

Supplementary Advice on Terms of Reference
for SEA Polo de Desarrollo (Puerto Busch)

- Bolivia -

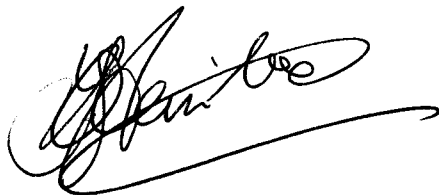
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Environmental Impact Assessment

**Supplementary Advice on Terms of Reference for
SEA Polo de Desarrollo (Puerto Busch)
- Bolivia -**

**Advice submitted to the Vice Ministry of Natural Resources and Environment
of the Ministry of Sustainable Development (MDS) in Bolivia
by a working group of the Commission for Environmental
Impact Assessment in the Netherlands**

Technical Secretary



Ms. Ineke A. Steinhauer

Chairman of the Working Group



Mr. Klaas Jan Beek

Utrecht, 4 February 2005

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1. INTRODUCTION

In July 2004, the Ministry of Sustainable Development in Bolivia (MDS) invited the Netherlands Commission for Environmental Impact Assessment (EIA) (see letter appendix 1), to assist MDS with the start of the introduction of Strategic Environmental Assessment (SEA) in Bolivia. The objective of the involvement of the Commission is to assist in developing methodologies for pilot SEAs, thus generating a replicable model and recommendations for the realisation and institutionalisation of SEAs in Bolivia.

The first activity was to assist MDS in defining Terms of Reference (ToR) for the execution of a pilot SEA in the area of influence of the Polo de Desarrollo Sur-este (south-eastern spearhead of development) of Santa Cruz, Bolivia. The Commission visited Bolivia in September 2004 and presented its advisory report on 30 September 2004¹. This report presents preliminary ToR for both the process and contents of the SEA. It also provides recommendations for the institutional capacity needed to undertake this pilot SEA. The advisory report has been distributed by MDS to several stakeholders in Bolivia, of which a number has sent their observations².

In November 2004, the Commission visited Bolivia for a second pilot SEA, Salar de Uyuni. During that occasion, discussions were held with representatives of the Vice Ministry of Natural Resources and Environment (VMNRMA), the Netherlands Embassy and the departmental government (Prefectura de Santa Cruz) (see appendix 2 for minutes of that meeting) on the ToR for the Polo de Desarrollo Sur-este. The conclusion was drawn that the preliminary ToR, as presented in September, provided the argumentation on the basis of which the leading planning process and the level of undertaking of the SEA could be selected (in fact the general scope of the SEA). However, it did not provide sufficiently detailed ToR for the SEA-study: which information has to be assessed at what level of detail? Hence, the preliminary ToR should be considered as initial ToR, which still need supplementary detailed advice on ToR. Also questions came up on how to set up and manage the execution of the SEA, as it is the first of its kind in Bolivia. Other questions concerned the roles of the different institutes involved such as the Direction of Environment within the VMNRMA, the Prefectura de Santa Cruz and others. Following these discussions, the Commission offered to assist in two tasks:

- Further specification of the preliminary ToR once decisions have been taken on the leading planning process and the corresponding level of the SEA.
- Suggestions for the set up and management of the SEA study, including the profile of SEA experts who will undertake the SEA.

¹ Advice on Terms of Reference for a SEA for the Polo de Desarrollo (Puerto Busch) Bolivia, 30 September 2004

² DG Medio Ambiente, DG Biodiversidad, DG Cuencas, SERNAP, WWF, Interproyectos, Brigada Parlamentaria y CADEX

In the following chapters these two issues will be elaborated. The Commission wants to emphasize that this advice is a supplement to its advice on ToR of September 2004 (see also appendix 3 for project information). Both advices should be read before starting the SEA study.

2. RELATIONSHIP PRELIMINARY TOR AND SUPPLEMENTARY TOR

2.1 Justification of the approach

For a better understanding of the relationship between the September ToR and these supplementary ToR, the Commission recalls the 10 steps of the SEA:

Screening

Step 0) Define which planning process is subject to SEA

Scoping

Step 1) Find the stakeholders and announce the start of the process

Step 2) Develop a shared vision on problems/objectives and alternatives

Step 3) Consistency analysis

Assessment

Step 4) Set ToR for the assessment of alternatives identified

Step 5) Do the assessment and document it

Step 6) Organise (independent) quality assurance

Decision making

Step 7) Discuss with all stakeholders the alternative to prefer

Step 8) Take a (political) decision and motivate it

Monitoring

Step 9) Monitor the implementation and discuss the result

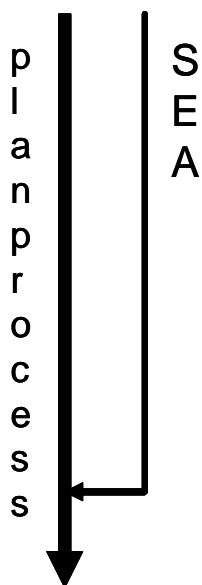
Between September and December 2004, MDS has given further thought to recommendations made by the Commission on **step 0**: 'define which planning process is subject to SEA'.

Although no explicit choice has been made by parties in Bolivia on the leading planning process and the level of the SEA, all (including the Commission) agreed that the SEA should be undertaken at the level of the Polo de Desarrollo Sur-este: this provides opportunities for the enhancement of regional development and has the potential to bring stakeholders together.

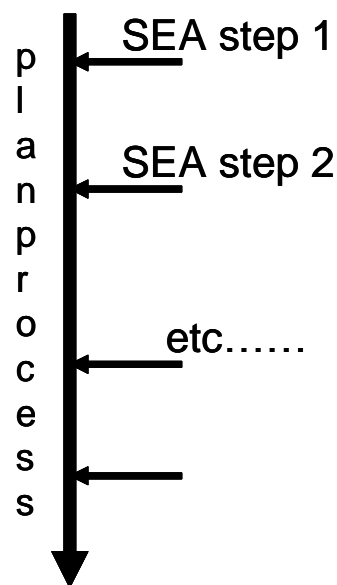
Ideally an SEA on (economic) development in a defined area is linked to national or regional planning procedures. In the present case, the pace of actual developments is exceeding the capacity of the Prefectura de Santa Cruz. Even though there are planning procedures partially covering the activities in the region (see par. 2.1 in September ToR), there is no overall planning mechanism that governs the economic development of the area.

Traditionally, SEA is applied parallel to or integrated in planning. In case there is no plan in place yet, SEA itself can serve as planning process.

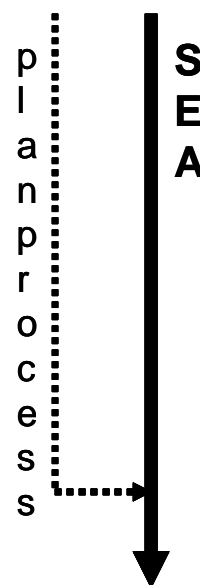
Parallel



Integrated



SEA = plan



For the Polo de Desarrollo Sur-este this means that SEA will become a stand alone planning process for the purpose of decision-making by the Prefectura de Santa Cruz. The exact geographical boundaries for the Polo de Desarrollo have not been clearly defined. The Commission suggests to limit the study area to the German Busch province, taking into consideration transboundary links with Brazil (inevitable because of iron ore, soy, gas, waterways, water supply, migration, trade, tourism, contraband etc.) The SEA however should, in consultation with stakeholders, clearly indicate the study area and justify its selection, taking into account planned activities and the area of influence of associated biophysical and social impacts.

As already indicated in the September ToR on **step 1**: 'find the stakeholders and announce the start of the process', participation and transparency are of utmost importance for a successful undertaking of this SEA. Therefore, findings and recommendations leading to formal decisions (at least during step 2) and 7)) should be discussed in participatory workshops at regular intervals, involving stakeholders such as government officials, NGO's, private sector representatives and local inhabitant representatives. A number of relevant stakeholders have been identified during the September mission in 2004.

The Commission gives a further specification of the **steps 2) to 8)** in the next Chapters. For **step 6)**, however, organise independent quality assurance, the Commission refers to its preliminary ToR.

3. SPECIFIED TOR FOR THE SEA FOR THE POLO DE DESARROLLO SUR-ESTE

3.1 Further specification of step 2) Develop a shared vision on problems/objectives and alternatives

3.1.1 Analysis of present and future problems and opportunities for development

The SEA should provide an overview of priority problems in relation to economy, social concerns and environment and give a summary of issues to be solved.

By taking the presently proposed activities as point of departure, the methodology to carry out the SEA problem analysis develops rather straightforward. A layered approach is suggested; each layer has to be superimposed on the next one in order to describe consequences. The following layers and steps may be distinguished (see also appendix 4):

Layer 1: Economic Activities: causing positive and negative impacts in the region.

1. Make an inventory of all proposed large-scale economic activities in German-Busch province.
2. Describe activities in terms of location, planned interventions, projected economic outputs, and expected direct social and environmental impacts.

Layer 2: Responses in the social environment: society responds to economic activities

3. What do these combined economic activities mean for the population development of the province? Will there be spontaneous and/or organised migration into the area?
4. What are the consequences for urban development (space and facilities needed at certain locations).

Layer 3: Infrastructure needs: economic and social development requires infrastructure.

5. What (new or improved) infrastructure is required to facilitate the economic and social development as projected above.

Layer 4: Land, water and natural resources: constraints and opportunities imposed by the physical environment.

6. Project the above layers on a physical resources map indicating present land-use, land property rights and ecosystem services.
7. Identify and map environmental and social impacts of layers 1-3, location, area of influence.
8. Start iterative participatory process of defining alternatives, and measures for mitigation and compensation.

The approach as presented above, takes the proposed economic activities as a point of departure. Subsequently, (indirect) social and environmental impacts thereof are looked at and what can be done about it. This implies that the improvement of social and environmental problems is not an explicit goal in itself in this situation.

'State of the art' application of the layered approach (and specifically when SEA takes over the planning process) would be the other way around:

- first describe the baseline situation (Layer 4: land, water and environment) and layer 2; social environment)
- then the infrastructure (layer 3) that fits with it (and that contributes to the solution of environmental and social problems on the one hand and does not cause problems in itself again on the other hand)
- and finally assesses which economic development is possible within this framework c.q. how the proposed activities would fit within the framework.

This would be the typical SEA-sequence also. The reasons why the Commission recommends to deviate from the 'state of the art' are:

- in the case of the Polo de Desarrollo, the departmental government is not (yet) actively leading the planning process, identifying the opportunities of the region. Instead, the Prefectura de Santa Cruz is in a position, where government reacts to initiatives surging from society.
- because of the lack of data, it would be a waste of (scarce) money and time to extensively map an area and undertake all kinds of investigations, without knowing which aspects of the area are relevant to study. First one has to know which impacts are to be expected in order to be able to zoom-in to relevant aspects (scoping).

In a later stage (see also next paragraph), when the Prefectura is really guiding and planning development, the layer-sequence can be applied 'upside-down': parting from the biophysical and social environment and actively trying to achieve environmental and social goals and developing economic alternatives when these do not match the environmental and social (carrying) capacity of the system.

For a thorough problem analysis, use can be made of a first scoping effort already undertaken by the Commission in its preliminary ToR (par. 2.3 and chapter 3). Extra thoughts/inputs of the Commission are presented in Appendix 5 to this advisory report.

3.1.2 General and specific objectives of the SEA

The objective of the SEA is to contribute to the solution of the above identified problems and benefit maximally from the identified opportunities, by addressing the entire package of planned activities in the area, aimed at optimising the development potential, providing maximum social development opportunities, while minimizing the impacts on nature and environment.

In the absence of an existing planning process for regional development, the SEA will be used. The Commission recommends to take the presently proposed activities as a point of departure, and to take a relatively short time horizon of 15 years. The SEA will then be able to clearly identify issues that the authorities need to decide upon in the near future.

When more experience is obtained with SEA and when the decentralisation process has progressed, the departmental government can decide to expand the present SEA for planning purposes on the longer term (for example 30-40 years). Such a second phase SEA would then also identify new development opportunities for which government could develop incentives packages, etc.

The SEA should clearly state its objectives and time span (ambition level). The Commission expects the SEA to deliver an integrated medium (15 years) term regional development plan. The role of the Prefectura de Santa Cruz in this case can be summarized as 'getting grip on development' and 'solving problems'. In fact, the set of economic plans and activities taking place without any co-ordination now, can be considered as the autonomous development, on which the Prefectura is now trying to get control through the SEA study. In a possible second phase SEA, its role (and ambition level) could be geared to 'guiding development' and 'exploit opportunities'.

The SEA should identify with first priority:

- (in)direct, synergistic and cumulative economic, social and environmental impacts of proposed activities.
- alternative solutions when negative impacts are significant.
- additional measures that authorities need to take to address impacts.

The purpose of a possible second phase SEA for the long term future development of the region would be to identify the most sustainable development scenario. This requires the formulation of a vision for the region, a strategy for development, set of policies, definition of goals. Several development scenarios can be elaborated, each from a different perspective (eg. industry-based development, tourism development, agri-trade based development, etc.).

3.2 Further specification of step 3) consistency analysis

The SEA should give an overview of the environmental protection and social improvement/poverty alleviation objectives in Bolivia which set conditions for the regional development plan and the way these objectives have been taken into account in its preparation. The Commission has mentioned some of these relevant policies and plans in par. 2.4 of the preliminary ToR. The draft SEA regulation can be added, as well as laws and policies such as Ley INRA, Ley de Participación Popular, Código Civil, Ley de Municipalidades, EBRP etc.

To optimize social and environmental goals as formulated in the above mentioned policies, laws and agreements, sustainability or guiding principles can be taken into account specifically for the region such as:

- Free flow of the surface and subsurface water (essential for Pantanal ecosystem functioning).
- The work force needed for development or the area should in principle be provided by local inhabitants (Puerto Quijarro and Suárez)
- The municipalities of Puerto Quijarro and Suárez will jointly implement trade facilities, as the collaboration is rather fragile at the moment
- Education of the people to join the new industries
- The main traffic routes are separated from residential areas.

- Waste of the new industries is collected, stored, processed and/or destroyed with the least negative effect on the environment.
- Strengthening of local and regional governments

Note that this list is indicative only. The SEA should give an overview of all relevant legal conditions and sustainability principles. Stakeholder consultation is an important means to identify and verify these sustainability principles.

3.3 Further specification of step 4): ToR for assessment and reporting

This paragraph consists of two main parts:

Inventory of current situation including impacts (3.3.1):

- All proposed large-scale economic activities in German-Busch province, including a description of activities in terms of location, planned interventions, projected economic outputs, and expected direct social and environmental impacts (layer 1).
- What do these combined economic activities mean for the population development of the province? Will there be spontaneous and/or organised migration into the area? What are the consequences for urban development (space and facilities needed at certain locations) (layer 2).
- What (new or improved) infrastructure is required to facilitate the economic and social development as projected above (layer 3).

The above layers will be presented on a physical map indicating present land-use, land property rights and ecosystem services and environmental and social impacts will be identified and mapped in terms of location and area of influence (layer 4).

The iterative participatory process of defining alternatives, and measures for mitigation and compensation (3.3.2).

A qualitative assessment based on expert judgment should be sufficient in most cases.

3.3.1 Inventory of current situation including impacts

Layer 1: Description of proposed economic activities³

- Transport corridor to Paraguay river (Puerto Busch) and alternatives
- Iron ore mining Mutún, upgrading, exploitation and exportation
- Urea factories

³ Layer 1 and 2 represent structures that change rather rapidly, usually within 10-40 years and contain human activities like living and industry. Layer 3 contains structures with relatively high initial costs and implemented for a 25-100 year life cycle. Layer 4 contains structures with a long genesis and is rather vulnerable. Changes in this layer may take longer to produce impacts, but often these impacts are irreversible.

- Gas-fired electricity plant
- Agriculture/cattle
- (Eco)tourism development

Provide relevant information on each (sub-)activity from economic, social and environmental perspective:

- Economic:
 - Growth and competitiveness, economic welfare, investment.
 - Economic rationale
 - Impact on rural and urban economies
- Social:
 - Employees: number of jobs, level of education needed, facilities provided by the proposed activity (health, school, housing, public transport);
 - General public: health and safety issues.
- Environmental: describe each (sub-)activity in terms of
 - Occupation of space (is conversion of land needed?);
 - Fragmentation of natural habitats;
 - Emissions of gaseous, liquid or solid waste;
 - Extraction of raw materials (wood, water, etc.), or minerals (ores);
 - Depletion of scarce natural resources
 - Introduction of any non-native and/or invasive species;
 - Potential for disturbance of key processes of importance for ecosystem maintenance (e.g. wetlands hydrology, migratory pathways, breeding cycle of fish, etc.)

Also take notice of the consequences of in- and outputs of the activity (for example transport of goods, need for process water and/or raw materials, emissions).

Layer 2: Social environment

Describe for all activities clustered:

- number of jobs created, will new labour be attracted to the area;
- location of housing facilities for employees,
- projected growth of towns in terms of numbers and occupation of space
- demographic changes
- projected need for additional facilities such as water supply, educational and health facilities
- map possible locations of expansion and facilities.

This should lead to an assessment of urban and rural development trends and requirements, including improvements needed in social services. Also social impacts and poverty implications should be assessed to draw out strategies for poverty reduction.

Layer 3: Infrastructure needs

Describe and map existing infrastructure and capacity, determine future infrastructural needs as a results of (i) the combined activities and (ii) the induced development for:

- roads, railway, harbour facilities and waterways, energy supply & transmission lines, water treatment and supply, sanitation and sewerage and solid waste landfills.

Layer 4: Land, water and natural resources

Provide a (series of) map(s) of the area (with overlays in GIS or transparencies) which minimally contains the following categories:

- Human land and water occupation: existing urban, industrial areas, road and rail infrastructure, waterways for navigation; and projected future developments.
- Land property issues (for example areas under ‘asaneamiento’).
- Areas with a formal status: distinguishing in legal status – the AP Otúquis, ANMI Otúquis, Ramsar site, etc.)
- Areas with key ecosystem services.
 - Agricultural production;
 - Cattle ranching;
 - Forestry (timber and non-timber);
 - Water retention areas and groundwater aquifers important for water supply to other areas (such as Laguna Cáceres);
 - Wetlands for fish reproduction;
 - Important water bodies for fisheries;
 - Non-protected but unique, undisturbed or characteristic habitat with high biodiversity value, possibly combined with...
 - ...non-protected area with high potential for development of ‘contemplative’ (eco)tourism, local leisure activities, or areas of scientific importance;
 - Multiple other services which may turn out to be important during the SEA study. (e.g. sediment trap, water purification, soil formation processes, groundwater storage and release).

3.3.2

Alternatives

Layer 1: Economic activities

On basis of an overview of priority problems and issues to be solved (identified in 3.1.1), objectives (identified in 3.1.2) and an impact assessment of the current situation (in 3.3.1), the SEA should identify the alternatives for decision-making at layer 1 level such as:

- prioritize investment schemes by appropriate time frames and geographical focus, considering economic perspectives and poverty reduction impacts, based on the confirmed market competitiveness and economic rationale
- find alternative solutions in case negative impacts (as described under 3.3.1) are significant
- identify measures to prevent, mitigate or compensate for environmental and social impacts, including costs

- indicate which additional activities, measures and planning are still required to fully solve problems, to reach objectives in the region or to exploit opportunities.

Layer 2: Social responses and needs

When preferred alternatives become clear at layer 1 level, corresponding implications for the social environment should be identified by the SEA, such as:

- ‘What’ is needed ‘where’ in terms of housing, facilities, social services and needs to fulfil the economic activities mentioned at layer 1 level. This requires urban and rural planning
- Present alternative options in terms of locations to minimize environmental impacts
- Identify mitigating and compensating measures for environmental impacts of social developments, including costs
- Indicate which additional measures, activities and planning are required to achieve a socially acceptable development of the region.

Layer 3: Infrastructure requirements

As a result of preferred alternatives at layer 1 and 2, the issues at this level of decision-making become clear. The SEA should describe:

- ‘What’ is needed ‘where’ in terms of physical infrastructure, water and energy. For example: the areas for harbour facilities at the three ports Suárez, Quijarro (and potentially Busch), including increasing storage capacity. The proposed transport routes by rail, water and road, including provisions for increasing capacity and corresponding storage facilities. The iron ore of Mutún needs to be processed close to Mutún, stored and transported by rail to a port etc.
- Present alternative options in terms of means, size and locations to minimize environmental and social impacts and to optimize multiple use (eg. site selection for urban development and industry in which both use the same water and energy supply systems).
- Identify mitigation and compensation measures, including costs.

Layer 4: Land, water and natural resources

In the preceding layers, the SEA will have addressed the main primary and secondary impacts as a result of planned economic activities, and will have identified alternative options and mitigation measures. As a result of the information gathered in 3.3.1, still other alternatives for decision-making may remain (and should be identified by the SEA) such as:

- What would be a future strategy of the department of Santa Cruz for sustainable use of ecosystem services?

- What actions or plans are needed in relation to land titles and property rights?
- What management plans are needed or should be improved for protected and vulnerable areas?
- What are development opportunities for indigenous people?

3.4 Decision-making (further specification of step 7) and 8).

Stakeholder participation in the development of alternative options developed in the preceding paragraphs is essential. This chapter should finally result in several plans for decision-making, namely:

- a draft regional development plan
- the associated urban and rural planning schemes
- and required infrastructure, energy and water planning

All plans should present a summary of the alternatives that have been considered and give reasons for not adopting these alternatives, and give insight in how the assessment was performed.

All plans should be accompanied by mitigation and compensation plans, including estimated budgets.

All plans should give an overview of difficulties (such as technical deficiencies and lack of know how) in compiling the required information.

4. RECOMMENDATIONS FOR THE SET UP AND MANAGEMENT OF THE SEA

4.1 Further specification of step 5) Do the assessment and document it

The SEA will be carried out under the responsibility of the Santa Cruz departmental authorities, supervised by the VMRNMA. Suggestions for institutional arrangements and implementation modalities have been provided already in the preliminary ToR (par. 4.1)

In addition, the Commission recommends that at departmental level an SEA unit will be created with a core team of departmental staff (probably regional policy and planning staff) that can spend an appropriate proportion of their time on the SEA study. Being the owner of the plan/SEA, this unit is responsible for the guidance of the study team and the effective use of the outcome of the process. The SEA unit will need to have experience with and/or responsibility for rural and urban planning, environmental procedures and economic planning.

Local experts will be hired to carry out the actual study. The study team will be directly supervised by Santa Cruz departmental SEA unit. A core team of 4

experts will be available for the duration of the study. Additional expertise can be hired on temporary basis.

Profile of the core study team is:

- Team-leader: responsible for coordination of the study and for communication with formal and informal stakeholders; therefore the team-leader should be experienced in participative processes involving government, private sector and civil society stakeholders. Educational background: social sciences and/or public administration. Excellent communication and interpersonal skills to interact with relevant stakeholders over sensitive issues of environmental, cultural and political differences are required.
- Regional economist: with a degree in regional or transport economics, regional development planning or a related field. (i) extensive experience (15-20 years) in regional or sector development planning processes in a number of developing countries, preferably Latin-America is required, and (ii) proven quantitative skills in macro- and regional economic modelling and impact analyses (e.g. input-output analysis); preferably experience with socio-economic parameters, like livelihoods, access to markets and resources, equity issues. Knowledge of Multi-criteria analysis is required.
- Wetland ecologist: knowledgeable on ecological processes that maintain the multiple services of the Pantanal wetland system. Together with the hydrologist responsible for mapping of ecosystem services of the area and determination of the environmental impacts.
- Geo-hydrologist: with expertise in:
 - water planning and development of water resources, preferably with knowledge of the Pantanal;
 - Mathematical simulation models, hydro-geo-chemistry, contamination, sensitivity analysis, construction of wells;
 - Quantitative hydrogeology, analysis and simulation of flows in saturated and non saturated zones and simulation of transport of chemicals.

Additional input may be required from:

- Rural/urban planning specialist
- Specialist in processing technology of key industries
- Legal specialist on land rights

4.2 Implementation arrangements and costs

Costs: Estimated at US \$ 150.000 (including in kind by government agencies and support to stakeholders (NGOs) for participation.

Study duration: 1 year

Person-months: this can only be estimated when MDS has decided whether or not to establish links with already ongoing initiatives (see chapter 5).

Once the SEA study team has been composed, MDS and Prefectura de Santa Cruz will have to specify that these ToR will form the working programme of the team. MDS and Prefectura should also indicate when preliminary results should be presented at what intervals and when the final SEA has to be ready. Also it has to be clarified when stakeholder participation is required and in which form this will take place. A list of reference material (such as Appendix 10 in the Commissions preliminary ToR) should be added for use by study team.

5. RELEVANT LINKS WITH ONGOING INITIATIVES

The Commission recommends to explore possibilities to link or integrate the study with other ongoing work. Many of the information required may be found with these initiatives.

- NGO studies presently being carried out on Alternatives for Sustainable Development in the Bolivian Pantanal.
- Programa de Protección Ambiental y Social (PPAS). A US \$ 21 million environmental and social action plan accompanies the ongoing construction of the Santa Cruz – Puerto Suárez road. Sections of the programme are of great relevance to the SEA study (for example (i) Programa de Saneamiento, (ii) Titulación y Regulación de Tierras; (iii) Manejo de Áreas protegidas; (iv) fortalecimiento institucional y desarrollo sostenible; (v) protección del patrimonio arqueológico).
- EIA studies that have been carried out recently for Puerto Busch (port, railway and airstrip).

6. SEA BENEFITS

The following is expected to be achieved:

- Informed stakeholders in the region.
- An SEA study with clear outputs such as: problem/opportunity analysis, objectives, impact assessment and alternatives and options for decision-making.
- Baseline information available to proponents with responsibility to produce project EIAs.
- Transparency in decision making on licensing of new investments.
- Departmental authorities with some capacity to continue the process to come to a longer term integrated planning and SEA process
- National authorities with some capacity to start and coach an SEA process and review the outcomes.
- Consultants (study team) with experience in SEA.
- All the above contributing to sustainable economic growth and social stability.