



Forests and the Biodiversity Convention

Independent Monitoring of the Implementation of the Expanded Programme of Work in Paraguay

**Alter Vida
Paraguay**



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Citation:

Country monitoring report on Paraguay (2008). 27 pages.
Independent monitoring of the implementation of the Expanded Work Programme on forest biodiversity of the Convention on Biological Diversity (CBD POW), 2002-2007.
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Cover:

Natural forest in Paraguay.
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This report was made possible through the generous contribution of the Dutch Ministry of Foreign Affairs.

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1. INTRODUCTION

The following is the report on the process of independent monitoring of the implementation of the Expanded Program of Work on Forest Biological Diversity (PWFBD) in Paraguay. The work was done from May to September 2007.

Alter Vida, the institution in charge of the process, gathered information, and contacted the key actors in the national forestry work, both in the public sector, including civil society organizations, as well as in the productive sector.

The interest of the participants in the process of independent monitoring process of the PWFBD in Paraguay was noteworthy and the contributions made gave rise to a lively debate during the consultation workshop, which was held September 5th, 2007. Forty-two representatives from institutions key to the implementation of relevant forestry policies attended this workshop.

The principal conclusions of the process include the lack of awareness about the PWFBD and the profound ineffectiveness of the authorities in charge of addressing the underlying causes of deforestation and the degradation of forests. However, the process was useful for determining that some of the recommendations arising from the PWFBD are being implemented to some extent, even though it is purely coincidental that they concur with the program.

The participants in the process highlighted the need to seriously and effectively implement the PWFBD in Paraguay and for that purpose made recommendations and suggestions to the corresponding authorities.

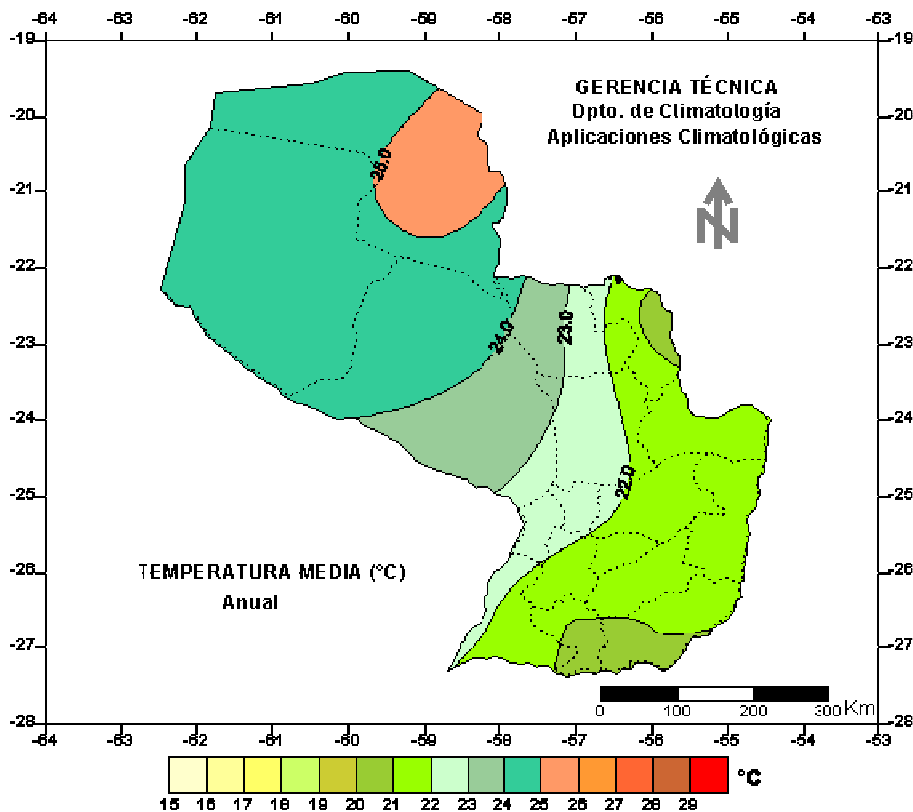


2. AN ENVIRONMENTAL, GEOPHYSICAL AND SOCIO-ECONOMIC PROFILE OF THE COUNTRY

Paraguay is divided into two principal geographic regions: the Western Region or Chaco, with 61% of the land and less than 3% of the population and the Eastern Region with 39% of the national territory and 97% of the inhabitants. These two regions have markedly different geological, edafological, ecological, topographical and climatological characteristics which result in a very different composition of flor and fauna as well as the use of the natural resources.

The climate in Paraguay has been classified as *Subtropical Continental*. The annual rainfall varies between an average of 400mm in the extreme Northeast of the Chaco, to a maximum of 1.800 millimeters in the Southeast of the Eastern Region. The average temperature varies between 25°C in the Chaco to 21 °C in the South of the Eastern Region, with maximum and minimum temperatures reaching from 40 °C to -2 °C. All of Paraguay in the Cuenca del Plata Basin and includes the two sub-basins of the Paraná and Paraguay Rivers. It is worthwhile to note that this information does not precisely indicate the climate of the country because of factors like deforestation and the massive altering of ecosystems at the local and national level and the variability of the global climate.

❖ **Graphic 1. Average Temperature Distribution in Paraguay (°C).**



Paraguay which is located in the central part of South America, is one of the smallest countries of South America, to the North and Northeast it borders Bolivia,

and to the South and Southeast it borders Argentina. Its land surface is 406.752 Km² and has a population of 5.798.603 inhabitants that grows at a rate of 2,3 % annually (DGP, 2007).

It is **mediterranean** and an active member of the Common Market of the South – MERCOSUR.

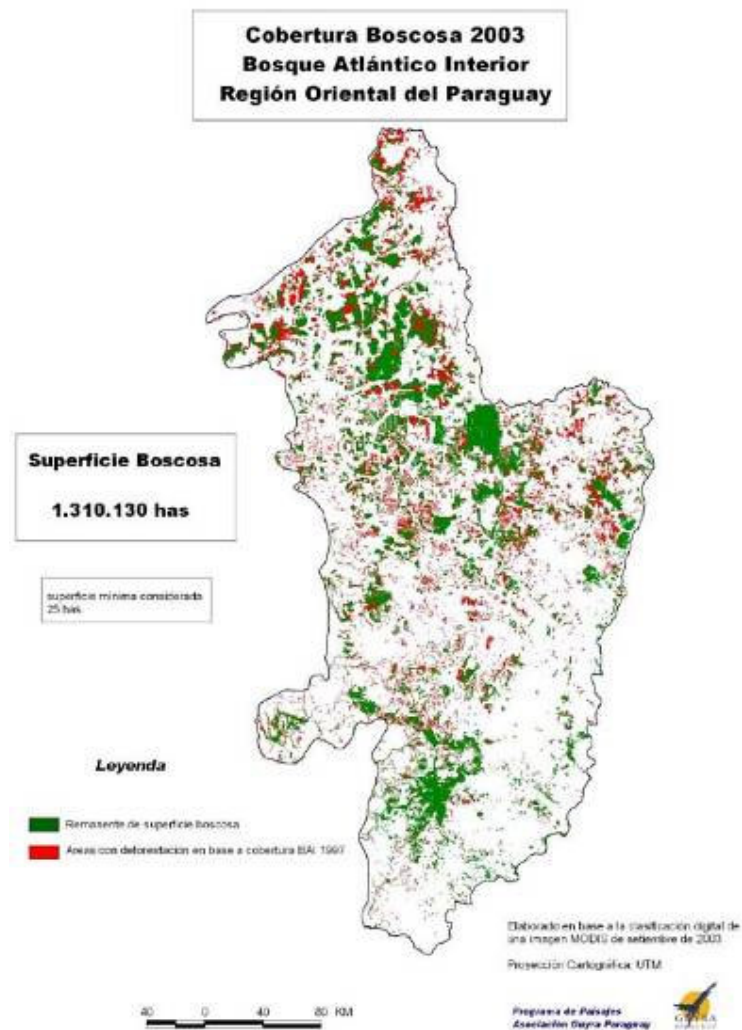
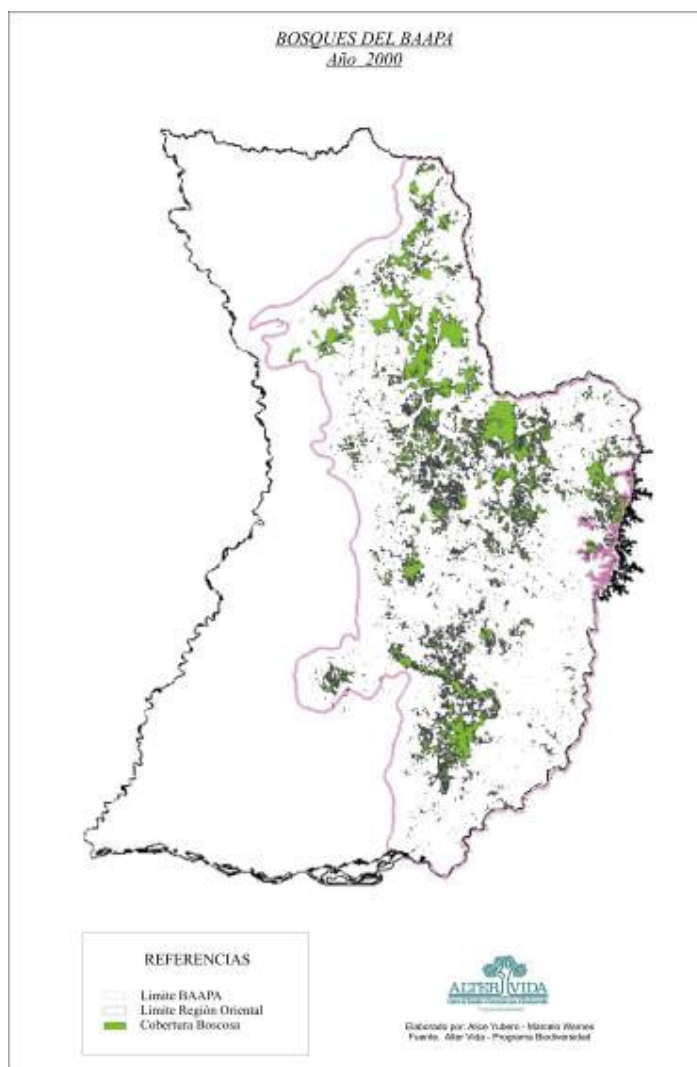
The country is divided into 17 departments administered by a central power, which is, as stipulated by the National Constitution, a unitary, indivisible and decentralized Social State of law. The government is made up of three independent branches, the Executive, Legislative and Judicial. The National Focal Point for the Convention on Biological Diversity (CDB) and for the PWFBD, scrutinized by this independent monitoring process is the Secretary of the Environment (SEAM).

3. CHARACTERISTICS OF THE FORESTS OF PARAGUAY

The description of the forests of Paraguay is important for the knowledge and location of the **vegetal formations**, as well as for understanding their ecological use an importance.

❖ **Graphic 2: Shows the reduction of forest cover over the years.**

❖ **Graphic 2. Deforestation from 2000 to 2003**



The following describes the characteristics of the different kinds of forests in the country.

❖ 1 . SUBHUMID AND SEMICADUCIFOLIOS FORESTS:

The maximum precipitation is 1700 mm/year. Franco-sandy soils. Fifty percent of the woody species lose their leaves. They have 3 to 4 layers of vegetation, with **liana y epifitas** in their interior. They are found in the central part of the Eastern Region and the current remnants of the Protected Wild Areas which are: the Yvytyrusu Managed Resources (Guairá Department) and the Ybycui National Park (Paraguari Department) and the Caazapá National Park (Caazapá Department), as well as some private natural reserves.

Chart 1. Principal species of the subhumid and **semicaducifolios** vegetal formation

Nombre científico	Nombre Vernáculo	Usos
<i>Albizia niopoides</i>	Ivyra jhú	Uso maderable medio, postes,
<i>Allophylus edulis</i>	Kokú	Ornamental; nucleador de especies pioneras.
<i>Anadenanthera colubrina</i> var. <i>Cebil</i>	Kurupa'y Kurú	Enteogénico, alimento vacuno, corteza utilizada para curtiembre
<i>Apuleia leiocarpa</i>	Yvyra pere, grapia	medicinal, ornamental, tanino
<i>Astronium balansae</i>	urunday colorado	Medicinas, taninos, tinturas y tintes
<i>Cordia glabrata</i>	Petereby morotí / picana	Combustible
<i>Copaifera langsdorfii</i>	kupay	Medicinas, resinas
<i>Eugenia uniflora</i>	Nangapiry	Alimento, esencias, planta melífera, medicinal, ornamental, taninos, tintura, cercos vivos
<i>Guarea kunthiana</i>	Yrupé rupá	Melífera
<i>Jacaratia spinosa</i>	Jacaratiá	Medicinal, frutos comestibles
<i>Patagonula americana</i>	Guajaybí	Melífera, medicinal, ornamental, taninos, tinturas, tintes, textil.
<i>Peltophorum dubium</i>	Ivyra pytá	Melífera, medicinal, ornamental, taninos,
<i>Protium heptaphyllum</i>	Ivyra ysy	Medicinal
<i>Sorocea bonplandii</i>	Nandypa'í	Forraje
<i>Tabebuia heptaphylla</i>	Lapacho rosado / Tajy	Maderable, medicinal, ornamental
<i>Xylopia brasiliensis</i>	Ivyra katú	

This same vegetal formation is found in the Western Region or Chaco, along the shore of the Paraguay River and towards the East, but there the substrate is different, because clay soils predominate and the predominant species are also different.

❖ 2 . HUMID AND SEMI CADUCIFOLIOS FORESTS:

Average annual precipitation: 1700 to 2000 mm. These forests are called the "Paraná Forests" or the "Alto Paraná Forests". Examples are found in the "Mbaracayú Forest Biosphere Reserve" in the Department of Canindeyú, the forests of the "Reserve for the San Rafael National Park", in the departments of Caazapá and Itapúa and the Caazapá National Park in the Department of Caazapá. The characteristics of these forests are that they have 4 to 5 vegetation and abundant **lianas y epifitas**. They are very similar to the subhumid forests but have greater vegetation density and approximately 30% of the woody species are **deciduales** (Mereles, 2004).

Chart 2. Principal Species of Humid and **Semi-Caducifolios** vegetal formation Forests

Nombre científico	Nombre Vernáculo	Usos
<i>Alsophila cuspidata</i>	Chachí	Ornamental
<i>Balfourodendron riedelianum</i>	Guatambú / yvyra ñeti	
<i>Cedrela tubiflora</i>	Cedro	Esencia, melífera, medicinal, maderero
<i>Cordia trichotoma</i>	Peterevy	Esencias, melífera, medicinal, textil
<i>Chrysophyllum gonocarpum</i>	Agua'í	Alimento, medicinal
<i>Didymopanax morototoni</i>	Ambay guasu	Medicinal
<i>Euterpe edulis</i>	Palmito	Alimenticio
<i>Holocalyx balansae</i>	Ivyrá pepé / alecrin	Medicinal, ornamental
<i>Myrocarpus frondosus</i>	Incienso / yvyra paje	Maderero, esencias
<i>Ocotea puberula</i>	Laurel guaycá	Maderero, alimenticio, medicinal

❖ 3 . HIGROFILOS RIVER BASIN FORESTS AND FLOODPLAIN FORESTS:

These forests are linked to water systems, be it from floods or rains, and are found along the principal rivers (the Paraná, the Paraguay and others.) In some cases, like in the Chaco region, the floodplain forests are found in low-lying areas, where the soils are rich in clays. These include the “palo bobales”; where the “bobo tree” predominates, the “chañarales”, where the “chañar” tree predominate, the “labonales”, where the “labon” tree predominate, among others (Mereles, 2004). The species are characterized by an ability to withstand a certain degree of asphyxia in the soils, caused by the seasonal flooding in the area.

Chart 3. Species characteristic of the **Higrofilo** Riverbasin and Floodplain Forests

Nombre científico	Nombre Vernáculo	Usos
<i>Albizia inundata</i>	Timbóy	
<i>Calycophyllum multiflorum</i>	Palo blanco / yvyra moroti	Forraje, melífera, medicinal
<i>Celtis pubescens</i>	juasy' y / tala	Medicinal
<i>Chloroleucon tenuiflorus</i>	Tataré	
<i>Chrysophyllum marginatum</i>	Pycasú rembi'ú	Alimento, ornamental
<i>Croton urucurana</i>	Sangre de dragon	medicinal
<i>Enterolobium contortisiliquum</i>	Timbó, oreja de negro	Esencia, medicinal
<i>Eritrina crista-galli</i>	Ceibo	Forraje, melífera, medicinal, ornamental, taninos
<i>Geoffroea decorticans</i>	Chañar	Alimentario, medicinal, melífera, maderero, ornamental
<i>Inga uruguensis</i>	Ingá	Melífera
<i>Ocotea dyospirifolia</i>	Laurel	Maderero, medicinal
<i>Prosopis rusCIFolia</i>	Vinal / viñal	Medicinal
<i>Salix humboldtiana var. martiana</i>	Sauce criollo	Maderero, forraje
<i>Tabebuia nodosa</i>	Labón / palo cruz	Maderero
<i>Tessaria integrifolia</i>	Palo bobo	Medicinal
<i>Sapium haematospermum</i>	Curupica'y	Medicinal, taninos, tinturas
<i>Vitex megapotaMica</i>	Tarumá	Alimentar, medicinal, ornamental, maderero
<i>Vochysia tucanorum</i>	Cuati'y	Alimentar, ornamental

❖ 4. XEROMORFOS FORESTS:

The Xeromorfos Forests are only found in the western region, where the annual precipitation ranges between 500 a 800 mm. The clay soils are very hard and **dry structured compacted?**. The vertical structure is a forest of 3 to 4 species in the superior **dosel**, which grow to about 20 m. tall; the second strata is the richest in number of species (known as “matorral”), which grow to a maximum of 10 to 12 m. tall and include the typical species of this kind of forest. Its **sotoforest** tends to be sparse with a predominance of succulent and thorny species. Examples of these forests are found in the “Teniente Agripino Enciso”, “Medanos del Chaco” y “Defensores del Chaco” National Parks, in the Western region in the Departments of Boquerón and Alto Paraguay.

Chart 4. Species found in the **Xeromorfos** Forests

Nombre científico	Nombre Vernáculo	Uso
<i>Acanthosyris falcata</i>	Yva he'è	Alimento, forraje, medicinal, ornamento, sombra
<i>Aspidosperma quebracho-blanco</i>	Quebracho blanco	Maderero, medicinal, ornamento
<i>Bumelia obtusifolia</i>	Palo negro / yvyra hu	Alimento, forraje, taninos, tintura
<i>Caesalpinia paraguariensis</i>	Guayacàn	Forraje, gomas, melífera, medicinal, maderero, ornamental, tanino
<i>Capparis retusa</i>	indio cumanda / poroto del monte	Alimento, forraje, medicinales
<i>Capparis salicifolia</i>	sacha sandia	Alimento, forraje
<i>Capparis speciosa</i>	Payaguá naranja	Alimento, forraje, medicinales
<i>Ceiba insignis</i>	Palo borracho / Samu'hú blanco	
<i>Cercidium praecox</i>	Verde olivo / brea	Melífera, ornamental, resinas
<i>Jacaratia corumbensis</i>	Yvy'á	
<i>Ruprechtia triflora</i>	Guaimí piré	Forraje
<i>Schinopsis quebracho colorado</i>	Quebracho colorado	Maderero, resinas, medicinal, forraje, taninos.
<i>Ziziphus mistol</i>	Mistol / mbocayá'í	Alimento, forraje, melífera, taninos, maderero

When the soil structure of this vegetal formation begins to change and get more sandy, the species that grow there differ from those that are found growing in clay soils typical of the Bolivian and Northeastern Argentine foothills **pedemonte** (Prado & Gibbs, cited by Mereles, 2007), such as the **chiquitano** forest (of Bolivia) (Navarro & Maldonado, cited by Mereles, 2007); the **sotoforest** is denser, and there is a marked reduction of succulent species, others species practically disappear, new species appear and yet others stay, all of which demonstrates the elasticity of the diversity.

Chart 5. Predominant Species are:

Nombre científico	Nombre Vernáculo	Usos
<i>Anadenanthera peregrina</i>	Curupa'y	Enteogénico
<i>Amburana cearensis</i>	Trébol	Esencias, medicinal, maderero
<i>Aspidosperma triternatum</i>		
<i>Chloroleucon chacoense</i>	Pata de buey'í	
<i>Luehea divaricata</i>	Ca'á ovetí	Medicinal, ornamental, textil, maderero
<i>Philodendron undulatum</i>	Guembé	Ornamental, textil
<i>Tabebuia impetiginosa</i>	Lapacho colorado	Maderero, medicinal

❖ 5. SAVANNAH or "CERRADOS"

The "cerrados" in Paraguay is found mostly in the Northern zone of the Western Region and covers about 5 % of the national territory. The "cerrados" are considered savannah. These vegetal formations grow on loose, sandy acidic soils, with little scattered islands of trees and with vast tracks of grasses which are usually **rizomatozas**, **sufruticosas** and frequently palms **acaules** or not.

The little islands of trees and bushes, which are usually no taller than 3 to 4 meters, can be denser. When they are denser they are called "cerradones" or transitional cerrados with woody formations, and the tree vegetation dominates the grasses. When the vegetation is less dense, it is called "cerrados fields" "**campos cerrados**", and the grasses dominate the woody vegetation. Often many of the plant species have **xilopodes**, rhizomes, bulbs and other subterranean organs.

4. LAND TENURE AND FOREST MANAGEMENT IN THE COUNTRY

According to Fogel (1989) the distribution of wealth is extremely unequal: while 80% of the land owners only exploit 5% of the total surface area in the countryside in parcels of 20 hectares or less, 80% of the land surface is owned by less than 1% of the land owners who have areas larger than 1000 hectares. This situation, though outside the purvey and beyond the scope of the biodiversity framework of the National Focal Point for the CBD, could be addressed as part of the set of policies and strategies promoted by this body, in compliance with the Elements of the PWFBD of the CBD.

According to Yanosky (1998), the distribution of the land is not very equitable. There are, for example, about 351 rural land owners that own 10.000 or more hectares, which together comprise 9.730.950 hectares. Just 351 landowners own 24% of the Republic of Paraguay. On the other hand, there are 120.000 small-scale farmers that have less than five hectares and that in total make up a bit more than 230.000 hectares.

Land holdings of more than five thousand hectares in the Western Region of the country, and of ten thousand or more in the Eastern Region or the Chaco are considered "latifundios". With regard to limits on extensions, the Forestry Law 422/73 stipulates that exercising the right to the forests, forestry lands and renewable natural resources of public or private property is determined by the limitations established by this Law and its regulations. The expropriation is complex since the National Constitution in Article 109 demands that the proprietors be paid for the expropriated properties and for legal processes, and that each expropriation needs to be approved formally in a law passed by the Congress.

In general, even though biodiversity and habitat conservation is the responsibility of the state, 97% of Paraguayan territory is private property, most of which was acquired under false pretenses and in complete disregard for the agrarian reform. This is the current situation and the State has not recovered the lands given illegally to persons that by law do not qualify as beneficiaries of the agrarian reform and are linked to the political party of the government. This restricts the rights of indigenous and local communities to have access and enjoy the benefits derived from the forest systems.

A state that basically does not possess land should formulate policies that stimulate and control private property so that private property fulfills its correct social, economic and environmental function. Given the Paraguayan situation, private property owners and the State are jointly responsible for the well being of the country.

The principal uses of the forest resources for the population are commercial, local consumption and family consumption. Henninger (1992), points out that 700 woody species are found in the native forests, ranging from bushes to trees and palms, as well as a vast number of plants. The rural population – indigenous as well as locals – have multiple uses for the forests and use many of the species for a wide range of purposes: cutting lumber to build houses, tool handles, boxes, building wheelbarrows and other tools; hunting game, harvesting fruits and foraging for food for both humans and animals; preparing medicines; collecting fibers for arts and crafts; and even gathering elements for cultural rituals. Many of the resources

used are processed or treated with appropriate technology which has been developed and passed down from one generation to other for centuries based on knowledge garnered by the rural population from living closely with the environment. This intimate link with the environment is also the basis of the cultural wealth of each region and a crucial source of support for rural families' economy and sustenance.

With regard to edible species, it is estimated that the native forests of Paraguay have about 50 indigenous fruits, many of which are endangered because of the alteration of their habitat (Henninger, 1992).

With regard to the use of medicinal and aromatic plants, Brack y Weik, (1994 - b), "mention that currently the empirical medicine inherited from the ancestral knowledge of the region continue to be important for the Paraguayans. The medicinal plants continue to be used as primary care, both in rural homes as well as in urban areas, be it in the daily tea or *tereré*."

The development model implemented in Paraguay is based on intensive natural resource exploitation, which is usually not sustainable. The official policies have favored the continuity of this model. The lack of a real agrarian reform with a integral, participatory approach which distributes not just land but all the resources necessary for production based on criteria of sustainability is one of the key causes of the pillaging of the natural resources, especially of the forests.

The exploitation of the forest is based on the selective cutting of a few species, without applying forest management measures and without any regard for sustainability criteria.

Like other countries in the world, the "reforestation" has been limited to large-scale plantations of monocultures of invasive rapid growth species with adverse environmental and socio-economic impacts (GFC, 1999 y WRM, 2000). In our country, tree plantations (mostly *Eucaliptos sp*) has been promoted by Law 536/95, on "Forestation and Reforestation Promotion". The results of this process have been catastrophic, from the point of view of the objectives of the law, since not even 10% of targeted in the current forestry policy has been cultivated which was to reach 500.000 hectares¹. Corruption and illegal arrangements are the key causes of the fiasco of this policy.

It is important to highlight the interest of the small-scale farmers in reforestation, understood as the re-creation of the forest ecosystems with other ecosystems that the local population interfaces with and also not conceptualizing forests as extractive resources. However, the possibilities of financing and technical support are very limited in the framework of the forestry policy, especially since there are so few initiatives of the official sector and the non-governmental sector. The Focal Point for the CBD, with relatively few modifications and additions to his workload, could have contemplated the objectives and goals contained in Element 1 of the PWFB, and in this manner, complied with the mandate of the Parties of the CBD as well as creating long-term environmental and socio-economic benefits.

The elaboration of forest management plans is regulated by several laws, decrees and resolutions of the National Forestry Service. Ninety percent of the forest area under management plans is found in the Eastern Region. The Forestry Law 422/73, states that the rational use and management of the forests and forestry lands of the country is in the public interest. However, the conceptual framework of "forest

¹ As of 1998, the total area reforested under Law 536/95 was 43.013 hectares.

management” is exclusively based on productive and extractive criteria and, therefore, does not concur with the focus nor the goals proposed by the WPFBD.

4.1. The Forests and Indigenous Peoples before and after the WPFBD

The territories of Indigenous Peoples, that at the advent of the Spanish “conquest” of America included the totality of the territory that makes up Paraguay, that is to say about 406.000km², is currently reduced to less than 10.000km², which is mostly found in the Chaco and various fragments of limited viability. The few forests that are left in these lands are degraded and are subject to intense pressures from the activities of those that occupy the lands adjacent to the remnants of indigenous peoples’ territories.

As was mentioned earlier, the Eastern Region has been devastated by rampant deforestation in the last 30 years, the forests have been clear cut with total impunity in one of the fastest and most terrible deforestation processes in the world. (see Chart 6).

Chart 6. Deforestation Rates – Eastern Region of Paraguay.

Periodo	Área deforestada	Unidad
Entre 1945 y 1985	123.000	ha/año
Entre 1968 y 1976	212.000	ha/año
Entre 1984 y 1991	Cerca de 300.000	ha/año
Entre 1989 y 2001	112.960	ha/año
Tasa estimada para el 2002	110.000	ha/año
Tasa registrada para el 2005	Menos de 20.000	ha/año

(Source: WWF Paraguay)

In the Western Region of the Chaco, the rate of deforestation in the last 5 years has reached 300.000 hectares/year (Ortiz, 2002). The impacts of human activities on the forests in this region, especially in the driest areas are grave and, in many cases, irreversible. A clear example, of the inadequate use of the Chaco territory is the that promoted by the Mennonite settlers in the Central Chaco, whose large-scale agriculture and livestock production only has short term production goals.

Neither the authority in charge of implementing the WPFBD nor the INDI (the authority in charge of indigenous issues) has promoted initiatives for implementing the guidelines contained in the elements of the WPFBD.

4.2. Management Practices and Forestry Policy before and after the WPFBD

As is the case with other Elements of the WPFBD mentioned earlier, Paraguay has not included these elements in the forestry policy of the country, despite isolated initiatives intended to revert the degradation of the forests.

These initiatives, however, were not based on the WPFBD or any previous planning but, rather, were launched in response to the alarming situation of forest coverage loss that was occurring. An example of these initiatives is Law 2.524, which is known as the “Zero Deforestation Law” and Law 3.139 that extended the moratoria for two more years.

Even though there are other legislative measures to combat forest biodiversity loss and/or control rural activities, these lack teeth and are not implemented. Chart 2 shows forest management policy at the start of the WPFBD in the country and Chart 3 shows the policies in effect during the period after the start of the WPFBD.

Chart 7: Forest Policy before the start of the WPFBD

Measure	Number	Year	Text
Forestry			
Law	422	1973	Background document on rules for forestry sector
Decree	11.681	1975	Regulation of Act 422/73
Decree	18831	1986	Establishes the standards for environmental protection
Decree	8463	1991	Prohibits the exportation of sawmill and planed lumber of the following species: cedrela spp. (cedar); tabebuia spp. (lapacho), liyocarpus spp (inciense) y cordia trichotoma (peterevy)".
Act	123	1991	Food and Agricultural Customs Control fitosanitario
Act	125	1991	Established the mechanism for reforestation incentives by granting tax breaks
Resolution	5	1991	Specifications for forest management and use
Resolution	76	1992	Technical specifications for adoption of Forest Use and Management Plans
Resolution	61	1992	Establishes that the management plans are obligatory for drafting the document. Five years after adoption, the management plans must be revised.
Resolution	323	1994	Technical specifications for adopting the Forest Use and Management
Resolution	322	1994	Technical studies submitted to the SFN must be ruled on by the DAP to ensure that there are not within the confines of protected areas
Resolution	001	1994	Establishes the standards for protecting natural forests from production ¿??
Resolution	4	1994	Classifies native species by quality.
Resolution	59	1994	Registration number granted by the SFN
Resolution	257	1994	Registration number granted by the SFN
Act	719	1995	Crimes against the environment
Act	536	1995	On forestation and reforestation incentives

Chart 8: Forest Policy after the start of the WPFBD

Measure	Number	Year	Text
Resolution	52	2003	Regulates resolution n° 07/02 "which adopts the forest management plans".
Decree	2048	2004	Repeals Decree N° 13.861/96 and regulates the use and management of pesticides for agricultural use established in Act n° 123/91.
Decree	2282	2004	Implementation of soil conservation measures, agro-forestry and forest recovery through sustainable natural resources management (PMRN)
Act	2524	2004	On the ban in the Eastern Region of transformation and conversion activities of areas with forest coverage.
Resolution	247	2004	Official terms of reference on submitting environmental assessment studies for the submission of agro-livestock and forestry projects
Resolution	59	2004	Establishes the list of usable forest species. Includes identification, a list of endangered species and formalizes the procedure for submitting a EIA request and obtaining the transfer guidelines
Act	2703	2005	Declares Cañada el Carmen, located in Mayor Infante Rivarola, Mcal. Estigarriba district, Department of Boquerón., a wildlife protected area under private ownership,, under the category of a natural management reserve, property of IDEA
Act	2715	2005	Declares the Banco San Miguel and Asunción Bay a wildlife area protected under the management category of ecological reserve.
Act	2795	2005	Declares Ñu Guazu a wildlife area protected under private ownership under the category of ecological management reserve
Resolution	171	2005	Regulates the use and issuing of guides of forest
Resolution	1334	2005	Establishes minimum prerequisites for the management of residual liquids
Act	3139	2006	Extends the entry into effect of articles 2 and 3 and broaden act 2524/04 "of the ban in the eastern region of transformation and conversion activities of areas with forest coverage
Resolution	926	2006	Adopts the Management Plan for Médanos del Chaco

4.3. Conservation Mechanisms in the market and the Implementation of the WPFBD

As mentioned earlier, some initiatives and policies of the authorities in charge of the implementation of forest policies in the country, concur with the purpose and content of those proposed by the WPFBD. These initiatives are limited to the enforcement, sanctions and some activities of the National Protected Areas System.

In Paraguay, there is a high percentage of land, including the remaining forests, in private hands. In these conditions, there is little that the National Focal Point can do based on the existing regulations to directly respond to the WPFBD. For these reasons, the national authorities have tried to solve the situation with the help of the owners of the forests who tend to be large landowners (see above on Land Tenure) and, that with the support of the conservation organizations, adopt minimal conservation practices that suit their productive and exploitative agendas. Such is the case of the "ecological servitude" "*servidumbres ecológicas*" and the private natural reserves.

Act 3.001/06 on the Value and Payment of Environmental Services was recently passed. This act will compensate owners of forests that have conserved 25% of the forest that they own standing in the form of a legal reserve. The funding for these payments will come from fines on owners who have destroyed more than 75% of the forests in their lands. However, these owners can buy "trade rights" from the surplus of the owners that have kept more than 25% of the original forest coverage. This mechanism has four serious problems for forest biological diversity. On one hand, it condones the "ecological crime", inciting greater deforestation, since the way to not be punished for the crime is to simply buy tradable rights, which is similar to buying your way into heaven in the Middle Ages. Secondly, it fosters the destruction of remnants of forests that are very valuable for biodiversity and ecosystem function but do not cover 25% of the legal reserve required on the farms whose land is coveted for commercial agriculture. Thirdly, it imposes on small-scale producers and small-scale farmers the compensation payment to wealthy landowners, which is an ethical aberration. Lastly, it would prohibit indigenous peoples' who depend on having access to the aforementioned remnants of the forests from accessing that land, which, in turn, would seriously hinder their ability to subsist.

The funding will come from the so-called "nature-for-debt swaps", a mechanism whereby the Paraguay's foreign debt to the U.S.A. will be channeled to pay for conservation incentives.

The combined effect of these mechanisms will result in the devastation of important remnants of forests that could serve as corridors that interconnect habitats and, that furthermore, could serve as reserves and germaplasm distribution centers that are necessary for the restoration processes needed throughout the country.

Element 1 of the WPFBD urges the Parties of the CBD to implement the "ecosystem approach to the recuperation of all kinds of forests." The information provided here clearly demonstrates that in our country the ecosystem approach is not being used and is at odds with the *fatalistic* insistence that private property is sacred and untouchable, even if regulating it would help solve urgent socio-environmental problems.

4.4. The role of international organizations in the implementation of the WPFBD

In Paraguay, the cooperation of international organizations, such as the World Bank, the Inter-American Development Bank, the U.N. Development Program and the U.N. Environment Program and the bilateral cooperation agencies related to the WPFBD are either unknown, not taken into account or simply do not exist.

The FAO through the "Mechanism for National Forest Programs" is supporting six projects in the country since 2004, five with NGOs and one with the National Forest Board. The initial objective of the Program in Paraguay has been to promote cooperation for the implementation of the National Forest Work Plan and for forestry discussions in the scope of the National Forest Board.

4.5. Environmental changes noted in Paraguay since the entry in force of the WPFBD

The WPFBD entered into force in 2002. Since then, the altering of the global climatic system has been dramatically felt in Paraguay. The highest levels ever of **anhídrido carbónico** have been recorded and 2005 was the hottest year in history.

The principal threat to the environmental stability of the country is the deforestation process. Deforestation is mostly caused by the expansion of the agro-livestock frontier, and, in the last decade, by the increase in mechanized agriculture in several regions of the country, which has replaced corn and wheat crops with soy monocultures. It has very grave negative impacts and degrades the environment and has a huge socio-environmental cost.

Recently, the boom in the production of raw materials for agrofuels² has further exacerbated the deforestation process.

Among the problems caused by the loss and destruction of forest coverage in Paraguay are the following:

- The loss of biological diversity (flora, fauna and natural communities), which many indigenous peoples and small farmers depend upon. It is important to highlight that in Paraguay there is a very high consumption of medicinal herbs, which are disappearing with the advance of the agro-livestock a frontier, and the disappearance of the forests.
- The loss of germplasma of native forest species that are used to build houses and provide shelter for the population. This loss makes it more difficult to implement reforestation measures with native species in the future.
- The loss of energetic resources (kindling) for family consumption, which cause higher costs for the families and require additional efforts for rural development, especially for women.
- The disappearance of foods, useful elements and resources for indigenous peoples and small farmers (honey, fruits and others).
- The disappearance of beneficial insects, be they pollinators or predators, that help stabilize the ecosystems that support small-scale farmer agriculture
- Changes in the **hydro** balance and the deepening of the **capa freática**, which make it more difficult to access the natural sources of water. A reduction in the quality and quantity of water caused by the drying up of the natural springs that originate in the forests.
- The disappearance of the natural barrier that protects small-scale farmer's plots and crops (protection from wind and drought) and help climatic stability.
- The degradation of the aesthetic and cultural value of the landscape and ecosystem, which, in turn, results in the loss of identity and sense of place and belonging of small-scale farmers and indigenous peoples.
- Deforestation is also occurring from planting artificial pastures and monocultures for exportation resulting in soil erosion and the silting up of waterways and dams, which reduces the effectiveness and efficiency of the dams.

In the global context, burning forest biomass for clearing lands for agriculture (which is the only system used in Paraguay) contributes to global warming and increases the greenhouse effect. In summary, deforestation damages ecosystems, causes extreme temperatures and causes a vicious circle of destruction. Deforestation coupled with the grave drought in Paraguay from May to September 2007 resulted in fires that the Paraguayan government was unable to control and was forced to request international assistance to extinguish and end the

² Agrofuels or biofuels are carburants made from the anaerobic fermentation of vegetal biomass or vegetal oils that have been adapted for deisel motor combustion. The term "biofuel" implies concepts beneficial to nature and the environment which obfuscates the reality of the adverse impacts of the production and use of these fuels.

tragedy. The Paraguayan press has calculated that 1.000.000 hectares were lost (including croplands, forests, grasslands and rural infrastructure).

The land use changes and the resulting increase in agricultural production on land previously used for livestock has caused the displacement of livestock production to the Chaco where huge cattle ranches are having devastating socio-environmental consequences including pushing out traditional small scale livestock, the invasion of indigenous peoples territories, including those of indigenous peoples in voluntary isolation, the loss of indigenous communities' habitats and the violation of their ancestral rights, among other adverse impacts. This process of land use change caused by the livestock activity on the fragile Chaco ecosystems is contributing to the process of desertification, the loss of native germplasm, changes in water runoff patterns (which leaves many communities without this vital liquid) among other problems. In addition, other sectors' initiatives are contributing to the destruction, for example, hydrocarbon and mineral prospecting and exploitation, the imposition of a "development" model that prioritizes profit and extraction and ignores the demands and rights of indigenous peoples.

5. GENERAL CONCLUSIONS

1. Passing Act 1561/00 that created the National Environmental System (SISNAM), the National Council on the Environment (CONAM) and the Secretary of the Environment (SEAM) is an important milestone in the protection and conservation of nature and natural resources in the country.
2. The National Environmental Policy adopted by the CONAM, by Resolution N° 04 on May 31, 2005, with broad participation of all the sectors in the national society, orients other sectors' policies. The Policy states "*the environment is the collective heritage of the society; the life and possibilities for development of the communities of Paraguay depend on the quality of the environment.*" Its general objectives is to "*Conserve and ensure the adequate use of the natural and cultural heritage of Paraguay to guarantee the sustainability of the development, the equitable distribution of its benefits, environmental justice and the quality of life of the current and future population*".
3. Large-scale agriculture has become an active source of pollution causing adverse impacts on soils, waters, air and biodiversity, causing grave problems for human health and the environment in general. At the same time, natural ecological processes (like the interruption of the **trófica chain**) are altered by the toxicity of the pesticides used in this kind of agriculture, which degrades the environment of the affected areas. These impacts are especially evident in the indigenous and small-scale farmer communities located in the areas of impact. In the areas where pesticides are sprayed the regenerative dynamic of the ecosystems is severely compromised, and, in many cases, entire species disappear, like plant vegetation used medicinally, anfibians, **batracios** and especially the **íctica** fauna, whose populations have been decimated according to local monitors.³
4. The introduction and commercial use of genetically modified organisms, also known as GMOs, such as RR Soy (Round-Up Ready) and other uncontrolled crops is another of the causes of deforestation and the loss of our forests. The current expansion of soy plantations is using land destined for ecological restoration because of its topographic and **edáfica** land????? The social consequences include the relocation of communities from their place of origin and forcing people to migrate to the slums of the capital.
5. It is calculated that 90% of the soy grown in Paraguay is GMO RR Soy produced by Monsanto. It is important to note that RR Soy varieties are illegal in our country. By 2016,

³ Alter Vida, 2006

China will consume 50% of the world's soy production (OECD and FAO, 2006). The current principal market for Paraguayan soy is Europe, whose sanitary and environmental policies ban the direct consumption of GMO soy by humans but allow its use for animal feed. In this form it enters the human food chain indirectly.

6. In the last 30 years, 90% of the forests of the Eastern Region, about 10 million hectares, have been clearcut with total impunity in one of the fastest and most terrible deforestation processes in history. It is noteworthy that the majority of the lands distributed by the agrarian reform institutions have been given to persons who are not eligible to be recipients of the agrarian reform. These lands, which include forest ecosystems, to a large extent have been deforested and are now used for mechanized agricultural production. The slang term invented to refer to these gifts of corruption is the "ill gotten land" . Many Paraguayan demand the return of these lands so that a real agrarian reform can precede.
7. The counterproductive effects of this situation on the ecosystems and habitats of the country are evident throughout the country but especially in the Alto Paraná Forest. Economic and financial benefits are generated for a few businessmen who sell timber or expand their livestock ranches that destroy vast tracts of forests and biological diversity and the very sources of life for traditional and local communities. The multimillion dollar profits of these activities do not directly benefit the government nor the people but line the pockets of a reduced elite.⁴
8. The absence of any kind of environmental planning during the colonial period is a cause of deforestation and the irrational use of natural resources. However, there are other factors that have contributed on a much greater scale to the destruction of the forests and the productive capacity of the land. The policy of the Agrarian Reform that conceptualizes the forest as "unproductive" is, in and of itself, one of the underlying causes of deforestation and forest degradation.
9. The patterns of distribution of natural resources are strongly linked to the country's dominant latifundio land tenure model (the concentration of land in the hands of a few). Latifundism restricts the rights of indigenous and local communities to access and enjoy the benefits derived from the forest and its functions. In contrast, indigenous peoples continue to conceive of their ancestral territories in a traditional and holistic way and to demand the restitution of their lands which is their source of food and life itself. Therefore, for indigenous peoples the benefits of the forests are very diverse and are not only tangible but intangible and spiritual as well.
10. One of the threats that contributes to restricting the benefits and distribution of the functions of the forest is the biopiracy of species that are used for food and medicines. There is no law that prohibits or sanctions biopiracy or that recognizes indigenous intellectual property rights or indigenous traditional knowledge, even though the Convention on Biological Diversity considers that this is an important issue for governments to address.
11. The sanctions for forest destruction in the Penal Code are very weak, if compared to those established for agro-livestock. The sanctions for illegal extraction and large scale deforestation do not reflect the magnitude of the environmental damage. For example, the worse sanctions for damage to a forest are a maximum of two years in jail or symbolic fines. However, for stealing (*abigeato*) cattle the fines are higher than G\$ 10 millions a head and/or 12 years in jail. If agricultural machinery or products are stolen the maximum sentence is ten years. These examples serve to illustrate that the destruction of the forest is considered a minor matter and enjoys relative impunity compared with the destruction of private property.

5.1 Conclusions: By PWFBD Elements

⁴ FOGEL, A. *et al*, 2005.

5.1.1 ELEMENT 1: Conservation, Sustainable Use, and Benefit Sharing

12. The Paraguayan State through the Secretary of the Environment passed Act N° 2524/04, on "the ban in the Eastern Region of activities that transform or convert forest coverage areas", known as the Zero Deforestation Act in the Eastern Region. This act was implemented in 2004 and 2006. It's entry in force was extended at the request of a broad coalition of civil society and the responsible authority, given the positive results obtained during the first implementation period.
13. In December 2008, which is when the extension of the act ends, an important tool for forest protection in the Eastern Region could be lost. Not only should this act be extended indefinitely, but it is also necessary to broaden the scope of the Act to include the Western Region since forest exploitation and cattle ranching has moved from the Eastern Region to the Paraguayan Chaco because it is currently without similar legal protection.
14. The Zero Deforestation Act achieved a marked reduction in the rate of converting forest to other land uses in the Eastern Region that makes up about 50% of the national territory. (no se entiende why is this in the Spanish? Is something missing?). The official sector speaks of reducing the rate of deforestation between 80 and 85 % in relation to the statistics of previous years, which is a remarkable feat. This demonstrates a clear commitment of the Focal Point to comply with the PWFBDR and to grapple with the reality of deforestation in our country. The value of reducing the rate of deforestation, as cited by government institutions, should be used with the caveat that it only refers to the Eastern Region and the current forest cover surface, which is about 800.000 hectares⁵.
15. It is important to emphasize this point since if the rate of land use change in the Western Region was included, the statistic would change dramatically because vast tracts of this region are used for cattle ranching. Many of the ranches are as big as 10.000 hectares and some exceed 50.000 hectares. Deforestation is done with chains ¿???? which is prohibited but nonetheless the most common practice.
16. This kind of policy is obviously valuable in the struggle against deforestation and should be taken into account when designing plans and programs to conserve and sustainably manage the forests. It is also an example to be hailed and emulated by countries facing similar deforestation problems.
17. While it is true that the act helped halt the skyrocketing growth of the rate of deforestation, it was not a total success. For example, environmental permits are still being granted for land use change and other non-forest uses without taking into account the genetic base nor the biological diversity in situ. These omissions constitute "ecological crimes."
18. The altering (be it a reduction or increase) of the surface hydric caudal hídrico superficial y de las napas freáticas, as well as their pollution, denies the right to the natural springs, quality and quantity of water necessary for communities. The majority of these springs originate in the forest ecosystems that are threatened by the degradation and deforestation processes caused by human induced activities. antrópicas. The subterranean water reserves are also endangered by the use of agrochemicals and the excessive extraction of water for irrigation and livestock. This type of irrigation is being introduced in Paraguay without conforming to existing regulations in recharging areas of the Guaraní Aquifer.
19. The lack of knowledge, experiences and proposals on the sustainable use and management of the forests in our country means that agro-livestock and monoculture tree plantations are the reigning productive models. The very concept of "reforestation" that etymologically means the return and recomposition of forest ecosystems is reduced to mere trees in the ground without taken into account the criteria related to forest biodiversity. However, it is

⁵ SFN/MAG, 2007.

precisely the production systems based on large scale monocultures that cause the worse socio-environmental impacts.

20. There are native species produced in national nurseries, many of them promoted by local communities as part of projects of social or conservation organizations or the government. Sometimes certain varieties are not available year-round. Another challenge is that it is currently more expensive to plant native species than invasive species.

5.1.2 Element 2- Favorable Institucional y Socio-Económico Context

21. The Environmental Services Act Nº 1.3001/2006 provides for the payment of environmental services as an option for conserving native forests. The act establishes that the proprietor of a lot can be remunerated for environmental services that the forest naturally performs, thus, converting the proprietor into a "defender" of the forest. However, no economically satisfactory experiences of activities were cited where environmental services are paid for.??? Sin embargo, no se precisó experiencias económicamente satisfactorias de actividades donde hay pago por servicios ambientales. Contrary to this premise, some believe that all natural resources should be conserved for the simple reason that they generate benefits thanks to their natural functioning and, in this regard there are international laws and accords in effect and that, therefore, there is no need to remunerate the proprietor for simply obeying the law.
22. The most important environmental problems in Paraguay are caused by the development model that conceives of the biophysical as an bottomless well and that prioritizes short term profit as the drivers of that development at the same time that it marginalizes and destroys the socio-conditions of the traditional and indigenous rural communities. The current development model violates fundamental rights, like the right to life. There is not a single ecosystem in the country that has not been altered. The most punished region by the deforestation processes is the Eastern Region that since 1945 was mercilessly clearcut. In the '70s, this devastation was further exasperated and it was even more intensified after the coup d'état in 1989. (see map)
23. The underlying causes of deforestation in the country have not changed in the last decade. Furthermore, they increasingly bear on the most important productive and speculative decisions. They go hand and hand with the supply of financial capital for exploiting natural resources based on plans designed to promote exporting raw materials for overseas markets. The political decisions that promote this development model do not correspond at all to the socio-environmental interests of the poorest and most vulnerable sectors but, rather, give priority to the agenda of oligarchy and multinational corporations.
24. The weakness of the national social structures compared to the momentum of and support for the processes of exploiting nature paves the way for the continued imposition of this development model. However, in the case of the indigenous communities in the Chaco, the National Institute of the Indigenous issued a comunicado in which " It informs local entities that there are guarantees and rights of the forest people that protect them and prohibit and sanction those who interfere or intervene without the corresponding authorization in the Ayoreo Totobiegosode Heritage Area (Alto Paraguay)".
25. To achieve forest conservation management or forest resource use, local and indigenous communities must be included. Otherwise, such initiatives are destined to fail. For example, there is an organization sponsored by ASCIM and Fundación Indígena para el Desarrollo (FIDA), that works with 11 indigenous communities in the Chaco that gives loans to promote agriculture but this program has caused the communities to go into debt. The end result is that the communities have been forced to sell what little animals they have to pay the interest on the loans.
26. There is broad recognition of the underlying causes of deforestation and degradation that must be effectively addressed to halt deforestation and restore the forest cover that has

- been lost. However, measures have not been taken based on this consensus. The development model and its agro-livestock system continues to increase its adverse impact. There is also broad recognition of the corruption, disregard for legislation and mistaken conceptualization about forest management and conservation that are fundamental elements of the problem.
27. The natural resources distribution patterns are intrinsically linked to the dominance of latifundism as the principal form of land tenure and property in the country. This restricts the rights of indigenous and local communities to access and enjoy the benefits derived from the functioning of the forests.
 28. The weakness of the forest biological diversity protection policies contribute to the loss of biodiversity on all levels (genes, species and ecosystems), which a numerous indigenous and small-scale farmer population depends on. Paraguay depends to a great extent on medicinal herbs, which are disappearing with the expansion of the agro-livestock frontier and the destruction of the forests. For example, many communities that based their survival strategies on the access and availability of species of the local pharmacopia for their health needs, had a great deal of autonomy over the maintenance of their own well-being. Now these healthcare strategies are severely limited by the disappearance of the forests and the associated medicinal species, which causes communities to depend on aleopathic medicine which they have to pay for.
 29. Deforestation for planting artificial pastures or monocultures for export cause soil erosion that silts up the waterways and dams, thus, reducing the utility and effectiveness of the dams.
 30. The land use change and the resulting increase in agricultural and livestock production have generated displacement of this production to the Western Region or Chaco where huge cattle ranches have been created and cause extremely adverse impacts, including socio-environmental impacts like the displacement of small-scale traditional cattle ranching, the loss of habitats of indigenous communities, the invasion of the territories of indigenous peoples in involuntary isolation and the loss of ancestral rights, among others. The experience in the Eastern Region shows this to be the case.
 31. With regards to the environment, this land use change in such fragile ecosystems will contribute to the desertification process that is already occurring in the Chaco, the loss of native germplasma, the modification of the water runoff depriving communities of this vital liquid, among other adverse impacts. This scenario is further compounded by sectorial plans, including the prospecting for hydrocarbons and minerals, that impose "development" objectives and carve up the country for quick profit ignoring the demands and rights of indigenous peoples.
 32. Burning forest biomass to clear land for agro-livestock (which is the system used in Paraguay) contributes to global warming and increases the greenhouse gas effect. In summary, this adversely impacts the ecosystems, causes extreme temperatures, which upset the agricultural cycle and the quality of life of the local communities.
 33. The deforestation process caused by the expansion of the agro-livestock frontier, and in recent years, the growth of mechanized agriculture in several regions of the country, to plant soy monocultures (accompanied by corn and wheat???) is the principal threat to the environmental stability of the country. This has profoundly adverse impacts and destroys the environment at a huge social cost.
 34. The convening of the Sectorial Roundtable (REDIEX) in the Ministry of Industry and Commerce is another possible factor that could further deforestation, since this organ will promote timber production and exportation as well as the use of species that provide raw materials for agrofuels, which will displace small-scale food producers and medicinal plants, as well as undermine the food sovereignty of the people.

35. The private sector, represented by the Federation of Timber Producers of the Paraguay (FEPAMA) and the National Forestry Roundtable, for years has promoted the creation of the National Forestry Institute (INFONA), as a way to achieve sustainable use and satisfy the global demand for sustainable forest production. This initiative, that currently has achieved a partial adoption in the Legislature and anticipates full adoption in the coming months, could become a tool for improving forest management in general and contributing to the compliance with the WPFBD, if and only if its leaders and the corresponding authorities thoroughly adhere to the principles and recommendations contained in the program. This will require improving the coordination between the implementing authority and the National Forestry Service at least for the evaluation by the Focal Point who must report on the outcomes to the corresponding Conference of the Parties.
36. The act that created the INFONA does not include the participation of NGOs nor indigenous peoples in the elaboration of its regulations. It should stipulate that the implementation of the act be done in a decentralized manner and that it should protect the rights of indigenous communities in its provisions.

5.1.3. ELEMENT 3. Data, Evaluation and Monitoring

37. With regards to the commitments emanating from the WPFBD, its implementation requires monitoring and evaluation by the Focal Point and reporting the outcomes obtained at the corresponding Conference of the Parties. Up to now, the lack of awareness of the program of the sectors involved in forest-related activities, has impeded adequate implementation and, therefore, the level of response to the commitments made by the National Government is very low.
38. The reports and activities of the Republic of Paraguay in response to its commitments made in international environmental policy forums (among them the WPFBD of the Convention on Biological Diversity) are compromised by the lack of funding and institutional capacity vested in the Implementing Authority which is weak in its objectives and policies and which do not concur with current models of sustainable use and management of territories. This is clearly apparent in the Eastern Region of Paraguay, where the last forested areas are conservation or sustainable use areas that form part of the National Protected Areas System (SINASIP), indigenous territories or private sector initiatives. (see annex: map of forest remnants)
39. As of this writing, no one knows if the national forest authority (SFN/MAG) has an official map of the real deforestation in 2007, or a monitoring report that could serve as a parameter for the adoption of land use plans and forest exploitation permits. Nonetheless, there are civil society initiatives that have been monitoring ecoregions of global importance, based on the strategic alliances with international agencies. The most studied ecoregion is the Alto Paraná Forest.
40. The SFN's lack of a long term vision for forest management and the reigning corruption has contributed to the disappearance of 90% of the forests of the Eastern Region. Many believe that corruption is not the only cause of the disappearance of the forests and that it does not only affect the SFN of our country. Nonetheless, it does contribute significantly to their disappearance and is one of the major underlying causes of forest degradation and deforestation. In addition to the scourge of corruption, synergetic impunity plays an important role in the destruction of forest ecosystems.
41. The approach to forests of this institution is merely extractive and obviously ignores important issues like the role of forests for the environmental security of the country and the territorial and cultural rights of the majority of the country's population.
42. The Secretary of the Environment (SEAM) as a Focal Point of the Program and Authority of National Environmental Implementation is also implicated in the aforementioned, since the Environmental Permits for land use change and clearing are granted by this authority.

Furthermore, it has not taken up nor addressed the forest problem as the Focal Point of the WPFBD. (???????)

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This publication has been made possible through the generous support of the Ministry of Foreign Affairs of the Netherlands.