

The improvement of Porto Sul project through EIA

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Abstract

This article aims at presenting a contribution to EIA on the environmental licensing of a portuary complex. The project comprises a Complex that withholds a Private Terminal for Iron Mineral and a Public Terminal for general load movement at the City of Ilhéus (Bahia, Brazil). In the first proposal presented to IBAMA, the environmental impact study pointed towards the area 'Ponta da Tulha' as the most suitable. This area is composed of 94.68% of Dense Ombrophyle Forest at high stages of regeneration, with preserved fauna, high indexes of endangered species and endemism; existence of coral reefs with good vital conditions. These facts, besides the existence of locality alternatives, subsidized IBAMA's negative to install the undertaking in this place. The second version of the project in 'Aritaguá', sited 7 km from the original project, brought a reduction of the impacts on flora, fauna and reefs. IBAMA determined a study of the technological alternatives for the breakwater, due to the impacts on the coastline and adaptation of project area to the reduction of the socio-economic impacts as well as to the fisheries activities. In the third version it was verified environmental gains with a considerable reduction of the impacts on: length of the breakwater, volume of rocks to be utilized in the undertaking, vehicle movement, alterations on the coastline, building time, expropriations, and localization of the area of discharge. It was verified the importance of EIA through the analysis of locality as well as technological alternatives in the reduction of environmental impacts.

Introduction

Brazil elaborated the first environmental rules in the decades of 60 and 70 of the past century, dealing with specific aspects, such as flora and fauna, atmospheric pollution and water resources, later on being followed by its neighbor countries.

The first legal arrangement related to the Assessment of Environmental Impacts was Law n° 6,938 – National Politics for the Environment – dated August 31, 1981, and regulated through Decree n° 88,351 of June 1st, 1983. In its 2nd article, the National Politics for the Environment has as its objective the preservation, improvement and recovering of the environmental quality favoring life, aiming at safeguarding in Brazil the conditions to socio-economic development, the interests of national security and to protect dignity of human life, considering the principle of controlling and zoning the potentially or effectively polluting activities. To achieve those objectives, this Law establishes a few instruments, such as the environmental impact assessment and the licensing and revision of the potentially or effectively polluting activities.

The definitions, responsibilities, basic criteria and general guidelines for the implementation and use of the Environmental Impact Assessment were established by CONAMA – the National Council for the Environment – in its Resolution n° 01, of January 23, 1986. Later on, the Constitution of the Republic of Brazil, in 1988, incorporated the demand of a previous study of the environmental impact of any construction or activity potentially causing significant degradation to the environment. Through CONAMA Resolution n° 237, of December 19, 1997, a revision and complement of the proceedings and criteria was carried out, applying it to environmental licensing, and a detailed list of the activities or undertakings was defined and subordinated to environmental licensing. Other laws later on can be cited as important parts in assessing the environmental impacts and in the process of environmental licensing such as Law of Atlantic Forest.

The licensing proceeding in Brazil, in a general form, consists of three stages: the first stage consists of analyzing the undertaking's viability, at what moment the assessment of environmental impacts is done. In case the undertaking proves viable, a previous license is issued (Previous License). In the second stage of environmental licensing, the project of the undertaking is detailed, as well as the basic environmental plan which contemplates mitigating measures and monitoring programs. Once approved, the project's installation is authorized (License for Installation). At last, after the implement's conclusion, the programs which shall be implemented during the undertaking's operations are defined (License for Operation).

The present article has the objective of presenting a contribution to EIA and its consequences on environmental licensing of the port complex Porto Sul, localized in the city of Ilhéus, State of Bahia, Brazil. The project was submitted to environmental licensing in IBAMA , which is Brazilian Federal Environmental Agency.

Description of the Undertaking

The project denominated “Porto Sul” is intended to be developed in the City of Ilhéus, State of Bahia, Brazil. In the area of intervention for the initial project, a Terminal of Private Use – TUP and the Public Port are inserted, equipped with a retro-area containing structures of a warehouse, a movement yard, operational services, administrative and customhouse operations, as well as environmental control.

At sea, an access bridge to the piers, with stakes, is foreseen, with a length of 3,500 m. This maritime access bridge will meet the needs of the TUP and the Public Port for ships of 60,000 to 200,000 DWT. The Public Port includes “Pier 1” for solid and liquid granaries, totalizing 3 berths and the “Pier 2” includes the terminal for diverse products, totalizing approximately 6 berths.

The TUP contemplates 2 berths to be utilized for moving iron minerals, one of them being a support base.

There also are foreseen 2 evolution basins, with a depth of -24 m DHN, and for the access area the foreseen depth will be -21 m; independent maritime access points are projected for each terminal.

Analysis of the Environmental Impact Study and its Consequences

The environmental impact study was presented to IBAMA, and had five areas as locational alternatives for the project: Ponta da Tulha, Distrito Industrial, Serra Grande, Porto de Ilhéus e Aritaguá. The environmental impact study pointed towards the area 'Ponta da Tulha' as the most suitable. Also, according to the Environmental Impact Study, 29 impacts were identified relating to the physical means, 38 to the biotic means, and 31 to the socio-economic means. On their assessments, all impacts were valued as to their nature, intensity, duration, reversibility, extension, range, potential and occurrence.

According to the Technical Statement elaborated by the Brazilian Institute for Environment and the Natural Resources – IBAMA, in response to the environmental impact study, it was verified that a Previous License for the project in "Ponta da Tulha" should not be issued, mainly due to the impact on the preserved area of Atlantic Forest, on fauna, on coral reefs and the existence of locational alternatives for the installation of the port complex in the region.

The installation of the port in the proposed area could cause the suppression of 70 ha of Atlantic Forests in medium and advanced stages of regeneration, and the Area Directly Involved (ADA) by the undertaking would comprise 94.68 % of Dense Ombrophyle Forests on Lowlands in medium and advanced regeneration. This forest area presents a rich and preserved associated fauna which depends on the forest resources, with high indicators of endangered species and endemism, besides species not described for the region.

Lowland forests, by virtue of being easily accessible and highly prized for agriculture and urban development (mainly driven by tourism near coastal areas) is a forest type that has succumbed to high deforestation rates, except for southern Bahia, which still retains a considerable forest area. But even in this region the remaining forest cover is rarely undisturbed, due to large areas under shade cocoa (*Theobroma cacao*) production, which requires complete understory removal and gradual canopy thinning in private landholdings (Galetti et al., 2009). Lowland and semideciduous forests contained the highest mammalian abundance across the Atlantic forest. These areas also harbor large populations of several threatened species, especially primates (Galetti et al., 2009).

Besides this, in the proposed local exist reefs with the presence of corals classified important and in good conditions of vitality in the ADA and the Directly Influenced Area (AID) of the undertaking, and that the identified impacts are not mitigating.

In the course of the undertaking's operations, the potential effects of high turbidity and sedimentation rates of sediment input not only include direct mortality, but also involve sublethal effects, such as reduced growth, lower calcification rates and reduced productivity, bleaching, increased susceptibility to diseases, physical damage to coral tissue and reef structures (breaking, abrasion), and reduced regeneration from tissue damage (Erftemeijer et al., 2012). The sensitivity of corals to, and their ability to recover from, the impacts of dredging and related activities depends on a range of factors, including the

ecological state or condition of the reef, its resilience and the typical ambient conditions experienced by the reef (McClanahan et al., 2002).

It also was verified the existence of locational alternatives which were not duly estimated and that could minimize the decurring impacts of the undertaking's installation.

This lack of robustness in the locational alternatives is something recurrent in many countries. In the United States, the lack of sustainable results in their projects is in some degree resulting from the fact that the AIA is nearly always conducted at the level of a single project, without locational alternatives (Senner, R., 2011). One of the forms to establish reliable locational alternatives would be the application of Ecological Economic Zoning (EEZ). The application of EEZ allows the combination of proposals for future uses of economical activities and human settling with the characteristics of the environment and the ecological limits (Cunha, 2006).

Environmental Impact Assessment and its Consequences

From the conclusion of the IBAMA analysis, a new environmental impact study was required. The second project version was presented, located in Aritaguá, 7 km distant of the original project. This project alteration brought about a significant impact reduction on flora, fauna and coral reefs.

In spite of the impact reduction, mainly of the biotic environment, IBAMA determined a study of technological alternatives for the breakwater, due to the impacts related to the coast line, and also requested an adaptation of the project area for the reduction of the impacts on the social-economical milieu, mainly expropriations, the related traffic volume and the impacts on the fishing activities.

In the third version of the Environmental Impact Study environmental gains were verified by means of a considerable impact reduction, such as diminishing the dredging volume from 36 million of m³ to 11.7 millions of m³, reducing the time of dredging from 47 months to 23 months, reducing the breakwater dimensions, reducing the volume of the rocks to be utilized in the construction, from 14.2 to 11.7 millions of m³, reducing vehicle movement during the construction, reducing the coast line alterations, diminishing the time of construction, reducing the expropriations of the local population, as well as a better localization of the discharging area which reduces impacts on fisherie. Also, the project reduced the project cost from R\$ 3,60 billion (US\$ 1,8 billion) to R\$ 2,75 billion (US\$ 1,36 billion).

The chance for environmental degradation has to be fully acknowledged, especially during the construction phase, with mitigation measures to reduce pressures and to restore any damaged areas. Significant impacts must be identified and alternatives have to be considered and discussed, including layout and design, scale of the project and technology and management. This helps to determine which impacts are significant and need to be addressed and also identifies mitigation and compensatory measures. Moreover, the EIS should contain a post-decision monitoring plan and a commitment to carry out an

environmental audit of the performance of the project; using indicators, such as water quality, energy consumption, solid and sewage management (Zubair et al., 2011).

Thus, to perform environmental management it is essential to prepare and qualify everyone involved, invest, change structures, processes and routines. It is due to this that from the point of view of the undertakers, generally worried about immediate profit, the environmental management historically always has been identified as being an additional expense. However, that logic is being surpassed by another one which identifies environment preservation as being a factor of advantage in sustainable competition, especially when added to the actions of social corporative responsibilities (Kitzmann & Asmus, 2006).

According to the above presented, the importance of AIA on potentially polluting undertakings is proved, mainly through the analysis of locational and technological alternatives in the reduction of environmental impacts.

Conclusions

The present article was able to demonstrate that a project jointly developed among the undertaker, public institutions and the affected population, allied to an environmental study of quality and with concrete data, was able to significantly reduce the potencial environmental impacts, alongside with cost reduction and time gains in the construction.

The paper shows how EIA can be effective on: Reduction of the resources needed for the implementation of the project, for example, the reduction of volume of rocks for breakwater construction; Prevention of potential environmental and social conflicts; Prevention of significant negative impacts; Adoption of a new solution with environmental advantages from the previous alternatives, for example, the locational alternative for the project and technological alternatives for the maritime structures; and created advantages for the promoters, environment and the society.

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