The impacts of unsustainable livestock farming and soybean production in Paraguay

a case study[1]

Deforestation for cattle ranching in the Paraguayan Chaco. Photo © Miguel Lovera

1. Introduction: Scope of the livestock and feed industries

Livestock and soy production in Paraguay are the most important primary production sectors. Most of the land in the country is privately controlled and devoted to the production of these commodities. Hence, most of the negative environmental impacts derive from these productive activities. Control is exerted by a combination of oligarchic groups and transnational interests. The predominant tenure group is composed of landowners, which was consolidated during Colorado Party rule, between 1954 and 2008. The Colorado Party, especially during the dictatorship of Gen. Alfredo Stroessner,

[1] This case study was prepared by Dr. Miguel Lovera on behalf the *Centro de Estudios e Investigacion de Derecho Rural y Reforma Agrara de la Universidad Catolica de Asuncion*, Paraguay

[2] Clloquially, these "well-off" peasants are known as *mboriahu ryguata* - in Guarani, meaning poor but "*full-*

privatized 12,229,594 ha, adding up to the existing private holdings this amounts to 85.5% of the territory in hands of 2.6% of the population[1].

"An island surrounded by land" is how Paraguay is sometimes described partly because it is one of the two land-locked countries in the western hemisphere (the other is Bolivia) but also because of its distinctive history and politics. Paraguay's economic activity centers around agriculture and livestock and land tenure presents the most unfair case of distribution worldwide.

2. Land Tenure in Paraguay

The current population of Paraguay is 6,600,284 inhabitants (Permanent Household Survey 2013, General Directorate of Surveys and Censuses)[2]. The country's agricultural area is 31,086,894 hectares, with 289,666 farms and 278,967 individual farmers. (Department of Census and Statistics, Ministry of Agriculture and Livestock, 2008)[3]. As stated above, in Paraguay, 2.6% of the owners hold 85.5 % of the land, making it the country with the most unequal land distribution.

The Agricultural Census 2008[4], carried out by the Ministry of Agriculture and Livestock, compared with the previous census of 1991[5], shows:

- A significant reduction in surface of properties with less than 100 hectares, the band of land area size which concentrates small farming, rooted peasants and medium-size landowners[2];
- An increase of 34.8 % in the number of farms of 100 to 500 hectares, and
- An increase of 56 % in the number of farms of 500 or more hectares.

The 2008 survey also shows that of a total of 289,666 officially existing properties, 7,478 correspond to surfaces of 500 and more hectares, totaling 27,807,215 hectares (8,438,002 hectares more than in the last census in 1991). This means that this band of land area size concentrates 96.9% of the new lands "enabled" for agriculture.

Properties with less than 5 hectares represent 91.4% of the farms surveyed, which indicates a decrease of 3.9 % compared to the 1991 data.

The Beef Industry in Paraguay
✓Production Units: 123.822
✓Cattle Stock: 12.305.822
✓Cattle/human Ratio: 1.95
✓Contribution to GDP 12%
✓Employment: 17% work force
✓Exports (2006-2010): US$ 3.5Billion
✓World Exporter Ranking: 8th
✓Active Packing Houses: 30
✓Secured Markets: 71
✓Operative Markets: 55

Source: Asociación Rural del Paraguay, 2012[6]

The predominant tenure group is composed of a group of landowners that was consolidated during Colorado party rule, between 1954 and 2008. The Colorado Party, especially during the dictatorship of Gen. Alfredo Stroessner, privatized up to 75% of the country's territory, mainly, for the establishment of cattle ranches ("estancia", in Spanish). Although most of the land is not intensively used and speculation is high, owners usually clear large extensions of the land plots to justify its apparent use to avoid intrusion by landless peasants.

[2] Clloquially, these "well-off" peasants are known as *mboriahu ryguata* - in Guarani, meaning poor but "*full-bellied*".

The greatest concentration of land has been accompanied by an exponential increase in the area devoted to genetically manipulated (GM) soybean production, which currently stands at 3.1576 million of hectares. Multinational corporations and foreign immigrants from Brazil, Central Europe (many of them of the Mennonites sect) and Japan, among others, largely control the soybean business in Paraguay.

3. Soy production and the Use of Pesticides

Soy is currently the country's main export, ranking fourth in the world after the United States, Brazil and Argentina and sixth in world production. Most of the soy produced is GM and involves seed-pesticide technology package.

With the cultivation of GM soy the extensive mechanized production for export model, with minimal labor demand and high use of pesticides was introduced and then imposed on Paraguay, with all the consequences that come with it. Paraguay is currently the country in South America with the highest proportion of agricultural land devoted to soybean monoculture.

The prevalence of this production model in Paraguay prompts an annual discharge of almost 27 million liters and 2.3 million kilograms of pesticides, a figure progressively boosted in accordance with the increase of the sowing area.

The chart below shows the agrochemicals used in the production of transgenic soybeans. The use of additional herbicides, such as Cletodim, is necessary at the moment, as the Round Up strategy is no longer effective due to the development of resistant weeds.

Disaggregated data on the use of pesticides in cultivation of RR soy in Paraguay during 2013[3]

Technical Name	Type	Toxicological Class	Application/ Litres/ha	Application/ Kg/ha	Total amount in Litres Applied on 3,157,600 ha	Total amount in Kg Applied on 3,157,600 ha
Glyphosate	Herbicide	**Class IV Green Label**	2		6,315,200	
Cypermethrin	Insecticide	**Class III Blue Label**	0.75		2,368,200	
Acephate	Insecticide	**Class II Yellow Label**	0.75	0.4	2,368,200	1,263,040

[3] This chart was initially put together by AlterVida in 2012 and updated by CEIDRA in 2013.

Endosulphan	Insecticide	**Class Ib Red Label**	1.2		3,789,120	
Tebuconazole	Fungicide	**Class IV Green Label**	0.5	0.33	1,578,800	1,042,008
Carbendazin	Fungicide	**Class IV Green Label**	0.4		1,263,040	
Cletodim	Herbicide	**Class III Blue Label**	0.4		1,263,040	
Paraquat	Herbicide	**Class Ib Red Label**	2.5		7,894,000	

Source: AlterVida/CEIDRA, 2013

In Paraguay the technology used in small-scale family agriculture, from the 161,543 holdings under production, 114,157 production units (69%) use some form of chemical input, pesticides being the most widely used, reaching 74% utilization rate with respect to holdings using chemical inputs (IICA, 2006)[7].

With regard to agricultural inputs used in small-scale family farming, 83%, i.e. 55,383 production units used some kind of input and almost 100 % in this group applied pesticides[8].

4. Social Impacts of the Livestock Sector

The small farmers are the country's most vulnerable populations, taking into consideration official poverty standard, more than 50 % of the population lives in poverty, of which about 1.2 million live in extreme poverty, especially in rural areas[9]. The expansion of the agricultural frontier by large-scale monocultures, without respect of vulnerable populations, the environment and natural resources, constitutes an aggravating factor for forced migration.

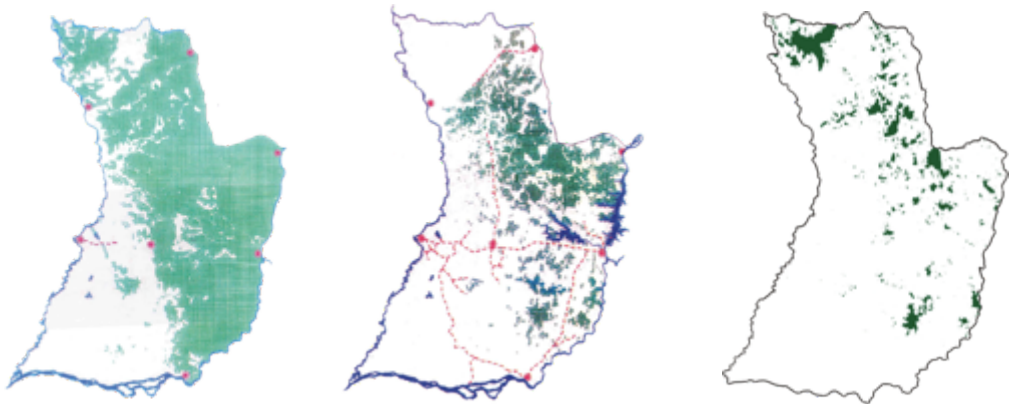
Rural poverty; the gradual loss of food sovereignty and food security; the high concentration of land in the hands of a few, devoted to the production of export commodities; are the main driver of rural populations to urban centers or neighboring countries. The technological packages driven by the Green Revolution, including genetically modified seeds and pesticides, have caused on the one hand, the degradation

of the fertile lands and loss of biodiversity across the country and, on the other hand, the indiscriminate use of agrochemicals. This practice has caused the disappearance of forests, a high degree of pollution of the air and waters and increasing cases of chronic and acute poisoning amongst the population. These factors make the survival of family farming, as well as the indigenous peoples lives styles, increasingly difficult and constitute another factor determining expulsion and land abandonment.

5. Environmental Impacts of the Livestock Sector and its social and cultural consequences

The areas initially destined to the planting of GM soybeans were east and southeast of the eastern region of Paraguay, where the most fertile soils occur, and under which lays the Guarani Aquifer. The name of the aquifer reflects the fact that its extension coincides mostly with the Grand Guarani Nation, the Indigenous Peoples that inhabit the region to these days and that dominated vast territories until the advent of European colonization in the sixteenth century. The Guarani Aquifer, the largest single body of fresh water in the world with a permanent volume of around 45,000 Km^3, has in Paraguay its main recharge areas and requires protective measures to control the risk of contamination as a result of the intensive use of pesticides in monocultures.

Deforestation in the Eastern Region of Paraguay



1945 **1991** **2002**

Source: Sobrevivencia- Friends of the Earth, Paraguay, 2009

Most of the country's forests were originally cleared to establish cattle ranches, as commented before. Despite this, at present, most of the deforestation is carried out to plant soybeans and associated crops. In the Chaco region, however, most of the deforestation is undertaken to plant pastures and establish ranches. In 2013, 268,000 hectares were destroyed. Deforestation rates in this region were the highest in the world, reaching up to 2,000 ha/day[10]. Most of this deforestation is been fuelled by investments by Brazilian and Uruguayan investors. Brazilian investors count on abundant soft loans from the BNDES (Banco Nacional do Desenvolvimento Econômico e Social), which operates through numerous credit banks, which provides the loans to citizens of that country. Uruguayan investors come with their own finances and their prejudices. Scared by what they consider disadvantageous 'socialist' economic measures in their country, they sell

their land to Argentinean investors at prices averaging US$ 7,000 per hectare, to buy land in the Chaco at US$ 300 - 500. Investments in ranch development cost an average of US$ 400/ha. This implies that only in 2013, more than US$ 100,000,000 were pumped into the hands of land speculators to fuel a spiral of deforestation that will cease only when the last hectare is traded and converted to pasture.

Labor conditions in the ranches, particularly during the land- clearing phase, are, as the ILO puts it "…the workers used to convert the Chaco forest into cattle ranches are frequently victims of debt-bondage, a modern form of slavery in which the men clearing the forests are paid wages too low to ever cover exorbitant fees for food and shelter" (ILO, 2010)[11]. A majority of those workers are aboriginal peoples from the Chaco. They are the offspring of several peoples that once lived and sustainably dominated the Chaco for millennia and that were reduced to small isolated and pauperized townships where they live and procreate to offer their force in benefit of the new landowners.

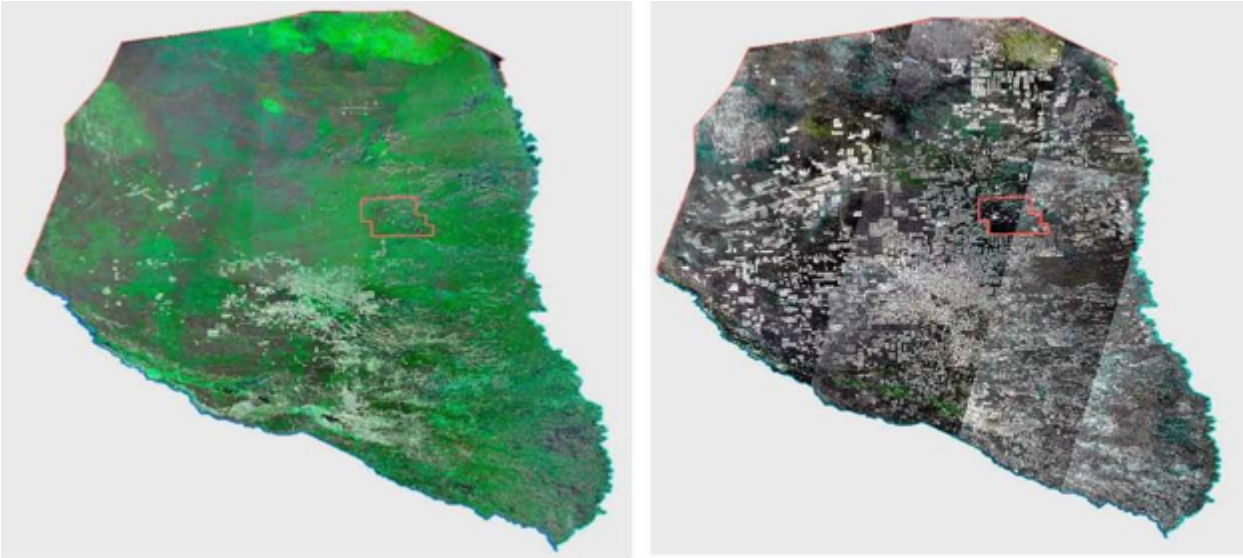
Ayoreo Men in the Gran Chaco. Photo © UNAP

Most –if not all- these ranches encroach in the territories of the aboriginal peoples of the Chaco. The competition for territorial occupation has started almost 500 years ago with the Spanish incursions to this vast territory, stimulated by the ambitions to conquer the legendary gold of 'El Dorado', the golden city of the ancient inhabitants of America. The Ayoreo People lived in the Chaco for about 3,000 years. They have adapted to the harsh conditions of the region and developed a lifestyle, which allows them to obtain all the material resources needed for their survival.

At present, there are still groups of the Ayoreo People living in voluntary isolation, mainly in the band of territory that is not converted to cattle ranching or national parks yet. This

territory, however, is the area where most of the deforestation is taking place. Due to their vulnerability to common diseases, up to 80% of populations in voluntary isolation might die if forest conversion breaks their isolation and destroys their livelihoods.

Deforestation in the Paraguayan Chaco. 1990 – 2013



Deforestation in Paraguayan Chaco, 1990 - 2013. © **Survival International**

6. What Do Operations Look Like?

Deforestation to implant pastures. *Photo © GFC*

The key common characteristic underlying all large-scale rural production in Paraguay is that it is based on massive illegal land grabbing. The land had been held under speculation by the Colorado neo-oligarchs who, in some cases, became cattle ranchers and, in other cases, sold the land to soybean farmers and cattle ranchers. The expansion of ranches and plantations was done at the expense of peasant and Indigenous Peoples' habitats. The local populations have been displaced, forming massive groups of 'agribusiness refugees'.

In the case of soybeans, these are produced on the best soils of the country, on the fertile soils of eastern Paraguay. These lands were, in part, occupied by indigenous peoples and peasant settlements established by the people and, at the time, approved by the Government. During the '70s and '80s, the land under cattle ranches owned by the dictatorship clientele, shifted domain to Brazilian colonists who started to buy land in the country supported by the Governments of Paraguay and Brazil. The

current production model is based on extensive cultivation of transgenic soybeans. About 98% of the soybeans produced in the country are transgenic varieties carrying Monsanto's Round Up Ready (RR) trait.[4]

Cattle ranching takes place on basis of the traditional oligarchic model, which is adopted by the newly inaugurated local and foreign cattle men, almost as it was developed over a century ago. The novelty of the present cattle bonanza is the massive production for export, which is almost 5 times larger than the local demand (see above).

7. The Role of Multinational Corporations and the Role of Monsanto

Most of the soybeans produced, 72%, are exported as grain and only about 22% is crushed to extract oil and soybean expeller (REDIEX, 2014)[12]. The grain is exported without paying any taxes to the State. Monsanto, however, perceives US$ 4.4 per ton, under the justification that most seeds of transgenic soybeans used are saved by the farmers from their own crops and do not pay royalties to the company for its intellectual property. Farmers are fiercely opposed to paying any tax on their production, but have no problem to pay the "Monsanto tax". This makes Paraguay a tax haven, as few investments in the world yield as much as planting genetically modified soybeans in this country. Estimating conservatively the prices at about US$ 500/ton, production costs in the order of US$ 400/ha and yields reaching averages of 2.4 ton/ha (crop year 2013/2014), the operation would leave net profits of US$ 800/ha per crop cycle, at two cycles per year profits rise to US$ 1,600.


Large silos concentrate grain production. *Photo © GFC*

Only about 4% of this grain is used in the country (FAO, 2001). This is a severe indicator, as the most fertile soils that produced food in the past, have now turned to soybean production, and the country's population has now less access to food than during Paraguay's last international war in '30s against Bolivia.

Cattle ranching is the rural activity which occupies some 31,000,000 hectares, most of the Paraguayan territory. Paraguayan society, even to these days, can be regarded as a feudal society, both, in political terms and economic terms. Cattle breeding is the traditional economic activity developed by 'patrician' families and was adopted by the

[4] Calculated by the author of the present report through a supply survey.

newly formed oligarchy created by Stroessner and the Colorado party in the '60. The immediate action taken by the new landlords was to take down immense swathes of forests to implant grasslands to form an 'estancia' in order to be a full fleshed member of the high class. At the moment this is still the case, although, the massive Brazilian migration, which now occupies some 30% of the country's territory and conforms close to 10% of the national population introduced rapid changes in the traditional power balance. As described earlier, the Brazilian population was encouraged to occupy Paraguay by the Governments of the two countries. Nowadays, they keep on coming, but with help of abundant funds to purchase land to grow soybeans and raise cattle.

Most of the export trade is controlled by a handful of multinationals, which form an oligopoly. These corporations have control on shipments not only in Paraguay but all around the world. The most notorious are:

Largest Grain Exporters in Paraguay - 2011

Company	Country of Origin	Turnover (US$)
Cargill	USA	1,051,729,345
ADM	USA	849,750,855
LDC	France	462,915,518
Noble	Hong Kong	330,223,400
Bunge	Argentina	258,431,356
Vicentin	Argentina	129,624,859

Source: Rediex, Ministry of Industry and Commerce of Paraguay

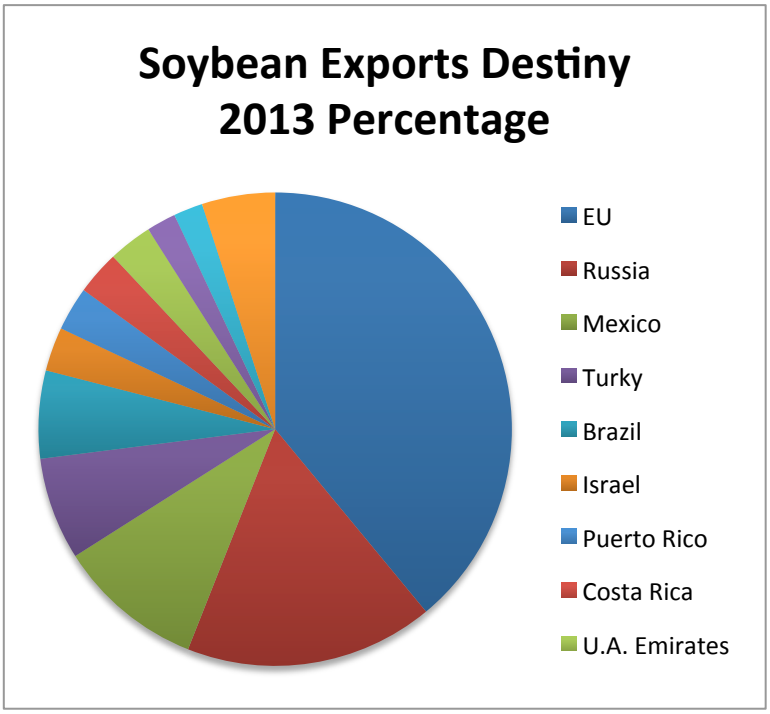
The immense turnover reported by these companies is opaqued by the squalid contribution to the treasury of Paraguay. In 2012, the whole of the agribusness contributes only with US$ 31 million, a total contribution of 2% to the national tax revenue.

Agribusiness Income 2012
•Value of exports = US$ 3,000 million
•Production Costs = US$ 1,000 million
•Taxes Paid = US$ 31 million

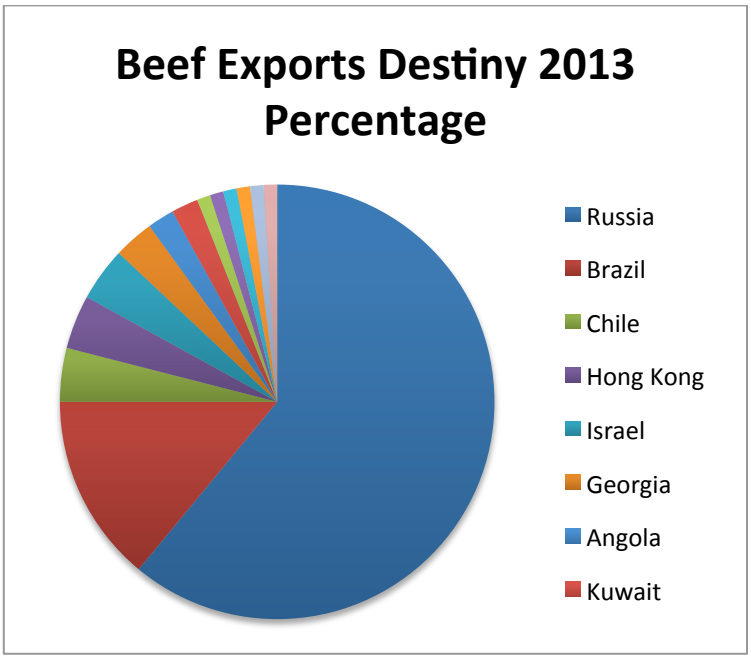
8. Where products are sold or traded – domestically and globally

Since its inception in the late'70s, soybean cultivation has grown exponentially each year. The Ministry of Agriculture and Livestock reports that approximately 3,300,000 hectares have been sown during 2012/2013 growing season yielding some 9.3 million tons. During 2013/2014, presumably, some 100,000 hectares more have been added to the soybean frontier and an increase in output similar to that of last crop is expected, according to Minister of Agriculture and Livestock, Jorge Gattini (Reuters - September, 2013).

Some 12,305,822 heads constitute the bovine herd. This amounts to almost 2 heads per inhabitant. Average bovine meat consumption is of about 35 kg per capita, ranking fifth in the world.



A total of 1.03 million heads are sacrificed for export every year and 240,000 more are sacrificed for the internal market. Paraguay is the 9th world exporter of bovine meat. Most of the cattle are produced on pastures, both, natural and implanted.



The main environmental implication of this is deforestation. Some 50% of the deforestation in eastern Paraguay is due, in first instance, to the conversion of forests to pastures, even

Soy Production 2006 - 2011

YEAR	EXPORTS		INDUSTRY		SEEDS		PRODUCCION TOTAL
	Ton.	%	Ton.	%	Ton.	%	Ton.
2006	2,380,344	65.40%	1,180,842	32.40%	80,000	2.20%	**3.641.186**
2007	4,360,804	74.50%	1,355,000	23.20%	140,000	2.40%	**5.855.804**
2008	4,438,085	74.40%	1,390,000	23.30%	140,000	2.30%	**5.968.085**
2009	2,282,705	83.30%	1,224,500	33.60%	140,000	3.80%	**3.647.205**
2010	4,654,429	72.10%	1,558,000	24.10%	250,000	3.90%	**6.452.429**
2011	5,138,364	72.10%	1,570,000	22.00%	420,000	5.90%	**7.128.364**

Source: CAPECO, 2011

when at the moment some 3 million of these lands are dedicated to the production of export crops.

9. Effects on communities

The expansion of the production of soybeans and cattle is based on the dispossession of peasant and aboriginal communities of their land holdings and ancestral lands. Illegal distribution of land, official complicity, corruption and impunity are the ingredients that determine the loss of land of a million Paraguayans who become the “soy refugees” in the poverty belts of Asuncion and the large cities and towns of the country. The National Secretariat for Statistics and Censuses estimates that around a 90,000 people arrive in the metropolitan area of Asunción every year, enlarging the poverty belt of the capitol city of Paraguay. Direccion de estadisticas y Cesos)

As pointed before, the lands once destined to the agrarian reform have now been conquered by agribusiness for soybean and cattle production. According to the “Comision Verdad y Justicia” (Truth and Justice Commission in Spanish, 2010) some 7,851,295 hectares were sold illegally to agribusiness farmers and, in many cases, the preceding owners evicted by force or by deceit.

The expansion of agribusiness farms are at a historical high, as the UGP[5] announces that it pretends to duplicate or triplicate the soybean area. As denounced by numerous civil society groups, there is a “chemical war” being waged on peasants, a war that uses Round Up as the main chemical weapon. When indiscriminately and carelessly spraying, without any contemplation of legal safety measures and barriers, many agribusiness farmers perturb the lives of the neighbors who have no defense against high-pressure or aerial

[5] Unión de Gremios de la Producción (UGP): is the agribusiness cartel, composed of multinational corporations and local concerns dedicated to control soy and grain exports as well as the import, production, fractioning and commercial promotion of transgenic crops and agrochemicals.

herbicide spraying, which reaches their crops and animals causing losses and deaths (See annex). The more important aspect of this war is the human health impacts, ranging from frequent, allergies, skin damage, miscarriages, and births defects to cancer.

Especially after the *coup d'état* which topple President Lugo in June 2012, which in itself is considered a coup by agribusiness (Mendez Grimaldi, 2012)[14], the cases of peasant eviction and illegal land grabbing continue and even increase. Violence against peasant and indigenous leaders is clearly on the rise with some 25 murders since the assumption to power of current President Horacio Cartes (See annex). There is also a systematic stigmatizing campaign against social activism and, particularly, against land claims by landless farmers. This campaign has turned more intense with individual legal persecution of peasant leaders, which, at the moment count 131 persecuted individuals.

Conclusions

All signs show that Paraguay, both its territory and its population, are under attack by conquerors, conquerors of a new sort. They are executing the part corresponding to this area of the world on a race to seize all available arable land and more, the very replacement of its peoples' culture and its biodiversity. The intention is the same as in many other areas of the planet, even in those areas that fall within the jurisdiction of "democratic" and "developed" countries. Every single foot of land is in the crosshairs. No agricultural population is recognized any right to land.

The never-ending demand for meat, which fuels the ever-growing demand for fodder, synergizes with the endless greed of the local oligarchy, which abides the orders of the international cartels that control global food and *agrofuels* markets, manufacturing and input supplying.

As the maps provided above show, there are no longer native forests in the Eastern Region of Paraguay, which are likely to maintain their climax conditions. All that's left are small fragments of once diverse subtropical forests home to some 20 different Indigenous Peoples, and some 7,000 species of plants and animals. Almost all of these forests, about 92% of its original 8 million hectares, are now replaced by a maximum of 4 species, namely, soy, maize, wheat and cattle.

The Chaco is following the same abusive termination process. Many voices in Paraguay used to warn about the destruction and human rights abuses occurring in the country. They used to say 'in twenty years we well not have any more forests'. Now, as time passed, we see the destruction of biodiversity and ancient human civilizations taking place at even faster paces than before. The societal reaction is slow in addressing the challenge of halting it. At this pace, the Paraguayan Chaco has only about 40 more years to reach total transformation. Then, genocide and extinction would have taken place.

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