

INTER-AMERICAN DEVELOPMENT BANK



**TECON SANTA CATARINA PROJECT
(BR-L1109)**

ENVIRONMENTAL AND SOCIAL MANAGEMENT REPORT (ESMR)

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Acronyms

ABNT	<i>Associação Brasileira de Normas Técnicas</i> (Brazilian Association of Technical Norms)
ADI	<i>Area de Influencia Directa</i> (Area of Direct Influence)
AII	<i>Area de Influencia Indirecta</i> (Area of Indirect Influence)
ANTAQ	<i>Agência Nacional de Transportes Aquaviários</i> (National Agency of Aquatic Transportation)
CAF	<i>Corporación Andina de Fomento</i>
CAPEX	Capital Expenditure
CASAN	<i>Companhia Catarinense de Agua e Saneamento</i> (Santa Catarina State Water and Sanitation Company)
CEQUAL	<i>Centro de Qualificação</i> (Qualification Center)
CELESC	<i>Compahia de Geracao de Eletricidade de Santa Catarina</i> (Santa Catarina Electricity Generating Company)
CIPA	<i>Comissão Interna de Prevenção de Acidentes</i> (Internal Commission for Accidents Prevention)
CLT	<i>Consolidação das Leis do Trabalho</i> (Consolidation of Labor Laws)
CONAMA	<i>Conselho Nacional do Meio Ambiente</i> (National Commission of Environment)
DRT	<i>Delegacia Regional do Trabalho</i> (Labor Regional Agency)
DWT	Deadweight tonnage
EIA	<i>Estudo de Impacto Ambiental</i> (Environmental Impact Assessment)
EIV	<i>Estudo Prévio de Impacto de Vizinhança</i> (Previous Study of Impact on Neighbors)
EPC	Engineering, Procurement and Construction
EPI	<i>Equipamento de Proteção Individual</i> (Individual Protective Equipment)
FSC	Forest Stewardship Council
FUNDACENTRO	<i>Fundação Jorge Duprat Figueiredo de Segurança e Medicina do Trabalho</i> (Foundation Jorge Duprat Figueiredo on Workers Health and Safety)
FUPEP	<i>Fundação de Pesquisa e Estudos Florestais</i> (University of Paraná Foundation for Forestry Research)
Ha	Hectare
IBAMA	<i>Instituto Brasileiro de Meio Ambiente e Recursos Naturais Renováveis</i> (Brazilian Institute on Renewable Natural Resources)
IADB	Inter American Development Bank
ICMS	<i>Imposto de Circulação de Mercadorias e Servicos</i> (State Taxes on Circulation of Goods and Services)
IDH	<i>Índice de Desenvolvimento Humano</i> (Human Development Index)
IFC	International Finance Corporation (IFC)
IMO	International Maritime Organization
ISS	<i>Imposto sobre Serviços</i> (Services Taxes)
IPHAN	<i>Instituto do Patrimônio Histórico e Artístico Nacional</i> (National Institute for Historic Heritage).
ISO	International Standard Organization
MMA	<i>Ministério do Meio Ambiente</i> (Environment Ministry)
MTE	<i>Ministério do Trabalho e Emprego</i> (Employment and Labor Ministry)
NR	<i>Norma Regulamentadora</i> (Regulatory Norm)
OHSAS	Occupational Health and Safety Assessment Specification
PAE	<i>Plano de Ação Emergencial</i> (Emergency Action Plan)
PBA	<i>Programa Básico Ambiental</i> (Basic Environmental Management Plan)
PC	<i>Plano de Contingência</i> (Contingency Plan)
PEI	<i>Plano de Emergência Individual</i> (Individual Emergency Plan)

PGAS	<i>Plano de Gestão Ambiental e Social</i> (Environmental and Social Management Plan)
PNMA	<i>Política Nacional do Meio Ambiente</i> (National Environmental Policy)
PNUD	<i>Programa das Nações Unidas para o Desenvolvimento</i> (United Nations Programme for the Environment)
POP	<i>Procedimentos Operacionais Padrão</i> (Standard Operational Procedures)
PPRA	<i>Programa de Prevenção de Riscos Ambientais</i> (Preventive Program of Environmental Risks)
RIMA	<i>Relatório de Impacto Ambiental</i> (Environmental Impact Statement)
SC	Santa Catarina
SGAS	<i>Sistema de Gestão Ambiental e Social</i> (Environmental and Social Management System)
SGSS	<i>Sistema de Gestão de Saúde e Segurança</i> (Health and Safety Management System)
SIP	<i>Sistema Integrado de Padrões</i> (Integrated System of Standards)
SISNAMA	<i>Sistema Nacional de Meio Ambiente</i> (National Environmental System)
SIT	<i>Secretaria de Inspeção do Trabalho</i> (Secretariat for Labor Inspections)
SMO	<i>Secretaria Municipal de Obras</i> (Municipal Secretariat of Public Works)
TBT	tributyl
TEU	Twenty-feet Container Equivalent Unit

INTRODUCTION

- 1.1 TECON Santa Catarina (TECON) will be the **second** greenfield fully private container terminal owned and operated in Brazil. The project consist of the construction and operation of a fully-private and public-use, greenfield container port (the “Project”) with the infrastructure and superstructure for container berths, warehousing and logistics facilities and an access road that traverses the Project area. The Project Company is Itapoá Terminais Portuários S.A. (“ITP,” or the “Company”). The Project Sponsors are Portinvest Participações S.A., a company of Conglomerado Battistella and Fundo Logística Brasil – Fundo de Investimento em Participações of Brazil and Hamburg Süd Group of Germany through its sister company Aliança Navegação e Logística Ltda, of Brazil (collectively, the “Sponsors”). Additional technical and financial aspects of the TECON Project are presented in Tables 1.1, 1.2 and 1.3 in Attachment 1.
- 1.2 TECON’s future container terminal is located in the Bay of Babitonga in Santa Catarina State on Brazil’s south coast. The Terminal will be built to the southwest of Itapoá on the Figueira do Pontal beach. This region is defined as a future port area by Municipal Law 139/96. The project planned initial productivity of 315,000 containers a year and it is located in a area of 492,020 m². The states of Santa Catarina and Paraná in the southern region of Brazil have attracted substantial domestic and foreign direct investment in manufacturing exports and agribusiness during the past decade. Unfortunately, the regional infrastructure in ports and logistics is not adequate to handle the demand for port services. Regional ports of São Francisco do Sul, Itajaí and Paranaguá have reached their limit capacity in terms of traffic, so producers and shipping companies currently pay the costs of waiting time and port fees that constrain their ability to compete in export markets.
- 1.3 The TECON Port is being implemented in response to such demand. The Project will add an additional 315,000 containers per year once the Port has reached its operating potential. The Project will help alleviate additional waiting times, provide additional competition regarding handling and storage fees and allow further specialization among the existing ports such that each port will handle the cargo type (containers, liquid cargo, grains, etc.) for which it is most suited.

II PROJECT DESCRIPTION

2.1 – Location

- 2.1 The Project is being implemented in the Babitonga Bay (also known as São Francisco Bay), in the municipality of Itapoá, State of Santa Catarina, Brazil (See Attachment 1, Figure 1.1), opposite to the São Francisco do Sul Port.¹ The Port will primarily serve the following cities (distances from the Port to the cities): Curitiba (156km), Paranaguá (150 km) in the state of Paraná and Florianópolis (265 km), Joinville (88 km), Blumenau (193 km), Itajaí (180 km) in the state of Santa Catarina.
- 2.2 The Port is located on the outskirts of the Municipality of Itapoá away from the city center and the small town’s roughly 15,000 inhabitants. Inland transportation to and from the Port will not traverse the town center, but rather will be routed through a major

¹ The 5th largest port in Brazil, inaugurated in 1955 and administered by a State of Santa Catarina’s agency (Administração do Porto de São Francisco do Sul –APSFS).

federal highway (BR-101) by way of state roads SC-412 and SC-415, which is being upgraded and expanded to a double-lane road during 2007-2008, under a loan to the State of Santa Catarina from Corporación Andina de Fomento (“CAF”)². The Port will also benefit from the pre-existing deep water access canal (13-28.0 m) to the existing São Francisco Port, which is located in the opposite side of the Babitonga Bay, used as the primary oceanic shipping routes.

2.2 - Description

2.3 The Port will be implemented in two different phases. In its first phase of construction the Port will have two berths 315 m long each with a total 630 m, about 230m from the shore, linked by a bridge (See Attachment 1, Figure 1.2). In the second phase a berth at the internal side will be built as well as a new bridge (See Attachment 1, Figure 1.3). Other facilities include the administration and operation of the Port, located in the rear of the port facility with a total of approximately 6,000 square meters (administration and operational support buildings, container inspection station for customs and other support facilities necessary to the proper functioning of the Port, such as maintenance and repair. In addition, the terminal is serviced by public electricity and will include only a small (less than 5 MW) biomass power generator station for emergency use only, water tower, illumination systems, smaller boat connections, fire-fighting station and the communications system for the port complex itself. There will also be a small access road that will cross the port complex leading container trucks to the loading and storage zones.

2.4 There will be no fuel storage in the TECON. Ships will refuel before arriving or after leaving the port, in other port locations, such as Paranagua or Santos. The Port will be fully automated and therefore will not require “pit stops”.

2.3 – Costs, Schedule and Workforce

2.5 The total investment of the Project is approximately US\$ 230 million. Construction of the worker’s camp, area demarcation, topography and other mobilization activities started in March, 2007 and will be followed by civil works (to start in 60 to 90 days), under the responsibility of Andrade Gutierrez (EPC contractor) one of the largest construction companies world-wide. Construction is expected to be completed over a period of approximately 16 months and to use as much as 700 workers in the peak period. The Port will be operated by Itapoá Terminais Portuários S.A, coordinating highly qualified personnel, based on the expertise of the Sponsors in logistics, distribution, and handling operations, including from Aliança and Hamburg Sud’s experience in the shipping and container handling business.

2.4 - Alternative Analysis

2.6 The decision to locate the Port at the municipality of Itapoá was based on a number of positive physical and logistical attributes of this particular site, when compared with the other alternatives that were analyzed. A primary factor in the selection of the Itapoá site is the possibility of using the same mooring procedures of Port of São Francisco do Sul, taking advantage of the access channel, and an existing evolution basin of approximately 1.200 meters, which have the proper depths for big size ships up to 120.000 deadweight

² The road concession has been approved by the State Government in March 2007.

tonnage (DWT) and full-containers with up to 16 meters of draft. The access channel in the estuary follows the alignment of the thalweg of River São Francisco do Sul, with depths that vary from 12.0 m to -28.0 m, thus requiring no dredging and minimizing additional environmental and social impacts. Other factors included i) the possibility of designing the alignment of the pier following the prevailing direction of the isobathic to facilitate the ships have direct access to the pierage, thus reducing maneuvering and consequently risks of accidents; ii) its proximity to the inland market and ocean shipping lanes; iii) the ease of access to the Port without crossing the urban municipal center; and iv) the complete ownership by the Project Sponsors of the total project area of 492,020 m² (49,20 ha) located within the area classified in the Municipal Land Use Plan of 1996 as Area for Port Activities (*Área de Vocação Portuária / Lei Municipal 139/96*).

- 2.7 Two other alternatives that was examined was to build the TECON Port in the area of the Port of São Francisco do Sul. The installation of the new terminal in the port zone of São Francisco do Sul would imply major changes to the environment, principally from dredging and landfill required. The bottom of the area to be dredged is largely rocky, making the operation difficult. In addition, dredging in area close to the existing quays would endanger these old constructions.

III INSTITUTIONAL AND LEGAL FRAMEWORK

3.1 - Port sector

- 3.1 Under the current Brazilian regulatory framework³, the Project will be established as a private port on private land with the authorization to develop the Port given directly by the Federal Government. The Project will be executed pursuant to a Water Transport License (the “License”) from the *Agencia Nacional de Transportes Aquaviarios* (“ANTAQ”), which was signed in April 2005. Navy clearance was issued in August of 2003. The License is for an indefinite period of time provided that the facility is operated as an open facility for private and public use and that there are no material instances of breach under the License. Technical standards and monitoring will be performed directly by the *Agencia Nacional de Transportes Aquaviarios (ANTAQ)* under the terms and conditions included in the License and other relevant regulations.

3.2 - Environment

- 3.2 The Ministry of the Environment (MMA) is responsible for the coordination of the National Environmental Policy (“Política Nacional de Meio Ambiente”) at the federal level. The National Environment Council (CONAMA) is a consulting and deliberating body responsible for defining general environmental regulations and basic criteria and guidelines to implement the Policy, such as environmental and emission standards for ambient quality and pollutants, respectively, and general requirements for environmental licensing, including the environmental impact assessment (EIA) process. The Brazilian Institute for Environment and Renewable Resources (IBAMA) is the federal agency responsible for executing and enforcing the environmental regulations and standards, at the federal jurisdiction, and to issue the environmental permit in the cases defined by law.

³ The Port Modernization Law 8630 of 1993 (the “Port Law”), established the legal framework for the operation of port facilities by the private sector. Such facilities require a direct authorization from the Ministry of Transport after a non-objection from the Customs Authority, the applicable municipal government, and after having an approved Environmental Impact Study (EIA).

Archeological and historical resources are the responsibility of IPHAN (National Institute for Historic Heritage (*Instituto do Patrimônio Histórico e Artístico Nacional*)).

- 3.3 The most relevant piece of environmental legislation is Federal Law 6.938/81, which created the National Environmental Policy (*Política Nacional do Meio Ambiente – PNMA*). It established the basis for environmental protection in Brazil, by putting in place the appropriate institutional framework and defining the main instruments for environmental management. This policy and its regulations made provisions for the creation of IBAMA, CONAMA and the National System of Environment (“*Sistema Nacional de Meio Ambiente – SISNAMA*”), as well as the establishment of the environmental permit system and the environmental impact assessment system (EIA system). With regard to the environmental permits, according to CONAMA Resolution no 237/1997, the environmental licensing of projects located in the territorial sea or continental platform (“*mar territorial ou na plataforma continental*”) is the responsibility of IBAMA.

3.3 – Health and Safety

- 3.4 Health and safety regulations in Brazil are enacted by the Ministry of Labor, at the federal level, through a set of laws, decrees and Regulatory Norms (NR’s). The main Brazilian laws and regulations in force related to safety and occupational health are the following: (1) Federal Law 6514, of December 22, 1997 and Ordinance 3214 of June 8, 1978, issued by the Ministry of Labor (MTb); (2) Ordinance # 3.214 (08/06/78), of the Ministry of Labor (MTb) – Approves Normative Regulations (NR) relating to Safety and Occupational Health, provided by chapter V, Title II, of the Labor Legislation; and (3) Complementary Brazilian Safety and Industrial Hygiene Legislation, including Ordinances, Decrees, Normative Instruction updated until the edition of the Brazilian Federal Gazette (DOU) published on April 30th, 2001, and Technical Regulations and Standards from the Brazilian Technical Standards Association (ABNT). NR 29 is specific and related to the operations of ports.

3.4 - Project compliance

- 3.5 In compliance with the National Environmental Policy Law 6,931/81 and CONAMA Resolutions 01/86 and 237/97, the Project Company submitted an Environmental Impact Study (EIA) and the corresponding Environmental Impact Statement (*RIMA - Relatório de Impacto Ambiental*) to IBAMA in December, 10th 1999, who issued the Previous License (LP 102/2001) on July 31, 2001 upon approval of the EIA and after the required public hearing in Itapoá, Santa Catarina had taken place, on March 22, 2000. Subsequently, upon the approval of the Environmental Management Plan (*Plano Básico Ambiental - PBA*), IBAMA issued the Installation License 228/2003 on October 13, 2003, which was renewed on November 30, 2005, for the two phases of the Port. The LI is valid until November 10, 2007, but TECON has already applied for its renewal (on June 25, 2007).
- 3.6 The Authorization for Vegetation Suppression was issued by IBAMA on December 6, 2005, for an area of 2.5 ha, which accounts for only 5% of the total project area of approximately 50 ha (See paragraph 1.2).
- 3.7 On June 25, 2007 in compliance with the requirements of the LI, TECON submitted to IBAMA the Emergency Action Plan (PAE) and the Individual Emergency Plan (PEI). In

- 3.8 As a compensation requirement under Brazilian legislation (that a minimum of 0.5% of the project cost be dedicated to the Project overall impact compensation) IBAMA established an estimate amount of US\$1.1 million dollars⁴ to be invested in five conservation areas (four National Parks and one State Park) (Details in Section VI, paragraph 6.4).
- 3.9 The Project is also in compliance with the requirements for protection of the archaeological, historical and cultural heritage: prior to initiating activities, the identification and rescue of any potential resources was performed as a requirement prior to the issuance of the LP. Similarly, the project complies with IDB applicable policies, in particular OP-703, in particular, but not limited to, in relation to screening and classification (B.3), B.4 (other factor risks), B.5 (EIA requirements), B.6 (Consultations), and B.(Natural Habitats and Cultural Sites). The Project also complies with OP-102 (Information Disclosure).
- 3.10 During the operational phase, the Project will comply with the more stringent of either the Brazilian regulations, the IFC Environmental, Health and Safety General Guidelines (2007) or IDB applicable policies, in particular OP- 703.
- 3.11 There is a pending legal suit for a Declaratory Action for Annulling the Environmental Impact Study, brought by the Residents Association in the 1st Federal District Court of Joinville (SC), awaiting the appointment of a new reviewer due to the retirement of the previous one. The Project Team sees no risk related to such legal suit, given that the majority of the property owners have already sold their houses to TECON.

IV ENVIRONMENTAL AND SOCIAL CONDITIONS

4.1 - Environment

- 4.1 With regard to the physical, biological and socio-economic components, the Project's area of direct influence (ADI) covers an area of 1km radius around the Terminal. The area of indirect influence (AII) for the physical and biological components encompasses territorial limits of the municipality of Itapoá and the district of Saí, which belongs to the municipality of São Francisco do Sul, whereas in relation to the the social-economic components, the AID encompasses, the municipalities of Araquari, Campo Alegre, Garuva, Itapoá, Rio Negrinho, São Bento do Sul, São Francisco do Sul and Joinville, including the area of the Port of São Francisco do Sul.
- 4.2 Climate: The Terminal is located in an area well-protected from tropical storms, such as typhoons, cyclones and hurricanes. The prevailing winds in this region are NE, SE and SW, which represent more than 50% of those recorded, with average speeds varying

⁴ R\$2.1 million.

- between 4.7 knots(March) and 7.1 knots (November). The access channel is protected from southerly winds but exposed to the NE winds, which blows parallel to the direction of the mooring. The island of São Francisco do Sul acts as a natural break against winds from the SE and E.
- 4.3 Temperatures are moderate during the whole year, with average figures between 24.7 and 17.8°C. The figures for atmospheric pressure are considered median, thus creating calm meteorological conditions. In the winter months this region is basically dominated by the South Atlantic anticyclone, with zones of low pressure on the continent and in the equatorial zone. The rainfall pattern is dominated alternately throughout the year by the polar Atlantic and tropical Atlantic air masses, distributing the rainfall uniformly during the year, with little difference between the driest and wettest months. Pluviometric precipitation on the eastern coast of the State of Santa Catarina is between 1,200 mm and 2,500 mm, with the rainiest periods from January to March and from October to December.
- 4.4 Characteristics of the Coastal Region: The coast between the Port of Paranaguá and the Island of Santa Catarina is low-lying as far as Itajaí. This stretch is characterized by extensive beaches, with land that floods, bays and river estuaries, almost always surrounded by sandbanks. The hills are rarely as close as 8 km to the coast and are sparse and low. The Port Terminal is located in an area without contamination from industries, where the air quality is assumed to be good, given the lack of potential sources of contamination. The Bay of Babitonga is classified as “salt water” Class 5 (protection of aquatic communities and for natural and/or intensive aquaculture); and Class 6 (commercial navigation, landscape harmony and secondary contact recreation), according to CONAMA Resolution 357/05 classification.
- 4.5 Flora and Fauna: The Project’s ADI comprises fluvial marine formations and the dense ombrophylous forest of the quaternary plain. This type of forest, also called lowland forest, is characterized as transitional, lying between the Atlantic rain forest and fluvial marine-influenced pioneering vegetation up to 30 m . The ADI includes mangroves, pioneering formations of fluvial marine environments that colonize the sandy and muddy tidal banks of estuaries in tropical and sub-tropical latitudes. In Santa Catarina the mangrove swamps are already close to their southern limit of distribution. Due to their importance as an ecological species’ feeding and reproduction niche, mangroves are considered Areas of Permanent Preservation and protected under the Brazilian Forest Code. Nevertheless, mangroves are not included in the National System of Conservation Areas (SNUC), and are included in the IDB definition of natural habitats, according to OP-703. In 2003, a specific and detailed survey was performed in the Project area, at the request of IBAMA. The results indicated that the area is part of the Atlantic forest of coastal plains in intermediary successional stage (Floresta Ombrofolia Densa das Terras Baixas) and therefore not considered as a critical habitat. None of the species of flora and fauna in the area is included in the IBAMA list of rare or endangered species (Portaria Normativa IBAMA 37-N, April 3, 1992 for flora and MMA/2003 for fauna). Nevertheless, one species of Bromeliaceae (*Aechmea pectinata*) is mentioned by KLEIN (1990) as rare or endangered.

4.2 - Social economic

- 4.6 The development of Itapoá started with small fishing villages, located at various points on the coast. Summer housing developments followed along the road that runs along the

whole length of the beach. Thus, the city is long and narrow, with various urban agglomerations where commercial and service areas, dedicated predominantly to tourism and summer vacation-related activities. The urban perimeter of Itapoa stretches for 3km along the coast from the Bay of Babitonga to the mouth of the Saí-Mirim River and was established when the area was still part of the municipality of Garuva. According to the 1991 and its population projections for 2000, the population of Itapoa was 3,988 in 1991 and 5,326 in 2000. Nevertheless, according to the local government, the population of the municipality is 15,000 (unofficial data) and that number has been used for city planning.

- 4.7 The main urban centers are Joinville, which is highly industrialized, with an urbanization index of 96.4%. Similarly, in São Francisco do Sul, where port and tourism service activities predominate, the urbanization index is 92.4%. On the other hand, in Itapoá, 82.7% of the urban population is involved with the real estate and summer vacation-oriented commercial sectors, in addition to a still significant fishing activity, practiced along the coast in the municipalities of Itapoá, São Francisco do Sul, Barra do Sul and Araquari. Traditional methods predominate and catches are not processed, but sent to Joinville, Curitiba and the Southeast region of the country.
- 4.8 Some 60% of the drinking water supplied to the municipality of Itapoá and region is treated by CASAN (Catarinense Water and Sanitation Company). The city of Itapoá and the region have no sewage network; houses use septic tanks. Electricity is available in the whole region and is supplied by CELESC (Santa Catarina Electricity Generating Company). The region has a public school network covering first grade and secondary school level education, which can serve the whole of the municipality's population. Attendance levels, however, are low (24%). Universities are located in Joinville and used by residents of the Itapoá municipality region. The State health network is precarious as is the Municipal. The Itapoa city administration has 3 vehicles for transporting sick patients. There are private clinics that operate mainly in the summer months (peak tourist season), but also attend the local population, albeit in a deficient manner, during the tourist season. The region's economy is concentrated on the primary and subsistence sectors (plantations of rice, potatoes, beans, corn, bananas, fruit and vegetables). The local economy is sustained by tourism, which has led to a large increase in the population as a result over the last ten years.
- 4.9 Fishing activity has been reduced over the last few years because of the introduction of industrial fishing fleets in other places in the State of Santa Catarina. In the region of Itapoá there is a small fishing village (Z-1) that has been declining for several years. The fish sold in the municipality of Itapoá comes from other regions in the State (São Francisco do Sul, Itajaí and Guaratuba). Colony Z-1 has 4 centers: (1) One located 500 meters from the terminal, towards the center of the bay, with 30 fishermen, (2) another, in the region of the lighthouse, where the Public Hearing was held, is 2 km from the terminal and has approximately 20 fishermen, (3) a third one located in the Itapema do Norte district, 11 km from the terminal (already facing the open sea) and has approximately 150 fishermen, and (4) the last in Barra do Sai, close to the border with the State of Paraná, 19 km from the terminal, has approximately 100 fishermen.

V ENVIRONMENTAL AND SOCIAL IMPACTS

5.1 The TECON Port is considered to be of a medium size (approximately 450 thousands TEU)⁵. It is located opposite to the Sao Francisco do Sul Port, the 5th largest port in Brazil⁶. There are no transboundary issues associated with the Project. The Project will not significantly convert or degrade critical natural habitats or damage critical cultural sites. The Project has no potential direct, indirect or cumulative negative impacts on the indigenous peoples, given that there are no indigenous peoples in the project area and its direct and indirect area of influence, and therefore no physical, social, cultural, or economic interaction with indigenous peoples or indigenous areas. Similarly, the Project does not present a potential for mainstreaming indigenous peoples interest or exploring potential benefits for the indigenous peoples. With regard to the magnitude of the direct, indirect and cumulative impacts, they are likely to be of small to moderate, as discussed in the following paragraphs of this Section. Therefore, the Project Team confirmed a classification of “B”, as defined in the Bank’s Environmental and Safeguard Compliance Policy. Sections 5.1 to 5.6 discuss the principal and more relevant potential direct, indirect and cumulative impacts of the Project construction and operations. However, as requested by IBAMA, the Project is implementing monitoring programs to follow-up on all potential impacts, regardless of their magnitude. Such monitoring programs are presented in Section VI.

5.1 Environmental and social impacts during construction

5.2 The primary potential negative environmental impacts of the project are likely to occur during the construction of the Port, mainly associated with potential permanent changes to the morphology of the site, both onshore and offshore, due to the installation of new structures. Other potential negative environmental impacts may include soil erosion of exposed areas, dust generation due to the land movement during construction, and limited loss of vegetation in the project area (See paragraph 3.7). Potential social impacts related to the project during construction include temporary⁷ accessibility impacts to local beaches and communities, due to increased heavy traffic and safety risks in the project area, temporarily limiting the access to a portion of the Itapoá beach until the bridges are completed. Other potential negative impacts of the work force in the existing population in the surrounding area and potential impacts to the artisanal fishery are not expected to be relevant given the location of the artisanal fishermen colonies, the characteristics of the construction process (maximum of approximately 800 workers in the peak period, thus absorbing much of the local workforce) and the use of the existing marine access channel and evolution basin of the San Francisco Port, thus with no additional relevant impacts on the marine environment and fishermen activities. Given that the Company retains full ownership of the land where the Project will be located and given that such lands are not inhabited, the project will not require resettlement or physical displacement of families.

5.3 Changes on beach morphology, erosion and sedimentation: The primary potential negative environmental impacts of the project likely to occur during the construction of the Port, mainly associated with potential permanent changes to the morphology of the site, both onshore and offshore, due to the installation of the new structures. The potential

⁵ Twenty-foot Container Equivalent Unit.

⁶ A large port such as Sao Francisco do Sul or Santos Port handles above 1,2 million TEU.

⁷ Construction is estimated to be completed in 18 months, approximately

impacts of erosion and sedimentation are likely to be of small magnitude and temporary, given the hydrological and hydro-sedimentologic characteristics of the Babitonga Bay or Sao Francisco do Sul Bay (which are well known due to the many years of operation of monitoring stations related to the needs of the existing port), to the lack of dredging requirements for the TECON Port, and the berths' and bridges' design. With regard to sediments re-suspension, the monopole type foundation that will be used is proven to have minimal disturbance of sand and sediments. In addition, the predominance of sands in the Port area will limit resuspension of sediments and will confine it to the affected area. Other potential negative environmental impacts during construction is related to the vegetation clearing required for the Port and its associated activities (retroport area), and potential induced soil erosion of exposed areas, dust generation due to the land movement. However, the vegetation loss in the project area is limited to 5% of the total project area, it is not a critical habitat and it will not significant convert or degrade the habitat.

- 5.4 Water contamination and release of contaminated sediments: During construction there is a potential for water contamination due to spills from fuels, domestic effluents, and other wastes, which could in turn affect the aquatic biota. There could be a potential for the release of contaminated sediments during the construction of the piers, in particular. Nevertheless, the specific area where the Port will be located has been monitored since July 2006 as part of the Installation License requirements. As expected, given the hydrodynamics of the Bay and the current land use of the Port surrounding areas, no contamination with heavy metals or other toxic materials (above the legal limits established by the government) has been reported as a result of either monitoring.
- 5.5 Loss of flora and fauna: The area that will be cleared for the installation of the Port is of 2.5 ha, representing 5% of the total area of the original forest, thus not represents a significant degradation or conversion of a natural habitat. In addition, prior to authorizing the vegetation suppression in 2005, IBAMA requested that a detailed flora and fauna survey be conducted in the area of the Port. The results of the survey conducted by the University of Parana Foundation for Forestry Research (Fupef) showed no species of flora and fauna endangered or at risk classified in the IBAMA lists. Nevertheless, the Project was required to implement a biota monitoring program and to include these impacts in the overall project compensation under the Brazilian compensation requirements.
- 5.6 Loss of accessibility: Potential social impacts related to the project during construction include temporary⁸ loss of accessibility to local beach and communities. Due to increased heavy traffic and safety risks in the project area, during the approximately 18 months of construction, the access to a portion of the Itapoá beach will be prohibited until the bridges are completed. However, after construction is completed, accessibility will be reinstated. The impacts will not be significant, given that the area is currently unoccupied and was previously occupied by vacation properties that were acquired for the Project. These vacation properties were a natural obstacle to the public access to the beaches. Moreover, the area is not considered a public beach and is far from the areas that are used by the community of Itapoá.
- 5.7 Impact on artisanal fishery and conflicts between workforce and local population: Potential impacts to the artisanal fishery are not expected to be relevant given the location

⁸ Construction is estimated to be completed in 18 months, approximately.

of the artisanal fishermen colonies (far from the project area, in Ponta do Sai), and the use of the existing marine access channel and evolution basin of the San Francisco Port, thus with no additional relevant impacts on the marine environment and fishermen activities. Similarly, impacts from the workforce are not expected to be significant, given the characteristics of the construction process (maximum of approximately 800 workers in the peak period, thus absorbing much of the local workforce in Itapoa and surrounding localities).

5.8 Impacts on existing properties: The Project Company retains full ownership of the land where the Project will be located and such lands are not inhabited, therefore the project did not require resettlement or physical displacement of families. However, for safety reasons and to use as administration offices during construction, the Project has acquired all the properties surrounding the Port. The acquisition is 93% (24 properties) complete in the bridge area and Project adjacent areas, the majority of which are summer houses, all from legitimate ownership and land titling. The 26 properties are located in the beach front and total 4,292 m², thus correspond to less than 1% of the total project area of 492.020 m². All the houses were vacation homes, two were plain lots with no residences, and one was a small commerce, which has been relocated as a modern supermarket. All have been acquired for fair market prices. Therefore, no resettlement is required. The two last vacation homes are in the process of acquisition.

5.2 - Health and safety impacts during construction

5.9 During construction the health and safety impacts are typical of large scale construction sites, including potential accidents due to heavy traffic, electric shocks and burns, as well as exposure to toxic fumes, due to the use of electric and welding equipment; cuts and amputations, due to the use of sawing equipment, among others. In Port areas in particular, there are also risks of drowning, when working in the construction of the sea trestle and terminal. These potential impacts are mitigated with industry health and safety management procedures that are standard and easily implementable.

5.3 -Environmental and social impacts during operations

5.10 During operations, the principal potential negative environmental impacts are related to changes in the morphology of the beach, due to potential changes in the sediment transport patterns. However, this probability is minimized given that the pier has been designed using an open structure, which will significantly minimize current and sediment transport disruption. In addition, the berth runs parallel to the coast, which also presents minimum potential to affect sediment transport. Other potential impacts are related to the heavy container traffic, noise of large cranes, and risks of accidents during ship maneuvering, including potential fuel leaks and spills. Given that the area already includes the San Francisco Port, the 5th largest port in Brazil, and given that the TECON will only handle containers, its operation is not likely to present many of the common impacts of other ports, such as inadequate disposal of hazardous wastes. This is due to the port being a Container-only Port, where all the cargo is enclosed in containers, and therefore the management of wastes is standard and follows international regulations. In addition, the Port will develop its own Operational Manual, which will prohibit containers with certain types of hazardous wastes to use the Port. In the case of potential accidents with containers, the impacts are controlled and mitigated by the implementation of standard international practice contingency and emergency plans. These procedures are well developed and detailed in the Project documentation presented for both the

construction phase (Risk Management Plan, the PAE -Emergency Action Plan, and a PEI -Individual Emergency Action Plan) as mentioned in paragraph 6.21.

- 5.11 Impacts on natural habitats: The impacts from the port operations in the marine natural habitats of the Babitonga Bay will be only incremental, given that the Port uses the same access channel as the existing larger port of Sao Francisco do Sul, and is not likely to contribute to the deterioration of the existing conditions in the Bay. The impacts on the terrestrial natural habitats as a result of the vegetation suppression in the area of the Port are very limited (only 5% of the Port area) and does not represent a significant conversion or degradation of a critical habitat (See justification in paragraph 4.5). Nevertheless, the Bank will require that TECON set in place procedures to control any potential illegal logging or hunting in the remaining forest area in the Port property (See section 8.2.1 (c)). With regard to the potential impacts on the land-sea interface habitats, it is not expected that the Port construction or operation will impact the mangroves located in the AII, in the estuary of a small river creek contributing to the Bay, because the estuary is located some 3 kms further upstream, thus not in the area of direct influence of the port construction and of the construction trucks by land, and far from the route of the ships inside the Bay (See Figure 1.2, in Attachment 1). Therefore, the mangroves are not likely to be affected by the Port construction and operations. In addition, mangroves are Permanent Preservation Areas under Brazilian legislation and therefore, as a precautionary principle, the Project is implementing a monitoring program of the mangroves. Mangroves are considered as natural habitats under the IDB OP-703, and therefore should not be significantly degraded or converted.
- 5.12 Noise and atmospheric pollution impacts: The potential atmospheric pollution impacts are likely to be moderate to low significance, given that the Project will exclusively operate with containers and that all the access and traffic areas will be paved. Likewise, the noise levels generated by the Port are estimated to be below the 70dBA established for industrial and commercial areas in the IFC Environmental, Health and Safety General Guidelines (2007).
- 5.13 Risks related to fuel storage: Potential risks that are commonly associated to port projects are those related to fuel storage, and bulk fuel storage. However, there will be no fuel storage in the TECON. Ships will refuel before arriving or after leaving the port, in other port locations, such as Paranagua or Santos. The Port will be fully automated and therefore will not require “pit stops”.
- 5.14 Impacts from power generation: Given that the Port will be serviced by the existing public electric distribution system, there will be no impact from associated power generation plants. As most Ports, though, it will have an emergency power generation station to provide energy to the vital activities (computers, security, etc., which is estimated to amount to less than 5MW, as will use a biomass generator produced by Battistela’s Group Maquigeral Company, with minimal impacts on air quality and according to TECON representatives it must be operated in compliance with Brazilian regulations and IFC standards.
- 5.15 Potential impacts of greenhouse emissions: The estimate CO2 equivalent for the construction is 4.518,18 tons. Likewise, the estimates from the operational phase are still being developed but are likely to be of small magnitude, given that the total Medium Annual Daily Traffic (TMDA in Portuguese) of containers and other heavy traffic generated by the Port estimated for the year 2008 is under 300, including containers and

normal traffic, according to the engineering studies performed. However, a specific calculation of the greenhouse emissions is under development.

5.16 Impacts from ship traffic: Impacts from the increased ship traffic in the access channel to Baía da Babitonga will be incremental, due to the existing larger traffic for the São Francisco Port, the 5th largest port in Brazil. In addition, it is controlled by standard procedures and norms issued by the Coastal Guard of the Brazilian Marine (*Marinha do Brasil*). In August 2003, after reviewing the estimated ship traffic from TECON – which is up to 40 ships per month, depending on the month – the Brazilian Marine authorized the construction and operation of the Port.

5.17 Traffic impacts: Potential impacts in the terrestrial traffic from increased ship traffic are likely to be of small to moderate magnitude. Of the estimated 315,000 containers per year, a portion (approximately 40%) is of “ship to ship” transfer (international larger ships to smaller local ships). Therefore, only a portion of the total Port movement will generate terrestrial traffic, which will then be deviated to the dedicated access road. The Engineering Project of the SC 145 road prepared by State Government of Santa Catarina presents a traffic survey of the present traffic of this road and a model analysis of the future use of the road with the implementation of the TECON Port. According to the survey made on June 25th, 2001 the daily average traffic flow, during 24 hours, in one of the roads of the region, showed the total of 206 vehicles. The model analysis for the daily average traffic flow, during 24 hours, including the traffic generated by the Port was estimated at 300 for 2008.

5.18 Impact on local fishery: During operations, the impacts on the fishermen activities are likely to be minimal, due to their location away from the Project area. The subsistence fishing activity is frequent in the Babitonga Bay, in spite of the presence of the São Francisco do Sul Port.

5.19 Migration and urban development: Until recently, the Municipality of Itapoa has developed in an unplanned manner, although it is still with a low density. The construction of the Port was an opportunity taken by the local administration to develop a Master Plan, with the financial support of the Project Company. The Master Plan is currently under review prior to being enacted and implemented and will incorporate a Land Use Plan to appropriately allocate lands for residential, commercial and industrial uses, which will certainly be increased with the new Port and the improved accessibility provided by SC-145.

5.4 - Health and safety impacts during operations

5.20 During the operational phase of the Port, the health and safety impacts and risks are typically those related to handling of heavy loads, falls from heights, explosions and fires in the container area and due to the transport and handling of flammable products, as well as due to spills from ships and vessels, and traffic accidents due to the circulation of heavy trucks and cargos. Other risks relate to potential accidents with ships, resulting in spills, fires or explosions, and risks of introduction of invasive species and diseases. These impacts and risks are typical and can be effectively addressed with standard procedures,

such as contingency and emergency plans, and compliance with the International Maritime Organization (IMO) applicable conventions.⁹

5.5 - Positive impacts

5.21 The potential positive impacts of the TECON Santa Catarina during construction include new employment opportunities (estimative of 700 employment for the construction phase) and economic benefits to the Municipality of Itapoá due to the payment of taxes by the project. During operations, the Port is likely to have a positive economic impact in the State of Santa Catarina, mainly from taxes, as well as providing economic reactivation in many sectors associated with the employment opportunities related to the terminal's operations (estimative of 400 direct employment during the operation phase). The estimative resources from tax generation during the construction phase: Municipal Tax (ISS) is approximately US\$500 thousand and State Tax (ICMS) is approximately US\$ 1,2 million. The estimative resources from tax generation during the first 20 years of the operational phase are approximately US\$100 million at the State level, approximately US\$384 million at the federal level. In addition, the Project has fostered the Municipality to develop a land use plan to manage urban development. In addition, the construction works necessary for the Port will also contribute to control the current sea erosion in the coastal line in front of the Port.

5.22 Economic sector benefits of the new Terminal include reduction of waiting times, provide additional competition regarding handling and storage fees and allow further specialization among the existing ports such that each port will handle the cargo type (containers, liquid cargo, grains, etc.) for which it is most suited. There might also be a positive impact at a regional level in relation to the redirection of cargo and trucks from the São Francisco do Sul Port.

5.6 - Other potential risks

5.23 Corporate risks: With regard to other potential risk factor, the main corporation, Conglomerado Battistella, seems to have adequate governance capacity, with extensive experience related to environmental activities due to their strong involvement in the forestry industry, with their forestry companies certified since November 2003 with the Practical Conservation through Certified Forestry certification number SW-FM/COC-1070 issued in accordance to the Smart Wood Program¹⁰ and the Forest Stewardship Council (SFC). In addition, through its companies, the Battistella Group implements extensive corporate social responsibility activities, involving environmental education, municipal waste management, and support to public educational and health programs, among the principal.

5.24 Impacts from the access road: The access road that will link the Port to the federal and state highways, with an extension of approximately 28 km, is an upgrade of an existing unpaved road that crosses several rural agglomerations. Therefore, an EIA was not required. The upgrade of the road was designed to the average speed of 70 km/h and to support the future traffic of the new port operations. The road follows the existing

⁹ The six IMO Prevention of Marine Pollution Conventions, including but not limited to, MARPOL 73/78; International Convention for the Control and Management of Ships' Ballast Water and Sediments, 2004; and the International Convention on the Control of Harmful Anti-fouling Systems on Ships, 2001;

¹⁰ Coordinated by the Rainforest Alliance, an international non-governmental organization.

unpaved road and will not require resettlement (only one commercial property will be relocated within the same property) and the limited amount of vegetation cover that will be cleared is already impacted by the edge effect. In addition, it is not a critical habitat and will not represent a significant degradation or conversion of the natural habitat. The potential for increased migration is viewed as limited but yet positive for the local economy and being addressed by the local administration. (See proposed management strategy in Section VI, paragraph 6.5).

VI ENVIRONMENTAL, SOCIAL, HEALTH AND SAFETY MANAGEMENT

6.1 - Environmental and social mitigation measures during construction and operations

- 6.1 TECON prepared an Environmental and Social Management Plan (*PBA- Programa Básico Ambiental*), as a requirement of IBAMA for the issuance of the Installation Permit, for the construction phase and general guidelines for the operational phase. The PBA comprises a set of mitigation and monitoring programs that are being carried out by TECON, via independent consultancy companies (*AcquaPlan Tecnologia e Consultoria Ambiental*, managed by Rio Interport Consult). The PBA for the construction stage is integrated with the Port investment plan and included in the service provision contracts signed between TECON and the construction companies, port operation and environmental monitoring services, including the contract signed with Andrade Gutierrez Construction Company, the main EPC contractor.
- 6.2 TECON's PBA for the construction stage includes the following mitigation and monitoring programs approved by IBAMA to monitor all potential impacts, regardless of their magnitude: Reforestation Program; a Program for setting up a wild animal breeding center; Aquatic Biota Monitoring Program; Water and Sediment Monitoring Program; Program for Monitoring the suitability of the water for bathing; Program for Monitoring the Diversity of flora and fauna; a Program for monitoring the mangrove swamp system; a Program for monitoring oceanographic parameters; a program for monitoring the evolution of the coast line; an Environmental Education Program; a Social Communication Program; a Supervision Action Plan and a Local Biota and Mangrove Swamp Preservation Study.
- 6.3 Among the existing PBA construction programs the Solid Waste Management and the Construction Environmental Programs are of particular importance. Among the environmental control measures are those for mitigating the re-suspension of sediment (to carry out the work during low tide); procedures for handling waste and liquid effluents; procedures for controlling atmospheric and sound pollution, procedures for avoiding erosion of the beach line (using containment engineering measures) and procedures for avoiding water pollution.
- 6.4 In addition, TECON will implement the project Compensation according with Brazilian legislation. The compensation was determined by IBAMA at approximately US\$1.1 million dollars (R\$2,1 million). TECON signed a Memorandum of Understanding (*Termo de Compromisso*) with the federal and national environmental agencies to provide financial resources for the following conservation areas located in the States of Santa Catarina and Paraná: *Reserva Biologica do Arvoredo* (R\$550 thousand); *Estacao Ecologica de Guaraquecaba* (R\$385 thousand); *Parque Nacional de Superagui* (R\$ 385 thousand); *Parque Nacional Saint Hilaire* (R\$ 263 thousand) and *Parque Estadual de Acarai* (R\$528 thousand).

6.5 Also, TECON has financed the development of a Master Plan for the Municipality of Itapoa, including specific land use plans for the area, including the retroport area, sanitation, health and other public services. The Plan is currently being reviewed prior to being enacted.

6.6 As a condition for obtaining the Operations License, IBAMA will review the results of the existing implementation of the PBA (including the monitoring programs) and will approve TECON's operational PBA.

6.2 - Environmental and Social Monitoring Programs during construction and operations

6.7 The environmental and social monitoring proposed in the PBA for the construction and the operational phases will be carried out by *AcquaPlan Tecnologia e Consultoria Ambiental*, supervised by Rio Interpor Consult, and will continue from construction into operation. Currently, the following programs are under implementation:

6.8 Program for monitoring aquatic biota: The aim is to monitor the abundance and diversity of communities of plankton (phyto, zoo and ichthyoplankton), ichthyofauna, carcinofauna and benthic macrofauna in the area of direct influence of the Project, thereby identifying any possible alterations that might occur in their composition in the access channel to the port terminal, its maneuvers basin and its surroundings. In all there are five (5) sampling points, with a sixth located outside the Bay of Babitonga in the neighboring marine area and considered as a control point. Since September 2006, 4 (four) sampling campaigns have been carried out at 6 sampling points.

6.9 Program for monitoring the quality of the water and sediment: The aim is to monitor the physical and chemical parameters of the water and the sediment in the area coming under the influence of the enterprise, in such a way as to allow any alterations generated by the activities associated with the work and subsequent operation of the port terminal to be identified, if they occur. The locations where the sediment and surface and bottom water will be collected are the port terminal access channel, its turning basin and the surrounding area, a total of 5 (five) sampling points within the bay, and also a sixth point located outside the Bay of Babitonga, considered as a control point. Since September 2006 4 (four) sampling campaigns have been carried out (September, October, December, 2006 and January, 2007). The parameters analyzed are: temperature; pH; OD; turbidity; transparency; salinity; total nitrogen and Kjeldahl; nitrite and phosphate; nitrate; chlorophyll A; oils and greases; the chemical composition of the sediment; the granulometry of the sediment. The most relevant results for the Project indicate that there are no contaminated sediments, and that the results for all the heavy metals analyzed are below the level where there could be a small effect in the biota due to re-suspension of sediments related to the monopyle for the berths and trestle (level 1, CONAMA Resolution 344/04), as already mentioned in paragraph 5.4.

6.10 Program for monitoring the suitability of the water for bathing: The aim is to prepare prognoses of the suitability of the water for bathing in the area of direct influence of the Port Terminal, and also to monitor and supply information about the suitability for bathing of the area surrounding it. Weekly collections of the water are being made at six sampling points located in the area surrounding the undertaking, three of which are located in the beach region (used frequently for recreation), and three other points to be located on the bay and extending along the area that comes under the direct influence of

- the building work. Since the beginning of August 2006, 25 samples of water have been collected from the beach every week in order to meet specific legislation. The results obtained show that there is little contamination. The whole of the area studied is suitable for bathing and, in accordance with Resolution CONAMA 274/2000, is classified as Excellent to Very Good.
- 6.11 Program for monitoring the eco-toxicology of the water and sediment: The aim is to monitor the possible adverse effects on local biota by carrying out toxicity tests on the water and the elutriation of sediment, using the *Mysidopsis juniae* organism.
 - 6.12 Program for monitoring the diversity of flora and fauna: The aim is to prepare an inventory of the flora and fauna that is to be found in the area that will be influenced by the construction and operation of the Port Terminal and to monitor it, thereby creating a database that will allow the activities linked to the work to be managed in such a way as to minimize their negative impact and to identify species that are indicative of environmental quality. In order to check the similarities and differences between the area of the undertaking and the area surrounding it, it has been decided to work with 6 lots for each of the areas being sampled, totaling 12 lots for this study. The program started in August, 2006. In addition to the activities described above, in May 2003 a survey of the fauna and flora in the area of the undertaking was carried out in order to meet IBAMA requirements.
 - 6.13 Program for monitoring the mangrove swamp system: Via monthly inspections, carried out since August 2006, the aim is to characterize and monitor the mangrove thickets as far as concerns the density and dominance of individuals that comprise the mangrove swamp that is found in the area of indirect influence of the setting up and operation of the port, as well as their state of conservation.
 - 6.14 Program for monitoring oceanographic parameters: The aim is to monitor the tidal variation and the intensity and direction of the currents and waves in the area of direct influence, thereby linking the results to any possible erosion and/or deposit processes that are occurring in the region. The meteorological station is linked to a computer, used for storing the information. The data will be subsequently analyzed and correlated with the other oceanographic data with the aim of obtaining a broad analysis of the oceanographic conditions in the region. Two 25- hour campaigns were carried out on the tides, one during a full moon and the other with the moon waning, in order to collect hydrographic data to establish the estuarine structure in the area of interest. Each campaign consisted in collecting data about the speed and direction of the currents, salinity and temperature for periods that comprised two complete semi-daily tidal cycles, totaling 25 hours.
 - 6.15 Program for monitoring the evolution of the coast line: The aim is to monitor the erosion and deposit processes of a 2,300 m section of beach, around the site of the undertaking, in order to establish the changes to the coast line that might be associated with natural dynamics (waves, currents, tides and fluvial discharge) or the activities caused by the enterprise (modification of the hydrodynamic pattern and the generation of waves). The variation monitoring of the coast line is carried out at 20 points adjoining the area where TECON is going to be installed. The program for monitoring the coast line variations is forecast to last for 18 months with data being collected every two months.
 - 6.16 Environmental Education Program: The aim is to make the population conscious of the importance of taking part in nature conservation, in addition to passing on to people in an

educational and dynamic way, the social and environmental importance of the setting up of TECON for the Municipality of Itapoá, its impact on the environment and the environmental studies that are being carried out by the entrepreneurs. This program was started in November 2006 with some 10 schools in the region.

- 6.17 Social Communication program: The aim is to establish a continuous channel of communication between the entrepreneur and society, with particular attention being paid to the surrounding community with respect to TECON's operational and environmental actions. It started in November 2006 when, among other things, the homepage was created, folders and billboards were prepared and press releases were published.

Costs, timetables and responsibilities.

- 6.18 The cost for carrying out the PBA programs is approximately US\$ 1 million (R\$ 1,517,400.00). The timetable is presented in Attachment 2, all under the responsibility of TECON.

6.3 - Health and safety during construction and operations

- 6.19 The EPC Contractor Andrade Gutierrez construction company has an Integrated Corporate Safety, Health and Environmental System fully certified for ISO 14.001-2004, ISO 9.0001, OHSAS 18.001, and AS 8.000 (by Bureau Veritas dated January 17th, 2007). The Company has an environmental, social, and health and safety plans and procedures that apply to all its constructions. The EPC contractor is finalizing specific procedures for the TECON construction.
- 6.20 In addition, TECON will develop and implement an EHS Management System for the operational phase, to properly manage all environmental, social, health and safety activities of the port, compatible with ISO 14.001 and OSHA 18.000 standards.

6.4 - Contingency and Emergency Plan during construction and operations

- 6.21 TECON prepared a Risk Management Plan, including items related to responsibility, operating procedures, training, risk management, including an evaluation of consequences and vulnerabilities of the construction and operation of the port. TECON also developed a PAE (Emergency Action Plan) and a PEI (Individual Emergency Action Plan) in accordance with CONAMA Resolution 293/2001, including the following items: responsibilities, communication and information procedures for the public, emergency action procedures, review of the Plan and training. These documents were presented to the Environmental Agency on June, 2007. The Bank will require that these documents be in form and substance acceptable to IDB, for construction and operations phases.

6.5 - Supervision System

- 6.22 TECON hired an independent environmental and social consultant (Rio Interpor Consult) to supervise the implementation of the PBA during construction. Similar arrangement will be made during operations. In addition to Andrade Gutierrez's responsibility to the EPC contractual clauses, ENGER (an independent engineering firm) is being hired by TECON and will be responsible for inspecting and monitoring the environmental, social and safety programs of the construction and operational phases of the project.

VII PUBLIC CONSULTATION AND DISCLOSURE

- 7.1 The EIA for the TECON Port (then Itapoá Port) was disclosed for 45 days in the IBAMA Headquarters in Brasília, in the Regional Offices of IBAMA in Joinville and Florianópolis, in the State Agency Offices (FATMA), and in the Municipality of Itapoá, prior to the Public Hearing, in compliance with the Brazilian legislation (Conama Resolution 09/1987). The Public Hearing was held on March 22, 2000 in Pontal do Figueira, adjacent to the Port area in the municipality of Itapoá. For the Public Hearing, the Project Company published invitations in three newspapers of broad circulation and sent individual invitations to the environmental organizations in the region.
- 7.2 Prior to the Public Hearing, in September 1999 the Project Company developed a public opinion poll to learn about the expectations of the affected population in the area. A questionnaire was applied to residents, opinion leaders, business men, and leaders of political and community organizations (including the association of the fishing colonies, non-governmental organizations, workers unions. Results of the poll indicated that the population had realistic expectations and that the Project Company should address such expectations.
- 7.3 After the Public Hearing and in a continuous basis, the Project Company continues to implement communications and disclosure activities with the local communities. Several minutes and video records are available. Meetings were also held during the Bank's site visit due diligence (August 2007).
- 7.4 The principal issues and concerns expressed by the community are: a) Will they be prepared and eligible for the job opportunities? Will the beach become inaccessible? What will be the positive benefits for the city? Will there be permanent enforcement of the environmental requirements? The Project Company addressed all these issues including modification of the Project design to avoid the permanent loss of accessibility to the beach, provide professional training to the local people, and support the development of a Municipal Land Use Plan (See additional information in Section VI – Environmental, Social and Health and Safety Management).
- 7.5 During construction and operations the Project will implement Social Communications programs as part of the PBA. The programs will be developed in coordination with local authorities and will address the communities of the areas adjacent to the Port (See Section VI - Environmental, Social and Health and Safety Management for details).

VIII RECOMMENDATIONS

- 8.1 As a result of the Bank's environmental, social and health and safety due-diligence, the Project Team confirms the classification of "B", as defined in the Bank's new Environmental and Safeguard Compliance Policy. The Project is committed to complying with the IDB Policies, the Equator Principles and IFC guidelines during the construction and operation phases of the Project.
- 8.2 While the Project Company has already implemented various environmental and social management programs, as well as information disclosure and public consultation activities as part of the Environmental and Social Management Plan, the Bank will require additional activities during the project construction and operational phase, in

compliance with the new Environmental and Safeguard Compliance Policy and the Disclosure of Information Policy.¹¹ This section presents a summary of the environmental and social requirements proposed for the TECON Project, which will be included in the Loan document.

8.1 -Standard environmental and social requirements for IDB private sector projects that will be applied to the TECON Project:

8.3 The Project Loan Agreement (legal agreement) between the IDB and the project company establishes the specific environmental, social, health and safety, and worker rights requirements ("environmental and social provisions") applicable to the project. The purpose of these provisions is to ensure compliance with applicable in-country legal requirements, compliance with applicable IDB requirements, and mitigation of project-specific environmental, health and safety impacts and risks.

8.4 The fundamental environmental and social provision is for each environmental party to comply with all environmental and social requirements such that all project-related impacts and risks are adequately mitigated or controlled. An environmental party is defined in relation to the project, as the project borrower, sponsor, construction contractor, operator, or any company or person working for the project.

(a) Environmental Plans and Management Systems

8.5 Environmental and Social Plans and Environmental, Social and Health and Safety Management Systems and are the principal mechanisms used by the IDB in order to ensure that all project environmental, social, and health and safety impacts and risks are adequately mitigated. These plans must be in form and substance satisfactory to the IDB, and effectively implemented. These plans are categorized into four types as described below, however for a given project these plans may have different names and/or be presented in one or more different documents (e.g., various project-specific plans/documents may comprise an individual IDB environmental and social plan; or more than one IDB environmental and social plans may be presented in one project-specific plan/document):

- (i) *Environmental and Social Management Plan or ESMP* is either one plan covering both the project construction and operation phases or two separate plans, one for each phase, which describe the actions necessary for each environmental party to comply with all environmental and social requirements (other than those actions described in the Health and Safety Plan, the Contingency Plan or the Spill Prevention and Counter-Control Plan).
- (ii) *Health and Safety Plan* is either one plan covering both the project construction and operation phases or two separate plans, one for each phase, which describes the actions necessary for the project and each environmental party to comply with all applicable environmental and social requirements relating to health and safety.
- (iii) *Contingency Plan* is either one plan covering both the project construction and operation phases or two separate plans, one for each phase, to properly

¹¹ As previously stated the Indigenous Peoples Policy and the Involuntary Resettlement Policy are not applicable to the Project

prevent and control unplanned but foreseeable events associated with the project or any environmental party, including the release of hazardous substances, that could reasonably be expected to lead to violations of environmental and social Requirements, environmental claims or adverse impacts with respect to environmental and social matters.

- (iv) *Spill Prevention and Counter-Control Plan or SPCC* is either one plan covering both the project construction and operation phases or two separate plans, one for each phase, to properly prevent and control the release of hazardous substances.
- (v) *Environmental, Social and Health and Safety Management System (ESHSMS)* is either one integrated system or two separate systems, covering all components and that must be consistent with ISO 14001 and OSHAS 18001, respectively, developed separately for the project construction and for the operational phase.

(b) Requirements during the life of the IDB loan agreement:

- (i) Comply with all applicable Brazilian environmental, health and safety regulatory requirements, in particular: (a) all the conditions established in the environmental permits; (b) all environmental, health and safety requirements of the project contracts, and any subsequent modifications; and (c) all requirements associated with any environmental, health and safety related permits, authorizations, or licenses that apply to the Project company.
- (ii) Comply with the applicable IDB Policies, in particular the Environment and Safeguards Policy (OP-703) and the Information Disclosure Policy (OP-102).
- (iii) Comply with the applicable ambient standards set forth in the International Finance Corporation (IFC) Environmental, Health and Safety General Guidelines, effective April 30, 2007.
- (iv) Comply with the applicable requirements set forth in the Occupational Health and Safety Guidelines, of the International Finance Corporation (IFC) effective as of April 30, 2007.
- (v) Ensure that all companies contracted for construction or operation activities comply with the applicable environmental and social requirements of the legal agreement.
- (vi) Implement an environmental, health and safety management system that is consistent with the main principles of ISO 14001 and OSHA 18001 (for environment and health and safety, respectively), for the construction and the operational phases.
- (vii) Submit an environmental and social compliance report, in form, content and frequency as determined by the IDB.
- (viii) Consult with the IDB before approving or implementing any and all material changes, as determined by the IDB, to the project or its timetable that could potentially have negative environmental, social, or health and safety effects.
- (ix) Send written notice of any and all material noncompliance with any environmental and social requirement of the loan agreement and any significant environmental, social, or health and safety accident, impact, event or environmental claim.
- (x) Implement ongoing information disclosure and consultation activities related to environmental, social, and health and safety aspects of the project.
- (xi) Formally inform the IDB about any non-conformity with the environmental and IDB regulations and any outstanding legal cases or any formal and

significant complaint about any environmental, safety, health or social aspect.

(c) Environmental, social and health and safety audit:

8.6 The Bank reserves the right to request an environmental, social and health and safety audit to address significant non-compliances with environmental and social requirements, as defined by IDB.

8.2 - Specific environmental and social requirements for TECON

8.2.1 - Prior to Financial Closing:

- (a) Develop and implement the a Human Resources Policy, norms and procedures relating to labor and working conditions to comply with the Brazilian legislation, IDB policy and IFC Guidelines (Question 2).
- (b) TECON must provide evidence to the IDB that appropriate environmental and social and health and safety supervision and monitoring system and procedures are in place to ensure third parties compliance with the IDB requirements, and that “stop-order procedures” are in place in case excedences of standard environmental parameters occur (noise, particulates, water quality).
- (c) TECON must prepare and implement a procedure for controlling access to the remaining forest area on the site in order to avoid the actions of illegal wood-cutters and hunters.
- (d) TECON must submit to IDB, in form and content satisfactory to IDB, specific health and safety procedures for the construction of the marine portions of the Port.

8.2.2 - Prior to First Disbursement:

- (a) Provide a revised specific Environmental, Social and Health and Safety Management Plan (PBA) for construction of the Port that is satisfactory to IDB. The revised PBA must include enhancements to the hazardous substances management plan and to the biota monitoring program to address the potential for the appearance of potentially toxic or invasive species, as well a enhanced procedures to address any non-compliance, in particular any temporary contamination of the beaches and the bathing waters, and excedences of any applicable environmental quality standards during construction.
- (b) Finalize the development of the Social Communication and Community Relations Plan, and establish performance indicator standards for its implementation
- (c) Provide the IDB with a report demonstrating compliance with the PBA, the requirements of LI 288/03, as well as with the applicable IDB Policies.
- (d) Provide evidence of best efforts to establish agreements with the Itapoá City Administration and other administrations in the area of influence regarding the programs proposed in support for the local development.
- (e) Implement to the satisfaction of the IDB, the monitoring program during construction of the marine facilities.

- (f) Provide to the IDB, in form and substance satisfactory to IDB, the study on cumulative greenhouse emissions (Port and SC-145) for the operational phase of the Port, including any mitigation measures as applicable.

8.2.3 - Prior to starting operations:

- (a) Provide a revised specific Environmental, Social and Health and Safety Management Plan (PBA) for the operation phase of the Port that is satisfactory to IDB, with attention to, but not limited to, procedures for safe mooring and unmooring, procedures to ensure compliance with the six IMO Prevention of Marine Pollution Conventions, including but not limited to, MARPOL 73/78; International Convention for the Control and Management of Ships' Ballast Water and Sediments, 2004; and the International Convention on the Control of Harmful Anti-fouling Systems on Ships, 2001; waste management plan, terrestrial traffic safety management procedures, and procedures for ensuring compliance with the IMO declarations regarding the prohibition of banned anti-fouling systems (such as tributyl (TBT) in all ships using the Terminal; solid and liquids waste management procedures in compliance with all the requirements from MARPOL and the IFC Environmental, Health and safety Guidelines specific for Ports, Harbors and Terminals.
- (b) Provide the IDB with the Operational Manual for the TECON Terminal, incorporating, but not limited to, all the requirements listed in item (a).
- (c) Provide the IDB with the Contingency Plan and the Spill Prevention and CounterControl Plan for the operational phase of the TECON Terminal.
- (d) Provide the IDB with the Emergency Response Plan for the operational phase of the TECON Terminal.
- (e) Develop and implement an Environmental, Social and Health and Safety Management System (ESHSMS), either one integrated system or two separate systems, covering all components and that must be consistent with ISO 14001 and OHSAS 18001, for the Prot operational phase.
- (f) Provide the IDB with the Environmental Operations Permit.

8.3 - Bank Supervision

8.7 The Bank will hire an independent environmental and social consultant to supervise the Project for the duration of the loan, quarterly during construction, semi-annually during the first year of operations and until Project Completion, and annually thereafter for the life of the Loan

Attachment 1:
Figures and Tables

Table 1.1 Tecon Project dimensions

MEASURE OF INFRASTRUCTURE - meters	EXTENT	WIDTH
DESCRIPTION		
Berth A	315	43
Berth B	315	43
Access Bridge A	250	14
DESCRIPTION	AREA - m2	
Full Container Yard (m2)	100.000	
Empty Container Yard (m2)	17.000	

Table 1.2 Necessary equipment and physical resources

DESCRIPTION	Unit	Quantity
BACK PART		
Analysis, Project and Management		
Technical Project	vb	vb
Environmental Plan	vb	vb
Road and Access Project	vb	vb
Government - SPU	vb	vb
Others	vb	vb
Courtyard		
Earth Moving		
Earth work	m ³	32.250,0
Earth embankment	m ³	64.500,0
Earth embankment isolation	m ³	32.250,0
Road Access / Pavement		
External Circulation Road	m ²	0,0
Road Access	km	0,0
Containers Courtyard		
Blokret Pavement	m ²	100.000,0
Buildings		
Support	m ²	2.000,0
Storage	m ²	2.000,0
Fences	m	1.300,0
Utilities Systems		
Electrical, Automation, Instrument	vb	vb
Hydraulic / Fire Prevention System	vb	vb
Equipments / Machines		
Reach Stackers	und	3,0
RTG	und	11,0
Carts	und	25,0
Lorry Weighting	und	2,0
Toploader - Full Container Courtyard	und	2,0
Toploader - Empty Container Courtyard	und	2,0
Additional Ground (land + building)		
Land and Building		31.000,0
Earthwork		
Land		
TOTAL OF BACK PART		
DOCK CONTRUCTION AND EQUIPMENTS		
Pier (630m x 43m)	m ²	27.090,0
Bridge (230m x 12m)	m ²	3.500,0
Electrical, Automation, Instrument	vb	
Gantry Cranes	und	2,0
MHC	und	2,0
Maintenance Equipments	und	1,0
Hydraulic / Fire Prevention System	vb	vb
Construction Managment Project	vb	vb
Hardware & Software	vb	vb
ISPS Code	vb	vb

Table 1.3 Estimated investment flow

INVESTMENT PER ASSETS						R\$ Thousand
ASSETS	YEAR 0 2007	YEAR 1 2008	YEAR 2 2009	YEAR 3 2010	YEAR 3 2011	TOTAL
Port Equipaments-Containers						
Gantry Cranes	6.217	39.530	-	-	-	45.747
Mobiles Cranes	-	-	-	-	-	-
Maintenance Equipments	86	549	-	-	-	635
ReachStackers	518	3.294	-	-	-	3.812
RTGs	3.993	25.387	-	-	-	29.380
Carts	-	6.240	-	-	-	6.240
Toploader - Full Container	104	659	-	-	-	762
Toploader - Empty Container	69	439	-	-	-	508
Highway Scale for Carts	-	560	-	-	-	560
TOTAL	10.988	76.658	-	-	-	87.646

						R\$ Thousand
ASSETS	YEAR 0 2007	YEAR 1 2008	YEAR 2 2009	YEAR 3 2010	YEAR 3 2011	TOTAL
Civil Infrastructure						
Berth A	25.350	25.350				50.700
Access Bridge A	4.469	4.469				8.939
Berth B	25.350	25.350				50.700
Access Bridge B	-	-				-
Berth C	-	-				-
Containers Yard	9.236	9.956	-			19.192
Edificacions Primary Zone	3.800	3.800				7.600
Additional Ground	4.000		-			4.000
Construction of a Highway to Access the Port	-	-				-
TOTAL	72.206	68.925	-	-	-	141.131

						R\$ Thousand
ASSETS	YEAR 0 2007	YEAR 1 2008	YEAR 2 2009	YEAR 3 2010	YEAR 3 2011	TOTAL
Technological Support Infrastructure						
Hardware and Software - Adm./Fin./Op. Controll		2.500				2.500
ISPS Code		200				200
Hydraulic / Fire Prevention System	1.662	1.662				3.323
Electrical, Automation, Instrument	6.273	6.273				12.546
Contingency	2.360	3.887	-	-	-	6.247
Construction Managment Project	4.261	860				5.121
TOTAL	14.556	15.381	-	-	-	29.937

						R\$ Thousand
ASSETS	YEAR 0 2007	YEAR 1 2008	YEAR 2 2009	YEAR 3 2010	YEAR 3 2011	TOTAL
Investimento Realizado						
Land	4.000					4.000
Project	7.500					7.500
Defer assets	4.500					4.500
Reevaluation	30.667					30.667
Total	46.667	-	-	-	-	46.667

						R\$ Thousand
ASSETS	YEAR 0 2007	YEAR 1 2008	YEAR 2 2009	YEAR 3 2010	YEAR 3 2011	TOTAL
Pre Operational						
Consulting and Bank Fees	8.720					8.720
General Expenses	3.670					3.670
Taxes	55					55
Labor	-	5.310				5.310
Total	12.445	5.310	-	-	-	17.755

						R\$ Thousand
ASSETS	YEAR 0 2007	YEAR 1 2008	YEAR 2 2009	YEAR 3 2010	YEAR 3 2011	TOTAL
Net Working Capital		38	330			

						R\$ Thousand
ASSETS	YEAR 0 2007	YEAR 1 2008	YEAR 2 2009	YEAR 3 2010	YEAR 3 2011	TOTAL
TOTAL INVESTMENT	156.862	166.312	330	-	-	323.504
ACCUMULATED TOTAL INVESTMENT	156.862	323.174	323.504	323.504	323.504	323.504



Figure 1.1 Macro-location

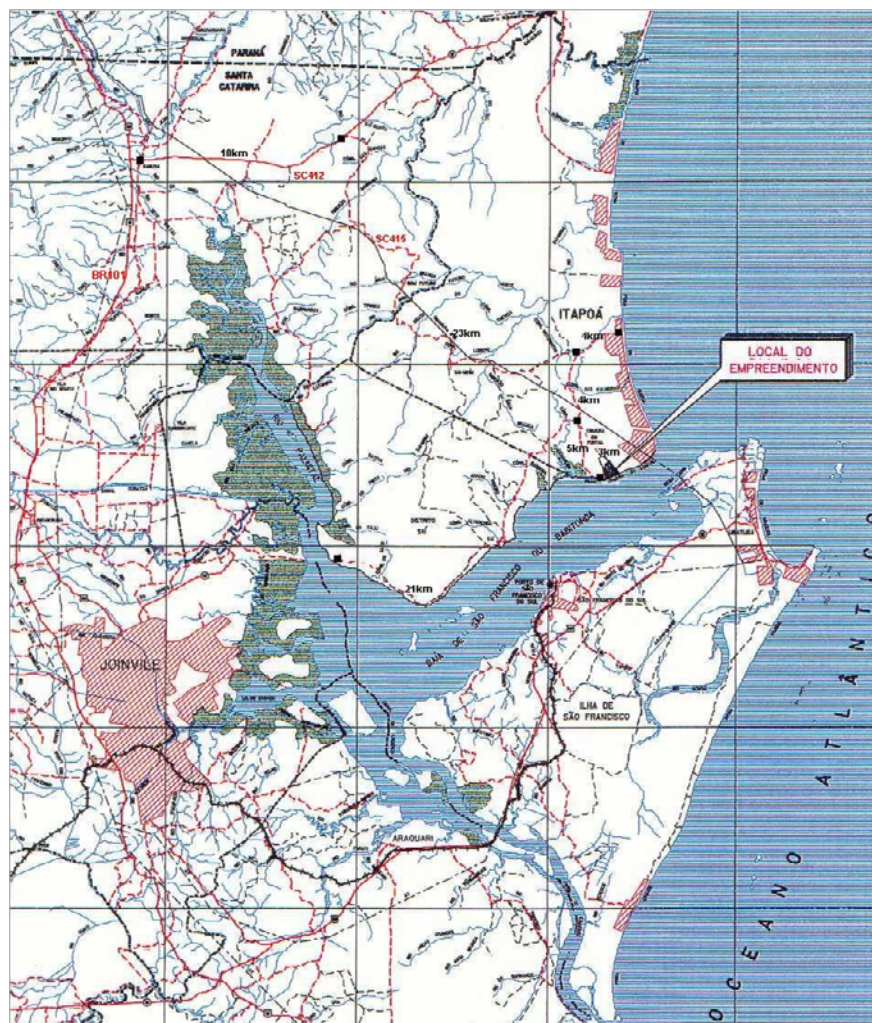


Figure 1.2 Location of the future Port of Tecon SC

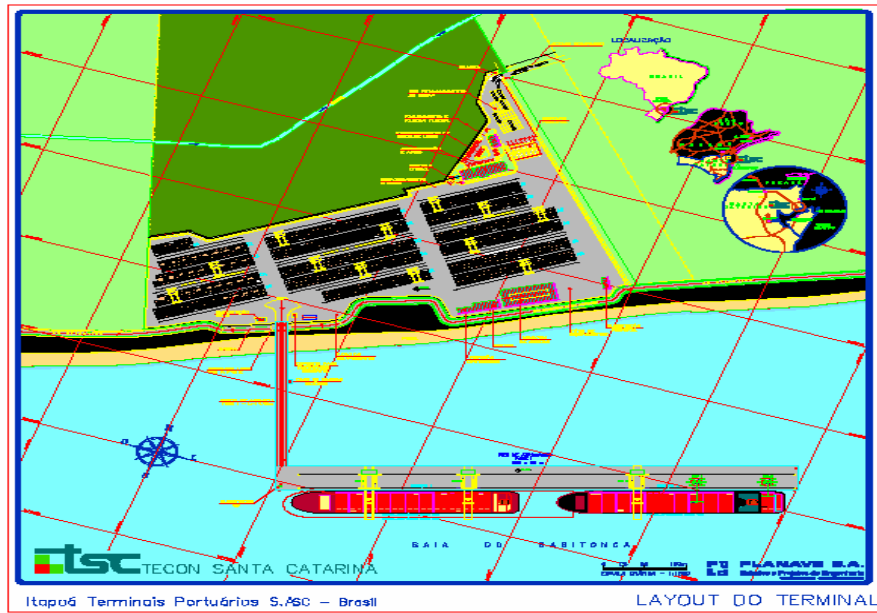


Figure 1.3 Project layout (Phase 1)



Figure 1.4 Picture of the location of the future Tecon Port

Attachment 2:
Implementation Chronograms

Table 1.1 Cronograma de execução e implantação dos Planos Básicos Ambientais PBA.

CRONOGRAMA DE EXECUÇÃO E IMPLANTAÇÃO DOS PLANOS AMBIENTAIS - PBAs																		
DESCRIÇÃO DOS PROGRAMAS				MESES														
				1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	P-I	PI - Programa de Monitoramento da Linha da Costa																
		1	Visita preliminar	X														
		2	Coleta de dados	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
		3	Tratamento dos dados	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
		4	Relatórios de campanha			X			X			X			X			X
		5	Entrega do relatório anual						X						X			X
2	P-II	Programa de Monitoramento das Águas																
		1	Amostras	X		X		X		X		X		X		X		X
		2	Análise das amostras	X		X		X		X		X		X		X		X
		3	Tratamento dos dados	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
		4	Elaboração/entrega de relatórios			X			X			X			X			X
		5	Entrega do relatório anual						X						X			X
3	P-IV	Programa de Fiscalização e Monitoramento																
		1	Verificações		X			X			X			X			X	
		2	Pesquisa de campo						X					X				X
		3	Elaboração/entrega de relatórios		X		X		X		X		X		X		X	
		4	Entrega do relatório anual						X					X				X
4	P-V	Programa de Estudos da Biota Local e Preservação dos Manguezais																
		1	Visita preliminar	X														
		2	Amostras	X		X		X		X		X		X		X		X
		3	Análise das amostras	X		X		X		X		X		X		X		X
		4	Tratamento dos dados	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
		5	Elaboração/entrega de relatórios		X		X		X		X		X		X		X	
		6	Entrega do relatório anual						X						X			X
5	P-VII	Programa de Monitoramento de Parâmetros Oceanográficos																
		1	Visita preliminar	X														
		2	Coleta de dados		X	X												
		3	Tratamento dos dados			X	X											
		4	Composição do relatório					X										
		5	Entrega do relatório parcial						X									
6	P-VIII	Programa de Gerenciamento de Resíduos Sólidos (Lei 9.966/00)																
		1	Diagnóstico de Resíduos Sólidos	X	X													
		2	Política de Resíduos Sólidos		X													

Table 1.1 **Cronograma de execução e implantação dos Planos Básicos Ambientais PBA.**

CRONOGRAMA DE EXECUÇÃO E IMPLANTAÇÃO DOS PLANOS AMBIENTAIS - PBAs																					
DESCRIÇÃO DOS PROGRAMAS				MESES																	
				1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
		3	Objetivos, Metas e Planos de Ação			X	X														
		4	Sensibilização/Conscient./Capacitação(h/a)					X	X	X											
		5	Implantação dos Planos (Acompanhamento)					X	X	X	X	X	X	X	X	X	X	X	X	X	
		6	Monitoramento do Desempenho (Acompanhamento)					X	X	X	X	X	X	X	X	X	X	X	X	X	
		7	Tratamento dos dados						X		X		X		X		X		X		
		8	Elaboração de relatórios parciais							X			X			X			X		
		9	Elaboração de relatório anual											X						X	
7	P-IX	Programa Ambiental de Construção																			
		1	Vistorias	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
		2	Elaboração/entrega de relatórios	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
		3	Entrega do relatório anual						X					X						X	
8	P-XIII	Monitoramento Arqueológico																			
		1	Monitoramento (Acompanhamento)	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
		2	Elaboração de relatório anual												X					X	
9	P-XIV	Espécies Ameaçadas de Extinção, Raras e Endêmicas- Bioindicadores																			
		1	Visita preliminar	X																	
		2	Coleta de dados	X					X					X						X	
		3	Tratamento dos dados	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
		4	Elaboração/entrega de relatórios						X					X						X	
10	P-XVIII	Estudo de Balneabilidade																			
		1	Coleta de dados	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
		2	Tratamento dos dados	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
		3	Elaboração/entrega de relatórios		X		X		X		X		X		X		X		X		
		4	Entrega do relatório anual						X					X						X	