

**BR-L1040 - CEMAT INVESTMENT PROGRAM
BRAZIL**

ENVIRONMENTAL AND SOCIAL STRATEGY ⁽¹⁾

I. PROJECT AND COMPANY OVERVIEW

A. CEMAT and Investment Program

- 1.1 CEMAT was created, in August 1956 and privatized in December 1997, to distribute electricity in its service area, which comprises the entire State of Mato Grosso in Brazil's Central-West Region (see **Figure 1**). This state, which is the third largest in the country, presents an area of around 906,807 km² and population of almost 2.75 million inhabitants (79 percent of the population lives in urban areas). The Company's activities comprise electricity distribution and generation. Presently, with a workforce of about 1,754 employees, the Company provides service to the 140 municipalities in the state, servicing approximately 750,000 consumer units, and distributing around 3,885-GWh per year. Of the energy provided by CEMAT, approximately 29,08 percent is used by residential consumers, 20,76 percent commercial, 27,99 percent industrial, and others (government, municipalities, street lighting, etc.) make up 22,17 percent.
- 1.2 CEMAT's electricity generation park is composed of hydroelectric and thermoelectric plants, but only less than 10 percent of the energy distributed comes from its generating units (the remaining is provided through the interconnected system and independent generators). Currently, CEMAT's hydroelectric generation park comprises 12 plants (the *Casca III* hydropower project with 12-MW, and 11 small hydro developments with capacities ranging from 0.4 to 8 MW) totaling 54.9-MW of installed capacity. The thermoelectric generation park is made up of 32 diesel plants (with capacities ranging from 0.4 to 14 MW) amounting to a total capacity of 92.1 MW. The majority of CEMAT's (70,000) transformers and generation plants are in rural areas in the State of Mato Grosso.
- 1.3 It should be pointed out, however, that following ANEEL's deverticalization regulatory requirements CEMAT will have to forgo most of its generating capacity. Furthermore, the Company expansion program calls for replacement of thermoelectric generated energy through the expansion of the interconnected system.
- 1.4 The existing CEMAT electric energy network comprises approximately: (i) 8,200 km of 69-138 kV distribution lines, 36,000 km of 13,8-34,5 kV, and 8,700 km of 127-380 kV; and (ii) 93 substations.
- 1.5 To increase service coverage and quality under its Concession contract, CEMAT has developed an Investment Program, part of which (the 2005-2007 component) is under analysis for support by IDB. CEMAT's Investment Program is comprised of the

⁽¹⁾ This Environmental and Social Strategy (ESS) is being made available to the public in accordance with the Bank's Policy on Disclosure of Information. The ESS has been prepared based primarily upon information provided by the project sponsors and does not represent either the Bank's approval of the project or verification of the ESS's completeness or accuracy. The Bank, as part of its due diligence on the feasibility of the project, will assess the environmental and social aspects. This assessment will be presented in the project Environmental and Social Management Report, prepared by the Bank, and will be made available to public prior to consideration of the project by the Bank's Board of Executive Directors.

following components: (i) high-voltage distribution expansion; (ii) rural electrification expansion (in association with the “Light for All” – *Luz para Todos* - program); (iii) urban electrification expansion; (iv) renovation of distribution lines; and (v) distribution system quality improvement. The majority of this investment (*i.e.* approx. 89 percent of the total) will be directed toward increasing energy distribution capabilities through the first three components that involve network expansion.

- 1.6 As indicated in Section III of this document, given the nature and characteristics of the main components, the majority of the projects and actions involved in CEMAT’s proposed 2005-2007 Investment Program are not likely to generate environmental and social impacts of significant magnitude and importance. Essentially, potential negative environmental and social impacts and risks are likely to be associated with the first two components, *i.e.* with the high-voltage distribution expansion and the rural electrification project.
- 1.7 The expansion and renovation of energy distribution network components of CEMAT’s 2005-2007 Investment Program will require essentially: (i) high-voltage distribution expansion: construction of 1,146-km of high-voltage distribution lines at 138 kV tension, 1,142-km at 34.5 kV, and 31 energy substations in the tension classes of 138 kV, 34.5 kV, 13.8 kV; (ii) rural electrification expansion: construction of 34,000-km of distribution networks at 34.5 kV tension, and installing 36,000 rural distribution transformers; (iii) urban electrification expansion: construction of 2,251 km of low tension networks at 127/220 volts, and installing 2,250 urban distribution transformers; and (iv) renovation of distribution lines: renovation and maintenance of 33,093 km of the CEMAT’s 13.8 kV and 34.5 kV tension distribution. These projects will be implemented in different regions of the State of Mato Grosso, embracing areas that have urban, suburban and rural characteristics.

B. CEMAT’s Environmental, Social, Health and Safety Management

- 1.8 In terms of environmental, social, health and safety management tools, the Company has: (i) an Environmental Policy and a Health and Safety Policy; (ii) an Environmental Unit and a Health and Safety Unit in its organizational structure, both staffed with full-time specialists to coordinate all respective activities in relation to the Company as well as to the respective competent authorities; and (iii) specific procedures and standards to address environmental and social issues, or health and safety aspects. Furthermore, CEMAT has initiated the development of an Environmental Management System within the Company that is compatible with the principles of ISO 14001.
- 1.9 Relative to new energy distribution lines and respective substations, CEMAT takes into consideration environmental criteria to guide the selection of alignments and sites, and try to avoid, as much as possible, affecting sensitive areas, such as conservation and indigenous areas, as well as housing, commercial and industrial areas; therefore, by adopting these criteria, the Company prevents many indigenous and resettlement issues. Furthermore, in projects involving sensitive areas, CEMAT has a proactive attitude and carries preliminary discussions with environmental, indigenous, cultural heritage authorities, as applicable, to define the criteria and specifications to be adopted in developing the necessary studies.

- 1.10 The Company has as well environmental, social, health and safety procedures that apply specifically to its contractors, including some to assess, monitor and follow-up their compliance status (*e.g.*, through periodic audits).
- 1.11 CEMAT has also in its structure a Social Communication Unit that help the Company promote disclosure of relevant information and organize public consultations and hearings. The Company adopts a proactive attitude in terms of providing prior information about upcoming projects to potentially affected communities, and had performed in the past public consultations and hearings independent of regulatory requirements.
- 1.12 Whenever necessary the Company hires consultants and specialists to perform specific studies in relation to environmental and social issues (*e.g.*, anthropologist to properly address indigenous communities concerns, archeologists, biologists, etc.), or establishes agreements with state universities and research institutes to carry out specialized studies, perform environmental and social monitoring activities, or help develop and implement environmental education actions internally or externally within the community.
- 1.13 It should also be pointed out that CEMAT adopts an Ethics Code and specific hiring standards to prevent discriminatory labor practices and foster integration of women, young adults and handicapped workers.

II. ENVIRONMENTAL AND SOCIAL COMPLIANCE STATUS

- 2.1 According to Brazilian federal environmental laws, the presentation of an Environmental Impact Study (“EIS”) within a formal Environmental Impact Assessment (“EIA”) process is mandatory in licensing new transmission lines carrying electricity above 230 kV, which is not the case for the CEMAT’s projects included in the Investment Program under consideration by IDB (voltages from 34.5 to 138 kV). Nevertheless, in some particular instances, for example when conservation or other sensitive areas may be at risk of being adversely affected, the environmental licensing authority may request submission of an EIS, even in cases where transmission lines carrying electricity at less than 230-kV are involved.
- 2.2 The principal environmental licensing authority in the State of Mato Grosso is the State Environmental Foundation (*Fundação Estadual do Meio Ambiente – FEMA*). Projects that are not usually associated with significant environmental impacts, such as electric distribution lines involving voltages lower than 138-kV do not require an environmental license and need only be registered at FEMA, and obtain the necessary vegetation clearing permit, if this is the case. Otherwise, distribution lines involving voltages of 138 kV and above need to be licensed, usually based on a Simplified Environmental Impact Study - SEIS (*Relatório Ambiental Simplificado - RAS*); an EIS will be required when the line is supposed involve voltage above 230 kV, or interfere with indigenous areas, conservation areas, or other area of environmental interest. Three types of environmental licenses are foreseen at the state level: (i) Preliminary License (at site location analysis stage); (ii) Installation License (to initiate construction); (iii) Operating License (authorizing operation of the facility). The environmental licensing system in Mato Grosso establishes the need for public consultation and hearings in some instances.

- 2.3 According to the information available, CEMAT is currently in compliance with the applicable environmental legislation. The works involved in the Investment Program are presently at different stages of their planning, implementation, and license procedures. Of the projects that are at advanced stages, ten (five high-voltage line segments, and five substations) underwent licensing procedures based on the presentation of SEIS. The license requirements may include, as applicable, measures to control impacts on native vegetation and on nesting and breeding areas, creation of native vegetation nurseries and reforestation measures, and development and implementation of environmental education programs for workers.
- 2.4 For the remaining projects included in the investment program, the Company will adopt its established environmental licensing procedures and perform the necessary environmental impact assessment studies required by the authorities, as have been done in the past to obtain the required licenses.
- 2.5 Relative to licensing of existing facilities and operations, following the privatization CEMAT established with the competent authorities licensing procedures involving requirements and specific conditions to be met by the Company. Presently, according to the available information, all requirements and conditions have been met, except in the case of two installations that require more extensive engineering works which are presently at the planning stage.

III. POTENTIAL IMPACTS, RISKS AND CONTROL MEASURES

- 3.1. The majority of the works included in CEMAT's Investment Program will involve the installation of new aerial or underground electric energy distribution cables and other associated equipment in areas of consolidated urban and suburban use, in great part, through established rights-of-way, existing corridors, or areas with substantially completed infrastructure, or the installation of towers and high-voltage distribution lines in rural areas. However, significant environmental and social impacts are not anticipated as the new and upgraded infrastructure does not involve large construction works and is not expected to require resettlement, or produce significant adverse impacts on indigenous communities or natural habitats. Furthermore, the Company adopts control measures during planning and design phases to prevent significant interference with any sensitive area. Nevertheless, if the studies to be carried out indicate the potential for significant impacts on sensitive communities and areas, CEMAT will integrate the appropriate control measures proposed in the studies and/or recommended by competent authorities.
- 3.2 In great part, the potential negative impacts during construction will be related, in the cases involving underground energy distribution works to dust and noise emissions and traffic disruption, or reduced access to local residents, along the excavated trenches. It should be pointed out that CEMAT adopts underground cables and equipment sometimes to avoid visual impacts in areas of historic importance. Disruption of services can also be a possibility, in some cases involving both aerial and underground cable installation. However, these impacts usually occur on a limited scale, are temporary, and can be mitigated with standard construction environmental management procedures and by implementing the specific procedures the Company has to control impacts and risks during construction activities. Potential health and safety risks will be associated with

possible accidents involving worker contact with energized lines, fall from high places during aerial cable installation, or minor accidents involving falls and cave-ins during trenching and excavation. These impacts and risks can be prevented and/or mitigated by adopting basic precautions and standard procedures, as established in Company's health and safety procedures and plans.

- 3.3 Relative to new high-voltage distribution lines and respective substations, CEMAT takes also into consideration environmental criteria to guide the selection of alignments and sites, and try to avoid, as much as possible, affecting sensitive areas, such as conservation and indigenous areas, as well as housing, commercial and industrial areas, even though this may implicate in longer line segments to circumvent sensitive areas. The State of Mato Grosso presents various indigenous and conservation areas; therefore, by adopting these criteria, the Company prevents many indigenous and resettlement issues. In projects that may interfere with sensitive areas, CEMAT has a proactive attitude and carries preliminary discussions with environmental, indigenous, cultural heritage authorities, as applicable, to define the criteria and specifications to be adopted in developing the necessary studies. Furthermore, whenever necessary the Company hires consultants and specialists to perform specific studies in relation to environmental and social issues (*e.g.*, anthropologist to properly address indigenous communities concerns, archeologists, biologists, etc.)
- 3.4 In some instances it is not possible to avoid interferences and the high-voltage distribution line must pass through rural areas of agricultural use; in these cases, considering the relatively narrow width of the right-of-way (around 15 to 20 m), typically an agreement is established with the property owner, and if cultured land is affected, an indemnity is provided to compensate for the restricted use of the affected narrow band of land corresponding to the right-of-way, or in other cases where agriculture patches presenting some types of permanent culture may be affected, the Company may opt for not suppressing the vegetation at that particular segment to preserve as much as possible the cultured land. IDB participation will ensure that, if required, the compensation measures will be in compliance with applicable Bank policies.
- 3.5 Other relevant potential negative impacts associated with the construction of new high-voltage distribution lines and substations are: (i) vegetation loss and soil erosion; (ii) disturbance to fauna habitats; (iii) dust and noise emissions; (iv) increased concentration of suspended solids in nearby body of waters; and (v) visual impacts, particularly on urban areas of historic importance. Some of these impacts usually occur on a limited scale, are temporary and can be mitigated with the standard construction environmental management procedures established by the Company and/or by environmental authorities (*e.g.*, see paragraph 2.3). Others, like adopting underground cables and equipment can mitigate the visual impacts on historic sites, as is performed by CEMAT in such situations.
- 3.6 Concerning possible negative environmental and social impacts associated with work camps, sites and presence of workers, no significant impacts are expected as the works, which individually will be of limited magnitude, dispersed in time and space throughout the state, will not require concentration of workers, and crews will be usually composed of a limited number of workers.

- 3.7 No significant negative environmental, social, health and safety impacts and risks are expected in association with maintenance and operation of the facilities involved in the Investment Program. CEMAT no longer acquires equipment that contains PCBs and adopts specific procedures for adequate removal and disposal of solid wastes generated at their facilities and buildings (e.g., used batteries, fluorescent lights, etc.). Furthermore, noise emitted by some substation equipment is typically perceived only at short distances from the source; thus, proper siting of these facilities and isolation of the source, if applicable, will adequately attenuate noise impacts. To reduce risks of accidents with power lines, the Company conducts periodical trimming of trees and suppression of vegetation in the right-of-way, and these activities are performed adopting appropriate procedures established by the Company, applicable also to contractors, and taking into account the safeguards included in the authorizations granted by the environmental authorities. Another possibility, particular in urban areas, is the risk of electric shock to members of the community by inadvertent or accidental contacts with the energized network (by negligence or misinformation about the risk); to prevent these situations the Company carries out various educational and safety awareness programs throughout the served communities.
- 3.8 Another type of potential negative environmental impact associated with electric energy networks located in rural areas is the possibility of electrocution of animals, particularly birds that enter in contact with the energized lines. CEMAT has experience in addressing this issue and developed and implemented, with the collaboration of the University (*Fundação Universidade Federal do Mato Grosso – FUFMT*), a successful program to monitor and mitigate this type of accidents called the *Tuiuiu* Project (the *tuiuiu* is the largest flying bird in Brazil, with a wing span of almost 2.2 meters). The program resulted in new technical standards and specifications calling for the use of shielded cables and/or increase in the space between cables in line segments crossing critical areas.
- 3.9 Relative to possible health effects associated with electromagnetic fields generated at high-voltage distribution lines, the current body of evidence from the international scientific community suggests that distribution lines operating at voltages such as those in the case of CEMAT (up to 138 kV) do not present a human health hazard. Nevertheless, CEMAT adopts the technical standards and regulations established by the Regulatory Authority (National Electric Energy Agency, or *Agência Nacional de Energia Elétrica – ANEEL*), which are consistent with the international standards and based on precautionary principles.
- 3.10 In regard to possible environmental, social, health and safety liabilities associated with CEMAT's existing facilities and operations, it should be pointed out that the Company concluded deactivation of all equipment containing PCBs, and sent them for proper incineration at a licensed facility run by specialized company. The Company performed also a diagnostic of existing facilities, particularly the thermoelectric generating units, to identify situations that could potentially represent significant environmental liability, and is presently addressing the main issues raised. Possible environmental and social liabilities need to be evaluated in association with remaining small hydroelectric power developments and with possible illegal settlement (encroachment) within the right-of-way of existing distribution lines. In addition, evaluation of possible existing environmental, social, and health and safety liabilities at Company level may also be required to fully assess associated risks.

IV. POSITIVE IMPACTS AND OTHER ISSUES

- 4.1 Electric energy is fundamental for economic and social development, and human well-being. Distribution companies, such as CEMAT, provide energy to residential areas, community services (e.g., hospitals, schools, sports facilities, community centers), as well as to commercial and industrial establishments. Therefore, the projects included in the Investment Program have the potential to benefit several areas and communities throughout the State of Mato Grosso, by providing electricity to areas that did not have it before, and increasing service quality and reliability throughout the system. These improvements may induce significant beneficial impacts on economic and social conditions of the served communities.
- 4.2 The principal positive environmental and social impacts associated with CEMAT's Investment Program include: (i) increased availability of reliable energy in urban and rural areas; (ii) stimulation of economic activities in the newly served areas; (iii) enhanced environmental and health and safety practices; (iv) decreased safety risks related to inappropriate electricity connections; and (v) reduced emissions and discharges of contaminants related to discontinuing electricity generation from thermal and diesel plants and reducing 39.9 million liters of diesel usage per year, while directly servicing 82,500 customers.
- 4.3 It should also be pointed out that CEMAT develops several initiatives and promotes various programs to improve relationship with customers and integration in the served communities. The Company established and implements the following most relevant programs and actions: (i) a Social Responsibility Program for the Company; (ii) Environmental Education Programs for communities; (iii) Ecological Stations Program with University, private sector and community; (iv) Energy Efficiency Program to improve energy use and reduce waste; and (v) several social partnerships with local community and state institutions.

V. ENVIRONMENTAL AND SOCIAL STRATEGY

- 5.1 As the Investment Program involves various projects, presenting distinct magnitude and at different stages of development, IDB will require the Company to present an Environmental Analysis Report covering all projects included in the Investment Program as well as relevant existing facilities, to address potential impacts, risks and any significant pending liability. This report will be disclosed to the public in accordance with IDB's operational policy OP-102 – Disclosure of Information.
- 5.2 The Project Team, with the assistance of an independent environmental and social consultant, will perform an environmental and social due diligence in order to confirm that all Project impacts and risks have been, or will be properly and adequately evaluated and mitigated. The environmental and social due diligence will specifically assess the following aspects:
 - (a) An assessment of Project and Company existing operations and facilities compliance status with national, State of Mato Grosso, and municipal environmental, social,

- health, safety and labor regulatory requirements (*e.g.*, laws, regulations, standards, permits, authorizations, applicable international treaties/conventions, etc.), project specific legal requirements, and any applicable IDB environmental and social policy or guideline.
- (b) An evaluation of the available environmental impact assessment reports related to the Investment Program projects to assess the appropriateness of the identification and evaluation of relevant direct and indirect environmental and social impacts and risks, and the adequacy of the definition of mitigation and monitoring measures, in terms of their completeness, sufficiency of detail, implementation, cost, definition of responsibility, schedule, and quality control.
 - (c) An evaluation of Project-related information disclosure and public consultation activities that have been performed, and the proposed future actions, to provide adequate ongoing information disclosure and public consultation with the local population.
 - (d) An evaluation to assess if the proposed Project direct and indirect environmental, social, health and safety potential impacts and risks have been properly identified and evaluated, including those referred to in Section III of this document, and if adequate control measures have been introduced.
 - (e) An evaluation of the Company's Environmental, Health and Safety Management System, including plans (Environmental and Social Management Plan, Health and Safety Plan, Contingency Plan, Spill Prevention and Counter Control Plan, etc.) and procedures, to assess their adequacy including in terms of responsibilities, training, auditing, reporting, and resources to be made available to ensure adequate implementation, and specifically all the system components necessary to ensure that projects and works which will be implemented will not generate significant negative impacts.
 - (f) An evaluation of potential existing and future environmental, social, health, safety and labor risks and liabilities associated with Project sites and Company's existing facilities and operations.
 - (g) An evaluation to confirm that an acceptable Action Plan is in place, as necessary, in order to correct or mitigate the existing environmental, social, health and safety non-compliances and/or liabilities associated with the Company's existing facilities and operations.
- 5.3 Furthermore, the Bank, as part of the due diligence process, will analyze the environmental and social aspects of the Project and establish the appropriate environmental, social, health, safety, and labor requirements in the Loan Proposal for review and approval by the Bank's Committee on Environment and Social Impacts (CESI).

FIGURE 1
PROJECT LOCATION MAP

State of Mato Grosso
BRAZIL

