

1. Scope of the Environmental and Social Review

Tecnomyl is a Paraguay-based company founded in 1991 that formulates, packages, packs, and markets agricultural inputs, mainly pesticides (excluding rodenticides) and fertilizers. It has a register of 197 raw material products and 253 formulated products. During 2018, production supplied around 20% of the national demand. Tecnomyl is part of the Sarabia group of companies, whose commercial operations are mainly in Brazil, Paraguay, and Bolivia. It has been a private sector client of the IDB since 2014. This is the latter's second operation with Tecnomyl.

From June 18 to 21, 2019, IDB Invest conducted its due diligence visit to Tecnomyl. Tecnomyl's environmental and social information contained in reports, environmental audits, policies and internal procedures was also reviewed, and interviews were conducted with plant employees.

2. Environmental and Social Categorization and Rationale

This is a category B project under IDB Invest's Environmental and Social Sustainability Policy, as it may have moderate and mostly mitigable environmental and social impacts. The key Project-related environmental and social risks include: (i) functionality of the company's environmental and social management and monitoring systems; (ii) workforce management and suitable occupational health and safety conditions, handling of toxic substances by in-house personnel and workers engaged by third parties; (iii) handling, storage, distribution, and transportation of hazardous materials; (iv) air emissions; (v) wastewater discharge into surface water bodies; (vi) waste generation (solids derived from the industrial process, packaging, expired product); (vii) possible fires and accidental chemical spills. The company has a positive impact on job creation and provides access to national health and social security services for its workers and their families.

The results of the Environmental and Social Due Diligence indicate that this operation will generate impacts that will be managed as provided for in the following Performance Standards (PS):

PS 1: Assessment and Management of Environmental and Social Risks and Impacts

PS 2: Labor and Working Conditions

PS 3: Resource Efficiency and Pollution Prevention

PS 4: Community Health, Safety and Security

PS 5 (Land Acquisition and Involuntary Resettlement—land was acquired through voluntary purchase and sale); PS 6 (Biodiversity Conservation and Sustainable Management of Living Natural Resources—operations take place in areas that have already been urbanized); PS 7 (Indigenous Peoples—none in the area); and PS 8 (Cultural Heritage—none in the area) are not triggered under the current Project conditions. Should the circumstances of the Project change, Tecnomyl will inform BID Invest.

3. Environmental and Social Context

Tecnomyl's production plant is located on a 14,605-hectare site (7 hectares of which have been developed) in the Avay Industrial Park, which is located in the municipality of Villeta, 40 km from Asunción. Its administrative offices are located in the city of Asunción. The Avay Industrial Park extends over 229.5 hectares and houses a total of 11 companies (five agrochemical companies), of which Tecnomyl is the largest.

4. Risks and Impacts and Proposed Mitigation and Compensation Measures

4.1 Assessment and Management of Environmental and Social Risks and Impacts

Tecomyl has a valid Environmental Permit granted by the Ministry of Environment and Sustainable Development (MADES, for its acronym in Spanish).

Tecomyl has implemented an Environmental and Social Management System (ESMS) certified by ISO14001:2015 and ISO 9001:2015. It is in the process of implementing a security system based on the ISO 45001 certification, but is not seeking certification for the time being. The ESMS focuses on occupational health and safety, environmental and ongoing improvement processes; however, it must be updated to include the elements provided in Performance Standard (PS) 1.

Tecomyl's environmental policy has been developed taking the characteristics of the sector into account. It has been validated by management and disclosed internally. The existing policy will be reviewed and updated to align with PS 1. Once updated, the policy will be disclosed externally.

Tecomyl has a risk identification matrix that indicates its primary environmental and occupational health and safety risks. The matrix is updated annually as part of the ongoing improvement process of the ESMS. Tecnomyl shall review its risk assessment whenever there is a change in regulations, processes, technology, activities, or an expansion, and regularly improve the identification of the risks and impacts of its operations with regard to its supply chain, contractors, and the community.

Tecomyl has procedures in place for its ESMS, Internal and External Communications, Occupational Health and Safety (OHS), Hazardous Substance Management, Atmospheric Emissions and Air Quality Management, Training and Annual Plan, Operating Instructions for the Bulk Discharge of Fuels, Emergency and Incident Response, Solid and Semisolid Waste Characterization and Management, Environmental Planning, Inspection and Testing of Water for Human Consumption Plan, Medical Check-ups for Workers, among others. Tecnomyl will include procedures to: (i) engage with external stakeholders; (ii) define the replacement times of PPE used to handle agrochemicals; (iii) promote Integrated Pest and Disease Management; (iv) Develop an ESMS policy and procedure to avoid procuring, storing, using, manufacturing and marketing products in the "Ia" (extremely hazardous) and "Ib" (highly hazardous) classes of the WHO Recommended Classification of Pesticides by Hazard, or class "II" (moderately hazardous), unless it demonstrates appropriate controls to avoid toxicity such as suitable PPE (masks and filters based on MSDS and/or ICSC, gloves, clothing, eye protection, etc.); (v) supply chain management.

In terms of Occupational Health and Safety issues, its organizational capacity is strong. Tecnomyl has employed an environmental coordinator since 2013. In July 2019, Tecnomyl hired an environmental coordinator to replace the previous one, who, together with an environmental consultant, ensure that the requirements of the national legislation are fulfilled. The company must include organizational capacity for supply chain management (suppliers) and involve stakeholders.

Tecomyl has an Emergency and Incident Response Plan (ERP) and a Transport Vehicle Accident Plan. The ERP was reviewed in 2017 and includes scenarios for landslides, spills, gas leaks, fire, explosions, and adjoining emergency situations. Since its construction, the plant has not undergone any natural disasters. Tecnomyl will manage joint emergency response plans within the Avay Industrial Park with other companies that voluntarily join the initiative.

In terms of managing stakeholder engagement, the Head of Plant Administration is the contact with the Sagrado Corazón community under the Corporate Social Responsibility Program. The company will formalize this role by sending a copy of the appointment memorandum to IDB Invest.

Tecnomyl has an external communication procedure that describes the means for receiving, analyzing, and responding to external stakeholder grievances. The level of implementation and disclosure of this mechanism is uncertain, since no grievances have been registered. The company will disclose and receive feedback on opportunities for improvement (receiving anonymous grievances, re-evaluating the effectiveness of the current means for receiving grievances).

Tecnomyl will publish an annual report on environmental and social sustainability following Global Reporting Initiative (GRI) standards. In addition, it will expand its reporting system to include the identification and management of risks and impacts on stakeholders. In the event of new changes in technology that could result in alterations of the external impacts, these will be communicated to the stakeholders as provided for in the applicable local regulations, Performance Standards, and World Bank EHS guidelines.

4.2 Labor and Working Conditions

At present, Tecnomyl directly employs 545 people, 73 of whom are women. It complies with Paraguayan labor regulations and the requirements of PS 2. It offers its workers additional benefits (transportation and food, recreational activities, celebration of festivities, private medical insurance in addition to that required by law), and an Annual Training Plan.

Tecnomyl has no employee associations or unions, nor has it entered into collective bargaining agreements with its workers. The company does not employ minors and rejects forced labor, but offers internship programs to high school seniors, who may be under 18, requiring special permission from the educational establishment to do so. The personnel interviewed have been working at the company for an average of 10 years and state that it offers equal opportunity and that there is no discriminatory treatment. The company does not have a Human Resources policy, but it has implemented some of its components, such as a benefits plan, training and internal communication. Tecnomyl will develop a Human Resources policy. The internal grievance mechanism will be updated to receive and respond to anonymous grievances. The company will disseminate it among its employees, including temporary employees.

Each sector has a data sheet based on which Personal Protective Equipment (PPE) is provided. The procedures, however, fail to specify replacement or review periods, nor do they specify a delivery list or sanctions for non-use, which is especially important in the case of filter masks. During the site visit, all employees in all areas were observed wearing their PPE. As a means of protecting its workforce, Tecnomyl has a Hazardous Substance Management procedure, Medical Check-ups for Workers, an Inspection and Testing of Water for Human Consumption Plan, and an Emergency Response Plan.

The odor inside the Tecnomyl plant is persistent, even though the company has odor neutralizers in its warehouses and pesticide formulation lines. No odors are perceived at the plant's surroundings. The company will research and use additional engineering controls (equipment and others) to neutralize odors.

Tecnomyl monitors air quality pursuant to the parameters set out by the Ministry of Environment and Sustainable Development. It shall include the parameters of the IFC Industry Guidelines and the World Bank's General EHS Guidelines in such monitoring. Tecnomyl shall also keep workplace dust, vapors and gaseous pollutant levels at concentrations below those recommended by the American Conference of Governmental Industrial Hygienists (ACGIH) in the form of Time Weighted Average and Threshold Limit Values (TWA-TLV)—concentrations that most workers may be repeatedly exposed to. Tecnomyl will develop a respiratory protection program that defines, among other factors, the frequency of replacement of PPE, the type of mask by work area and by agrochemical

formulation (fulfilling the requirements of providing PPE to Distribution Center employees based on MSDS and/or ICSC sheets for the materials handled, and providing documentary evidence of compliance to IDB Invest), monitoring of particulates in suspension in the formulation lines (especially in the micronization and flotation 2 areas, where there is a greater probability of particulate matter in suspension).

Tecomyl has a nurse and a doctor who visit the facilities three times a week. Employees undergo full annual medical checkups and all plant workers are tested for cholinesterase, except for temporary (three months) employees hired during peak months. The company will include this group of workers in the analyses, especially those in the oldest production line where manual packaging is performed. The conclusions of the year-to-year comparative analyses, including the identifying information of each employee, will be included in the annual reports submitted to the IDB.

Eleven spills have taken place at Tecomyl since 2014, four of which have been in excess of 200 liters. Approximately 50% of these spills have been caused by human carelessness. The company will develop and implement a Spill Reduction Training Program that includes preventive and corrective measures. Tecomyl will analyze the feasibility of implementing an automatic cut-off filling system to minimize spills.

As for fire safety, each production line has fire extinguishers and hydrants. All warehouses have smoke detectors. Fire drills are conducted with employees and the local fire department. Tecomyl will conduct a gap analysis of the current fire system against the standards of the NFPA international standard.

Tecomyl's supply chain consists of local and international suppliers. Seventy-eight percent of its raw materials are imported from China, 10% from MERCOSUR, and 8% from India. However, it lacks an ESMS procedure to identify whether there is a risk of child or forced labor in its supply chain. Tecomyl will develop an ESMS procedure to eliminate child labor in the supply chain using the IFC Good Practice Note on Addressing Child Labor in the Workplace and Supply Chain.^[1] To the extent that this is commercially feasible, the company will include a clause in its contracts with suppliers requiring them to certify compliance with the ILO and United Nations Conventions listed in PS 2.

4.3 Resource Efficiency and Pollution Prevention

Since 2019, Tecomyl does not purchase, produce, distribute, or market pesticides corresponding to the Extremely Hazardous (Ia) and Highly Hazardous (Ib) classes. Tecomyl will identify ways to promote the use of Integrated Pest and Disease Management (IPDM) among its clients. The IPDM programs will include cultural practices of crop management, insect/disease monitoring, pest/disease ecology, biological pesticides, biological control, and other control components and will fully incorporate IPDM procedures into the ESMS manual. Every year, the company will inform IDB Invest of the number of clients that implement the IPDM.

Tecomyl's main power supply source is the public mains. In 2018, the company's energy consumption was 2,050.61 MWh/year. The company uses an ENGECASS steam boiler as part of its industrial processes, which since 2018 has been fueled by briquettes recycled from wooden pallets. The 2019 carbon monoxide emissions from this boiler were 757 mg/m³, which exceed the quality standards of Paraguay's Resolution No. 259/15. Tecomyl is proposing actions to improve its emissions management and monitoring and will submit to IDB Invest an implementation plan and timeline to achieve compliance.

Tecomyl measures air quality (at two points) and emissions (at four points) on an annual basis,

following some of the parameters required by the IFC Industry Guidelines. Tecnomyl shall comply with the emission parameters of these guidelines (Emissions: Total Particulate Matter, Total Organic Carbon, Volatile Organic Compounds, Chloride, Bromines, Cyanides, Fluorine, Hydrogen Sulfide, Chlorine, Ammonia, Gaseous Inorganic Chlorine Compounds [HCl]; Air Quality: Sulfur Dioxide, Nitrogen Dioxide, PM10, PM2.5, Ozone), including Carbon Monoxide, in addition to measuring its contribution to Greenhouse Gases (GHG) as part of its Overall Air Emissions and Air Quality Management Procedure. As part of its GHG calculation, Tecnomyl will include those generated by transport, since at present it only considers plant emissions.

Tecomyl has a list of cooling equipment used in the plant that regulates the purchase of such equipment. However, some items of equipment purchased prior to 2008 use refrigerant type R22, classified as an ozone-depleting substance (ODS). Tecnomyl will develop and implement a Gradual Reduction and Replacement Program, to be approved by IDB Invest, to eliminate refrigerants that are not authorized by the Montreal protocol.

Process water, supplied by the Avay Industrial Park and taken from the Paraguay River, is treated at the Industrial Park treatment plant and subsequently at the Tecnomyl Industrial Process Wastewater Treatment Plant. Between 2017 and 2018, there has been an approximately 20% reduction in consumption in the formulation lines and administrative buildings. Water for human consumption is taken from the Villeta aqueduct and then purified with carbon and ozone filters, and subsequently bottled and distributed to the staff.

Industrial process wastewater and sanitary sewage are treated in the WWTP through physical and chemical methods and then discharged into communal pipelines that run from the Industrial Park to the Paraguay River. The effluents are sent to a round pool with four quadrants, where they are separated by COD concentration (ppm): Quadrant 1 (COD between 5001-25000) - solid and liquid production effluents; Quadrant 3 (COD between 1001-5000) - production and CCA-IDE laboratory effluents; SWTP (recycling line, drum washing); Quadrant 4 (COD between 151-1000) - mainly wash water and sewage. Quadrant 2 is no longer used, as it was reserved for synthesis processes. For industrial wastewater treatment it has two 736-m³ ponds, each intended to receive effluents and temporarily store the treated effluent. There are three 5,000-liter physicochemical treatment ponds, one for decantation, another for recirculating activated-carbon-filtered effluents, and the third for depositing sludge (treated by two press filters). The effluent is filtered using 230-liter activated carbon filters and two equalizer ponds. Since 2018 (prior to this, septic ponds were used), sewage is treated independently of industrial process wastewater, but they are discharged jointly to the Paraguay River. As of 2019, sewage is no longer treated independently of industrial process wastewater, but is incorporated into process batches where it is mixed with raw industrial process wastewater, laundry effluent, and sewage. As of 2019, sewage enters directly into Quadrant 4, where it is mixed with the laundry effluent, which has similar characteristics (COD concentration). There is a closed effluent collector tank for sewage treatment; the effluent is filtered through a basket-type filter and then it flows into a tank in which, through recirculation, it is oxidized by ozone. Discharges are made in 60 m³ batches and only after measuring pH, COD, fats, oils, total phosphorus, total nitrogen, and sedimented solids, as required by the MADES (Resolution 222/02). The effluent plant was built in 2005, with an original and current capacity of 1000 l/hour. The plant has not undergone design modifications. Tecnomyl opted to improve its effluent treatment processes and reduce effluent generation by sectors rather than increase plant's load capacity. Tecnomyl has hired a Brazilian consulting company to assess its WWTP and implement improvements. The company will share this report with IDB Invest.

Since the Paraguay River is an international body of water of biological and ecosystemic importance, Tecnomyl will evaluate the water quality of its effluents by measuring all the parameters identified in the World Bank's General Environmental, Health, and Safety Guidelines for the manufacture,

formulation and packaging of pesticides. It will analyze the quality characterization of Tecnomyl effluents, including toxicity bioassays for fish, daphnia, algae, and bacteria. Although Tecnomyl checks the quality of the treated effluent and compares it with local regulatory standards, it will also compare it with the IFC Industry Guidelines (Table 2) and any applicable World Bank EHS guidelines (e.g. coliforms). It will identify existing gaps and develop a plan for implementing the modifications required to comply with the national regulatory threshold limits and the IFC Industry and WBG EHS Guidelines. This plan will be submitted to IDB Invest for its approval; it will include explicit actions and an implementation timeline.

Tecomyl promotes the Empty Agrochemical Packaging Management System, which is responsible for the collection, transport, and final disposal of these containers as part of its products' "life cycle" approach. Tecnomyl processes these waste and its own in its Solid Waste Treatment Plant (SWTP). Part of the treatment consists of a recycling section for empty containers, where recycled plastic materials are made into pellets. Tecnomyl delivers the recycled plastic pellets to the packaging supplier.

Given that the incinerator is no longer used, the company will update the Solid and Semisolid Waste Management and Characterization Procedure to reflect the current procedures, which consist of the collection and final disposal of hazardous waste by a company authorized by the Ministry of Environment and Sustainable Development (MADES, for its acronym in Spanish) and the Ministry of Public Health and Social Welfare.

4.4 Community Health, Safety and Security

Tecomyl's community relations are limited to its Corporate Social Responsibility Program. There is no disclosure of the environmental and social risk of the Tecnomyl plant operations or of its operations compared to the other companies in the Industrial Park. The community's requests for information on the impact of Tecnomyl's operations on air quality have been channeled through the municipality of Villeta. Although they were immediately addressed by Tecnomyl staff, it is clear that Tecnomyl needs to strengthen its communication with external stakeholders regarding its operations and risks.

Tecomyl has outsourced security personnel, some of whom are armed (during the night shifts), and it has closed circuit cameras that are monitored 24/7. Tecnomyl is also covered by the Avay Industrial Park security service, which includes armed personnel beyond the company's control. Tecnomyl will include operating procedures in its ESMS to manage the security forces it employs, in keeping with the requirements of PS 4 described in paragraphs 12 to 14.

5. Local Access of Project Documentation

Tecomyl: <https://www.tecnomyl.com.py/>

6. Environmental and Social Action Plan (Please see attached document).

CONTACT INFORMATION

For project inquiries, including environmental and social questions related to an IDB Invest transaction please contact Miguel Echaury, Industrial Manager contacto@tecnomyl.com.py, + (595) 981 221002), or IDB Invest using the email requestinformation@idbinvest.org. As a last resort, affected communities have access to the IDB Invest Independent Consultation and Investigation

Mechanism by writing to mecanismo@iadb.org or MICI@iadb.org, or calling +1(202) 623-3952.

[1] https://www.scribd.com/fullscreen/16907677?access_key=key-2dwgp9twnmluud0q7j4k