

Bolivia: SEA on the Santa Cruz – Puerto Suarez Corridor*

Case study compiled for the drafting of CBD guidelines on Biodiversity in SEA.
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1. Introduction

This SEA has been executed for the planned route from Santa Cruz to Puerto Suarez in Bolivia. This route, 571 kilometres long, forms the completion of the Corredor Bioceánico Oeste that connects the Atlantic with the Pacific coast and will provide a good connection with the Paraguay river.

The national government of Bolivia argues this connection will have positive impacts on the social-economic development of the relative poor region: accessibility, less transport costs (transport now depends on a monopolised rail connection), creation of a market for the agro industrial products and a better competitive position for the production of soybeans, timber, meat. Besides, the better accessibility stimulates the economic integration with Brazil.

2. Links to other policies, plans and programmes

- Bioceánico (international)
- Hidrovía (international)
- Planning of local routes (national and regional)

3. Biodiversity, the general meaning of biodiversity in the SEA

In the area between Santa Cruz and Puerto Suarez some very valuable ecosystems can be distinguished:

- Bosque Seco Chiquitano – dry chiquitano forest
- Bosque Chaqueño – chaco forest
- Sabanas Arboladas – forested savannah
- El Pantanal Boliviano – Pantanal wetlands (Bolivian side)

The SEA recognizes the historic evidence of transport routes leading to a greater accessibility and occupation of an area. Accessibility will lead to economic colonisation of the area, implying agricultural activities, wood production, etc. These (social) activities will have severe repercussions on the physical environment: deforestation, degradation of ecosystems and a loss of biodiversity. In a short time the area may be degraded and only suitable for extensive farming. This is not a desired situation: there is a bad rate of return from the investments, the cultural heritage has disappeared and the production/development is unsustainable. The environmental and social evaluation should provide means to avoid this mechanism.

Conclusion: In the analysis not only the direct physical effects are incorporated, but also the indirect physical effects that occur as a result of social changes such as immigration and agricultural or other economic activities. For this reason, not only the area in which the route will be situated is included in the SEA, but also the larger area in which the indirect physical influences will occur is included:

- Area de Intervención (intervention area)
- Area de Influencia Directa (area of direct influence)
- Area de Influencia Indirecta (area of indirect physical and socio-economic influence)

4. Transparency and Stakeholder involvement; Involvement of the relevant (related to biodiversity) stakeholders

Participation mainly concerned the socio-economic position of various target groups (indigenous, farmers, etc.). For the villages along the road an information programme was set up. Special attention is paid to ethnic groups and their production systems and land use. A differentiation in the measures was made based on different characteristics of the groups.

5. Biodiversity in the different stages of the SEA process

5.1 Screening

A SEA was obliged by the donor (BID)

5.2 Scoping

See under heading 3

5.3 The assessment

Effects of construction and use of the road are divided into effects on the abiotic environment (soil, hydrological regime, water quality, air quality) and biotic effects (vegetation, fauna, protected areas).

Physical Impacts (a-biotic):

Soil:

- erosive processes → changing the landscape
- erosive processes → air pollution, unstable road bodies, geological damage, geomorphologic changes, change in the drainage system.

Hydrologic system:

- changing the flows / course , surface and subterranean.
- decreasing recharge of aquifers caused by impermeable surface
- growth in demand for water; stimulated by presence of construction workers and later, by augmentation of users

Water quality:

- contamination by waste water of construction workers, by transportation of construction materials, emissions of cars and vehicles
- leads to secondary impacts on micro organisms in water
- risk of accidents with dangerous materials

Air quality:

- augmentation of emissions

Biotic environment:

- direct loss of vegetation by construction; this also has repercussions on vegetation in immediate surroundings and the structure of vegetation in the region because corridors are interrupted.
- loss of habitats for species, mainly caused by land use changes: fragmentation of habitats.

Attention is given to the social-economic impacts. In the construction phase it is expected that local people will give up their agricultural activities to earn money as a constructor. When the road is ready, massive immigration is expected.

The presence of construction workers will disrupt the social structure of the vulnerable indigenous peoples: drunkenness, fights, prostitution, risk of accidents, risks for public health etc.

The expansion of the agricultural frontiers (soya) will have further impacts on biodiversity, deforestation etc.

The description of the effects on the most important features of the natural environment comprises a comprehensive description of the characteristics of the environment, with an accent on the interrelationships between natural factors and processes that actually determine the configuration of the identified habitats/environments, and the relative importance of these habitats (ambientes) to preserve biodiversity.

Conclusion: in this approach attention was paid to key processes that support biodiversity

Also, attention is paid to species conservation. The analysis has led to the identification of a hierarchy in zones to protect, habitats (biological corridors) to protect and to criteria to which forestry should obey in order to develop a sustainable and economical viable system of forestry.

5.4 Decision making

Based on the SEA a "Programa de Protección ambiental y social" (Environmental and Social Protection Programme) has been formulated that consists of many sub programmes and will be executed by governmental and private organisations on various spatial levels.

Mitigating measures:

- ⇒ measures concerning appropriation of land are differentiated according to differentiated groups;
- ⇒ a-biotic physical impacts are managed (revegetation)
- ⇒ impacts on biotic environment are managed by revegetation and management
- ⇒ socio-economic/cultural impacts are mitigated by new programmes and setting norms for execution of the project.

5.5 Monitoring: PASO = Plan Aplicación y Seguimiento Ambiental

This is a comprehensive plan that consist of various other programmes:

- ⇒ Plan Ambiental de Construcción: environmental management of construction activities;
- ⇒ Programa de Corrección del Pasivo Ambiental: revegetation (focus on anti-erosive, hydrological system, critical habitats, safety measures);
- ⇒ Sistema de Supervision y monitoreo Ambiental: environmental supervision and monitoring;
- ⇒ And various programmes with a focus on socio-economic issues

One of the findings of the studies on protected areas is that the unplanned activities of local inhabitants in and outside the boundaries of these areas, are a threat to biodiversity. People don't know about the existing measures, rules and control-mechanisms. Control is difficult due to lack of means.

5.6 Information

- ⇒ based on existing information
- ⇒ satellite pictures
- ⇒ results of participation: resulted in a comprehensive description of 3 sectors: natural environment, socio-economic/cultural environment, appropriation and land use/use of natural resources.

6. General observations

Explicit attention to indirect physical effects, that is, effects caused by social changes such as immigration and land use change (agricultural frontier).

Comprehensive approach.

***References**

"Resumen Ejecutivo de Evaluación Ambiental Estratégica y revisión / complementación del EEIA del Corredor de transporte Santo Cruz – Puerto Suarez" (2000).

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