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## Agrochemical contamination in Brazil seen as a crime of ecocide. Towards an ecocentric approach on pesticide regulation

### *A contaminação agroquímica no Brasil vista como crime de ecocídio. Por uma abordagem ecocêntrica na regulação de agrotóxicos*

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**ABSTRACT:** This paper starts from the most recent evidences about the global crisis in the Antropocene. Relying upon bibliographical and documentary sources, the focus is set on the main contradictions and barriers identified in the field of regulatory arrangements of pesticide's use in Brazil. Moreover, the authors question why these substances, some of them already banished in countries that sustain their production, are currently consumed and exchanged as an important driver of the Brazilian development strategy. In this sense, the text presents a synthetic review of the debate involving the pesticide named Paraquat. The diffusion of this substance is seen as an impressive example of a global model of commodities exchange that foster at the same time ecologically disruption and the traditional Nord-South socioeconomic inequalities. Moreover, the text offers a review of some emergent approaches in the field of political ecology that are helping to deal with these anomalies in a new way: ecocide, ecocentrism, ecological justice and eco-legal order.

*Keywords:* pesticides regulation; crime of ecocide; ecocentrism; ecological justice; Ecology of Law.

**RESUMO:** O presente artigo parte de um conjunto de evidências recentes que comprovam o agravamento acelerado da crise socioecológica global no contexto do debate ecológico em curso sobre o Antropoceno. Levando em conta a gravidade dos impactos socioecológicos do agronegócio, examina de forma exploratória as contradições

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e os impasses verificados na dinâmica de regulação de agrotóxicos no Brasil. Mais precisamente, com base numa pesquisa bibliográfica e documental, o artigo focaliza as circunstâncias que têm condicionado o uso e a comercialização de substâncias tóxicas que já foram banidas em seus próprios países de origem, visando assim apontar a existência de um duplo padrão normativo no contexto brasileiro. Nesse sentido, o processo de reavaliação toxicológica do pesticida Paraquate é analisado como exemplo emblemático de um modelo de produção de commodities dependente do uso massivo de agrotóxicos e associado à reprimarização das economias do Sul Global. Além disso, a linha de argumentação leva em conta uma avaliação do potencial transformador embutido na noção emergente de crime de ecocídio no âmbito do Direito Penal Internacional. Para tanto, são apontadas algumas referências de pesquisas recentes que mobilizam os enfoques de ecocentrismo, justiça ecológica e nova ordem ecojurídica.

*Palavras-chave:* regulação de agrotóxicos; crime de ecocídio; ecocentrismo; justiça ecológica; Direito Sistêmico.

## 1. Introduction

This article provides an analysis of the ongoing debates within the International Criminal Court about *crimes of ecocide*, in a context of persistent threats of a planetary socio-ecological collapse by the end of this century. Drawing on the work of contemporary theorists of a *new legal order* based on the notions of *ecocentrism* and *ecological justice*, we consider the contradictions and limits of the Brazilian system of pesticides regulation.

This analysis was elaborated upon documentary and bibliographic sources and is organized in three main sections. The first section highlights the scenario of an accelerated escalation of the global socio-ecological crisis in what is called nowadays the advent of the *Anthropocene*. The inconsistencies of relying on massive use of poisons in managing agrifood systems are considered a constitutive dimension of this scenario. In the second section we address some operational aspects of the currently hegemonic agribusiness model established in Brazil. We discuss further the country's neocolonial *vocation* as a producer of commodities for the international market. In this section we deal also with the toxicological reassessment process of the pesticide

named Paraquat in relation to the difficulties in searching to interdict this and other substances showing acute or chronic toxicity. It is argued that they are widely used in Brazilian' agrarian development, in spite of the recognition that they have already been banned in the countries that have produced them. Finally, the third section incorporates an exploratory evaluation of the potential enclosed in the new approaches operating with the concepts of *crime of ecocide* and *ecological justice*.

## 2. At the crossroads of the Anthropocene

The emergence of the environmental issue considered as a simultaneously social and scientific problem, occurred in the late 1960s, attaining international prominence at the United Nations Conference on Human Environment and Development held in Stockholm, Sweden, in 1972 (Meadows *et al.*, 1978). Since then, confirming evidences of the erosion of the planet's life support systems has been increasing in an ever-accelerating pace.

Pioneering reflections mobilizing this neologism began to be disseminated approximately two decades ago by Paul Crutzen (winner of the Nobel Prize in Chemistry in 1995 for his research about

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changes in the ozone layer). In one of his articles, entitled *Geology of mankind* and published in 2002 by *Nature*, Crutzen argued that the level of intensity and scope reached by anthropic impacts on the *ecosphere* (a concept denoting an hypercomplex system integrating lithosphere, hydrosphere, biosphere and atmosphere) could be already considered as a “new telluric force which in power and universality may be compared to the greater forces of earth” (Crutzen, 2002, p. 23).

In turn, in a review paper published by *Science* in 2016 (entitled “The Anthropocene is functionally and stratigraphically distinct from the Holocene”) a group of twenty-four researchers suggest as the starting point of this new image of the Earth System the first nuclear test carried out in 1945 in Los Alamos, New Mexico, USA. However, for other researchers, the beginning of the Industrial Revolution is considered the starting point.

This article brings together evidence that the layers of ice and sediments recently deposited contain fragments of artificial materials produced in abundance in the last fifty years, namely: concrete, pure aluminum and plastic, as well as pesticides and other synthetic chemical compounds. Even in remote places of the planet, such as Greenland, sediments accumulated since 1950 presented much higher concentrations of carbon (as a result of burning fossil fuels), as well as of phosphorus and nitrogen (used as fertilizers in agriculture) than those verified in the last seventeen hundred years (Lorius & Carpentier, 2011; Waters *et al.*, 2016).

Among other eminent researchers, Rockström and Crutzen have coined the expression “limits” or “planetary boundaries” to designate parameters that should not be exceeded under the risk of destabilizing the terrestrial life-support systems. In this way,

they identified nine main categories of planetary biophysical processes whose self-regulation and resilience ability is already impaired or at risk of being impaired, namely: (1) climate change; (2) ocean acidification; (3) reduction or depletion of the stratospheric ozone layer; (4) aerosol atmospheric load; (5) interference with global phosphorus and nitrogen cycles; (6) rate of biodiversity loss; (7) global use of fresh water; (8) deforestation and changes in land use systems; and (9) chemical pollution. In at least three cases (climate change, interference with global phosphorus and nitrogen cycles, and rate of biodiversity loss), scientists are assertive in pointing out that the limits and safety margins have already been exceeded on a global scale (Rockström *et al.*, 2009; Steffen *et al.*, 2018).

With regard to the accelerated loss of biodiversity, one of the effects of the Anthropocene is what the scientific community has called the *Sixth Mass Extinction*. This is a phenomenon of scope comparable to the other five that make up the available records of Earth’s history (in which the last one correspond to the extinction of the dinosaurs). If, in the past, astronomical and geological elements weighed, this mass extinction has been set in motion by another animal species (Kolbert, 2015). To explain the scale of the problem, it is estimated that it would take three to five million years to recover the level of biodiversity that existed fifty years ago (Gancille, 2019). In this sense, the UN disclosed the results of a paper elaborated by four hundred researchers in nearly fifty countries. In this report, the scientists warn about the magnitude of the anthropogenic impacts on the ecosphere, estimating that a million species of animals and plants are already at risk of extinction (UN Brazil, 2019).

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Since the advent of the *industrial-technological civilization*, the belief in the virtues of a dynamics of modernization guided by the expectation of unlimited material growth in a finite ecosphere has prevailed. This ideology strongly anchored in a mechanistic worldview coupled with an anthropocentric ethical platform feeds the illusory quest of control over nature by humans (Boff, 2008).

The recent outbreak of the pandemic crises of the COVID-19 only confirms the relevance of this issue in the field of contemporary ecopolitical research. In this perspective, Bombardi (2020) argues that this outbreak needs to be seen as an anomalous socio-ecological phenomenon, which reflects the process of complexification of the agro-industrial logic of production within the framework of the erratic evolution of globalized corporate capitalism. Likewise, Abramovay (2020, n.p.) believes that “the world food system is ill and it is not COVID-19’s fault”. For him, there is no doubt about the fragility of the agrifood system for animal production – a sector that paradoxically stands out for its reputation for efficiency, technological advancement and millimeter precision. In his opinion:

The rigorous and sophisticated methods that allow for the large-scale supply of relatively economical proteins to an increasing number of people have the laboratory efficiency that characterizes them as their greatest weakness. The pandemic is only serving to openly reveal this. [...] In other words, it is a system marked by impressive efficiency but, at the same time, by a rigidity that makes it incapable of resisting a crisis like the one that is now affecting the world. [...]. The system has artificialized the handling of living beings to the point that, when something goes wrong, the result is collapse (Abramovay, 2020, n.p.).

In this context, where plant crops and livestock are being converted into commodities, this system reflects the generalization of an economic development model that rests insensitive to the growing North-South asymmetries and to the basic requirements of worldwide social justice and ecological prudence.

### ***3. The dependence on pesticides in the current Brazilian agrifood model***

The hegemonic agro-industrial model adopted in Brazil can be taken as a paradigmatic case. It has been consolidated not only apart from advances in the research field of socio-ecological systems. Besides, its mode of operation lacks an effective involvement of traditional communities in the management of ecosystems. It became therefore a process that *normalizes the unacceptable*: a massive and consorted use of pesticides in vast areas of monocultures. The main beneficiaries of this production strategy are the great agrochemical corporations holding patents (Santos & Glass, 2018).

Within the framework of neoliberal globalization, the current damages and future risks arising from the widespread use of pesticides are considered as negative externalities (supposedly inevitable) of economic growth. The widespread commodification of life support systems, yielding extensive ecological and social damages, thus seems to represent the golden path ensuring the coherence of this modernizing project.

In other words, polycultures based on traditional ecological knowledge are represented as an archaic and marginal counterpoint to be overcome in fostering the development of the so called *growth*

*societies*. In this sense, the technological packages inherited from the *Green Revolution* (which included the massive use of chemical inputs), coupled with strong governmental incentives and funding, induced the expansion of monocultures, large land-holdings and wide-ranging agricultural mechanization. This development strategy brings about at the same time the marginalization of traditional populations and rural exodus (Shiva, 1993; Viebrantz, 2008; Morin, 2011).

As a result, Brazil became the third largest agricultural exporter of commodities. Beginning at 2008, it reached the first position in the world ranking of pesticide consumption, accounting for a fifth of the global consumption of these products (Bombardi, 2017) and for 86% of the consumption in Latin America. The production of soybean, corn, sugarcane and cotton monocultures alone consume nearly 75% of the pesticides used in Brazil – with soybean alone accounting for more than 50% of the total (Bombardi, 2017).

This trend is also reflected in the *commodification* of animals for consumption, since soy production is considered as a raw material for the manufacture of animal food-stuff. In other words, the soy produced in Brazil, with massive use of pesticides for greater share in the exports, is sold as a commodity to feed cattle, swine and poultry – which in turn are transformed into commodities.

In numbers, of the 312 million tons of soy produced worldwide in 2015 and 2016, 98% was addressed to the production of slaughter animal feed (Felipe, 2018b). Likewise, in the Brazilian scenario, of the 51 million tons of corn produced in the 2009/2010 harvest, only 20% to 30% of them was destined appointed to human consumption (Felipe, 2018b).

In fact, the *world's barn* label attributed to Brazil reflects this trend, nowadays coupled with the production of biofuels. In fact, it counteracts the urgent search for food safety and ecological resilience in our country (Bombardi, 2017). In this sense, the foundations of the current productivist model – monoculture, large estates and massive use of pesticides – are mixed in a neocolonialist pattern of reprimarization of national economies evolving in the Global South (Mosmann *et al.*, 2019).

In addition, it is currently estimated that nearly 30% of the active ingredients authorized in the Brazilian territory are banned in the European Union (Bombardi, 2017; PAN, 2019). The case of soy has become an emblematic example of the proliferation of monocultures dependent on the massive use of pesticides. The impacts generated are transboundary, timeless and without discrimination of race and class – with an emphasis on the disproportionate weight assumed by the most vulnerable populations. In 2016, soy occupied the first place in the ranking of the main products exported. Spain, Italy, France, Netherlands, Belgium and Germany are among the top ten consumers of the seven main exported products – especially soy and its extraction residues, in addition to beef (Bombardi, 2017).

Summing up the main points, a large percentage of the soybean cultivated in Brazil is part of a counterproductive dynamic in which the so-called developed countries “export pesticides, which are banned there, to the so-called underdeveloped countries, where their commercialization is allowed”. In this vicious circle, “[...] the poison ends up being consumed, even though its use is not allowed in these countries” (Albuquerque, 2006, p. 35).

However, the belief in a supposed symmetry in Brazil's relations with the European Union seems

rather controversial. It is taken for granted that the flows of pollution would return to its origins. At present, awareness of the persistent asymmetries considered as a distinguishing mark of the customary connexions between rich and poor countries draws another picture. Since,

[...] despite the fact that human and environmental contamination, with all its consequences [...] is present in Brazil – part of these pesticides returns to the countries in which the industries that manufacture them are based, through the food they import. [...] The shape of the circle suggests symmetry through the “return of pesticides”. However, there are many other aspects regarding the use of pesticides in Brazil that expose this asymmetry (Bombardi, 2017, p. 46-47).

From the point of view of the neoliberal agro-industrial model, substances with a high level of toxicity end up being marketed as indispensable inputs for promoting accelerated economic growth in the countries of the Global South. In this sense, toxic tailings, chemical products, forbidden and obsolete pesticides are appointed to such countries – only changing the labels – not as dangerous tailings, but as sound export goods (Albuquerque, 2006). The available evidences indicate that the motto “Not in my back yard” (NIMBY) is still valid for the countries and industries that export pesticides.

This asymmetric geography in the management of the destructive impacts of these substances can be observed especially in the case of soybean, since approximately one hundred and fifty kinds of pesticides are nowadays allowed in Brazil, of which thirty-five – approximately 23% – have been already banned in the Union European (Bombardi, 2017).

In this context, the debate raised by the case of the pesticide Paraquat<sup>1</sup> – available on the market and banned in its country of origin due to its proven harmfulness and lethality – takes on a special connotation. Taking as an indicator of both the anomalies surrounding the practices of toxicological reassessment of pesticides and the persistence of the double normative standard adopted in Brazil, in our opinion this case constitutes a clear instance of environmental injustice and even of ecocide.

Indeed, already in 2017, after nearly a decade of efforts invested in the toxicological reassessment of dangerous active ingredients in our country, the National Health Surveillance Agency (*Agência Nacional de Vigilância Sanitária*, ANVISA, 2017b) approved the Resolution No. 177/2017 banning, after September 22<sup>nd</sup>, 2020, the import, production and sale of Paraquat-based products. More recently, the Resolution No. 428/2020 Collegiate Board (ANVISA, 2020) authorized the use of the remaining stocks until July 31<sup>st</sup>, 2021. Even so, a Bill of

<sup>1</sup> Paraquat is a herbicide extremely toxic to human health and is used as a desiccant in many crops, including soybeans, corn and cotton. It is important to emphasize that the references to this herbicide are used in this article as an emblematic example to be included in an extensive list of pesticides whose use is banned in the European Union, but which are authorized in Brazil. According to Bombardi (2017, p. 231), we can mention the following: Acifluorfen, Methyl Parathion, Paraquat, Sulfentrazone, Tolyfluanid (Class I, extremely toxic); Cyanazine, Fenpropathrin, Profenophos, Prothiofos, Triazophos, Carbosulfan, Fenitrothion, Thiodicarb, Cyfluthrin (Class II, highly toxic); Permethrin, Diafenthiuron, Fomesafen, Metolachlor, Sethoxydim, Acephate, Imazethapyr, Alachlor, Dimethylamide, Fenarimol, Lactofen, Chlorimuron, Trifluralin, Acetochlor, Carbazim (Class III, moderately toxic); and Chlorfluazuron, Procymidone, Flumetsulam, Flufenoxuron, Flumiclorac and Novaluron (Class IV, low toxicity). It is also worth noting that the above classification fits the criteria established by Ordinance No. 03/1992 of the Ministry of Health, which was replaced by the New Regulatory Framework for pesticides, RDC No. 294/2019.



Legislative Decree (PDL No. 310/2010) is currently pending in the National Congress, intending to suspend the Resolution No. 177/2017. This move may bring about a future reversal in the banning decision, given the pressures exerted by productive sectors linked to agribusiness.

However, it becomes necessary to clarify that, since 2009, the use of Paraquat has been banned in the European Union (Brazil, 2015). Nearly four years ago, China adopted the same procedure (PAN, 2019). In Brazil, this herbicide was included in the set of fourteen active ingredients that started to be reassessed by the ANVISA based on Resolution RDC No. 10/2008 (ANVISA, 2008). The analyses were concluded in 2015, pointing to its acute and chronic toxicity (Hess, 2018).

The Technical Reassessment Statement No. 01/2015/GGTOX/ANVISA (ANVISA, 2015) qualifies it as the pesticide with the highest level of toxicity and mortality rate compared to other common herbicides. In addition to that, it has been attested that there are no effective antidotes against Paraquat. In general, already intoxicated patients cannot recover from their symptoms making use of customary therapies. Its neurotoxic effects are associated with the development of Parkinson's disease. In addition to that, and from the point of view of its genotoxic and even mutagenic potential, it impacts the functioning of the respiratory, reproductive, nervous and hormonal systems (in flagrant violation of the Decree No. 4,074/2002 and of Law No. 7,802/1989).

By vote No. 56/2017/DIREG/ANVISA (ANVISA, 2017a), its registration was banned. A three-year deadline was settled to the full implementation of this measure:

In view of the above and considering everything reported, together with all the documents attached to this process, as well as the work developed by GGTOX, which defines the classification of Paraquat in the prohibitive registration criteria established in art. 3, paragraph 6 of Law 7,802 of 1989, I vote for the prohibition of the production, import, marketing and use of technical and formulated products based on the active ingredient of the Paraquat pesticide, within a period of 3 (three) years, and for the immediate implementation of risk mitigation measures, in order to reduce the farmers' occupational exposure and adequately guide them in relation to the risks and care necessary for its use, as per the attached draft (ANVISA, 2017a).

It is also worthy of note that Paraquat is produced by the Syngenta – a Swiss company – under the trade name of *Gramoxone* 200. But its official registration was never authorized in that country. Based in the United Kingdom, this company directs 62% of its production to poor countries. Our country is included among the main consumers (Ross, 2017). In the period from 2010 to 2014, Brazil purchased 27,835 tons of this input, increasing inventories on an ascending curve: 3,113 tons in 2010; 4,275 in 2011; 5,249 in 2012; 6,792 in 2013; and 8,404 in 2014. From 2015 on, even with the re-assessment process underway, this herbicide remain widely used in the country, appearing among the ten most sold (around 10,536 tons). In the subsequent years, this same trend remained, rising from 11,638 tons in 2016 to 13,199 in 2018 – at that time ranking sixth among the most sold (Ibama, 2019).

Data related to import levels of Paraquat point out an increase in trading even when an alternative to its use should be sought following the banning decision. In 2017, nearly 35,000 tons were imported; in 2018, 50,000 and, in the following year, Brazil

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reached the mark of 65,000 tons. In other words, the import level doubled in three years (Melgarejo, 2020).

It is noteworthy that this process of toxicological re-assessment was permeated by an active involvement of the regulated sector, in addition to legislators involved with the interests of the agribusiness sector. Its performance was coordinated by the so-called Paraquat Task Force, represented by the Syngenta company, by leaders of the Parliamentary Front for Agriculture (*Frente Parlamentar da Agropecuária*, FPA), by the Ministry of Agriculture, Livestock and Food Supply (*Ministério da Agricultura, Pecuária e Abastecimento*, MAPA), by representatives of the National Union of the Industry of Products for Plant Defense (*Sindicato Nacional da Indústria de Produtos para Defesa Vegetal*, SINDIVEG) and by nineteen companies in the sector that hold the registration, manifesting their vote against the ban (ANVISA, 2017a).

These numbers show the prevalence of short-term economic interests to the detriment of the search for integral health and quality of life of all the Brazilians. The use of the remaining stocks was approved by the ANVISA through Resolution of the Collegiate Board of Directors RDC No. 428/2020 (ANVISA, 2020), which amended RDC No. 177/2017 (ANVISA, 2017b), providing for the use of the remainder of Paraquat in the 2020/2021 harvest, depending on the type of crop, until July 31<sup>st</sup>, 2021.

In this critical context of slow and somehow consented poisoning of both producers and consumers, instances of ecocide in transborder and transgenerational levels are indeed in progress. They can be viewed as a trend deeply incorporated in the neoliberal rural development strategy pretending to

deal in a coherent way with the shocking evidences or poverty and hunger in almost all latitudes. Given the magnitude of the destructive effects of these “environmental diseases” (Carson, 2010, p. 18), the corresponding prophylaxis seems to require a new type of diagnosis.

#### ***4. Acknowledgement of ecocide as a way to promote ecological justice at the global level***

Faced with the intensification of the global socio-ecological crisis, and in the midst of an accelerated impairment of the elementary habitability conditions of the planet, in her book entitled *Un nouveau droit pour la Terre: pour en finir avec l'écocide* Valérie Cabanes advocates the recognition of ecocide as a crime within the jurisdiction of the International Criminal Court.

She argues that until now the International Law lacks effective instruments to assign responsibilities to the States and to large transnational corporations considering the growing evidences of accelerated impairment of the planetary metabolism – an opinion shared by Capra & Mattei (2018). In this sense, “only a new international crime that recognizes a Right to the Land – both in times of peace and in times of conflict – could effectively protect our common future. This is the crime of ecocide” (Cabanes, 2016, p. 217, free translation).

In her opinion, mobilizing this notion we can acquire more power to transcend the anthropocentric foundations of the International Law, in search of a new legal model. Drawing upon an ecocentric worldview, she believes that it is nowadays imperative to recognize the intrinsic value of the web of dynamic interdependencies that constitutes



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*human beings-in-ecosystems*. Such recognition is crucial because the defense of human rights could not (and should not) be separated from the need to care more effectively for the regeneration of the *Earth-System's* vital cycles.

The neologism *ecocide* was first used during the Vietnam War, derived from the Greek word *oikos* (house, home) and the Latin expression *cide* (destruction). In the 1970s, a group of American scientists adopted the term to share evidences of increasing levels of environmental destruction with serious consequences for human health, due to the herbicide war program developed during that conflict (Pereira, 2018). At that time, the US Army dumped more than four million liters of a defoliant called *Agent Orange* into Vietnam's forests (a product whose health effects can last for decades and contaminate several generations). In his opening speech at the UN Conference on the Environment, held in Stockholm in 1972, Olof Palme – then Swedish Prime Minister – appealed to the term *ecocide* to stress the *sui generis* character of this unprecedented escalation of violence in the Cold War period (Daros, 2018).

The movement demanding the criminalization of *ecocide* in the scope of International Law is currently attaining strength. In this sense, it is important to emphasize the innovating profile of the initiative to create the *End Ecocide on Earth: For a common future for all life* network driven by Valérie Cabanes, as well as the *Stop Ecocide* movement

proposed by Polly Higgins. Both initiatives seek to sensitize civil society and governmental bodies as to the need – already mentioned above – to recognize *ecocide* as the fifth international crime, still absent from the material competence of the International Criminal Court – going beyond the crimes of genocide, crimes against humanity, war crimes and crimes of aggression.

In 2016, this Court issued an internal document through its prosecutor's office regarding the selection of priorities in handling new issues. On that occasion, it was decided that, in the investigation of crimes typified by the Rome Statute<sup>2</sup>, special attention would be given to those carried out through, or that result in, the destruction of ecosystems and biomes, as well as in the illegal exploitation of resources or in the illegal expropriation of land (ICC, 2016).

Despite the concern expressed by the prosecutor's office, it becomes necessary to emphasize that, to date, there is still no section in the Rome Statute dealing with the institutionalization of a new type of autonomous international crime related to the environment. According to the current International Law, socio-environmental damage can only be understood as an instrument through which one of the four existing crimes, provided for in that Statute, is committed. It is also to be noted that, in the project that created the International Criminal Court, there was already a provision for an autonomous socio-environmental crime in the set of international

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<sup>2</sup> The term refers to the international treaty signed on July 17th, 1998, which enabled the creation of the International Criminal Court (ICC), headquartered in The Hague, Netherlands. This is a permanent and independent international organization, which is competent to try individuals for the crime of genocide, war crimes, crimes against humanity and the crime of aggression. Among its pillars are the following: international cooperation and complementarity with national jurisdictions, exercising their jurisdiction only when the States do not comply with it, or do not comply with it well. It currently comprises 123 States. Brazil was the 69th State to ratify this Statute, having deposited its ratification instrument on June 14th, 2002. Internally, the treaty was enacted by the National Congress on September 25th, 2002, through Decree No. 4,388.

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crimes, formulated in the following terms: “Severe and intentional damage to the environment” (Daros, 2018, p. 172). However, the political pressures from international actors ended up excluding the issue in the procedures of drafting the project that ended up leading to the formulation of the Statute (Daros, 2018). In relation to this topic, Valérie Cabanes warns us that:

Ecocide is the destruction of our [common] home, the only one we have: Earth. Those primarily responsible for climate change and for the destruction of the biosphere are identifiable and identified [...], but enjoy almost total impunity. However, in Law, the fact of knowingly harming others is reprehensible. Given the expected dramatic consequences for the next few decades, the behavior of major polluters should be considered criminal. (Cabanes, 2016, p. 24, free translation)

This new position in the search for shaping a new eco-legal order highlights the decisive importance of forging a new sense of responsibility that incorporates the promotion of transgenerational solidarity. The ecosphere would thus become endowed with intrinsic value from an ethical-political ecocentric point of view (Cabanes, 2016).

In this perspective, the inquire proposed by Sonia T. Felipe takes on a special meaning:

Why do planet Earth and all the living species that inhabit it have to bear the burden of such gluttony and voracity? That question evokes the ethical issue. But governments, businesses and consumers do not adopt any ethical principles in their deliberations regarding the production, marketing, consumption and disposal of goods. The human species should be rebaptized as *Homo omnis vorax*, instead of the *Homo sapiens sapiens*. The only one capable of devouring everything, in this era that is already baptized as the

Anthropocene, in which the subject that gives its name to the era is the ecocidal subject that will ruin all life forms on the planet, causing its sixth extinction (Felipe, 2018a, p. 300).

In turn, Capra & Mattei (2018) argue that human societies have lost tune with what makes them part of a living whole, making so indispensable a paradigm shift in the current legal model. In a new legal order sensitive to the gravity attained by the global crisis in the Anthropocene, the world “would no longer be seen as a machine and would come to be understood as a network of ecological communities” (Capra & Mattei, 2018, p. 11). They call thus to account the foundations of the widespread mechanistic cosmivision that separates people from the natural world. In the authors’ opinion, the functioning of complex social institutions – such as the Law and the State – still remain based on this anthropocentric form of rationality that has been seriously compromising the thresholds of resilience and ecological integrity of our terrestrial habitat. In this context, they recognize that a growing number of actors involved with the search for a new global environmental law and governance should be called to intervene more incisively in decision-making spaces at all levels.

Converging with the ideas of both Cabanes (2016) and Capra & Mattei (2018), Bosselmann (2017) emphasizes that the time has come to sign a new ecological pact capable of transforming radically our current priorities in terms of strategic planning in the Anthropocene. He states that the Earth Charter (declaration of principles signed during the Earth Summit held at Rio de Janeiro/RJ in 1992) could be rescued as a framework for a new code of values and ethical principles adjusted

to the new moment we are experiencing. This expands the range of obligations of actual and future generations in relation to the great *life community* of which we are a part. In this sense, Bosselmann relies on the postulates of *ecocentrism*, aiming to nurture the process of refining the current approach of *environmental justice*. For him, “Yet ecocentrism clearly defines the ecological functions, thereby helping us to understand that environmental justice is, essentially, justice for those who cannot speak for themselves”. (Bosselmann, 2008, p. 105).

His argument is in also tune with the way Eckersley (1992) characterizes the ecocentric position in the political theory of ecologism: “In according ontological primacy to the internal relatedness of all phenomena, an ecocentric perspective adopts an “existential attitude of mutuality” in recognition of the fact that one’s personal fulfilment is inextricably tied up with that of others” (Eckersley, 1992, p. 53).

Along with the urgent need for this new legal order in tune with a complex systems worldview – which call in question the pertinence of the legal order underlying the evolution of industrialism –, the emergent global movement for Environmental Justice should also be expanded to include other dimensions. The idea is to transcend those associated with the economic calculation of negative socio-environmental externalities verified in specifically human communities (according to the Theory of Justice proposed by John Rawls<sup>3</sup>).

It is also worth noting that, within this movement, we can find a wide range of principles and practices aimed at: a) ensuring that no social group (whether ethnic, racial or class) absorbs a disproportionate share of the negative environmental conse-

quences of economic operations and decisions on federal, state, local policies and programs, as well as the absence or omission of such policies; b) ensuring direct and indirect, fair and equitable access of all citizens to the environmental resources available; c) ensuring wide access of all communities to the relevant information concerning the prudent use of environmental resources, the destination of tailings and the location of sources of environmental risks, as well as democratic and participatory processes in the definition of policies, plans, programs and projects that concern them; d) favoring the constitution of collective right-holders, social movements and popular organizations to make them protagonists in the construction of alternative development models that ensure the democratization of access to environmental resources and the sustainability of their use (Acsehrad *et al.*, 2009).

For Schlosberg (2007), the theoretical studies on justice are traditionally focused on a perception of justice conceived in distributive terms. In his opinion, it becomes necessary to broaden the concept, aiming to encompass the notions of recognition, participation and capacity building. The author also suggests that this re-dimensioned approach could be applied both to environmental issues involving human populations and to issues related to the fair relationship between human communities and non-human nature. The argument can be better understood from the point of view of the differentiation made by Daros (2018). In this sense, regarding the focus set upon *justice as recognition*, Schlosberg (2007) points out that some authors such as Iris Young, Nancy Fraser and Axel Honneth, despite claiming that justice must be concerned with

<sup>3</sup> Rawls, J. *Uma teoria de justiça*. São Paulo: Martins Fontes, 1997.

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the classic problems of distribution, assert that a pluralistic conception of justice must also address the processes that generate maldistribution. Those who advocate this approach start from individual and social recognition as a key element. They even assert that lack of recognition in the social and political domains causes harms to individuals and communities. Regarding the *justice as participation* approach, Schlosberg understands that, in addition to distribution and recognition, there is another dimension to be included in the conceptualization and practice of an expanded notion of justice – defined as the fair and equitable institutional processes promoted by a State. Recognition theorists like Young, Fraser and Honneth, realized that the interrelationships involving justice as equality and justice as recognition acts in the procedural sphere, as it can hinder an affective involvement of individuals and communities. Thus, it is possible to perceive the link between the lack of recognition and the declinant level of participation in communities, including the political and institutional order, which results in the following syllogism: “If you are not recognized, you do not participate; if you do not participate, you are not recognized” (Schlosberg, 2007, p. 26). Thus, democratic and participatory decision-making procedures constitute an element and a condition for justice, as they challenge institutionalized exclusion, the social culture of non-recognition and conventional distributive patterns. Finally, the *justice as capabilities* approach has Amartya Sen and Martha Nussbaum as its leading advocates. They developed a theory that focuses on the promotion of the capabilities necessary for individuals to fully function in their lives. The focus is placed not only on the distribution of goods, but on how these goods are transformed in the flourishing processes

of individuals and communities. The approach gives ethical meaning at the same time to functioning and flourishing.

We argue that both approaches – Environmental Justice and Ecological Justice – move beyond the conventional forms of reflection and action in the domain of the human rights movement. Following ecological guidelines, both call for the recognition of the complex bonds of interdependence in which all living beings are imbricated. This position stands in direct opposition to a wide variety of anthropocentric-utilitarian arguments held in the field of environmental ethics and environmental policy (Schlosberg, 2007). It is shared by Rammê (2012), who highlights the interspecies dimension embedded in the notion of environmental justice, expanding its focus beyond social inequalities. In other words, facing the urgent demand for a new code of ecological justice, human beings, non-human animals and nature would be integrated in a morally justifiable sort of environmental policy.

In this way, the massive and reiterated use of pesticides for the production of commodities in large scale shows the powerful inertial force of a globalized industrialist culture that legitimizes violations of fundamental rights – of humans among other living beings co-existing in the ecosphere. Therefore, the ongoing efforts aiming to insert the notion of ecocide within the ICC appears as a decisive step towards the renewing of dominant socio-ecological regulatory systems in a precautionary and cross-scale perspective. We think that this move seems nowadays unavoidable in the search of stronger antidotes to the contradictions ingrained in globalized corporate capitalism.

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## 5. Concluding remarks

In this article, we started taking into account the occurrence of a new stage of complexification of the socio-ecological crisis in the Anthropocene, requiring immediate action. In the search of a comprehensive vision for what should be done to improve integral health and quality of life for all inhabitants of our planet, the evidences of increasing negative impacts of industrial agriculture acquire a rather special connotation. The legitimacy achieved by the dominant pattern of permissive regulation on the use of poisons in food production – in a context of growing and pervasive environmental injustices – bring to light the fragility of the national and international legal structures in terms of promoting a renewed concept of eco-centered management of individual and collective health.

The lobby of large transnational corporations operating in the production, distribution and commercialization of pesticides (seeds, other inputs and even medicaments) directly influence the dynamics of national economies, especially in the Global South. The absence of effective instruments to hold these corporations accountable at the international level amplify the range of social inequalities and *structural violence*<sup>4</sup> which affects at the same time human beings, non-human animals and ecosystems.

The search for healthy food products gives way to the production of commodities through the

monoculture of grains to be used mainly in the manufacture of animal feed. In the midst of a process of artificialization and extensive commodification of life support systems, the cultivation of soy, for example, has become one of the main vectors of deforestation in the Amazon and in the *Cerrado* (Rajão *et al.*, 2020; Vasconcelos *et al.*, 2020). The reprimarization of the Brazilian economy and the intensification of commodity production within the framework of asymmetric neoliberal globalization has favored above all the interests of large transnational corporations, to the detriment of the urgent need to reshape agroecosystems in a long term perspective. Nothing seems to escape the immediate search for profits at any cost, even if it is necessary to resort to the use of pesticides endowed with proven acute and chronic toxicity. The emblematic case of the Paraquat herbicide is a relevant indicator of the virulence contained in this strategy. This pesticide adds to a long list of substances banned in their countries of origin and which continue to circulate freely.

Taking into account the most recent evidence of the acceleration of the global crisis, this article highlights the need to promote concrete actions aimed at rethinking the anthropocentric bases of International Law and advancing the process of maturation of a new *eco-legal order* in the Anthropocene. The challenge is to face a trend that has been compromising the basic habitability conditions of

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<sup>4</sup> This concept was initially proposed by Norwegian sociologist Johan Galtung, in an article entitled *Violence, Peace and Peace Research* published in 1969. It designates a special type of violence that contrasts with direct violence in that it manifests itself in a diffuse way – and often socially and politically consented – in the most diverse levels of interaction – from the domestic to the geopolitical levels. In Galtung's words, “structural violence manifests itself as unequal power and, consequently, as unequal life opportunities” (Galtung, 1969, p. 17).



the Earth-System for all beings, both human and non-human (Bourg, 2018).

Moreover, we have argued that the *Environmental Justice* movement should also be expanded to include other aspects in addition to the one aimed only at correcting injustices committed only within communities of human beings. This mean to set in motion an enlarged notion of *Ecological Justice*, which better portrays the awareness of the complexity inherent in the dynamics of socio-ecological systems.

Finally, it has been highlighted the possibility of adopting the international crime of ecocide disposition within the jurisdiction of the International Criminal Court. The incorporation of this type of crime in the catalog of crimes foreseen in the Rome Statute was treated as a promising way of restraining the hegemonic trends that boost the processes of accelerated degradation of life support systems in the ecosphere. Therefore, from now on it seems to us imperative to increase collaborative research on these topics, adding new evidences that help to counteract these threats that impacts so heavily all forms of life existing in the terrestrial habitat.

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