
THE SOY MIRAGE

The limits of corporate social responsibility: the case of the company Desarrollo Agrícola del Paraguay

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Monoculture production of soybeans in Paraguay has rapidly expanded to occupy 80 percent of cultivated lands, exacerbating the inequitable access to land and displacing agricultural production by family farmers and indigenous populations. The company Desarrollo Agrícola del Paraguay sought to differentiate its actions in the sector by adopting a policy of social and environmental responsibility and investing in community-based initiatives, the results of which are analyzed in this report. However, this company's efforts do not compensate for the negative impacts created by a model of production that increases the concentration of land and wealth, contaminates the environment, harms people's health, competes for limited resources and puts at risk the traditional livelihoods of small-scale farmers and indigenous communities.

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EXECUTIVE SUMMARY

Despite its small size, Paraguay is the sixth largest producer and fourth largest exporter of soybeans in the world. Soy is the basis of the Paraguayan economy, which had the highest rate of growth in Latin America in 2010. This wealth is not distributed evenly, however: one in every three Paraguayans in rural areas live on the edge of extreme poverty.

Unequal access to land is one of the main factors that perpetuate rural poverty in Paraguay. While elite, large-scale land owners have accumulated 80 percent of agricultural land, thousands of farmers and indigenous people lack the means to survive and are forced to migrate to urban areas. This problem has worsened in recent years due to the expansion of monoculture agriculture, particularly of soy.

The lack of access to land has led to numerous conflicts; with thousands of men and women farmers imprisoned and 129 extrajudicial executions since the end of the dictatorship in 1989. The small-farm sector has been abandoned by public policy and affected by the lack of investment, while corporate farming benefits from incentives, tax exemptions and access to credits, as well as an extremely lax enforcement of environmental and labor regulation. The result has been a two-tier model of agriculture that increases exclusion by favoring the concentration of land, wealth and political power in few hands.

The increased cost of energy and food has stimulated the interest of capital in agriculture, in search of new investment opportunities after the economic crisis. Many investment funds seeking quick, high profits are turning to the business of production and export of raw materials for food and biofuels. These investments, far from representing opportunities for the small-farm economy, lead to increased competition for land and serious impacts on the environment and on people's health and livelihoods.

The soy sector in Paraguay is expanding rapidly. The area under soy cultivation doubled in the last decade, and soy now covers 80 percent of agricultural land. Approximately half of this land was previously occupied by cattle ranches, while the other half was owned by small farms and indigenous families. In many cases, these families sold or rented their property or their right to occupy it, once they found themselves surrounded by soybeans and forced to coexist with the constant fumigation using agro-toxins.

Soy is grown almost exclusively in large plantations in Paraguay, approximately half of which are owned by Brazilian companies. The seed that is used in Paraguay is patented by Monsanto and has been genetically modified to tolerate glyphosate. The widespread use of this herbicide and other agrochemicals causes serious damage to the environment and to the health of the population and their crops and farm animals. This practice has been widely condemned by environmental and farmers' organizations, as well as by international institutions. Nevertheless, the Paraguayan state ignores the problem and avoids its obligation to ensure compliance with the environmental regulations which protect the right to live in a healthy environment.

In this context, the company Desarrollo Agrícola del Paraguay (DAP) has sought to differentiate itself from other actors in the sector, adopting policies of social and environmental responsibility and applying to join the Roundtable for Responsible Soy. The company demonstrates a greater respect for environmental regulations; does not acquire lands from small-scale owners; and has established channels to collaborate with neighboring communities. With the goal of establishing a positive relationship and avoiding conflict, DAP initiated a strategy of social, environmental and productive investment through intermediary organizations such as the Moisés Bertoni Foundation, the Society for Rural Studies (SER) and the Institute for Environmental Law and Economics (IDEA). Some of these activities were charitable and had limited impact. At the same

time, DAP also supported productive development initiatives based on the use of mechanized agriculture and the intensive use of agrochemicals.

Five years on, the results in the communities of Colonia Barbero, 12 de Junio and Agüerito show that many of the families who participated in the productive projects were worse off economically. In terms of improving farmer incomes, these projects can thus be regarded as a failure. In the case of those who followed the production model promoted by DAP, instead of increasing their income by adopting supposedly more productive practices, they entered a cycle of debt from which they have not yet recovered and as a result, many of them have lost their principle assets. DAP and the organizations that carried out the projects failed to take into account the local context and socio-productive conditions of the families, and promoted an inappropriate model. Practically all of the investment risk fell on the small-farm families.

Although DAP is more respectful of environmental regulations, the study documented serious impacts on both the environment and the health of the population that lives close to the plantations, which are associated with the intensive use of herbicides and pesticides. The crops and livestock of these populations are also affected, thus putting at risk the food and subsistence of these families. The severity of these impacts indicate that corporate social responsibility and voluntary schemes (such as the Roundtable on Responsible Soy, to which DAP is in the process of affiliation), are insufficient to guarantee the effective protection of the health and rights of local communities. Even in the case of DAP, a company committed to supporting community development and addressing the impact of its operations, flaws in implementing its policy of corporate responsibility have caused more problems than benefits. Therefore, considering the limitations of corporate responsibility to secure respect for human rights and the environment, stricter labor and environmental regulations and more effective enforcement mechanisms are needed.

The findings of this research call into question DAP's qualification as a responsible and sustainable company. Despite its efforts to reduce negative impacts and to aid neighboring communities, it is part of a sector whose present business model exacerbates the concentration of land and wealth in few hands, competes for limited resources, contaminates the environment, damages the health of the population and threatens the traditional livelihoods of small-scale farmers and indigenous communities. If this has occurred in the case of DAP, it is very likely that the rest of the soy sector incurs much more damaging effects, given that most of the companies do not even consider their impact on the local context in which they operate.

1 INTRODUCTION

The world food system faces increased pressure due to climate change, a constantly growing population and increased demand for meat and energy products. The financial crisis and uncertainty in the housing market and other sectors have sparked the interest of private sector capital in investment in agriculture. A number of investment funds have turned their attention to the business of production and export of agricultural commodities. Yet far from representing opportunities for small-scale farmers, these investments often lead to greater competition for land and have serious impacts on the environment and on the health and livelihoods of local populations.¹

Investment in agriculture is more urgent than ever, particularly investment in family agriculture in the developing world, since it produces most of the food consumed there. In addition to public investment, private sector investment can also play a fundamental role in attaining inclusive economic growth, poverty reduction and environmental sustainability. However, these benefits are not produced automatically, and require the efforts of businesses and governments to ensure that investments do not harm local communities.

In the context of its GROW campaign, which seeks food justice in a resource-constrained world,² Oxfam has drawn attention to the accelerated speed and scale of large-scale land acquisitions and their effect on small-scale farmers, and has undertaken research to assess the impacts of specific private investments in land on local populations. The purpose of these studies is to have a better understanding of how these investments take place and how they affect people at the local level; who benefits from them; and if there is evidence of negative impacts, direct or indirect, at a local and national level.

In Paraguay, the soy sector is in a process of expanding rapidly. The area under soy cultivation has doubled in the last decade and occupies 80 percent of agricultural land. This growth has displaced cattle ranches to the northern part of the country, and resulted in the occupation of land previously used by small farms and indigenous communities. Oxfam has identified a company in the soy sector with financing from US, European and Latin American investors: NFD Agro, which operates through the local subsidiary company Desarrollo Agrícola del Paraguay. This company has been distinguished by an agribusiness consulting firm as an emblematic case of the movement of transnational investment capital into agriculture and of the implementation of effective and sustainable practices. The company's operations, according to this firm, contribute to the transfer of good practices, increase the volume and quality of agricultural commodities for domestic and export markets, create opportunities for local businesses, generate employment and promote the participation of small-scale producers in value chains.³

This report focuses on the company Desarrollo Agrícola del Paraguay (DAP), which produces soy and other agricultural commodities for export. The research examined how the company's operations were perceived by neighboring communities, and the impacts of its activity on people's health, the environment, livelihoods, employment and food security. It also assessed the results of the community projects promoted by the company as part of its corporate social responsibility (CSR) policy. The study went beyond the analysis of the company's practices to examine the model of large-scale intensive agriculture, which is expanding at great speed in Paraguay. It should be noted that there are other companies within the soy sector whose impacts are much worse than those caused by DAP. Thus this company should not be considered as a representative case, but one that was selected precisely because it was different and was said to be distinctively respectful of the local context.

The research followed the methodological framework used by Oxfam in other studies of private sector investment in agriculture and land acquisition in developing countries. It was carried out

in three phases. The first phase involved an analysis of available documentation, including the national, local and sectoral contexts, the legal framework and documents regarding the company. The second phase took place in Paraguay and involved interviews in Asunción with key institutions, as well as visits to the areas affected by DAP's agricultural plantations. Finally, the third phase entailed the analysis and systematization of the information. The research took place between February and April of 2013, including two weeks in Paraguay, of which eight days were spent in the communities affected by the company.

During the field work, visits were made to all the plantations owned by the company in Paraguay, as well as to the nearby communities where the company invested in projects to support the communities' productive activities. To obtain information on impacts, in-depth, semi-structured interviews and focus groups were carried out with key informants: affected families; community leaders; current and former company workers; local authorities; organizations of small-scale farmers, women, indigenous people, environmentalists, development and human rights defenders; company representatives; state institutions; international organizations and national experts.

Access to communities and affected families was facilitated by organizations that Oxfam works with in the areas affected by DAP's plantations. First, community leaders were interviewed, and they suggested families with which to meet. The 'snow ball' technique was then applied; meaning that each family interviewed was asked to suggest another possible family, and each family was visited in their own home. The broadest possible sampling was sought in order to get a diversity of views in the cases where there were conflicting opinions on the company's activity. The information gathered in the interviews and focus groups was complemented by direct observation on the farms and a photographic record. After completing the field work in communities, interviews were held in Asunción to triangulate information, including with company representatives.

The first section of this paper analyzes the national context of poverty and inequality in Paraguay, describing the situation of inequitable access to land and examining the soy sector in particular. The second part focuses on the case of DAP: its sources of finance, its business activities and the way in which its policy of social and environmental responsibility is implemented. It then provides an assessment of the results of the company's productive investment projects in several communities where it has worked as part of its corporate social responsibility policy. Lastly, the paper analyzes the impacts of the company's operations in various areas: on people's health and the environment, on livelihoods, employment and food security.

PART I: CONTEXT

POVERTY AND INEQUALITY IN PARAGUAY

Paraguay is one of the smallest South American countries, with no direct access to the ocean, and surrounded by the giants Brazil and Argentina. In spite of an intense internal migration to urban centers, Paraguay continues to be a largely rural country⁴ and its economic development is based mostly on agriculture and livestock, whose exports (principally soy and beef) represent nearly 80 percent of total exports.⁵ Thanks to this sector, the Paraguayan economy had a record growth of more than 14 percent in 2010, the third highest worldwide and highest in Latin America.⁶

On a global scale, Paraguay now ranks fourth in the export of soy and first in the export of organic sugar. Despite the growth achieved in the last decade, it continues to lag behind other South American countries in terms of human development. On the Human Development Index it is in 111th place (of 186 countries); among the group with medium levels of human development.⁷ Paraguay's average per capita income of USD 3,020 puts it at the lower–middle income level.⁸

Table 1: Levels of poverty and extreme poverty in Paraguay in 2011

	Inhabitants	Poverty (%)	Extreme poverty (%)
<i>Total country</i>	6,464,648	32.4	18.0
<i>Urban</i>	3,823,364	23.9	10.0
<i>Rural</i>	2,641,284	44.8	29.6

Source: General Directorate of Statistics, Surveys and Census of Paraguay. Permanent Household Survey 2011.

High indices of poverty and inequality continue to be important challenges for Paraguay. Although the national poverty rate decreased from 41.2 to 32.4 percent between 2007 and 2011, extreme poverty only decreased from 23.2 to 18.0 percent during that same period, according to the Permanent Household Survey (see Table 1).⁹

These data reveal the profound gap between urban and rural: almost half of rural families live below the threshold of poverty, and their income does not cover 44.4 percent of the cost of the basic food basket. The proportion of households in extreme poverty in rural areas is almost three times higher than in urban areas.

This persistent poverty is closely tied to the lack of access to land. A correlation has been shown between the size of landholdings and rural poverty, which is concentrated among families with less than 10 hectares.¹⁰ And according to a World Bank study, the probability of being poor in Paraguay is greater for households that own less than 30 hectares of land, since they find it more difficult to engage in commercial agriculture with its greater added value.¹¹ The following section analyzes the problem of the highly inequitable distribution of land in Paraguay.

THE LATIN AMERICAN COUNTRY WITH THE WORST LAND DISTRIBUTION

Paraguay is the Latin American country in which land is distributed most inequitably (see Table 2), since an elite of large land owners (*'latifundistas'*) holds almost all of the land available for agriculture and livestock, while the vast majority of small-scale, family farmers lack sufficient land for production. Due to the expansion of monoculture, principally of soy, landholding has become further concentrated during the last two decades. Tenure insecurity is a factor in the displacement of small-scale farmers, as most small farms lack property titles. The illicit sale of property rights is common, often in complicity with state institutions. On the other hand, during the Stroessner dictatorship the state gave land to people close to the regime, which led to numerous land conflicts as small-scale farmers demanded the restitution of the 'ill-gotten' lands to the families who had been beneficiaries of land reform.

Table 2: Index of land concentration in some South American countries

Country	Gini index	Year of last census of agriculture and livestock
<i>Paraguay</i>	0.94	2008
<i>Brazil</i>	0.86	2006
<i>Colombia</i>	0.86	1971
<i>Peru</i>	0.86	1994
<i>Uruguay</i>	0.84	2000
<i>Ecuador</i>	0.81	2000
<i>Bolivia</i>	0.77	1984

Sources: FAO 2011, UNDP 2011, SIPAE 2011, ILC 2011.

The most recent census of agriculture and livestock property in Paraguay (2008) shows that 80 percent of agricultural land (24.5 of the 31 million hectares used for agriculture and livestock) is concentrated in fewer than 4,800 farms of over 1,000 hectares and held by 1.6 percent of landowners (see Table 3). At the other extreme, 84 percent of farms (241,956 of the 289,649 properties in the census) have fewer than 20 hectares and constitute less than 4.3 percent of cultivated land. More than 180,000 families (of the approximately 500,000 families who live in rural areas) own less than the minimum 10 hectares considered to be the basic unit to sustain a family's economy.¹²

It is also important to note that the 600 largest properties of more than 10,000 hectares each occupy 40 percent of the surface area used for agriculture and livestock, and these have increased in number and area during the period between censuses (1991–2008). There are extreme cases, such as that of Tranquilo Favero, who owns approximately 400,000 hectares in the Alto Paraná province, of which 110,000 ha. were formerly 'fiscal' or government-owned land that he obtained thanks to his close relationship with the dictator Alfredo Stroessner.¹³ It is also notable that the land owned in association (corporations or limited liability companies, cooperatives, etc.) constitutes just 3.7 percent of the total properties but occupies 49.5 percent of the total productive land in the 2008 census.¹⁴

Table 3: Quantity and surface area of agriculture and livestock farms

	Number of farms		Total area (ha)		Variation (%)		Average farm size (ha)		
	2008	1991	2008	1991	Farms	Area	2008	1991	Variation (%)
Paraguay	289,649	307,221	31,086,894	23,817,737	-5.7	30.5	107	78	38.4
Size of farm									
Have none	774	7,962	-	-	-90.3	-	-	-	-
< 1 ha	15,586	21,977	6,894	8,499	-29.1	-18.9	*	*	14.4
> 1 and < 5 ha	101,643	92,811	231,118	222,805	9.5	3.7	2	2	-5.3
> 5 and <10 ha	66,218	66,605	416,702	430,658	-0.6	-3.2	6	6	-2.7
> 10 and < 20 ha	57,735	66,223	685,381	806,802	-12.8	-15.0	12	12	-2.6
> 20 and < 50 ha	22,865	31,519	619,986	857,909	-27.5	-27.7	27	27	-0.4
> 50 and <100 ha	6,879	7,577	459,555	502,648	-9.2	-8.6	67	66	0.7
> 100 and < 200 ha	5,234	4,279	699,257	569,169	22.3	22.9	134	133	0.4
> 200 and < 500 ha	5,251	3,503	1,600,537	1,050,034	49.9	52.4	305	300	1.7
> 500 and < 1,000 ha	2,737	1,525	1,810,119	1,010,952	79.5	79.1	661	663	-0.2
> 1,000 and < 5,000 ha	3,443	2,356	7,200,531	4,982,438	46.1	44.5	2,091	2,115	-1.1
> 5,000 and < 10,000 ha	684	533	4,702,034	3,644,873	28.3	29.0	6,874	6,838	0.5
10,000 or more ha	600	351	12,654,779	9,730,949	70.9	30.0	21,091	27,724	-23.9

Source: Ministry of Agriculture and Livestock of Paraguay, 2008 National Census of Agriculture and Livestock.

The concentration of land ownership has been exacerbated in recent years; the Gini index¹⁵ increased from 0.91 in 1991 to 0.94 in 2008. In this period, the boundaries for agriculture expanded, increasing the surface area dedicated to agrarian production by 30 percent.¹⁶ Given the rapid expansion of monoculture crops such as soy in the last few years, it is likely that this tendency toward greater land concentration has continued in the years following the last census.

Taking into account the diverse forms of land tenure in Paraguay (final title, provisional title, rental property, occupied land and others), two-thirds of farms with less than 20 hectares do not have final land titles.¹⁷ According to the National Institute of Rural Development and Land (INDERT) the reason is mostly economic: a final title requires the payment of 25 percent of the property's value.¹⁸

A brief history can help to explain the origins of the land problem in Paraguay. In 1875, the Office of Public Lands was created, where property owners had to prove their ownership rights. A law that authorized the state to sell public lands to whomever could pay within a year excluded poor farmers. Unable to pay, many peasant communities lost their communal lands and thus became part of the legion of landless farmers in a country of immense agricultural estates.¹⁹

The idea of agrarian reform was first incorporated into Paraguayan legislation in the 1930s, although not as policy to transform the structure of land ownership. In 1963 the government created the Institute of Rural Welfare (IBR) and enacted the Agrarian Statute, which initiated a cycle of massive colonization.²⁰ Between the decades 1960 and 1990 (during the Stroessner dictatorship) approximately 10 million hectares of land were distributed, much of it illicitly passed to individuals who were not part of the target population for the land reform: high ranking members of the military, politicians and large companies that were close to the dictatorship. These were the 'ill-gotten' lands, estimated to be as much as eight million hectares.²¹ This has led to conflict over land becoming one of the most significant social problems since the democratic opening in 1989.

Today it is difficult to know who occupies much of the land that was distributed by the state. According to the 2008 census of agriculture and livestock, family farms²² possess only 1,900,000 hectares.²³ Nevertheless INDERT (and previously IBR) had distributed more than 3,800,000 hectares of land, principally in the eastern region.²⁴ Thus during that period, half of the land that had been distributed to beneficiaries of the land reform was passed to large- and medium-scale land owners.

The transfer of land occurred over the years through the sale and rental of '*derecheras*',²⁵ frequently to foreigners, and in many cases in complicity with INDERT administrators.²⁶ This illicit activity had been common for decades, but from 2012, anyone who sells or buys these 'rights' over land, and any public official who gives the documentation to validate the transfer of such 'rights', can be subject to a prison term of up to five years.²⁷

The struggle for land costs lives

The strategy of the farmers' and landless movements, faced with state inaction, has been to occupy large agricultural estates. In this manner they force the owners to negotiate while obliging authorities to find a solution. During the first 15 years of democracy (between 1990 and 2004) there were 895 land conflicts, 571 demonstrations, 370 occupations of agricultural estates with 357 violent evictions, and at least 7,296 farmers were arrested.²⁸ Although the main demand of the farmers' movements has been access to land, more recently they have added another demand—to stop the expansion of large-scale soy production, due to the health and environmental damage associated with its excessive use of agro-chemicals.

State security forces have violently repressed farmers' protests, while mercenaries and paramilitary organizations have carried out arbitrary executions. According to the Human Rights Coordinator of Paraguay (CODEHUPY), the assassination of Benjamín Lezcano (a peasant leader who led protests against soy monoculture production) in February 2013, brings to 129 the number of peasant leaders who have been assassinated in the country in the context of the struggle for land since the end of the dictatorship.²⁹ The Inter-American Commission for Human Rights criticized the inaction of the Paraguayan justice system, urging it to clarify the crime and bring the guilty parties to justice.

In December 2012, Vidal Vega was also assassinated—a leader of the Landless Farmers Movement and president of the commission of family members of the victims of the Curuguaty massacre (see Box 1). This incident led to the political trial that impeached President Fernando Lugo and imposed Federico Franco as the de facto president.

Box 1: The power of agribusiness behind a president's impeachment

On 22 June, 2012 the Paraguayan Congress interrupted the presidential term of Fernando Lugo through a rapid political trial, one year before his mandate was to conclude. The justification for the political trial was the Curuguaty massacre of 15 June, 2012, when a confrontation took place between police forces and squatters during a judicial–police intervention on the land of Marina Cue that had been occupied by landless farmers. Eleven farmers and six policemen were killed and an undetermined number of people wounded by firearms.³⁰

Most political analysts agree that the interruption of the democratic process was motivated essentially by fear on the part of those who reap most of the benefits of development, in the face of a government they saw as capable of promoting a more equal distribution of those benefits.

Since taking power in August 2008, Lugo's government had made important progress. For example, he established a free public healthcare system and created the Family Health Units. In education, he ordered free secondary education and gave universal access to the school lunch program. In agriculture, he launched the Program to Increase Food Production by Family Farms, with the objective of reaching all producers with less than 20 hectares by 2013. The process initiated by the Lugo government also led to important changes such as increased civil society participation, greater citizen awareness of rights and a slight reduction in poverty, partially due to the social programs that were implemented. However, a very unequal balance of power in Congress tied the hands of government and forced it to leave other electoral promises unfulfilled, such as land redistribution and universal access to social programs to fight poverty.

From the beginning of its term, the government was pressured by large producers' associations and multinational companies to approve the commercialization of genetically modified seeds, principally for cotton, corn and a newer version of transgenic soy. The National Service for Plant and Seed Quality and Health (SENAVE), the institution in charge of ensuring compliance with the legal requirements to register new transgenic seeds, was the target of intimidation because of its objection to authorizing the use of new seeds without the due guarantees of quality and without compliance with all of the legal requirements established by the state. SENAVE's policy was supported by the organizations of farmers and women, and by environmental NGOs that strongly objected to the use of transgenic seeds due the health risks caused by the intensive use of herbicides, particularly in the case of transgenic soy.³¹

Farmers' organizations also called for land reform, and the most conservative sectors accused Lugo of promoting the country's engagement with strategies for integration led by President Chavez of Venezuela. For these and other reasons, Fernando Lugo's government was threatened with political trial on 23 occasions. Because the government lacked institutionalized political support, the threats of impeachment were a constant impediment to important change in the country.

The interruption of the democratic process clearly favored the economic groups represented by the soy producers, multinational companies and cattle ranchers. Just days after the change in government, the multinational company Monsanto obtained the registration of its transgenic cotton seed from SENAVE and new varieties of transgenic corn were soon after approved by decree without the due certification by the corresponding institutions. Other laws such as the Border Security Zone (which Lugo enforced to demand greater compliance, and to limit the massive purchase of land by foreigners) and the Phytosanitary Law are being questioned and revised by the present government in order to eliminate obstacles to agribusiness expansion.

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POLICIES THAT PROMOTE INEQUALITY IN AGRICULTURE

Two models of production coexist uncomfortably in Paraguayan agriculture: the small-scale family farm which mostly produces food,³² and large-scale corporate agriculture for export. Corporate agriculture took hold in Paraguay in the 1970s in the provinces of Alto Paraná, Canindeyú, Amambay and Itapúa, with the presence of large agro-industrial companies and medium- and large-scale Brazilian production companies which bought huge tracts of land in the river basin of the Paraná River. This two-tier model has continued to grow and today affects provinces which traditionally had been the territory of small-scale farmers and indigenous communities such as Caazapá, Caaguazú and San Pedro.³³

In addition to the profoundly inequitable access to land and other productive resources, the bias of public policy toward agribusiness has led to its expansion and to the marginalization of family agriculture, especially of women producers and the indigenous population. The state programs and incentives for agriculture have favored business elites who have made the most of these new opportunities, accumulating increased assets and political power. This agro-export bias exists in most South American countries, but the magnitude of the problem differs in each.³⁴

A significant portion of public investment in agriculture consists of subsidies. Some analyses indicate that between 1995 and 2000, more than 70 percent of public spending in agriculture in Paraguay went to subsidies, which mostly benefitted large-scale agro-export production.³⁵ This is the case with the fuel subsidy which benefits large-scale producers almost exclusively, as their agricultural production is mechanized. Neither is agricultural research oriented towards family farm production: the Paraguayan Institute of Technology for Agriculture and Livestock (IPTA) mainly responds to the needs of large business, which are represented on its board of directors.³⁶

The Paraguayan tax system does not contribute to improving the distribution of wealth because of low taxation. Paraguay is the only Latin American country in which soy producers do not pay export tax.³⁷ Rural properties pay annual taxes that are 23.5 times lower than in the average Latin American country and 45 times lower than in developed countries. For the 30 million hectares of productive land for agriculture and livestock, only USD 0.16 per hectare is collected per year.³⁸ Taxes on agriculture and livestock activities (IMAGRO) and on real estate represent a tiny contribution to the treasury. This contrasts greatly with the profitability of the agriculture and livestock sector and its importance for the national economy. According to Oxfam's analysis of the Paraguayan tax system, agribusiness receives particularly favorable treatment.³⁹

Law 60/90, to promote capital investment, establishes another series of advantages that are mainly enjoyed by agribusiness companies, since they are the ones that can make important investments. These incentives include exemption from value-added tax (VAT), from the tariffs and taxes on the import of goods and equipment, and exemption from 95 percent of income tax during the company's first five years, which can be extended to ten years when it operates in an area of preferential development.

Another indirect investment incentive arises from the few and ineffective environmental and labor regulations: licenses are easily issued and authorities very lax when this legislation is not complied with.⁴⁰ Lugo's government tried to strengthen regulatory institutions such as SENAVE and the Secretariat for the Environment (SEAM). There have been serious setbacks since the impeachment of Lugo, however.⁴¹

Access to credit favors corporate agriculture. The *Crédito Agrícola de Habilitación* [Agricultural Financing Credit], which was created to support small-scale production, has in practice channeled 90 percent of funding to large-scale agricultural and livestock production. Lending from the National Development Bank is similar; a possible cause being that three of the seven

members of the Bank's Board of Directors belong to agribusiness associations, while small-scale farmers are not represented.⁴²

Paraguay passed a law in 2005 to promote biofuels, which declares the production of raw material for biodiesel and ethanol to be of national interest. The law established benefits to attract companies and industries to create new 'poles of development' and set mandates for fuel blending in order to guarantee a domestic market.⁴³

While corporate agriculture benefits from all of these incentives, the vast majority of small farm communities have never received any state aid. Public investment in family agriculture was approximately 5 percent of public expenditure in 2009, falling from 10–12 percent at the beginning of the decade;⁴⁴ well below the relative importance of the sector. This lack of attention makes it very difficult to overcome the obstacles to developing competitive and profitable production, or to face the risks that are inherent in agricultural production.

One of the main problems for family agriculture is the absence of viable and profitable commercial crops. Historically, cotton played this role until it was affected by changes in Ministry of Agriculture and Livestock (MAG) policies, a pest infestation (known as '*picudo*') and the fall in international prices. The area cultivated with cotton shrank from 320,000 hectares in 2004 to one-sixth of that amount in 2009. Sesame has become one of the newer and more attractive crops for family farms, and the surface area of production doubled between 2006/2007 and 2008/2009, reaching 100,000 hectares. Recently, drought and the fall in prices have affected production.⁴⁵

Crops such as soy that are highly dependent on external inputs and thus on capital are not viable under the conditions of the majority of family farms, which lack of access to credit, the minimum land area needed for mechanized production and volumes of production needed to reach the market. Even if the conditions existed for economic profitability, the impacts on health and the environment described below question the suitability of this type of crop for small-scale production.

How agribusiness displaces small-scale agriculture

Agribusiness enterprises, particularly soy producers, use various strategies to acquire control over land and expand their production to land held by small farmers. These include:⁴⁶

- **Direct purchase**, often illegally and in complicity with INDERT. Due to increased competition for land, up to USD 15,000 per hectare has been paid in the province of Alto Paraná (where soy production is most advanced).
- **Rental**: Lacking alternative income, many families opt to rent out their property rights.
- Forced displacement through **contamination from the intensive use of agro-toxins**, when crops are planted next to population centers. In these cases, coexistence with the plantations is impossible due to the damage to health, subsistence crops and small animals.
- **Indebtedness**: In some areas, companies offer credit to finance mechanization on small plots and the purchase of seed packages and herbicides. Many families are unable to pay back these debts and end up renting or selling their land, frequently to the same financial institutions.

The result is the displacement of farming and indigenous communities, which has occurred most rapidly in provinces in the Eastern Region such as San Pedro, Caaguazú and Canindeyú. In the words of the representative of the National Farmers' Association, 'soy monoculture is poisoning entire communities through massive fumigations, eliminating production for family consumption to make people abandon their communities, and then offering a lot of money for their land. They supposedly help small producers, giving credit as a tactic to enter their communities. Now several indigenous communities have been eliminated [*sic*] in order to grow soy in Caaguazú and Canindeyú.'⁴⁷

The sale of a small property (from three to a maximum of ten hectares) means immediate cash for those who sell their lands. However, when people migrate to the city, they do not usually find stable work, the money disappears quickly, and the family is left in extreme poverty.

Concern was expressed by the National Coordinator of Rural and Indigenous Women (CONAMURI): 'Capitalism is developing in rural areas now. Wealth is being extracted from natural goods. There is a whole plan to take over our lands. Multinational companies are being established while our indigenous and farming communities are disappearing.'⁴⁸

Foreign investors, particularly those from Brazil and Argentina,⁴⁹ have led the advance of agribusiness in Paraguay. Although there is no reliable official data on the total area owned by foreigners (frequently lands are registered in the names of Paraguayan 'stand-ins') the rate of foreign penetration is about 100,000 hectares per year, and even more in the areas that border Brazil in the provinces of Caguazú, Alto Paraná and Canindeyú.⁵⁰ According to statistics from the 2008 census of agriculture and livestock, 4.8 million hectares are owned by Brazilians and another three million are owned by people of other nationalities. Thus of the 31,086,893 hectares of land used for agriculture and livestock, according to the census, almost eight million or at least 25.3 percent of the country's agricultural and livestock land is owned by foreigners.⁵¹

There is no legal regulation that effectively restricts the purchase of land by foreigners in Paraguay. Foreigners have the same rights and obligations as national investors and are attracted by the lower cost of land and reduced taxes. Although the law establishes a 50 kilometer security strip along the border areas in which foreigners are not allowed to purchase lands, this restriction is systematically breached.⁵²

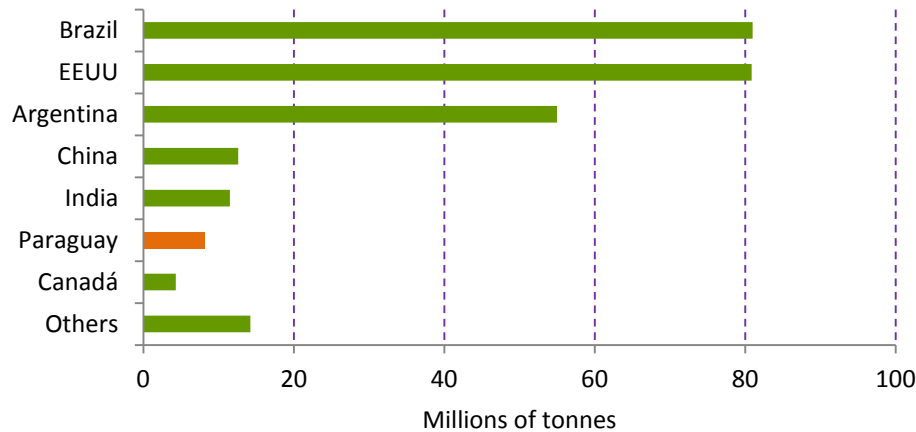
In the eastern part of the country, the fierce competition for land has raised prices. Owners of large cattle ranges in this area are selling their land to purchase less expensive land in El Chaco (in the northern region), where grazing lands are being purchased on a large scale. It is estimated that prices in the north are rising at a rate of 20 percent per year.⁵³

A significant decrease in the production of food staples such as tapioca, beans and peanuts can be seen in the districts most affected by the advance of corporate farming.⁵⁴ According to information from the FAO, between 1999 and 2009 the per capita production of food decreased from 92 to 75 kilograms per person per year.⁵⁵ As a result, food imports have increased at the same rate. Data from the Network of Imports and Exports show that between 2008 and 2011, the value of food imports increased by 48.5 percent, from USD 233,584 million to USD 454,087 million in 2011. At the same time, imports of chemical products and machinery increased by 40 percent.⁵⁶

SOYBEANS: THE WORLD MARKET FOR SOY

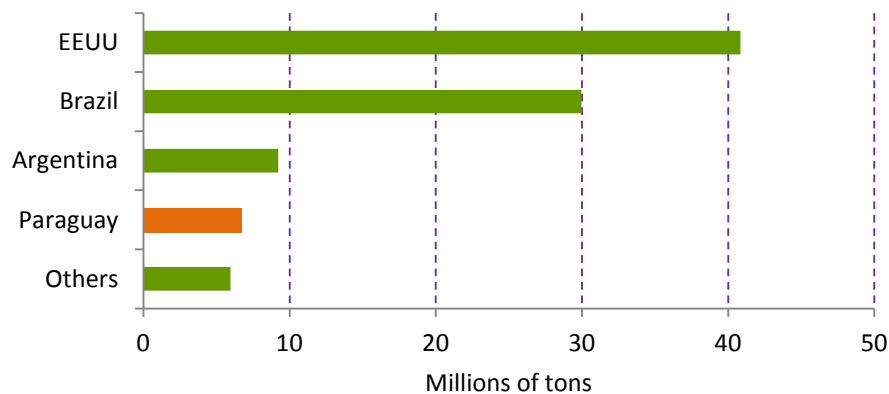
Soy is one of the most rapidly spreading crops in the world, particularly in South America. The demand continues to rise due to the increased consumption of meat and dairy products and the biofuels boom. It is the crop that provides the largest amount of protein per hectare,⁵⁷ and it is used to make fodder for animals, prepared foods, vegetable oil, industrial inputs and recently, biofuel. The principal producing countries are Brazil, the United States and Argentina (see Graph 1). These countries lead in exports, and along with Paraguay supply 50 percent of world demand (see Graph 2). The biggest importer is China, followed by Mexico and Japan.

Graph 1: Principal soy producing countries (2012/13)



Source: USDA, Nov/2012.

Graph 2: Principal soy exporting countries



Source: USDA, Nov/2012.

Nearly 85 percent of the world's soy is processed to make paste (used in animal fodder) and oil (mostly consumed as cooking oil, with some used in the production of industrial byproducts such as soap and biodiesel). Soy imports sky-rocketed in Europe in the 1990s, due to 'mad cow' disease (bovine spongiform encephalopathy), when soybeans began to be used instead of animal bones in the production of fodder.⁵⁸ The trade agreements driven by the United States to facilitate their access to the European market, such as the 'European zero tariff agreement for oil seeds', have also contributed to the increase of European soy imports. The elimination of import tariffs means that soy produced in South America is more competitive than that produced in Europe.⁵⁹

It costs about twice as much to produce oil from soybeans as it does from oil palm, so to be competitive, processing companies must take advantage of important economies of scale. As a result, the soy industry is very capital-intensive, and those same companies (commodity traders known as ABCD: ADM, Bunge, Cargill and Louis Dreyfus) control exports in the main producing countries.

SOY IN PARAGUAY

Paraguay is approximately 40 million hectares in area, of which 31 million are used for agriculture, livestock and forestry, according to the 2008 census of agriculture and livestock. Some 60 percent (17,837,589 hectares) of this land is used for livestock and just 10 percent (3,365,203 hectares) for agriculture, while the rest is forest or lies fallow.⁶⁰ Almost 80 percent of cropland is in soy production⁶¹ while less than 17 percent is dedicated to food production and other sources of income for small producers, such as cotton, tobacco and sesame.⁶²

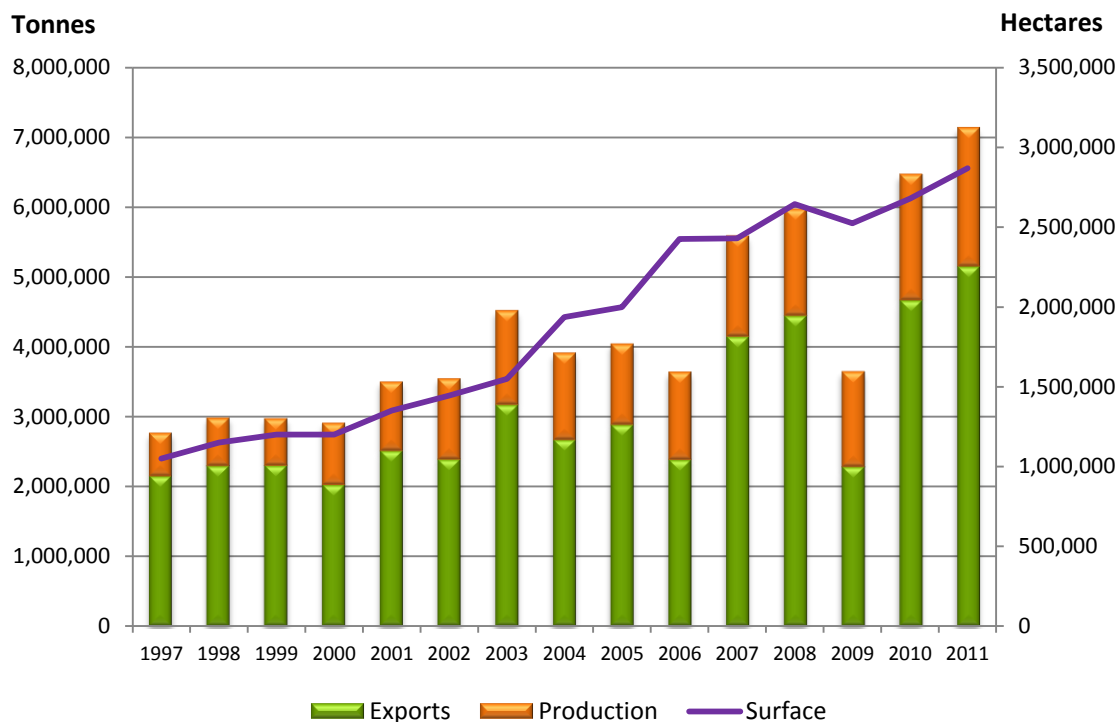
Paraguay ranks fourth in the world in soy exports after the United States, Brazil and Argentina; and sixth in soy production behind Brazil, the United States, Argentina, India and China (in that order).⁶³ Agriculture is the country's economic motor and generates more than a quarter of national employment.⁶⁴ Soy is Paraguay's main export product and one of the most important sectors for its economy, contributing close to 9 percent of the country's GDP.⁶⁵ According to information from the Paraguayan Chamber of Grain and Oilseed Exporters and Traders (CAPECO), the grain and oilseed sector represents 81 percent of agricultural GDP and 55 percent of the income received from exports; USD 3 billion in investment and 250,000 jobs.⁶⁶

However, the sector's contribution to tax revenue is insignificant. This is a result of incentives in the form of tax exemptions on the import of goods and equipment and the absence of an export tax, and the fact that the real estate tax collected by municipal governments is trivial since the appraised value of rural land is very far from its market price.

The potential for increasing tax revenue through an export tax on soy is significant. If a six percent rate (in the mid-range of what is now being debated) was applied to the value of 2010 soy exports, the Paraguayan state would have received close to USD 90 million.⁶⁷ Potential revenue from a tax on soy would be greater than the average annual public investment in small-scale family farming in Paraguay during the period 2005–2009.⁶⁸

The area planted with soy almost doubled during the last decade (see Graph 3) to more than three million hectares in the 2012/13 agricultural season.⁶⁹ Between 2002 and 2012, this area grew at an average rate of more than 150,000 hectares per year, and some estimates point to goals of seven to eight million hectares. Nevertheless, the Ministry of Agriculture and Livestock is confident of being able to increase the volume of soy production without necessarily increasing its surface area. To that end, the Ministry is promoting the use of new genetically modified seeds that are theoretically more productive, which would make it possible to obtain larger harvests using the same amount of land for cultivation.⁷⁰

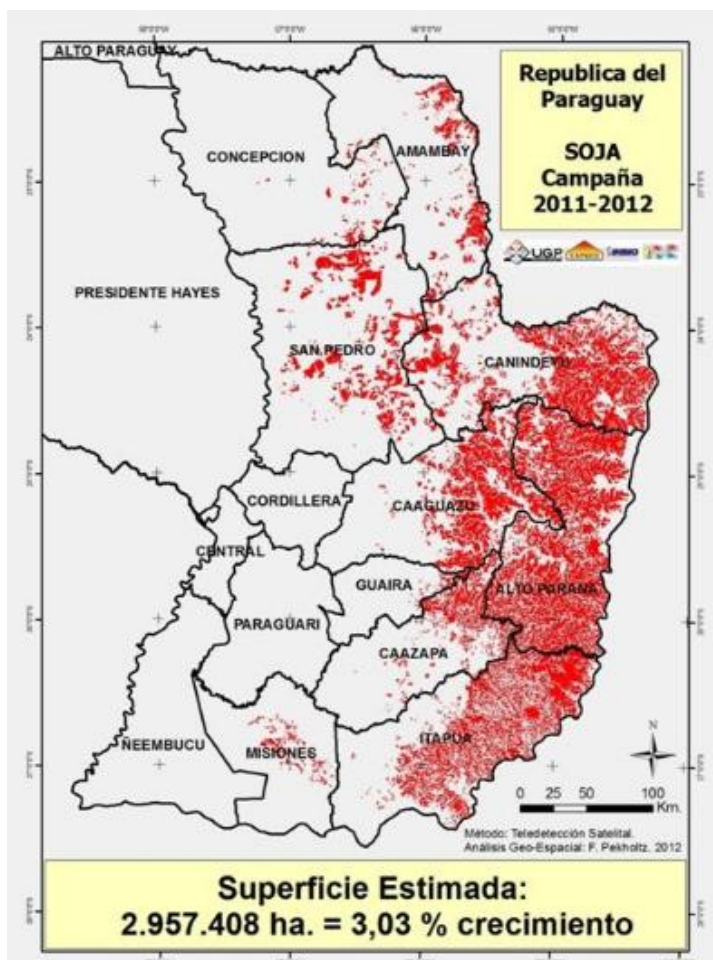
Graph 3: Evolution of crop surface area, production and export of soy in Paraguay between 1997 and 2011



Source: Paraguayan Chamber of Grain and Oilseed Exporters and Traders (CAPECO)

Soy was initially grown in the border provinces of Alto Paraná – 68 percent of which was under soy cultivation in 2010⁷¹ – and Itapúa, where the land is most fertile (see Figure 1). Many Brazilian soy producers crossed the border, attracted by the low prices of land, more lax regulations on deforestation, and lower production costs.⁷² Soy cultivation later expanded to the central provinces of San Pedro, Caazapá and Caaguazú, displacing livestock activity towards El Chaco (in the north). Drought-resistant seeds are currently being developed to adapt to the soil conditions in that region in order to enable cultivation there as well, where an estimated 1.5 million hectares would be suitable for soy.⁷³

Figure 1: Surface area under soy cultivation in the 2011/2012 season



Source: CAPECO, based on satellite observation.

There have been variations in yields due to drought in recent years. The harvest in 2009 was almost half of that forecast due to drought (see Graph 3), and only 4.3 million tons of the expected 7 million tons were harvested in 2012.⁷⁴ The 2012/13 season is producing a record harvest of 9.3 million tons, well above predictions.⁷⁵

Seventy percent of soy produced in Paraguay is exported as grain. There is little capacity to process soy nationally because of the limited infrastructure for obtaining oil or other byproducts.⁷⁶ But ADM, Cargill, Louis Dreyfus and others are now constructing new processing plants to increase this capacity. Almost 60 percent of soy is exported to the European Union, according to information from CAPECO,⁷⁷ shipped through countries like Uruguay, Argentina and Brazil using river transportation networks. It is not possible to ascertain how much of this soy acquired in Europe is used for biodiesel and what proportion for animal fodder or other possible uses, as it is not possible to trace the end products of soy produced in Paraguay.

Soy is associated with large plantations; in 2008 almost 90 percent of soy was planted on farms larger than 100 hectares and 63 percent on farms larger than 500 hectares. Some analyses maintain that 1,000 hectares is the minimum amount of land needed for profitable soy production.⁷⁸ Nevertheless the Paraguayan Institute of Agricultural Technology is trying to develop soy varieties that can be profitable at a small scale, as small-scale producers have not been able to benefit from soy production to date.⁷⁹ Most of the surface area under soy cultivation is owned by Brazilian entrepreneurs: 64 percent nationwide⁸⁰ and up to 80 percent in some districts along border areas.⁸¹ One of the largest producers is Tranquilo Favero, a Brazilian who settled in Paraguay and has properties in all the provinces where soy is cultivated, owning some 140,000 hectares of soy in production, which has made him the 'king of soy'.⁸²

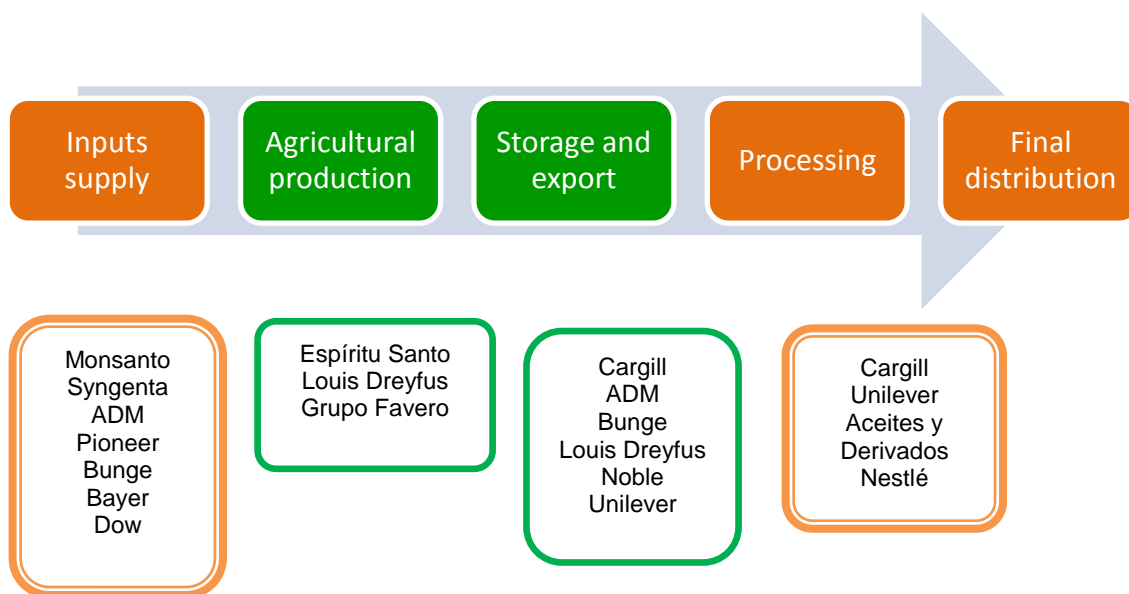
Approximately half of the area now under soy cultivation was formerly cattle ranchlands, while the other half was land belonging to small-scale family farmers, acquired through purchase, rental or eviction.⁸³

The soy value chain in Paraguay

The soy value chain⁸⁴ can be divided into five phases (see Figure 2). Of these, only two (in green in the graphic) are carried out in Paraguay. According to a national analyst, ‘soy production in Paraguay is practically like an assembly plant: the inputs come from abroad, the land and water are provided here and often the same company that supplies the inputs is the exporter. They supply the inputs through credit to the producer, and commit to purchase the production. The producer is just one more link in the process chain.’⁸⁵

Transnational companies dominate the supply chain and determine what and how to produce. The agroindustry transnationals that operate in Paraguay are ADM, Basf, Bayer, Bunge, Conti Group, Dow Agrosciences, Louis Dreyfus, Nestlé, Noble, Parmalat, and Unilever. In 2008 Cargill exported USD 1,268 billion worth of soy, followed by ADM with USD 487 million and Bunge with USD 261 million.⁸⁶ Some of the companies that supply inputs are also exporters, and they ensure their share of the market through contracts and by offering financing. Cargill, ADM, Bunge, Noble, Louis Dreyfus and the Grupo Favero (in order of importance, according to the 2012 ranking of exporters) concentrate 80 percent of the exports of soy and its byproducts,⁸⁷ with access to their own infrastructure for transportation that includes silos, fleets of vessels and ports across the country.

Figure 2: Transnational companies that participate in the soy value chain



Source: Constructed using data from Luis Rojas, 2009.

Until very recently, international companies were only involved in supplying inputs, storage and marketing, but did not participate directly in agricultural production. However, more recently, they have become involved in acquiring land through subsidiary companies. This reveals a change in orientation that is likely to be in response to the growing value of land as a productive asset and the goal of obtaining greater vertical integration in the production chain.⁸⁸

Biotech, agrochemicals and impacts on health

Paraguay has the largest proportion of land area cultivated with genetically modified seeds in the world (66 percent), followed by Argentina, Uruguay and the United States.⁸⁹ Genetically

modified soybean seeds began to be used in Paraguay in 1997, before it was legally permitted, through contraband from Argentina and Brazil.⁹⁰ Of the soy that is cultivated in Paraguay, 95 percent is Roundup Ready (RR), which is genetically modified to tolerate glyphosate (the active ingredient of Roundup), a non-selective herbicide known popularly as a 'kill all' that can be applied during the entire crop cycle. Both the seed and the herbicide are patented by Monsanto, which collects some USD 35 million in royalties per year in Paraguay.⁹¹

One of the advantages attributed to RR soy is that it can be planted directly, since glyphosate eliminates all types of plant life except the crop. Agribusiness companies, including DAP, have promoted this practice as something beneficial for the environment, arguing that it contributes to soil conservation. However, the impact of large doses of herbicides and other agro-toxins on the surrounding areas and communities should be taken into account. Environmental organizations calculate that in Paraguay close to 30 million liters of agrochemicals are used in each soy crop cycle.⁹² Over time, weeds develop resistance to glyphosate, making it necessary to use larger quantities and new combinations of more potent herbicides.⁹³

Furthermore, to facilitate harvest and obtain a uniform ripening of the grain, a desiccating product is used, usually Paraquat (prohibited in Finland, Sweden and Norway for its high toxicity) or 2,4-D (also prohibited in Colombia and Sweden).⁹⁴ The *Pesticide Action Network International* (PAN) includes 2,4-D on its list of highly dangerous pesticides.⁹⁵ Glyphosate is a 'slightly dangerous' class III product, according to the classification system of the World Health Organization (WHO).⁹⁶ This classification, as well as the criterion of the European Authority on Food Security, is based on the rapid decomposition of glyphosate without causing damage to the environment or to people. Nevertheless, other studies show serious health risks associated with the widespread use of glyphosate, including changes in enzymes and reproductive organs, possible carcinogenic activity and mutations observed with doses well below those normally used in agriculture.⁹⁷

The National Coordinator of Rural and Indigenous Women (CONAMURI) carried out a study with the Paraguayan School of Medicine, comparing communities exposed to soy production with communities that were not exposed. In the communities with higher exposure to soy production, there was a much higher rate of respiratory conditions, allergies, eye and ear problems, leukemia, and liver, breast and uterine cancers.⁹⁸ The National Farmers' Federation (FNC) has also monitored health problems associated with widespread crop-spraying. According to their unpublished statistics, the rate of illnesses such as leukemia related to exposure to agrochemicals has multiplied by six in recent years.⁹⁹

State institutions such as the Ministry of Education also expressed their concern over communities' forced coexistence with pesticide use. In 2010, the Ministry identified 264 schools that were surrounded by soy fields, and found the situation to be alarming.¹⁰⁰ The United Nations Committee on Economic, Social and Cultural Rights cautioned, with regard to soy production and its effects on health in Paraguay, that 'the expansion of soy production has brought with it the indiscriminate use of agrochemicals, provoking death and illness in children and adults, water contamination and the disappearance of ecosystems while affecting the traditional food resources of the communities.'¹⁰¹

Only one soybean producer was sentenced while more than 800 farmers were detained

The case of Silvino Talavera set a legal precedent in 2005. Silvino was 11 years old and was returning home from school while a nearby soy plantation was being fumigated. He was poisoned by a cloud of Roundup, and died a few days later. After a long court battle, the German soy businessmen Hermann Schlender and Alfredo Laustenlager were sentenced to two years of prison for homicide, although they never stepped inside a prison.¹⁰² This is the only case in which a prison term has been given for pesticide poisoning. Civil society groups and farmers' organizations accuse municipal officials of not adequately presenting the grievances on agrochemical poisoning, and for non-compliance with environmental regulations.¹⁰³

The Secretary of the Environment has recognized how difficult it is to protect the right to a healthy environment when she said that ‘a community can only ensure that their right to a healthy environment is protected if they get media attention’.¹⁰⁴

In light of state inaction and the impunity with which companies violate environmental legislation, those affected often try to stop the excessive use of pesticides but they risk being detained and sentenced for their opposition.¹⁰⁵ Thus, by criminalizing social protest, the resistance to monoculture is defused.¹⁰⁶ In 2008–9 819 people arrested for resisting the advance of agribusiness. The largest number of arrests occurred in San Pedro, with 160 people detained in 2009 alone.¹⁰⁷

At other times the state has violently repressed those who resist monoculture. In 2002, members of the Ipecuá community in the province of Caaguazú organized road blocks to prevent fumigation. A truck containing 40 people who were on their way to support the community resisting fumigation was shot at by the police. As a result, two farmers died and several were severely injured.¹⁰⁸

Insufficient record-keeping of cases and weak regulation

The World Health Organization has warned of the high mortality rate caused by acute pesticide poisoning (APP) in the developing world due to insufficient regulation, lack of monitoring systems and the lax compliance with regulations. To help prevention and treatment, and to have a better estimate of the effects of pesticides, the WHO has proposed, among other ideas, improving the identification and diagnosis of cases on the ground in rural health centers.¹⁰⁹ In 2003, the Paraguayan Ministry of Health created a register of cases of APP, but it faces limitations in terms of training local medical personnel on agro-toxins and the lack of adequate resources for clear diagnosis.¹¹⁰ This hinders a better understanding of the true magnitude of the problem.

Law 3742/09 on the Control of Phytosanitary Products for Agricultural Use, which was passed in 2009 under Lugo’s government, was strongly criticized by civil society groups, the Ministry of Health and the Secretary of the Environment for not adequately protecting health, and because oversight would be only in the hands of SENAIVE. The law weakened the existing requirements for protection; reducing the buffer zones separating roads and streams from soy plantations; eliminating supervision of aerial spraying and the obligation of prior notice; and reducing sanctions in cases of violation.¹¹¹ For more detail on the reforms see Table 4.

The state, which should protect the communities’ rights to live in a healthy environment, systematically fails to fulfill this obligation due to pressure from the soy industry and its own incapacity.¹¹² The Secretary of the Environment (SEAM) has limited resources to supervise compliance with the legislation, with only five officials covering the whole country. Special courts for environmental crimes do not exist, thus making legal action more difficult.¹¹³ The lack of resources also affects SENAIVE, which only has five technicians for the province of San Pedro and another five for Caazapá to carry out all inspections on the use of agrochemicals.¹¹⁴

Table 4: Changes in the law to control phytosanitary products for agricultural use

	Decree 1937/09	Law 3742/09
<i>Live barrier for rural roads</i>	Minimum of 10 meters wide and 2 meters high, with species of dense foliage.	10 meters wide and 2 meters high. Eliminates the obligation of dense foliage.
<i>Protected buffer zone for spraying on land</i>	100 meters around villages, schools, health centers and water courses.	100 meters, but it eliminates water courses.
<i>Protected buffer zone for aerial spraying</i>	Minimum of 200 meters from any village, water course, rural road or other areas needing protection.	Does not foresee any special buffer zone for aerial spraying.
<i>Supervision of aerial spraying.</i>	Obligatory presence of technical staff from the Ministry of Health, SEAM and SENAIVE, who must be notified 48 hours in advance	Eliminates this obligation.
<i>Prior warning</i>	Obligatory to warn neighbors and institutions about aerial or land spraying, using a format by radio and local television.	Eliminates the obligation of prior warning.
<i>Penalties for non-compliance</i>	Fine. Immediate cancellation of environmental license. Cover costs of medical studies and treatment for victims.	Written warning. Fine.

Source: Educación para la Acción Crítica *et al.* 2010.

Corporate responsibility or whitewash?

The Roundtable on Responsible Soy

Concern over the negative consequences of the expansion of soy and other monocultures has increased worldwide in recent decades. In the case of Paraguay, several civil society organizations have extensively documented the impacts on people and the environment of this model of production, contributing to a deeper debate on its benefits and harms.¹¹⁵

In response, several voluntary certification schemes have been developed to promote more sustainable and responsible production. The principal international forum in the soy sector (not the only one but the one which has engaged more actors) is the Roundtable on Responsible Soy (RTRS) which brings together 150 members, of which 102 are companies involved in the soy sector (producers, traders, suppliers of inputs and credit) and 16 are civil society organizations. The companies include powerful multinationals such as ADM, Cargill, Bunge, Shell, Unilever, Carrefour, Wilmar, Bayer, Monsanto and Syngenta; the NGOs include the World Wildlife Fund (WWF), The Nature Conservancy and the Dutch organization Solidaridad. No organization of indigenous peoples or farmers participates.

The RTRS was formed in Switzerland in 2006 by WWF and other founding members with the mission to 'encourage the present and future production of soybean in a responsible manner to reduce the social and environmental impacts while maintaining or improving the economic status of the producer.'¹¹⁶ Several transnational companies joined the RTRS after abandoning the Basel Criteria, which didn't permit the use of genetic modification and was very demanding with respect to deforestation and the change of soil use.¹¹⁷ In 2009, RTRS approved its principles and criteria of responsibility (updated in 2010), which have been challenged by environmental and farmers' organizations because they permit genetically modified soy and because of what

are seen as weak requirements with regard to the use of pesticides, respect for the rights of the local population, and deforestation (it permits the conversion of areas that had been degraded before 2009, while other standards had established the limit at 2004).¹¹⁸

The standards of the RTRS are in part based on compliance with national legislation. Those who question the effectiveness of these types of voluntary mechanisms defend the need for greater control by the state and point out that focusing exclusively at the farm level does not address the large-scale impacts. Many organizations are concerned that the voluntary mechanisms that have proliferated in the last two decades have not been capable of promoting significant change in corporate practices, in part because they tend not to involve governments and because companies can decide to not comply with them.¹¹⁹ Some organizations directly oppose the RTRS, believing it to be ineffective and to facilitate whitewashing.¹²⁰ Others argue that, in the absence of effective state regulation of investments, such initiatives provide a means for the companies to behave more responsibly and to be held accountable by their stakeholders, including communities affected by such investments.¹²¹

The relative impact of these voluntary measures is hard to assess and may still be a drop in the ocean. In 2011, the first 150,000 hectares of soy in South America were voluntarily certified under RTRS standards, mostly in Argentina and Brazil. In 2012, the surface area certified was about 330,000 hectares. These are very modest amounts compared with the total surface area cultivated in the region, which in Argentina, Brazil and Paraguay together comprises more than 45 million hectares. In Paraguay the only company that is certified is Cytasa, with 2,765 hectares, and DAP is in the process of obtaining its certification.¹²²

Adherence to a certification mechanism may in part be motivated by commercial advantage. It may also be about reducing reputational risk or satisfying the niche market demand for 'sustainable' or 'responsible' products. In July 2011, the European Commission declared that the RTRS standards satisfy the requirements of the European Renewable Energy Directive.¹²³ This means an increased opening of the European market to RTRS-certified soybeans, enabling government support and counting towards the biofuel mandate in the transportation sector. Several civil society and environmental organizations question the sustainability criteria of the European Commission for biofuels, since they are mostly focused on avoiding deforestation while ignoring social impacts, land rights and other impacts on local communities.¹²⁴

Soy companies and NGOs: an alliance to avoid conflict?

The first corporate social responsibility initiatives in Paraguay began in the late 1990s, when some companies began to channel their philanthropic activities through civil society organizations. Only towards the second half of the last decade did this concept acquire importance thanks to initiatives such as the Ethical Trade Pact, the program 'Incorporating practices of corporate responsibility in SMEs', the Latin American Program of CSR, and the establishment in 2008 of the Global Compact Network – Paraguay, comprised of 45 organizations and companies.¹²⁵ The actor that has most advanced the principles and the practice of CSR in Paraguay has been the Association of Christian Entrepreneurs of Paraguay (ADEC),¹²⁶ which organizes a yearly congress on the topic.

With the goal of strengthening their actions in the area of corporate responsibility, some companies have associated with NGOs or created their own foundations. Table 5 identifies some of these alliances.

Table 5: NGOs associated with soy companies in Paraguay

Company	NGO
<i>Agroñacunday (belongs to the Brazilian group Terra Viva)</i>	Guyra Paraguay (linked to WWF)
<i>Desarrollo Agrícola del Paraguay (Agricultural Development of Paraguay)</i>	Moisés Bertoni Institute of Environmental Law and Economics (IDEA) FUNDECA
<i>Grupo Espíritu Santo</i>	Moisés Bertoni Foundation
<i>Agrorama (Brazilian)</i>	AMAR Foundation

Source: Luis Rojas (2009) Agribusiness actors in Paraguay

Due to the limited state presence in most rural areas, companies sometimes satisfy some of the basic needs of the population and are therefore better received. Some are more skeptical. According to a national civil society organization, ‘companies try to show a friendly face, which is why they associate with environmental NGOs and undertake small projects to legitimize the negative consequences of their operations. They sometimes take on the role of the absent state, in a feudal logic that continues to date’.¹²⁷ In other cases, including that of DAP, they carry out productive projects with family farmers using the same model of intensive production applied in corporate farming. Box 2 presents different points of view with respect to these efforts.

Box 2: Differing views on corporate responsibility

‘It is not possible to repair the damage caused by this model of production. The damage done to the environment and the communities cannot be calculated, and forces people to migrate.’

Interview with the Human Rights Coordinator of Paraguay, February 12, 2013.

‘It is just another tactic: on the one hand, it weakens the possibility of resisting the model of production because it engages small-scale producers in the same productive circuit; and on the other hand, if there is a bad weather event, small-scale producers will lose their production and in order to cover their debt, they have to hand over their land.’

Marcial Gómez, National Farmers Federation. Interview February 13, 2013.

‘We are going to continue growing and evolving with this model. We believe that we do things better than the state and most of the private sector. We do not have perfect solutions but we take an approach that enables us to learn and tells us that as businessmen, we cannot thrive as an island of prosperity in an ocean of misery’

Roberto Codas, DAP shareholder. Interview February 22, 2013.

PART II: THE COMPANY

DESARROLLO AGRÍCOLA DEL PARAGUAY: A CASE STUDY

COMPANY PROFILE

Desarrollo Agrícola del Paraguay (DAP) forms part of NF Developers,¹²⁸ a company registered in Bermuda which began operating in Paraguay in 2005 through several subsidiaries. DAP is a consortium of three companies with different business functions: Society for Agrarian Investment of Paraguay, for the purchase or sale of land; Agrarian Frontier of Paraguay, Livestock for the transformation of cattle ranches into intensive plantations;¹²⁹ and Desarrollo Agrícola del Paraguay for the production and export of agricultural commodities (see Figure 3).

Figure 3: Subsidiaries of NF Developers



Source: Information from DAP.

The two main shareholders in DAP are the investment fund Mercosur Agro Frontiers Fund, created to acquire cattle ranches in Paraguay to transform into plantations for intensive agriculture, and NFD Agro Limited. There are also several national shareholders in the company, including the public relations entrepreneur Pascual Rubiani, who is also involved with the Association of Christian Entrepreneurs of Paraguay (ADEC). Most of the national shareholders did not have prior experience in the agricultural sector and joined a group of Argentinian businessmen, led by Alejandro Preusche, who is the president of NF Developers and a member of the Christian Association of Business Leaders of Argentina (ACDE). In partnership, this group of local and international investors provided the initial capital to form the company and later involved other international investors, including:¹³⁰

- the investment group, The Rohatyn Group (TRG);
- the US bank, JP Morgan;
- Berkeley International Capital Corporation;
- other individual investors from Latin America and Europe.

The International Finance Corporation (IFC) of the World Bank also financed DAP through two projects: one in 2009 for USD 20 million (USD 15 million in credit and USD 5 million in venture

capital) and another in 2011, USD 8 million in credit. These funds were used to finance the ongoing need for working capital to maintain agricultural operations.¹³¹

Box 3: Why did the World Bank finance the DAP investment?

According to the International Finance Corporation, 'the reconversion of livestock lands to a production system of crop rotation involving soy, corn and sunflower allows for improved grain output per hectare. These are export commodities that help increase the global supply of oil and livestock fodder.'¹³² To this end, as well as to help create jobs, economic growth and the transfer of technology to small-scale producers, IFC provided financial support for DAP operations.

The impact that this company's operations has on national and local food security was apparently not taken into account. Industrial monoculture competes for resources such as land, water, capital and labor. In fact, Paraguay has increased its dependence on food imports, while each year more productive land is used for agro-exports.

The IFC evaluated the social and environmental performance of DAP in 2009, concluding that it had satisfactorily complied with most standards and identifying areas for improvement that were set out in an Environmental and Social Action Plan.¹³³ The Project was classified as category B according to IFC's Policy of Social and Environmental Sustainability, which means that impacts could be mitigated or avoided by using international good practices, IFC's performance standards, and the specific World Bank directives on the environment, security and hygiene at the work place. The IFC presents the DAP case as an 'effective model of implementation of the best practices of sustainable agriculture.'

The implementation of community projects through foundations such as Moisés Bertoni, positively influenced this assessment. But the degree of success or failure of these projects was not evaluated by IFC, since the initiatives went beyond the required standards and were not financed by this institution. Similarly, the existence of a mechanism to address community grievances was evaluated positively, without an assessment of how many times the mechanism had been used or whether it was effective in conflict resolution.

Nearly 80 international banks apply the same performance standards as the IFC. When the World Bank approves financing for a project, to some degree that serves as a seal of guarantee for other potential investors, since the IFC's evaluations are considered to be very thorough. Yet the question can be raised as to what extent that is true for this case, considering the findings presented in the sections that follow.

Source: Based on an interview with Edgar Restrepo head of IFC in Paraguay, February 22, 2013 and documents available on the website <http://www.ifc.org>.

DAP'S BUSINESS MODEL

DAP and its associated companies acquired cattle ranches that the company described as 'deteriorated pasture lands' or 'under-utilized' land, to transform them into agro-industrial fields. The conversion to mechanized plantations significantly increases the value of the land. The other part of the business is the production and marketing of agricultural commodities (principally soy, with corn and sunflower to a lesser degree) for the export market.

With the goal of attracting potential investors, DAP offers a yearly investment return that ranges between 5 and 10 percent and a 10–15 percent appreciation of the land value.¹³⁴ The company's strategy is based on a strong territorial presence. In its early years, it acquired 25,000 hectares and rented another 10,000 hectares in several provinces to cultivate soy, corn

and sunflower.¹³⁵ After selling some farms,¹³⁶ it presently owns 11,350 hectares in the province of San Pedro (see the list of farms in Table 6 and the map in Figure 4) in addition to approximately 7,000 hectares of rented land in other provinces. All of the properties acquired by DAP had previously been used for cattle ranching, since the company has a policy of not purchasing farms smaller than 100 hectares.

Table 6: DAP properties in Paraguay

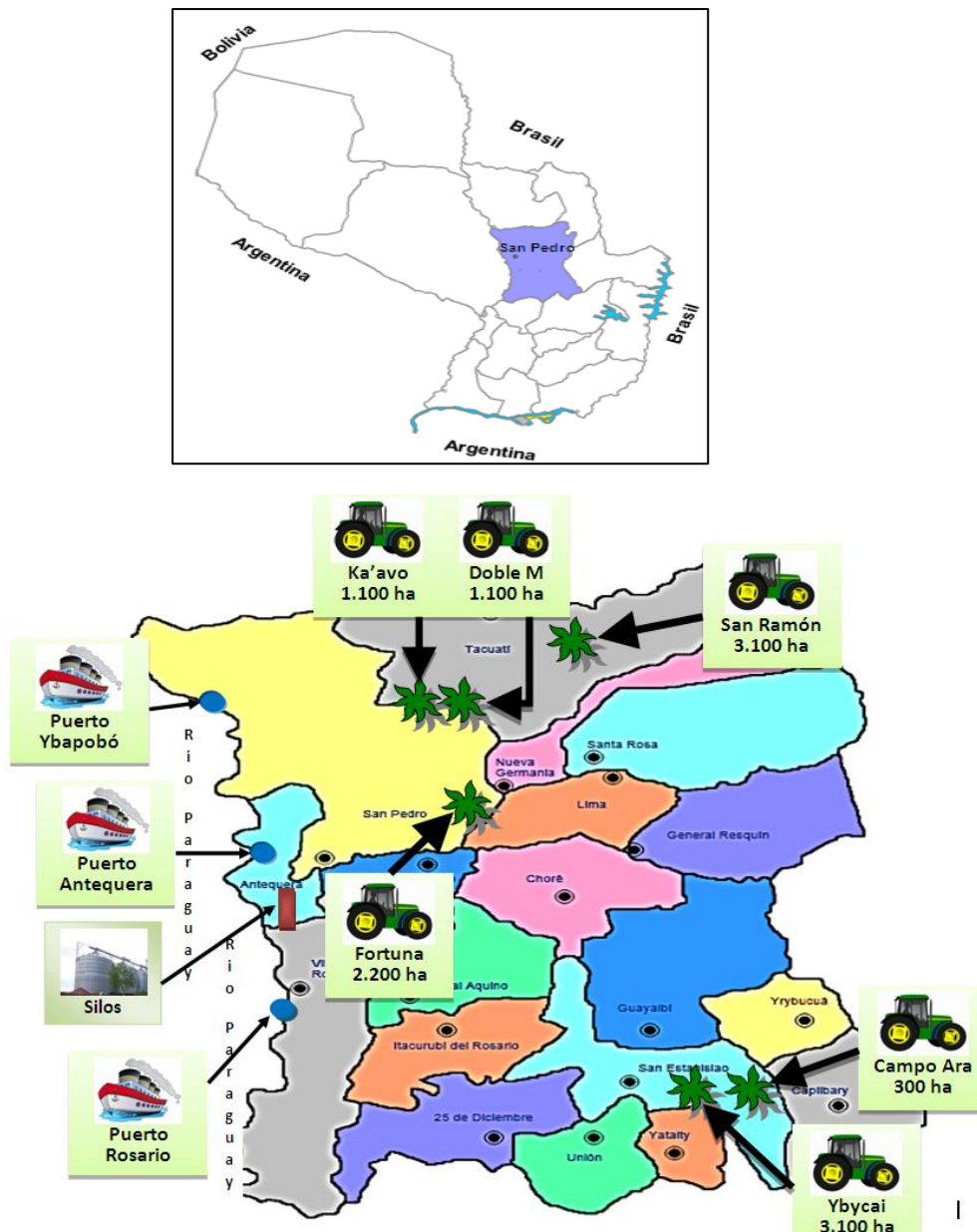
Farm	Department	District	Surface area (ha)	Neighbouring communities
<i>Fortuna</i>	San Pedro	Nueva Germania	2,200	Colonia Barbero, Potrero Naranjo, 12 de junio community
<i>Doble M yKa'avo</i>	San Pedro	Tacuatí	2,200	None
<i>San Ramón</i>	San Pedro	Tacuatí	3,100	None
<i>Yvycai</i>	San Pedro	San Estanislao	3,400	Calle 6000, Calle 12000, Cañada Santa Rosa
<i>Campo Ara</i>	San Pedro	San Estanislao	300	4000 Fondo

Source: Guillermo Terol, DAP Social-Environmental Manager. personal communication.

The department of San Pedro is predominantly rural and, together with Caazapá and Caaguazú, is one in which there has been the most increase in soy production: by 2011 soy occupied 15 percent of San Pedro's land area.¹³⁷ In the process of expanding the agricultural frontier, an estimated 500,000 hectares were deforested in this province alone from 1986 to 2008 (close to 30 percent of the total surface area).¹³⁸ Yet, this is a province with one of the highest rates of extreme poverty in Paraguay, and a high level of land conflict, made worse in the last five years by the expansion of soy production. Soy cultivation has penetrated mainly the districts bordering the provinces of the Paraná River basin (Alto Paraná, Amambay, Canindeyú and Itapuá), initially through the purchase of cattle ranches and later with the displacement of farming and indigenous communities. More than half of the farms lack a legal property title.

Agricultural operations employ the common system of a *planting pool*,¹³⁹ in which all the services needed for planting, fumigation, harvesting, storage and transportation are contracted externally. The principal buyers of the commodity produced are the transnational companies Noble, Cargill, ADM, Bunge and Louis Dreyfus, who then export to China and Europe through Argentina. In the Campo Ará farm, DAP also has 130 hectares of organic soy, which for the last four years has been certified by the Institute for Marketecology (IMO).¹⁴⁰

Figure 4: Map showing DAP properties in the province of San Pedro



Source: Developed by César Molina based on information from DAP.

DAP'S STRATEGY WITH COMMUNITIES: FROM RESISTANCE TO PHILANTHROPY

DAP was one of the first companies operating in Paraguay to adhere to the principles of corporate social responsibility, and the company affirms that it has a triple bottom-line approach that not only measures long-term profitability but also involves respect for the environment and social inclusion in its activities. With the goal of 'maintaining a harmonious coexistence with the local population'¹⁴¹ it promotes 'the development of relationships of trust and support with the communities neighboring its farms.'¹⁴² Thanks to these actions, DAP is one of the few soy companies in Paraguay that has had no land occupations on its farms, according to a report by *High Quest Partners*.¹⁴³

From the start, the Paraguayan shareholders who created DAP tried to differentiate themselves from the Brazilian soy entrepreneurs and avoided conflict with the local population. Their

strategy has consisted of dedicating part of their investment to environmental protection and building a relationship with communities. As the company recognizes,¹⁴⁴ this is good for business. Other investors who came to San Pedro using the model applied by the Brazilians in Alto Paraná (i.e. ignoring the local population) faced such strong resistance that they have been unable to carry out their operations, and neighboring communities have demanded that the government expropriate the soy plantations.¹⁴⁵ The Society for Rural Studies (SER), an organization with broad experience in technical and organizational assistance to small-scale farmer groups and which has carried out community projects with DAP expressed a similar sentiment. 'There was no resistance because we were working with them; in this sense the company was intelligent, in the case of other companies like Teixeira, the farmers do not let them work and will end up taking away their land.'¹⁴⁶

To date, DAP has worked with the following organizations:

- The Moisés Bertoni Foundation, on productive and social projects;
- The Institute for Environmental Law and Economics (IDEA), for assistance on compliance with environmental legislation and developing a proposal on payment for environmental services;
- The Society for Rural Studies (SER), on productive projects.

The company's philanthropic activities have been diverse, depending on the communities and based on demand. DAP has responded to a wide range of requests for medical services, school supplies, materials to repair or construct churches, well pumps, seeds for family gardens, small animals, wires for fences, and so forth. These activities have been carried out particularly in smaller, less organized communities; productive projects have been undertaken in more organized communities. In some places, DAP gave scholarships for agricultural training to the children of family farmers.

The type of relationship has differed significantly between communities. For example, the small farming communities – of fewer than 50 families – close to the Ybycai farm, such as Calle 12,000, Calle 8,000, Calle 10,000 and Cañada Santa Rosa have received considerably less support from DAP. A man from Cañada Santa Rosa explained that 'the Moisés Bertoni Foundation came to give us seeds for gardens and sometimes technical assistance. They didn't give us seeds to grow corn; just for vegetables. They did not prepare the land. Two years ago they brought us chickens and other small animals and gave us some wires to make fences. This was all of the aid we received.'¹⁴⁷ Compared with other soy entrepreneurs, one woman commented that 'they [DAP] do not give any support for the schools or health centers, they are very stingy, while the Mennonites help with the schools and when there are people who are sick; they are better people.'¹⁴⁸

Another form of aiding the community is during the corn harvest, when the company allows community members to come and collect the grain that falls from the harvester. Although the company tries to restrict access to its farms to avoid accidents, it is difficult to do so, and at times even schools request permission for children to go to collect the corn when there is a celebration.¹⁴⁹ A man from Calle 10,000 describes how 'everyone goes to collect the corn that falls when it is harvesting time, and people come from other places carry it away in wagons. Last year, this was the only aid we received from them.'¹⁵⁰

With this kind of dependency the company perpetuates the type of relationship that had been established by the owners of cattle ranches. Due to the absence of state institutions, the local population expects the entrepreneurs who come to the area to contribute to satisfying some of their basic needs, helping to fill the vacuum of investment in rural areas.

DAP has, however, chosen to move beyond an assistance role and launched a program of community production to generate income. The following section analyzes the development and achievements of the productive projects.

PRODUCTIVE PROJECTS: A CHRONICLE OF FAILURE

As part of its social responsibility activity, DAP made a proposal to the communities of Colonia Barbero, 12 de Junio and Agüerito, to engage in projects for productive intensification through organizations with which it established agreements, and occasionally obtained financing from development agencies. A good number of farming families became involved in these projects, hoping to improve their income and reduce manual labor through mechanized agriculture. More than five years later it is possible to see the results on the ground. Although the limitations of this research did not allow a thorough evaluation of the projects, the testimonies gathered were very consistent and thus enable a reconstruction of events, an assessment of the outcomes and drawing of some lessons.

The debt trap in Colonia Barbero

DAP purchased the 2,200 hectare Fortuna farm, in the district of Nueva Germania, San Pedro, from a cattle rancher in 2006. From the start, members of the Colonia Barbero community were opposed to intensive soy cultivation due to the risk it posed to their health, the environment and their way of life as farmers, and they expressed their disagreement with the environmental impact study carried out. They camped out at the entrance to the farm and demonstrated in the provincial capital. However they were unable to stop the investment, as DAP had the support of the local and state governments and had obtained the necessary permits.¹⁵¹

Once the Fortuna farm was in production, in 2008, DAP offered to help the families mechanize production on their land and adopt technical farming practices that would improve their livelihoods. A three-year project was undertaken, funded by the United States Agency for International Development (USAID)¹⁵² and implemented by the Moisés Bertoni Foundation (FMB) growing corn for the most part, as well as beans and sunflowers in some parcels (soy was not recommended). The farmers' role was to provide the land and prepare it for the machinery; DAP would finance the mechanization and provision of seeds and agrochemicals (through contractors) and those costs would be deducted from the value of the harvest.¹⁵³ It was a small-scale version of the plantation model that DAP uses on its own farms, since all of the operations were carried out by third parties.

In the first year twenty families produced corn and, thanks to the good results, most were able to pay back the investment. Then more than a hundred families joined the project, attracted by the success of their neighbors, and formed the Association of Direct Planting Producers to make use of a rotating fund that would allow more families to join the system. In 2009, they were able to put 200 hectares of corn into production. However, unfavorable weather conditions and problems with crop management ruined the 2010 crop. That year most of the families were unable to pay back the loans to the rotating fund, which was left with a debt of 200 million guaraníes (approximately USD 50,000).¹⁵⁴

According to those interviewed, one of the major problems that occurred in 2010 was the delay in planting and harvesting. That year, DAP did not help to obtain the machinery as it had the first year, and since these were small parcels of land, the contractors with the machinery were less responsive and gave priority to the large farms. Another issue was that many producers had no control over the prices assigned to their crop, or even the volume produced, since the Moisés Bertoni Foundation managed everything and at the end simply handed farmers the bills. In the words of a farmer from Colonia Barbero: 'you would give your land and they managed everything, the machines and everything else. Then you would ask them if you had made any money and they would say no.'¹⁵⁵

When the rotating fund collapsed, DAP helped farmers to obtain credit from Visión Banco¹⁵⁶ at an interest rate of 16 percent (below the market rate). Instead of approaching state financial institutions such as the National Development Bank, they opted for this private bank, which was

interested in improving its social rating since it was being accused of not working with the low-income population.¹⁵⁷ Thus, 120 families received credits from Visión Banco of up to 12 million guaraníes (USD 3,000). They also acquired credits from other financial institutions such as Banco Atlas and Financiera El Comercio, among others. Many of the families were unable to pay back what they borrowed and are now on Inforcom's nationwide list of defaulting debtors.¹⁵⁸

According to the testimonies obtained from Colonia Barbero, of the approximately 120 families who participated in the project, about 45 are still in debt. Many of them think that renting their land would have been a much better option. The families interviewed have abandoned mechanized agricultural production, as they cannot afford it. Some have returned to traditional forms of production and are trying to recover from the debt they incurred.

The testimonies in Box 4 show the situation faced today by farmers who participated in the projects promoted by DAP and the Moisés Bertoni Foundation in Colonia Barbero.

Box 4: When the fruits of labor are debts

'We planted four hectares but they [the Moisés Bertoni Foundation] took away all of our harvest. They showed the papers and there was no profit. We cleared all the land by hand on our four hectares. They came and planted and it cost us 7.5 million guaraníes [almost USD 2,000], then they took away the corn and charged us for everything they did. We broke even, we didn't have any profit. In the parts where they used machinery, the land is now too hard and we can't work it anymore. Maybe it would have made more sense if we had rented those four hectares instead of working with them in partnership.'

Farming family from Colonia Barbero who participated in a focus group on February 15, 2013.

'We cleared 10 hectares of land without help. We used to have grass, corn, tapioca, sugar cane, we had everything on that land, ... We spent a lot of money and we had to sell the cow. Afterwards they told us that the corn hadn't resulted as they had hoped. The seeds, the planting, fumigation and the harvest all cost money. We couldn't pay it all with the grain, which they bought at 200 guaraníes per kilo. Then they told us they were going to plant sunflowers and with that we could compensate and something would be left over for us. But the sunflowers didn't come through, so then they proposed beans. The cold almost destroyed the first bean harvest and they took away the second harvest. They didn't pay us anything because it didn't cover the cost of production. We wound up owing 5 million [guaraníes]. We didn't realize, we were ignorant of it because they took over our farming plot. After the beans they planted corn again. And we continued this rotation for three years. Somebody told us that we needed to get out because that process was going to continue and we were going to wind up on the Inforcom list. Now we are six million in debt with the Banco Visión [about USD 1,500]. Others owe 10 to 12 million or had their lands embargoed. They haven't embargoed our lands because we pay the interest.'

'Those were three years of suffering. They photographed us for a report, when the corn was at its best moment, when it was greenest. They took the picture and brought it to the United States in their report and that is how credit would come. They said things were going well and that they helped people...'

'Now I prohibited them from taking more pictures of us to get international credit that doesn't reach us. We don't receive that money; the company kept it and made us get credit from Visión Banco. Everyone who got credit from Visión Banco is now listed in Inforcom.'

Farming Family from Colonia Barbero, participant in a focus group on February 15, 2013.

Indebtedness and the lack of risk protection meant that many families lost their productive assets and were further impoverished. In Box 5, one of the members of the Association of Direct Planting Producers of Colonia Barbero describes this situation.

Box 5: Frustrated hopes

'I had heard about soy, it was grown all over Paraguay, and I thought, why not here? Many people were against it but I wasn't afraid. I have 13 hectares and I mechanized eight and a half of them. Before using machines I used to cultivate four hectares of organic lemon verbena trees with the cooperative. I had a lot of work and employed others. Although it wasn't very profitable, one could live well and even help feed the neighbors because I used to hire up to 12 people. I also brought the lemon verbena to the houses to get it clean with my ox and cart. Those times were good, I was better then. I had two pairs of oxen, a cart and a plow, 13 cows and one bull... but I had to sell it all. That was before I started working with DAP.

'In my case, I can't plant anything anymore because I am out of money. We owe everything. We lost the rotary fund and in order to plant on our own we solicited credit from Visión Banco in 2010. I am on the Inforcom list because I was the guarantor for another person. I have a debt of 2.7 million guaranties [about USD 675]. Everyone who entered in that group owes money, and in 12 de Junio [a nearby community referred to later] they also owe and are refinancing, refinancing and refinancing.

'They told us that everyone was going to live well and that didn't happen. We are going from bad to worse. The aid [from DAP] was only at the beginning.

'Now I am thinking of renting my farm to the manager of Vision Banco because I don't have the money to finance my crops. But he wants a lot of land so I am thinking of joining with a neighbor to rent him 12 hectares and I will try to get a job with one of DAP's contractors.'

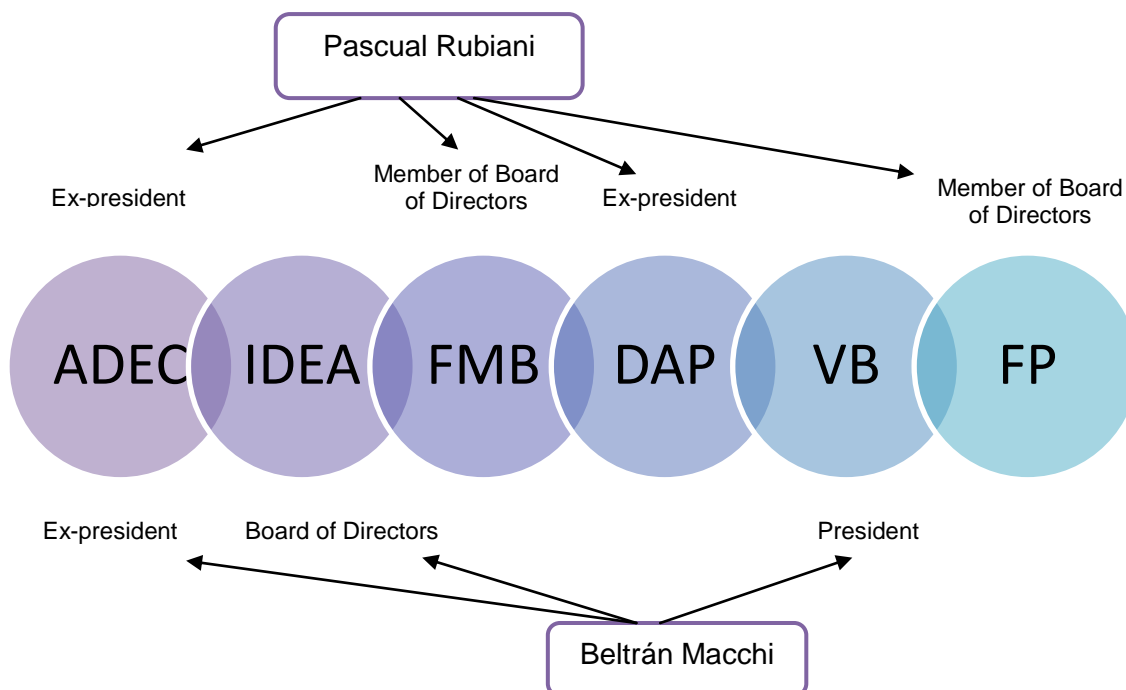
Member of the Association of Direct Planting Producers, interviewed on February 15, 2013.

These types of projects were not launched in every community. In some, such as San Pedro Poty, the people refused. One of the community members explained: 'I said to an engineer that they couldn't force us to go into debt and I also told him that our land is too small for mechanized agriculture, and soy doesn't work on a small scale; and since then, they never came back to my house'.¹⁵⁹

The fact that a private financial institution like Visión Banco was involved instead of a public entity meant the imposition of credit conditions that were less favorable for family farmers. Even though the interest rates were similar or lower, the state programs that are designed for the small-farming sector, such as Crédito Agrícola de Habilitación¹⁶⁰ among others, offer the possibility to renegotiate the debt, and even condone it at times. Private banks are inflexible in the case of non-payment of debt and the consequences for small-scale producers can be devastating, as seen in the Colonia Barbero and 12 de Junio communities. In addition, state credit programs tend to include other services that help to ensure the viability of the investment and its repayment, such as technical assistance, provision of inputs and support with industrialization or marketing.

It is interesting to observe the relationships that exist between DAP and the other institutions that participated in managing the projects and funding small-scale producers (see Figure 5). Pascual Rubiani, former president of DAP and part of the Association of Christian Entrepreneurs (ADEC) is also a member of the board of directors of the Moisés Bertoni Foundation (FMB) and of the Paraguayan Foundation (FP), which also issues credit. Beltrán Macchi, president of Visión Banco (VB), was also president of ADEC and is a member of the board of directors of IDEA, another of the organizations that worked with DAP.

Figure 5: Relations among the leaders of DAP and Visión Banco



Source: Produced by Quintín Riquelme from information available on the Internet.

The 12 de Junio community: when the neighbors cultivate soy, problems grow

Some small-scale producers in the 12 de Junio community were very interested in growing soy and sought the assistance of DAP and the Moises Bertoni Foundation to mechanize and develop their production. In this case, USAID also financed part of the project, and in 2010 a committee was formed by 50 of the 120 families, who each had five hectares on average. The work was undertaken in a similar way to that in Colonia Barbero. DAP put up the money for corn and organic soy through a rotating fund. Later the committee had to request credit from Visión Banco and they now owe that bank 70 million guaraníes (about USD 17,500).¹⁶¹

Soy cultivation led to disputes with the rest of the community, who complained about the use of pesticides. The soy production is theoretically organic, and the producers' committee is certified by the Institute for Marketecology (IMO), the company that certified the DAP plantation in Campo Ará. Yet one of the committee members showed the research team two products they use that are not permitted in organic agriculture: a systemic gramicidin and a chemical foliar fertilizer.¹⁶²

Although the majority of the community opposed soy cultivation due to the intense application of agrochemicals, Box 6 reflects the opinion of a small-scale soy producer from the 12 de Junio community who downplays the health risks.

Box 6: Copying what others do

'Now my family has 23 hectares of soy [conventional, not organic] and we are scared of the drought. I planted too late, because it took me too long to prepare the land. Some of my children have land and others don't; I need more land. Having land is what counts now. If someone offered me 20 million guaraníes to sell my land I wouldn't sell it. On the contrary, I want to buy more. I want to buy land from my fellow farmers who don't want to work their land.'

'A Mennonite comes here with the machinery and leaves with 100 million [guaraníes] from here; he gets paid for planting, fumigating, harvesting, transportation and the poison [agrochemical]. That is why I want a tractor, so that the money can stay here.

'Now people are afraid of the poison and I don't know why. I copy what the Mennonites do. They have their houses, their farmlands and their animals here. They use poison on their crops, their animals eat there and nothing happens to them. This poison is only for the worms and the 'yuyo' [weeds]. I have lived here for 30 years and it never affected me. When we used to work in cotton we fumigated and it didn't harm anyone.'

Small producer of soy from the 12 de Junio community. Interview on February 16, 2013.

Failed yields and a divided community: the case of Agüerito

There are 180 families who live in Agüerito on 3,000 hectares granted to them by the state in 1992 after two years of land occupations, evictions and hunger strikes. Their level of organization is much higher than in other communities and is focused on the struggle for land. In fact, some of its leaders participated in forming the National League of Carperos [tented communities].¹⁶³ The Agüerito community has been pressing for the expropriation of the nearby Teixeira farm, which has 22,000 hectares owned by a Brazilian. DAP's farm La Esperanza is more than 25 kilometers away, and is closer to other communities such as Karapa'í and Piray. Even so, the company was interested in maintaining a good relationship with Agüerito.

In 2008, the Society for Rural Studies (SER) was hired by DAP to develop a project with social and productive aims together with community members from Agüerito. At first they invested in educational and health activities, a community radio and internet for the school. In 2009 DAP, the Farmer's Association of Agüerito and SER signed a three-year agreement to form a company to jointly manage a community parcel of about 200 hectares, of which 130 were used for mechanized production of non-transgenic soy and corn. They also helped families to develop production of organic corn, sesame and chía seed, which would be marketed through the company Ecotrading Yba Py.¹⁶⁴ There were 140 families participating in this project, which involved both collective and individual production. As with the previous cases, the families provided the land, SER provided technical and organizational assistance and DAP put up the money (to prepare the land, purchase seeds, pesticides, etc.), which was later deducted from the value of the harvest.

After two years, the jointly formed company had a negative balance of USD 95,000, which to date has been underwritten by DAP.¹⁶⁵ Due to the economic set-back and to leadership problems, there was an internal conflict and SER stopped working with the community in 2011, thus cancelling the agreement with Ecotrading for marketing. There are two versions of what happened. Those who blame the leaders of the Farmers Association from Agüerito for bad management of the project went on to create the Council for Community Development and took over the soy production on the collective land. Meanwhile, the Farmers' Association of Agüerito blames the losses on the bad harvests. Neither group blames SER or DAP for their failure.¹⁶⁶

Some families with ties to the Council for Community Development have now independently begun to produce conventional soy on the collective land that had been mechanized with the project. With the benefits they obtain they hope to settle the debt with DAP, although the company has not taken any legal action to demand repayment.

A COSTLY LESSON

After working with these communities for five years, DAP has taken a year-long pause in which it has not implemented further community projects and has been committed to 'studying the lessons' from these experiences.¹⁶⁷ This lesson has come at a high cost, the brunt of which has fallen mainly on the small-farm families involved in the projects. Many of them, after investing their own resources and years of work, are now in debt to financial institutions or to DAP.

The way in which DAP worked with the communities reproduced the production practices applied in its plantations: intensive use of agricultural inputs (fertilizers, herbicides and pesticides) and the external contracting of services to mechanize the entire process. This is a method that is highly dependent on capital. Without the capital, families had to go into debt, first with the company and then with private financial institutions. Unlike DAP, small-farm families lack long-term financing (which DAP has thanks to IFC credit) and agricultural insurance, and are therefore fully exposed to the risk of losing their crops due to drought and other weather extremes. The limited size of family farms and thus their reduced volume of production makes marketing more difficult and presents challenges to ensuring planting processes are on schedule, as they are more vulnerable to the whims of the contractors on whose services they depend for planting, harvesting and applying pesticides, and who give priority to larger farms.

Despite the fact that DAP, together with FMB and SER as intermediaries, promoted the mechanization and a more technically advanced model of agriculture, today they recognize 'it is not a panacea, and the agribusiness model doesn't work for smallholders.'¹⁶⁸ The main problem is that the projects were designed in such a way that practically all the investment risk was assumed by the family farmers. Yet one of the characteristics of family farmers is precisely their difficulty in taking on risk. It is now clear that the transfer of the model failed. It did bring some short-term results, as long as the technical assistance was maintained (or rather, as long as the production operations were run by the foundation), all operations were guaranteed to be done on time, and the weather conditions were favorable. But after one year of bad harvests, and once DAP withdrew its support, the families entered a spiral of debt with no way out.

After examining earlier experiences, DAP has come to the conclusion that the best possible alternative for the family farmers is organic farming, primarily because it involves reduced risk for farmers since it is not as dependent on external inputs and thus does not require going into debt to produce. Simply to cover production costs of conventional soy requires a minimum productivity of 1,000 kilograms per hectare. In order to promote a model of organic production, DAP would be willing to invest in certification processes and collaborate with producers in their search for new markets.¹⁶⁹

This model of production would in principle seem more appropriate for small-scale producers. However, many questions arise with this change of direction. If farmers' vulnerability to a changing climate, obstacles to market access or lack of stable and long-term financing are not addressed, is it possible for them to achieve economic sustainability with this change in model of production, particularly when many of the families are already in debt? Is it viable to produce organic crops in the vicinity of genetically modified soy plantations, and on land where production had been mechanized and agro-chemicals have been intensively applied? And, above all, who will assume the risk this time?

THE IMPACTS OF DAP'S OPERATIONS

Harm to the environment and to health

Living close to a plantation of intensive soy, corn and sunflower crops means permanent exposure to the use of pesticides and herbicides, because production never ceases. In all of the communities near the plantations, the families expressed their distress and helplessness with regard to very similar health problems. The continuous presence of 'poison' is described by a woman who lives near the Ybicai plantation: 'You should come before dawn. Before dawn you can smell it in the wind. It really smells. Those tractors work day and night when the weather is good.'¹⁷⁰

The illnesses most frequently reported are respiratory illness, skin conditions, headaches and stomachache. It is especially risky for pregnant women and for children. Another person explained how 'a year ago, a pregnant woman walked down the road when they were fumigating. She got home feeling ill and lost her baby. She was returning home from her prenatal appointment just when they were fumigating, and she lost the baby when she got home.'¹⁷¹

The district hospital in San Estanislao and the head of the health center closest to Colonia Barbero confirmed the increase of respiratory illnesses, allergies and asthma in recent years. They have noticed that doctor visits for respiratory illnesses dramatically increase just after the corn harvest, possibly due to the dust and because many people go to collect the grain left by the harvesting machines. The trucks that circulate frequently during harvest (in the dry season) provoke clouds of dust that particularly affect the houses that are close to the roads.¹⁷² There are cases of patients aged 40 or 50 who have developed asthma for the first time, when that condition used to affect only young people. People who are malnourished and exposed to crop spraying are more vulnerable as they have less resistance. Although it is harder to establish a causal relation between cancer and exposure to pesticides (the residence of the patient is not necessarily registered),¹⁷³ those interviewed mentioned more frequent cases of leukemia, liver and skin cancer.

The person in charge of the health post summed up the situation in the following way: 'As long as there is fumigation so close to people's homes, there will be problems without a doubt. The amount of poison that is spilled every day is dramatic.'¹⁷⁴

One of the places in which the health risk is felt more seriously due to its proximity to soy plantations is Cañada Santa Rosa. The community consists of barely 40 houses lined up on a narrow stretch that on one side borders a cattle ranch (for the time being) and on the other Ybycai, a DAP-owned property of 5,000 hectares. Box 7 explains what it means for one of the affected families to live next to a soy plantation.

Box 7: What it means to live next to a soy plantation

'Fumigation is what really affects people here. They don't tell us when they are going to fumigate; whether the wind is blowing towards us or away from us, they still fumigate. There are no trees as a protective barrier, just 70 meters of pasture here in front. When it is windy, we are really affected. They fumigate a lot when they are planting soy. When they plant corn and sunflower they fumigate much less. But they fumigate the soybeans several times, and two weeks before harvest they use a desiccating agent. I complained about it once and people from SENA came. Since then, it was agreed that they can only fumigate more than 150 meters from the houses. They used to plant close to the fence, but since I complained three years ago because my 'moringa' [medicinal bush] had dried up, they left that pasture land in front. After that they were a little more careful and would take the winds

into account when fumigating. But then six months ago they returned to fumigating regardless of the direction of the winds. When that happens we all hide from the smell.

Before we had that pasture as a barrier, we even shot at them with rifles because they didn't respect anything. The pregnant women would get sick and we would go chase them away with rifles. The contamination really saddens me. All of the streams that pass by here are contaminated. I went into the forest to look for honey and I saw the stream and noticed that on top of the water there was a greasy-like substance. People bathe there. After the rains, the water turns completely dark, and after fifteen days it gets lighter again so people can bathe there. Right after it rains we can't go in the water because that is when people get skin-rashes. They leave a small buffer zone of trees to protect the streams but once it rains no tree can contain the spread of the poison that gets swept along with the water because it's all barren up there.

Family from Cañada Santa Rosa, interviewed on February 18, 2013.

In addition to those who live near the plantations, the agricultural workers are also very exposed to pesticides since they do not have adequate protection, according to the information gathered in communities such as 4,000 Fondo, which borders the Ybycai farm. One of the temporary laborers told how 'when we were working in the fields to eliminate weeds, they fumigated just 100 meters from us and one of the workers got sick and they took him away sick with a stomachache. It made our heads hurt a little but we didn't pay attention and continued working.'¹⁷⁵

The wildlife is also poisoned by the massive use of pesticides. Another neighbor of the Ybycai plantation commented: 'Here, the environment has been ruined. There used to be lots of doves and now you don't see them anymore. No armadillos either. There used to be pretty streams in this area and now all of the streams are contaminated. Last year there were a lot of dead fish in the river and we had to prohibit the kids from going there. We rely a lot on the environment, and now it is all lost.'¹⁷⁶

Although there are regulations that establish protective measures for the use of agrochemicals to protect both the people and the communities neighboring the plantations, this is insufficient to ensure the right to live in a healthy environment according to analysts consulted.¹⁷⁷ DAP does more to respect the environmental legislation than other companies in the sector. With the goal of preventing contamination due to the application of agrochemicals, the company arranges for water samples to be taken for analysis twice a year by the National Institute of Technology and Normalization.¹⁷⁸ DAP has also established protective barriers along the borders of population centers. However, inadequate protection was observed on the road that separates the Ybycai plantation from the communities Calle 12,000 and Calle 10,000, and for Cañada Santa Rosa, the protection is just pasture. Yet since DAP works through contractors, it is practically impossible for the company to ensure that good practices are used in the application of pesticides, such as when there are strong winds that blow pesticides towards people's homes.

Impacts on livelihoods

Family farmers cultivate the food they eat – corn, beans and tapioca – and other crops that they sell such as sesame and cotton. Many of these farmers indicated that the excessive use of herbicides caused damage to their crops and animals, and referred to the frequent loss of fruit trees and tapioca and bean crops, as well as a high death rate among their hens. They also indicated that when the plantations are fumigated, the pests move to their plots, leading to a significant presence of bugs and beetles on their fields.

Box 8: Testimonies on damage to the production of small-scale farmers

'I tried to raise 150 chicks and only 30 survived, despite the fact that I bought their food, their medicine... And that is happening all over this area. The same thing happened with my daughter-in-law, my neighbor... I later tried to raise another 80 chicks and none of them survived. They all died. My neighbors complain that their hens are dying. We think it was because of the poison, because they used to survive, they were fine before the soy.'

Woman from Calle 12,000, interviewed on February 18, 2013.

'They have the capacity to fumigate their own farms so the insects all come over here. We used to fumigate the beans just once, and now we do it three times, but all the same the insects ate everything because there are so many of them.'

Man from San Pedro Poty community, interviewed on February 16, 2013.

'Now it affects the production less because we put our crops behind the house. Before, when the crops were in front of the house, it was worse. Our crops used to be closer to the soy and the 'kill-all' [glyphosate] affected everything. Now it just stays in front of the houses. Where I live, in Calle 8,000, they just left a border of 'Camerún' [a type of grass] and that doesn't stop anything. When they use the 'kill-all' it dries up everything that exists there, that is why we put our crops way in the back.'

Man from Cañada Santa Rosa, interviewed on February 19, 2013.

Grievances are rarely initiated about this type of damages, since people do not believe they will get any response from public institutions. In the words of one of the people affected by a DAP farm, 'We do not protest because protesting is in vain. Filing a grievance with the public prosecutor's office is done in vain. People do not file grievances anywhere. You can just hear people complaining among community members but no one files formal grievances. We just put up with it in our homes.'¹⁷⁹

In addition, genetic contamination represents a threat to the sovereignty of native germplasm. With a large genetically modified soy plantation nearby, it is very difficult to produce one's own seeds.

Impacts on employment

Due to the extent of mechanization, soy production generates few jobs. One worker is considered sufficient for each 200 hectares of crop.¹⁸⁰ The most labor is needed when converting a cattle ranch to a plantation. DAP initially hired day laborers to clear the land and paid them 35,000 guaraníes (less than USD 9) per day.¹⁸¹ After that, they barely needed workers. Manual labor is used for eliminating weeds (called 'carpida'), which become increasingly resistant to herbicides.

In the communities visited that border DAP's plantations, a small number of people usually work as contractors and hire labor for the weeding work for DAP and for other entrepreneurs who produce soy. Increasing numbers of people decide to look for work outside their own farms, as temporary workers on plantations or nearby cattle ranches. All of the people interviewed agreed in saying that the cattle ranches provide more jobs than the soy plantations, since they hire day-laborers to take care of the pastures and other activities involving the cattle.

Box 9: Testimonies on DAP's impact on job creation

'DAP only offers work for eliminating weeds. They pay from 350,000 [less than USD 90] to 450,000 guaraníes [about USD 112] per hectare, depending on whether there are a lot of weeds. With a lot of work you can make some money with this. We do it three times a year and we form groups to go and earn that money.'

Man from Calle 10,000, interviewed on February 18, 2013.

'I am a 'monther' [a salaried worker who is paid monthly], and I don't even make the minimum wage. If I just stay on my small farm, the problem is how to sell. The competition sells [corn] in large quantities, and can accept the price of 600 guaraníes [about USD 0.15] per kilo, but that doesn't work for me because I produce small amounts. And no buyer comes out here for a couple of kilos of corn. So we put our corn together in bags and we get on the public bus and we go sell it. We go with the idea of selling at 2,000 guaraníes [USD 0.50] per kilo and we wind up selling it at 1,200 guaraníes [USD 0.30]. We can't return home with our corn, so we wind up selling at any price.'

Man from San Pedro Poty, interviewed on February 16, 2013.

'With the ranchers we had a lot of work clearing the pastures. Then the soy took away our work. Now our families need to go to El Chaco to work with ranchers.'

Woman from San Pedro Poty, interviewed on February 16, 2013.

'We had our children study with the hope they would get work with them. I have two sons who are agricultural technicians. They didn't give us scholarships, we put them through school ourselves with the hope they could work with them but they had to look for jobs elsewhere: one in El Chaco and the other in Asunción.'

Man from San Pedro Poty, interviewed on February 16, 2013.

Mechanisms for resolving grievances

DAP's policy of handling grievances from communities has relied on the staff from the Moisés Bertoni Foundation, who have sought to resolve grievances by directly working with those affected to avoid formal grievance procedures, much less judicial mechanisms. In the case of a formal grievance against the use of pesticides, SENAVE is the authority that intervenes to verify whether damage has occurred. To date, there has only been one such case, in Calle 10,000, where a family complained that glyphosate had caused damage to their sesame and moringa plantations. On that occasion, DAP agreed to a settlement for economic reparation through SENAVE to compensate the losses, even before analyses were done to show the damage was due to glyphosate. This is the only case to date that has been resolved through official channels. DAP denies having received any specific grievance about health problems, although they had received some complaints about the strong odor from the fumigation, but no formal grievance has been filed. The company acknowledges the need to improve the handling of grievances, providing more official channels and mechanisms to help to formalize and address them adequately.¹⁸²

CONCLUSIONS

The advance of soy and other monoculture production for export in Paraguay represents a threat to small-scale family and indigenous farmers because it competes for scarce resources and causes serious harm to the environment and the health of those living near the plantations. International investment funds are investing more in the purchase and exploitation of large areas of land, while a small number of multinational companies dominate the supply of seeds and inputs, marketing, and increasingly more of the remaining links on the value chain.

In this context the company Desarrollo Agrícola del Paraguay (DAP) has distinguished itself from the rest of the soy sector by adopting a policy of social and environmental responsibility, working to ensure practices that show greater respect for the areas surrounding its plantations. It is probably one of the few soy companies operating in Paraguay that take into account the impact of their activity on neighboring communities and the environment, as well as their contribution to local development. DAP has demonstrated greater respect for environmental regulations, it does not acquire land from small-scale farmers, and it has established channels of dialogue and collaboration with neighboring communities.

However, the company maintains a highly mechanized production model that uses genetically modified soy seeds designed to resist the massive use of herbicides and relies on the intensive use of all types of agrochemicals. This system of production has inevitable impacts on the environment, the health and the livelihoods of the communities that live alongside the plantations and are permanently exposed to the application of these products. The testimonies gathered agree that it is nearly impossible to coexist with intensive soy cultivation, due to the harmful health effects and the loss of the crops and animals on which they depend for their subsistence.

The severity of these impacts indicate that corporate social responsibility and voluntary schemes (such as the Roundtable on Responsible Soy, to which DAP is in the process of affiliation), are insufficient to guarantee the effective protection of the health and rights of local communities. Even in the case of DAP, a company committed to supporting community development and addressing the impact of its operations, flaws in implementing its policy of corporate responsibility have caused more problems than benefits. Therefore, considering the limitations of corporate responsibility to secure respect for human rights and the environment, stricter labor and environmental regulations and more effective enforcement mechanisms are needed.

In order to establish a positive relationship with the communities near their plantations and to avoid conflict, DAP undertook a strategy of social, environmental and productive investment through intermediary organizations such as the Moisés Bertoni Foundation, the Society of Rural Studies and IDEA. Some of these were acts of charity, with a very limited impact, while others involved agricultural development initiatives. When analyzing the results after five years, the productive projects that DAP supported in the communities of Colonia Barbero, 12 de Junio and Agüerito, can be considered a failure in terms of improving family incomes. The families who hoped to improve their income through the use of more 'modern' and technical production practices gave up their autonomy and assumed all of the investment risk. As a result, a good number of families fell into a cycle of indebtedness, from which they are still trying to recover, and many of them lost their principle assets. Neither DAP nor the organizations that implemented these projects took adequately into account the local context, particularly the social and productive conditions. As a result, they promoted a model that was not the most suitable, and virtually all the risk from the investment had to be taken on by the small farmer families.

The cases studied illustrate the problems that arise when a particular model of production is transferred without taking into account the context and productive culture of small-scale farmers and, above all, when all of the risk falls upon these farmers. The resulting economic failure should be shared by DAP, since it promoted a model that was not appropriate; something the company has recognized as it now proposes a different type of model based on organic production.

The results of this research call into question whether DAP's business practices should be considered to be responsible and sustainable. The positive actions and efforts undertaken by the company do not compensate for the problems caused by a business model that tends to deepen the concentration of wealth and land, contaminate the surroundings, harm the health of the local population, compete for limited resources, and put at risk the traditional livelihoods of small-scale farmers and indigenous communities. If this has occurred in the case of DAP, it is very likely that the rest of the soy sector has much more damaging impacts, given that most of the companies do not even consider their impact on the context where they operate.

The international development agencies and financial institutions which have supported DAP's activities in Paraguay should assess the outcome and the extent to which it contributed to their own institutional mandates. Similarly, the responsibility of national institutions cannot be ignored, as they promote a model whose risks and efficacy in terms of economic development have not been adequately assessed.

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ACRONYMS

ADEC	Association of Christian Entrepreneurs [Asociación de Empresarios Cristianos]
APP	Acute pesticide poisoning
ARP	Rural Association of Paraguay [Asociación Rural del Paraguay]
CAPECO	Paraguayan Chamber of Grain and Oilseed Exporters and Traders [Cámara Paraguaya de Exportadores de Cereales y Oleaginosas]
CEO	Corporate Europe Observatory
CODEHUPY	Human Rights Coordinator of Paraguay [Coordinadora de Derechos Humanos del Paraguay]
CONAMURI	National Coordinator of Rural and Indigenous Women [Coordinadora Nacional de Mujeres Rurales e Indígenas]
CSR	Corporate social responsibility
DAP	Desarrollo Agrícola del Paraguay [Agricultural Development of Paraguay company]
FMB	Moisés Bertoni Foundation [Fundación Moisés Bertoni]
FNC	National Farmers Federation [Federación Nacional Campesina]
FUNDECA	Farmers Development Foundation [Fundación Desarrollo Campesino]
IBR	Institute for Rural Wellbeing [Instituto de Bienestar Rural]
IDEA	Institute of Environmental Law and Economics [Instituto de Derecho y Economía Ambiental]
IDB	Inter-American Development Bank
IFC	International Finance Corporation
IIRSA	Initiative for the Integration of Regional Infrastructure in South America
IMO	Institute for Marketecology
INDERT	National Institute of Rural and Land Development [Instituto Nacional de Desarrollo Rural y de la Tierra]
IPTA	Paraguayan Institute of Technology for Agriculture and Livestock [Instituto Paraguayo de Tecnología Agropecuaria]
MAG	Ministry of Agriculture and Livestock [Ministerio de Agricultura y Ganadería]
NGO	Non-government organization
RTRS	Roundtable on Responsible Soy
SEAM	Secretary of the Environment [Secretaría del Ambiente]
SENAVE	National Service for Plant and Seed Quality [Servicio Nacional de Calidad y Sanidad Vegetal y de Semillas]
SER	Society for Rural Studies [Sociedad de Estudios Rurales]
TRG	The Rohatyn Group
USAID	United States Agency for International Development
VAT	Value Added Tax
WHO	World Health Organization
WWF	World Wildlife Fund

Currency equivalence: At the time of the study, USD 1 = 4,000 guaraníes, approximately.

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NOTES

- 1 Oxfam, 2012b.
- 2 For more information on the GROW campaign, see <http://www.oxfam.org/en/grow/what-is-grow>.
- 3 De Lap erouse, 2012.
- 4 38 percent of the population lives in rural areas, according to 2011 data from the World Bank database: <http://data.worldbank.org>
- 5 Ram rez, 2010.
- 6 Behind only Singapore and Qatar. Source: World Bank Data Base, <http://data.worldbank.org>
- 7 United Nations Development Program, 2013.
- 8 Information from 2011, according to the database of development indicators of the World Bank, available at: <http://data.worldbank.org/indicator>
- 9 The Permanent Household Survey is based on the poverty line method, established as the level of income that is equal to the cost of a basic food basket, which includes foods with levels of calories and protein that satisfy the minimum nutrition requirements, in addition to other goods and essential services such as housing, clothing and education (in 2011, the average national poverty line was 438,954 guaran es a month, about USD 110). The extreme poverty line only includes the cost of the basic food basket. General Directorate for Statistics, Surveys and Census of Paraguay, 2011.
- 10 Morley and Vos, 2000.
- 11 World Bank, 2010. While there is debate over the minimum amount of land needed to engage in commercial agriculture, depending on the type of crop, quality of soil and working conditions, in the case of soy and other commercial crops with high upfront capital costs, much more than 30 hectares of land is needed.
- 12 According to the Agricultural Statute of Paraguay, the basic family economic unit refers to the amount of land whose efficient use allows a farming family to obtain sufficient income to satisfy their basic needs and maintain their livelihood, establishing 10 hectares as the minimum quantity assigned to the beneficiaries of colonization settlements.
- 13 Fiscal land refers to state-owned property that is to be used for land reform. However, much of this land was given away or sold at negligible prices to individuals who were close to the regime of the Stroessner dictatorship. For more information, see Riquelme 2003.
- 14 This is not a reference to small farmers' cooperatives, but rather to multi-actor cooperatives. UNDP 2010.
- 15 The Gini index expresses inequality in land distribution, where 1 represents maximum inequality and 0 represents maximum equality.
- 16 Ministry of Agriculture and Livestock of Paraguay. 2008 National Census of Agriculture and Livestock.
- 17 According to the 2008 National Census of Agriculture and Livestock, 60 percent of the farms of less than 50 hectares do not have land titles (Mercosur's Specialized Meeting on Family Agriculture defines family farming in Paraguay as up to 50 hectares). The proportion of farms of less than 20 hectares without title is 67.8 percent.
- 18 Interview with Julio Brun, INDERT Planning Manager, February 12, 2013.
- 19 Riquelme, 2003.
- 20 Ibid.
- 21 Commission of Truth and Justice, 2008.
- 22 The National Register of Family Agriculture (RENAF), created in 2007, establishes that family farms are those producers whose main source of income is agriculture, with lands of up to 20 hectares in the Eastern Region and up to 50 hectares in the Western region. See UNDP, 2010.
- 23 Calculation based on information from the 2008 Census on Agriculture and Livestock.
- 24 UNDP, 2010.
- 25 'Derecheras' refer to the possession rights of beneficiaries of the land reform when they do not yet possess a land title. The law prohibits their sale to third parties.
- 26 Interview with Julio Brun, INDERT Planning Manager, February 12, 2013.
- 27 Law 4682 of August 7, 2012.
- 28 Human Rights Coordinator of Paraguay, 2007.
- 29 Information on Lezcano's assassination in 'Aseguran que se est  investigando asesinato de l der campesino', abc Color, March 1, 2013. For further information see CODEHUPY, 2007.
- 30 These acts have not yet been clarified and the de facto government installed after Lugo dismantled the independent investigative commission that was assisted by the Organization of the American States, leaving it in the hands of the National Police and the Paraguayan Office of Prosecution. For further information on these acts see the Human Rights Coordinator of Paraguay, 2012.
- 31 See the section on Transgenics, agro-chemicals and impacts on health.
- 32 According to the 2008 Census of Agriculture and Livestock in Paraguay, properties with less than 50 hectares continue to produce more than 90 percent of the country's food (tapioca, sweet potato, beans, vegetables, pineapple and banana), which is not only consumed by the family farmers themselves but by the national population through domestic markets. Galeano, 2011.

- 33 Riquelme, 2013.
- 34 Guereña, 2011.
- 35 De Ferranti et al, 2005.
- 36 Interview with Marcial Gómez, Assistant Secretary General of the National Farmers' Association, February 13, 2013.
- 37 The draft law to put a 10 percent tax on exports of soy, sunflower, corn and wheat was rejected by the Paraguayan House of Representatives in April 2013 after strong pressure from soy producers' associations. The draft law had been approved by the Senate in December 2012, and will be returned there after its rejection by the House. For more information, see 'Sojeros hacen rechazar impuesto a la exportación e imponen un 'proyecto alternativo', en E'a, 10 April 2013.
- 38 Rodríguez, 2012.
- 39 Itriago, 2012a.
- 40 The European Commission in its report Strategy for Paraguay 2007-2013 recognizes 'the institutional weakness with respect to the environment.'
- 41 Interview with Luis Rojas, local researcher in IS on February 11, 2013.
- 42 Ibid.
- 43 Law 2748/05 to promote biofuels and Regulations of April 27, 2006.
- 44 Itriago, 2012a.
- 45 UNDP, 2010.
- 46 Riquelme, 2013.
- 47 Marcial Gómez, Assistant Secretary General of the National Farmers Federation. Interview on February 13, 2013.
- 48 Alicia Amarilla, Relations Secretary of the National Coordinator of Rural and Indigenous Women. Interview on February 12, 2013.
- 49 The proportion of foreign ownership of properties larger than 1,000 hectares went from 14 percent in 1991 to 24 percent in 2008, according to the census of agriculture and livestock by the Ministry of Agriculture and Livestock.
- 50 Galeano, 2011.
- 51 Glauser, 2009.
- 52 Interview with Julio Brun, INDERT Planning Manager. February 2, 2013.
- 53 According to a newspaper, Uruguayans have already purchased approximately one million hectares, in addition to buyers from the United States and Europe: 'Ganadería guaraní sigue captando más inversiones', digital version of El País, January 14, 2013.
- 54 The districts studied were: Guayaibí, Capibary, Caaguazú, Repatriación, San Juan Nepomuceno, Tavai, Caapucú, San R.G. de Santa Cruz, Minga Porá and Naranjal. Riquelme, 2013.
- 55 Statistics from the FAO in FAOSTAT: <http://faostat3.fao.org/>
- 56 Riquelme, 2013.
- 57 The Dutch Soy Coalition, 2011.
- 58 Ibid.
- 59 The European agreement on zero tariffs for oilseed products excluded soy and other oilseeds from tariffs, different from the treatment of other products such as sugar. Later, the Blair House agreement established a restriction to European oilseed production, limiting subsidized production and establishing a ceiling on the total volume produced, which was well below European consumption. Both agreements influenced prices and increased dependence on the import of vegetable oils and protein, which increasingly come from South America and less so from the United States. For more information see Dutch Soy Coalition, 2011.
- 60 Ministry of Agriculture and Livestock. The 2008 National Census of Agriculture and Livestock.
- 61 Soy is part of the rotating crop system that includes corn and sunflower, and in some cases wheat.
- 62 Based on information from the 2008 Census of Agriculture and Livestock.
- 63 With information from FAOSTAT 2011.
- 64 Statistic from 2011, taken from the database of World Bank development indicators, available at <http://data.worldbank.org/indicator/SL.AGR.EMPL.ZS/>
- 65 Over the last five years, the value of soy exports was an average USD 1,548 million according to UN Comtrade data (<http://comtrade.un.org>). This represents 8.7 percent of the average GDP at that time, which was USD 17,838 million, according to the database of the World Bank Development Indicators (<http://databank.worldbank.org>)
- 66 CAPECO website: <http://www.capeco.org.py/>
- 67 In 2010, the value of soy exports amounted to almost USD 1.5 billion according to information from FAOSTAT. See <http://faostat3.fao.org/home/index.html>
- 68 According to Oxfam calculations, between 2005 and 2009 the public budget for small-scale family farming was USD 118 million on average, with 66.3 percent of that budget allocated. That is equivalent to an average annual spending of USD 74.3 million. See Itriago, 2012b.
- 69 According to estimates by the Paraguayan Association of Soy, Grain and Oilseeds Producers. <http://aps.org.py>
- 70 Interview with the Vice-Minister of Agriculture and Livestock, Nicanor Invernizzi, February 11, 2013.
- 71 Riquelme, 2013.

- 72 Production costs in Paraguay are also lower than in other countries, amounting to just USD 398.7 per hectare compared to USD 597.8 in the United States or USD 464.2 in Brazil. See De Lapérousse, 2012.
- 73 Interview with Luis Rojas, Base IS researcher, February 11, 2013.
- 74 CAPECO's provisional estimate.
- 75 See 'Soy: Confirmed that Paraguay obtained a record harvest of 9.3 million tons.' News from the Paraguayan Federation of Centers and Associations for the Collection and Export of Cereals at <http://www.acopiadores.com/noticias/soja-confirman-que-paraguay-logro-una-cosecha-record-de-93-m-de-toneladas-11043>
- 76 According to information from CAPECO, available at the webpage: <http://www.capeco.org.py/>
- 77 Available at the webpage: <http://www.capeco.org.py/>
- 78 Interview with Edgar Restrepo, Principal Investment Officer of the International Financial Corporation, February 22, 2013.
- 79 Interview with Nicanor Invernizzi, Vice-minister of Agriculture and Livestock, February 11, 2013.
- 80 The 2008 National Census of Agriculture and Livestock.
- 81 An assessment carried out from 2008 and 2009 in the province of Canindeyú revealed that 58 percent of the landowners in the district of Nueva Esperanza are Brazilian, while 83 percent in Katueté and 42 percent in Francisco Caballero Álvarez are Brazilian. Palau et al., 2012.
- 82 Rojas, 2009.
- 83 BASE Investigaciones Sociales, 2007.
- 84 The concept of 'value chain' was developed by Michael Porter in *Competitive Advantage: Creating and Sustaining Superior Performance* (1985), to describe the set of activities carried out by a company to add value for the final client, from research and development to post-sale services.
- 85 Interview with Luis Rojas, researcher from Base IS, on February 11, 2013.
- 86 Palau et al., 2012.
- 87 Interview with Luis Rojas, February 11, 2013.
- 88 For further information, see Oxfam, 2012a.
- 89 Heinemann, 2009.
- 90 Until 2004, the Framework Agreement on the Incorporation of Agricultural Biotechnology had not been signed, which authorized the commercial use of the first genetically modified soybean seeds. See Educación para la Acción Crítica et al, 2010.
- 91 Monsanto receives USD 4.40 for each ton of soy produced in Paraguay based on an agreement signed with agricultural associations in 2004 for the use of RR soybeans, whose patent expires in January 2014. For more information, see 'Productores de soja accionan para cesar millonario pago a Monsanto' in abc Color, February 6, 2013 and 'Monsanto dejará de cobrar regalías por soja RR en Paraguay desde enero del 2014' in Reuters Argentina, March 27, 2013.
- 92 Interview with Víctor Benítez, director of Alter Vida, February 11, 2013.
- 93 Palau et al., 2012.
- 94 See list of pesticides whose prohibition and severe restriction has been requested in the Latin American Observatory of Environmental Conflicts. <http://www.olca.cl/oca/plaquicidas/plaq04.htm>
- 95 Pesticide Action Network, 2009
- 96 See World Health Organization, 2010.
- 97 See, among others, the study carried out by the Pediatrics Department, Mother-Infant Care Center and the Department of Medical Sciences of the University of Asunción, which shows the relationship between exposure to pesticides and frequency of congenital birth defects. Benítez et al., 2009.
- 98 Interview with Alicia Amarilla, National Coordinator of CONAMURI. February 12, 2013. The author was unable to get access to the report on this work, thus the methodology used could not be evaluated.
- 99 The results from two years of research, pending publication by the Medical Department. Interview with Marcial Gómez, Assistant General Secretary of the FNC, February 13, 2013.
- 100 'The children of the soy fields: more than 260 schools sink in an ocean of soybeans', in E'a, December 7, 2010.
- 101 39th sesión of the Committee on Economic, Social and Cultural Rights. Geneva, November 5–23, 2007.
- 102 EdPAC et al, 2010.
- 103 For example, CONAMURI presented 23 complaints in the municipality of Repatriación that were never processed by the municipal intendante to the SEAM. Interview with Alicia Amarilla, National Coordinator of CONAMURI, February 12, 2013.
- 104 Interview with Mariana López, director of environmental management, Secretary of the Environment. February 13, 2013.
- 105 For example, in the province of Guayrá, three farmers were sentenced to three years of prison for opposing soy fumigation. Interview with Marcial Gómez, Assistant General Secretary of the FNC, February 13, 2013.
- 106 Interview with the Human Rights Coordinator of Paraguay, February 12, 2013.
- 107 Palau et al., 2012.
- 108 Interview with Marcial Gómez, Assistant General Secretary of the FNC, February 13, 2013.
- 109 Thundiyil et al, 2007.
- 110 Palau et al., 2012.

- 111 Educación para la Acción Crítica et al., 2010.
- 112 See, as an example, the state's inaction in the case of the indigenous community of Campo Agua'ë, described in Palau et al., 2012.
- 113 Interview with Heriberto Osnaghi, Director General of the Secretary of the Environment. February 13, 2013.
- 114 Interview with Christian Marcos, Director of Agrochemicals. SENAWE. February 13, 2013.
- 115 See, among others, BASE IS, 2007; Doughman, 2011; Palau et al, 2012; Pereira et al., 2012
- 116 Website of RTRS: <http://www.responsiblesoy.org/>
- 117 GM Watch, Friends of the Earth y Corporate Europe Observatory, 2011.
- 118 For a critical analysis of the criteria see GM Watch, Friends of the Earth y Corporate Europe Observatory, 2011.
- 119 Zwart, 2011.
- 120 See, for example, the open letter 'Responsible soy process must be abandoned' signed by GM Watch and other organizations in April 2009; the article 'Responsible soy' nominated for Belgian Greenwash award' of CEO, 28 June 2012, ASEED et al., 2008 or GM Freeze et al. (n.d.).
- 121 WWF, 2010.
- 122 <http://www.responsiblesoy.org/>
- 123 http://ec.europa.eu/energy/renewables/biofuels/sustainability_schemes_en.htm
- 124 See Zwart 2011 among others.
- 125 Atance, 2011.
- 126 ADEC was formed in 1981 and it presently brings together about two hundred businessmen from different sectors. The mission is to promote CSR through training, financing community projects and awarding prizes. Between 2006 and 2009, ADEC implemented the program 'Incorporating Practices of Corporate Social Responsibility in SMEs', financed by the Multilateral Investment Fund of the Inter-American Development Bank. More information at <http://www.adec.org.py/>
- 127 Interview with Luis Rojas, researcher from Base IS, February 11, 2013.
- 128 See website of NF Developers: <http://www.nfdevelopers.com/>
- 129 Agrarian Frontier of Paraguay was later merged with DAP, according to personal communication with Guillermo Terol, Social-Environmental Manager of DAP, on June 6, 2013
- 130 Information on capital investments in the company is taken from the International Finance Corporation project document, available at http://www.ifc.org/ifcext/spiwebsite1.nsf/ProjectDisplay/SPI_DP27644
- 131 Project documents, available at the IFC website: <http://www.ifc.org> and interview with Edgar Restrepo, Principal Investment Officer of the International Financial Corporation, February 22, 2013.
- 132 Interview with Edgar Restrepo, Principal Investment Officer of the International Financial Corporation, February 22, 2013.
- 133 DAP Environmental and Social Action Plan, November 11, 2011. Available at [http://ifcext.ifc.org/ifcext/spiwebsite1.nsf/0/9A9AEF9D74941558852576BA000E2DA2/\\$File/ESAPpercent20Final_per cent20- per cent2019MAY2009.pdf](http://ifcext.ifc.org/ifcext/spiwebsite1.nsf/0/9A9AEF9D74941558852576BA000E2DA2/$File/ESAPpercent20Final_per cent20- per cent2019MAY2009.pdf)
- 134 De Lapérouse, 2012.
- 135 According to information in the Project document from the International Financial Corporation, available at <http://www.ifc.org/ifcext/spiwebsite1.nsf/ProjectDisplay/ESRS31308>
- 136 In the province of Amambay, DAP had production on the farm La Esperanza, with almost 8,000 hectares, but then sold it two years ago. According to some informants, the company is presently trying to purchase 5,000–7,000 hectares in the area of Resquin to grow sugar cane. According to the company, the present objective of DAP, in addition to geographic expansion, is to diversify and achieve a greater vertical integration, developing its own infrastructure for processing and transport, including ports. Interview with Roberto Codas, shareholder, and Guillermo Terol, Social-Environmental Manager of DAP. February 22, 2013.
- 137 Ministry of Agriculture and Livestock, 2011.
- 138 Fogel, 2012.
- 139 A planting pool is a method of association for large-scale production that began with soy production in Argentina. It consists in mega-contracts or groups of contracts with the participation of land owners; contractors who contribute machinery to engage in production; agronomists who direct the process on a technical level; and investors who provide the capital, frequently through a trusteeship. There is no specific legal body for this type of association or legislation that regulates it. For more information see Maiztegui, 2009.
- 140 More information at <http://www.imo.ch>
- 141 Interview with Guillermo Terol, Social-Environmental Manager of DAP, February 22, 2013.
- 142 See DAP website: www.dap.com.py
- 143 De Lapérouse, 2012.
- 144 Interview with Guillermo Terol, Social-Environmental Manager of DAP, February 22, 2013.
- 145 For example, recently approximately one thousand people from Colonia Primavera in the department of San Pedro held a demonstration to demand the expropriation of a 1,000 hectare farm owned by Mauro González, who leads the Rural Association of Paraguay. 'Farmers close Route III to demand the expropriation of a ranch', in abc Color, January 30, 2013.
- 146 Interview with Daniel Campos, director of the Society for Rural Studies (SER) on February 11, 2013.

- 147 Man from Cañada Santa Rosa, interviewed on February 18, 2013.
- 148 Woman from Calle 12,000, interviewed on February 18, 2013.
- 149 Interview with Roberto Codas and Guillermo Terol, DAP. February 22, 2013.
- 150 Man from Calle 10,000, interviewed on February 18, 2013.
- 151 Interviews with families from Colonia Barbero, on February 15, 2013.
- 152 USAID funding was part of the project 'Alliance for a Sustainable San Pedro' and covered the technical assistance from the Moisés Bertoni foundation for the diversification of production and the development of value chains. DAP's financial assistance consisted in providing credit up front to pay for the machines and inputs, which was later deducted from the output obtained. Interview with Rose T. Rakas, USAID representative in Paraguay, on March 12, 2013.
- 153 The commitment to repay was not formalized through a legal document between the producers and the company. According to the latter, the funds were provided as credit and not a donation, and had an educational objective. Interview with Guillermo Terol, Social-Environmental manager of DAP, May 24, 2013.
- 154 Based on interviews with community members from Colonia Barbero. February 15, 2013.
- 155 Farmer from Colonia Barbero, who participated in a focus group on February 15, 2013.
- 156 Visión Banco is the sixth-largest bank in Paraguay and offers credits and services in microfinance and the consumer finance for low- and middle-income groups.
- 157 Interview with Guillermo Terol and Roberto Codas, DAP. February 22, 2013.
- 158 Inforcom is a national registry of debtors, which disqualifies them from being able to receive credit from the banking system.
- 159 Woman interviewed in the San Pedro Poty community. February 16, 2013.
- 160 *Crédito Agrícola de Habilidadación* was created in 1943 as a specialized division of the Agriculture Bank of Paraguay and is now an autonomous entity. It works exclusively with small-scale rural producers with low income and funds small-scale productive investments in the agrarian and industrial sectors. More information at <http://www.cah.gov.py>.
- 161 DAP collaborated by paying the interest on the debt, but the committee requested that DAP take on the entire debt, saying the community will repay it later. According to interview with members of the 12 de Junio community on February 16, 2013.
- 162 An interview with a soy producer from the 12 de Junio community on February 16, 2013.
- 163 The National League of Carperos is a national movement of landless farmers that has led many occupations of large estates. Interview with one of the farm leaders of Agüerito on February 17, 2013.
- 164 Ecotrading Yba Py SA is comprised of foundations like SER and FUNDASOL and NGOs that work in the marketing of sesame, tapioca (in partnership with the Mennonites of CODISA), corn, beans, lemon verbena, kidney beans and soybeans in addition to other medicinal herbs and vegetables (mostly organic, certified or not) in the domestic markets and for export. <http://www.ecotradingyvapy.com/laempresa.html>
- 165 Interview with producers from the 12 de Junio community who ran the project. February 17, 2013.
- 166 Based on interviews with community leaders in Agüerito, February 17, 2013.
- 167 Interview with Guillermo Terol, Social-Environmental Manager of DAP, February 22, 2013.
- 168 Ibid.
- 169 Ibid.
- 170 Woman from Calle 12,000, interviewed on February 18, 2013
- 171 Woman from Cañada Santa Rosa, interviewed on February 19, 2013.
- 172 In Colonia Barbero, they are forming an organization to demand that the company resolve this problem.
- 173 Interview with the coordinator of the District Hospital of San Estanislao, February 19, 2013.
- 174 Health professional interviewed on February 16, 2013.
- 175 Man from the 4000- Fondo community, temporary worker at the Ybycai farm.
- 176 Man from Calle 12.000, interviewed on February 18, 2013
- 177 Interview with CODEHUPY. February 12, 2013.
- 178 Interview with Guillermo Terol, Social-Environmental Manager of DAP, May 24, 2013.
- 179 Man from Calle 12,000, interviewed on February 18, 2013.
- 180 According to the Dutch Soy Coalition, 2011
- 181 Interview with members of the Colonia Barbero community on February 15, 2013.
- 182 Interview with Roberto Codas and Guillermo Terol. DAP. February 22, 2013.

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