INTER-AMERICAN DEVELOPMENT BANK

BOLIVIAN TRANSMISSION LINES PROJECT
Interconexión Eléctrica ISA Bolivia S.A. (ISA Bolivia)

(B0-L1002)

ENVIRONMENTAL AND SOCIAL MANAGEMENT REPORT

(ESMR)

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I. INTRODUCTION

1.1. In Bolivia, only approximately 64% of the population has access to electricity, with a significant lower coverage of 24% in rural areas. With an estimated 5 to 6% annual demand growth rate increase, significant investments in the sector are crucial to the country's development.

1.2. The Government of Bolivia ("GOB") in 1993 launched a reform to promote private investments in the Bolivian Electric Sector. The reform aimed to modernize the sector and transfer production, transmission, distribution, and commercial responsibilities to the private sector, thereby allowing the GOB to focus on regulatory and supervisory functions.

1.3. The Superintendency of Electricity, on behalf of the GOB, completed an international bidding process to build and operate three 230 kV transmission lines and associated substations ("the Project") to satisfy current and projected electricity demand of central Bolivia, and provide better quality and reliability of service to the Departments of Santa Cruz, Cochabamba, Chuquisaca, and Potosí. The license for the Project was awarded on June 27, 2003 to ISA Bolivia ("the Licensee"), for a period of 30 years from the date the transmission lines enter into commercial operation. Pursuant to the License, construction of the Project must be concluded by August 29, 2005.

1.4. ISA Bolivia is a special purpose company organized under the laws of Bolivia. The sponsors are Interconexión Eléctrica S.A. (ISA) and its affiliates *Transelca S.A. E.S.P.* and *Internexa S.A. E.S.P*. The three companies are majority owned by *Grupo Empresarial ISA* of Colombia. On September 2003, ISA Bolivia entered two engineering, procurement, and construction contracts (the "EPC Contracts"): (a) one with the Bolivian Consortium, made up of Alstom T&D S.A., *Eléctricas de Medellín Ltda*. and Ingelec S.A., for the design, supply, construction, assembly, commissioning and delivery in operation of the transmission lines, and (b) another one with Siemens S.A. for the design, supply, construction, assembly, testing, commissioning and subsequent delivery in operation of the substations that are part of the Project, as well as for technology transfer and personnel training.

1.5. Total Project costs are estimated at approximately US$79 millions. ISA Bolivia is seeking financing of approximately US$54 million for the construction of three transmission lines and respective substations, of which the IDB would provide up to US$31.5 million.

II. PROJECT DESCRIPTION

2.1. This Project consists of the construction and operation of three high voltage 230 kV transmission lines covering the sections between (i) Urubó-Carrasco, (ii) Santivañez-Sucre, and (iii) Sucre-Punutuma. (See Figure 2.1 for ISA Bolivia lines and existing 230 kV, 115kV and 63 kV lines) and five associated substations: Urubó, Carrasco, Santivañez, Sucre, and Punutuma.

2.1.1. The section between Urubó-Carrasco is approximately 161 kms long, and includes the construction of a new substation in Urubó (in the outskirts of the City of Santa Cruz) and the capacity increase of an existing substation in Carrasco, now being managed by *Transportadora de Electricidad, S.A.* (TDE). Eléctricas de Medellín will build this line.

2.1.2. The section between Santivañez-Sucre is approximately 248 kms long, and includes the construction of two substations, one in Santivañez and another one in the outskirts of the city of Sucre. Alstom will build this line.

2.1.3. The section between Sucre-Punutuma is approximately 175 kms long, and includes the construction of one new substation in Punutuma, next to an existing substation managed by TDE. Ingelec will build this line.

2.2. The expected activities during construction are: (See Table 2.1 for details)

2.2.1. Site clearance: associated to (i) 35-meter-wide right-of-way (ROW), (ii) substations, (iii) three equipment storage facilities, and (iv) access roads.

2.2.2. Transportation of materials and personnel from storage facilities to tower sites.

2.2.3. Construction of towers and installation of cables.

2.2.4. Constructions of substations.

2.3. There will be no worker housing camps used. The majority of un-specialized labor will be hired locally, and outside workers will be lodged in existing facilities in near-by towns and cities.

2.4. The three lines as well as the substations will be build simultaneously. The total number of employees for the construction is estimated to be 824. The substations will use approximately 200 construction workers.

2.5. During operations the number of permanent employees is expected to be 16, associated essentially to the sub-stations and maintenance and administrative activities.

2.6. Construction started on May 7th, April 28th, and April 18th for the lines of Urubó-Carrasco, Santivañez-Sucre, and Sucre-Punutuma, respectively, and it is expected to last a total of 11 months. No construction work had started in any of the substations by June 2004.

III. LEGAL AND INSTITUTIONAL FRAMEWORK[1]

3.1. In Bolivia, environmental matters are coordinated by the Vice-Ministry of Environment and Natural Resources (VMENR), which administers the National System of Environmental

[1] This section is not intended to be an exhaustive account of the institutional and legal framework of Bolivia, but only a very succinct summary of the main institutions and regulations associated with the environmental, social, health and safety, and labor aspects of this Project.

Impact Assessment, and supervises and approves the decisions of Sector Environmental Units. This Vice-Ministry depends on the Ministry of Sustainable Development..

3.2. According to the National System of Environmental Impact Assessment, prior to construction every private or public project must present to the competent environmental authority an Environmental Statement (*Ficha Ambiental*), which allows project categorization according to the following four levels: (i) Category I: Full Environmental Impact Assessment (EIA), (ii) Category II: Specific EIA, (iii) Category III: No Specific EIA but may require a conceptual environmental review, and (iv) Category IV: No EIA or Environmental review required. Additionally, according to the Bolivian Environmental Law, prior to final approval EIAs must include alternative analysis and must be disclosed to and discussed with affected communities.

3.3. Sector environmental units, in coordination with the VMENR, are responsible for project supervision and monitoring.

3.4. For this Project, the Environmental Unit of the Vice-Minister of Electricity and Alternative Energies was the organization in charge of environmental categorization, preliminary review and approval of the Environmental Impact Assessments (EIAs), and project monitoring and supervision. The Environmental Authority classified the three transmission lines as Category II, thus requiring Specific EIAs with the corresponding Environmental Management Plans, Community Relations Plans, and Monitoring Plans

3.5. The EIAs for all three transmission lines and corresponding substations were prepared by the ISA Bolivia and ultimately approved by the VMENR on February 6th, 2004 via *Declaratorias de Impacto Ambiental* (DIAs) N^{o} 1955/04, 1956/04, and 1957/04 for the Transmission Lines Sucre-Punutuma and the substations Sucre and Punutuma, Carrasco-Urubó and the substations Carrasco and Urubó, and Santivañez-Sucre with the Santivañez substation. Prior to final approval, the EIAs were disclosed to and discussed with affected communities between the 12th and the 26th of September 2003. As a result of these meetings the sitting of the Urubó substation was modified due to urban development concerns manifested by the communities and authorities of the Porongo Municipality.

3.6. In accordance with the Bolivian Environmental Law, the EIAs included project alternative analysis. With the exception mentioned above for the Urubó substation, all three projects were maintained as originally proposed in the bidding process, as the best technical, environmental, and social alternative. As the detailed engineering advances, minor changes to the original project are continuously made, specially associated with individual towers location, to minimize specific impacts and avoid conflicts with environmental sensitive areas, or with specific properties or communities.

3.7. Complementary to the DIAs, this Project is also regulated by three additional legally binding documents/contracts: (i) the concession agreement or License of August 29, 2003 between the granting authority and ISA Bolivia, (ii) the construction contract between ISA Bolivia and the Bolivian Consortium, and (iii) the construction contract between ISA Bolivia and Siemens

IV. ENVIRONMENTAL AND SOCIAL CONDITIONS

4.1 In general, the three transmission lines extend across the valleys of the intermountain region and the high Andean Plateau, which are highly disturbed and intervened agricultural lands. With the exception of the Santa Cruz-Caranda portion of the Carrasco –Urubó line

(approximately 50 kilometers) and the initial section of the Santivañez-Sucre line (approximately 20 kilometers), these three lines will run parallel to existing paved roads and/or existing transmission lines.

4.2 The environmental conditions of the three lines are as diverse as the central region of Bolivia, ranging from the highly developed fertile agricultural low lands of Santa Cruz and Cochabamba, to more remote and fragile environments of the Bolivian alti-plano of Potosí and Chuquisaca. The Carrasco–Urubó section is characterized by extensive cattle ranches and cultivated fields (e.g. rice, yucca, potato, etc) with some patches of secondary forest and brushes. The Sucre-Punutuma and Santibañez-Sucre lines run across highly disrupted alti-plano desert (e.g. human settlements and mining activities) with scarce patches of *bofedales*[2], mostly in the last section of the Sucre-Punutuma line.

4.3 The lines will cross several rivers. The most important ones are Rio Ichilo, Rio Yapacani, Rio Grande, and Rio Pilcomayo. The latter two rivers are rivers highly dependent on the precipitation and climatic conditions. In general, they all present poor water quality due to uncontrolled mining in the Departments of Potosí and Chuquisaca (Pilcomayo), and extensive agricultural activities in the Departments of Santa Cruz and Cochabamba (Ichilo and Yapacaní).

4.4 Similarly, the social conditions also are diverse ranging from affluent highly populated, ethnically mixed areas associated with large cities and large agricultural fields in the vicinities of Santa Cruz, Cochabamba, and Sucre, to poorer small peasant or native communities typical of the Andean alti-plano, specially in the Departments of Chuquisaca and Potosí.

4.5 In the Urubó-Carrasco section, the line mostly runs across large private agricultural lands (around Santa Cruz) or smaller agricultural plots (around El Chapare), all with clearly defined property rights. In the case of the lines in the sectors of Chuquisaca and Potosí, the lines also run mostly through private properties, but of smaller sizes and often of communal ownership. In these cases property rights are not as clear cut, and oftentimes they overlap among different owners and communities.

4.6 It should be pointed out that the line Urubó-Carrasco is close to the sector of El Chapare, an area dominated by coca-leaf growers (*cocaleros*) and volatile from the social standpoint. The road between Santa Cruz and Carrasco is frequently blocked by the *cocaleros* when there is civil unrest in the Region.

4.7 There is a total of 64 identified archeological sites within the area of direct influence of the line Santibáñez-Sucre, and a total 31 identified archeological sites within the direct area of influence of the line Sucre-Punutuma. The project will directly impact at least 26 of these sites, 13 of which will be totally affected with the construction and sitting of the towers. Furthermore, the final selection of some access roads could increase the number of impacted sites. It is important to point out that all of these archeological sites are areas of small to moderate importance, where findings are mostly limited to surface ceramics and utensils.

[2] Wetlands or peat bogs used by cattle and llama raisers and farmers in the Andean Plateau (altiplano) of Bolivia.

4.8 Additionally, it should be noted that the area surrounding the city of Sucre, contains the largest paleontological site of the world, with over 5,000 impressions linked to over 150 different types of dinosaurs.

V. ENVIRONMENTAL AND SOCIAL IMPACTS

Construction

5.1 The impacts from transmission lines and associated infrastructure are more relevant during the construction phase and more intense within the 35-meter wide immediate influence of the transmission lines' ROW and substations. Since over 80% of the ROW runs parallel to existing roads or existing transmission lines, and ISA Bolivia is not expecting to open a significant amount of new-motor-vehicle accessible service roads, the impacts described bellow are not expected to be of great magnitude and significance.

Environmental

5.2 During construction, the principal environmental direct impacts are those associated with the 35-meter-wide ROW, motor-vehicle-accessible service and access roads, substations and equipment storage site clearance and the associated habitat disruption and impacts on vegetation cover and fauna. Given the three lines are being developed in areas with a long history of human activity and intervention, these impacts are not consider significant. The line Urubó-Carrasco is the only line that would require some degree of vegetation cover clearance; but this clearance will be on secondary degraded brushes of little economic or ecological value, which generally separates larger areas of pasture and cultivated fields. Additionally, the construction of new vehicle-accessible roads will be minimal, and most of the access to construction site will use already existing roads. Most new access to individual towers will be for pedestrian use, and the tower and construction material will be transported on foot.

5.3 Other impacts associated with the construction include potential erosion associated with new access roads, stream sedimentation, and potential contamination of water and soils by construction solid waste and waste water. These impacts are also considered temporary and minor, and can be managed with standard environmentally sound construction practices and adequate environmental management procedures.

5.4 Of special concern from the environmental point of view is the negative impact that the construction of the line Sucre-Punutuma may have in the *bofedales* it intersects, as the construction of the towers and cable installation could significantly and permanently affect the surface water hydrology of these delicate shallow springs, which are the sole source of natural forage and water for many areas of the dry Andean alti-plano.

5.5 Direct or indirect impacts on conservation units are not expected, with the exception of potential visual (landscaping) impacts to the Parque Amboro associated with the Carrasco-Urubó transmission line. This impact is considered incremental and minor, as the Carrasco-Urubó line would be running parallel to an already existing transmission line, that already has a negative visual impact on the views to the Parque Amboro.

5.6 The construction of the Urubó and Punutuma substations, may be affected by the hydro-dynamics of the Piraí River and tributaries of the Yura River, respectively. These two sub-stations have been sited in areas susceptible to flooding from run-off during heavy rain fall, and thus careful and specialize engineering measures must be taken to construct appropriate drainage systems to avoid substation from flooding in the future.

Social

5.7 The most significant potential social impacts are associated with easement of the ROW, and the disruption of any archaeological and paleontological sites that might be encountered during the construction.

5.8 The totality of the ROW is within either private or communal ownership. As of the end of May 2004, the final cadastral census of the properties in the ROW had been completed only for approximately 62% (100 of 161 km), 67% (165 of 248 km), and 26% (45 of 175 km), for the lines of Carrasco-Urubó, Santiváñez-Sucre, and Sucre-Punutuma, respectively. Similarly, as of the same date, formal permissions to work and build (*Actas de Compromiso)* had been signed with 149 of 507, 88 of 729, and 211 of 430 property owners, for the lines Carrasco-Urubó, Santiváñez-Sucre, and Sucre-Punutuma, respectively[3].

5.9 Most of the construction impacts associated with the construction of the three transmission lines is temporary, as it is expected that traditional agricultural and cattle/*llama* pasture use will be resumed after the installation of the lines. The only permanent restrictions will be associated with (i) a few fruit tree plantations within the ROW, and (ii) planting the traditional way of in the areas right under the towers, as the oxen use to plow will not be able to easily circulate under the towers. Additionally, any significant permanent disruption caused in the *bofedales* as a result of the construction of the towers and installation of the cables could reduce their carrying capacity to support cattle and *llama* raised in the area. These shallow spring waters are essential for the subsistence of cattle, pigs, and *llama* raisers and farmers in this area of the alti-plano.

5.10 The most significant social risks associated with the construction are (i) potential road blocks by *cocaleros* in the area of El Chapare, affecting the construction chronogram, and (ii) any potential conflict with the affected land owners either for their disagreement of the treatment and compensation provided, or due to conflicts of unclear land tenure.

5.11 There will not be the need for resettlement associated to the construction of any of the three transmission lines or related infrastructure. Even though inhabitants of the alti-plano can be considered indigenous and mostly quechua speakers, direct or indirect impacts on indigenous territories (*Territorios de Comunidades de Origen - TCO*) are not expected. However, given the ethnicity of the affected population, specially for the lines of Santivañez-Sucre and Sucre-Punutuma, individual and communal negotiations for ROW easement and community

[3] By the time of the publication of this ESMR (end of August, 2004) the status was as follow: the final cadastral census of the properties in the ROW had been completed for the totality of the three lines; *Actas de Compromiso* have been signed with 345 of 507, 650 of 729, and 368 of 430 owners, for the lines of Urubó-Carrasco, Santibáñez-Sucre, and Sucre-Punutuma , respectively; and agreements in the compensation amounts have been reached with 68 % for U-C, 78% for S-S, and 58% for S-P of the owners or community leaders.

projects, must be done in the appropriate language and taking into account cultural dynamics and ethnic differences.

Health and Safety

5.12 Health and Safety risks of construction of these transmission lines are associated with (i) falling from heights, (ii) working in confined spaces, (iii) accidents from the traffic increase due to transportation of construction material in public roads, and (iv) the handling of heavy machinery and equipment. The expected increase in traffic during construction and the type of trucks to be used is not yet clearly identified, but it is estimated that one 3-ton truck could be enough to transport all the material for one tower, and thus project induced traffic should be no more than three to four 3 ton-trucks traveling on public roads every day.

Operation

5.13 No significant environmental, social, or health and safety impacts are expected during operation, as these lines do not cross any highly sensitive ecological or social areas, like those associated with the Bolivian Amazon region or the low lands of the Pantanal.

Environmental

5.14 During operations, the principal impacts are related to (i) limited and selective clearing of vegetation for ROW maintenance, (ii) disturbance due to people and equipment access for maintenance purposes, (iii) small quantities of wastes generated in substations, and (iv) occasional collisions of flying bird with the lines.

5.15 No significant landscape visual impacts are expected as the lines mostly run parallel to existing paved roads or other transmission lines.

5.16 No PCB-containing equipment will used –or is being used- in any of the new or existing substations.

Social

5.17 The main significant social impacts of the operation of this project, are associate with the permanent changes caused by the construction outlined in paragraphs 5.8 and 5.9.

5.18 Additionally, once in operation, other impact of the lines may be associated with electric induction and interference with electronic equipment in households located within or near the ROW, and buzz-like noise typical of electric substations.

5.19 Noise and electromagnetic fields are not a significant issue for lines that operate on 230 kV and under (electromagnetic fields are significant over 500 kV).

5.20 Given the rural setting of these lines and the land tenure associated with it, encroachment along the ROW is not expected.

Health and Safety

5.21 During operation no major health and safety impact and risks are expected other than any accident associated with line maintenance activities (e.g. falling from heights, electrocution, etc.), or accidental spills from transformers and other equipment, or from handling and disposal of acid products and spent batteries associated with the substations.

5.22 For the Carrasco substation, there is an incremental heath and safety risk, since this substation will be located within a facility managed by TDE and not by ISA.

Positive Impacts

5.23 This Project will provide electricity to areas of the country currently under-serviced, satisfying current and projected electricity demand for central Bolivia, and will provide better quality and reliability of service to the Departments of Santa Cruz, Cochabamba, Chuquisaca and Potosí. It is expected that these lines will stimulate local rural electrification and distribution projects.

Induced Impacts

5.24 The ESDD did not identify any significant cumulative impacts associated with the three transmission lines. There is a possible induced or indirect impact (although presently unknown in terms of its significance and magnitude) if in the future a new transmission line is built from Punutuma (end of Sucre-Punutuma line) to other areas in the State of Potosí (approximately 160 km) that could provide power to the proposed San Cristóbal mining project.

VI. ENVIRONMENTAL AND SOCIAL MANAGEMENT

6.1 ISA has a written Corporate Environmental Policy focused on Sustainable Development and Corporate Social Responsibility. This Policy is applied across all of ISA domestic and international operations.

6.2 Through careful environmental and social planning of the route selection and incorporation of environmental standards into project engineering, the majority and most relevant impacts of these transmission lines are being either avoided or significantly reduced. ISA has developed an Environmental and Social Management Plan (ESMP) which includes an Environmental Prevention and Mitigation Program (PPM – *Programa de Prevención y Mitigación*), a Monitoring Program (PASA – *Programa de Aplicación y Seguimiento Ambiental*), a Health and Safety Plan (*Programa de Salud Ocupacional)*, a Contingency Plan (*Plan de Contingencias*), and a Community Relations Program (*Programa de Relacionamiento Comunitario*) for the construction of each transmission line. The standard procedures included in these Plans and Programs are an integral part of the contract between ISA Bolivia and the three companies of the Bolivian Consortium as well as Siemens.

6.3 The Project counts with a total of five professionals with environmental, social, health and safety, and labor responsibilities; ISA Bolivia has two people and each company of the Bolivian Consortium has one. The three environmental/social professionals for the Bolivian Consortium have formed a team that is in continuous communication, and is closely supervised by the core environmental and social team of ISA Bolivia. ISA Colombia is

available with extensive corporate resources ready to provide support to ISA Bolivia's team upon their request.

Construction.

Environmental

6.4 The ESMPs include standard pollution prevention and control measures associate to new access roads, noise mitigation, erosion control, vegetation clearance, and waste disposal. For instance, the ESMPs state that the project must minimize the construction of new access roads, and whenever new roads must be open they must (i) avoid cultivate or productive lands, (ii) be adapted to topography avoiding steep slopes, (iii) have adequate drainage and other erosion control standard measures, and (iv) whenever feasible be for pedestrian use only. Additionally, in those cases where cuts are required in fertile or productive lands, top soil most be set aside for future restoration purposes.

6.5 A special procedure is being developed to avoid going through *bofedales*, and if not feasible to avoid them, to mitigate environmental impacts of working in them, specifically addressing the risks associated with tower construction and posterior line installation in these sensitive areas. This procedure will (i) photographically document the affected area in the *bofedal*, before, during, and after the construction of the towers and the laying down of the cables, (ii) establish top-soil conservation measures for restoration purposes, (iii) prohibit the construction of new access roads are in the *bofedales*, and (iv) assure that all the tower and other construction materials are transported on foot to the site, among other measures.

6.6 Additionally, to avoid the incremental visual impacts to the Parque Amboro mentioned in section 5.5, the Carrasco-Urubó line was moved to run closer to the road instead of parallel to the existing high voltage lines, in response to a request made by neighbors and other stakeholders during the public consultation process. This way the ISA Bolivia transmission line is not in the way of the views of the park, avoiding the aggravation of the negative visual landscaping impact that the existing transmission lines currently have.

6.7 To avoid any flooding risks associated with the Urubó and Punutuma sub-stations, the appropriate drainage and flood-control infrastructure have been designed. Additionally, flooding risks have been considered in the Contingency Plans, and are recognized as one of the potential contingencies that ISA may have to respond to, and therefore emergency response measures have been established.

Social

6.8 The Community Relations Program includes (i) procedures associated with the interaction between ISA Bolivia and the Consortium Companies with affected stakeholders (e.g. municipalities, school, individual owners, peasants, communities, etc.), (ii) mechanisms to properly address community concerns, and (iii) staffing.

6.9 The easement of the ROW is being done according to the a Compensation Program, which has included a widespread consultation process. The compensation provided exceeds Bolivian regulation and is in agreement with best practices (e.g. replacement value, and compensation for future losses associate to crops and other productive activities). In general terms, on

average, individual compensations exceeds approximately ten times the amounts required by the Bolivia legislation.

6.10 Additionally, ISA Bolivia is evaluating compensation criteria and approach that will be fair but differentiated between large land owners which may see a very small section (< 5%) of their land affected by the construction work, versus local peasant or community owners which may see a significant section (> 30%) of their land affected. The latter will receive additional assistance and consideration, to assure that their livelihood will stay equal or is improved.

6.11 As part of the Community Relation Program, ISA has identified community projects in every community within its area of influence. This includes a total of 140 community projects, averaging US$ 2,500 – 3,000 per project.

6.12 To avoid any potential delay in the construction schedule associated with *cocaleros* road blocks in the sector of El Chapare, ISA Bolivia is evaluating the identification of an equipment storage facility alternative to the one in Santa Fé (located between the City of Santa Cruz and San Carlos) that would provide construction supply autonomy of 7 to 10 days.

6.13 Archeological and paleontological prospecting has been performed for the lines of Sucre-Punutuma and Sucre-Saltivañez, and has identified various small sites of small to moderate importance. Per IDB suggestions, ISA also performed archeological prospecting of the Urubó-Carrasco line, but only minor surface pottery and utensil rests were found. All materials found during the prospecting of the three line were properly classified and provided to the Unidad Nacional de Arqueología (UNAR). Appropriate procedures have been agreed with the local authorities of how to handle, rescue, and preserve any archeological or paleontological findings. For example, an archeologist must supervise earth-moving activities performed in sites previously identified as sensitive, and if artifacts are identified then the works must be stopped and reported to the UNAR. In such cases, the UNAR will assign archeologists to supervise the works. None of the potentially affected archeological sites are located in or near an archeological, paleonthological or historic site of tourist value, so no significant visual or landscaping impacts are expected.

Health and Safety

6.14 ISA Bolivia has a Health and Safety Plan that includes specific procedures associated with tower construction, cable installation, vegetation clearing and handling of hazardous materials and wastes. All personnel working for the Bolivian Consortium are trained in these procedures, and safety talks are given at the beginning of each working day.

6.15 Materials transportation will be coordinated not to coincide with school schedules, to avoid the presence of school children in public roads during heavy truck traffic.

Operation

Environmental

6.16 The operation ESMPs will include standard pollution prevention and control measures associate to ROW maintenance and vegetation clearance activities, erosion control, and waste

management. If flying bird collisions become significant, special devices will be placed in the lines, to make the line more visible to avifauna.

Social

6.17 The Compensation Program will include specific measures and additional compensation for those owners that will be permanently affected (e.g. fruit three plantation, oxen plowing, etc).

6.18 Additionally, the Community Information and Participation Program will be maintained through the whole concession time, and ISA Bolivia will assure to develop a long term relationship with the stakeholders (e.g. municipalities, school, individuals, communities, etc.) within its area of influence, and will keep the communication open to receive and respond to their issues, complains, and/or requests. This Program will respond to any complain associated with interference of electric equipment in households in or close to the ROW, due to electric induction.

Health and Safety

6.19 ISA Bolivia has a Health and Safety Plan for operations that includes specific procedures associated with maintenance activities (e.g. working in heights, electricity safe procedures, handling hazardous materials and waste, etc).

6.20 ISA Bolivia will have to coordinate its operational and contingency plans with TDE and Valle Hermoso in the Carrasco substation. Some of these aspects are included in a contract already signed between ISA Bolivia and TDE.

6.21 There is a Contingency Plan geared toward properly responding to any emergency that may rise during operation. Identified contingencies include earthquakes, landslides, floods, fires, vandalism, and sabotage.

Induced Impacts

6.22 ISA Bolivia is not directly responsible for any future development that may be enhanced or made viable thanks to the construction of these lines. However, in the cases that ISA Bolivia is responsible for any of these potential new developments, they will be contractually required to inform the IDB and follow IDB standard environmental, social, and health and safety requirements and best sector practices.

VII. PUBLIC DISCLOSURE AND CONSULTATION

7.1 Prior to their approval, the EIAs for the three lines were disclosed to the affected populations. Between the 12th and the 26th of September, 2003, meetings were held at twelve different locations for the Carrasco-Urubó line, at nine different locations for the Santibáñez-Sucre line, and at five different locations for the Sucre-Punutuma Line. These meetings were performed to comply with the Bolivian environmental law, and were limited in their reach and effectiveness in responding to the affected populations concerns.

7.2 Once the concession was granted, ISA Bolivia developed its Information and Community Relations Program, which has generated the performance of an exhaustive and massive

communication and consultation process. This process took place between the months of November 2003 and April 2004, and involved 37, 54 and 17 meetings with 925, 1060, and 434 people, for the Lines of Carrasco-Urubó, Sucre-Santiváñez, and Sucre-Punutuma, respectively.

7.3 This Program has corrected the shortcomings of the initial public consultation process, and has allowed the stakeholders to clearly identify the liaison or counterpart in ISA Bolivia and the Bolivian Consortium companies, to be able to address any additional concerns, complaints, and/or requests.

VIII. RECOMMENDATIONS

8.1 The Bank will require as part of the Loan Agreement that ISA Bolivia and all portions of the Project shall, at all times during the life of the Loan Agreement, comply with each of the following:

(a) All applicable environmental, social, health and safety, and labor Bolivian regulatory requirements, including all environmental, social, health and safety, and labor requirements of the Project contracts, and any subsequent modification, and all requirements associated with any environmental, health and safety related permits, authorization, or license that apply to the Project or the Company, particularly in connection with VMENR DIAs Nº 1955/04, 1956/04, and 1957/04 (February 6th, 2004).

(b) All aspects and components of the various project-related environmental, social, health and safety, and contingency plans, in particular the ESMPs.

(c) Applicable aspects of the International Finance Corporation Guidelines for Electric Power Transmission and Distribution (1998), including emissions, air quality, and ambient noise standards and waster water discharge limits.

(d) Applicable aspects of the World Bank General Environmental Guidelines (World Bank Pollution Prevention Handbook, July 1, 1998).

(e) Applicable aspects of the World Bank Monitoring Guidelines (World Bank Pollution Prevention Handbook, July 1, 1998).

(f) Applicable aspect of the International Finance Corporation Guidelines for General Occupational, Health and Safety (2003).

(g) Consult with the IDB before approving or implementing any and all substantive changes to the Project or its timetable that could potentially have negative environmental, social, or health and safety effects.

(h) Send written notice of any and all non-compliances with any environmental requirement of the Loan Agreement and any significant environmental, social, health and safety, and labor accident, impact, event, and/or claim.

(i) Ensure that all the Bolivia Consortium Companies or any other Company sub-contracted for construction or operation activities comply with the applicable environmental, social, and health and safety requirement of the Loan Agreement.

(j) Implement ongoing, information disclosure and consultation activities related to environmental, social, and health and safety aspects of the project.

(k) Implement an environmental, and health and safety management system that is consistent with ISO14001 and BS 8800 (for environmental and health and safety, respectively) for the construction and the operation phases.

8.2 Prior to first Disbursement, the IDB will require, in form and content satisfactory to the IDB the following Environmental Plans:

(a) Final Environmental and Social Management Plans (ESMPs) for the construction phase of the three lines and substations. This ESMP must include the final Community Relations Programs for the construction phase of the three lines and substations.

(b) Final Health and Safety Plans for the construction phase of the three lines and substations.

(c) Final Contingency Plans and Spill Prevention and Counter-control Plans for the construction phase of the three lines and substations.

(d) Status Report of the land Compensation Program for the ROW easement process.

8.3 Prior to the date of all Disbursements, the IDB will also require an Environmental and Social Compliance Certificate (ESCC) issued by an independent environmental and social consultant, stating that the Project is fully compliant with the Environmental Licenses (DIAs) issued by VMENR, and with the applicable ESMPs programs, Health and Safety Plans, Contingency Plans, Compensation Program, and Community Relations Programs, and all environmental requirements and provisions of the Loan Agreement.

8.4 Prior to Technical Completion, the company shall submit, in form and substance satisfactory to the IDB, the following Environmental Plans:

(a) Environmental and Social Management Plans (ESMPs) for the operation of the three lines and substations. This ESMP must include the Community Relations Programs for the operations phase of the three lines and substations

(b) Health and Safety Plans for the operation of the three lines and substations.

(c) Contingency Plans and Spill Prevention and Counter-control Plans for the operation of the three lines and substations.

8.5 During the life of the Loan Agreement, the Company must prepare and submit an Environmental and Social Compliance Report, in form, content, and frequency acceptable to IDB.

8.6 The Bank will monitor the project's environmental, social, health and safety aspects via internal Bank supervision actions (e.g., site visits, review of documentation, etc.) and will contract an external independent environmental consultant to perform more detailed supervision/monitoring actions during project construction and initial operation. In addition,

the Bank will have the right, as part of the Loan Agreement, to contract for the performance of an independent environmental, health, and safety audit, if needed.

TABLES AND FIGURES

Table 2.1 Activities Associated to Project Construction

Phase	Activity
Site preparation and right of way clearance (ROW)	Topography.
	Clearance/Deforestation of the ROW.
	Construction of access roads.
	Excavation for tower foundations.
	Transport of tower and other components to storage sites.
	Construction of the concrete foundations.
	Filling and compacting.
Line installation and lay-down.	Installation and grounding.
	Transport and installation of metal structures.
	Lines and conductors lay down and finishing.
	Revision and testing.
Construcción de las subestaciones	Property delimitation.
	Substation access.
	Site clearance.
	Excavation for foundations.
	Gravel Filing.
	Concrete Filing.
	Structure and equipment grounding.
	Installation of electro-mechanic equipment.
	Start-up.

Figure 2.1. Project Location.