

# Working paper

6<sup>th</sup> International  
Conference of the  
BRICS Initiative for  
Critical Agrarian  
Studies



BRICS Initiative for  
Critical Agrarian Studies

## **Agribusiness and socio-environmental destruction in Paraguay.**

**Ramón Fogel**

October 2018



## **Agribusiness and socio-environmental destruction in Paraguay.**

by Ramón Fogel

*Published by:* BRICS Initiative for Critical Agrarian Studies (BICAS)

*in collaboration with:*

Universidade de Brasília – UnB  
Brasília, Brazil

*Website:* <http://www.unb.br/>

Universidade Federal do Rio Grande do Sul  
Porto Alegre, Brazil

*Website:* [www.ufrgs.br/](http://www.ufrgs.br/)

Universidade Estadual Paulista – UNESP  
São Paulo, Brazil

*Website:* [www.unesp.br](http://www.unesp.br)

College of Humanities and Development  
Studies  
China Agricultural University, Beijing, China

*E-mail:* [yejz@cau.edu.cn](mailto:yejz@cau.edu.cn)

*Website:* <http://cohdc.cau.edu.cn/>

Institute for Poverty, Land and Agrarian  
Studies (PLAAS)

University of the Western Cape  
Cape Town, South Africa

*E-mail:* [info@plaas.org.za](mailto:info@plaas.org.za)      *Website:*  
[www.plaas.org.za](http://www.plaas.org.za)

International Institute of Social Studies  
The Hague, The Netherlands

*E-mail:* [information@iss.nl](mailto:information@iss.nl)      *Website:*  
[www.iss.nl](http://www.iss.nl)

Future Agricultures Consortium  
Institute of Development Studies, University  
of Sussex, England

*E-mail:* [info@future-agricultures.org](mailto:info@future-agricultures.org)  
*Website:* <http://www.future-agricultures.org/>

The Russian Presidential Academy of  
National Economy and Public Administration  
– RANEPA

Moscow, Russian Federation

*E-mail:* [information@ranepa.ru](mailto:information@ranepa.ru)      *Website:*  
[www.ranepa.ru](http://www.ranepa.ru)

Transnational Institute  
The Netherlands

*E-mail:* [tni@tni.org](mailto:tni@tni.org)      *Website:* [www.tni.org](http://www.tni.org)

Terra de Direitos  
Curitiba, Brazil

*E-mail:*  
[terradedireitos@terradedireitos.org.br](mailto:terradedireitos@terradedireitos.org.br)  
*Website:* [terradedireitos.org.br](http://terradedireitos.org.br)

©Brasília, UnB, November/2018 All rights reserved. No part of this publication may be reproduced or transmitted in any form or by any means without prior permission from the publisher and the author.

## Abstract

Agrarian capitalism of the North associated with the emerging powers in the global South-driven generates land-grabbing, the destruction of the environment and of the peasant economy. In this dynamic that has as a transmission belt to Chinese and Brazilian sectors of agrarian capitalism the social and environmental effects are imbricated; while the Brazilian producers are subordinated to the big biotech corporations of the global north that control the technology, the processing and important part of the markets, the Chinese agrarian capital is associated to the banking linked to the agribusiness, and to some of these big seed producing corporations and agro-toxic. The expansion of agroextractivism, basically soybean, alters the physical environment with deforestation and completes the destruction of pre-existing forms of life with the intensive use of biocides, some used as chemical weapons of war. Paraguay, the most transgenic country in the world is also one of the most contaminated and shows the devastating effects of pollution on human health. In this dynamic coming into the country through mobile borders of Brazil, agribusiness grows at the expense of the peasant sector, linked to the production of food; in the search for alternatives this sector raises the ecologically oriented agriculture, which can become a basic component of a proposal for alternative development. The paper will present good socio-productive practices of peasant agriculture as long as they offer safe food using natural resources in a sustainable way; the socio-environmental and economic advantages of these initiatives are also related to the high added value achieved in a realm of relative autonomy of large biotech corporations. From a methodological point of view, the work responds to an epistemological plurality that values traditional knowledge and learning that social practices leave behind; with a trans-disciplinary approach, the trajectory of agrarian development and its impact will be characterized by the exploitation of available statistical data from the last 5 years, as well as good social and productive practices characterized by secondary data and interviews.

## Keywords

Hegemonic, sustainability, epistemological plurality, neoliberal, sociology of the emerges.

## Acronyms

**ACGR:** Annual Cumulative Growth Rate

**AHS:** Agricultural Health Studies

**CAPECO:** Cámara Paraguaya de Exportadores y Comercializadores de Cereales y Oleaginosas.

**CLOC:** Coordinadora Latinoamericana de Organizaciones Campesinas

**EPA:** Environmental Protection Agency

**GM:** Genetically modified

**GMOs:** Genetically Modified Organisms

**IARC:** International Agency for Research on Cancer

**ID:** Investigación para el desarrollo

**INBIO:** Instituto de Biotecnología Agrícola

**IPTA:** Instituto Paraguayo de Tecnología Agraria

**ISAAA:** The International Service for the Acquisition of Agro-biotech Applications

**MST:** Movimiento Sin Tierra (Without Land Movement)

**MTD:** Maximum Tolerated Dose

**SDGs:** Sustainable Development Goals

**SENACSA:** Servicio Nacional de Salud Animal

**SENAVE:** Servicio Nacional de Sanidad Vegetal

**UNICAFES:** Unión Nacional de Cooperativas Agricultura Familiar

## I. Introduction

Agrarian capitalism expressed as agribusiness of the neo-liberal food order has a very intense development in Paraguay to such an extent to constitute itself as the more transgenic country according to the proportion of its surface used for genetically modified crops (ISAAA, 2018). This turns Paraguay into a laboratory that allows prefiguring the trajectory of other social formations that follow the same route.

The most outstanding expressions of the neo extractivism are the transgenic soybean and associated crops, the beef cattle and in recent years the rice. In all three cases, the direct production phase runs by Brazilian businessmen who grab land, but in the case of GM soybeans, producers are held captive of big biotech corporations that control technology, processing and marketing at global level and have their headquarters in countries of the global North... In the case of the meat industry, every phase of its process is controlled by Brazilian corporations.

The intervention of Chinese corporations has impact on the expansion of agribusiness to the extent that is the biggest importer of soybeans, and to that extent is connected with hundreds of millions of consumers; likewise, the Chinese capital has been associated with some biotechnological corporations operating in Brazil, including the production of inputs. That capital has increased participation in exports of soybeans from Paraguay and in its stock market.

Soybean agribusiness is the one that has the greatest economic, social and environmental impact and to that extent, it samples the limits to the sustainability of the technology of genetic engineering, which is the basic component of neo-liberal food regime. The limits to its reproduction are social and environmental, in addition to the self-destructive potential of the same technology used. This paper examines the effects of neo extractivism, putting focus on GM soy; secondary data are exploited in the characterization of its technology and production of some of its effects.

In the paper are discussed also, alternatives to the prevailing neo-liberal development considering socio-economic practices of associated groups. These practices are selected and they set another course, which can throw back the most negative aspects of the prevailing neo extractive model. This approach

assumes the epistemological pluralism what includes different cultures and knowledge systems, in this search, the sociology of absences that broadens the present with proposals that exist but are not credible is incorporated, and the sociology of emergencies that brings the future closer giving visibility to available and possible experiences (Boaventura de Sousa Santos, 2002; 2012).

In the discussion of anti-hegemonic orientations, it is assumed as an ontological assumption that the real extends to possible options but usually marginalized by the hegemonic order challenged by such practices; from a necessarily against hegemonic perspective it requires incorporating into the analysis the relations among themselves of the protagonists and of these with the global arena. The necessary alliances arise between actors in the global South, but marginalized by the hegemonic order challenged by the practices considered also of the global North.

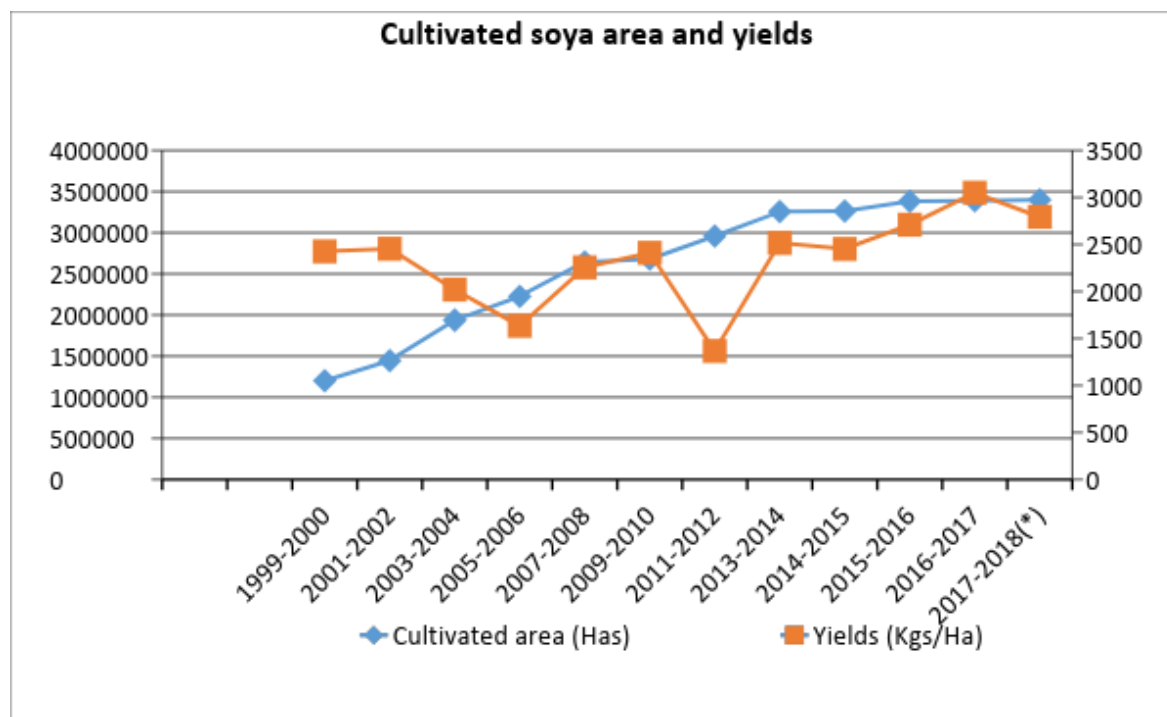
## **I. The expansion of GM soy.**

The expansion of transgenic soya is of such intensity that between 2002 and 2017 it multiplies by 2, 8; Graph No. 1 shows both the growth of the crop and its saturation in recent years, as a result of the use of much of the arable land and now the soybean producers intend to grow half a million of hectares in the arid Chaco soil<sup>1</sup>. Beyond the fanciful scope of the plan indicators show that the enlarged reproduction of the model is no longer possible. On the other hand it can be observed that in the last 10 years the yields of the crop have not increased significantly and that the expansion of the production came hand in hand with a greater concentration of the land that is already the highest in the world (World Bank, 2018).

### **Graphic 1**

---

<sup>1</sup> See Ultima Hora.



**Source:** CAPECO (2018).

We want to demonstrate in this paper that the model cannot be reproduced until the medium term problems inherent to its own technology that destroys natural resources as well as their impact environmental and social; the increased resistance of weeds to herbicides certainly strongly conditions the future production of transgenic soy. Seed modified by genetic engineering combining animal and plant kingdoms genes is resistant to herbicides that supposedly eliminate weeds that can offer competition; after a few years some of these weeds develop the same resistance of the seed and soybean plants, which requires applications of more desiccants per hectare and with more harmful active ingredients.

## II. Increasing use of pesticides, fertilizers and water.

At Table N° 1, it can be observed the increase in only one year and considering the official customs records. According to this source, only in 2017 the import of herbicides reached 32,731,275 net kilos; however these figures are underreported in which smuggling is not contemplated. A notable increase in the import of desiccant occurs with 24-D (17.9%); this is Agent Orange that wreaked havoc in Vietnam and projected to the offspring of veterans (Fogel,

2001). Indeed in 2017 whereas only soybean and corn crops the herbicide application can be estimated in 36.644.582 net kilos<sup>2</sup>.

The import and the application of herbicides (even more harmful than glyphosate), with active ingredients such as Dicamba and Glufosinato increased by more than 500% and 140%, respectively. China manufacture Paraquat increased by a fifth in a year; this implies for the Chinese increased return of Paraquat residue in pork consumed. Beyond harms the multiplication of resistant weeds will end up affecting the profitability of the crop.

**Table N° 1**  
**Herbicides imported 2016-2017 by active ingredient (net kilos)**

<b>Active Ingredient</b>	<b>2016 (*)</b>	<b>2017(**)</b>	<b>Variation (%)</b>
Glifosato	13.136.272	14.967.181	12.23%
2,4D	1.622.366	1.976.276	17.90%
Dicamba	4.310	28.128	552.62%
Glufosinato de Amonio	23.600	57.399	143.22%
Paraquat	7.803.783	9.784.441	20.24%
Otros*	7.206.022	5.917.850	-17.88%
<b>Total</b>	<b>29.796.353</b>	<b>32.731.275</b>	<b>8.96%</b>

(\*)Panilla de importación de agroquímicos. (Agrochemicals Window Import) SENAVE

(\*\*)Ventanilla Única de Importación. (Single Window Import) SENAVE

Toxic residues reaching consumers through the food chain is altering the markets, to such a point that in a few months last year the European Citizens'

---

<sup>2</sup>In the case of soybean, the estimated application is broken down as follows: Presowing: glyphosate 66%, 2.2 liters per hectare. 24D Amine 1.5 liters per hectare, Paraquat 2.5 liters per hectare, the latter repeating the application after 30 days.



Initiative obtained more than 1.3 million signatures from people asking for the glyphosate herbicide to be banned in the EU, and consequently the European Parliament passed a resolution that establishes the total ban of glyphosate in 2022 and already with serious restrictions since the end of last year. This resolution even if it has no binding force, has consequences for the European Commission and the Member States.

In fact, the representatives of the Member States of the EU did not reach an agreement for the five-year renewal of the herbicide license; refused to grant the license Belgium, France, Italy, Greece and Austria while they abstained Germany, Poland, Portugal and Romania. Those who ask for the progressive elimination of the herbicide proposed the EU's support for the development of alternative agriculture (Cerillo, 2017).

Paying attention to the sustainability of certain developments of productive forces, Bernstein (2010) indicates that technology applied to natural resources can maintain their productivity, keep them or degrade them. In the case of Monsanto RR technology, the fertility of the soils is partially maintained with the application of increasing amounts of fertilizer per unit area. Considering the imported quantity of fertilizers (Table No. 2) and its relationship with the cultivated area of soybean, it can be seen that the annual growth of applied fertilizers grows with a much greater intensity than the cultivated area, although the yield remains constant (Graphic No. 2).

**Table Nº 2**

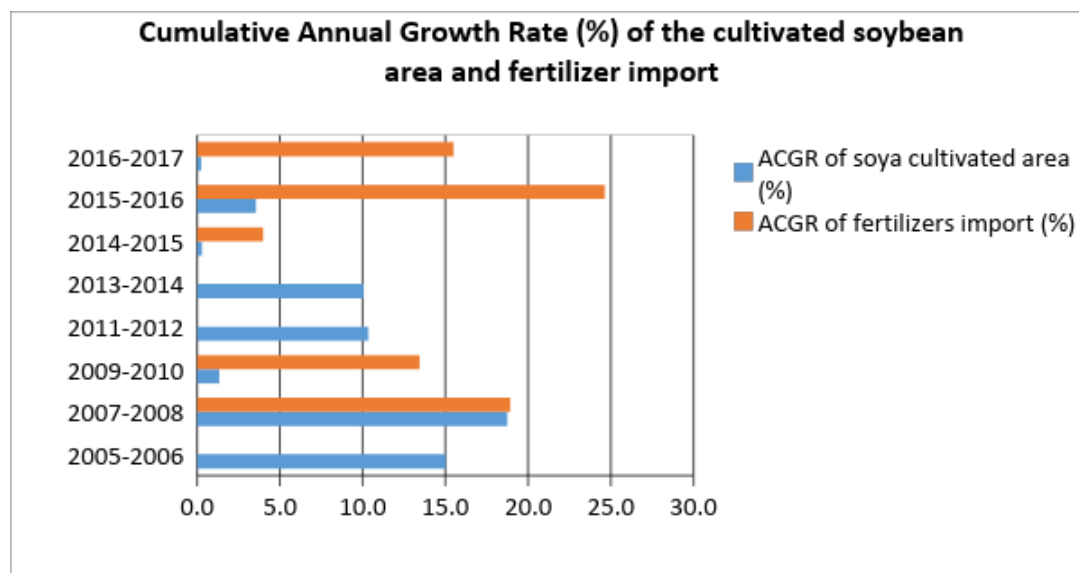
**Annual growth (%) of the cultivated surface of soybean and the import of fertilizers.**

<b>Years</b>	<b>CAGR's acreage of soybeans (%)</b>	<b>CAGR's importation of fertilizer (%)</b>	<b>Yield (Kilos//Ha)</b>
2005-2006	15,0	s/d	1635
2007-2008	18,7	s/d	2.256
2009-2010	1,3	19	2.256

2011-2012	10,3	13	1.367
2013-2014	10,1	s/d	2.516
2014-2015	0,3	4	2.452
2015-2016	3,6	25	2.710
2016-2017	0,24	15	3.050

**Source:** Ventanilla Única de Importación. SENAVE / CAPECO.

## Graphic 2



**Source:** Ventanilla Única de Importación. SENAVE (Single Window Import)

CAPECO (Paraguayan Chamber of Exporters and Marketers of Cereals and Oilseeds).

It can be inferred, on the one hand, that the production costs are increasing in this technology, and on the other hand that when considering nature as a provider of unlimited resources without replenishing the nutrients extracted, it reduces the sustainability of production. In this sense, it is estimated that soy

does not replace on suitable lands or 53% of the extracted nutrients (Federovsky 2014).

Water is another natural resource exploited by the neo extractivist model, and both its use and its management strongly condition the reproduction sustained over time in the system in question. The volumes of water demanded by the current production of transgenic soybeans reaches about 20,000,000 m<sup>3</sup> per year: adding the water consumption of rice and beef the volume of water used annually, only these three areas of agribusiness reach 53,000,000 m<sup>3</sup> per year extracted from the natural environment (SENACSA, 2017; ID, 2017).

This growth in water demand is another limiting factor even more in a context of climate change that alters water availability; this limiting factor for the sustainability of this production will grow as will decreasing groundwater recharge and affect the volume thereof; depending on the territories.

**Table N° 3**

**Cumulative Annual Growth Rate of expansion of soybeans and deforestation by departments and selected periods.**

<b>Departments</b>	<b>2000-2003 CAGR of Soybean surface(%)</b>	<b>1999-2003 CAGR of Deforestation (%)*</b>	<b>2003-2008 CAGR of Soybean surface (%)</b>	<b>2003-2008 CAGR of Deforestation (%)**</b>	<b>2008-2015 CAGR of Soybean surface(%)</b>	<b>2008-2016 CAGR of Deforestation (%)***</b>
<b>Concepción</b>	49,38	1,4	11,36	25	-4	n/d
<b>San Pedro</b>	13,84	3,9	26,67	17	6	5,4
<b>Caaguazú</b>	32,94	5,7	13,19	20	4	2,7
<b>Caazapá</b>	3,91	5,7	6,45	20	4	n/d

<b>Alto Paraná</b>	4,98	n/d	4,10	n/d	3	1,6
<b>Itapúa</b>	3,92	n/d	4,34	n/d	5	0,7
<b>Canindeyú</b>	1,28	4,1	10,18	25	3	4,4

(\*) Vidal, Victor C.

(\*\*) Censo Agropecuario Nacional - CAN (2008).

(\*\*\*) WWF, (2016). (Obtained by subtracting the protected areas from the initial forest surface of each department).

### III. The destruction of forests and biodiversity.

The expansion of the cultivated area of transgenic soy at the expense of the intense destruction of forests in the Eastern Region of the country with serious deterioration of biological diversity can be observed in the distribution of Table 3; there are many changes in nature and at such intense rates that exceed the capacity for regeneration. This deforestation affects both plants and animals that give sustenance to cultures and communities; Cultural diversity is the other face of biological diversity.

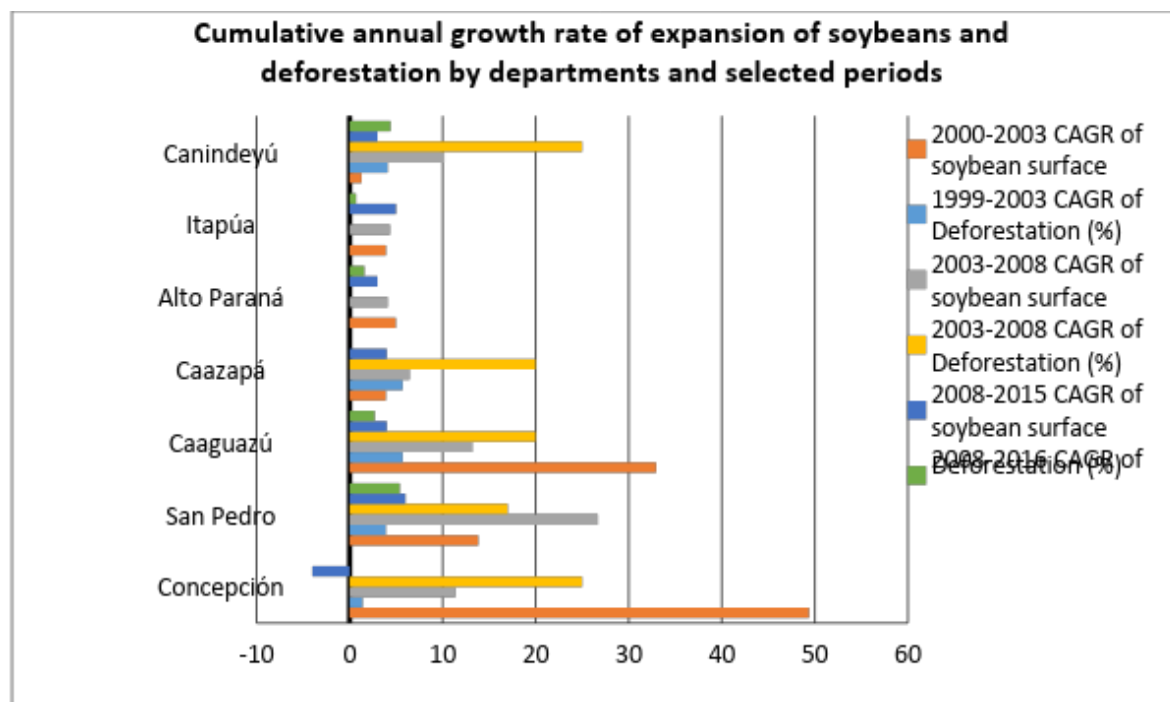
In the distribution of Table No. 3, the cumulative annual rates of expansion of the area of soybean cultivation and deforestation in the departments with the greatest weight in the production of the grain are presented. To the point that today in the period 2003 - 2008 the high correlation can be noted; in the case of the pioneer departments in the crop concerned (Alto Paraná, Canindeyú and Itapúa) discounting the surface of the protected areas, basically the Itaipú and Yacyretá<sup>3</sup> hydroelectric plants, the cumulative annual deforestation rate is higher, to the point that today there are no remnants of forests. In the 2007-2016

---

<sup>3</sup> Aunque también de la Reserva Privada San Rafael, en Itapua.

periods, the departments with the highest rates of deforestation are those with the highest rates expansion of soybean area (WWF 2016).

### Graphic N° 3.



Sources:

(\*) Subtracting the protected areas from the initial forest surface of each department.

(\*) Vidal, Victor C.

(\*\*) Censo Agropecuario Nacional - CAN (2008).

(\*\*\*) WWF, (2016).

This paper seeks to highlight the growing difficulties of Neoextractivism linked to the neoliberal agro-food regime in reproducing itself in the medium term.

Several limitations were pointed out that indicate that RR technology, in the case of transgenic soybeans, it carries germs of its own destruction. Thus, the seeds resistant to the herbicide generate weeds that they can no longer control and require increasing quantities of such pesticides and, at the same time, higher

concentrations; It was also indicated to what extent the cultivation of transgenic soybean by extracting very large quantities of nutrients from the soil requires the application of synthetic fertilizers at higher volumes per unit of surface area while yields remain stable and production costs continue to rise.

The technology that responds to economies of scale and requires increasingly larger areas of land reached its limit in the case of Paraguay while the forest area has already been destroyed by more than 90% reaching the expansion of the cultivated area to a point of saturation. The increasing use of water by agribusiness is another factor that limits the reproduction of this productive model. The social and environmental impact linked to the poisoning that comes through the food chain, affecting the population is another factor that makes it difficult for the model. Among the social effects the most important has to do with public health.

#### **IV. Other limiting factors of the process.**

Likewise, sustained support from the State to this model with increased repression to indigenous and peasants is another factor difficult to reproduce, in this sense must be taken into account including the productive forces as well as technology and technological culture, the capacity of agents organize and make decisions on production within the framework of social relations of production. In the globalized arena, the neoliberal agrifood system has the support of the US State Department and that of European governments.

The social organization of production articulated by the large biotechnological corporations is such that in the transfer of technology and the collection of royalties, in the case of transgenic soy, it includes the participation of the INBIO, Instituto de Biotecnología Agrícola. This organization integrated by guilds of the agro business incorporated into the structure of Monsanto. In this curious arrangement, the agribusiness unions cooperate to pay royalties to Monsanto, while refusing to pay taxes, counting on the support of large corporations.

In relation to the component of appropriation by accumulation that this model has increased, control of the land plays at the expense of increased repression with the intervention of the police and the judicial system to facilitate the expulsion of peasant and indigenous communities. The neo extractive model can only ensure its future production and those of the relations with other territorial

actors, which are of the conflict, with the use of physical violence. In this case the expansion of the scale of production is inseparable from the accumulation by dispossession with active support of the State which is losing all legitimacy.

## **V. Agribusiness and public health.**

The social and environmental impact linked to the poisoning that comes through the food chain that affects the population is another factor that hinders the reproduction of the model. Among the social effects the most important has to do with public health. The devastating effects on the health of the population exposed to pesticides are not even discussed in the institutions involved due to the intervention, by several means, of the biotechnological and chemical corporations to manipulate the information on the effects of the agro-toxins, hiding the risks to the exposed population. The intense lobbying of corporations to liberalize the use of agrochemicals is projected in their increasing application and blocking even the discussion of alternatives to GM crops programs<sup>4</sup>. In fact, agricultural technicians and media daily emphasize the need to enhance GM crops associated with the application of pesticides. At the same time, the discussion of alternative proposals to GMOs is also prevented.

The PARA (Programa de Análisis de Residuos de Agrotóxicos en Alimentos) Residue Analysis Program of Agrochemicals in Food and the ANVISA (Agencia Nacional de Vigilancia Sanitaria) National Agency of Sanitary Surveillance of Brazil show disturbing results. It was found in 2013 that 36% of observed food samples had residues of pesticides not allowed, or they had values above the established ones. This shows that the presence of pesticides in food is a risk factor for non-communicable diseases such as cancer. It has been shown, in addition, the effects of interaction of product with similar mechanisms of action (Friedrich 2018).

The synergistic or additive effects of agrochemicals has also been demonstrated in samples of food with more than three residues of different products; This is very important taking into account that trials with rats of Monsanto relate to the effects of glyphosate alone and with recommended doses (Friedrich, 2018). The

---

<sup>4</sup> See Ultima Hora 25/09/2018

biases of the studies that hide the harmful effects of the herbicide are pointed out by some scientists who had evaluated them:

*In some of these cases, there were panel members who did not agree with the study quality ranking given by the Agency to particular studies. In other cases, some panel members thought the process should be altered, such that studies assigned a high or moderate ranking would be combined into a single group<sup>5</sup>.*

Despite the overwhelming evidence on the effects of pesticides on health, it is observed rather its progressive deregulation facilitated by co-opting national institutions that choose to reduce costs and increase the risks of agribusiness effects on population health.

This aspect is highlighted by the scientists who make up the panel of the American Agency for Environmental Protection (EPA), on the discussion about the effect of glyphosate on human health. The agency's memorandum highlights the fact that the panel did not reach consensus among all its members on most recommendations and points out objections from some of the scientists to the investigations considered to license the herbicide:

*The panel found that EPA's literature review methods were, in general, transparent and appropriate. There were several recommendations regarding updates to the literature search terms or supplementary suggested searches (e.g., not excluding the search term 'water', including terms for glyphosate salts, adding a search for glyphosate and immunotoxicity, and conducting a search for manufacturing data). Some panel members also suggested adding a cut-off date for the search. Additionally, specific articles were identified by some panel members for consideration. Lastly, some panel members noted that at least two people should independently select, review, and score studies and that the Issue Paper was not clear regarding this process<sup>6</sup>.*

Another observation by members of the EPA panel is based on the different qualifications given to the quality of the studies, considering that they are not coincidental. In addition, members of the panel expressed their concern about

---

<sup>5</sup> See Environmental Protection Agency – EPA (2017) p. 4.

<sup>6</sup> Ibid p.2.



the risks of distortion of the results, with biases in the incorporation of samples in the control groups, limiting the reliability of the data:

*The panel stated the Agency assumed the direction of confounding is to inflate any true effect of glyphosate in the absence of statistical adjustment and recommended that the discussion not assume the direction of confounding. It was also noted that exposure to farm animals and viruses was not considered in the evaluation as a potential confounder in NHL studies, while also noting that it is well documented that farmers are at increased risk of leukemia and lymphoma and this risk existed prior to the introduction of glyphosate<sup>7</sup>.*

They also referred to biases in the observation periods of Studies of Agricultural Health (AHS) and use of relatively young cohorts:

*Some panel members expressed concerns with the AHS cohort study. These concerns included a brief follow-up period, use of a relatively young cohort, utilization of a prevalent cohort, and exclusion of applicators exposed prior to 1993-1997<sup>8</sup>.*

The statistical analyses used by the EPA are also observed by members of the scientific panel:

*The panel provided numerous comments and recommendations regarding the statistical analyses and interpretation of the results by the Agency. These included the interpretation of pairwise comparisons and trend tests, suggested methods for multiple comparisons, adjustments for survival disparities, and significance levels to be applied<sup>9</sup>.*

The limit of the administrated doses and the exclusion of cases that tested positive for bioassays are also questioned:

*Panel members believed that the selection of 1,000 mg/kg/day as a limit dose a priori appeared to be an ad hoc decision that was not well-justified and not justified on the basis of the 2005 Guidelines for Carcinogen Risk Assessment. Some panel members did not believe that responses should be disregarded at*

---

<sup>7</sup> Ibid p.4.

<sup>8</sup> Ibid p.5.

<sup>9</sup> Ibid p.7.

*any dose above a pre-selected "limit dose" when the maximum tolerated dose (MTD) has not been exceeded*<sup>10</sup>.

Numerous observations of scientists who integrated the American Environmental Protection agency panel were considered insufficient. In fact, the agency's memorandum highlights the fact that the panel did not reach consensus among all its members regarding the effect of glyphosate on human health, although it points out objections from some of the scientists to the investigations considered to grant a license for the herbicide. Likewise, in relation to the observations of some scientists the memorandum of the EPA points out deficiencies in the quality of the studies considered by those and the lack of coincidence in the qualifications of the studies in question.

The EPA<sup>11</sup> also disqualifies research that established relationship between exposure to glyphosate, ailments from cancer and malformations. The pertinent question at this point is who sets the ranking of quality of research. It can be assumed that it is the big publishers who established the quality and impact of research according to the journals in which they are published and the number of times that the author was quoted in those journals, which in turn are controlled by the large corporations, such is the case of ELSEVIER. It can be inferred that the so-called high-impact journals that appear in the quality ranking of researchers do not consider critical studies to be published in relation to the impact of glyphosate.

On these big publishers scams, the publication of the Nobel Prize for Medicine 2013<sup>12</sup>, Randy Schekman, who has declared a boycott of publications such as *Nature*, *Science* or *Cell* for the damage that in his opinion they are doing to science, is relevant "(...) Scientists must break with the tyranny of luxury journals. The result will be better research that serves science and society.

The concerns of members of the panel of scientists are consistent with the qualification of glyphosate as a likely carcinogen by IARC<sup>13</sup>, linked to the World Bureau of health. It is also the opinion of the Superior Court of San Francisco, California, that recently condemned Monsanto to the payment of 289 million

---

<sup>10</sup> Ibid p.9.

<sup>11</sup> Environmental Protection Agency of the United States.

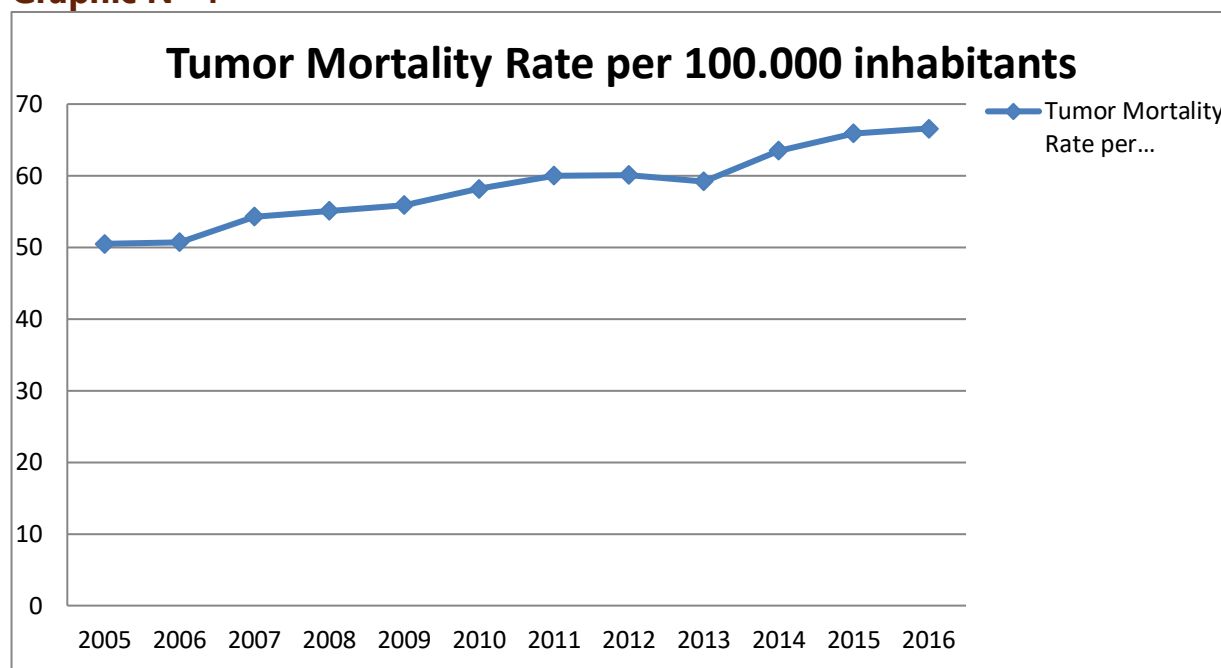
<sup>12</sup> El Mundo, 10/12/2018

<sup>13</sup> International Agency for Research on Cancer (2015)

dollars to a terminal patient of Hodgkin's lymphoma cancer that would have been caused by exposure to glyphosate; in its appeal, the corporation brought up the conclusions of the aforementioned EPA memorandum<sup>14</sup>.

Apart from the Declaration of the IARC, there is overwhelming evidence of the relationship between malignant melanomas and exposure to glyphosate; in the case of Paraguay the cancer mortality rate every year (Table No. 4) from 54.3 per 100,000 inhabitants in 2007 to 64.1 per 100,000 in 2017.

**Graphic N° 4**



Source: Ministerio de Salud Pública y Bienestar Social – MSPyBS (2017).  
Indicadores Básicos de Salud.

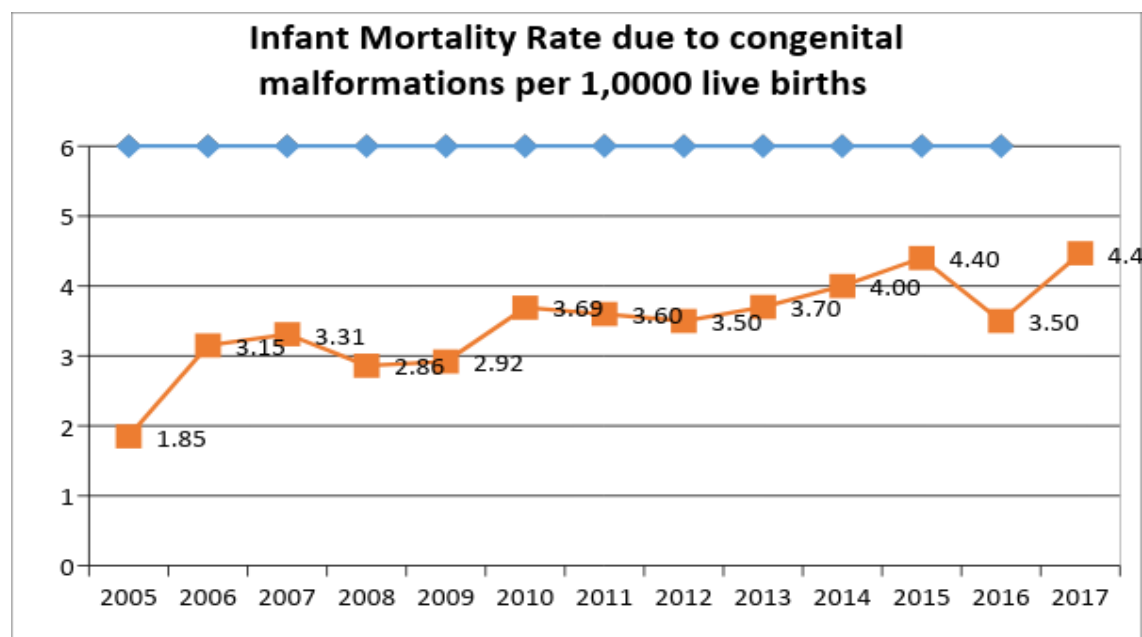
Noted in several studies the effects of the interaction of glyphosate with other substances in various neurological disorders that tend to start already during the pregnancy, and in other cases they are acquired in later stages of the life cycle. In Paraguay, there are problems of registration of these disorders but it can be assumed that they are increasing; among these ailments is autism, Parkinson's disease, senile dementia, schizophrenia and suicide<sup>15</sup>.

<sup>14</sup> Page 12, 14/08/2018.

<sup>15</sup> See Fogel, 2017.

In Graphic No. 5, it is shown how the rate of infant mortality is scaling due to congenital malformations that rose from 2.86 per 1,000 live births in 2007 to 4.47 per 1,000 live births in 2017. The indicators of mortality that in the Paraguayan case shows what happens in pioneer territories in the cultivation of GMOs occurs equally in countries of developed capitalism of the Global North. In addition, the weakening of the political projects of the great powers of the Global North comes from the hand of a process of self-destruction that comes through the consumption of the neoliberal food regime driven by their large corporations. The self-destruction in question is functional to the social movements that propose alternative forms of development.

**Graphic 5**



Source: Ministerio de Salud Pública y Bienestar Social – MSPyBS (2017).  
Indicadores Básicos de Salud.

## **VI. The construction of alternatives.**

Up to this point, it was considered the analysis of the neo-extractivism linked to the neo-liberal food regime and the basic features of its technology and its social, economic and environmental effects. That progress makes sense for the seeking for an alternative model; that search becomes an urgent need, taking

into account that the unsustainability of production system and its social organization can no longer be reproduced, at least in the Paraguayan case.

In that attempt, it is consider relevant the epistemological pluralism that includes different cultures and knowledge systems, and to that extent incorporate a cosmopolitan rationality in terms of Boaventura De Sousa Santos (2002; 2012). Unlike the Western scientific knowledge, arises the sociology of absences, which allows widening the present alternatives that exist, but are not credible. This perspective with the sociology of emergencies approaches the future, thereby give visibility to already available and possible, experiences that constitute proposals linked to hope, to forms of emancipatory production and sociability.

The emancipatory proposals include solidarity-based forms of production and associative practices frequently based on non-hegemonic knowledge. The characterization of these experiences are interested in relationships that hold among themselves the considered practices, as well as the relationship that they maintain with the global arena in which they operate large corporations that articulate the hegemonic model.

The socio-economic practices of organized communities are considered in this approach, by setting alternatives to the more negative aspects of the prevailing model of development. These are possibilities that substitute scale technologies that use natural resources without reproducing their properties and they are based on the operation of large corporations with oligopolistic practices that operate on a global scale and have their seats in the Global North.

The construction of possible worlds maintains somehow links with the global. In this sense, the articulation of counter-hegemonic popular struggles is linked to the construction of identities of resistance to colonial and neocolonial experiences, and to that extent its construction is easier in the Global South since it is an epistemic decolonization approach, in the context of a hegemonic order articulated by large corporations. To that order, it responds with a counterhegemonic globalization, and in the decolonization of thought the historical memory of shared struggles and grievances is revalued, as well as the new communitarian forms and relations with nature. An emblematic case is that of the Ibero-American network of social movements and organizations of Latin America and Europe based on affinities and shared representations; major movements in the Global South are the Mexican Zapatista movement and the

MST in Brazil, which are linked to various transnational networks of social organizations.

The MST has different arenas of supranational action with joint spaces and transnational networks of organizations and peasant movements. One of them is the case of the Latin American, Coordinadora Latinoamericana de Organizaciones Campesinas (CLOC), region-wide, and Via Campesina at a global level; CLOC is also divided into larger spaces with other organizations and social movements, including the (World Social Forum) (Foro Social Mundial (Cairo et al. 2010)).

Relationships with networks both the Global North and the Global South solidarity and that build a bridge between these sectors have even more important, especially taking into account the extraterritorial obligations of States. In this sense, it should be taken into account that although it is true that the human rights obligations of the states usually relate to the inhabitants of their own territories. Nevertheless, now a day, in a globalized world the satisfaction of these basic human rights, such as access to food and other basic sources for life it is more conditioned by actions or omissions of foreign States. Above all, by transnational corporations outside their territories.

To that extent, increases the importance of obligations related to trade, investment and regulation of the operation of transnational corporations. These obligations become as important as development assistance (FIAN International 2017). An important case is that of Bayer based in Germany, which is causing global damage with its pesticides, the observance of Germany's international obligations will only be possible with the activation of solidarity relations that include organizations and movements in that country.

The orientation against the hegemony supposes non-hegemonic knowledge. In the ontological assumption of research, it is considered that reality extends to some possible options, but they are usually marginalized by the hegemonic order to which the considered practices challenge from a necessary counterhegemonic perspective.

In this paper, in a brief analysis we present some alternative practices to the prevailing neoliberal development that arises from cases of socio-economic practices of selected associated groups that propose alternatives to the most

negative aspects of the prevailing model of development based on neo-extractivism. In such cases, it can be considered the production of inputs, technology, processing and marketing. To that extent alternative practices are based on sustainable use of natural resources, on the egalitarian and equitable organization of production, and organizations with effective forms of participation.

As noted, the incorporation of good practices from peasant experiences organized with their baggage of traditional knowledge on the management of natural resources involves combining this knowledge, and the corresponding practices with scientific knowledge. Cases are selected so that they allow systematizing the referred aspects of alternative models that incorporate the diversity of regional socio-structural conditions.

In the characterization of the cases, the epistemological orientation is recovered, placing the researcher as a translator who is betting on a better world. Who assumes that social groups that have their own representatives exercise the knowledge and practices are being systematized; the scope of the role of the translator are those given to the term by Boaventura de Sousa Santos (2002, 2012). In this regard, it is pertinent to ask what it means that intercultural dialogue between modern science and traditional knowledge. Certainly it should start from the dissatisfaction of those who participate in the experience, which means to inquire about a situation of lack and the decision to overcome it; it also matters, to emphasize the transnational networks with socially and politically shared projects with which the considered groups are linked. With that approach would be possible to obtain materials that will allow contrasting the basic hermeneutics propositions of emergencies that include:

- The alternatives to the current development model that can be considered viable are not only economic and rather they start from social, political and cultural processes.
- The impact of alternative models is conditioned by the insertion of organizations in networks and productive chains.
- Replicable experiences rely not only on State assistance.
- Self-managed experiences that constitute viable alternatives articulate their interventions beyond the local level.

- The emblematic cases in question are associated with forms of participatory democracy.

Azerrad et al. (2016) consider experiences of alternative practices, those new forms of society, characterized in spaces of exchanges between academics and leaders of social organizations that involve universities in Brazil, Argentina, Colombia and Spain. In this project, the production of knowledge is linked to public policies and direct users; the study focuses on social and solidarity economy experiences.

In the work focus, the cases of solidary economy represent opportunities for the promotion of self-managed work for it, taking common decisions, the practice of solidarity and the pursuit of more just societies, within the framework of processes socio-political, cultural and environmental. At work, the social and solidary economy is thought of in its multiple expressions that respond to the dominant capitalist model and seek to replace instrumental rationality with reproductive rationality. The role of cooperativism, and of associativism in general, in territorial development, is considered with emphasis on the contribution of experiences in the exercise of democracy at the local and regional scales. The location of the experiences in contiguous territories was an aspect addressed, as well.

The analysis focused on cooperatives of family farming that were developed since the last decade of the last century, articulated territorially sought to strengthen family plots by adding value to their production, but also forming leaders with the ability to represent the sector at the municipal and regional level. These experiences are articulated in the territory in order to gain scales. The work in question refers to the fact that the mere constitution of cooperatives does not solve the problems of the peasant family farming sector. They can rather generate new difficulties with the complex legislation that governs the operation of cooperatives; in addition, the operation of these companies generates new challenges related to management, production, processing and the hiring of professionals with different technical profiles. The strengths of these experiences are the provision of services, loans, processing and expansion of markets.



The authors refer to the constitution process in recent years of UNICAFES to articulate at national level productive sectors of the solidary economy and exercise their representation in order to counteract the strong incidence of corporate Cooperatives; at the regional level. The associated cooperatives constitute centers of service to facilitate a better positioning in the market by expanding production scales and developing a competitive agriculture.

In the brief characterization of experiences that bear the future of Paraguay, it is considered cases of peasant organizations that face different components of the productive chain, beginning with the provision of inputs addressed in an associative way, direct production, processing and marketing; the case of the Manduvirá cooperative that produces organic sugar is the one that faces in an associative way the different phases of the productive chain. With regard to the supply of inputs, the cooperative, with the assistance of a Korean cooperation agency and the Paraguayan Institute of Agricultural Technology (IPTA), produces and provides to its partners soil amendments including biological components, as well as improved genetic material of sugar cane. The amendment for soils is fundamental because it is about smallholdings with overuse of that resource, already exploited for centuries. In this case, producers connect directly to consumers through the Fair Trade channel, completely freeing themselves from the usual chains of intermediation both for processing and for final marketing.

In another experience, horticultural producers are directly linked to consumers in local markets that work with the support of municipal governments; in this same experience organized farmers have control of the territory, which is essential in situations of land grabbing linked to enclave economy, such as that suffered by Paraguay. At this time, several of these groups are linked to globalized organizations from both the Global South and the Global North, which in turn establish partnerships with actors.

## **Conclusion.**

In the paper we saw that the neo-extractivism of the neoliberal agro-food regime will not be able to reproduce its productive cycles in the medium term; the technology associated with genetic engineering destroys its own potential. The story of the sorcerer's apprentice who drowned in his own incantation is repeated, since the applied herbicides generate proliferation of resistant weeds; by destroying soil fertility, yields fall and production costs increase.

The possibilities of expansion of the cultivated area, required by the scale production for transgenes are blocked by the destruction of the remaining forest; the socio-environmental impact of the system is such that even the World Bank (2018) describes Paraguay's productive model as a non-sustainable one, reflecting the contradictions of the predominant neo-extractivism.

The devastating effects of pesticides on public health leads to diseases that are killing our populations and self-destructing the societies of the Global North; the increasing ailments concern consumers and limits the markets. In response to the social conditions of production, Neo extractivism requires increasing police repression and separation of peasant and indigenous communities from their livelihoods.

In the aforementioned context, marked by the unsustainability of the neoliberal agro-food regime, the available way is to look at alternative models of development that are already under construction. This requires addressing the hegemonic knowledge that exalts the benefits of the neoliberal model with a vision that includes social practices and traditional knowledge associated with the sociology of the absences and sociology of the emergencies of Boaventura de Sousa Santos. The search of alternative models supposes the intervention of investigators with capacity of indignation before unjust situations, which know how to perform as interpreters located in a perspective marked by the epistemological plurality.

In the author's perspective, the understanding of the world requires a new type of reason, which replaces the predominant instrumental rationality, which is more than a new general theory. It is rather a "cosmopolitan reason" opposed to Western rationality, based on a translation work:

The alternative to the general theory is the work of translation: Translation is the procedure that allows creating reciprocal intelligibility between the experiences of the world, available and possible, revealed by the sociology of absences and the sociology of emergencies. It is a procedure that does attribute to any set of experiences neither the status of exclusive totality nor the homogeneous part statute (Santos, 2002: 262)<sup>16</sup>.

---

<sup>16</sup>Highlighted by Cairo, 2010.

In our task of interpreters, we must emulate the heretics of the middle Ages, although now to oppose the new inquisitors of science, who from the large publishers and "high impact" journals define what is scientific and what is not. , and they are naturalizing the destruction of different forms of life and present as revealed truth what is convenient to the large corporations whose interests they represent. The interpretation is given in times of changes in power relations at a global level with the return of nationalism from the hands of the far right that rides on fear and capitalizes on it.

The context of historical change which we live becomes relevant a critical theory of hegemony (Bieler et al., 2004), interestingly, in how it is questioned by identifying its contradictions without discarding the internal ones related to the development of the productive forces. This critical theory allows us to affirm the existence of another possible world and attacks consensuses by feeding new imaginaries. The utopian component of the translation incorporates the Sumaj kausay and the teko porã associated with new forms of sociability and relationships with nature; the realistic component aims at enriching these applied categories in social practices in emerging contexts.

The translation focuses on anti-hegemonic experiences linked to globalized networks that recover the importance of the values of usage over the values of change, and to that extent prioritize reproduction and consumer rights; this perspective requires developing the capacity of researchers in working with non-academic partners to identify ways of making research policy-relevant for the benefit of marginalized communities. The alliances with solidarity organizations that operate as bridges between the South and the North are important as well.

In the construction of alliances in the global arena, the learning of experiences of South - South cooperation between China and Brazil in the production and trade of transgenic soybeans should be recovered, which weakened the oligopoly of the large biotechnological corporations of the North that control the technology and global trade (Oliveira 2017). On the other side of the coin, this cooperation reproduces the socio-environmental problems of the neoliberal agro-food regime articulated by large corporations of the global North, and will end up negatively affecting China as well. This experience reproduces, at least an important part, the detrimental dynamics of South-North relations.

Global solidarity networks should also explore whether and how the Sustainable Development Goals (SDGs) signed in the framework of the United Nations can be used to promote inclusive and socially and environmentally sustainable agricultural land use and how research might support this process. The SDGs may be a useful framework to discuss agricultural land use in Paraguay closely related to a number of SDGs because it is a cause of a deep and long-standing inequalities; on the one hand, they emphasize participation and inclusive decision-making, but on the other hand they cover a wide range of issues and rely on voluntary targets. This means that the SDGs can be prioritized, interpreted and implemented in many different ways and there is likely to be significant variation between countries and topics.



## References

Azerrad, M; Tealdo, J, Comp. (2016). *Economía social y solidaria: experiencias prácticas en el territorio*. Universidad Nacional del Litoral. Buenos Aires, Argentina.

Banco Mundial. (2018). *PARAGUAY NOTAS DE POLÍTICA 2018*.

Bernstein, H. (2010). *Class Dynamics of Agrarian Change*. Halifax, Fernwood Publishing, pp. 13-27.

Bieler, A.; Morton, A. (2004) *A critical theory route to hegemony, world order and historical change: neo-Gramscian perspectives in International Relations*. Capital & Class. <https://doi.org/10.1177/030981680408200106>

Cairo. (2010). Articulaciones del Sur Global: afinidad cultural, internacionalismo solidario e Iberoamérica en la globalización contrahegemónica. *Geopolitics*.

CAN (2008). Ministerio de Agricultura y Ganadería. Asunción

Cerillo, A (2017). *El desacuerdo en la UE impide renovar por cinco años la licencia del polémico herbicida glifosato*. LA VANGUARDIA, Barcelona 09/11/2017 12:20 | Actualizado a 10/11/2017.

Conti, M, (2017) *Financialization, Agro-extractivism and the role of China: readings from the World System Theory perspective*. New Extractivism, Peasants and Social Dynamics: Critical Perspectives and Debates. The 5th International Conference of the BRICS Initiative for Critical Agrarian Studies. RANEP, Moscow, Russia.

De Sousa, B. (2002). *Para uma Sociologia das ausências e uma sociologia das emergências*. Revista Crítica de Ciências Sociais 63, octubre 2002

De Sousa Santos B. (2012). *Producir para vivir*. Fondo de Cultura Económica. México DF. Pp.15-33.

Environmental Protection Agency –EPA (2017). *Response to the Final Report of the Federal Insecticide, Fungicide, and Rodenticide Act Scientific Advisory Panel (FIFRA SAP) on the Evaluation of the Human Carcinogenic Potential of Glyphosate*. United States Environmental Protection Agency Washington, D.C.

20460. Recuperado de: <https://www.epa.gov/ingredients-used-pesticide-products/draft-human-health-and-ecological-risk-assessments-glyphosate>.

Federovisky, S. (2014). *El punto de vista de la crítica ambientalista. La soja como problema*. Le Monde Diplomatique (179), pp. 8-9

FIAN Internacional, (2017). *Derecho Humano a la Tierra. Documento de posición*. Alemania. Recuperado de: [https://www.fian.org/es/biblioteca/publicacione/el\\_derecho\\_humano\\_a\\_la\\_tierra/](https://www.fian.org/es/biblioteca/publicacione/el_derecho_humano_a_la_tierra/)

Fogel, R. (2001) *Luchas campesinas*. CERI/CIPAE. Asunción, Paraguay.

Fogel, R. et. al. *La Transferencia de Tecnología orientada a la Agricultura Familiar Campesina*. CERI/PROCIENCIA. 2017

Fogel, R. (2017) *Working paper: Las fuerzas productivas en el desarrollo agrario en el Paraguay*. Paraguay: CERI. Recuperado de: <http://ceri.org.py/las-fuerzas-productivas-en-el-desarrollo-agrario-en-el-paraguay/>

Friedrich, K; de Almeida, V; Augusto, L; Gurgel, A; de Souza, V; Prado, V; Ferreira, F. (2018) *Agrotóxicos: mais venenos em tempos de retrocessos de direitos*. Revista OKARA: Geografia em debate, 12, (2).

Hershaw, E; Sauer, S, (2017) *The evolving face of agribusiness investment along Brazil's new frontier: institutional investors, recent political moves, and the financialization of the Matopiba*. New Extractivism, Peasantries and Social Dynamics: Critical Perspectives and Debates. The 5th International Conference of the BRICS Initiative for Critical Agrarian Studies. RANEPa, Moscow, Russia.

ID (2017). *Evaluación del vínculo entre los sistemas productivos y el uso del agua en el Paraguay en un contexto de cambio climático*. CONACYT INV 188.

International Agency for Research on Cancer, (2015). Monographs Volume 112: evaluation of five organophosphate insecticides and herbicides. Lyon, France.

ISAAA, (2017). *Global Status of Commercialized Biotech/GM Crops in 2017: Biotech Crop Adoption Surges as Economic Benefits Accumulate in 22 Years*. ISAAA Brief No. 53. ISAAA: Ithaca, NY.

Ministerio de Agricultura y Ganadería – MAG, (2008). *Censo Agropecuario Nacional – CAN. Volumen I*, Recuperado de:  
<http://www.mag.gov.py/Censo/Book%201.pdf>

Ministerio de Salud Pública y Bienestar Social – MSPyBS (2017). *Indicadores Básicos de Salud. Información estadística sobre mortalidad, morbilidad y nacimientos*. Asunción, Paraguay. Recuperado de:  
<http://portal.mspps.gov.py/digies/publicaciones/indicadores/>

Nars, L; Sauer, S, (2017) *Political mobilization and sustainability: The socio-environmental movement and the struggle for land and territorial rights in Brazil*. New Extractivism, Peasantries and Social Dynamics: Critical Perspectives and Debates. The 5th International Conference of the BRICS Initiative for Critical Agrarian Studies. RANEPa, Moscow, Russia.

Niederle, P; Gris, C; Picoletto, E; Soldara, D, (2017) *Narrative disputes on family farming public policies in Brazil: conservative attacks and restricted countermovements*. New Extractivism, Peasantries and Social Dynamics: Critical Perspectives and Debates. The 5th International Conference of the BRICS Initiative for Critical Agrarian Studies. RANEPa, Moscow, Russia

Nuila, A. (2018). *Derechos colectivos. En la declaración de las naciones unidas sobre los derechos de los campesinos y de otras personas que trabajan en las zonas rurales*. FIAN International. Recuperado de:  
<https://www.fian.org/es/biblioteca/publicaciones/>

Oliveira, G. (2017). New Extractivism Peasantries and Social Dynamics: Critical Perspectives and Debates. The 5th International Conference of the BRICS Initiative for Critical Agrarian Studies. RANEPa, Moscow, Russia.

Paredes, R; Benítez, J. (2017). Impactos sociales y ambientales del cultivo de arroz en los humedales de Ñeembucu. *Economía Agrícola en Paraguay*. Asunción: Novapolis. (12). pp. 155-168.

Portal Agronegocios Paraguay, (2018). *Agronegocios en Paraguay. El país más tóxico*. Recuperado de <http://agronegocios.com.py/?p=44096>.

Vidal, V. (2013). *Análisis de la Información Existente del Estado Actual de los Bosques y las Principales Causas y Agentes de Deforestación*. Programa De Las



Naciones Unidas Para El Desarrollo Programa Nacional Conjunto ONU – REDD Proyecto N° 00078551. Asunción.

SENACSA, (2017). Estadística Pecuaria. Exportación. Recuperado de <http://www.senacsa.gov.py/index.php/informaciones/estadisticas>.

SENAVE. (2014). Anuario estadístico. SENAVE. (2015). Anuario estadístico.

Yanosky, A. (2013). *Paraguay 's Challenge of Conserving Natural Habitats and Biodiversity with Global Markets Demanding for Products*. Conservation Biology: Voices from the Tropics. <https://doi.org/10.1002/9781118679838.ch14>

Zhou Li; Fang Ping, (2017). *Multiple Rationality: Peasant's Motivation of Self-Protection During Food System Transformation in China*. New Extractivism, Peasantries and Social Dynamics: Critical Perspectives and Debates. The 5th International Conference of the BRICS Initiative for Critical Agrarian Studies. RANEP, Moscow, Russia.

ceripy@gmail.com

## About the author

**Ramón Bruno Fogel Pedroso**, Paraguayan. Master's degree in Political Science by FLACSO Chile. Master's degree in Sociology from the University of Kansas. PhD in Sociology from the University of Kansas. Researcher at CERI (Centro de Estudios Rurales Interdisciplinarios) since 1985, working agrarian conflicts. Professor of Mastery in Social Sciences at FLACSO Paraguay. Member of the Honorary Scientific Committee of CONACYT (National Council of Science and Technology). Researcher at CONACYT, level III. Recognition of the National Congress for Innovation and Scientific Production. Recognition of the Consejo Latinoamericano de Ciencias Sociales CLACSO Author of more than 30 books and hundreds of published articles.

