

"Soja = Glifosato + Paramilitares": Agro-extractivism and environmental violence in Paraguay

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Abstract

This article examines the different forms of structural, everyday, and symbolic violence brought about by the sweeping expansion of agribusiness in Paraguay over the past few decades. This discussion is framed around the protest slogan of the organized *campesino* movement: "*Soja = Glifosato + Paramilitares*" ["Soy = Glyphosate + Paramilitary"]. The banner encapsulates the twin forces of environmental violence and toxic dispossession faced by the peasant and Indigenous communities who live near soybean fields. On the one hand, the quotidian violence caused by agrochemical drifts – accumulation by fumigation – that leads to various forms of toxification, slow death and corporeal attrition that reduce populations through ill health, infertility, and furtive modes of displacement. On the other hand, the more open, direct, and deadly violence involving the assassination of peasant activists and local leaders along with the criminalization of social protests. The adamant and visceral dismissals by agribusiness elites of the grievances of *campesinos* represents another form of symbolic violence, highlighting the obstacles that rural communities and peasant social movements face in addressing toxic landscapes and environmental violence of the agro-extractivism.

Keywords: agro-extractivism, agrarian capitalism, environmental violence, accumulation by dispossession, Latin America

Résumé

Cet article examine les différentes formes de violence structurelle, quotidienne et symbolique engendrées par l'expansion massive de l'agro-industrie au Paraguay au cours des dernières décennies. Cette discussion s'articule autour du slogan de protestation du mouvement *campesino* organisé: "*Soja = Glifosato + Paramilitares*". La bannière résume les deux forces de la violence environnementale et de la dépossession toxique auxquelles sont confrontées les communautés paysannes et indigènes qui vivent à proximité des champs de soja. D'une part, la violence quotidienne causée par les dérives agrochimiques – accumulation par fumigation – qui conduit à diverses formes de toxification, de mort lente et d'usure corporelle. Les populations sont réduites par la mauvaise santé, la stérilité et les modes furtifs de déplacement. D'autre part, la violence plus ouverte, directe et mortelle qui implique l'assassinat de militants paysans et de dirigeants locaux ainsi que la criminalisation des protestations sociales. Le rejet catégorique et viscéral par les élites de l'agro-industrie des doléances des *campesinos* représente une autre forme de violence symbolique, soulignant les obstacles auxquels sont confrontés les communautés rurales et les mouvements sociaux paysans dans leur lutte contre les paysages toxiques et la violence environnementale de l'agro-extractivisme.

Mots-clés: agro-extractivisme, capitalisme agraire, violence environnementale, accumulation par dépossession, Amérique latine

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Resumen

Este artículo examina las diferentes formas de violencia estructural, cotidiana y simbólica que ha traído consigo la expansión arrolladora del agronegocio en Paraguay durante las últimas décadas. Esta discusión se enmarca en torno al lema de protesta del movimiento campesino: "Soja = Glifosato + Paramilitares". La pancarta resume la doble fuerza de la violencia ambiental y la desposesión tóxica a la que se enfrentan las comunidades campesinas e indígenas que viven cerca de los campos de soja. Por un lado, la violencia cotidiana provocada por las derivas de los agroquímicos – acumulación por fumigación – que conduce a diversas formas de toxicación, muerte lenta y desgaste corporal que reducen a las poblaciones a través de la mala salud, la infertilidad y los modos furtivos de desplazamiento. Por otro lado, la violencia más abierta, directa y mortífera que implica el asesinato de activistas campesinos y líderes locales junto con la criminalización de las protestas sociales. La desestimación categórica y visceral por parte de las élites del agronegocio de las quejas de los campesinos representa otra forma de violencia simbólica, que pone de relieve los obstáculos a los que se enfrentan las comunidades rurales y los movimientos sociales campesinos para hacer frente a los paisajes tóxicos y a la violencia medioambiental del agroextractivismo.

Palabras Clave: agroextractivismo, capitalismo agrario, violencia ambiental, acumulación por desposesión, América Latina

1. Introduction

Dramatic changes in the world food economy over the past quarter-century have posed major challenges to peasant and Indigenous communities in Latin America. Patterns of production and employment in the agricultural sector have been transformed throughout the region, propelled by economic integration into the neoliberal corporate food regime (Kay, 2015).² Most notably, there has been a marked shift away from small-scale production of a variety of agricultural crops for both domestic consumption and export towards large-scale, mechanized production of "flex crops" (*cultivos comodín*) such as oil palm, sugar cane, and soybeans for global commodity markets (Borras *et al.*, 2012). The expansion of genetically modified (GM) soybean production throughout the southern cone of South America – infamously baptized the "United Soybean Republic" in a marketing campaign by agrochemical and biotechnology company Syngenta (Rulli, 2007; Oliveira & Hecht, 2016) – has been particularly staggering. From 2000 to 2020, the area cultivated with soybean more than doubled from 24.2 million hectares to 59.9 million hectares (FAO, 2022a).

Alongside this territorial expansion, we have witnessed an unprecedented rise in the use of pesticides across Latin American fields. From 2000 to 2015, the Latin American pesticide market grew from a value of US\$4 billion to US\$12 billion (Shattuck, 2021: 327). According to data from the Food and Agriculture Organization of the United Nations (FAO), more than 863,000 tons of pesticides were used in Latin America in 2019 (FAO, 2022b). A rough comparison shows an increase from 2019 in the overall quantity of pesticides used of approximately 23 percent compared to 2009, and 124 percent with respect to 1999 (Pérez, 2022: 34). The most widely used herbicide in this South American soybean complex is glyphosate, which was intensified by the development of Monsanto's transgenic best-seller seed Roundup Ready soybean (RR) (see Robin, 2008; Hamilton & D'Ippolito, 2022), to such an extent that the term "glyphosate consensus" (Santos & Vasconcelos, 2022) has been coined to refer to the dominance of this modern, pesticide-dependent agricultural paradigm. Santos & Vasconcelos (2022) use the term to refer to "a common landmark in the agrarian policies of progressive [South American] governments, which saw agribusiness as a strategic ally in generating surpluses to finance their social agenda, with emphasis on income transfer programs for poor peasant families" (Santos & Vasconcelos, 2022: 263). These neo-extractivist agrarian policies favoured the adoption of large-scale

² I use the terms "corporate food regime" (McMichael, 2005) and "neoliberal food regime" (Pechlaner & Otero, 2010) interchangeably here – as well as the combined term "neoliberal corporate food regime" – to emphasize the increasing control of corporate capital over the rural economy, while at the same time still acknowledging that "states continue to be central to the deployment of neoliberalism" (Otero, 2012: 285), particularly through "neoregulation" interventions that promote agribusiness transnational corporations (ATNCs) as the dominant economic agents within the current global capitalist food system (Otero, 2012).

agrotechnology, "jeopardizing peasant and Indigenous forms of agrarian production" (Santos & Vasconcelos, 2022: 248).³

The technologies and practices associated with this extractivist capitalist agriculture – also termed "corporate-led, external-input plantation agriculture" or CEPA (McKay, Alonso-Fradejas & Ezquerro-Cañete, 2021) – have "introduced new forms of slow and invisible violence against the bodies of farmworkers and consumers due to the spread of millions of tons of the new agrochemicals" (Bertomeu-Sánchez, 2019: 2). At the same time, the increasing use of chemicals in agricultural production is also one of the main contributors to the current ecological crisis which has generated important forces of collective resistance amongst affected communities. These socio-environmental struggles are increasingly framed within a broader "ecoterritorial turn" that combines Indigenous community thinking and environmentalist discourse (Svampa, 2019). On the other hand, agroindustry actors often employ extra-legal measures to implement their projects. As a result, we are witnessing an increasingly worrisome trend of physical violence against, and criminalization of, Latin American social-environmental movements (Correia, 2022).

Against this backdrop, this article combines agrarian political economy and political ecology perspectives to offer a contribution from the Paraguayan experience, where the national agro-export model is increasingly becoming characteristic of this precise type of "agro-extractivism" related to the expanding production of GM soybeans and concomitant agrochemical use that generates environmentally and socially toxic landscapes and waterscapes (Ezquerro-Cañete, 2020).⁴ The socio-environmental degradation stemming from this pesticide-dependent model of agricultural production has unleashed new forms of violent extractivism (Rojas, 2014) which, in tandem with the country's unresolved land question (Ezquerro-Cañete & Fogel, 2017), have expressed themselves in an increasingly volatile and virulent fashion (Palau & Kretschmer, 2004). While similar dynamics have been documented elsewhere in South America, the critical scholar-activist literature on transgenic soybean production has repeatedly signaled Paraguay out as the country suffering most acutely from the combination of repression and ecological violence associated with the *modelo sojero* (Rulli 2007: 221; Aranda *et al.*, 2020: 64–65). The article focuses therefore on some of the extreme manifestations of the current agro-extractivist phase of capitalist development in Paraguay, which includes different forms of structural, everyday, and symbolic violence brought about by the sweeping expansion of agribusiness.

Drawing on mixed methods, the study is informed by insights from primary data collection based on ethnographic fieldwork carried out in 2015, including semi-structured interviews with academics, NGO organizations, social movements leaders, agribusiness associations and government officials conducted in Asunción and other regions of the country (Departments of Canindeyú, Caaguazú, Itapúa, and San Pedro). Collaborating with the Centre for Interdisciplinary Rural Studies (CERI) helped facilitate my entry into these areas. To complement this data, I also engage grey and activist literature that traces the new dynamics of agrarian change and critiques the corporate agribusiness model. The evolution of Paraguayan agriculture since the 2010s is well documented in an excellent series of annual publications put out by the Asunción-based research center Base Investigaciones Sociales: *Con la soja al cuello* [up to the neck in soy]. Much of the quantitative data presented in this article are drawn from the statistics provided in these publications.

Following this introduction, the remainder of the article is structured as follows. The next section engages in a conceptual discussion around agro-extractivism, toxic dispossession, and socio-environmental violence, which is used as a framework to understand the political, socio-economic, and ideological dynamics unfolding throughout the countryside. The third section provides an overview of the national context of agrarian change, focusing on the territorial expansion and market concentration of agribusiness, as well as the galloping increase in pesticides used to produce GM soybeans. The fourth section outlines the panorama of extractive violence brought about by the expansion of agro-extractivism in Paraguay, including quotidian violence caused by agrochemical drifts, direct and deadly violence enforced by state and non-state forces, and instances of

³ For an excellent regional overview and national case studies on the dynamics of agrarian change across the progressive cycle of left-wing government in Latin America throughout the 2000s and 2010s, see Kay & Vergara-Camus (2018).

⁴ For a genealogy of agro-extractivism within the field of critical agrarian studies, see Veltmeyer & Ezquerro-Cañete (2023b). For studies that extend the empirical gaze of this emerging concept beyond the soybean complex, see the national case studies presented in McKay *et al.* (2021). For example, toxic landscapes and waterscapes have also been associated with other fumigant-dependent monocrop plantations, such as oil palm in Guatemala (Alonso-Fradejas, 2021), sugarcane production in Ecuador (Landívar, 2021), and pineapple production in Costa Rica (León Araya, 2021).

symbolic violence espoused by agribusiness groups. In the conclusion I summarize the main arguments and consider the insights that can be drawn from this national experience that are relevant to the current regional debates on agro-extractivism and pesticide use in the field of critical agrarian studies and political ecology in Latin America.

2. Agro-extractivism, environmental violence and toxic dispossession

Initial skepticism over the progressive nature of left-wing governments in Latin America at the start of the twenty-first century, particularly regarding their natural resource politics (Gudynas, 2009), has spurred considerable research documenting the social and environmental cost of so-called "new extractivism" (Veltmeyer & Petras, 2014; Veltmeyer & Ezquerro-Cañete, 2023a). In addition to highlighting the rearticulation of a structural trade imbalance that perpetuated the periphery's dependency on the core (Burchardt & Dietz, 2014), the growing literature on neo-extractivism has stressed the multifaceted advance of extractive violence underwritten by colonial, racist, and patriarchal components. For example, Guerisoli & Mandirola (2024) draw on the notion of racial capitalism to highlight how the progressive policies of the Latin American "pink tide" of the 2000s played a key role "in reproducing, reinforcing, and reanimating extractivist and whitening structures." The model of neo-extractivism rests on a cultural imagination that legitimizes the displacement and dispossession of Indigenous and Afro-descendent populations (Guerisoli & Mandirola, 2024). The work of feminist political ecology scholars is also challenging us to think deeper about the gendered forms of extraction and resulting violence and advances in reconfigured modalities of patriarchal capitalism. This is particularly so because of the link between the expansion of extractive projects and the "masculinization of territories and the reinforcement of patriarchy" (Svampa, 2019: 61). While such dynamics are particularly prevalent in oil and mining activities, scholars such as Diana Ojeda (2021), in her case study of oil palm plantations in the Colombian Caribbean sub-region of Montes de María, and Amalia Leguizamón (2019), in her work on soy production in the Argentine Pampas region, reveal how agro-extractivism also deepens gender disparities and exacerbate gender-based forms of violence.

From a Marxist political economy perspective, the contemporary dynamics of extractivism in Latin America are contextualized within the processes of global capital accumulation under neoliberal globalization. Grounded primarily in David Harvey's (2003) prominent treatise in *The New Imperialism*, much of this work has drawn on the concept of "accumulation by dispossession" to emphasize the predatory activities associated with the operations of extractive capital, particularly in the context of mining and oil extraction (e.g., Gordon & Webber, 2008; Tetreault, 2014; Latorre, Farrell & Martínez-Alier, 2015). More recently, a growing number of critical agrarian scholars have adapted the concept to account for the phenomenon of dispossession by contamination resulting from fumigations, negatively impacting rural communities located near monocrop plantations (Cáceres, 2015; Ezquerro-Cañete, 2016; Otero & Lapegna, 2016; Hurtado & Vélez-Torres, 2020). In case of sustained agrochemical usage on sugarcane plantations in the Alto Cauca region of Colombia, Diana Hurtado and Irene Vélez-Torres (2020: 558) employ the term "toxic dispossession" to capture "the different ways in which environmental pollution and degradation generate radical disruptions of the nexus of cultural, ecological and social aspects of life, depriving communities of access to and control over environmental resources that are at the basis for their subsistence and affecting their fundamental rights to food, water and territory." In my own critique of the neoliberal soy regime in Paraguay (Ezquerro-Cañete, 2016), I advance the notion of "accumulation by fumigation" whereby large-scale soybean producers spur *campesino* dispossession and thus accumulate new lands through the effects of chemical drift that destroys small-holder crops, pollutes surface water supplies, and have been linked to infertility, birth defects, increased cancer rates and other health problems.

The notion of "accumulation by dispossession" also denotes the process by which capitalism creates "spatio-temporal fixes" which solve crises of accumulation by creating new frontiers for labor and resource exploitation through commodification and privatization. Since the 1980s, the state and powerful private actors have commodified global assets previously held under collective ownership on an unprecedented scale. Within the current neoliberal corporate food system in particular, this process of commodification has been driven by biotechnical innovation that has allowed corporate agribusiness to recondition human, animal, and bacterial life in order to quicken the reproduction of capital – a process Cambridge economist David Nally (2011) calls

"accumulation by molecularization." In the case of the genetic modification of crops, their cultivation modality is linked to the intense use of chemical controls as cultivars are modified to be resilient to herbicides produced by transnational agrochemical companies, such as Bayer Global (which purchased Monsanto), Syngenta, BASF, Dow Chemical, and DuPont. This biotechnology functions not only as a production tool, but also as an ideology promoted to legitimize a specific understanding of agrarian development (Gras & Hernández, 2016) – an agribusiness paradigm in which pesticides are taken for granted as an indispensable part of food production (Santos & Vasconcelos, 2022; Ollinaho, Pedlowski & Kröger, 2023).

The reliance on genetically modified organisms and their commodified technological packages not only discards Indigenous and peasant ways of working the land (see McKay, Alonso-Fradejas & Ezquerro-Cañete, 2021), it also engenders new forms of environmental violence against rural communities through the ecological degradation and endocrine disruption galvanized by toxic capitalist accumulation in extractivist settings. Thus, "accumulation by molecularization" relates to the accelerated commodification of the global food system through biotechnical innovation, while "accumulation by fumigation" speaks to the "forms of toxification, slow death and corporeal attrition that reduce populations through ill health, infertility and furtive modes of displacement" (Shaw & Kalpana, 2020: 377).

It is within this context of heightened penetration of biotechnology and agribusiness capital into the countryside, as well as the endemic and quotidian instances of violence emanating from agrochemical drifts, that we must situate our discussion of agro-extractivism in Latin America today. Before exploring how these dynamics are manifested within the Paraguayan soybean complex, the next section provides an overview of the deregulation of the genetically modified organism (GMO) legislative framework and the oligopolistic concentration of agricultural markets that have fostered a galloping increase in pesticide use.

3. The politics of agribusiness expansion and pesticide use in Paraguay

The expansion of Paraguay's agrarian frontier traces back to the authoritarian agrarian modernization project of the Stroessner dictatorship (1954–1989). With the transition to democracy in the early 1990s, the dynamics of agrarian change shifted away from the *minifundio* (smallholder farm) production of cotton, towards the cultivation of (non-GM) soybeans which limited both land access and employment opportunities for the peasant sector (Carter, Barham & Mesbah, 1996). With the introduction of genetically modified soy into the Paraguayan countryside – first entering illegally via Argentinian seeds often brought in by Brazilian colonists, before being formally legalized in 2004 – the area under soybean cultivation has more than trebled over the past quarter century. The 1996–1997 soy harvest reached just over 1 million hectares. This jumped to 3.6 million hectares in the 2019–2020 harvest, representing two-thirds of Paraguay's agricultural land. As a result, Paraguay is positioned as the sixth largest soybean producer in the world, producing over 11 million metric tons (INE, 2021). This agrarian transformation spurred an agro-export boom that directly favored large-scale farmers who absorb relatively little labor per hectare. Consequently, this neoliberal soy regime has fostered a highly exclusionary growth trajectory that leaves peasants out as both producers and workers (Ezquerro-Cañete, 2016; Wesz, 2022), while entire rural communities are increasingly becoming isolated islands of poverty surrounded by enormous soybean monocultures (Fogel & Riquelme, 2005; Palau *et al.*, 2007; Riquelme & Vera, 2013).

In political-institutional terms, the mechanism for the approval of GMOs in Paraguay is based on decrees and resolutions of the Ministry of Agriculture and Livestock (MAG) which authorizes and regulates the use of GMOs in field trials, confined releases, and commercial applications (Filomeno, 2014). Many critics view this regulatory framework as being adjusted exclusively to the needs of transnational companies linked to transgenic agribusiness. From this perspective, analysts believe that the Paraguayan government, and its regulatory agencies, are controlled by corrupt oligarchs in the pocket of soy interests (Ávila & García, 2019: 21; Hetherington, 2020: 60).

The first genetically-modified seed commercialized in the country was the release of the Monsanto Roundup Ready (RR) soybean (MON-04032-6) in 2004, by then-president Nicanor Duarte Frutos (2003–2008). This remained the only GM crop legally approved for production in the country until 2012 (although it was well-known that other variants had clandestinely circulated in the market before that). Then, in the immediate aftermath of the impeachment and removal of Fernando Lugo in a "parliamentary coup" in June 2012 (see

Ezquerro-Cañete & Fogel, 2017), there was a fast approval of various other varieties of GM crops due to the lowering of biosafety requirements. Under the interim presidency of Federico Franco (2012–2013), all legal regulations hitherto in force on procedures for the introduction and release of transgenic seeds in the country (namely Decrees 18481/97, 12706/08, and 6581/11) were repealed in favor of Decree 9699/2012, creating the National Commission on Agricultural and Forestry Biosafety (CONBIO). With this new regulatory framework in place, 20 new transgenic events of corn, soybean and cotton were released during the presidential term of Horacio Cartes (2013–2018). In November 2019, the government of Mario Abdo Benítez (2018–2023) carried out the quickest and most extensive approval of transgenic events to date, with the release of 13 genetically modified events in just one day.

As a result of these regulations, Paraguay now ranks sixth among the countries with the largest number of commercially released GMOs, reaching 41 transgenic events legally approved for commercialization, including 24 corn, 9 soy, and 8 cotton. The concentration of intellectual property rights is controlled by agribusiness transnational corporations such as Monsanto (now Bayer Global since 2018) (38%), Syngenta (22%), Dow Agrosciences (12%), and BASF (10%) (Ávila & García, 2019: 34; García, 2021: 26). Transgenic seed imports have increased rapidly. Of the 57 varieties of soybeans imported in 2019, 56 were genetically modified, of which 61 percent contained INTACTA technology and 39 percent RR technology (Arrúa *et al.*, 2020: 51). Although this has led to a proliferation of seed distributors, from 2009 to 2018, just ten companies controlled 92 percent of Paraguay's GM seed distribution market and 67 percent of the conventional seed distribution market. Monsanto controlled more than 30 percent of GM seed market, and almost 20 percent of conventional seeds, along with Dow Agro, Syngenta, Nidera, Bayer and LDC (Arrúa, 2019: 33).

Not surprisingly, there is a direct correlation between the expansion of soybean surface area, the adoption of the transgenic soybean technological package (from RR variety to Intacta RR2 Pro, patented by Monsanto) and the accelerated use of glyphosate pesticides, present not only in Roundup, but in hundreds of other herbicides available on the market (Santos & Vasconcelos, 2022: 251). According to comparative data presented by Santos & Vasconcelos (2022: 250), Paraguay experienced the largest increase in pesticide use across the region, from 1.1 kg of pesticide per hectare to 3.7 kg/ha, with an overall increase of 224 percent between 2000 and 2015. According to Apipé (2017), the import of agricultural pesticides has increased fivefold from 2009 to 2016, coinciding with the aforementioned liberalization of genetically modified seeds. In 2017 alone, Paraguay imported 152,067 tons of chemicals (an average of 7.4 kilos of agrochemicals per inhabitant) for a value of over \$419 million—representing 6.2 percent of the world total commercial value (Apipé, 2018).⁵

4. 'Entre la bala y el veneno': The environmental violence of agro-extractivism

Since the early 2000s, several researcher and environmental activists have raised concerns that the widespread and accelerating use of agrochemicals is advancing multiple forms of social-environmental degradation (Palau, 2004; Fogel & Riquelme, 2005). The main environmental and public health problems reported include agrochemical drifts from GM soybean plots to people's houses and/or farms; damaging non-GM food crops and livestock (Guereña, 2013); increased deforestation (Achucarro, 2019); loss of genetic and biological diversity (Neris, 2017); decreased soil fertility (Ortega, 2021), contaminated surface and ground water (Monte Domecq, 2017); and worrying cancer clusters in rural towns and peri-urban populations (Ruiz Cirera, n.d.). In addition to these undeniable social and environmental impacts, critical agrarian studies have also shown that soy cultivation has led to the dispossession and expulsion of peasants and Indigenous people from their lands through violent pressure (Ezquerro-Cañete, 2019). Moreover, tensions around land and agrarian

⁵ A few words of caution on these statistics are in order. All figures are based on the annual reports of the Paraguayan Service for Plant and Seed Health and Quality (SENAVE). In the absence of accurate publicly available pesticide use data, the value of pesticide imports provides a quantitatively useful if imperfect proxy for overall use (see Shattuck [2021: 231n1] for a related discussion on the high correlation of global pesticide sales and global pesticide use). As noted by a reviewer of this article, such statistics might well overstate the increase in pesticide use and costs, "because as seeds and chemicals become legal, they also become much more countable." At the same time, scholar-activist groups collating these figures suggest that SENAVE's annual report still underreports the quantity of agrochemicals entering the country, because there are no estimates of the quantity that is smuggled in through the contraband market (Aranda *et al.*, 2020: 29) – a historically pervasive feature of the Paraguayan economy.

policies among government agencies (Hetherington 2020), organized *campesino* movements (Ezquerro-Cañete, 2017), Indigenous communities (Correia, 2019), drug gangs (Cardozo *et al.*, 2016) and guerrilla groups (Nickson, 2019) have created an atmosphere of insecurity in many rural areas.

To better frame the discussion around extractive violence driven by large-scale soy agriculture, we can consider one of the protest slogans of the organized *campesino* movement: "*Soja = Glifosato + Paramilitares*" [Soy = Glyphosate + Paramilitary] written on the banner at the forefront of a demonstration staged by peasant and Indigenous organizations on August 31, 2006, to protest the Second Roundtable on Sustainable Soy Conference held at the Hotel Yacht Golf Club in Asunción (Maeyens, 2006). The banner encapsulates the twin forces of environmental violence and toxic dispossession faced by the peasant and Indigenous communities who live near soybean fields. On the one hand, the quotidian violence caused by agrochemical drifts leads to various forms of toxification. On the other hand, the more open, direct, and deadly violence involving the assassination of peasant activists and local leaders along with the criminalization of social protests. The adamant and visceral dismissals by agribusiness elites of the grievances of *campesinos* is another form of symbolic violence and will also be incorporated into the discussion below.

The dramatic increase in the use of agro-chemicals is associated with a myriad of socio-environmental problems and has been linked to health problems among the local population. According to data from the Paraguayan Ministry of Health and Social Welfare (MSPBS) there has been an increased mortality rate from cancer cases, which many researchers associate with the increased exposure to agrochemicals (Fogel, 2019: 51). Indeed, several clinical studies carried out at the Hospital of Encarnación (Department of Itapúa) by pediatrician Stela Benítez-Leite, Professor of Medical Science at the National University of Asunción, have documented the harmful effects of occupational exposure to agrochemicals on human health, including associated risk factors for congenital malformations (Benítez-Leite *et al.*, 2007) and a significant increase in the frequency of karyorrhexis and pyknosis (Benítez-Leite *et al.*, 2010). A more recent study published in the *British Journal of Medicine & Medical Research* – titled "Violated rights in rural populations exposed to transgenic soybean crop" – documents findings about genetic damage to children exposed to pesticides (Benítez-Leite *et al.*, 2016; also see Benítez-Leite & Corvalán, 2021). Not surprisingly, such studies have been subjected to frequent attacks and scrutiny by the soy industry. The Unión de los Gremios de la Producción (UGP), which has a strong presence in the Paraguayan government's national science foundation (CONACYT), attempted to discredit Benítez-Leite's work by publicizing how much of her research grant had been used on catering (Hetherington, 2020: 164).

Since the early 2000s, one NGO in Asunción, BASE Investigaciones Sociales, has been systematically recording reported incidents of human, animal, and vegetable contamination associated with the agrochemical airborne drift during fumigations. This matrix reveals that between 2003 and 2006 there were a total of ninety-six cases of pesticide-related intoxications because of agrochemical drifts from crop spraying (Palau *et al.*, 2007: 332–346). The case to garner the most public outrage against the soy sector was the 2003 poisoning death of Silvino Talavera, an 11-year-old boy from the small *campesino* settlement of Pirapey in the district of Edelira (Department of Itapúa), who was sprayed by a crop duster on his way home from school. In 2011, Ruben Portillo, a 26-year-old cotton farmer from the Yerutí colony in district of Curuguaty (Department of Canindeyú) fell violently ill after his neighbor fumigated his soy crops, and died shortly after reaching the hospital. Over the next few days, 22 other Yerutí residents were admitted to the same hospital, including Reuben's 2-year-old son Diego. After the Paraguayan justice system failed to impose criminal penalties against the two companies responsible (Hermanos Galhera and Condor Agrícola), Norma Portillo took her brother's case to the United Nations Human Rights Committee which issued a damning resolution, concluding that the Paraguayan government's inadequate response to the illegal soy fumigations violated a series of fundamental human rights, including the right to life, the right to home and family, and the right to remedy from harm (Global Witness, 2022). While cases like this were widely rumored to have occurred across the countryside, this was the first one in which a team of activists and lawyers managed to get medical proof, in the form of tests on the boy's blood, that pesticides killed him (Hetherington 2020).

Two years later, the UN issued another ruling denouncing the devastating impact of fumigations on a nearby Indigenous Ava Guaraní community in Campo Agua'e, located 20km north of Yerutí (*La Nación*, 2021). Far from isolated cases, several studies are now documenting the severe risks that fumigations represent for

schoolchildren, with one report identifying 51 schools within 100 meters of extensive monocrop plantations (Mora, Portillo & Delpin, 2020), putting the health of almost 4,000 pupils at risk (see Rodríguez & Peralta 2019; Kretschmer, Areco & Palau, 2020). The following quotes from leaders of two peasant organizations that I interviewed – Marcial Gómez of the National Peasant Federation (Federación Nacional Campesina, FNC) and Lidia Ruiz of the Struggle for Land Organization (Organización de Lucha por la Tierra, OLT) – provide a powerful description of this destructive impact:

In Alto Paraná we have settlements that are surrounded by soybean fields, and it is really very difficult because... expulsion, which the state does not want to recognize, nor do many urban people want to recognize it, is difficult. You have your children all with skin problems, stomach problems, headaches. But on top of that, you have that your agricultural production isn't successful anymore. Cassava has a problem. You have a bug that attacks it at the root... you have rotten cassava, you have your beans all destroyed... so even in the food, you are running out of food. (Lidia Ruiz, leader of OLT, personal interview 2015)

In several departments of the country where soya plantations have been planted with aerial spraying for more than 10 years, diseases are appearing... cancerous diseases have multiplied, especially in children... these are statistics that are currently emerging. There are communities that at the time of massive soybean spraying there are deaths of domestic animals, chickens, pigs, and even cattle, which are owned by small farmers. This problem is increasing in the communities and settlements that are surrounded by large extensions of soybean fields. (Marcelo Gómez, leader of FNC, personal interview 2015)

Such grievances by *campesino* communities are routinely rejected and dismissed by the agro-industry and soybean union. In an excerpt from an *Al Jazeera* documentary the head spokesmen for the UGP, Héctor Cristaldo, offered the following fanciful analogy: "It's the same as when you put salt on your barbecue. If you put a little, it is delicious. Too much and you'll have high blood pressure, and it'll kill you" (quoted in *People & Power: Paraguay's Forgotten Coup*).⁶ During my fieldwork, I questioned a senior agronomist at the Agricultural Biotechnology Institute (Instituto de Biotecnología Agrícola, INBIO) about the impacts of fumigation. He replied with vitriolic humor:

As we had been using products in agriculture that, at the time when there were no discoveries like these, [were] highly toxic... [before] this new technology was adopted, and nothing happened. That's right. I've been farming for 40 years. This is my house, and my farm is here [signalling two items on the table side by side]. I am alive. And at 63 years old I'm in better shape than any young man. All right. What's the harm? Now, the whole productive strip along the Paraná River, from Pedro Juan Caballero to Encarnación, that is, the whole lower part of the country, would have to be all deformed, cancerous and dead. Why? Because we have 60 years of fumigation. ... I've been fumigating for sixty years over there, I come here, I fumigate, and an entire community is handed over to me. An entire community! When before, when there was no technology and machinery and all that, we used to put the agricultural backpack sprayer on our backs and bathe ourselves with the poison. And they say that the wind brought it and a whole community got sick. Hah! (INBIO agronomist, personal interview 2015)

As Pablo Lapegna (2017) has argued in reference to similar dynamics in the Argentine province of Formosa, such adamant dismissals of the agribusiness elite to the peasants' grievances represent a form of "symbolic violence", defined by Pierre Bourdieu as those processes by which "different classes and class fractions are engaged in a symbolic struggle [. . .] aimed at imposing the definition of the social world that is most consistent with their interests." These processes ultimately "help to ensure that one class dominates

⁶ Retrieved November 18, 2022, from <https://www.youtube.com/watch?v=8RE-70bdH1c>

another" (Bourdieu, 1991: 167). Identifying these forms of symbolic violence and "the discourses mobilized by elites denying the negative environmental effects of agrochemicals and in the vilification of peasants when they demand resolution" (Lapegna, 2017: 186), provides a glimpse into the obstacles that rural communities and peasant social movements face in confronting the environmental violence of the soy boom. At the same time, however, while the above quote dovetails neatly with Manichean portrayals of farmers using pesticides as the "bad guys" for poisoning the environment and creating public health risks, it also reminds us that farmers often breathe the same air they spray, blurring the lines between victim and perpetrator, and affirming "the fact that farmers firmly believe that there are few alternatives to using pesticides if they want to stay profitable, sustain their farms, keep their land, and reproduce their identity as farmers" (Lapegna & Kunin, 2022: 30).

Despite repeated requests from peasant organizations, the Ministry of Health and Social Welfare has refused to investigate these matters. The unwillingness of the Paraguayan state to act against agrochemical spraying regardless of the growing scientific evidence of its damaging effects is a testament to the complete lack of monitoring of the social and environmental impact of agribusiness, leading to the mobilization of affected communities. As Marcial Gómez (FNC) and Lidia Ruiz (OLT) explained to me:

There are environmental laws for the protection of peasant and Indigenous communities that are not being complied with by the soya growers, the big producers... they are trampling all the environmental laws and the state does not carry out any minimum control to ensure compliance with these laws. Rather, they put repressive forces behind the fumigations that violate all the environmental laws in force; for example, the state is acting against the peasant community, against the Indigenous community, who are resisting in their communities, even demanding compliance with environmental laws. (Marcial Gómez, personal interview, 2015)

And the state also does not guarantee non-expulsion because the Federation [FNC], for example, last year and the year before, carried out a lot of... a strong campaign to oppose fumigation, where peasant families went out and the police went there to repress them. Rubber bullets, they beat them, the mounted police, they took five or six prisoners for almost the whole week. That is, instead of guaranteeing... and they [the peasants] attacked the fumigation tractors and the police left and guaranteed the fumigation. They lined up and formed barriers. There are very eloquent photos of police guaranteeing the fumigation. (Lidia Ruiz, personal interview 2015)

Such an image as described by Ruiz is starkly depicted on the front cover of Kregg Hetherington's (2020) recently published book, *The Government of Beans: Regulating Life in the Age of Beans* (see book review in Ezquerro-Cañete, 2022). It has become increasingly common for the Paraguayan state to use national police forces or even the military to protect soy fields or agricultural equipment, or to prevent the mobilization of people in the areas where fumigations are taking place. The government of Horacio Cartes (2013–2018) went to the extreme of declaring a state of siege to control *campesino* protests and opposition in rural areas (*Última Hora*, 3 December 2013). The deployment of police to 'protect' soy fields from protesters illustrates the perverse role of the Paraguayan state in mediating the relationship between agriculture and human health. For Hetherington (2020), this constitutes an authoritarian form of "agribiopolitics," understood as a political technique that safeguards certain plants for the abstract wellbeing of selected people, at the expense of the lives of others. The agribiopolitics of the soybean complex establishes a phytosanitary regime that allows certain populations of humans to thrive alongside companion crops, while simultaneously displacing Indigenous peoples and peasants through reformulating pre-existing colonial structures of violence (Hetherington, 2020; Castro-Vargas & Mempel, 2023).

The tight coupling between the 'slower' forms of violence and toxic dispossession emanating from agrochemicals and the more direct and deadly violence enacted by stealthier elements of the state are mapped out by the Paraguayan human rights organization CODEHUPY's (2014) report on *campesino* assassination. The report correlates soybean maps with the location of assassinations and attempted assassinations of *campesino* activists, concluding that as the violent agricultural frontiers are opened, they "leave behind a balance of exclusion, contamination and death" (CODEHUPY, 2014: 25).

Social mobilization against agro-extractivism has been met with harsh and uncompromising repression, including forced evictions, armed attacks, arrests, and intimidation by local police and paramilitaries (CODEHUPY, 2014; Global Witness, 2022). Forced evictions have occurred linked to agrarian conflicts in which peasant communities have unresolved land claims that are challenged by *sojeros* (soy producers) or agribusinesses companies, such as in Tekojoja, Guahory, Marina Kue, Barbero, Laterza Kue, and Capiibary (see Hetherington, 2011; Fogel, 2013; Rojas, 2014, Global Witness, 2022). In some cases, the conflicts have resulted in assassinations of peasant leaders involved in protests and opposition to the expansion of soy (Ezquerro-Cañete, 2019). Assassinations have allegedly been committed by the private security forces working for the agribusiness companies (CODEHUPY, 2014). It is within this context that the Paraguayan sociologist Marielle Palau (2006) speaks of "militarized neoliberalism": the increasingly repressive role of military and security forces in policing the inevitable conflicts, struggles, and explosions of resistance that occur in response to the expansion of the agro-extractive frontier. Links between extractive capital, toxic dispossession, and state violence have become ubiquitous throughout the soybean complex in Paraguay.

5. Conclusion

Like a bull in a china shop, the penetration of agribusiness capital into the Paraguayan countryside has recast the dynamics of agrarian change over the past several decades. Despite initial agro-industry claims to the contrary, the adoption of GM soybeans in Paraguay has been followed by a drastic increase in pesticide applications, carrying with them environmental violence that affects the socio-environmental health of rural communities. The toxic dispossession propagated by this model of input-intensive agriculture has triggered socio-environmental protest movements contesting the expansion of the agro-extractive frontier. Thus, the soy boom could not have succeeded without the role of the state and paramilitary forces in suppressing peasant organizations that have sought to challenge the predatory expansion of agro-extractivism.

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