The Kaa-Iya Experience: Trends toward Financial Sustainability

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Introduction

This paper will present the Kaa-Iya Process with a focus on Financial and Economic Sustainability issues.

"Kaa-Iya" is a Isoceño - Guarani word referring collectively to a set of minor gods who are the "owners" of natural resources, like forests, wildlife species, and water. They are gods who provide the fundamental things for human survival, both in the physical and spiritual sense. This is an essential concept.

This paper has three sections:

(1) Section I
  Kaa-Iya Process Basic Data: Facts, Actors and Dynamics

(2) Section II
  The Financial Subject in the Pathway to Sustainability

(3) Section III
  Lessons Learned: Potentials uncertainties and the future

Section I. The Kaa-Iya Process: Basic Data, Facts, Actors, Dynamics and Integrated Impacts

The Kaa-Iya process is characterized, especially in the last 7 years, 1996-2003, by the complexity and intensity of spatial, social, institutional and economic dynamics, acting simultaneously over the environment and social formations, at different scales and time-frames

1. Kaa-Iya spatial “dominion” – Beyond the Protected Area

a. The Kaa-Iya spatial or territorial complex is located in the most ecologically relevant, pristine, Chacoan formation in Bolivia, with transitional areas connecting to Chiquitano Forests, eastern lowlands and "pie
de monte” (foothills) of the oriental mountain range (cordillera) and Chacoan frontiers with Paraguay and Argentina.

b. This Kaa-Iya spatial complex has a total extension of 5.3 millions and is compounded by the intended and planned aggregation of the Indigenous Isoso Territory (1.9 millions has) and the Kaa-Iya Protected Area (Park + Integrated Management Areas = 3.4 millions has). By itself, the PA Kaa-Iya is the biggest park in Bolivia and probably the biggest on this side of South America. The spatial integration of the indigenous territory and the Kaa-Iya protected area totals 5.3 million has, approximately 5% of the national territory.

This configuration, therefore, will require the combination of almost all the IUCN categories

(See Map 1 in annex to this paper)

2. Social and Institutional Actors

2.1 Indigenous People.
There are three different groups of Indigenous people:

a. Capitanía del Alto y Bajo Isoso, CABI, is the traditional organization that represents the Isosoño Guarani people, 10,000 inhabitants, distributed in 25 communities, mainly alongside the Parapeti River and zones of the Bañados (a wetlands RAMSAR site)

This is the key social and institutional actor, with the long term vision and strategic determination to propose a pathway and a first breakthrough for the creation and administration of the Kaa-Iya National Park, by an indigenous people organization and the recognition and entitling (in process) of their Indigenous Territory (TCO Isoso). This is the pivotal actor in establishing a set of simultaneous and multilevel, strategic and non strategic alliances and agreements that create the conditions for these achievements.

b. Chiquitano Communities. Related to the transitional Chiquitano forest, there is a group of 15 Chiquitano Communities and one zonal organization that actively participates in the Management Committee of the Park.

c. Ayoreode Groups. A Chaco - Chiquitano forest group, they maintain alternating nomadic cycles with temporal settlements in stable territories (TCOs and Communities) and cities. (they have been called the nomads of the asphalt)

2.2 Municipalities
The Kaa-Iya spatial complex is made up of seven municipalities, local governments with the combination of urban sites, systems of basic services and expanding markets. Three of these seven municipalities are part of the Management Committee of the Protected Area.

Within the municipalities, there are a series of actors including peasants that migrate from the highlands to the eastern lowlands

2.3 Private Actors
These include ranchers involved in agro-industrial production and transformation firms (soya, sunflower, oils and derivatives producers); and forest and mining firms.

2.4 Hydrocarbons and energy enterprises (Period 1997 – 2003)
International firms like Shell, ENRON-PRISMA, PETROBRAS, BP. REPSOL, TOTAL ELF, PLUSPETROL, MAXUS etc., engaged in upstream and downstream, large-scale investments and interventions. This is supported by the discovery (at the end of 2001) of gas reserves of more than 53 trillions cubic feet, in the southern part of Bolivia.
2.5 National and Regional Government Agencies, Cooperation and International Investment (Period 1997 – 2003)
There have been major investments in hydrocarbons, international roads, energy premises and induced regional development emerging as a set of concentrated investments, mainly in the national sections of international roads (linking Bolivia to Brazil, Argentina, Chile and Peru, the inter-oceanic network) driven by government agencies, multilateral banks and financial consortiums. (These initiatives are linked to MERCOSUR, Andean Pact)

3. Dynamics and trends

The Kaa-Iya spatial complex is located at the intersection of a dynamic field formed by a series of interventions, including macro projects like infrastructure for hydrocarbons transport, processing facilities and exploitation complexes, international roads, induced regional development, and an increasing migrating population both to urban and rural areas in the region. All of this has been concentrated in a time frame from 1997 to 2003.
Key questions about this process are:

a. Externalities\(^1\) are the driving and dominant forces of economic growth, supported in part by cheap natural and human resources. These driving forces, defining the times and scope of negotiations and interventions, including changes in legislation and rules related to the status of property and use rights of the "natural capital" of the nation.

b. The integrated and accumulative impacts. Social, economical, institutional and environmental impacts represents the costs of internalization of those externalities, but in the same movement emerge a limited but substantial set of possibilities to design and implement some alternative courses of action, mainly because at the global, level, international agreements and organizations, such as the World Bank, IADB, and Bilateral Cooperation are working, with mixed commitments and results, toward better standards of economic, social and environmental conditions. Enforcing international agreements must be accomplished by economic actors and governments. Concurrently, civil society, international networks, ONGs, social organizations, Indigenous peoples have decisively contributed to the design and development of some important initial experiences in the direction of systems of social and environmental management.

c. Increased dangers. There is a concentrated and increasing pressure towards the use and exploitation of natural resources, increasing tension and conflicts over property and use rights, correlated with poverty, unemployment and asymmetric distribution of income, involving all social, economical, and institutional actors.

Section II. Kaa-lya: The Financial Subject in the Pathway to Sustainability

*How and when did CABI convoke the institutional, technical and financial resources that support the first steps of a sustainable finance strategy?*

Between 1994 and 2003, in order to accomplish the described strategic objectives regarding the Kaa-lya Park, the Indigenous Territory and the development of organizational and institutional capacities for the management of the Park and a sustainable development strategy for the TCO, CABI signed the following eight agreements:

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\(^1\) Regional Markets as Mercosur and Global Markets as the market for energy LGN.
a. Agreement of Co-Administration of the Kaa-Iya Protected Area, signed in 1996 with the Ministry of Sustainable Development and Planning. Since that moment to the end of 2002, CABI has completed 7 years of successful management of the Protected Area. In the case of Bolivia, an indigenous organization was proposed and contributed to the creation and administration of a National Protected Area.

b. The Agreement of Cooperation between CABI and WCS to support the long term vision of CABI related to a system of social and environmental management comprising the Indigenous Territory and the Kaa-Iya Park, began in 1993. In June of 2003, the partnership between CABI and WCS had reached 10 years.

c. The Agreement between USAID – WCS – CABI from 1995-2003. Under this agreement, the Kaa-Iya Project was established as the institutional and technical instrument to support CABI and its institutional branch, the Ivi Iyambae Foundation, to support both the Kaa-Iya Protected Area and the Isoso Territory process (TCO). Programs included institutional strengthening and strategic planning; management and monitoring plan and zoning; and, environmental education and applied research on wildlife population, ecology and wildlife management practices. Through this agreement, USAID allocated a total of 4 million USD, an average of 500,000 thousand per year.

In October of 2003 this agreement will complete 8 years of exceptional achievements and with all probability will continue beyond 2003.

d. PDPI AND PMA Agreement 1997–2002
An Indigenous development Plan and Environmental Management Plan was signed between the Indigenous People representatives (CABI, CIDOB) and the Hydrocarbons firms (GTB Shell, ENRON, PETROBRAS), with no objection from the World Bank, IADB or the Bolivian Government. This Agreement established an Institutional framework with a governance design based on peer representatives (the Executive Committee with the decision-making authority) between the Hydrocarbons firms and Indigenous People, and an independent Director, with no objection from the WB and IADB.

This agreement allocated 4.2 millions USD, of which CABI was responsible for:

- 1,000,000 USD for a Trust Fund to support the Kaa-Iya Park and related activities
- 731,000 USD to support the entitlement process of the TCO Isoso (proxy 50%) and the other 50% as a Fund to support the zoning, management plan and investment funds for the TCO.
- 500,000 USD to support the Environmental Management Plan (monitoring re-vegetation and the GIS System)
- 300,000 USD for local development activities.

This agreement had completed six years of achievements, recognized as a model by the World Bank and the other parties as taking a step beyond creating the Kaai-Iya Foundation.

e. Agreement between MDSP – INRA – CABI, 2001-2003
This agreement was signed between the Ministry of Sustainable Development and Planning, the Direction of the National Institute of Agrarian Reform and CABI. The objectives of this agreement comprises: a. to complete the entitlement of the Indigenous Territory through a participatory process and consensus construction with 3rd party proprietors, within the TCO; b. the devolution to CABI of the Private Fund advanced by CABI (731,000 USD) to support the entitlement process. This agreement has extended for 2 more years and a wider agenda has been incorporated:

- Bi National Protected Area and Biosphere Reserve with Paraguay

f. Agreement between CABI, APG and the TRANSIERRA consortium, April 2002
- Related to the GASYRG Gas Pipeline and Pumping Stations, Right of Way Payment.
(60,000 USD for CABI for the TCO right of way)
- Agreement and execution of a Plan to remediate short term, direct impacts of the pipeline construction phase.

g. Agreement for the creation of the Kaa-Iya Foundation signed formally in September 2002, between CABI-FII and GTB – Trans Bolivian Gas company (formed by Shell ENRON-PRISMA, TRANSERDES, PETROBRAS), with a complementary agreement between WCS and the Kaa-Iya Foundation (2003). An example of new partnerships, new institutional frames based on long term commitment with conservation and sustainable development and funding. A new long term partnership, as an expansion of the PDPI-PMA-E experience, committed with environment conservation and sustainable development programs and funds.

h. CABI – WCS signed, in June of this year, a new agreement renewing their strategic partnership. This agreement is long term, and is constructed in mutual confidence and reaffirmation of strategic goals towards social and environmental management, expanded to issues at regional and national levels.

This network of cooperation between CABI and their counterparts, in the referred agreements, made available critical information and momentum for improved negotiation conditions and achievements.

2.2 Approach to Financial Sustainability
Conditions
CABI’s long term vision and intergenerational heritage concept plus the agreements with CIDOB, WCS, USAID and MDSP between 1995 and 1997, created the following critical conditions and capacities for dealing with the question of sustainability in general and the question of financial sustainability in particular:

These critical conditions allowed a move away from the subsidiary model – a mix of distorted representations + shopping lists + high transactional costs, inefficiency and inefficacy + short term goals; that increase dependency and furthermore incapacity to resolve the key social and environmental questions. This model is expressed when, for example the Hydrocarbons firms define, and society accepts, the Compensations Programme area. Therefore, we are strongly against all these pervasive and, (as a colleague commented before) perverse forms of subsidy.

Momentum and Catalysts Related to Financial Sustainability
Between 1997 and 2003, 2,000 USD million was invested in the region, concentrated in Hydrocarbons, international roads and induced regional development. The trigger and accelerator was the first and major macro investments since 1997, the “Principal gas pipeline of integration Bolivia – Brazil”. This pipeline has a total extension of 3,150 km. The Bolivian portion has 577 Km of which 260 km, 45% traverses the Kaa-Iya Protected Area and the Isoso Indigenous Territory.

This intersection between:
- CABI, his partners and allies (other indigenous people, ONGs, Civil Society, as described above) , considering the roles, competences and authority of CABI as Indigenous People, responsible for the management of the Protected Area and the commitment to the conditions defined above;

- The Hydrocarbon Consortium with this macro investment and integrated and accumulative social, economical and environmental impacts resulting from its interventions;

- The role of the World Bank and the IADB, as key financiers of this macro project, defining the social and environmental conditions and standards. And the role of the Bolivian Government agencies, in particular the MDSP, that facilitates the participation of CABI as co-administer of the Protected Area. This produced a new agenda and scenario for negotiation.
**PDPI and PMA-E - Elements for a New Agenda**

The resultant PDPI and PMA_E agreements, after a long negotiating process, were constructed over a different Agenda than the traditional compensation and mitigation programs defined by the EIA and the subsidiary underlying concepts. The PDPI (Indigenous People development Plan) and PMA_E (Specific Environment Management Plan) were constructed over four principal axes:

a. **Institutional Frame, and Governance.**
   A formal and new institution, the PDPI, was established with peer power of decision-making between the hydrocarbons firms and representatives of indigenous People (CABI and CIDOB).

b. **Land and territorial entitlement for Indigenous People, including support for ecological and economic zoning, management plans and sustainable development.** The Protected Area Management Plan is embedded with the Indigenous Territory Management Plan into the core of CABI's sustainable development strategy.

c. **Sustainable Financial Mechanisms for environmental conservation in the Kaa-Iya area and sustainable development initiatives.** A Trust Fund of 1 million USD was established as a first step towards this.

d. **Support to a specific Environmental Management Plan to create knowledge and conditions for monitoring and response, to face uncertainties and risks on a long term basis**

**Financial Sustainability: Funds and Institutional Mechanisms**

Summarizing, from the Kaa-Iya vision, the financial sustainability of the Protected Area is part of the sustainable development of CABI and the social actors in the area.

**i. Funds, cost efficiency and Investments**

<table>
<thead>
<tr>
<th>Concept</th>
<th>Amount in USD</th>
</tr>
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<tbody>
<tr>
<td>1. Trust Fund, from PDPI, mainly to support the protected area management. (Since 1998)</td>
<td>1,000,000</td>
</tr>
<tr>
<td>2. Return Fund for Territory securing, zoning, management plan and sustainable development initiatives. Guaranteed a first rotation for 2003 (Since 1999)</td>
<td>730,000</td>
</tr>
<tr>
<td>3. Fund from the Right of way of GASYRG (pipeline from Argentina to Santa Cruz). Considering only investments funds (Since 2002)</td>
<td>300,000</td>
</tr>
<tr>
<td>4. System of matching funds, agreement with Kaa Iya Foundation and WCS to match rentals generated by the trust funds (since 2002). Two year projection.</td>
<td>90,000</td>
</tr>
</tbody>
</table>
| 5. Investments not priced yet:  
  5.1 the zoning and management plan of the Protected Area and TCO  
  5.2 Accumulated scientific and practical knowledge, respect for wildlife, and natural resources potentials and constraints.  
  5.3 Trained and educated human resources  
  5.4 The “patrimonial value” of natural resources and land in the case of the TCO |               |
| 6. Cost Efficiency contributions: |               |
6.1 Transaction Costs. This is a vital issue revealing not only the rate between efficiency and efficacy, but also the chain of successive financial charges that support all the intermediates between the source of funding and the final direct investment.

6.2 Lowering economic costs for society, in particular related to Technical and Juridical costs of the Lands Entitling Process. The average cost was fixed to 1 USD per Ha. The CABI experience demonstrated that the cost can be reduced to 0.34 USD per Ha. and in general lowering the level of conflicts and related social and political tensions could represent a huge and significant lowering of the economic and social cost for the country.

Funds Subtotal

<p>| | | |</p>
<table>
<thead>
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<th></th>
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<tbody>
<tr>
<td><strong>Total</strong></td>
<td><strong>2,120,000</strong></td>
<td></td>
</tr>
</tbody>
</table>

**ii. Co-Financing the Kaa-Iya Protected Area 1998 - 2002**

<table>
<thead>
<tr>
<th>Calendar Year</th>
<th>Total KINP Budget (US$)</th>
<th>Amt. from SERNAP</th>
<th>% of Total</th>
<th>Amt. from CABI/FII</th>
<th>% of Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1998</td>
<td>$149,142.57</td>
<td>$115,284.00</td>
<td>77.3%</td>
<td>$33,858.57</td>
<td>22.7%</td>
</tr>
<tr>
<td>1999</td>
<td>$259,176.40</td>
<td>$77,384.00</td>
<td>29.9%</td>
<td>$181,792.40</td>
<td>70.1%</td>
</tr>
<tr>
<td>2000</td>
<td>$225,222.70</td>
<td>$116,566.00</td>
<td>51.8%</td>
<td>$108,656.70</td>
<td>48.2%</td>
</tr>
<tr>
<td>2001</td>
<td>$199,200.00</td>
<td>$134,115.60</td>
<td>67.0%</td>
<td>$65,084.00</td>
<td>33.0%</td>
</tr>
<tr>
<td>2002</td>
<td>$184,323.00</td>
<td>$120,242.25</td>
<td>65.0%</td>
<td>$64,080.75</td>
<td>35.0%</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>$1,027,065.67</td>
<td>$563,591.85</td>
<td>55.4%</td>
<td>$453,473.42</td>
<td>44.6%</td>
</tr>
</tbody>
</table>

For the last five years, based on the Trust Fund generated rent and other contributions, CABI has contributed 453,473.42 USD, representing 44.6% of the total executed budget in the period. We must highlight the fact that in 1999, there was a financial crisis for the National System of Protected Areas, CABI saved the situation, contributing 70% of the budget. And we are not accounting here the very important indirect funding from WCS-USAID that was concentrated on the Management Plan for the Protected Area, scientific research at the landscape level, environmental education, the support of part of the institutional and administrative capacity of CABI regarding good performance and sound management of the area.

**Section III. Lessons Learned: Potential uncertainties and the Future**

**Necessary Conditions:**

1. Vision, legitimacy and voice from people.

2. Long term time horizon and spatial scale wide enough to support systems of social and environmental management that includes people, landscapes, ecosystems, biodiversity (inward and outward PA) connectivity and environmental networks.

3. Governance, as an essential balance and share of power and reciprocal responsibilities within each level of institutional frames. “Strategical partnerships” at any scale (local, national, international), are necessary for effective action allowing articulated responses to complex social and environmental challenges as the discussed here.
4. A matrix of strong, explicit integration of social and economic issues with the environment. Determining the real value of environmental services and goods. This is a kind of matrix with a flexible and interchangeable focus. It should guarantee, that no matter your focus of interest (social, economical, institutional, environment) you would incorporate the critical conditions of the others issues and always the environmental agenda. For example CABI, from the point of view of sustainable development of an indigenous people, incorporates and integrates the conservation agenda of the protected area.

5. Territorial ordering, ecological and economic zoning and management plans for supporting the distribution of rights of propriety and use of land and natural resources is vital for the equity issue with Indigenous Peoples, peasants communities, and private owners, but also to guarantee the natural capital (the remaining non renewable resources and the renewable resources).

6. Knowledge, the necessary joining of scientific, technical and traditional understanding to deal with the complexity and uncertainty of environmental processes due to integrated impacts of the macro-projects, and the economic valuation of natural goods and services.

**Financial Sustainability Issues**

1. In poor countries and regions, international financial capital is the driving force. In the long term without effective global changes towards sustainable growth, equity in distribution of income and services, reversal of trends towards poverty and unemployment, depletions of natural resources, financial sustainability is a dream turning into a nightmare.

2. Financial sustainability at the regional and local level, at the Kaa-lya scale, considering CABI as the key actor and the articulator of multiple alliances and agreements, depends on the capacity to:

   2.1 Establish financial objectives. In the protected area, for example, requires an average budget of minimum 500,000 USD per year to accomplish the goals and demands defined in his Management Plan. The actual budget is around 250,000 USD, including counterpart funding from CABI’s Trust Fund. This means a financial gap of 750,000 USD for the next 5 years. The TCO Isoso will require at least 5 million USD of investments in sustainable development programs in order to generate growth, income and better quality of life for their people.

   2.2 CABI must define (and is doing it) a diversified portfolio of investment opportunities linked to, on the one hand improving traditional strategies of communal production and on the other hand developing new areas and scales of investment like eco tourism, wildlife management, ecological products, energy, medicine, genetic resources and environmental services (carbon offsets etc).

   2.3 Related to both previous points, CABI, in consensus with its associate partners, will propose (it is in process now) a financial system that balances and integrates:

      a. Trust Funds (substantial capital; little interest ability).
      b. Matching and Counterpart Funds. Related to trust fund rents, investment and current funds.
      c. Return Funds with a wide and diversified portfolio of investments, centered on the community traditional areas.
      d. Direct Investment funds for selected projects of medium to large scale aiming to increase the economic and "natural” capital.
      e. All the previous items as counterpart for cooperation ODA, and promoting private investments and public and private consortiums.

A key theme for strategic partnerships.
A cautionary note: Revenues from trust funds are very low or otherwise very risky. For example, a trust fund of 14 million USD at a discount rate of 10% (minus fees, value maintaining, etc) will produce a net rent of 600,000 USD per year. For the same 14 million at 5%/year rate the net rent will be in the order of 300,000 USD. This 14 million is the target Trust Fund for the PA in Bolivia, through FUNDESNAPE. Trust Funds are (with the exception, perhaps, of the real mega Trusts) from our point of view, more important for the representation of capacity and confidence (guarantee) to negotiate concurrent funds, and are very important to finance strategic long term enterprises.

2.4 The institutional framework and partnerships constructed by CABI and its allies, focused on sustainable development and environment protection could be the principal factor to guarantee (except the externalities) significant advances towards financial sustainability.

2.5 Building institutional capacities for the management of integrated social and environmental systems. Strengthening procedures to achieve the necessary proficiency for administrative and financial capacities in order to guarantee accountability and efficiency. These institutional capacities should take into account the diversity of actors, public and private, that participate in the different levels of management, monitoring, and joint ventures of the Protected Area.

2.6 Further advances in expanding and deepening cooperation and feedback with Bolivian and international NGOs and scientific and academic institutions must be achieved. The feedback process through the capacities developed by civil society organizations in rural development, community organization, technology transfer, natural resource evaluation, environmental education, should be intensified in order to improve the quality and extension of the outcomes in these fields and to increase the number of the stakeholders.

2.7 Support for the inter-institutional framework and partnerships for profit- sharing mechanisms must be developed. Advancements toward investments in economically productive options through indigenous people and community based organizations, should be actively promoted and pursued. It is necessary to ensure that an integrated protected area management will produce benefits for all the actors, that these are global goods, not “limited goods”.

In this process, CABI has acquired substantial experience that is embedded in the Management Plan and zoning of the Protected Area as a key component of the Management Plan and Zoning (currently in construction) of the TCO (Indigenous Territory).

Reducing costs through co-participation and co-responsibility by social and institutional actors, on monitoring and guaranteeing the laws and regulations reinforcement in the area.

III – From the particular to the general

III - 1 We have some concerns about certain positions expressed, specially in the main plenary of the World Parks Congress. These positions assume that the international institutional systems (UN, for example) that guarantee international laws and conventions are intact and unharmed. We are worried with the perception that in an ominous way and extent, the UN has been broken in its core, the confidence of nations and people in the preeminence and respect of international laws and institutions. Beyond all war and death, symbolic wounds have been caused, ethical wounds, religious wounds, dignity wounds…and as a song said…how can you soothe those wounds and what are the consequences for all of us and for the World Parks Congress conclusions, because if we don’t face the problems we can’t ever contribute to resolving them.
- What is the rate of variation, the reason between Global Investment in Social and Environmental issues (x to y?) why not x + y investments, within systems integrating social and environmental issues

III – 2 Financial Sustainability – at global scale

World Parks Congress Global Recommendations

1. Debt relief – new goals, for debt reduction and reinvesting in environmental and social themes

2. The revenues of energy and mine firms based on the exploitation, and future total exhaustion of non renewable earth resources, must support alternatives to climate (their share) and biodiversity integrated impacts and resources to guarantee the development of clean energy from renewable natural resources.

3. Arms. If tobacco is penalized through taxes, arms must pay a share to environment and social issues, at least parallel with the fight of society against armaments.

4. The biotech enterprises must support also an increasingly important role in responsible funding for the natural goods they exploit.

III – 3 Strategic Partnerships with governance – network = matrix multiple and diverse, reversing the subsidiary model, integrating the management of social and environmental systems.

- As IUCN has a system classifying management systems of PA, we suggest the development of a framework to distinguish the different kinds of partnerships, allowing to network diverse (levels and space) partnerships and to define their competences. Some of the indicators could be:

A. Governance – real power sharing and reciprocal co-responsibility
B. Level of commitments of social–institutional and economic goals
C. Level of commitments to respect the ‘Natural’ Capital (services, resources) at the global (climate) and specific biodiversity and ecosystems networks.
Annex _ Map 1

Dynamics
1. Infrastructure and Equipment
   11 Hydrocarbon and energy
   12 International Roads
   13 Urban expansion
2. Economic development
   14 Induced Regional development
   15 Agriindustrial development export
   16 Transport Services and costs
3. Social Dynamics
   31 Demographic concentrations
   32 Distribution of Income
   33 Rural Colonization
   34 Conflicts of property rights and uses of land and resources
4. Institutional Dynamics
   41 Governance, legitimacy
5. Environment Dynamics
   51 Increased pressures over natural resources
   52 Hydrologic and Biodiversity uncertainties
   53 Hazards as forest fires

Actors
I. Indigenous Peoples (3)
   - Guaraní Isoso - CAB - Kea’yla
   - Ochillanos
   - Ayoreo

II. Municipalities (7)
III. Hydrocarbon Private Sector (5)
    GTB, TRANSREDES, TRANSIERRA
IV. Third Party - Private Sector
    Ranchers, Mine Owners,
V. Central and Departamental Government
    MDSP, INRA, Prefectura Transport and Energy and Hydrocarbon
VI. Cooperation System
    a. WCS-USGID
    b. WB and IADB
    others

Pipelines 1
Pipelines 2
Transport Corridor

Santa Cruz
Municipality
Charagua
Isoso Territory
Kea’yla Protected Area
Paraguay
Brazil