

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

Bolivia

30 September 2004

056 - 068

ISBN 90-421-90-421-1440-1
Utrecht, Netherlands Commission for
Environmental Impact Assessment

Advice on Terms of Reference 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

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Utrecht, 30 September 2004

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1. INTRODUCTION

1.1 SEA Polo de desarrollo Sur-este (Puerto Busch), Bolivia

The Vice Ministry of Natural Resources and Environment (VMRNMA) of the Ministry of Sustainable Development (MDS) has identified the introduction and development of Strategic Environmental Assessment (SEA) in Bolivia as a priority issue for the next couple of years. On request of MDS, The Netherlands Commission for Environmental Impact Assessment (EIA)¹ will contribute to this introduction. One of the first activities in the framework of SEA development is the undertaking of a pilot SEA. This pilot-SEA is designed as a joint activity of the Commission and the Bolivian EIA authorities at central (national) and decentralised (departmental) levels, mobilising their expertise in the practice of impact assessment and providing a possibility for 'training-on-the-job' in SEA.

MDS has selected Puerto Busch as the first SEA pilot. The objective of Puerto Busch (see map, appendix 6) is the construction of a port for reception, storage and transaction of cargo (export and import) for international trade of Bolivia. This port will offer Bolivia a sovereign exit to the sea. The project would reactivate the regional economy, mainly in the agro-export sector, and increase the activities in sectors like railways, eco-tourism, forestry, gas-pipelines and iron ore mining. The port will be connected to the existing railway Santa Cruz-Puerto Suarez, through the construction of a new railway of 130 km for the transport of cargo and passengers.

Early 2004, the Bolivian government gave instructions to analyse the alternative options for the execution of Puerto Busch. This analysis was a joint undertaking of the Ministry of Economic Development, the Ministry of Public Works, the Ministry of Defence and the Prefectura del Departamento de Santa Cruz (regional government). In March 2004, the President of Bolivia authorised the preliminary approval of Puerto Busch.

1.2 EIA procedure for Puerto Busch

Mid May 2004, the so-called 'fichas ambientales' (a kind of notification of intent) for the port, railway and associated airstrip were presented by the project developer to the competent authority (Autoridad Ambiental Competente (AAC): the Ministry of Sustainable Development (MDS) at national level and Prefectura de Santa Cruz at regional level. On the basis of these 'fichas ambientales', the AAC decided that a category I EIA (full fledged EIA) should be undertaken. The project proponent (Sociedad Ferroportuaria) started subsequently with the drafting of the EIA-report (this is done by a consultant, Interproyectos) on the basis of guidelines of MDS (standard minimum requirements). The EIA report for the railway (the first out of three) was presented to the AAC on September 3, 2004. According to the EIA regulations, the AAC

¹ Henceforth referred to as 'the Commission'

has 30 working days available for review and approval/disapproval of the EIA report.

1.3 Why would SEA be useful?

Although Puerto Busch, including the railway is now following the regular EIA procedure, it was agreed between the MDS and the Commission that this project could serve as an interesting first pilot for an SEA. This is because in this region there are many other plans for infrastructure development, transport, mining and future regional development (like Canal Tamengo/Puerto Suarez/Puerto Quijarra, Puerto Busch, Mutún etc.). In fact, this region has been identified by the Bolivian Government as one of the spearheads for development in Bolivia (Polo de desarrollo Sur-este). Moreover, this is all taking place in a very sensitive area with high natural values (Pantanal, Parque Nacional Otuquis). On top of that, strategic considerations of national importance play a role: the sovereign exit to the sea as well as other interests of geopolitical nature.

The purpose of such a pilot SEA could be to assess all these plans in their mutual relationship. This can result in a long term vision on the development of the region: which plans should receive priority or offer good possibilities from an environmental/social point of view, what are alternative options, which plans are less suitable/not sustainable? etc. The exact scope and objectives of such a pilot SEA, however, will be elaborated further in this advisory report.

1.4 Request of the MDS and involvement of the Commission

In July 2004, the MDS invited the Netherlands Commission for EIA (see letter appendix 1), to assist MDS with the start of the introduction on SEA in Bolivia. The objective of the involvement of the Commission is specified in appendix 2 and can be summarised as:

- Assist in developing methodologies for a pilot SEA for Puerto Busch, thus generating a replicable model and recommendations for the realisation and institutionalisation of SEAs in Bolivia.
- Assist in defining the scope of strategic contents in Terms of Reference (ToR) for the execution of the SEA in the area of influence or the Polo de Desarrollo Sostenible Sur-este of Santa Cruz - Bolivia.
- Assist in integrating the consultation with public and private organisations in the field of development and environment related to the SEA for Puerto Busch in the ToR.

The expected results are:

- Document with methodologies and procedures for the development of SEAs which facilitates the Bolivian government in decision making on projects of national character.
- Interactive capacity building of the team of the Vice-ministry of Natural Resources and Environment and the Prefectura of Santa Cruz, in the re-

alisation of SEAs, with the aim of applying the experience in other development zones of the country.

- Structured ToR, which have been discussed with related stakeholders, which guide the sustainable development in the zone of Puerto Busch.

The Commission wants to emphasise that it has no opinion on the question of feasibility of the Puerto Busch project and related infrastructure. The Commission **never** judges the acceptability of projects, but tries to guarantee that all essential environmental (and socio-economic) information has been provided for sound and well balanced decision-making.

1.5 Approach taken by the Commission

In order to prepare an advisory report on the above mentioned requests, the Commission formed a working group of experts, representing the Commission, which comprises the following disciplines: hydraulic engineering, ecology and natural resource management, transport economics and ports, EIA application. The working group members of the Commission are listed in appendix 3.

As 'training on the job' in the practice of SEA was one of the objectives of this pilot SEA, a Bolivian counterpart team was formed, made up of representatives of MDS. Their team composition is mentioned in appendix 4.

The Commission visited Bolivia from 5-11 September 2004 (see appendix 5, working programme). The purpose of this visit was to:

- collect project- and site specific information (see appendix 10, list of documents) and discuss matters with several government authorities and non-government organisations and institutes.
- get the lead and environmental agencies together to agree on the need, objectives and undertaking of this SEA. A common vision should be developed on which planning/policy development process is at stake, on problems that need a solution, objectives and possible alternatives in the region.
- elaborate ToR for this SEA which is meant to be the result of a joint effort of the Commission and Bolivian EIA authorities and agree on next steps.

1.6 Outline of this advisory report

The Commission defines SEA as a way to bring people together in the planning process, and structure and feed their debate on the environmental consequences of strategic decisions. More concrete, SEA is a tool to:

- structure the public and government debate in the preparation of policies, plans and programmes
- feed this debate through a robust assessment of the environmental, social and economic consequences

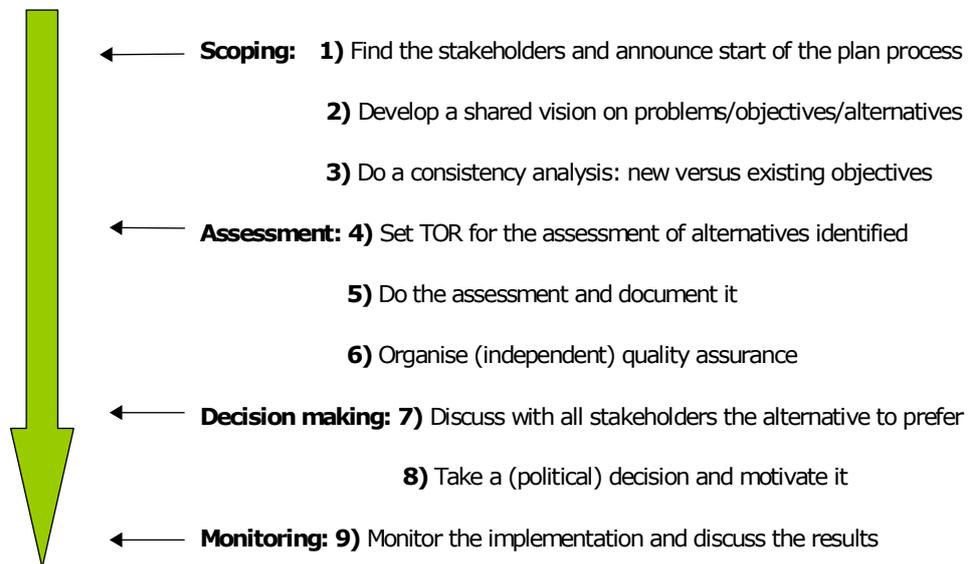
- ensure that the results of the assessment and debate are taken into account during decision making.

This means that public participation, transparency and good quality information are key principles. SEA is thus more than the preparation of a report; it is meant to improve the planning process and the quality of information used in the process. In summary, SEA is both process and contents oriented.

Therefore, the Commission chose to structure this advisory report along three chapters. Chapter 2 gives ToR for the SEA process and Chapter 3 focuses on ToR for the SEA contents. These ToR are presented at the end of each paragraph. Chapter 4 gives recommendations for the institutional capacity needed to undertake this pilot SEA.

2. TOR FOR THE SEA PROCESS

The undertaking of this SEA is a first step of a longer process of dialogue and collaboration between the MDS and other Ministries, the private sector and NGOs, both at centralised and decentralised level (national, departmental and local government). This process will certainly continue beyond the time period of undertaking this SEA, which can be considered as a learning process for all stakeholders involved. The following scheme can be used to guide the SEA process. The vertical arrow represents the planning process. The 9 steps represent the SEA process.



The scope and thoroughness of the above steps may differ, depending on the time and resources available; from 'quick and cheap' (2-3 months) to comprehensive (1-2 years).

There is another step (0) 'screening' which precedes this 9-step approach: the purpose of this step is to bring lead (competent authorities) and environmental agencies together to decide on the need for SEA.

In Bolivia, the decision to introduce and develop SEA has been taken by the MDS in its Multi-annual Plan (2004-2007). This decision has been discussed and consulted with other sectors of government, private sector, NGOs, civil society and donors, mainly at national level. A brief introduction on SEA has been given in a workshop with some 25 participants in April 2004. MDS decided as well that in principle SEA will be undertaken for each plan/project of national importance.

The decision to undertake an SEA for the 'Polo de Desarrollo (Puerto Busch)' as a first pilot in the framework of the institutionalisation of SEA has been taken by the MDS solely. At the start of its visit in Bolivia, the Commission noticed that there was much confusion about the purpose of this SEA among other stakeholders and even anxiety that this SEA would slow down or even prohibit development, so urgently needed in Bolivia.

Therefore, the following paragraphs conclude with recommendations or ToR, mainly meant to guide MDS in creating broad support for the undertaking of this SEA, involving important stakeholders and to decide upon the planning process that will be subject to SEA.

As soon as the options on step 0-3 have been discussed and decisions have been taken, the ToR for the assessment itself (step 4) can be further fine-tuned. The Commission provides advisory ToR for several assessment levels in chapter 3. In fact, this advisory report should be read as a 'menu of options'. Based on this, MDS needs to narrow the 'scope' of this SEA in the coming period, together with the planning process 'owners'.

2.1 Step 0) Define which planning process is subject to SEA

Ideally, SEA is undertaken as early as possible in the process of developing policies, plans or programmes. However, SEA can also be done during the implementation phase to either improve implementation or feed future decisions. SEA may even get the form of a sectoral assessment used to set the agenda for future policies and plans.

During the course of the visit, the Commission tried to get insight in:

- which would be the 'leading' planning process in the region (Polo de Desarrollo Sur-este)?
- who is/are the responsible agency(ies) ('the owner/developer of the planning process')?
- which are the decisions to be taken in the planning process and when will these be made? In other words; how much room is there for decision making?

Referring to the 9 step SEA as presented in the above scheme, these questions should help define 'the arrow', which stands for the planning process for which the SEA will be undertaken.

The Commission noticed that several planning instruments are actually in place, like for example:

- Spatial Planning Plans (Planes de Ordenamiento Territorial) like Land Use Plan (Plan de Uso de Suelos-PLUS, Departamento de Santa Cruz), Planes de Ordenamiento de Predios (POP)
- Development Plans like Poverty Reduction Strategy (Estrategia Boliviana para la Reducción de la Pobreza), Plan General Economico Social, Departmental Development Plan (PDD), Municipal Development Plan (PDM)
- Sector Plans, for instance in transport, National Road Network (Red Vial Nacional, Servicio Nacional de Caminos).

These plans face several difficulties:

- Although the figure of Spatial Planning exists, only very few actually have been made
- There is an abundance of plans, which are not co-ordinated and integrated
- When plans are available, they are not always carried out or have little influence in decision-making
- Donor funding in the framework of international co-operation is in most cases project oriented and does not always fit in planning existing schemes.

The working programme of the Commission has revealed more clarity on which plan might probably be the leading plan for development. It became clear to the Commission that decisions in relation to the approval of Puerto Busch and the railway in principle have been taken already. An SEA for the planning for the Polo de Desarrollo (regional economic development) would offer better possibilities for demonstrating the full potentials of SEA. The 'owner' of this planning process would most probably be the Ministry of Economic Development, who oversees all developments taking place in the region of Puerto Suárez-Puerto Busch.

■ The Commission **recommends** that before the start of the execution of the SEA, the lead agency(ies?) and the MDS agree on the planning process that will be subject to SEA. In case no plan is in place yet, the SEA itself can serve as planning process. These issues have to be settled in order to design the execution of the SEA. Decisions have to be taken for instance on time frame: when SEA results have to be available in order to influence decision making? This may require the Ministers of MDS and Economic Affairs taking a joint decision on issues like who runs this SEA/plan process (preferably the Ministry of Economic Affairs, with a mandatory consultation role for MDS), commitments for uptake of the SEA results and inter sector co-ordination.

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

The activities undertaken during the one week visit of the Commission (see working programme, appendix 5) can be considered as a first (mini-)SEA already. The most important stakeholders in the process have been brought together, the MDS has been able to announce its plans in relation to SEA and a first introduction on the objectives and possible benefits of SEA has been given. A site visit has been paid to the most important developments, which are about to start.

■ The Commission **recommends** that the main findings of the stakeholder meetings, both in terms of process and contents are well documented to enhance trans-

parency and are distributed to all relevant stakeholders to show appreciation for participating in the process. Formal decisions as a result of step 0) and 1) should be published (and publication should continue each time as decision-making on next steps has taken place). Another recommendation is to identify the representatives of all relevant stakeholders and make this public.

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

During its site visit the Commission was confronted with a multitude of opinions, and historical information. It was impossible for the Commission in the time available to establish the validity of all these observations as there is an obvious lack of coherence and transparency in the gathering of data, information and decision making process prior to new projects. This is explained by:

- Rapid and haphazard economic development, fuelled by multiple different private initiatives; the above has provided ample evidence that many things are going on in the area, most of these in parallel.
- Governmental initiatives seem to be led by individual private initiatives and not by the results of elaborated regional planning where these initiatives fit into.
- Need to assist the local government capacity to deal with this effectively; municipalities of Puerto Suárez and Puerto Quijarro, being relatively small communities, have limited technical, spatial planning and economic capacity. The Prefectura of Santa Cruz could provide assistance on these issues, but this is not common practice
- Sectoral division in government responsibilities. Ministries of agriculture, mining, energy, economic development, sustainable development all have a role to play in the area. Most government capacity is located in La Paz, but coordination between Ministries at national level is difficult.
- Remoteness of central and departmental government. The region has a history of remoteness and is used to independently organise its business. The geographical remoteness has also been translated in socio-psychological remoteness (and self-rule).
- Social distrust among stakeholders. The rapid development process, combined with a lack of public information, may results in social distrust. Signs of this happening are reportedly becoming visible as roadblocks ('bloqueos') are becoming more frequent.

The new decentralisation policy could solve some of these problems as it brings government closer to the area and provides a platform for the integration of different sectoral perspectives. Decentralisation thus can be seen as an opportunity to increase participatory, transparent planning processes, based on quality information.

- In view of the above, the Commission **recommends** to decide together with the stakeholders identified in step 0) and 1):
 - which are the most important problems, objectives and alternatives the plan has to address, on basis of exchange of ideas and awareness of pro's and con's of proposed plans, programmes and ultimately projects (see also chapter 3).
 - when SEA results have to be available in order to influence decision making on the plan.

2.4 Step 3) Consistency analysis

The purpose of this step is to check the consistency of the plan or programme for which the SEA will be undertaken with existing policies, plans and programmes, through interagency co-operation.

This requires an inventory (both public and private) at international, bi-national, national, regional and local level of a number of development sectors to ensure that plans are compatible with each other. Examples for the MDS are the Ramsar-convention at international level, Strategic agreements on integrated transborder policies for the Paraguay watershed Bolivia-Brazil at bi-national level, the Strategic Plan on Forests, National Watershed Programme, Plan for Protected Areas, National Wildlife Programme at national level, and the management plans for Otuquis National Park at regional and local level.

■ The Commission **recommends** that as part of the SEA an overview is made of all plans and programmes of different sectors (eg. infrastructure, physical planning, environment) that have a link with or set conditions for the 'leading' planning process. An analysis should be made of:

- which policies/plans/programs support the new plan
- which ones have the potential to conflict with the new plan and how these conflict can be solved (which plans are negotiable and which are not)

3. TOR FOR THE SEA CONTENTS

Steps 1 to 3 should lead to determining the 'leading' planning process. The next step is to define which type of decisions are taken in this planning process. Generally spoken, several levels of strategic decision-making can be distinguished:

- **Why** do something? (Refers to the need and/or purpose, long term objectives)
- **What** to do? (Refers to methods, technologies and capacities)
- **Where** to do it? (Refers to locations on interventions)
- **How** to do it? (Refers to a concrete project design, including possible mitigation and compensation measures)

SEA is applied for the why, what and where questions and EIA addresses the how questions. Translating these questions to the Polo de Desarrollo Sureste (Puerto Busch) leads to options for doing SEA at several levels (see box):

Optional levels of environmental assessment	
Strategic level 4	Assessment for integrated development Province German Busch
Strategic level 3	Assessment for sustainable development options for the Polo de desarrollo Sureste
Strategic level 2	Assessment for alternative export routes
Strategic level 1	Assessment of alternative corridors for Puerto Busch
Project level	EIA of project

In principle also a Strategic level 5: SEA for development of Santa Cruz department and a Strategic level 6: SEA for national economic development, master plans for sectors or national development strategies could be undertaken. However, the Commission considers this for the time being beyond the scope of this advisory report.

Step 4 of the 9 step SEA (see chapter 2) is the definition of ToR of the assessment of alternatives identified. In this chapter the Commission gives at the end of each paragraph an advice on these ToR for each of the 4 levels: Level 4 and 3 concern selecting the 'the best possible development', level 2 deals with the selection for 'the best export mode' and level 1 concerns selecting 'the best corridor for that export mode'.

These advisory ToR however should be discussed and fine-tuned with all relevant stakeholders before starting the execution of the SEA. MDS and stakeholders also have to decide on:

- which level (1, 2, 3 or 4) will be chosen for this pilot SEA?
- when this selection has been made (for instance 3), whether or not the ToR for level 1-3 can then put together. In other words, answering the questions 'why', 'what' and 'where' one after each other in one plan. This means that the advisory ToR which are now divided into different levels, can be clustered in the categories why, what and where.

The Commission also chose to include an appendix (12) on the EIA project level. This level does not treat strategic issues, but is relevant for two reasons:

- 1) Information on the key ecological process for decision making at project level is equally important at higher levels of strategic decision making, although not with the same level of detail.
- 2) The EIA for the railway has been presented early September 2004 to the MDS for review. The Commission presents an overview of potential risks and mitigation measures. The MDS can use this overview as part of its own review framework, when evaluating the quality of the EIA report.

3.1 Fourth optional strategic level: integrated social and economic development of German Busch Province

3.1.1 Rationale

The first strategic question is: '**why**' do we have to do something? An area with a relatively poor population combined with an extremely sensitive environment with high bio-diversity values asks for careful and well informed planning and decision making. The many development opportunities of the area, and the existing plans and projects under preparation will undoubtedly lead to an increase in population. Space will come under pressure and requires planning. An increasing population requires planned expansion of living quarters, water supply, sewerage, health facilities, schools, etc. An SEA to answer the 'why' question would need to address a regional development policy.

Inhabitants and representatives of local communities have expressed their worries on the direction of unplanned development. Fears of a loss of quality of living environment and the urgent need for better social development have been expressed.

Moreover, the signs that there is considerable progress in the developments related to the Polo de Desarrollo (fichas ambientales, elaboration of feasibility studies, EIA's etc.) lead to increased purchasing and selling of lands (also by Brazilians), land speculation, land deforestation, road construction, new settlements, land property rights discussions etc.

Another example of a conflict generated by all these developments is between the municipality of Puerto Suárez, planning the establishment of an industrial park and the land ownership by the Mutún (mining) developers. This has led to a request by the municipal authorities of Puerto Suárez to reduce the protected area of Otuquis, because this would otherwise hamper their possibilities to establish the industrial park and would interfere negatively with their hopes/expectations for employment and better living standards.

This and many other examples show the urgent need of a transparent planning process based on a participatory approach in which major stakeholders play a role. These include private sector, government, NGOs, inhabitants and land users. An SEA should be integrated part of this process in order to provide decision makers with alternative options for economically viable, and socially and environmental sustainable development.

Developments close to and in sensitive areas (Pantanal) and near to neighbouring countries make it absolutely necessary to have an inventory of the governing rules and regulations. One of the most important issues in this area is water. Surface and groundwater will likely be affected by any development.

It is further noted that a large share of the proposed industrial development projects may be FDI (Foreign Direct Investment). Recent studies indicate that FDI inflow in Bolivia had only a limited impact on per capita GDP growth and adverse income distributional effects.

3.1.2

ToR for a fourth level SEA

An SEA at this level is relatively difficult, but not less important. It implies a close co-operation with Brazil and Paraguay, not only concerning existing agreements and plans but also for the agenda for the future. Regional development requires the setting up of a tri-national agreement in which the countries include their mutually agreed and co-ordinated plans for development, including an assessment of international legislative matters (what rules and regulations apply and how to sanction these, for instance on the issue of water).

■ The Commission **recommends** the following approaches for the SEA to develop such a regional development policy:

- The 'society' approach: Identify the current ideas on the best options for the German Busch in the public discussion. e.g. the ideas of NGOs, indigenous communities, business, regional or local authorities. Develop alternatives on the basis of these ideas.
- The 'visionary' approach: Develop 'visions' around each of the important issues in the region: what would you want to achieve in the future. For example, what would you like to achieve for people, for nature, for economy. Develop on the basis of each vision an appropriate alternative.
- The 'dilemma' approach: Do not try to deal with all possible options in developing alternatives. Identify the most burning political dilemma's. For in-

stance, is Puerto Busch a viable initiative without the development of Mutún? Develop alternatives around these dilemmas, i.e. analyse the dilemma (should we do this or that?) and then develop both for the 'this' and the 'that' an appropriate alternative.

- The 'scenario' approach: Develop scenarios for the long term future development of the German Busch region (e.g. demographic -what will happen to eg. Puerto Suárez, Puerto Quijarro- , economic -evaluating the economic impacts of FDI in a region- , tourism or natural values). Develop for each of these scenarios an appropriate alternative.

At this strategic level, a framework for evaluating the effect of economic policies in a region is advised. The design and application of a regional Social Accounting Matrix² should be considered, not only in assessing a regions' economic structure and composition, but equally for estimating the (multiplier) effects of e.g. exports on outputs, employment and income (distribution) and may be linked with the Bolivian Poverty Reduction Strategy.

3.2 Third optional strategic level: Polo de Desarrollo Sur-este

3.2.1 Rationale

A large number of plans for new activities circulate around the development axis of Puerto Suárez/Quijarro/Busch. Many of these depend on available modes of transport. A consistent analysis of the planned activities and their transportation needs would provide a better overview of present and future needs, potentially leading to an integrated planning of both. (An expanded approach to the '**what**' question).

Other activities may interfere with the above developments. It is already visible that port facilities at Puerto Quijarro interfere with urban development. New docks are under construction, trucks have to move through villages to reach port facilities, described as unwelcome by municipal authorities.

No consistent overview is available within one authority. The combined cumulative and possible synergetic effects of all these activities can be significant.

Activities that have been mentioned in the field of mining, agriculture, industry, commerce and tourism are for example:

- iron ore mining at Mutún, including construction of piped gas supply (or alternatively charcoal furnaces with eucalyptus plantations) and ore processing facilities;

²

SAM (Social Accounting Matrix) is a matrix representation of the system of national accounts, elaborating the linkages between supply and use table (Input-Output) and institutional sector accounts. It integrates four economic frameworks: system of national accounts, balance of payments, flow-of-funds and input-output table. A SAM provides a comprehensive and detailed description of the macro-economic interrelations of a country and is therefore a useful tool for formulating alternative development policies. Experience already available in Bolivia can be found in: (1) Constructing a SAM with distributional focus- the case of Bolivia, Kiel Institute of World Economics, 2002 and (2) SAM for Bolivia featuring formal and informal activities, Cuadernos de Economía, 2003

- expansion of soybean cultivation, combined with the construction of the Santa Cruz – Puerto Suarez road creating an exportation “hub” in German-Busch province;
- 2 thermo-electric power plants (gas);
- petro-chemical industry based on gas (urea)
- (eco)tourism development

3.2.2 ToR for third level SEA

The Commission has noticed that the MDS already developed initial ToR for an SEA at this level (appendix 8, Alcance y consideraciones para una Visión Estratégica). Also WWF Bolivia is starting a study at this level (appendix 9, Pantanal Sostenible, Alternativas para el Desarrollo Humano Sostenible en el Pantanal Boliviano). WWF has prepared a draft Table of content for this study, which could be perfectly integrated in the ToR for this SEA level. Especially the last part of this document lists the subjects to be studied on each of the activities/developments mentioned above.

■ The Commission **recommends** to integrate the draft ToR developed by MDS and WWF. These ToR should be carefully discussed and agreed upon by all relevant stakeholders. The link with the leading planning process (see also 2.3 and 2.4) should be clearly established. The SEA at this level should ultimately lead to:

- a comparison of alternatives from an economic, social and environmental viewpoint with the aim of providing guidelines for development of the region (trends, magnitude, potential, feasibility and sustainability of planned developments).
- insight in land ownership and (potential) land-use of the larger area
- adequate compensation and mitigation plans, both for environmental and social impacts, agreed upon by local and regional stakeholders (indigenous people, small peasants, cattle breeders, fishermen, private owners), and with sufficient funding.
- a comprehensive joint urban, industrial and transport development plan comprising Puerto Suárez, Puerto Quijarro, Puerto Busch and Corumbá.
- a transparent planning process, based on quality information including a participative debate on costs and benefits (in terms of economic, environmental, social and cultural arguments).

3.3 Second optional strategic level: alternative routing of goods

3.3.1 Rationale

The proposed Puerto Busch project is intended to deal with the overflow from existing facilities along the Tamengo canal, as exportation and importation is expected to grow and capacity of present facilities seems to be used to its limits. Consequently it is difficult to look at the Puerto Busch corridor, without investigating and analysing other export/import corridors. So, the scope of the ‘where’ and ‘what’ question should be further enlarged.

3.3.2 The Canal Tamengo alternative

The present routing of goods is provided by Canal Tamengo. During its visit, the Commission has observed the following issues:

- **Capacity and navigability.** Port facilities are available in the Tamengo canal (Central Aguirre, Gravel, Quijarro), but contradictory information

was given about capacity: some informants state that the possibilities are saturated, however this is not shown in quantitative terms of supply and demand. The site visit revealed that presently the soy-processing plant at Gravelal is importing soy beans from Brazil, which contradicts to the stated need for more soybean exportation means. This might be due to market prices. Moreover, it is not clear what is exactly the capacity problem: does it concern storage facilities, railway/road transport capacities, port handling efficiency, customs procedures? Similarly contradictory data was provided about water depth. During 3 month of low flow conditions (dry season), the loading depth of barges has to be reduced. This was reported to be a severe constraint. But, this also applies to other sections of the Paraguay river, even downstream of Puerto Busch in Paraguay.

- **Obstacles.** The drinking water inlet of Corumbá causes loss of time and money, because barges have to be taken apart. A possibility to solve this problem could be the construction of a short by pass canal. Brazilians are said to obstruct port development in Bolivia. However, top-level negotiation with Brazilians is needed anyway since Puerto Suarez will in future need a water intake in the Paraguay, as Cáceres Lagoon cannot provide sufficient quality and quantity for the future. Other obstacles between Tamengo canal and Puerto Busch exist. At the railway bridge barges have to be detached at high water (could a section of the bridge be replaced??). Another example of an obstacle is a narrow and sharp bend just upstream of Coimbra. It appeared difficult to get a clear picture on obstacles and water levels, as informants did not provide consistent answers.
- **Water level** in Laguna Cáceres and Tamengo canal has significantly lowered over the years. The level is partly governed by water flowing in from Bañados del Otuquis and Rio Pimiento, both regions within the Otuquis National Park. Apparently the construction of the Puerto Suárez – Santa Cruz road has already obstructed part of the flow (not verified in the region). Wetland conservation and navigability of the Laguna Cáceres and canal are obviously linked, so it is in the interest of port authorities that key wetland processes are maintained. Another major factor of influence is the sedimentation of a branch of river Paraguay on Brazilian territory, which feeds the Laguna Cáceres through Tuyuyú and Sicurí canals. Opening of the branch would restore a key wetland process (inundation at high flow conditions in the Paraguay river) and solve (part of) the problem. This again requires a co-ordinated effort with Brazil.
- **Topography** data in the area and hydrological data most probably are available on the Brazilian side of the border river Paraguay. No signs indicate that this information exchange has taken place. For flood routing and drainage patterns this is of utmost importance.

3.3.3

The Pacific alternative

Another transport route is the so-called Pacific route, oriented at exportation via the Pacific ocean. Inland transport then passes through Santa Cruz, Cochabamba, La Paz and subsequently to Chile or Peru. It was stated that this option was less viable because of markets (less at the Pacific site), and high inland transport costs. Trucks have to cross the Andes (above 4000 m), consuming high amounts of fuels and suffer from delay because of frequent road blocks. These seem viable arguments, which do not justify an exhaustive elaboration of this alternative. However, a straightforward, simple format to be able to compare several alternatives for the transport of different kind of goods is advised.

3.3.4 **Alternative infrastructure plans to the Atlantic Ocean**

The Commission understands that various proposals have been unveiled to refurbish the rail, linking Bolivia and Brazil, which would ultimately result into a bi-oceanic rail corridor. Bolivia would then have a rail connection to the port of Santos. Although the status quo of this plan is unknown to the Commission, this routing alternative should be given due consideration

3.3.5 **ToR for second level SEA**

Given the expected complications associated to the proposed project at Puerto Busch and the reported and observed problems at the present facilities in Canal Tamengo, a well informed, transparent and participatory decision making process is needed to come to the optimal solution. This optimal solution could well be a combination of Puerto Busch, Canal Tamengo, the Pacific alternative and alternative infrastructure options to the Atlantic, depending on types of goods, seasons, market and speed of transport. This could be worked out in a multi-modal network plan.

- The Commission **recommends** to produce convincing information which shows that the development opportunities of the port facilities along Tamengo canal have or have not been optimised and fully utilised.
- A river transport plan needs to be included showing all seasons; this encompasses Laguna Cáceres, Canal Tamengo, River Paraguay section between Corumbá and Puerto Busch.
- It is also recommended to thoroughly explore the possibilities for reaching a solution with Brazil (eg. through the 'Cámara Técnica de Gestión de Recursos Hídricos Cuenca Alta Paraguay, Brazil). Supporting evidence that this would not be possible is now lacking. Given the multiple issues that need to be solved in co-ordination with Brazil, a bi-national SEA on transportation modalities along the middle section of the river Paraguay could be suggested (or bi-statal on the level of Santa Cruz and Mato Grosso do Sul). This could also include an analysis of the short cut between Mutún and the River Paraguay.

3.4 First optional strategic level: arrangements within the corridor

3.4.1 **Rationale**

The '**Where**' question leads to the first level of strategic considerations. Supposing a transport mode has to be developed along the Puerto Suárez – Puerto Busch axis, is the present project design the most optimal? Observations during the field visits left many questions unanswered, giving reasons to believe that a broader view would be advisable. Hereunder, the Commission gives ToR for an SEA at corridor level. The Commission is aware that a great deal of this information is already available (demonstrated eg. by a powerpoint presentation given by the Prefectura de Santa Cruz), however not publicly accessible.

3.4.2 **Alternative routes of railway and siting of port**

The Commission notices that in the EIA report only alternatives for points where the railway branches from the Santa Cruz – Puerto Suarez railway have been elaborated. The Commission recommends to add information on:

- The **alternative from Km 45 to km 90** being located on higher grounds, on the half-moon shaped landscape, to reduce hydrological interference. As a consequence the length of the railway will slightly increase (rough estimate 3 to 5%). Existing gullies have to be mapped and structures included in the embankment of the railway have to be adapted to existing water supply and drainage patterns. Existing access tracks have to be mapped and crossing-facilities have to be included in the design of the railway alignment. Borrow areas for the earth embankment, their excavation dimensions and their treatment have to be investigated and designed. The fence structure has to be reconsidered. Apart from port facilities, the loading and unloading at the Ports of Suarez & Quijaro and the Mutún area have to be indicated and designed.
- Reference to **earlier studied alternatives** and reasons why these were put aside (e.g. the study to dredge part of Rio Negro and putting harbour facilities inland from the main river thus not obstructing navigation in Rio Paraguay).
- **Arguments for the selected site.** Some people question whether it is possible to have large port facilities in the selected bend of the river. The accumulation of empty and full barges may obstruct river navigation. Soy transportation on the river typically is carried out with barges locked in 3 x 5 convoys with one pushing vessel. River bends are known difficult spots for such transports. Accidents are predictable. Waste treatment has to be investigated. Stability of the riverbanks and sedimentation of the river system needs to be investigated.

3.4.3 **Alternative transport modes**

The railway is chosen as the proposed option in the EIA report. The proponent correctly points out that a railway is the best means to avoid unintended development along the line. However, the following alternatives also have been mentioned and could be elaborated or be set aside based on clear arguments:

- **All seasons road.** This is probably the least preferred option since this provides the means to open the region for unplanned development. Strong presence of park authorities is required. These authorities will become permanently beleaguered by proponents of development projects.
- **Dry seasons road,** which inundates during floods. This option is probably least obstructive to flow of water and could be a solution when low flow conditions in Tamengo canal hinder navigation.

3.4.4 **ToR for first level SEA**

- The Commission **recommends** that the information in paragraphs 3.4.2 and 3.4.3. be provided to enhance transparency and to show how costs and benefits associated with this project are to be shared by different stakeholders. The Commission feels that it is not a very time consuming task to follow up on these recommendations since most of the information can be obtained from already available and scattered documents.

4. INSTITUTIONAL ARRANGEMENTS AND IMPLEMENTATION MODALITIES

This chapter deals primarily with the next steps of the 9 step SEA: 5) Do the assessment and document it and 6) Organise (independent) quality assurance. These issues have been discussed at a debriefing meeting with the Minister and Vice-minister of MDS.

4.1 Step 5) Do the assessment and document it

MDS has funds available for undertaking the SEA. It was agreed that the SEA could best be executed by a team of 3-4 Bolivian experts, thus generating SEA capacity and experience within the country. These experts should be recruited from within the MDS or alternatively contracted from outside especially for this SEA but then operating in the offices of MDS or in the Prefectura de Santa Cruz. Criteria for the selection of experts are knowledge of EIA, preferably in combination with a background in (socio) economy, hydrology and nature conservation. The team should be headed by a Bolivian team leader, with basic knowledge of SEA. The tasks of this individual will be managing the SEA office and secretarial support, arranging contacts with relevant stakeholders, preparing monthly progress reports and overseeing and editing SEA report production. Clear decisions have to be taken on the role of the Ministry of Economic Affairs (see also 2.1). The Commission suggests that they appoint, as owner of the planning process, the SEA process manager, who works closely together with the SEA team leader. This person will be responsible for involvement of all actors and building up mutual understanding and ownership of the results. Another responsibility would be to watch over the timely availability of SEA results to influence decision making within the planning process.

The Commission also recommends to form a Steering Group for this SEA, in which representatives of the most important stakeholders have a seat (eg. at general directors level from MDS, Economic Affairs, Mining and Transport and Prefectura de Santa Cruz). This steering group meets once a month to guide the SEA process and review progress. This steering group is especially meant to guarantee the political back-up and support for undertaking this SEA. The SEA team leader and process manager will attend these meetings.

As this SEA pilot is the first of its kind in Bolivia, and as there is very limited SEA experience in the country itself, the Commission recommends to make use of international SEA experience. There are two alternative options. Either contracting an international SEA consultant, with experience in Latin America (and preferably Bolivia) who visits Bolivia regularly to guide and coach the team (eg. a few days each month). This is probably an expensive option. As an alternative to this option, the SEA team leader (and SEA process manager) could travel as and when required to receive coaching and training from an international SEA consultant who acts as a 'sparring partner' on a regular basis, especially focussing on the bottlenecks encountered during the execution of the SEA. The second option would probably contribute better to the objectives of 'training on the job' and capacity building and would to a greater extent enhance ownership of this SEA.

In relation to the accumulation of information for this pilot SEA, the Commission advises to investigate the possibilities to sign an agreement with WWF-

Bolivia, who are in the process of gathering base line information, which is highly useful for the assessment (see appendix 9).

The Commission also recommends to open a web-site on this pilot SEA to enhance transparency and participation, but also to enlarge the learning effect (and other possible 'spin-off) of this pilot SEA.

4.2 Step 6) Organise (independent) quality assurance

It is up to MDS, in consultation with key stakeholders to design the undertaking of the SEA, depending on when SEA results have to be available to influence the planning process (see 2.2). On the basis of experience with other SEAs, the Commission is of the opinion that it may take well up to the end of 2004 to arrange the set-up and management of this SEA. This means that the assessment itself can probably start early 2005. Roughly estimated, the assessment will take one year. This however does not mean that quality assurance only takes place at the end of that year. As the process in SEA is just as important as the contents part, the quality assurance can be organised at regular intervals during the undertaking of the SEA, especially as this is a learning process for all parties involved. The Commission is willing to assist in this monitoring of quality assurance if requested by MDS and other key stakeholders.