory standards;<sup>3</sup> ix) training for the emergency brigade; x) internal audits; xi) Daily Safety Dialogs ("DDS"); xii) accident procedures; xiii) fire procedures; xiv) Emergency Action Plan ("EAP"); xv) procedures for changes in building layout; and xvi) basic environmental procedures, including waste disposal and caring for vegetation.

In addition to the above procedures, the Client has: i) a detailed EAP that covers all the facilities; ii) an Air Emissions Monitoring Plan ("PMEA"), iii) a Waste Manual;<sup>4</sup> and iv) Civil Construction Solid Waste Management Plans (PGRSCCs) specific to each construction works in the complex.

#### 4.1.e Organizational Capacity and Competency

The Client has a Health, Safety and Environmental Unit ("SMA") with 30 professionals, including: i) a workplace safety and environmental manager; ii) a workplace safety and environmental coordinator; iii) an environmental engineer; iv) a biologist; v) three environmental analysts; vi) one workplace safety engineer; vii) ten safety technicians; viii) ten civilian firefighters; ix) one environmental technician; x) one chemical technician; and xi) one administrative assistant. The unit implements the health, safety, and environmental procedures, deals with emergencies, supervises

---

<sup>3</sup> The Regulatory Standards aim to protect health and physical safety of Brazilian workers. There are currently 35 such standards.

<sup>4</sup> The Waste Manual has detailed procedures for managing the solid waste that the various Butantan Foundation activities produce.

contractors, obtains environmental licenses and authorizations, complies with the requirements of environmental licenses, among other duties.

#### 4.1.f Emergency Preparedness and Response

The existing EAP covers all of the Client's facilities and is organized as follows: i) definitions; ii) a Project description; iii) areas covered by the plan; iv) identification of accident scenarios; v) description of the organizational response structure ("EOR"); vi) identification of muster points and evacuation routes; vii) activation and communication procedures; viii) emergency control measures; ix) post-emergency procedures; x) human and material resources; xi) dissemination, implementation and integration of the plan; xii) training and drills; and xiii) EAP maintenance and revision. The Client will incorporate the Project into the existing EAP.

To facilitate emergency support, the Client has a contract with a specialized company. In addition, the Client has its own team of ten civilian firefighters and 450 emergency brigade members trained in emergency response, first aid and evacuation and rescue. The contract with the specialized company covers providing services for the following emergency situations: i) hazardous, chemical, or biological waste; ii) fires; iii) complicated situations in confined spaces or at heights; and iv) rescuing victims. The Client conducts frequent emergency drills. The entire industrial complex is covered by many fires detection and firefighting systems, and the Client has its own firetruck.

#### 4.1.g Monitoring and Review

The Client has a procedure for conducting internal audits as described in the MPBSSMA. The audits are conducted by the SMA unit team. Moreover, air pollution from boilers and generators is regularly monitored as part of the PMEA.

#### 4.1.h Stakeholder Engagement

The Client has a media press advisory sector and channels for disseminating information on the activities it conducts. The communications team, with 27 persons, is responsible for: i) conducting internal information campaigns; ii) disseminating information to the public; iii) managing content on social media (Facebook, LinkedIn, Instagram, Twitter, TikTok, etc); and iv) contacts with the press.

The Client has three channels for incoming solicitations, complaints and requests for information, including: i) a Customer Service Center ("SAC") with an 0800 toll-free number; ii) an Ombudsperson Channel ( [ouvidoria@butantan.gov.br](mailto:ouvidoria@butantan.gov.br)); and iii) an online ombudsperson channel accessible via the Butantan Foundation Portal.<sup>5</sup> The professionals of these channels direct the requests and complaints to the appropriate departments and they receive answers that are forwarded using the same channels used for reception.

---

<sup>5</sup> The Butantan Foundation portal has an ombudsperson channel for anonymous reporting using this link: <https://fundacaobutantan.org.br/transparencia/ouvidoria>.

## 4.2 Labor and Working Conditions

### 4.2.a Working Conditions and Management of Worker Relationships

The Client meets all the requirements of the laws of Brazil on working conditions. Currently, it has 3,236 employees, 48% of whom are women. Labor requirements for the Project include, roughly 500 workers to build the facilities. For the operational stage, the CPVO will require about 350 workers, while the CPF I will need 830.

#### 4.2.a.i Human Resources Policies and Procedures

The Client has a Human Resources Unit (“HR”) and a procedure for recruiting and hiring employees, including: i) general standards; ii) a recruitment procedure; and iii) final and transitory provisions. There is also an Integrity Code that specifies conduct requirements and standards for employees’ relationships and Client relationships with: i) its employees; ii) its clients; iii) partner entities; iv) institutional cooperation; v) its vendors; vi) the authorities; and viii) the public supervision and control entities. The Code also addresses socioenvironmental responsibility, management of conflicts of interest, receiving favors and gifts, preservation of information, the responsible use of resources and procedures to deal with breaches of the Integrity Code.

Another important document is the Integration Manual, which presents a set of information for employees, including: i) Client history; ii) working conditions; iii) health; iv) food; v) transportation; vi) care for dependents; vii) partnerships to promote quality of life; viii) human resources; ix) information channels; x) payment of wages; xi) quality guarantee; xii) pharmacovigilance;<sup>6</sup> xiii) workplace and environmental safety; xiv) emergencies; xv) Information Security Policy; and xvi) compliance.

Other procedures include the Anti-Harassment Policy, the Manual for Pregnant Employees, the Dress Code, and the Annual Compliance Training Procedure.

#### 4.2.a.ii Working Conditions and Terms of Employment

Working conditions are based on the laws of Brazil, and in particular the Consolidation of Labor Laws (“CLT”),<sup>7</sup> which guarantees the right to adequate compensation, leave, the 13<sup>th</sup> monthly salary, and other benefits. For operational Project facilities and in accordance with current legislation, two work schedules will be implemented: 12x36<sup>8</sup> and 5x2.<sup>9</sup>

---

<sup>6</sup> According to the World Health Organization (WHO), Pharmacovigilance is the science and activities to identify, assess, understand, and prevent adverse reactions (i.e., that alter a person’s state of health) caused using medical-pharmaceutical products, including vaccines and serums. Pharmacovigilance monitors products that people will use.

<sup>7</sup> Brazil. Decree-Law No. 5.452 of May 1, 1943, which enacts the Consolidation of Labor Laws.

<sup>8</sup> On day 12x36, employees will work a 12-hour schedule and they are entitled to 36 hours of rest following their work period. During this period that employees work, they are also entitled to a meal or rest break of at least one hour.

<sup>9</sup> This is the work schedule in which employees work five days and have two days for paid rest. These periods are separate and give the employee more chances to rest.

#### 4.2.a.iii Workers' Organizations

In accordance with the laws of Brazil, the Client guarantees an employee's right to freely join existing labor unions or to form new ones without fear of reprisal. In this regard, the Client's employees may join the SENALBA.<sup>10</sup>

#### 4.2.a.iv Nondiscrimination and Equal Opportunity

The Client's Integrity Code requires respect for differences without distinction of any type, including race, color, sex, language, religion, political or other opinions, national or social origin, wealth, birth, or any other condition. The Recruitment Procedure requires that the hiring process observe the principles of disclosure, objectivity, morality, and financial viability. The Code prohibits practices such as nepotism, influence peddling, sponsorships, exchanges of favors and discrimination. The Client plans to take action to increase the participation of Afro-descendants among its employees.

#### 4.2.a.v Retrenchment

The Client has over 3,200 employees and plans to increase the number to nearly 5,000 in the short term due to heightened demand for vaccines. Therefore, there are no plans for group dismissals.

When Project construction ends, the labor contingent of contractor companies will in large part be transferred to other projects they are implementing in other localities.

#### 4.2.a.vi Grievance Mechanism

The Client has an internal channel for receiving employee complaints: the "Talk to HR" Channel ("Fale com o RH") that can be accessed via the corporate intranet using the following email address: [falecomrh@butantan.gov.br](mailto:falecomrh@butantan.gov.br). Employees can use the channel to submit their questions, suggestions, criticisms, or complaints with their name or anonymously and without fear of reprisal. In addition, the ombudsperson channels can be used to submit complaints, which may be anonymous.

The RH unit receives, processes, investigates, and answers employee complaints and accusations.

#### 4.2.b Protecting the Workforce

The Client complies with the laws of Brazil that prohibit and penalize working conditions such as slavery or slave-like employment conditions<sup>11</sup> and child labor<sup>12</sup> (hiring children under 14 years of age). The Client's Integrity Code prohibits relationships with partner entities or vendors that employ children directly or indirectly, use slavery or slave-like employment conditions, or that have employees perform work that is degrading or shameful.

---

<sup>10</sup> Labor Union for Employees of Cultural, Recreational, Social Assistance, Guidance and Vocational Education Entities.

<sup>11</sup> Law N°. 10.803 of December 11, 2003, which amends the Penal Code to establish penalties for classified crime and indicates the conditions deemed slavery-like.

<sup>12</sup> Law N°. 8.069 of July 13, 1990, which determines the Status of Children and Adolescents and contains other provisions.

#### 4.2.c Occupational Health and Safety

The Client complies with the workplace safety laws of Brazil and has the SMA unit, which supervises employees and contractors to ensure compliance with the legislation.

The Client has an Internal Accident Prevention Commission (“CIPA”), a Worker Health Commission (“COMSAT”) and the Fire Brigade. The SMA applies a professional development and training plan for employees, including their participation in emergency drills. In case of an accident, there is an investigation and follow up with the Specialized Unit for Engineering and Workplace Medicine (“SESMT”).

The SMA implements a basic workplace safety and environmental procedure that consists of: i) objectives; ii) responsibilities; iii) definitions; iv) policy; v) basic health and workplace safety procedures; v) personal and group protective equipment; vi) procedures for changes in labor activities; vii) safe work permit; viii) training in health and safety regulatory norms; ix) training the emergency brigade; x) internal SMA audits; xi) daily safety dialog; xii) accident response procedures; xiii) fire procedures; xiv) guidelines for using the EAP; and xv) procedures for changes in building layouts.

Compliance with the regulatory health and safety requirements is mandatory for all contractors that perform any type of work in the Client’s facilities, which the SMA team inspects for compliance with the commitments.

For the operation of the industrial units, the Client applies the protocols in the institution’s Biosafety Guide,<sup>13</sup> which includes: i) biosafety principles; ii) risk classification of biological agents and genetically modified organisms (“GMO”); iii) facility requirements and containment procedures for activities and projects in which there are biological agents and GMOs; iv) a description of genetically modified animals; v) shipping requirements for biological material and GMOs; and vi) instructions for handling GMOs.

#### 4.2.d Provisions for People with Disabilities

Brazil has a Quota Law for Disabled Persons<sup>14</sup> which provides that companies with more than 100 employees must fill 2 to 5% of its jobs with disabled persons. The Client has 63 disabled employees (“PCD”), and the goal is to reach 150. There is also a Disabled Employee Support Center (“NAFDE”) to accommodate the needs of disabled persons and facilitate their integration into the working environment.

#### 4.2.e Workers Engaged by Third Parties

Contractors will build the Project facilities. To ensure compliance with health, safety, and waste management regulations, the SMA uses an integration procedure at the time of hiring and oversees compliance with statutory health and safety requirements. This includes, among other documents

---

<sup>13</sup> Butantan Institute. Biosafety Guide. Biosafety Commission. December 2014.

<sup>14</sup> Law No. 8.213 of July 24, 1991, establishes quotas for disabled persons in the labor market.



and statutory obligations: i) use of Personal and Group Protective Equipment (“PPE”); ii) presentation and compliance with the Occupational Health Medical Program (“PCMSO”);<sup>15</sup> iii) presentation and compliance with the Environmental Risk Prevention Plan (“PPRA”);<sup>16</sup> iv) the Risk Management Program (“PGR”);<sup>17</sup> v) verification of procedures for issuing work permits (“PT”) for high-risk jobs; vi) proof of disclosures of Health and Safety Dialogs (“DDS”); vii) accident records and indicators; and viii) Occupational Health Certificates (“ASO”).

#### 4.2.f Supply chain

The Client manages the statutory requirements of its direct vendors. Due to the high level of technical sophistication of vendors involved in supply chains in the pharmaceuticals sector, it is unlikely that human and worker rights will not be observed.

### 4.3 Resource Efficiency and Pollution Prevention

#### 4.3.a Resource Efficiency

##### 4.3.a.i Greenhouse Gases

The Client will prepare and implement a Greenhouse Gas Emissions Monitoring Plan that aims to curtail its future emissions (considering Scopes 1 and 2 emissions).

##### 4.3.a.ii Water and Energy Consumption

Water is considered the main raw material in the pharmaceutical industry. It is used to prepare drugs and in sterilization and heat exchange processes as well as processes to sanitize environments, equipment, and glassware. The State sanitation company supplies the water the Client uses. In 2021, the Client consumed 452,009 m<sup>3</sup> of water.

Some of the initiatives to curb water consumption include measures to reduce industrial steam losses in the industrial complex through a project to recover condensation. In 2021 this project provided 10.709 m<sup>3</sup> water recovered for reuse in toilets. Another measure implemented to reduce water consumption is the installation of water-saving equipment in restrooms.

Project water consumption was estimated at 20 m<sup>3</sup>/h in the construction phase and 380 m<sup>3</sup>/h in the operating phase. The CPVO will require 300 m<sup>3</sup>/h and the CPF I will need 80 m<sup>3</sup>/h.

---

<sup>15</sup> The Occupational Health Medical Program (PCMSO) is regulated by Ministry of Labor and Employment Regulatory Standard N°. 07, which establishes the requirement for businesses to create and implement the PCMSO to promote and preserve the health of their employees.

<sup>16</sup> The preparation and implementation of the Environmental Risk Prevention Program (PPRA) is required by Ministry of Labor and Employment Regulatory Standard N°. 09. The program requires the advance planning, recognition, assessment, and control of environmental risks generated by chemical, physical and biological agents to which workers may be exposed.

<sup>17</sup> The Risk Management Plan (PGR) is required by Ministry of Labor and Employment Regulatory Standard N°. 01. It establishes that the organization must assess the occupational risks for the hazards that are identified in its establishment to maintain information to adopt prevention measures and risk assessment techniques that are appropriate to manage the risk or circumstance being assessed.

Energy is supplied by the local electricity utility. In 2021 the Client consumed 52,940,779.20 kWh of energy. The Client is implementing a series of measures to minimize power consumption using DEL-type light bulbs and an efficient air conditioning system.

The Project's energy consumption will be determined once the engineering projects are completed. The Project will be connected to a natural gas cogeneration plant, which will reuse steam generated in production to produce energy.

#### 4.3.b Pollution prevention

##### 4.3.b.i Waste

The Client has an Integrated Waste Management Program ("PIGRIB") to adequately manage waste generated in the various activities. The PIGRIB is documented in a Waste Manual that includes: i) waste classification; ii) PPE guidelines; iii) waste disposal procedures; and iv) identification of recyclable materials.

In 2021 the Client generated 3,329.77 metric tons of solid waste, including: i) asbestos; ii) animal carcasses; iii) ordinary waste; iv) oil contaminated waste; v) electronic waste; vi) construction waste; vii) infectious waste; viii) light bulbs; ix) wood; x) lubricating oil; xi) tires; xii) pruning waste; xiii) chemical residues; xiv) recyclable materials; xv) Tyvek;<sup>18</sup> xvi) refuse; and xvii) liner. Quantitatively speaking, the most relevant waste was from construction (35.09 % of the total); infectious waste (18.13%); animal carcasses (12.50%), and waste from pruning trees (10.56%). The volume of recycled materials amounted to 8.29% of total waste generated.

The Client conducts training for employees, contractors, and students to disseminate good waste management practices, including the management of waste from health services.

The Client has several generators and boilers that produce air pollution. The Air Pollution Monitoring Plan periodically samples fixed emissions in nine boilers by measuring concentrations of nitrogen oxides (NO<sub>x</sub>) and volatile organic compounds (VOCs) measured as total hydrocarbons. The most recent monitoring of fixed emissions shows that they meet the standards established by the laws of Brazil.<sup>19</sup>

Industrial plants produce industrial effluents. All sanitary effluents generated during the construction and operational phases of the Project will be channeled into the public sewage collection network, operated by SABESP. During the CPVO II operational phase, the effluents will go through a thermal treatment process at a temperature of 80 °C for 20 minutes. After that it will be channeled into the public sewage collection and treatment system.

The contractors hired to build the Project will submit their respective Civil Construction Solid Waste Management Programs ("PGRSCCs"), consisting of classification, adequate temporary storage,

---

<sup>18</sup> Tyvek is the protective material used inside industrial plants. It is made from recyclable materials.

<sup>19</sup> CONAMA Resolution No. 382 of December 26, 2006, sets maximum limits for emitting air pollution from fixed sources.

shipping, treatment, and environmentally appropriate final disposal, using companies that are duly authorized and capable of performing these duties. The entire waste management process will be documented electronically by the issuance of shipping and final waste destination manifests. The SMA will monitor the process closely, using their Environmental Management Manual for Contractors to supervise contractors for appropriate solid waste management.

#### 4.3.b.ii Hazardous Materials Management

The hazardous waste produced in the Client's facilities includes: i) electronic waste; ii) cartridges and toners; iii) batteries and cells; iv) light bulbs; v) waste contaminated with oil; vi) gas storage containers; vii) asbestos waste; viii) empty paint cans; and ix) infectious waste. All waste is stored in temporary shelters in the Client's facilities and is regularly collected, shipped, treated, and sent to duly authorized companies in an environmentally appropriate manner.

#### 4.3.b.iii Pesticide Use and Management

Pesticides will not be used in the Project.

### 4.4 Community Health, Safety and Security

#### 4.4.a Community Health and Safety

Due to its location context, it is unlikely that the Project will generate significant risks and impacts for surrounding communities. The CPVO and CPFI plants and the utilities area will be built inside the industrial zone. These areas are surrounded by other existing industrial units and the Client's own administrative buildings. The nearest residential neighbors are more than 300 m away from the industrial area.

#### 4.4.a.i Infrastructure and Equipment design and Safety

During Project construction, no major inconveniences are expected for neighbors from solid waste, effluent, traffic restrictions or other impacts commonly associated with civil construction. However, shipments of oversized equipment during construction may cause temporary traffic delays on roads used to access the facilities.

In the operational phase, given Project conformance, no visual, ventilation or shadow impacts are expected in the neighboring areas. However, since the Client operates 64 diesel generators and nine boilers, Project operations may produce localized changes in sound and air quality levels.

To assess these possible impacts, the Client will implement a Noise Monitoring Program and will upgrade the Air Pollution Monitoring Program to assess compliance with Brazilian and international acoustical comfort and air quality standards.

#### 4.4.a.ii Hazardous Materials Management and Safety

The PGRSCCs to be implemented by the contractors and supervised by the SMA ensure proper management of construction waste, including hazardous waste. In the operational stage of the plants, the PIGRIB and industrial effluent treatment procedures will ensure that the waste and effluent generated in the industrial operations are properly managed, so that no interference is expected in the communities around the Project.

#### 4.4.a.iii Ecosystem Services

The Project is in an urban area that has been almost totally modified by human activity, so that there is no potential for the Project to affect ecosystem services used by the surrounding communities.

#### 4.4.a.iv Community Exposure to Disease

Given its location, characteristics, and existing controls, it is considered that the Project will not introduce disease exposure risks to the neighboring communities. By contrast, operationalization will help prevent the spread of contagious infectious disease by increasing vaccine production and distribution.

#### 4.4.a.v Emergency Preparedness and Response

The EAP contains the list of all external entities that are to be informed in the event of an emergency, including: i) airport; ii) firefighters; iii) civil defense; iv) environmental entities; v) ambulances; and v) safety organizations.

#### 4.4.b Security Personnel

The Client has a contract with a security company whose guards are unarmed. The company has trained employees and women in its ranks.

### 4.5 Land Acquisition and Involuntary Resettlement

#### 4.5.a General

The Project will not produce any involuntary resettlement or economic displacement impacts.

### 4.6 Biodiversity Conservation and Natural Habitats

The Project will not produce any significant impacts on biodiversity. The construction of the CPVO will require cutting down some native trees, but there are no threatened species of flora or fauna in the area. To support this, the Client submitted a study of flora and fauna to the environmental authorities, and the SVMA has already authorized the removal of vegetation, which the Client will compensate by planting trees.

#### 4.7 Indigenous Peoples

The Project will not generate any impacts on indigenous peoples.

#### 4.8 Cultural Heritage

Considering that the Project is in an area thoroughly modified by human activity, it should not produce impacts on material or immaterial cultural heritage. For prevention, the Client will prepare a procedure for chance findings in case any archeological remains or items of cultural interest are found during construction.

### **5. Local Access of Project documentation**

The documentation relating to the project can be accessed at the following link:  
<https://fundacaobutantan.org.br/>