INNOVATIONS IN THE ECOLOGICAL RULE OF LAW

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PREFACE

This research is the result of the International Scientific Event: “Summer School in Environmental Law between Brazil and Australia”, organized by the Research Group on Environmental Law at the Risk Society (GPDA) and the Law Institute for a Green Planet, with the participation of teachers, undergraduate and graduate students from the Federal University of Santa Catarina, the Faculty of Law of the University of Newcastle (Australia) and the Fluminense Federal University.

The book entitled “Innovations in the Ecological Rule of Law” seeks to highlight contemporary issues which aim to emphasize the environmental function of legal protection of nature, to the detriment of traditional environmental law that allows for damage and reduces, controls or monitors both environmental degradation, as well as ecological goods of common use.

The present work is composed of provident texts of lectures given by professors, as well as leading researchers, collaborators of said event. The research aims to bring reflections that dialogue within the lines of Ecological Law and Human Rights, always with a transdisciplinary approach.

From the exchange of knowledge, a range of complex socio-environmental problems were identified. The multiplicities of these, as well as the tools to circumvent them are discussed in the articles that make up the book, encompassing various themes of Ecological Law and Human Rights. The Lawyers of Environmental Law are proposed new ways of achieving the needs of nature and of the community, such as a dignified life, the preservation of nature, the common good and the quality of life.

The work is composed of three thematic axes: 1. Principles of the Ecological Rule of Law, which has seven chapters; 2. Climate Change and the prospects of the Paris Agreement, with four chapters; and 3. Environmental Justice: setbacks and perspectives, with five chapters.

The first chapter, written by José Rubens Morato Leite, Carolina Ávila Schauffert and Heidi Michalski Ribeiro, addresses the origins of the environmental crisis and the role of the Ecological Law State in the search for global ecological integrity and sustainable future for all, emphasizing the Goals Sustainable Development (ODS) and the importance of environmental education in the formation of ecological awareness.

The second chapter, Ana Maria Marchesan's "Resilience and Sustainability: Emerging Principles of Environmental Law in the Anthropocene Epoch", deals with the relationship between economics and ecology, analyzing how the environmental perspective can be incorporated into judicial decisions under the look of strong sustainability and resilience.

In turn, the third, by Melissa Ely Melo and Jonathan Elizondo Orozco, "Ecosystems Services Valuation: One Deep Issue" aims to discuss some of the dilemmas involved in valuing ecosystem services. It is focused on the theoretical approach of the subject, through bibliographical and documentary research, both in a national and international perspective. A transdisciplinary view of the issue was sought, making use of the philosophical and juridical view, also enriched by the support of Ecology and Economy.

"Global Commons and What Gets Lost in Translation: Associating Nomenclatures with Concepts", is the fourth chapter of the first thematic axis and has as authors Caroline Vieira Ruschel and Rogério da Silva Portanova. It

emphasizes the challenges of translating certain concepts into other languages and the losses involved in this process, more specifically, the term Global Commons.

The fifth chapter, titled “The Study of Law and Environmental Commoms: A Proposal by the Research Group DAC”, by Clóvis Eduardo Malinverni da Silva, focuses on the principles of the Ecological Law State and the way in which the Right Research Group Environmental Critic - DAC, from the University of Caxias do Sul, deals with this theme through the project “Law of common environmental goods: between public and private”.

The sixth chapter authored by Daniela Marques de Carvalho de Oliveira, “The Epistemology of the Complexity of Luis Alberto Warat as a Way to Overcome the Legal Epistemology of Modernity and to Protect the Environment”, addresses subjects related to complexity, rationality, to corruption, as well as the importance of complex epistemology in Luis Alberto Warat’s vision for the construction of the Ecological Law State.

The seventh and last chapter of this first part “Corruption, Sustainable Development Goals and Ecological Rule of Law” is written by Bruno Teixeira Peixoto and Natanael Dantas Soares. The article aims at corruption and its relationship with the Sustainable Development Objectives (ODS), in line with the Ecological State of Law orientation, in view of the 17 ODS established by the Global Agenda 2030, especially Objective 16, which highlights the fight against corruption as one of the challenges to achieve sustainability.

In opening the second thematic axis, in the eighth chapter, “First Impressions on Forests and Climate Change in Brazil After the Law 12.651 / 2012 and the Paris Agreement” Pedro Curvello Avzaradel reports the main

changes in the protection of Brazilian forests from the New Brazilian Forest Code , as well as the Paris Agreement and its implications in the Framework of Climate Change.

The ninth chapter, authored by Gabriel Wedy, entitled "Climate Litigation in the Brazilian Superior Courts", aims to highlight the role of legislation and justice in combating deforestation, as well as other factors relevant to climate change in Brazil.

"Human Rights and Environmental Law: The case of the Environmental Refugees" is authored by Arthur Ramos do Nascimento and Heidi Michalski Ribeiro. This tenth study deals with Climate Change, a central issue in the contemporary scenario, which demands rapid responses from the States and the Law for the provocation of several negative repercussions, among which human displacements.

The last chapter of the thematic axis on Climate Change is written by Luana Machado Scaloppe and Clóvis Eduardo Malinverni da Silva. The article entitled "Judicial Approach for Environmental Protection: The Case of Upper Paraguay and Pantanal Bioma", addresses the setbacks of environmental jurisprudence from the perspective of the study of the cases of the Pantanal Basin and Upper Paraguay.

The twelfth chapter opens the thematic axis of Environmental Justice. "Human Rights to Environmental Sustainability and Rationality: A Critical to Modern Rationality for the Construction of a Planetary Law", is the article authored by Rogério Silva Portanova, Belinda Pereira da Cunha and Alana Ramos Araujo whose object is the analysis of the conceptions of Right and rationality, from the perspective of the human right to environmental sustainability.

For its part, the thirteenth chapter is authored by Larissa Verri Boratti and entitled “Situating Justice: A Notion of Urban-Environmental Justice”. The research demonstrates how Environmental Justice has become an example of political mobilization, questioning the unequal distribution of population and territorial benefits.

“The Search for Environmental Justice in Food Production: The Sustainability Challenge “by Leatrice Faraco Daros, Letícia Albuquerque and Flávia Bannister is the fourteenth chapter and focuses on environmental injustice related to food production issues, seen in their aspects of maldistribution , lack of recognition and lack of participation in decision making, which in turn requires a legal approach that emphasizes sustainability in its material aspect.

The chapter “Thinking of Ecological Justice from a Transdisciplinary Perspective of Cooperation”, written by Tonia Andea Horbatiuk Dutra, invites the reader to reflect on the importance of cooperation and complex thinking, in its transdisciplinary bias, for the construction of Ecological Justice.

The last chapter of the book, “The Participation as Legitimation Criteria of Decisions Applied to Environmental Public Policies: The Extinction of RENCA and the Discomfort of the Excluded”, is authored by Luiz Paulo Dammski who, starting from the RENCA case, observes the institutional fragility of decisions that involve public policies in the field of environmental protection, applied in dissonance with the criteria legitimizing the participation of the interested party.

In the face of the evidence of the environmental crisis, it is urgent to change the consciousness of society towards a holistic and integrating vision of the environment. This

new thinking model requires environmental education and the discussion of the themes addressed in this work.

I congratulate the authors and Editora Insular for providing their readers with a product with excellent content and with the merit of seeking a new Ecological, Environmental Law. That is, aimed at the conservation and preservation of the environment, guaranteeing dignified existence to all beings of present and future generations, as well as concerned with the intrinsic value of nature.

Florianópolis/SC, 10th May 2018.
José Rubens Morato Leite
Melissa Ely Melo
Heidi Michalski Ribeiro

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PART I – PRINCIPLES OF THE RULE OF ECOLOGICAL LAW

1. THE RULE OF LAW FOR NATURE UNDER CLIMATE VISION: COMPLIANCE WITH THE SUSTAINABLE DEVELOPMENT GOALS IN THE ANTHROPOCENE ERA

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ABSTRACT

The environmental crisis originates in the model of human life that appropriates nature and causes the degradation of natural resources is called the Anthropocene Age. In this scenario, the Rule of Law for Nature and strong institutions are essential to respond to human pressures and threats in the ecological

integrity of the planet and should act as a legal foundation for achieving environmental justice, global ecological integrity and a sustainable future for all. In the search for ecological balance, it is important to highlight the important role of the International Union for Conservation of Nature, which through its research, seeks social and environmental justice; as well as the Sustainable Development Goals, essential to the viability of a sustainable society. Besides the institutions, it is important to emphasize the role of environmental education in the formation of an ecological conscience. Through the transdisciplinary and complex view of environmental education, it will be possible to achieve results in the effective prevention of environmental damage and improvement of the quality of the environment.

Key Words: Anthropocene; ecological balance; environmental education; social and environmental justice.

INTRODUCTION

As a consequence of technological and scientific advances, an accelerated environmental degradation has put all international community on the alert and caused natural phenomena of incalculable proportions, due to the risks produced by postmodern society. The consequence of massive human interference with nature is the current Anthropocene Age, that is, the geological age of planet Earth is being altered by human modifications.

Due to this interference of the human being on the essential ecological processes, it is necessary that the Rule of Law for Nature take new paths, through the incorporation of ecological thoughts and attitudes in the diverse institutions. For this, the Environmental Law is essential, both in the study and presentation of these new paths, and in the promotion of environmental education focused on

the integrated understanding of the environment in all its complexity.

However, the path to this strengthening of the Rule of Law for Nature is still thorny, even with the visible environmental catastrophes arising from the rampant environmental exploitation. For Boff, it is clear that the developmental logic of capitalism runs counter to environmental dynamics. This is because the first is structured in the maximization of profits through the exploitation of natural resources; while the environmental dynamic is governed by balance, by the interdependence of all with all and by the resilience[1].

Given this scenario of constant changes in the Anthropocene Age, it is important to highlight that one of the roles of the Rule of Law for Nature, is to achieve results in the prevention of environmental damage and improvement of the environmental quality. For these results to be effectively achieved, it is necessary to adopt measures that actually produce changes and such measures must be adopted by all actors - from the public sector, private sector, third sector and citizens - in order to achieve a more balanced and different terrestrial system than the current[2].

Although climate change is affecting the daily lives of billions of people, many still associate it with melting glaciers, not understanding that biodiversity loss from deforestation; reduction and pollution of water; the reduction of air quality, among other problems that are causes and also consequences of climate change.

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[1] BOFF, Leonardo. Sustentabilidade: o que é, o que não é. 2ª ed. – Petrópolis, RJ: Vozes, 2013, p. 35.

[2] ARAGÃO, Alexandra. O Estado de Direito Ecológico no Antropoceno e os limites do Planeta. In: Estado de Direito Ecológico: Conceito, Conteúdo e Novas Dimensões para a Proteção da Natureza. / Flávia França Dinnebier (Org.); José Rubens Morato (Org.); - São Paulo: Inst. O direito por um Planeta Verde, 2017, p. 20-37.

However, the launch of the Sustainable Development Goals (SDG) at the UN Summit in September 2015 has begun a period of evolution in the perception between environmental challenges and human development commitments, affirming the need to consider the environmental, social and economic development in an integrated and balanced manner.[3].

In this way, the importance of the subject is presented, given the fact that, if there are no effective changes, the effects of the Anthropocene can devastate the planet. More specifically, if the objectives of sustainable development are not met, climate change will be felt more intensely, jeopardizing the survival of present and future generations as well as the environment.

The methodology follows the deductive method of approach, starting from the understanding that the ecological crisis has been aggravated and dealing especially about the objectives of sustainable development in the Rule of Law for Nature, using documentary and bibliographical techniques.

The article will first deal with the evolution towards the Rule of Law for Nature and the Anthropocene Age. In a second moment, the World Declaration for the Rule of Law and the climate, as well as the Sustainable Development Goals will be approached. Finally, the article will discuss ways to improve climate regulation, in order to achieve the objectives of the Ecological Law State.

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[3] DE CARVALHO, André Pereira. Objetivos do desenvolvimento sustentável. GV--executivo, v. 14, n. 2, p. 72.

1. EVOLUTION FOR THE RULE OF LAW FOR NATURE: URGENCY IN THE ANTHROPOCENE AGE

Over the years, there has been a rise of constitutional environmentalism in all countries, which makes it possible to consider the emergence of a Rule of Law for Nature. The mobilization of a number of international organizations contributes to this progress. One example is the Declaration of the United Nations Conference on the Human Environment, document prepared at the Stockholm Conference held in Sweden in 1972, whereby countries recognize the right of every citizen and environment of quality for a worthy life.

Another example is the United Nations Conference on Environment and Development promoted by the United Nations in Rio de Janeiro in 1992, the so-called Rio-92. At the Conference, 156 countries signed the Biodiversity Convention, with rules for the use and protection of biological diversity, as well as the sustainable use of natural resources by the signatory nations.

In this respect, it is verified that the Law presents itself as a fundamental instrument in the impetus of a paradigm shift, not only serving as a mechanism of solution of conflicts, but proving to be an effective science in the induction of social behaviors[4].

Thus, Environmental Law can no longer be considered only as a niche of law, finding itself at the center of the search for humanity, for guarantees of the existence of the future itself, because of the need to control, reduce and extinguish

[4] ARAGÃO, Alexandra. O Estado de Direito Ecológico no Antropoceno e os limites do Planeta. In: Estado de Direito Ecológico: Conceito, Conteúdo e Novas Dimensões para a Proteção da Natureza. / Flávia França Dinnebier (Org.); José Rubens Morato (Org.); - São Paulo: Inst. O direito por um Planeta Verde, 2017, p. 20-37.

the existential risks of modern society , a new theory of State arises, based on the dictates of Environmental Law, which incorporates the environment as an objective of its decisions, which, in turn, modifies the other elements of the classical theory of the modern nation-state.

In modern society, the environmental crisis originates in the model of human life that appropriates nature and causes degradation of natural resources. In this way, it is essential to encourage the promotion of environmental education for the integrated understanding of the environment in all its complexity, involving the different aspects related to it. For this, education should not be given in a fragmented way, due to the environmental complexity, which deals with an issue that is directly related to human behavior, with the cultural form of domination of nature, that is also externalized in consumption patterns of contemporary men.

Thus, Environmental Law brings a different perception of life and its interactions, being necessary the change of capitalist values, focused on individualism and profit, emerging as an instrument of transformation of society, worrying about the living conditions of the current and future generations[5].

1.1. The Anthropocene Era

It has been verified that the main cause of the destruction of ecosystems and depletion of resources, generating as a result the modification of the geological age,

[5] DINNEBIER, Flávia França; SENA, Giorgia. Uma educação ambiental efetiva como fundamento do Estado Ecológico de Direito. In: Estado de Direito Ecológico: Conceito, Conteúdo e Novas Dimensões para a Proteção da Natureza. / Flávia França Dinnebier (Org.); José Rubens Morato (Org.); - São Paulo: Inst. O direito por um Planeta Verde, 2017, p. 88-134.

is the human interference of a dominant form in nature. In spite of the increased perception of the problem, compared with the twentieth century, the modification of production systems and human behavior did not materialize enough to contain the devastation of the planet.

The Anthropocene, the term used by the Nobel Prize winner, the chemist Paul Crutzen, is the moment begun in the late eighteenth century, in which mankind has a great impact on the earth system, influencing in a way to cause a change in the geological age of the planet. The verified modification regarding the severity and extent of anthropogenic risks and damages comes from the accelerated development of science and technology, which increase human knowledge about nature, thus promoting a greater capacity of interference in the transformations suffered by the planet[6].

Gerd Winter teaches that the so-called Anthropocene Era is characterized by the fact that humanity has altered the Earth system. This change takes place so intensely that the security barriers *(Leitplanken)* are overcome, part now and part in the near future, and that inflection points *(Kipppunkte)* can be achieved, accelerating the process of destruction[7].

What makes risk production a new phenomenon in the Age of the Anthropocene is its global coverage and its degree of harmfulness, since the perception of its existence is differentiated, and since it is no longer possible to perceive the damages promoted only by the the human senses, calling them "invisible" and irreversible to their

6 PROBLEMAS JURÍDICOS NO ANTROPOCENO: DA PROTEÇÃO AMBIENTAL À AUTOLIMITAÇÃO Gerd Winter Tradução de: Paula Galbiatti Silveira. p. 135-165

7 PROBLEMAS JURÍDICOS NO ANTROPOCENO: DA PROTEÇÃO AMBIENTAL À AUTOLIMITAÇÃO Gerd Winter Tradução de: Paula Galbiatti Silveira. p. 135-165

degree of complexity[8]. As Ulrich Beck teaches, it is not the amount of risk that denotes the problem of the present, but the quality of such risks, as well as the uncontrollability of its consequences[9].

Such impacts from human action on the environment are easily verified through the effects of climate change. According to reports from the Intergovernmental Panel on Climate Change (IPCC), assessments in various sectors have shown that one of the results attributed to human activities harmful to the environment is the constant process of change in the climate of the planet. The subject of climate change, its legal regulation and protection will be studied in a specific topic.

1.2. The Environmental Rule of Law

Originating in Germany, the term "Environmental State", formulated in the same way as the established Rule of Law, came about through the definition of the state objectives introduced in article 20 of the German Fundamental Law[10].

The State, as an institution, has mechanisms for investments in environmental policies for environmental protection, in spite of not being solely responsible for their effectiveness. However, it is noted that the structure of the

[8] LEITE, José Rubens Morato; GALBIATTI, Paula Silveira; BETTEGA, Belisa. O Estado de Direito para a Natureza: fundamentos e conceitos. In: Estado de Direito Ecológico: Conceito, Conteúdo e Novas Dimensões para a Proteção da Natureza. / Flávia França Dinnebier (Org.); José Rubens Morato (Org.); - São Paulo: Inst. O direito por um Planeta Verde, 2017, p. 57-87.

[9] BECK, Ulrich. Ecological Politics in a Age of Risk. Londres: Polity Publications, 1995. p. 54.

[10] CALLIESS, Christian. Rechtsstaat und Umweltstaat: Zugleich ein Beitrag zur Grundrechtsdogmatik im Rahmen mehrpoliger Verfassung. Tübingen, DE: MohrSiebeck, 2001. p. 30.

State remains anthropocentric, not effectively meeting the proposed protection objectives.

Through the constitutionalisation of the environment, the states sought to guarantee in the norm their protection, creating several legal mechanisms. However, in view of the remarkable disharmony between norm and reality, in view of the continuity of degradation and its worsening, global climatic changes and the passage of the planet to a new geological age, provoked by human action, is verified, as demonstrated in the previous item.

The understanding that the traditional nation-state is not sufficient for the protection of the environment and that through it environmental hazards have led to climate change and the modification of the geological age, the Anthropocene, is a justification found in the origins of Environmental Rule of Law.

According to Bugge, the Rule of Law would be the primary social value, since it brings together the highest values and functions of law and of the legal system in society. In a broad sense, the rule of law would represent the principle of governance according to which law is the supreme factor in the relationship between authorities and citizens, and between citizens themselves in case of conflicts of interest. In this way, public and private persons and institutions and the State itself would be subject to the law, and would have responsibility before legal institutions[11].

The Environmental Rule of Law, therefore, is a theory that has emerged as a criticism of the present degradation situation and the traditional theories of the modern State,

[11] BUGGE, Hans Christian. Twelve fundamental challenges in environmental law: an introduction to the concept of rule of law for nature. In: VOIGT, Christina (Ed.). Rule of Law for Nature: New dimensions and ideas in Environmental Law. [S.l.]. 1 ed. New York: Cambridge University Press, 2013, p. 23-24.

as a new institutional ethic, incorporating to the State the responsibility with the environment and the protection of all forms of life and a change of rationality.

There is therefore an understanding that the protection of ecological systems is essential for the reduction of existential risks and for guaranteeing the quality of life, linked to the awareness of the intrinsic value of nature and respect for all forms of life, regardless of its usefulness or human attribution attributed, in the adoption of a biocentric ethics.

For Belchior, the Environmental Rule of Law can be understood as a product of new claims of the human being, which is particularized by the emphasis given to the environment when in the fulfillment of such claims. According to the author, in the formation of the Environmental Rule of Law it is necessary to apply the principle of economic and social solidarity, aiming to achieve a sustainable development model, aimed at equality among citizens through legal control and rational use of natural resources present in nature[12].

The Ecological Rule of Law, set of norms, principles and legal strategies necessary to ensure the preservation of a set of conditions of operation of the terrestrial system, seeks to make Planet Earth a livable, sustainable space, guaranteed for present and future generations. The promotion of human security and prosperity is essential for the maintenance of socio-ecological resilience and for the achievement of the global objectives of sustainable development, as will be seen in a specific topic.

Kloepfer says that "any extension of environmental protection ultimately has implications for our state's

[12] BELCHIOR, Germana Parente Neiva. Fundamentos Epistemológicos do Direito Ambiental. 1 ed. – Rio de Janeiro: Lumen Juris, 2017, p. 101.

political and economic system." In this context, he affirms that the concept of Environmental State is that which makes the environment of its environment, its task, criterion and procedural goal of its decisions, not excluding the social scope.

Since it creates new limitations on people's fundamental rights and freedoms, the new concept of the rule of law, which is geared to the environment, may conflict with the rule of law in its traditional sense. However, according to Ferreira and Leite, it was based on the perspective of the Liberal State of Law, structured in the value of freedom, which gave place to the Social State of Law, centered on the realization of the equality value. The Rule of Law for Nature, while overcoming the traditional Rule of Law and reviewing the Environmental Rule of Law, aims to strengthen its biocentric character, incorporating new understandings arising from the challenges of the Anthropocene era, complementing it, modifying its rationality and structure to include the biology of life and lessen the impact of human action on ecological processes[13].

The difference between the missions of the Rule of Law in the Holocene and the Ecological Rule of Law in the Anthropocene is the legal force of the obligations imposed. In the Rule of Law, legal obligations to protect the environment were reduced to the duty to make an effort to avoid environmental damage and, as far as possible, to improve the quality of the environment. Therefore, environmental protection actions were based on the best available techniques, good practices and diligence. Criteria

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[13] LEITE, José Rubens Morato; GALBIATTI, Paula Silveira; BETTEGA, Belisa. O Estado de Direito para a Natureza: fundamentos e conceitos. In: Estado de Direito Ecológico: Conceito, Conteúdo e Novas Dimensões para a Proteção da Natureza. / Flávia França Dinnebier (Org.); José Rubens Morato (Org.); - São Paulo: Inst. O direito por um Planeta Verde, 2017, p. 57-87.

such as social proportionality and reasonableness guide the choice of measures to be taken.

In the Ecological Anthropocene Rule of Law, the obligation is to achieve results: results in the effective prevention of environmental damage and real improvement of the quality of the environment. This ambitious goal requires the adoption of all necessary measures to produce changes, respect deadlines and achieve goals. The criteria for choosing the appropriate means to achieve the objectives are ecological proportionality with social acceptability and effectiveness, ie: the ability to find solutions meeting goals[14].

1.3. World Declaration for the Environmental Rule of Law and the climate

As seen above, with the strengthening of the environmental crisis, it is essential to rethink the theory of the Environmental Rule of Law, with a view to protecting ecological processes as the foundation of the State. Due to the massive interference of human beings with ecological processes, new directions are required for the Ecological Rule of Law, in order to strengthen the state duties provided for in article 225 of the Brazilian Federal Constitution, by incorporating the ecological aspect to the institutions.

With the aim of including the environment among the main concerns of the State to reach ecological balance, Bugge inserts in the discussion the Rule of Law for Nature, which has no anthropocentric character and is more radical, in the sense of extending the elements of the rule of law beyond human beings.

[14] ARAGÃO, Alexandra. O Estado de Direito Ecológico no Antropoceno e os limites do Planeta. In: Estado de Direito Ecológico: Conceito, Conteúdo e Novas Dimensões para a Proteção da Natureza. / Flávia França Dinnebier (Org.); José Rubens Morato (Org.); - São Paulo: Inst. O direito por um Planeta Verde, 2017, p. 20-37.

In view of this need to discuss the new scope of environmental understanding in the States, the International Union for Conservation of Nature (IUCN) organized, in April 2016 in Rio de Janeiro, the 1st World Congress of Environmental Law, which originated the so-called World Declaration on the Environmental Rule of Law.

Although it was not a formal document, the Declaration brought the prospect of new directions for the Environmental Rule of Law, in view of the assumption of international discussions regarding state action in protecting the environment.

The Declaration establishes the objective of building an Environmental Rule of Law as the legal basis for environmental justice, through the expansion of substantive principles and procedures and environmental protection at the national, regional and international levels. Emphasizes that humanity exists within nature and that all forms of life and their integrity depend on the biosphere and the interdependence of ecological systems, which is why there is deep concern about the stresses caused by human actions on Earth which cause degradation environment, with the loss of natural resources, biodiversity and the transgression of planetary boundaries.

The Declaration recognizes the existence of an intrinsic relationship between human rights and the conservation and protection of the environment, as well as the fundamental importance of ecological integrity for the achievement of human well-being and the contribution of the principles of environmental law to development legal instruments and policies for nature conservation at all levels based on respect for human and fundamental rights of present and future generations.

For all these reasons, Congress participants state that strengthening the Environmental Rule of Law is essential for

the achievement of ecological sustainability and sustainable development, without which environmental governance, conservation and protection of the environment remain “arbitrary, subjective and unpredictable”

Therefore, the Environmental Rule of Law and strong institutions are essential to respond to human pressures and threats in the ecological integrity of the planet and should act as a legal foundation for achieving environmental justice, global ecological integrity and a sustainable future for all.

From the IUCN Declaration in 2016, it is possible to perceive that the Ecological Rule of Law does not have in its foundations anthropocentric character, that preserves the environment and understands it only as a means for human health, well-being and survival, but that every form of life has the right to continue existing, regardless of its value to humanity, and that the integrity of ecosystems must be the primary concern of States, and in the case of actions aimed at degrading it, they must be adopted if they do not cause disproportionate impacts or those that are least damaging to the environment. For these reasons, based on the change of rationale that has been the basis of the discussions and the express text of the Declaration, is the justification for the new directions of the Ecological Rule of Law from the incorporation of the ecological, especially the rights of nature and the strengthening of the protection of ecological and ecosystem processes.

2. SUSTAINABLE DEVELOPMENT GOALS

Sustainable development is one that can meet the needs of the current generation without compromising the existence of future generations. In view of this, in September 2015, realizing that the economic, social and environmental

indicators of recent years were pessimistic about the future of the next generations, the United Nations (UN) proposed that its 193 member countries sign Agenda 2030, a global plan consisting of 17 goals (Sustainable Development Goals - SDG) and 169 goals for these countries to achieve sustainable development in all areas by 2030.

Beginning in 2013, following the mandate issued by the Rio+20 Conference, the Sustainable Development Goals will guide national policies and international cooperation activities over the next fifteen years, succeeding and updating the Millennium Development Goals (MDGs).

Brazil participated in all sessions of intergovernmental negotiation. An agreement has been reached that includes 17 Objectives and 169 goals, involving diverse topics such as poverty eradication, food security and agriculture, health, education, gender equality, inequality reduction, energy, water and sanitation, sustainable production standards and consumption, climate change, sustainable cities, protection and sustainable use of oceans and terrestrial ecosystems, inclusive economic growth, infrastructure and industrialization, governance, and means of implementation.

The national coordination around the Post-2015 Agenda and the ODS resulted in the document "Guiding Elements of the Brazilian Position", elaborated from seminars with representatives of civil society; of offices with representatives of municipal entities organized by the Institutional Relations Secretariat / PR and the Ministry of Cities; and the deliberations of the Interministerial Working Group on the Post 2015 Agenda, which brought together 27 Ministries and organs of federal public administration.

Each objective and its respective goals address different aspects that converge because they are essential for

the viability of a sustainable society. Among the objectives, some deserve attention, such as the following:

1. Ensure sustainable production and consumption patterns: At the current pace, we consume far more natural resources than we should. This has the consequence that, in the coming years, we may suffer not only from the already feared lack of water, but also from the lack of other resources, such as food, minerals, energy, etc. With this in mind, Agenda 2030 establishes one of the goals of “substantially reducing waste generation through prevention, reduction, recycling and reuse”.

2. Take urgent action to combat climate change and its impacts: While we have made significant strides in preserving the planet, such as curbing the increase in the ozone hole, we are still performing negatively on other tasks such as increasing deforestation and air pollution, which has a direct influence on global warming. According to the UN, if measures are not taken, global temperatures could rise by as much as 3 degrees by the end of the 21st century. Therefore, one of the goals of the Agenda 2030 is to increase the investments of the countries in the development of technologies that can reduce the wear and tear on the planet.

3. Protecting, restoring and promoting the sustainable use of terrestrial ecosystems, sustainably managing forests, combating desertification, halting and reversing land degradation, and halting the loss of biodiversity: In recent years, several environmental disasters have occurred in diverse regions of the planet, such as chemical leaks, fires, among others. For this reason, one of the goals of Goal 15 of Agenda 2030 is to increase mobilization to reverse the consequences of these degradations and to prevent further disasters.

4. Strengthen the means of implementation and revitalize the global partnership for sustainable development: For all these goals to become a reality, it is important that there is partnership and cooperation among nations. Therefore, one of the goals of Agenda 2030 is for the better-off countries to help:

> Developing countries to achieve long-term debt sustainability through coordinated policies to promote debt financing, reduction and restructuring, as appropriate, and addressing the debt burden of heavily indebted poor countries to reduce over-indebtedness.

It can be seen that the Sustainable Development Goals are systemic, that is, they have as vision the integrative ideal, thinking of sustainable development in a holistic way to find solutions to the problems characteristic of modernity in an interconnected way, since such problems are generally caused by a series of factors that result.

Thus, through the Sustainable Development Goals, the commitments contained in the Eight Millennium Development Goals (MDGs), launched in the year 2000 with a view to 2015, continue. Although these objectives have not been completely achieved, they have accelerated the priorities in the human development agenda[15.]

3. NEW WAYS TO IMPROVE CLIMATE REGULATION

The intense changes occurring on Earth are consequences of the massive action of man, which has compromised the essential ecological processes, as well as modified the planet radically[16]; so that countries have

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[15] DE CARVALHO, André Pereira. Objetivos do desenvolvimento sustentável. GV--executivo, v. 14, n. 2, jul/dez 2015, p. 72.

[16] The number of natural World Heritage sites threatened by climate change has

debated ways to resolve or avoid the effects of climate change, seeking greater protection of nature.

In this context, the International Union for Conservation of Nature (IUCN), a union composed of government members and civil society organizations, aims to provide tools and knowledge to public, private and non-governmental organizations to promote human development in conjunction with nature conservation. The conferences held by the IUCN culminated in the elaboration by the United Nations of important international agreements, such as the Convention on Biological Diversity (IUCN)[17].

In addition to the aforementioned World Declaration on the Environmental Rule of Law, which, although not a formal document, has brought new and important directions for the State of Ecological Law and also for state action in protecting the environment; It is important to highlight the most recent statement made by IUCN Director-General Inger Andersen at the United Nations Conference on Climate Change in Bonn, Germany (COP23).

In her statement, made on November 16, 2017, Inger states that the IUCN is relentless in defending its great ally: Mother Nature. In that sense, he said that recent analyzes show that natural climate solutions can provide more than a third of the necessary climate mitigation between now and 2030, to stabilize warming below 2°C. The IUCN Director also emphasized that investments in nature infrastructure

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grown from 35 to 62 in just three years, with climate change being the fastest growing threat they face, according to a report released today by IUCN, International Union for Conservation of Nature, at the UN climate change conference in Bonn, Germany. Available on < https://www.iucn.org/news/secretariat/201711/number-natural-world-heritage-sites-affected-climate-change-nearly-doubles-three-years-%E2%80%93-iucn> Access 16 Nov. 2017.

[17] Find more information on < https://www.iucn.org/about>.

as well as reducing poverty and feeding the growing global population contribute to the preservation of biodiversity.

> […] as IUCN's work around the globe shows, nature-based solutions go well beyond mitigating climate change. In a world where the devastating consequences of climate change are already upon us, investments in nature's infrastructure – the floodplains, mangroves, estuaries – help protect communities from climate-related disasters. A recent study, for instance, estimates that wetlands avoided US$ 625 million in direct flood damages during Hurricane Sandy in 2012. And beyond their crucial role in tackling climate change, nature-based solutions help reduce poverty and feed a growing global population while also conserving biodiversity[18].

This way, it is clear that the role of nature itself in achieving the Paris Agreement and the Sustainable Development Goals can not be ignored. Including solutions based on nature aimed at climate change, such as the restoration of the forest landscape for example, is accessible, effective and it is from these actions that all sectors must provide.

At the speed of environmental devastation, ambitious and early mitigation and the path proposed at COP23 are needed, as well as preserving the environment and reducing the risk of natural disasters[19] by investing in

[18] IUCN statement to UN Climate Change Conference 2017. Available on < https://www.iucn.org/news/climate-change/201711/iucn-statement-un-climate-change-conference-2017> Access on 19 Nov. 2017.

[19] Oceania is in one of the most disaster-prone regions in the world. The islands in the region are particularly vulnerable to disasters and climate-related risks caused mostly by cyclones, floods and droughts. Four countries of the region are listed among the top 10 countries with the highest disaster risk worldwide, according to the 2016 World Risk Report, with Vanuatu and Tonga topping the list. However, on the road to resilience, coastal ecosystems and biodiversity such as mangrove forests have key roles to play as highlighted by IUCN's 2016 regional assessment on biodiversity and disaster risk reduction in Oceania. Using a peer-peer learning approach, this workshop held in collaboration with the UN Office for Disaster Risk Reduction (UNISDR)

floodplains and estuaries, promotes poverty reduction, that is, a socio-environmental path in keeping with the Sustainable Development Goals.

In the search for improvements in climate regulation that bring positive impacts to the reality of climate change, it is important to emphasize the role of environmental education in the formation of an ecological awareness, an awakening to the importance of the environmental good. Environmental education is endowed with these protagonisms because of the varied knowledge that permeate it, that is, the transdisciplinary and complex character, which is also the basis of Environmental Law.

There is a lack of environmental education to obtain an Ecological State of Law, which gives greater rigidity to environmental prevention issues and thus seeks to avoid the negative effects of verified degradation, such as the climatic issue.

The environment does not only serve to designate a specific object, but a relation of interdependence. According to Vieira, this interdependence is observed in relation to man-nature, since there is no way to separate man from nature since he does not exist without it, that is, he depends entirely on nature to survive[20].

For effective change to be achieved, awareness is needed that "the ecological crisis is not only about the destruction of environmental resources but also about the

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and the Ramsar Convention provided training on how ecosystems can be used in efforts to increase community resilience to disasters and climate change. And it also provided a platform for participants to exchange experiences and to come up with joint ideas to scale-up actions for nature-based disaster risk reduction in the region. Available on < https://www.iucn.org/news/ecosystem-management/201703/using-nature-transform-disaster-risk-reduction-it-starts-two-way-dialogue-0>. Access on 19 Nov. 2017.

[20] VIEIRA, Paulo Freire. Meio Ambiente, desenvolvimento e cidadania. In VIOLA, Eduardo et al. (Org.) Meio Ambiente, desenvolvimento e cidadania: desafios para as Ciências Sociais. São Paulo: Cortez, 1995. p. 49.

human relationship with nature"[21] and these reflections will emerge from education environmental.

Therefore, whatever concept one wishes to apply, there is no way of not considering that the environment encompasses, among its elements, man and nature. Thus, if an injury occurs to nature, the same damage will occur to the man, considering that it is a diffuse right.

With regard to the application of Environmental Law, it is important to build an environmental legal hermeneutics aimed at ensuring an ecological balance. Even if sometimes the standard is insufficient to meet the environmental reality, the interpreter must realize the complexity that surrounds the theme, and this perception will be built from an ecological education and an environmental rationality.

Thus, it is noted that Environmental Law brings together a mosaic of several branches of Law, since it is an area that integrates branches of traditional disciplines. When the environmental good is legally protected, the protection of a diffuse right is sought and, thus, this protection is linked to the conservation of a property that belongs to the collectivity, whose control is done jointly between States and citizens[22].

In this way, not only is legal science focused on the environmental issue, but a large part of the human sciences, besides the exact and biological ones, also deal with issues related to the environmental good. Thus, the complex view of the sciences shows that Environmental Law presupposes

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[21] BELCHIOR, Germana Parente Neiva. Fundamentos Epistemológicos do Direito Ambiental**.** 1 ed. – Rio de Janeiro: Lumen Juris, 2017, p. 69.

[22] LEITE, José Rubens Morato; AYALA, Patryck de Araújo. A transdisciplinaridade do direito ambiental e a sua equidade intergeracional. Seqüência: Estudos Jurídicos e Políticos, Florianópolis, p. 113-136, jan. 2000. ISSN 2177-7055. Disponível em: https://periodicos.ufsc.br/index.php/sequencia/article/view/15418. Acesso em: 24 nov. 2017. doi:http://dx.doi.org/10.5007/%x.

a vision of transdisciplinarity that, as Leff conceptualizes, can be defined as a process of exchange between branches of scientific knowledge, in which there is the exchange of methods, knowledge , terms, inducing a contradictory process of advancement and regression of knowledge, characteristic of the development of the sciences[23].

It is concluded that it is not possible to deal with environmental legal protection without the modification of the traditional branches of law, inserting new preventive mechanisms that were previously little used. In this way, the Environmental Law reaches a level of greater autonomy, when it is verified the acceptance of its principles in a given legal system[24].

It should be emphasized that here are ways, new looks for the ecological crisis and for climate mitigation, not solutions. These new paths thread through complexity, recognizing that socio-environmental issues are inseparable and seek to effectively protect the environmental good through education for sustainability and the creation of an ecological conscience.

CONCLUSIONS

1. Modern society is experiencing the climax of environmental setbacks, the fruit of capitalist and uniquely developmental policies, which are based on profit at any cost and to the detriment of nature; so that it is necessary to evolve towards an Ecological Rule of Law, which strengthens a new look an ecological awareness.

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[23] LEFF, Enrique. **Epistemologia Ambiental.** Editora Cortez. São Paulo, 2001, p. 83.

[24] LEITE, José Rubens Morato; AYALA, Patryck de Araújo. A transdisciplinaridade do direito ambiental e a sua equidade intergeracional. Seqüência: Estudos Jurídicos e Políticos, Florianópolis, p. 113-136, jan. 2000. ISSN 2177-7055. Disponível em: https://periodicos.ufsc.br/index.php/sequencia/article/view/15418. Acesso em: 24 nov. 2017. doi:http://dx.doi.org/10.5007/%x.

2. In the Ecological Rule of Law in the Anthropocene, the obligation is to achieve results: results in the effective prevention of environmental damage and real improvement of the quality of the environment. This ambitious goal requires the adoption of all necessary measures to produce changes, respect deadlines and achieve goals.

3. The importance of institutions such as the International Union for Conservation of Nature (IUCN), which through its researches, congresses, debates and declarations, is able to not only expose society to the true vision of the ecological crisis, but also point out ways solutions - especially climate change - thus creating a global ecological awareness.

4. It is essential to encourage the promotion of environmental education for the integrated understanding of the environment in all its complexity, involving the different aspects related to it. For this, education should not be given in a fragmented way, due to the environmental complexity, which deals with an issue that is directly related to human behavior, with the cultural form of domination of nature that is also externalized in consumption patterns of contemporary man.

5. It is important that this is based on the dialogue of knowledge, that is, on transdisciplinarity, which will bring new reflections and paths, in order to follow the constant transformations and conflicts of the environment, as well as, recognize that complex thinking is the starting point for the elaboration of a new environmental rationality, a new understanding of the world, that can meet the objectives of the Ecological Rule of Law and, above all, preserve biodiversity and contribute to human development.

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2. RESILIENCE AND SUSTAINABILITY – EMERGING PRINCIPLES OF ENVIRONMENTAL LAW IN THE ANTHROPOCENE EPOCH

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This paper stems from a short study of the relations between economics and ecology and faces how the environmental perspective can be incorporated in the judicial and administrative decision making, and by the law producers. In times of economic crisis, the tensions are even more acute, as the myth of economic growth tends to appear as the miracle to save businesses, public accounts and the population of poverty. The study approaches the strong sustainability and the resilience principle from a vision that links one to the other and presents both as emerging principles of environmental law. Sustainability and resilience in the Anthropocene Epoch must colonize

the actions and decisions about environmental resources management at all levels: local, national and international.

1 INTRODUCTION

The friction between the economy and the environment is so frequent that it produces in real life the fake belief that it is impossible to celebrate one harmonic union between both.

Self-sufficiency contaminates both ecologists and economists. Locked up in their operational universes, professionals cease to handle instruments of areas of knowledge distinct from those in which they work with greater comfort.

In times of economic crisis, the tensions are even more critical, as the myth of economic growth tends to appear as the miracle to save businesses, public accounts and eradicate poverty.

These disruptions disregard the common origin between economics and ecology. They disregard that the environment is the life support base and that it is not possible to think of life with quality when one does not have a minimum of environmental balance.

In this incessant friction between environmental preservation and economic activity, the principle of sustainability has been well presented, trying to demonstrate the necessary insertion of the economic, social, cultural and environmental variables in the decision making stage.

Borrowed from ecology, resilience has been appearing in Brazilian and foreign doctrine and judicial decisions, setting the stage for its definitive recognition as a principle of environmental law.

In the Anthropocene, resilience can never be ignored when one studies the necessity of return of the environment

to its previous state or *reduction ad pristinum statum* or even better to prevent the irreversible collapse of an ecosystem.

Resilience and sustainability are principles to be further studied by national and international environmental law, establishing a ground for constitutional and infra-constitutional recognition and applicability by judges and environmental managers.

This chapter examines the difficult and intricate relationship between economics and environment establishing the overcoming of the model of development acclaimed by the neoclassical economics. Also the emerging principles of environmental law: sustainability and resilience are closely analyzed.

The approach used taking into account the Anthropocene Epoch, the new geologic time when the humankind promoted a huge interference in the dynamics of all terrestrial ecosystems, from the simplest to the most complex, disregarding the finiteness of environmental resources in a world of expanded consumption.

2 ECONOMICS AND ENVIRONMENT – FROM GROWTH TO DEVELOPMENT

The origin of the word economics goes back to the Socratic philosophers of Ancient Greece.

Xenophon, in the fourth century BC, entitled his work *Oikonomikos,* whose literal translation is the administration of the house, in which he taught the basic rules for the domestic administration, hunting, fishing, agriculture and the management of slaves.

The word ecology is of much more recent origin - as *Eugene Odum* mentions - it was first employed by the German biologist Ernst Haeckl in 1869 (ODUM, 1983, p.1). The link between economics and ecology goes back to the very root

of both terms: oikos = house. While economics is geared to the organization and management of the home, ecology is the science that deals with the study of the house. Vivien highlighted that Haeckel, in 1879, would have written that ecology is understood as the area of knowledge concerning the economics of nature (VIVIEN, 2011).

Well-being is synonymous with quality of life. And quality of life is only achieved in a context of physical, mental and social balance, as seen in article 3, unique paragraph, of Law 8.080/90, which provides for the promotion, protection and recovery of health in Brazil.

Adhering to the idea of the ecological economics, whose prominent scholar is the economist Herman Daly (DALY & FARLEY, 2004), that economics is the study of the allocation of limited or scarce resources between alternative and competing ends, we cannot dissociate welfare from ecosystem services.

In ecological economics it is of the utmost importance that we limit ourselves to that can be sustained by a given ecosystem at a given level of consumption from the use of a given technology.

Therefore, in order for the ecological economics to fulfill its mission of ensuring socially and environmentally fair development, beyond the temporal framework of present generations, it is necessary to evaluate whether the key to this is through persistent economic growth, such as that which has been propagated by the great majority of neoclassical economists[25], or whether what matters is the understanding of what Daly and Farley called the optimal scale of economics (DALY & FARLEY, 2004, p. 45). For them,

[25] An exponent of neoclassical economics is Stiglitz. He really believes that the increase in technology will be able to enable the human species to overcome the scarcity of natural resources (STIGLITZ, 1979, p. 36).

the idea of an optimal scale is not strange to conventional economists and is the very basis of microeconomics. When we increase any activity we also increase its costs and benefits. Over time, it often happens that after a certain point, the cost rises faster than the benefits. As Daly stresses, good reasons are given to conclude that "marginal costs increase and marginal benefits decline as the scale of the activity grows" (DALY, 1996, p. 60). So, the economists usually recommend to expand the scale of the activity up to the point where marginal costs equal marginal benefits. This is known as the Optimal Scale

However, when we migrate to macroeconomics, we never hear about this Optimal Scale. Economists no longer speak of defined costs and benefits for growth on the scale of the economy as a whole. Daly (DALY, 1996, p. 60) and his partners in Ecological Economics invited all the economists to increase the scale of the carbon cycle and the hydrologic cycle in proportion to growth of industrial and agricultural activities. From this perspective, the economy is no longer seen as a system independent of the environment, but as an activity in it.

The rupture with the paradigm of neoclassical economics necessarily involves the construction of a concept of development that takes into account the resilience of ecosystems

Increasing production and population are factors that imply an increase in the use of environmental inputs, which are limited. However much we take into account the infinitude of the universe and the limitless human creativity, always able to overcome adversity, we are at a crossroads. Taking advantage of a new concept, first proposed by the Dutch chemist Paul Crutzen, a group of geologists coordinated by Efe Jan Zalasiewicz defended in

Cape Town, at the last international congress of geology held in August 2016, that we are living a new epoch: The Anthropocene.

For these scholars, the world has left the Holocene Epoch, which lasted 10,000 years, and entered the Anthropocene. The International Commission on Stratigraphy is studying the physical indicators to show that humans have altered the crust of the Earth, mostly the soils and rocks. As Robinson points out, the key indicators of this Anthropocene are: (1) Melting the cryosphere – the loss of frozen glaciers and ice caps; (2) Sea level rise and new coastlines & coastal sedimentation; (3)The acidification of the oceans and the increase in carbon dioxide in the atmosphere; (4) Radioactive rocks and soils from pre-1963 atmospheric nuclear weapons tests; (5) Synthetic and organic chemical waste that never existed naturally before humans invented them (6) Extinction of species and the new fossil record (ROBINSON, 2013).

The idea of the Anthropocene Epoch has been approached by several disciplines and in interdisciplinary dialogues, spreading out from geology.

Hamilton, Bonneuil and Gemenne selected at least three definitions: (1) New interval in geological history identified by stratigraphers; (2) The result of the earth science system, where several experiments are added, such as climatology, global ecology, geochemistry, atmospheric chemistry, oceanography, geology, and so forth, based on the changes detected by these various branches of science in the layers of the earth. (3) A third view identifies with a broad notion of human impacts on the planet, including landscape transformations, urbanization, spill extinction, resource extraction and waste disposal, as well as ruptures of natural processes such as the nitrogen cycle

(HAMILTON; BONNEUIL; GEMENNE, 2015, p. 3). This last perspective could be identified with the cumulative impact of civilization. In this sense, the Anthropocene represents a sharp change in the relationship of humans with the natural world (HAMILTON; BONNEUIL; GEMENNE, 2015, p. 3).

From reading these three views, the authors highlighted that we (mankind) have become a telluric force, changing the earth more than volcanic activity, tectonic forces, cycling and flows of solar radiation or changes in the orbit of the earth around the sun.

Furthermore, they related the Anthropocene to rapid global environmental changes in unprecedented scales. For example, the loss of biodiversity has been so intense and incomparable since the fifth mass extinction, about 65 million years ago, that saw about 3/4 of animals and plants, including dinosaurs, disappear from the earth's surface.

Paleontologists characterize mass extinctions as times when lose more than three-quarters of its species in a geologically short interval. It has happened only five times in the last 540 million years or so. A group of biologists suggest that we are next to the sixth mass extinction because we are witnessing a significant loss of biodiversity (BARNOSKY et al., 2011).

Also remarkable is the increase of the planet's temperature by 4 degrees Celsius at the end of the 21st. Century. They emphasize that "more than mere global hazards, the Anthropocene thesis proclaims a new geological regime of Earth existence and a new human condition" (HAMILTON; BONNEUIL; GEMENNE, 2015, p.4).

We agree with them when they considered that reinventing a dignified life for ALL HUMAN BEINGS in

a degraded and, more so, finite land has become the main issue of our time.

The huge interference in the dynamics of all terrestrial ecosystems, from the simplest to the most complex, justifies that the human being is currently identified as being very different from other animals.

Instead of living on the appropriation of a relatively small fraction of the natural flows of matter and energy on the planet, the human being presents itself as a global geological agent.

Aware of this high degree of environmental degradation that can jeopardize not only human life but all life on earth, nations are increasingly celebrating international environmental agreements (IEA, 2017). Moreover, at a national level, especially in the Western world, the increase in the number of environmental laws is indisputable.

However, the practice of "business as usual" as well as increases of the environmental degradation associated with it does not show signs of reduction.

The main idea of a stable economy advocated by Daly, Farley and other ecological economics theorists is to keep a record of wealth and population stocks at levels sufficient for a long and good life.

This new paradigm reminds us of a complete disconnection of ideas between growth and development. The first is not always economical, nor is it sustainable. The second can be sustainable or not.

3. SUSTAINABILITY IN THE ANTHROPOCENE

Sustainability is a concept closely associated with our needs, hence why we all have, intuitively, a notion about

what is sustainable or not. "Most of us are fully aware of the unsustainable things: garbage, fossil fuels, polluting cars, unhealthy foods and so on" says Bosselmann (BOSSELMANN, 2015, p. 26).

In order to avoid vulgarizing the term or a weak sense of sustainability, it is essential that we do not lose sight of the fact that ecological sustainability is linked to the idea of "living from production, but not from matter" (BOSSELMANN, 2015, p. 41), that is, living within ecological limits.

Schrijver (SCHRIJVER, 2010, p. 5) identifies two models of sustainability: weak sustainability and strong sustainability. The first and most widespread of models preaches conservation of all types of capital, including natural capital, as a guarantee that the level of well-being is perpetuated, although this implies the possibility of loss of natural capital that can be restored through economic capital (it is believed that new technologies will be able to replace non-renewable natural resources).

For the supporters of the strong sustainability model, each type of capital must be maintained separately. For this, we must conserve biodiversity, prevent significant and irreversible damage to the environment, and use moderately natural resources for economic purposes (SCHRIJVER, 2010, p. 5).

Based on this central idea drawn from ecology and the notion that environmental law principles necessarily have an interdisciplinary bias, Bosselmann identified the principle of sustainability as feasible and legally relevant (BOSSELMANN, 2015, p. 65). Defined as "the duty to protect and restore the integrity of ecological systems" the principle of sustainability re-signifies the notion of sustainable development.

The traditional definition of the Brundtland Report on Sustainable Development as "satisfying the needs of the present without compromising the ability of future generations to meet their own needs" does not incorporate the real meaning of sustainability (BOSSELMAN, 2015, p. 51) because it is restricted to human needs. Therefore, it is excessively anthropocentric.

On the other hand, he criticizes the vision (BOSSELMANN, 2015, p.52) that equates development and sustainability (model of the two scales) with importance, since it presupposes a false separation between the environmental and development spheres and a balance between the entities. In addition, this model does not include the time factor, it is fixed in the present. And, finally, it reproduces the neoliberal equation of development with economic growth, which may not meet the expectations of some countries, nor is it feasible given the limitation of natural resources.

Starting from this critical assessment, Bosselmann (2015, p. 54) concludes that it is the concern "with all forms of life", not only human life, which is essential to guide the future. In his point of view, the ecocentric component of sustainable development is essential to make it an operational concept that ensures preservation of the natural stock to meet the needs of present as well as future generations (BOSSELMANN, 2015, p. 55).

The law must intervene to guide our ethical environmental standards towards sustainable development.

By erecting human dignity as a fundamental value of the entire national legal order (article 1, paragraph III), the Brazilian Constitution does not commit itself exclusively to those who now inhabit and consume in our Planetary House, but works with a broad perspective to protect the unborn (future generations).

Concern for the future will only be able to materialize if the fundamental right to property is infused with a social function, which has not been disregarded in the constitutional text (articles 5, XXIII, 170 and 174).

Therefore, the notion of sustainability, and its advanced concept, the sustainability principle, must enter into judicial, political and administrative decisions at all levels: local, national and international.

4. RESILIENCE AS AN ELEMENT INSEPARABLE FROM SUSTENTABILITY

The resilience concept emerged in the late 1960s / early 1970s in relation to ecosystem resilience, and focuses on the systems' ability to persist and cope with change. In the mid-1970s / early 1980s it began to integrate behavioral studies referring to the capacity of individuals to confront and overcome crises and in the 1980s, resilience referred to increasing human interactions, exemplifying sustainability discussions .

The concept began to be employed for organizations in the late 1990s. It became widely debated in relation to disaster risk reduction at the beginning of the twenty-first Century (HUTTER, 2017, p. 20).

Robinson defines resilience as the inherent ability to react to disruptions of human or ecological systems, keeping them healthy and balanced (ROBINSON, 2014). He emphasizes that resilience as well as biophilia and cooperation, are three evolved norms which can guide communities and countries (ROBINSON, 2013, p. 51). In Folke's words, resilience is the "capacity management of socio-ecological systems to cope with change, adapt to changes and shape the changes" (FOLKE, 2006, p. 254).

A strong perspective of sustainability cannot, under any circumstances, overlook resilience, because abrupt

changes, even generated by non-anthropic causes, affect any socio-ecological system.

A legal principle is affirmed by reiteration. Along with its ecological existence, resilience has been appearing in law essays, books and jurisprudence, opening the way for it to be expressly recognized in the Constitution and infra-constitutional legislation.

Demange considers that article 225 of the Brazilian Constitution, by requiring the Public Power and the community to preserve the essential ecological processes, also compels them to "continuous monitoring of the functioning of ecosystems and sometimes interventions controlled by the environmental agency according to the methods of experimentation and adaptive management " (DEMANGE, 2016, p. 22), that is, a gradual management in which adjustments are made as new information is provided (DEMANGE, 2016, p. 22).

From the declaration of the First Environmental law Congress from IUCN, which was held in 2016 in Rio de Janeiro, the fourth principle states :

> **PRINCIPLE 4 - ECOLOGICAL SUSTAINABILITY AND RESILIENCE.**
> Legal and other measures shall be taken to protect and restore ecosystem integrity and to sustain and enhance the resilience of social-ecological systems. In the drafting of policies and legislation and in decision-making, the maintenance of a healthy biosphere for nature and humanity should be a primary consideration (IUCN, 2016).

Resilience also appears in the draft project of the "Global Pact for the Environment" which is being developed in close cooperation with the IUCN World Commission on Environmental Law (WCEL), and with operational support from the Environment Commission of the Club des Juristes

(France's first think tank) led by Yann Aguila. In article 16, resilience appears as a goal to be pursued by the signatory parties (IUCN, 2017).

In the ANTHROPOCENE EPOCH, the study of ecological resilience is fundamental so that we can understand why ecosystems have become more vulnerable and what causes the continued environmental degradation observed even in preserved ecosystems.

Expanding functional diversity increases the range of possible alternatives for reorganizing patterns and paths following disorders and disruptions and contributes to ecosystem resilience. Folke also adds the following factors to the resilience of socio-ecological systems: persistence, adaptability and processing capacity (FOLKE, 2003, p. 33).

The resilience framework broadens the description of resilience beyond its meaning as a buffer for conserving what you have and recovering what you were. Beyond this concept of persistence, resilience thinking incorporates **the dynamic interplay of persistence, adaptability and transformability across multiple scales and multiple attractors** in SESs (social–ecological systems) (FOLKE, 2006, p. 258).

One of the practical applications of the principle lies in judicial decisions.

Pending a final verdict, the magistrate may suspend a certain intervention that could result in loss of resilience by applying the principle *in dubio pro natura* or, in Bugge's expression, grant nature the benefit of the doubt (BUGGE, 2013, p. 11). Aragão shares this understanding emphasizing the need for non-postponement of urgent measures in the event of imminent damage. "If a harmful environmental effect is almost happening, it is not reasonable to ask for

time to do studies in order to obtain scientific certainties of the links and means of proving the damages" (ARAGÃO, 2008, p. 50).

Scientists have stated that restoring the resilience of an ecosystem is not enough to preserve it in small portions of land, but it is necessary to keep the ecosystem as a whole.

In addition, it is not enough to preserve a number of species to sustain a stable state, but also the existence of functional groups (e.g. predators, herbivores, pollinators, decomposers, water modifiers, nutrient carriers and others) must be protected. Sometimes even with overlaps (BERKES; COLDING; FOLKE, 2003).

It is in the field of disaster studies that resilience has been extensively researched in Environmental Law. Insurance that a locality recovers its ecosystems services is just as important as prevention. For this reason, it can be said that the greater or lesser capacity of restructuring, to return to the *status quo ante,* is called resilience.

Notwithstanding the relevance of the resilience theory, some respectable scholars suggest caution in the spread of resilience as a canon (HUTTER, 2017, p. 35).

In addition to the fact that there are no concrete experiences of resilient thinking in coping with environmental changes, another critique concerns the lack of normative content. In contexts of psychology, architecture, engineering, town planning, community and disaster resilience is something always positive that needs to be developed. Already, in the study of the resilience of socio-ecological systems (SES), what is wanted is to work the operational principles that allow adequate results. It does not mean choosing one state or another as appropriate. The SES study of resilience suggests that society's values

determine what systems we want to support and achieve, but resilience thought does not provide itself a guide for decision making.

In fact there are many examples of perverse resilience, or in other words, highly resilient systems in which there is huge ecological unsustainability and social injustices. In such a case, reinforcing the persistence of these systems will consolidate existing patterns of social inequality or environmental degradation (HUTTER, 2017, p. 35). Therefore, resilience in itself is not always positive. Promoting resilience to legal arrangements or governance without first ensuring that they facilitate the desirable attributes of a system can deteriorate the social welfare and health of ecosystems.

Any idea that has to tackle global environmental issues, such as global warming, will necessarily have to go far beyond the thought of resilience and will certainly involve profound changes in our habits and patterns of consumption (HUTTER, 2017, p. 35).

Other important critique of resilience thinking - perhaps one more risk that needs to be taken care of - is that it has grown very vague and malleable and popularized in contexts such as terrorism, housing security, financial markets and natural disasters.

With such widespread use, this concept runs the risk of turning into a fad, with little or nothing to offer to decision makers (HUTTER, 2017, p.35).

When someone walks through the debates and literature of resilience, an unsuspecting person may think that resilience is for today, and that risk was for a few years ago. At present, discourses have moved from how to manage and communicate risks to how to manage and develop resilience of systems and governance (PEDERSON, 2017, p. 50).

In recent events involving debates about resilience, the concept of Anthropocene has been prominently displayed, signaling a sense of urgency.

There is a consensus that the subjects and goods protected by environmental law (natural environment, ecosystems, new technologies, economies and markets in general) are highly complex, as well as adaptive systems that require management through a flexible and adaptive regulation system (PEDERSON, 2017, p. 50).

In other words, the law needs to reflect the legal good that it regulates. To do that, law has to surmount a problematic issue: new design to overcome the epistemological limits implicit in the emphasis on resilience (PEDERSON, 2017, p.55).

As Pederson states taking into account the trouble of designing resilience *ex ante*, the defense of a more adaptive and resilient environmental law generally leads to a double line of reasoning: a) the assumption that environmental law will face a series of unprecedented and unpredictable risks, mainly due to climate change; b) whether these unprecedented risks can be addressed through a flexibility adopted in the course of the process within a regulatory system. The prevailing rationality points to the following conclusion: we still do not know the form and content of the risks we will encounter, but we are still confident that a system designed with these specific properties is superior to address those risks (PEDERSON, 2017, p. 54).

To protect the environment, law has to reflect all the complexity and dynamism of the ecosystem, which is not an easy task.

Without letting go of the fads, which may appear in both the ideas of resilience and sustainability, environmental law must incorporate these principles above all to affirm

the need to differentiate from the other branches of law as a normative body associated with the protection of existential bases for human and other forms of life.

The strengthening of ecological, cultural, social and economic values are relevant when one speaks of resilience and sustainability.

5 CONCLUSIONS

Economics has to be inserted into the environment. It structures and limits the economic activity. So it is no use to dream of infinite growth (advocated by neoclassical economists) in a universe that, even infinitely, has sort of limitations.

Increasing production and population are factors that imply an increase in the use of environmental inputs, which are limited!

Despite the infinity of the universe and unlimited human creativity, we are at a crossroad that geologists have been calling the Anthropocene Epoch.

The abandonment of the paradigm of neoclassical economics necessarily involves the construction of a concept of development that takes into account the resilience of ecosystems.

In the history of humanity, it is in the Anthropocene Epoch that we experience the greatest disruptions of the ecological system. We are quickly going to a scenario of scarcity.

If we do not turn unceasingly to tackling these issues from a sustainable perspective, we will not be able to develop resilience that is robust enough to be able to, at some stage of our journey, retreat and, in later stages, move forward.

The sustainability principle must be present in judicial, political and administrative decisions at all levels: local, national and international.

Our proposal is to understand that the principle of strong sustainability is part of Brazilian environmental legislation, judicial decisions and, above all, environmental management as a primary action that involves authorizations for changes that are often irreversible to the environment.

What has been seen in Brazil, a reality that we contemplate more closely, are actions completely fragmented, immediate and focused on a disorderly growth that slips in the first crisis.

Although the discourse of sustainability is widespread in Brazilian culture, praxis is quite different. There is no evidence that public policies contemplate any concern for the preservation of the central stock of natural capital necessary for the lives of future generations.

One only has to see how much the Brazilian forest legislation has been run over by changes that retroact a level of protection hardly achieved, and that lend themselves to consolidate actions harmful to the environment without any assessment regarding the capacity of preservation of the essential ecological processes, guaranteeing resilience.

In the history of humanity, resilience has provided the continuity of human life on the planet. But it is in the Anthropocene Epoch that it must consolidate itself as a basic principle of Environmental Law embedded in the larger script of strong sustainability.

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3. ECOSYSTEM SERVICES VALUATION: ONE DEEP ISSUE

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Contents: Introduction; 1. Philosophical approach: axiological approach; 2. Overcoming the semantics of the issue; 3. Ecosystem Services: an Introduction to valuation dilemmas; 4. Valuation of ecosystem services: some limitations of approach; Final considerations. References.

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INTRODUCTION

Ecosystem services and their legal regulation have been the subject of numerous discussions in the scope of Environmental Law. The issue, however, raises a number of very controversial questions, especially with regard to their valuation. In view of the importance of these services, not only for the maintenance of biodiversity, but also for their role in human survival, this article aims to discuss some of the dilemmas involved in valuing ecosystem services.

Thus, initially, we are going to raise the axiological issues that lay behind the problems when valuing ecosystem services. There are several philosophical questions that we could ask when the ecosystem services are going to be value by human beings. The axiological perspective from which we are presenting these problems aims to help us understand which are the important subjacent valuations that are being made when we introduce ecosystem services in the market economy.

Secondarily, we are going to present some examples of the different ways that values could be seen, so that we could show that valuing is not a matter of simple semantics, but it is an actual problem by itself, and it is not a simple one. Posteriorly, an introduction is made to the most controversial points related to the valuation of ecosystem services. Finally, we aim to understand the economic, social and environmental limitations involved in the prevailing practices of ecosystem assessment.

It is an article focused on the theoretical approach of the subject, through bibliographical and documentary research, both in a national and international perspective. A transdisciplinary view of the issue was sought, making use of the philosophical and juridical view, enriched by the support of Ecology and Economy.

1. PHILOSOPHICAL APPROACH: AXIOLOGICAL APPROACH

The etymological analysis of the word “axiology” will show that it is the branch of philosophy that studies “values”. From the Greek áxios that means “to have worth” and, as it is well known by everybody, the second part of the word comes from the Greek *logía*, which stands for “studies” or “theories”. So literally we are dealing with the study, or the theory, of values.

Mostly develop by the French school, axiology studies any sort of value. They could be aesthetical, ethical, values of cognition, etc. For instance, “good” is normally seen as an ethical value, and “beautiful” as an aesthetical one. But we could also think about values that are related to any type of activity that we humans do. For illustration, we could think about a “good” evidence when it comes to us judging whenever somebody wants to prove a point or the existence of a state of affairs.

Let say that somebody tells me that it is raining in the capital of my country and I ask: “How do you know?” and the person replies that she knows because her knee is hurting. Even though it may be raining in the capital of my country, we would not take that as “good” evidence. If she tells us that she saw the weather forecast on the news, or that she just talked to somebody that lives at the capital, so she knows that it is raining there. We would take these as two cases of “good” evidence. This example just helped us to realize that there are several cases when values exist than go beyond ethical or aesthetical situations. In other words, we value the evidence in an epistemical way.

But what makes a value different from anything else? This is of course a metaphysical question and several had being the answers to it. Some would defend that values are

essences in the platonic sense, that we somehow manage to intuit either by our reason, by our sense or by any sort of skill. Other ones could argue that values are opinions about something and that everybody has their own one. This is a form of subjectivism, which is an extreme way of relativism. Some theorists may say that values are emotions being express, or reactions to any sort of reality.

For the purposes of this article, we are taking values to be valuations make by human beings. To avoid any sort of relativism (cultural, sociological, historical) we defend that there is an intersubjective control among pairs and that progress in valuing is possible. This means that extreme subjectivism is impossible and that historical relativism could not be sustained. But what is truly important here is to observe some characteristics in common that we could find in values, from all the perspectives they may be approach.

Now we want to show some characteristics that may be listed that are shared by all values. The first thing that we could see is that they obey the no-indifference principle that will sustain that something valuable is something to which we are not indifferent. Things that are indifferent to us have no value at all, but things that have value, are place away from indifference. If we imagine that the straight line of the natural numbers represent values, we could assign the number zero to the indifference, and moving away from it we will assign any value to whatever we are valuing, as we move away from the zero. This means we could go to the right until 100 or 10 000 and we will be far away from the indifference, in a positive way or we could move away from the zero to the left and move away from the indifference center (the zero), so in the direction of the negative numbers. This means that we value things in a

negative perspective. So we could see other characteristics of values: they are bipolar. They are either negative or positive.

The third characteristic about values that we may point out is that they have a hierarchy. There are values that are more important than others. For instance vital values are more important than aesthetical ones. Eating nutritive food is more important than eating beautiful food. Having a good shelter is more important than having a nice architectonical one.

So far we have enlisted three characteristics: 1. They follow the No-Indifference principle. 2. They are bipolar. 3. They have a hierarchy. And we also have argued that they are human beings valuations projected on the world. Having exposed this, we now could think about how the valuations in the market had worked.

2. OVERCOMING THE SEMANTICS OF THE ISSUE

Aristotle in his famous book *Politics*, centuries before Adam Smith and Marx, pointed out that for anything, there is a value of use and a value of exchange:

> Of everything which we possess there are two uses: both belong to the thing as such, but not in the same manner, for one is the proper, and the other the improper or secondary use of it. For example, a shoe is used for wear, and is used for exchange; both are uses of the shoe. He who gives a shoe in exchange for money or food to him who wants one, does indeed use the shoe as a shoe, but this is not its proper or primary purpose, for a shoe is not made to be an object of barter. The same may be said of all possessions, for the art of exchange extends to all of them, and it arises at first from what is natural, from the circumstance that some have too little, others too much. (ARISTOTLE, 1999, p. 14)

So the idea that we are presenting here is that if we see values like human valuations, this will imply that if humans were extinct then, there are no values in the world. The economy of market had been created by human beings to exchange different objects, and according to these philosophers we value things for what they are useful for, but in the market, we value things for what we could exchange them for.

The Value Theory of Adam Smith will express it this way:

> The word value, it is to be observed, has two different meanings, and sometimes expresses the utility of some particular object, and sometimes the power of purchasing other goods which the possession of that object conveys. The one may be called "value in use"; the other, "value in exchange." The things which have the greatest value in use have frequently little or no value in exchange; and, on the contrary, those which have the greatest value in exchange have frequently little or no value in use. Nothing is more useful than water: but it will purchase scarce anything; scarce anything can be had in exchange for it. A diamond, on the contrary, has scarce any value in use; but a very great quantity of other goods may frequently be had in exchange for it. (SMITH, 2007, p. 26)

Karl Marx explained it in a simpler way when he argued that the value of Exchange is actually an abstraction:

> We have seen that when commodities are in the relation of exchange, their exchange-value manifests itself as something totally independent of their use-value. But if we abstract from their use-value, there remains their value, as has just been defined. The common factor in the exchange relation, or in the exchange-value of the commodity, is therefore its value. (MARX, 1887, p. 28)

As we could see, it is not an issue of semantics but it is an issue of how we, human beings, are evaluating our environment. We are proposing that seeing values

as human valuations, makes it easy to understand the market´s value of exchange that somethings possess are actually an evolution from them being valued for their use, and now for what we could change them for.

Having that clear, we could see now how it is problematic to try to give ecosystem services a market value. First we will have to determine how useful they are, which is something really hard to do. Then we would have to calculate what we could exchange the ecosystem services for. We are defending that it is impossible to give a market exchange value to the ecosystem services. In the next sections we are going to develop the thesis that the values we give to ecosystem services is of a different type that the ones we give to then on a market context, and the former could not be reduce to the latter and viceversa.

3. ECOSYSTEM SERVICES: AN INTRODUCTION TO VALUATION DILEMMAS

This third topic of the article starts from the notion that any and every production of goods is based on the resources provided by nature. For free, it offers services that are essential for the existence of one's life and of the completely productive process. Such as the cycles of water and other soil nutrients, carbon cycle, geological formation, climate regulation, mineral concentration, biodiversity conservation and evolution, dispersion or assimilation of contaminants, as well as various forms of energy and other services offered.

Ecosystem services thus play a crucial role in human well-being. And although one can say that the value of nature is incalculable, which generates a lack of uniformity in its determination, it is evident that any initiative that

aims to increase the quality of life of human populations requires recognize the relevance of services offered by ecosystems.

One important initiative in this area is the "The Economics of the Ecosystem and Biodiversity Study" (TEEB), which is a global in scope and focuses on the economic benefits of biodiversity, including increasing costs arising from their losses and degradation to ecosystems. It takes an approach to assist decision-makers in recognizing and attaching value to ecosystem services and biodiversity.[27]

These analyzes in a global perspective, such as the Millennium Ecosystem Assessment[28] and the TEEB, which demonstrate the path towards the ever increasing degradation of Earth's ecosystems, which not only diminished the goods and services offered to humans, but also puts at risk the economic system and guarantee the quality of life of future generations.

Both reports demonstrate that the growing loss of biological diversity and the non-recognition of the benefits of ecosystems to human activities are the two main causes of this commitment. Ecosystem services, according to Andrade (2013, p. 16)

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[27] This is the result of an agreement between the eight countries considered most industrialized and developed in the world, the G8, prepared by a team of more than 100 researchers led by Pavan Sukhdev and receiving institutional support from the European Community and the United Nations For the Environment. It estimated that a $ 45 billion investment in protected areas could enable the production of environmental amenities set to the tune of $ 5 trillion per year, including carbon sequestration, protection and purification of water resources, and containment of floods.

[28] A report prepared by the Environment Committee responsible for analyzing the Millennium Development Goals, as determined at the Millennium Summit in 2000. The report was called the Millennium Ecosystem Assessment, developed in partnership with various international institutions, with the support of various governments, businesses, non-governmental organizations and indigenous peoples. (MEA, 2005)

> [...] are the basic interface between natural capital and human welfare. They are the direct and indirect benefits generated from the complex interactions between the components of natural capital. [...] Despite their importance, the functioning of traditional markets does not consider them in economic transactions, since they are considered "free" or "present" from nature. The fact that they are not priced as another good or service means there are no incentives for their preservation, leading to their overexploitation and often total loss.

It is in the context of the reflection on the threat to the goods and services offered by nature that the need for recognition of its multiplicity and heterogeneity arises. (NUSDEO, 2012, p. 16) Thus, founded on a strategy based on the concept of ecosystem services, its preservation and the management of the assets derived from natural capital has become a recurring theme.

With a critical bias about the instrument - TEEB - Packer (2015, p. 144) states that it presents itself, as "the" appropriate tool to solve this "market failure" of the common goods when developing a methodology to include monetary value in the components and functions of biodiversity that so far have not incorporated price, just like any other commodity.

In addition, the ecosystem services considered in a more closed format can facilitate their transformation into merchandise, running the risk of bringing obstacles to their protection. In this sense, it is relevant to bring up the discussion about the moral limits of the market, a theme developed by Sandel (2015).

According to the author, in order to decide what can and cannot be marketed in the market, that is, what money can and cannot buy, it is necessary to know what values will govern the different spheres of civic and social

life. By deepening the question, it is possible to realize that some “good things in life” can be corrupted or degraded if they are transformed into merchandise. Thus, in order to decide the circumstances in which the market makes sense and those for which it should be removed, it is necessary to define what value should be attributed to those goods. (SANDEL, 2015, p. 15-16)

In a complementary sense, Martínez Alier (1998) presents the idea that before the attribution of economic values to ecosystem services it is necessary to develop the social perception that they exist and are valuable, given, for example, the relevance of the Earth’s capacity to neutralize emissions of and genetic resources. For the author, the values attributed will depend on the different results that the conflicts about the distribution of the income will have.

According to the him, although the market can be considered “a wonderful non-bureaucratic institution” where transactions are made between individuals, there is great difficulty in reaching a rational consensus about the economic values of concrete externalities that it does not value. Like this,

> Usually, economic values (i.e. prices) are determined by the trading of the individuals present in the market, but if we trust in the current individual preferences, the question arises how to determine the value of future contingencies and uncertainties. There is a double uncertainty: about the facts (for example, how much CO2 is absorbed by the oceans?) Moreover, about the appropriateness of our representations (formally scientific or not) of the environmental reality. (MARTÍNEZ ALIER, 1998, p. 169-170).

On the other hand, for Aragão, the “modesty” in obtaining price for the natural components generates the maintenance of the exploitation of resources at no cost or

almost none, which results in a more harmful consequence, from the perspective of the preservation of the resource, than the attribution of a monetary value, however small or arbitrary it may be.

That is, the valuation of ecosystem services can be relevant both for environmental preservation and for the recognition of human dependence on and maintenance of ecosystem services flows.

The valuation of these services, in the same sense, even if it is not the solution to the question of their preservation, can help in the conduction of a decision-making process that generates positive effects in this management. (DAILY et al, 2000, p. 5)

However, it should be mentioned that, in addition to the issue of protection of ecosystem services, there is an economistic bias in this assessment that must somehow be avoided. In this sense, Packer (2015, p. 145-146) emphasizes that behind the TEEB is an intention revealed by the environmental economists[29] in order that to produce environmental services, the State and the companies must include in the inflows and in the costs of the cash flow and the GDP these services. Thus, with the internalization of environmental values in the economy, the concepts of "future generations", "sustainable use", "expectation of scarcity", "climate change" and "correction of actions to

[29] Throughout the process of consolidation of the Economy as a science, the exclusion of natural resources from the object of economic study occurs. In turn, economists interested in re-establishing the relations between the two universes of economic activity: physical and monetary during the twentieth century will be divided into two distinct groups: environmental economists and ecological economists. The former will be concerned with increasing the subset of valued, appropriate, and productive objects by including nature as a variable in the conventional and ordinary approach to the economic process. Ecological economists, on the other hand, will be aware that the economy, as a subset of a larger system, the biosphere, makes doubtful the attempt to apply to a larger system (with its own laws and principles) its logic, valid for a smaller system. (REDONDO, 1999, p. 59)

avoid damages" gain economic connotation, becoming in futures markets, that is, expectation of gains and profits.

The author synthesizes that this is a transition between a "brown" economy based on the strictly financial analysis of the companies, for a "green" economy with the incorporation of the economic-environmental variables, according to the economists involved[30]. (PACKER, 2015, p. 146)

According to the TEEB, the estimate of the economic value of the environmental service is made from the comparative costs between having an Environmental Services Payment[31] project and the costs in not having it. Packer presents the example of PSA-water[32] that demonstrates the costs of financing environmental services for farmers to rebuild and preserve riparian forests in springs and watercourses by comparing the costs necessary for the installation of a water treatment plant, if activities were maintained without assessing the cost of water. Thus, depending on the costs to the company, it is interesting whether to conserve biodiversity, taking as a criterion the cost-benefit between taking the production of the damage in the long term or internalizing the economic values of environmental services in their accounting. That is,

[30] At present, the expression "Green Economy" has been increasingly used to symbolize this "incorporation" of nature in the Economy, including in official documents. Although "Environmental Economy" is an expression, it is also used and understood as synonymous.

[31] Classified as an economic instrument, that aims to provide incentives for conducts that generate provision and / or maintenance of the services provided by ecosystems, for the benefit of the whole society. For a critical view of it cf. MELO, 2016.

[32] In this modality, the PSA works to remunerate rural producers in exchange for the protection and restoration of forests in areas considered strategic, such as springs, rivers and training areas. Thus, the negotiation occurs with the provision of environmental services related to water resources, such as recovery of springs, hydrographic water courses, sources of public supply and etc. (JODAS, 2015, p. 111)

> This simplified formula for valuing nature from the needs of the productive chains and the market, necessarily, sets few variables or indicators of biodiversity. Management functions or forms that are not valued by the market or unknown by official science are outside the "environmental services" contracts. Within this logic based on the evaluation of the opportunity cost of a given company or productive chain, it is possible not to create "positive incentives" for the conservation of biodiversity, but mechanisms that induce loss of biodiversity considered as having no current or potential commercial value. (PACKER, 2015, p. 144)

Considered a pioneering study in the valuation of ecosystem services developed by Costanza et al (1997)[33], estimated the price of 33 trillion dollars per year for services provided by ecosystems[34], from the calculation of what investment would be necessary to replace them, in the case such procedure be possible. The research considered different environments, evaluating the following services: regulation of the chemical composition of the atmosphere; climate regulation[35]; control of soil erosion and sediment retention; food production; supply of raw materials; absorption and recycling of materials used; regulation of water flow; supply and storage of water; recovery from natural disturbances such as storms and droughts; soil formation; nutrient cycling; pollination; biological control of populations; refuge of migratory and stable populations[36]; use of genetic resources; culture and leisure.

[33] This is an article published by the journal Nature that generated great controversy. At the time, the world's Gross Domestic Product (GDP) was about 18 trillion dollars.
[34] Values were estimated for 17 ecosystem services for 16 biomes.
[35] The climatic cycle comprises "Oscillations of the climate, over time, involving periods of different amplitudes (annual, centennial, millennial, geological), but not always with detectable periodicity. Periods of measurable oscillations in years or a few tens of years may have a certain periodicity." (WATANABE, 1997, p. 37)
[36] The refuge of populations can be defined as a small area with favorable conditions for the survival of certain species, although radical changes have occurred in nearby areas where these species have disappeared. (WATANABE, 1997, p. 201)

However, the methodology used to obtain said the authors described monetary value very succinctly. Thus, the studies that gave rise to the calculations were not elaborated by the authors themselves, but were based on previous analyzes that assessed and assigned value to specific services, added partial values to obtain an average global value per unit area, per biome. In the study itself, the authors explicitly recognized what they call "sources of error, limitations, and caveats". Some of them will be detailed below. (COSTANZA et al, 1997, p. 258)

Firstly, there is a lack of studies on valuation for certain categories of services, in addition to some ecosystems (such as desert, tundra, arctic and agricultural land). Values, in most cases, are based on the willingness of individuals to pay for ecosystem services today, even if they do not have complete information on the subject and their order of preference may compromise social justice, ecological sustainability, and ignore the close relationship humans have with such services, Finally, the spatial heterogeneity of the services was disregarded, given that the occasional estimates of other surveys were used for a global estimate.

In spite of these necessary considerations, the study resulted in an increase in the debates about the valuation of ecosystem services and, in the following year. Periodical Ecological Economics dedicated a special section to the subject, bringing contributions of researchers of environmental valuation, among which highlights Turner et al (1998) who sought to explain the political landscape that permeated the study by Costanza et al (1997).

This can be summarized in three main points: (a) the absence of accurate market price data and property rights regimes that reiterate the adequacy of the value of resources means that no or almost no value is attributed to

services ecosystems throughout the processes of decision making and political choice that surround the matter; b) in view of the fact that the broader debates and research in environmental matters, in addition to the implementation of certain policies (contained in International Conventions and Agreements), take place in a global perspective, science and politics must also be committed at a global level, to use information from the social sciences in order to move beyond the debate and to enter into a rational process of designing and implementing these policies. And c) proving the value of ecosystem services is essential for the formulation of instruments through which it is possible to measure their value in a more realistic way. After the framework of the mentioned study of Costanza et al (1997) many others were elaborated in the sense of being attributed value to the services offered by the nature.

At the same time, biodiversity conservation is essential if all these services are to be maintained. However, throughout the twentieth century, from the greater concentration of human populations in urban centers and, therefore, away from the places where food and natural vegetation are found, coupled with the advancement of technology, linkage with ecosystem services has become is less noticeable.

In addition, the destruction of ecosystems generates a demand for technological solutions to provide ecosystem services (when possible), using both public and private financial resources. Thus, some of these services have been replaced by solutions provided by technology[37].

[37] As examples which may be cited the suppression of biological control of pests and diseases in plants by the use of pesticides and other chemicals; the absence of soil fertility mitigated by the use of chemical and organic fertilizers; methods of artificial pollination to replace natural pollination and sophisticated methods of purifying water when it is contaminated. (BENSUSAN, 2008a, p. 27)

(BENSUSAN, 2008a) This reality raises some questions about which it is necessary to reflect.

One of these concerns the scale of the processes responsible for maintaining ecosystem services. These are the result of complex natural cycles such as biogeochemical cycles of global scale, such as the movement of carbon between the environment and living beings, to the life cycle of bacteria on a microscopic scale. Moreover, even if some services derived from smaller scales can be replaced, at least in part by technological alternatives, those that result from cycles of larger scales such as carbon and other fundamental elements, and cannot be replaced, their interpellation would result in the end of human life. Examples include air purification and climate stabilization. (BENSUSAN, 2008a)

The second issue that emerges from the substitution of part of ecosystem services is that of increasing the final value of the product. Thus, for example, food for which artificial pollination has been used will have a higher price, since the cost of pollination will begin to pay the cost of the product. Another very relevant example used by Bensusan (2008a, p. 28) to illustrate the serious consequences of this replacement is the increase in expenditure due to the need for water decontamination.

The most dramatic factor derived from these procedures is that with the increase in the cost of water for their consumers, a large part of the population is excluded from access to drinking water, in turn, triggering a series of serious problems with the health of the latter.

It is important to observe that the more natural environments are degraded with the consequent impairment of ecosystem services, their respective values tend to increase significantly. He notes, in addition, that

nutrient cycling is the most expensive service. The process allows the different elements to pass between living beings and their physical environments[38]. (BENSUSAN, 2008b, p. 230)

Thus, the compromise of ecosystem services has as one of its effects the enhancement of the products that derive from them, water is just one example, because processes that guarantee the cycling of organic matter in the soil, pest control and pollination have similar role. Therefore, their commitment makes agricultural production more costly, and consequently food and clothing will be more expensive. As a result, there will be an increase in the social and economic exclusion of a larger part of the population. (BENSUSAN, 2008b, p. 253-254)

In addition, even if technological development has solved many environmental problems and has the potential to solve many others[39], it has a face that cannot be ignored: concentration in certain parts of the globe and under the control of certain large corporations, which prevents the access of their products to the entire human population. For Bensusan (2008b, p. 255),

> The most direct consequence of this scenario is that technology will create a privileged group with access to its products and services, often replacing the natural ones destroyed by us. The irony is that the destruction of natural products and services is usually due to the consumption patterns of this same group of

[38] The example cited is that of nitrogen that is available in the atmosphere and is a key element for human survival, in view of being the main component of human proteins. "By means of fixing bacteria it is transformed into ammonia. This compound is converted into nitrate by the nitrifying bacteria, allowing its absorption by the plants and, consequently, by the animals. With the death of living beings and through their waste, the cycle closes and nitrogen returns to the physical environment. If any of these stages is compromised, the cycle stops." (BENSUSAN, 2008b, p. 230)

[39] Here, it is possible to refer to biotechnology, such as nanotechnology, to cite an example.

> privileged people who will have access to the results of technological development.

From these observations, there is a clear connection between the conservation / destruction of biodiversity and ecosystem services and social exclusion. Although it has been related to elitist values in the historical process of consolidating the defense of nature countless times, it is necessary to make clear the point of view that environmental degradation exacerbates even more the processes that generate social injustices. This occurs, as already mentioned, since the increase in costs with the generation of products and services means that a good portion of the population is no longer able to afford these values.

In this third topic of the article were presented some of the dilemmas involved in the valuation of ecosystem services. It has developed the perception of the relevance of its valuation in the sense that its degradation is restrained. On the other hand, it has been found that in valuing them one runs the risk of turning them into merchandise. Finally, it was evidenced that the commitment of these services, although in specific circumstances can be replaced by technological equivalents, generates greater social exclusion. The next step is the last topic, in which some considerations about the limitations in the prevailing approach to the valuation of ecosystem services will be woven.

4. VALUATION OF ECOSYSTEM SERVICES: SOME LIMITATIONS OF APPROACH

With regard to the current practice of economic valuation of ecosystem services, what has preponderated are the techniques developed from the assumptions of

traditional microeconomics. As a result, criteria that take into account sustainability and recognition of the complexity present in ecological processes are constantly ignored. (ANDRADE, 2013, p. 102)

In the same sense, Amazonas (2009, p.184) reports the predominance of the use of instrumental from the economic science of neoclassical bias (Environmental Economy) in analyzes of economic valuation of ecosystem services. The author asserts that the main reason for them to prevail is the meager contribution of the more heterodox currents, like the Ecological Economy, to the question.

In relation to the theme of value, the author refers to "social values" by which one understands a wider range of "historically determined human values that govern and structure the relations of a society." Therefore, in relation to environmental value, it is not only the exclusively economic values related to specific ecosystem services flows that are socially considered. Furthermore, those of a moral and ethical (or not economic) nature, such as value to life, human rights and solidarity. (AMAZONAS, 2009, p. 185)

However, even if these non-economic values are not economic values in the strict sense, they can be composed of an economic sphere, since the pursuit of their realization requires interaction with economic variables. Therefore, although they are not economical in their motivations, they are not neutral when it comes to economic issues. (AMAZONAS, 2009, p. 185)

On the other hand, although the question of value has been a major concern in economic science, its most common expression is in terms of price, often not reflecting the relevance of valuated goods, but rather the question of scarcity.

According to Amazonas (2009), the challenge of environmental economic valuation is constituted by the identification of the mentioned economic dimension of the non-economic social values related to the environment that, once internalized in a concrete economic institution will be realized. Although human values and appreciation of the conservation and sustainable use of natural resources relate to concrete facts, it is an uncertain, relative and controversial process in relation to the nature of such environmental values and their magnitudes.

Because of this, it is also uncertain, relative and controversial how such non-economic social values are mediated with economic variables, as well as the process of normative demarcation of economic values, regarding the conservation and sustainable use of natural resources.

The process involving valuation is always permeated by uncertainties and a certain degree of subjectivity in the evaluations of those responsible for defining the problem. Although it cannot be said that market prices are confused with values, since their meaning goes beyond the economic sphere, economic valuation is mainly related to market prices. This statement shows a partial, anthropocentric and utilitarian connotation of it, that is, a privilege of the economic dimension of values related to ecosystems. (ANDRADE, 2013, p. 105)

For Costanza (2003, p. 19), only the goal of economic efficiency does not account for the valuation of ecosystem services, so it is necessary to aggregate a broader set of objectives, including ecological sustainability and social justice. The challenge in valuing such services is the inclusion of non-economic values, making it more comprehensive to contemplate moral, ethical and cultural values, as well as considering the complexity of ecosystem

processes and their innumerable interactions with human issues. (ANDRADE, 2013, p. 106)

In this sense, valuation becomes inseparable from the decisions that need to be made in relation to ecological systems. Although ecosystemic valuation is very difficult, one cannot choose between valuing or not valuing, since the choices about the ecosystems that are made in society necessarily involve their valuation. You can choose to make them explicit or not; they can be taken based on the best available ecological science or not; with specific knowledge or great uncertainties, but whenever choices are made, there will be valuation. They are simply the weight attached to the various aspects of the problem to be solved. (COSTANZA, 2003, p. 23)

It is a "key problem" within the environmental theme, that is, it is not possible to refute the need for valuation of ecosystem services, as long as they are not assigned a corresponding value, neither will they be valued and consideration within the economic process of commodity production. On the other hand, this assessment needs to be adequate to the complexities and dynamics present in the ecosystems, bringing to the surface an immense challenge.

Thus society can make better choices about ecosystems as the subject of valuation becomes as explicit as possible. This means both making the most of available quality information and making the uncertainties explicit. In addition to developing better ways of making good decisions about immediate and mediate goals as a society, as well as understanding the interwoven relationships between social and political activities and their respective abilities to achieve these goals. (COSTANZA, 2003, p. 23)

However, specifically considering the socio-environmental situation in Latin America, in a critical

perspective of the valuation of ecosystem services, González (2007a, p. 30) makes some observations contrary to the more conventional economic valuation practices. The first one, according to what has already been observed, is that the simplification of the amplitude of the considered values occurs, using only quantitative monetary criteria and a commodification of the environment.

But the author goes further to assert that qualitative aspects such as equitable distribution of the benefits of development and natural resources are not considered, as well as respect for cultural specificities and therefore not achieving social justice. All issues to be incorporated by an alternative view that seeks to expand the traditional view of economic valuation. (GONZÁLEZ, 2007a, p. 41)

In addition, the complexity involved in valuation methodologies creates, among scientists, a tendency to copy them without further questioning their robustness. Also, there is the possibility of occurrence of the "fallacy of authority" phenomenon when evaluating studies that have not been published in renowned journals. This is characteristic of a hierarchical and abstract academic environment such as neoclassical bias economics. (GONZÁLEZ, 2007b, p. 45)

The author summarizes his critics about the value doctrine and its application in Latin America in the following points: a) the applications of the valuation of natural resources are focused on a theoretical framework, of predominantly traditional neoclassical reference that uses the indirect valuation with the purpose of creating values that base the conclusions of the studies, based on presumptions of weak sustainability; b) tendency to generalize macro-level conclusions and neglect important contextual information; c) in some situations, such

referential framework can help in legitimizing social injustice and lack of environmental sustainability; d) it is a model that limits the scientific development in its regional diversity and creates a propensity to the abstraction, copy of models and fallacies of authority; e) as a positive aspect, efforts around valuation have created political and institutional space for sustainability; f) in the same positive sense, fostered a creative social dynamic that resulted in the emergence of efforts at the regional or community level, which, however, would benefit more from the adoption of an integral vision of valuation. (GONZÁLEZ, 2007b, p. 46)

On the other hand, Azqueta e Sotelsek (2007) warn that the achievement of environmental value is a task of extreme complexity, given the systemic nature of natural capital. There is the need of addressing two fundamental issues: a) the (in) substitutability of available assets in the area under analysis, with a high probability that there are no substitutes; b) the interrelations between the innumerable components of natural capital.

Because of this latter issue, there are ecosystem services that will only exist if other natural capital assets are present. Therefore, the degradation of natural capital leads to both the loss of natural assets and the impairment of part of the ecosystem functions.

It is necessary that the ecosystemic functions, responsible for generating support services, work in a suitable way to allow the provision of other services. Consequently, the valuation of ecosystem services requires the understanding of the interdependence that is present in the components of natural capital, which demands the observance of the dynamics of the underlying ecological processes.

Exemplifying the theme of degradation, attention should be drawn to the fact that ecosystems have their capacity reduced in primary production for numerous causes, such as erosion and desertification of soils, the advance of urban areas, the destruction of green areas to facilitate the circulation of the means of transport or the deposit of tailings, besides the pollution of water resources, among many other environmental problems currently observed.

For Amazonas (2009, p. 186) one of the key issues for environmental economic valuation is the definition of how to determine positive social values about conservation and sustainable use of natural resources (as well as ecosystem services).

Regarding the first, it is clear that only through the conception of greater knowledge and social awareness about the relevance of ecosystem services for human survival will it be possible to value them better. However, on the other hand, it is also observed that the values on which contemporary society is based are completely opposed to the maintenance of the ecosystems responsible for these services. For this reason, the determination of positive social values about the conservation and sustainable use of ecosystem resources and services necessarily requires a change in the social construction of new values.

This last topic of the article had the intention to raise the importance of the construction of a new approach in terms of ecosystemic valuation, in order to recognize that the existent methodological arsenal is fundamental, but that it has series limitations that need to be transposed.

CONCLUSIONS

1. The way that we value the environment around us is not a matter of just semantics by analyzing the complex expressions that we used to valuate the world. They presupposed notions of areas of knowledge distinct from the legal one, however essential for a better understanding of the subject matter of the study;

2. If we see values like human valuations, this will imply that if humans were extinct then, there are no values in the world. The economy of market had been created by human beings to exchange different objects, so even though humans value things for what they are useful for, in the market, we value things for what we could exchange them for;

3. Although the question of value has been a major concern in economic science, its most common expression is in terms of price, often not reflecting the relevance of valuated goods, but rather the question of scarcity. Specifically, in valuing ecosystem services one runs the risk of turning them into merchandise;

4. Even if technological development has solved many environmental problems and has the potential to solve many others, there is a concentration in certain parts of the globe and under the control of certain large corporations, which prevents the access of their products to the entire human population. So, the commitment of these services, although in specific circumstances can be replaced by technological equivalents, generates greater social exclusion;

5. Only from the formation of greater knowledge and social awareness about the importance of ecosystem

services for human survival will it be possible to value them in a more adequate way. In addition, this task requires the social construction of new values, that is, a deeper social change.

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4. GLOBAL COMMONS AND WHAT GETS LOST IN TRANSLATION: ASSOTIATING NOMENCLATURES WITH CONCEPTS

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INTRODUCTION

This paper intends to clarify the confusion that has arisen with the translation of the term and concept of 'Global Commons' specifically to the Portuguese

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language[42]. Different areas of knowledge and, not rarely, opposing doctrines and schools of thought use the same or similar nomenclatures, such as: "Global Commons", "Common Goods", "Commons", "*Comuns*", "*Comum*", "*Bem-Comum*"[43], when referring to a similar object or a completely different one. To this end, we explore some concepts and definitions and we identify which ones are used by which perspective. Subsequently, once the concept of Global Commons is properly defined, its relationship with the environment is discussed.

The research is done through the lenses of the abductive method, since it contains deductive (when the analysis starts with general premises and the conclusions drawn are limited to the previous premises' barriers) and inductive (when the conclusions confirm a theory and/or specific premises, through experimentation) findings. Charles Sanders Peirce (1986) proposes that the abductive logic should follow an inference (a flash, an idea, an insight) that if able to prove that something can be, it creates new explanatory hypotheses, not contained in the previously premises (FELIX, 2018).

1. CONCEPTS AND DEFINITIONS ON COMMONS

Below, we identify the different meanings of the word Commons or Global Commons and their variations.

a) International Protection: In the light of International Environmental Law the term 'Global Commons'

[42] We use as references several authors from different nationalities and because of that we first point out how the term was written in their original language and after we translate it to English in the best way possible.

[43] Translator's note: In Portuguese, the dictionary translation of the word "common" is "comum" with its plural variations "commons" to "comuns". Also, the term "common goods" is literally translated as "bens-comuns".

is used to designate "common international spaces" (SOARES, 2001). It refers to the domains of resources or areas that are beyond the political reach of any nation-state. The United Nations Environmental Program (UNEP, 2016) identifies four different types of global commons: the High Seas, the Atmosphere, Antarctica and the Outer Space (UNEP, 2016).

Susan J. Buck (1998, p 5,6) states that there is a difference between an international common and global one. According to the author, international natural resources are those shared by several nations, such as the Mediterranean Sea or Antarctica. Differently, global resources are characterized by the legal right of all nations to access it, like the outer space. Ergo, the main distinction between an international and a global good is their exclusiveness: while the access to the first is restricted the access to the latter is not.

b) *Common lands of the peasantry:* The term 'Commons', in its plural form, was first used to designate the common land of England's peasant population. On the 13th century, many of these lands "were transformed into private properties through the enclosing process, i.e. the establishment of fenced areas[44]"(HOUTART, 2011, p.) that were transformed into a sheep farming area. This phenomenon led to many peasant rebellions.

Communal lands can still be found now a days, they are shared lands managed by a group of people living

[44] Original quote: "foram transformadas em propriedades de latifundiárias através do processo de '*enclosures*', ou seja, estabelecimento de áreas cercadas" (HOUTART, 2011, p. 7)

within a collective property. Elinor Ostrom (2011) has an extensive study in the area.

*c) Criticisms to the Capitalist System***:** Another way the term 'Common' or '*Comum*' is also used, in its singular form, is to criticize the capitalist system. The "Common" became the name of a regime of practices, political struggles, institutions and academic research all about a possibility of a non-capitalist future (DARDOT, LAVAL, 2014, p.17).

According to Pierre Dardot and Christian Laval (2014, p. 16),

> The Common's claim was attributed to the existence of social and cultural struggles against the capitalist order and the business state. Being the main alternative to neoliberalism, the Common became the effective principle of the movements that, after two decades, resisted the dynamics of capitalism and that gave rise to original forms of action and discourses. Far from being only a pure conceptual invention, [the Common] is the formula of the movements and lines of thought that seek to oppose to the greatest tendency of our age: the increase of private appropriation in all spheres of our society, from culture to living beings. In this sense, the term "Common" designates not the resurgence of an eternal communist idea, but the emergence of a new model to contest capitalism, a way to consider its demise. It is also a way to turn away from static communism.

Jurists, philosophers and economists, by investing in research, consolidated the "Common" as an area of study. Among these authors, we highlight Michael Hardt and Antonio Negri authors of the book "Empire"[45] (HARDT;

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[45] In spite of the diversity of works and research proclaiming a critical view of capitalism, and we corroborating many such views, piling on those is not the focus of this work. Amongst other authors who work on the theme besides Hardt and Negri

NEGRI, 2001), in which they debate the "Common" as the opposition to the "Empire" (which is described as a supreme force that does not know any borders, that determines the existing state of affairs, and creates the very world in which the population dwells). Despite presenting a peaceful speech, the authors state that the Empire is driven by oppression and destruction but the strength of the crowds are capable to build a counter-empire (HARDT; NEGRI, 2001, pp. 14-15).

Dardot and Laval (2014, p.17) accredit to Hardt and Negri (2001) the historical merit of turning the concrete experiences of the Commons (plural) into a more abstract and politically ambitious concept of the Common (singular).

d) *Tragedy of the Commons*: Another fact that stands out is that the theme of the Commons is highlighted by Garett Hardin's "Tragedy of the Commons (1968)". In this case the concept is linked to the natural resources available on the planet and the access of world population to it

e) *Tragedy of the Anticommons*: The Tragedy of the Anticommons was developed by Michael Heller (1998) based on the concept created by Frank Michaelmann. Heller acknowledged that the notion of 'Anticommons' is the opposite to the notion of 'Common'. It arises when a scarce resource has more than one owner and each have the right to restrict access from whoever they want: none has a full entitlement over the resource, but each has rights that have to be respected. In other words, if there is no unanimity of will, the resource

(2001) and Dardot and Laval (2014), we highlight Allan Rush (2006).

will be underutilized or not used at all (TIMM, BRENDLER, 2009, p.1028).

This theory was based on the change on the Property Regime that took place in Russia which led to the underutilization of establishments in Moscow (that resulted in stores without goods while commercial stalls were occupying the city street) (HELLER , 1998, pp. 623-624). Heller (1998), as a law professor, analyzes this situation from the perspective of the Private Property, not really taking into account the common natural resources. This theory is being widely used in Law, Economics and Intellectual Property studies[46]. However, we consider too dangerous to use this view on Environmental issues. For this reason, we must be careful when using the Anticommon nomenclature when dealing with Common Natural Resources.

f) The Tragedy of the Noncommons: Some say that we live, in fact, the Tragedy of the Noncommons. It is stated that the mankind ignores what dominates it: economic groups, social classes and political castes. Humanity ignores the fact that the dominant groups do not want to give up their power and privileges, they want to extend the exercise of their domination through economic wars, blackmailing the unemployed and xenophobia. We find ourselves having the discussion on society's political disarmament, whilst suffering due to the weakness of democracy and the unlimited power of capitalism (DARDOT; LAVAL, 2014, p. 14).

[46] More on Anticommons: Heller, M. A. (1998); TIMM, Luciano Benetti e BRENDLER, Gustavo (2009); PIRES (2008); SASS, (2016).

g) Common goods (in Portuguese: Bens Comuns, plural): It is sometimes used to designate Common Natural Resources in different regimes of property and other times it refers to communal property.

In the first case, Mattei (2013), in his manifesto for the common goods, mentions that the ecological dimension and systemic thinking are the only approaches capable of revealing the effect that the individualistic accumulation has on community life. Moreover, the author demonstrates that there is a mismatch between worldviews: in one side there is the (i) mechanistic, technological, individualist, which quantifies reality versus the one which (ii) qualifies reality, i.e. the ecological and communal view. According to him, there is a need to make the second (ii) point of view to become dominant in a short amount of time. Mattei goes on saying that this would be the only one compatible with the maintenance of life on the planet. To that end, it is necessary to have a political and cultural alternative capable of dismantling the role of private properties and the state sovereignty as the cornerstones of the best political organization (MATTEI, 2013, p. 113).

In the second case, as a contribution to the management of communal property, Elinor Ostrom (2011) looked up institutional and functional forms and legal instruments that allowed communities to manage their shared natural and cultural resources outside of market/state logic. The author, in her book, refers to the communal property resources. In our work, we call it 'communal property', to avoid any confusion of nomenclature.

h) Common good (in Portuguese: Bem Comum, singular): It may be said that the Common Good is the purpose of the law, i.e. men unite and organize

themselves through laws to attain the "common good". Usually it is referred as the interest of a sovereign territory and can be seen as synonym of public interest. Accordingly, we cannot mix up the meaning of "commons" with the "Common Good" in the legal science[47].

i) *Common Good of Humanity/Earth*: This variation is used by François Houtart and Vandana Shiva (2006). It is perceived that the authors sought to surpass the way capitalism is popularly criticized. By transcending this "linear Marxist" point of view, they are able to redefine our relationship with nature, proposing the construction of an Ecological State[48].

Houtart (2011) is able to demonstrate the need for the "common good of humanity" to surpass the traditional "common good" definition. In his writings it can be verified that when we use the term 'common good' we want to recover the good things that have been lost with modernity. The Common Good of Humanity is seen as a part of the alternatives to the capitalist economic model, that is now predominant in all areas due to its globalization and its social, political, cultural and gender dimensions. The author invites us to review the basic paradigm of a common life model, in order to differentiate it from the concept created by capitalism (HOUTART, 2011, p.16).

[47] The ideia of Common Good is widely known to be a philosophical topic. However, the philosophical aspect of the common good will not be addressed here as it is not the fuscous of this paper.

[48] A Ecological State is the one based on ecocentric precepts, one that does not separate or fragment the human being from nature. Everything is connected. It is a new way of viewing the world and our life in it.

For Houtart (2011, p. 7), the dispute for Global Commons is a form of opposition to the wave of privatizations that have hit most public networks: from railroads, electricity, water, transport, telephony, healthcare and education to forests, rivers and lands. The common land was considered to be a wasted land, since anything done outside of the capitalist logic is never considered as being a well utilized resource. In that way, Houtart's critique is very similar to criticism against capitalism. However, it focuses greatly on the protection of Common Natural Resources.

Congruently, Shiva (2005, p. 205) places the Common Goods of the Earth in a different category. His personal experience in the Global Democratic Movement formed a diverse and active reality network that reached many spheres: from the political and social to the ecological one. Each contribution is important as we are all in a single battle to obtain justice (economically and socially), ecological sustainability, peace, democracy and freedom of expression for different cultures.

According to Shiva (2005, p. 09), the Democracy of the Earth:

> It is now an emerging political movement in defense of peace, justice and sustainability. The Democracy of the Earth links the particular with the universal, the diverse with the common and the local with the global. It incorporates what in India we call *vasudhaiva kutumbkam* (the family of the Earth): the community of all beings that depend on the mother Earth to live[49].

[49] Original quote: "Constitui hoje em dia um movimento político emergente de defesa da paz, da justiça e da sustentabilidade. A democracia da Terra vincula o particular com o universal, o diverso com o comum e o local com o global. Incorpora o que na Índia chamamos *vasudhaiva kutumbkam* (a família da Terra): a comunidade de todos os seres que dependem da terra para viver".

We understand and mostly agree with the perspectives explained above, but we believe that we cannot exclude discoveries and achievements that have already been made. On the contrary, we must recognize the importance of capitalism and its technology, accepting its limitations if we want to change the paradigm and transcend this model we find ourselves in. We need to look at the disturbances and realize that they can be harmful or stimulating, and that potentialities often arise from a disastrous disturbance (MORIN, 1984, pp. 65-73). In our opinion, this is one of the ways to achieve the land democracy mentioned by Shiva (2005).

2. GLOBAL COMMONS IN THE ECOSYSTEMIC CONTEXT

To identify the Global Commons in the an ecosystemic context it will be referred as "Common Natural Resource" or "Common Natural Resources". In this paper it encompasses all the natural resources that are common to all, not to be confused with any other philosophical, political, economic and juridical conceptualizations mentioned above. The Global Commons in the ecosystemic context goes more in-depth at the Environment protection aspect. With that in mind, our choice of nomenclature is justified.

Our aim is to work through a concept that values the human being, but goes further, by adding a socioecological system perspective. This systematic approach "emphasizes the integration of man into nature, considering artificial and arbitrary dissociations between these systems" (BERKES; FOLKE, 1998; FREITAS, 2015, p. 57) thus bringing the "inseparable union of social and ecological components

that are in continuous interaction and reorganization[50]" (FREITAS, 2015, p.57).

We understand by "Common Natural Resources" all the world's fish, wildlife, surface and groundwater, grasslands and forests. They share two characteristics, namely: (i) the difficulty in controlling the access to it - due to their physical nature, it can be very expensive or even impossible to control migratory resources such as fish, wildlife, groundwater; (ii) and its subtraction, that is, the ability of each user to subtract part of a resource that belongs to everyone (BERKES, 2005, p.49, FEENY et al., 2001, p.19).

The "Common Natural Resources" concept differ from the Property Rights Regimes in which resources are maintained. It includes all natural assets without distinction or division while in the Property Rights Regimes - that can be also called "communal property" - the resources are defined by social institutions and not by the natural or physical qualities inherent to their existence (MCKEAN, OSTROM, 2001, p. 80). It is important to mention that we avoid the term "Common Property Resources", since there is a risk of confusing property - a social institution - with resources – parts of the physical or biological world (MCKEAN; OSTROM, 2001, 80). When we want to write about a common property, i.e. a social institution that recognizes or encompasses several people[51] we will use the terminology "communal property".

Finally, the concepts used at the Universal Declaration of the Common Good of the Earth and Humanity (BOFF, ESCOTO, s.d.) are exactly the same of what we mean by

[50] Original quote: "união indissociáveis de componentes sociais e ecológicos que estão em contínua interação e reorganização" (FREITAS, 2015, p.57).

[51] Properties as such are not recognizes by the Brazilian law.

Common Natural Resource. We recognize it to be a wide concept but that is not a problem since our perceptions need to be broaden so to truly attempt to protect planet Earth and all its biodiversity.

According to the Declaration "the supreme and universal common good is the Earth itself, which brings a condition for all other goods[52]" (BOFF, ESCOTO, s.d.). In its 1st Article, the document names the Earth the "Great Mother", who must be loved, cared for, regenerated and venerated. In the Subsection I it is stated that the Earth is subject of dignity and cannot be appropriated in any individual way, nor transformed into merchandise because She belongs to all that inhabit her. It is also emphasized that the Common Good of Humanity is strengthened when all beings are seen as interconnected and have intrinsic value, regardless of human usage (BOFF, ESCOTO, s.d.).

The 4th Article stresses that "the biosphere is a Common Good of the Earth and of Humanity and is a patrimony shared by all forms of life, of which human beings are tutors."[53] (BOFF, ESCOTO, s.d.,). We also highlight the 5th Article: it describes what belongs to the Common Good of the Earth (i.e. what we call Common Natural Resources):

> Natural resources such as air, soil, fertility, flora, fauna, genes, micro-organisms and representative samples of natural ecosystems and the outer space belong to the Common Good of Mother Earth and Humanity.
> I. Water belongs to the Common Good of the Earth and the Humanity because it is a natural, common, vital and irreplaceable good for all living beings, especially humans, who have the right to access it, regardless of

[52] Original quote: "O Bem Comum supremo e universal é a própria Terra, que traz condição para todos os demais bens" (BOFF, ESCOTO, s.d.).

[53] Original quote: "a biosfera é um Bem Comum da Terra e da Humanidade e é patrimônio compartilhado por todas as formas de vida, da qual os seres humanos são tutores." (BOFF, ESCOTO, s.d., art. 4°).

> the costs of their capture, reservation, purification and distribution, which should be provided by the public power.
> II. The oceans are a Common Good of Mother Earth and Humanity because they constitute the great repositories of life, the regulators of the climate and the physical and chemical base of the Earth.
> III. The forests belong to the Common Good of Mother Earth and Humanity, because they contain the greatest biodiversity on the planet, the humidity required for the rainfall regime and they are the greatest carbon dioxide sequesters.
> IV. The climate belong to the Common Good of Mother Earth and Humanity because it is the essential condition for the maintenance of life, and climate change must be treated globally and with a shared responsibility (BOFF, ESCOTO, s.d., article 5)

The task of protecting the environment is much more complex than simply fashioning laws to protect one part of the whole. It is imperative to go beyond, to understand earthly resources not as objects to be used, but as the essence of human and non-human lives. It is necessary to understand that human beings are part of nature and must learn to live in harmony with it. It is substantial to fundamentally change the way we think and see the environment, the human being and everything that is connected. We must realize that our existence lies within this Common Natural Resources!

Table 1 - Explanatory table of nomenclatures and their respective concepts or definitions.

NOMENCLATURES	CONCEPTS - DEFINITIONS
Global Commons (international)	Common international spaces: e.g. High Seas; the Atmosphere; Antarctica and Outer Space.
Commons or *Comuns* (plural)	All the planet's natural resources. Nomenclature used by Hardin (1968) in the Tragedy of the Commons. We refer to them as Common Natural Resources. Communal lands of peasant populations in England which are not recognized by Brazilian law. They were transformed into private properties through the enclosing process pre Industrial Revolution. We refer to them as Communal Property.
Common ou *Comum* (singular)	Nomenclature used by critical authors of the capitalist regime. This concept is the most abstract and politically ambitious of the Common.
Common Good (singular)	Philosophical definition. Juridical definition
Common Goods (plural)	Definition that is also used to classify natural resources and their management in property regimes. Ugo Mattei adds on an interdisciplinary debate to the concept of common goods, connecting them with ecological issues. Elinor Ostrom's definition (1990) for communal property.
Common Goods of Humanity	Houtart's definition (2011) to refer to nature as a whole, but with a Marxist political bias.
Common Goods of the Earth	Vandana Shiva's (2005) definition to refer to the protection of nature focusing on social and political aspects.

Table 2 - Explanatory table the tragedies and their definitions

Tragedy	Defintion
Tragedy of the Commons	Garrett Hardin's (1968) historical text. The Commons are defined as all the natural resources of the planet. We refer to it as Common Natural Resources.
Tragedy of the Noncommons	Criticism to the capitalist-neoliberal system. The tragedy occurs when the assets that were formerly owned by the State are privatized.
Tragédia of the Anticommons	Tragedy of resource waste. Individuals acting egoistically waste the resource for the collectivity.

3. FINAL CONSIDERATIONS

1. In scientific works, especially those written in Portuguese, a confusion of similar nomenclatures can be verified. "Global Commons", "Commons", "Common Goods", "*Comuns*", among others are used interchangeably with different meanings. The scientific community must pay attention when using these terms to avoid environmental degradation due to the inadequate use of the concept.

2. The terms 'common' or 'commons' are used to designate common international spaces, communal lands of the peasantry and even criticism to the capitalist system. For this reason, it is fundamental to clarify the different contexts in which they are being used.

3. The concept of the Tragedy of the Commons is formalized with Hardin's 1968 paper. In that work the author questions population growth in the face of environmental limits, heralding a potential extinction of Ecosystemic Resources.

4. The concept used within the ecosystemic context, which we call the 'Natural Common Resource' to avoid confusion, values the human being, but goes further, by adding social and political analysis within a systemic approach. It seeks the integration of man and nature, considering artificial and arbitrary any dissociations between them. Thus, the inseparability of the "social and ecological components that are in continuous interaction and reorganization" is made possible.

5. The "Common Natural Resources" concept differ from the Property Rights Regimes in which resources are maintained. It includes all natural assets without distinction or division while in the Property Rights Regimes - that can be also called "communal property" - the resources are defined by social institutions and not by the natural or physical qualities inherent to their existence.

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5. THE STUDY OF LAW AND ENVIRONMENTAL COMMONS: A PROPOSAL BY THE RESEARCH GROUP DAC

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1. INTRODUCTION

This brief text was drawn up for the Summer School Brazil/Australia, held between 27th November and 7th December 2017 at the Federal University of Santa Catarina (UFSC). This event was a nice opportunity for exchanging knowledge and experiences between researchers and students on Environmental Law. The arcticle proposed is not restricted to a specific subject, among those proposed for the event, but converges with several of them. It is especially related to the subject "Principles of the State of Ecological Law", once it presupposes a preliminary distinction

between (a) an Environmental Epistemology applied to Law (focused on the incorporation of environmental knowledge into the study and practice of environmental law) and (b) an Epistemology of Environmental Law (focused on critical and ecological reflection on the legal and political institutions of modernity). Thus, the “common” would not constitute an environmental principle, in the sense of a norm, but it can be considered an epistemological principle that allows us to see beyond the structuring dichotomy of legal modernity: the public and the private (spheres, persons, goods…).

The goal is to present, very Briefly, the project entitled “*Direito dos bens comuns ambientais: entre público e privado*”, not focusing on explaining its conclusions, but relating its goals with the way the research group operates, and why we consider this approach relevant for the studies on Environmental Law. In short, it tries to understand and to compare all the main meanings of the terms “common”, “commons”, “common good”, “common goods” in the history of thought, seeking for its possible significance to the environmental law, in both theoretical and practical senses.

A genealogic study on this subject is justified because hybrid uses on the term “common” (mixing different meanings and theoretical traditions) usually produces misunderstandings and erroneous conclusions. It also confers false legitimacy to certain ideological contents, to the detriment of others. Since it tried to map a plot of concepts, usually confused by legal literature, this founding research will serve as a basis for studies committed to more practical results and with more evident social utility, in specific legal matters.

Once the project is a work in progress, this writing will not face specific difficulties and theoretical tensions,

which would require a longer development, not suitable for a short report. However, it will be presented as a panoramic description, along with information attesting its relevance, and the role it represents in the research group.

2. A CONTEXTUALIZATION OF THE RESEARCH GROUP DAC

The project is linked to the Research group "Critical Environmental Law" (Direito Ambiental Crítico – DAC), which has as a hallmark the intersection between Environmental Law, Theory of Law and Political Ecology, among other disciplines. In a way to provide a suitable context of the project, it is appropriate to offer a short presentation of the group, and the Law School to which it is linked.

This research is developed in *Universidade de Caxias do Sul* (UCS), a University from the State of Rio Grande do Sul which provides master and doctoral degrees in Environmental Law. The submitted proposal for creating a doctoral program, implemented in 2017, demanded to explain and to justify the lines of research, according to the history of the Course and its agenda for the next years. It was an opportunity for conceiving a new group of research.

The first line of research, in UCS' master's and doctoral programs, is related to *public policies and economic [sustainable] development*. The second one deals with *environmental rights*, that is, the protection of rights related to the environment. Even though many of the main environmental themes (water, energy, biodiversity, and so on) can be discussed, *a priori*, from these two points of view, these two lines are very different in its proposals, as well as in an epistemological direction. In *line 1*, the prevalent perspective is that of the State and its duties, and

its guided by the proposal of evaluating current policies and formulating new ones. In *line 2*, the point of view is that of the society – that is, the proposal is defending rights of the society as a hole, social groups and the citizens, and the environment itself.

The research group is mostly related to the line 2 above, and studies environmental rights from both perspectives, that of the Environmental Law, in a restricted sense, and that of the Theory of Law. For this reason, the newly created group dedicates his efforts, since March 2017, to study *Theory of Environmental Law*, trying to bring these two areas together.

But what do we mean by *Theory of Environmental Law*? The way we imagine it, is not a synthesis of the law expert's opinions, neither a description of the case law. But it is not a merely speculative knowledge, also. The proposal is trying to understand Environmental law as actually practiced in the real world – not only borrowing accumulated knowledge from the natural sciences, but also borrowing methods of social sciences in general.

However, along with the description of the social and legal facts, is also deeply important seeking to understand what is inherently *unecological* about modern political/legal systems and rationality. In this sense, the philosophical notion of *totality* is not abandoned, although not used in a dogmatic or totalizing way, but considered relevant as a critical notion. For example, it is needed to question, in a profound way, modern notion of *private* and *public* spheres, persons or goods: the way these concepts were transformed historically, how they affect our institutional imagination, and how they operate in decision-making.

The group name, "Critical Environmental law", is a kind of *puzzle*, related to the intentions above. On the

one hand, it is being said the environment nowadays is in a serious/dangerous condition – therefore, critical. So, it's urgent, for all mankind, doing something more. It is critical, so to speak, to question our cultural standards and our legal systems, not only accepting passively the way it functions, but exercising a creative imagination. On the other hand, it refers to strengthen a critical knowledge, in the sense of rejecting dogmatic approaches, through reflexive skepticism and rational analysis of facts and discourses.

3. THE STUDY OF LAW AND ENVIRONMENTAL COMMONS...

After formulating the name of the group, the participants became aware of the work of Philippopoulos-Mihalopoulos, who also uses the term *environmental critical law*. Although our conception is not identical, it shares at least some essential assumptions with the author. See, for example, the sentence below:

> Situated in this wider ecology of unhomeliness (no all encompassing *oikos*) and miscommunication (no unifying *logos*), environmental law finally faces its foundational paradox: that its conceptual limits are both potentially all-inclusive (since every societal problem can be seen as more or less environmental) and devoid of any content (since environmental law can no longer distinguish its 'object', namely environment per se). The traditional imaging of the environment as the thing that turns (French virer) around a stable pivot (a distilled sense of pure humanity) has been discredited in view of the collapse of the boundaries between the natural/human/artificial. In order to address this permeability, environmental law has the opportunity and responsibility to construct an adequate theoretical base for its role in environmental protection (PHILIPPOPOULOS-MIHALOPOULOS, 2017).

That is, the environment cannot be conceived as an idealized and purified nature around a stable axis (an idealized and purified humanity). It is extremely important not to forget the inseparability of natural and social elements, as well as the inseparability of the material and the symbolic spheres, especially when thinking about the environment in political or legal matters.

Keeping this in mind, the project in question, entitled "*Direito dos bens comuns ambientais: entre público e privado*" deals with the possible meanings of the terms "common/commons/common goods", reflecting about the meaning of the "private" and the "public" spheres, since the advent of legal modernity, but also considering the echoes of antiquity and medieval period. It was thought as the basis of an epistemological proposal around the term "common". Our hypothesis is that protecting the environment is protecting the common ground of living – that is, social and natural foundations of life, material and symbolic aspects of existence. That's the reason why it is necessary to clarify the history of human thought on the "common(s)", looking for its possible uses in the theory and practice of Environmental Law and, above all, on the protection of the rights related to the environment. In this research, we agreed to call "Law of the environmental commons" the study of Environmental Law, thought as juridical protection of the "commons", that is, common goods of material and symbolic nature; common values; common knowledges and common/collective political action, directly or indirectly related to the protection of the environment, in the broad sense.

The central assumption is that these goods, values, knowledges and forms or organizing social life, once based in some form of solidarity or co-responsibility, shared production or fruition, are (each day more) subjected

to abusive expropriation or silent degradation, by both private and state action (we should take the examples of natural resources in general, ecological processes, culture and knowledge, biodiversity, the quality of human life, work environment, urban environment, among others).

Thus, we assume that the "common" is a key term to investigate human thoughts, human action and the institutional justification for the aggressive processes, which are leading us to a collapse of ecological foundations of life and of social institutions. This approach may contribute to an incipient *Theory of Environmental Law* (or an *Environmental Theory of Law*?) whose task is to formulate a systematic understanding of the difficulties that modern rationality and legal-political institutions usually create, concerning the enforcement of so-called rights to the environment, particularly in Brazil.

4. ...AND HOW THIS PROPOSAL CONGREGATES AND FEEDS DIFFERENT INDIVIDUAL STUDIES IN THE GROUP

The theme of the "commons" has a special impact on the functioning of the research group, since the most applied studies, related to the specific themes of environmental law, use the procedure of "mapping" the discourses on the commons, as a theoretical reference for their reflections and arguments. If we look at the studies of the research group members, this pattern can be observed in many subjects. For example, it is clear in the work of Professor Airton Berger Filho, who studies regulation of new technologies, biodiversity and forest protection; or in the studies of professor Sergio Francisco Carlos Graziano Sobrinho, co-coordinator of DAC, on social exclusion due to urban planning and environmental criminal law.

The studies developed by the students (naming only those who attended the *Summer School*) are also good examples of how the common(s)/common good(s) problem can reveal an important key of analysis for several more applied subjects. The PHD student Luana Machado Scaloppe presented a research about the lack of Strategic Environmental Assessment (SEA), in the case of upper Paraguay river basin. The case is revealing of the paradoxes of State action in environmental management – when economic power is a determinant factor and the discretionary power of the public administrator has no limits. Something similar, even though it's a preliminary research, occurs concerning the fragility of social control over decision-making in the management of water resources, specially concerning the contamination of aquifers due to hydraulic fracturing, subjects confronted by the master's degree student Caroline Burgel Ferri.

Another subject is that of petroleum. The master's degree student Vagner Machado studies the pre-salt layer oil, focusing the petroleum fiscal regime, the set of regulations and decision processes which governs economic benefits derived from petroleum exploration in Brazil. This is a perfect example of how economic powers (both private companies and foreign public companies) use public institutions to guarantee concentrated gains, with the corresponding depletion of constitutional rights related to development.

The same student, along with his supervisor, studied new Brazilian fiscal regime, according to constitutional amendment number 95 (ninety-five), which is the subject of a book, to be released in 2018. Under this regime, we claim, it will be impossible to imagine any improvement on solving ecological problems in Brazil for 20 years,

unless this amendment is revoked. On the contrary, it will be impossible even to maintain current standards of protection: not because environmental protection depends *only* of money, but because it's not possible to pursue environmental protection (or to implement social policies) with *almost no money*, considering that the budget for ecological matters in Brazil was already low before. Under Brazilian fiscal regime, all social and environmental matters tend to become vague legal prescriptions, with no concrete content. Most intellectuals underestimate these measures, but the prospects are scary, because the budget will certainly decrease. This can read as a privatization of public resources, and of the State itself (the State should also be thought as a common, supposing it is really a democratic institution), by very few social actors whose interests are different from those of most of the population.

These are just a few examples of how the subject of the "commons" contributes with other individual studies and even research projects related to the group, in such a way that the proposal is being able to congregate many other efforts and subjects, creating a positive dialogue and offering new challenges.

5. THE GOALS OF THE RESEARCH PROJECT AND EXAMPLE OF APPLICATION

The proposal of the current research project was formulated through three specific objectives, which are three logical moments of the research. These moments are not strictly chronological and can overlap. We will describe it very briefly below, adding an example in the last section.

5.1 First proposed task: mapping the main meanings of the "commons" in the history of thought, differentiating them

The first step is mapping the commons, that is, reconstructing the main uses of this concept (and its related expressions) in the history of ideas (in philosophy, theology, politics, law, economics, among other subjects and disciplines). Radically different meanings – yet communicated in some way – can be found[54], for example, in Aristotle (1998) and Cicero; in a political-theological sense in Santo Agostinho (1996) and St. Thomas Aquinas. In humanities, there are a plot of expressions related to the roman radicals *Cum* and *Munus*, which integrate the expression "common".

Expressions like *common good*, *common goods*, *the common*, *the commons*, *commonwealth*, *common law*, *common sense*, and so on, derives from the same radicals, but acquired completely different meanings. The word "commons" has a certain meaning when referring to customs, specially from traditional popular culture (THOMPSON, 1998), and the way it relates to law and rights. A long tradition refers to the legal meaning of "res communes" in Roman law, and it is crucial for understanding the regimes of property in XXIth century, what was added and what was lost. Historical "communist" movements and intellectuals of all kind consider different meanings of what the "common" is.

One of the most effective critiques of private appropriation and "commoditization" of the commons comes from the concept of "enclosure". This notion which alludes to the Enclusure Acts of English Parliament,

[54] The names of the authors were referred to as they appear in the cited works and are used only as examples, since this is a research in progress. Dates refer to the date of the edition, not the original work.

occurred between the 17th and 20h centuries, which turned land previously held in common into private properties. The general idea is that these processes where not only violent and abusive, but rendered possible the primitive accumulation, present in Marx's early (2017) and late (2013) writings; however, the accumulation continued to be extended to other areas, becoming a central phenomenon nowadays. Harvey (2003) called "accumulation by dispossession" this need from of destroying to accumulating, typical from capitalism epoch. Several prominent authors somehow address the problem of the "new enclosures", "silent plunder" or "theft" of commons, analyzing violent and abusive appropriation of environment, culture and knowledge – like Boyle (2008); Bollier (2003); Klein (2001); Ricoveri (2012); Shiva (1997); Hart & Negri (2001; 2014; 2016); Zizek (2012).

Economists like nobel prize Elinor Ostrom (1990) have shown that collective management of common resources can be more efficient and sustainable than the logic of privatization. Many authors oppose in a consistent way the famous *Tragedy of Commons* de Hardin (1968) – like Heller (1998) and Gordillo (2006). The protection of the "common goods" of all humanity may be considered the great challenge for Politics and Law in the XXIth Century. The discussion on "commons" is at the heart of cutting-edge topics of law and social sciences today. For example, the theme of the "global public goods" and the international cooperation (KAUL; GRUNDBERG; STERN, 2012) is an attempt to address the issue from a specific point of view, which is criticized by many as a depoliticized perspective (LAVAL; DARDOT, 2014, p. 485-487).

This mapping is very important because there are several traditions, and dozens of lines of reasoning around

these terms, which are crucial for our subjects of study, and are commonly used in a hybrid form. In addition to a terminological confusion, this conceals illegitimate or arbitrary ideological contents, and masks the real meaning of the discourses, especially in decision-making processes. In a preliminary bibliographic research, we find some few but extremely well-succeed attempts to do this kind of mapping, but our scope is to brings this discussion to the field of environmental law.

Based on exploratory bibliographical and documental research, we intend to systematize, for didactic purposes, the various etymological meanings of the *common* that apply, directly or indirectly, to Environmental Law.

5.2 SECOND PROPOSED TASK: MAPPING THE USE OF THE "COMMONS" AND RELATED CATEGORIES IN LEGAL MATTERS, IN BRAZIL AND COMPARATIVE LAW

The second step is mapping legal categories and rethoric notions which contains the problem of "common" in Law; that is, understanding how the ideas about the common are reflected in the current legal rationality and discourses. Or in what way certain contents reverberates in the formulation and application of legal categories, whose declared or assumed function is the protection of environmental goods, as the "common good of the people", "social function of property", "diffuse interests", "public goods", "environmental services", and "ecological risk".

The proposal, then, is to analyze central legal categories of environmental law in the light of the main traditions and academic debates that converge on the common or related expressions (or that take the problem of the common as a starting point). The procedure here is

no longer synthetic, but analytical, revealing contents that do not appear explicitly. The starting point, however, is the mapping as carried out in the context of the first task. This will allow us to understand the legal categories from the point of view of the results produced.

For example, the environment, according to the Brazilian Constitution, is intended for the “common use of the people”. Thus, it can be considered as a “common”, in the sense that it is not a public good (a wealth which belongs to the State), but it is not a private good, also. It’s a heritage that belongs to the society (to the Brazilian people, if we took the territorial basis of law, having all mankind as a beneficiary). Strictly speaking, it cannot belong to anybody, neither to an institution, nor to a private person, and it’s supposed to be protected as so. Certainly, this legal concept works at the level of an ethical argument. However, environmental protection is consistently less effective than the protection of private property. We should ask how, and why, and this is a promising path.

On the other hand, the State, which is designed (or, at least, expected) to protect public goods and values, often becomes a mechanism for private appropriation of these same goods and values whose defense is their duty. This theme certainly requires approximation between the Theory of Law and the Social Theory, and converges with traditional debates, such as the (neo-Marxist) concept of *accumulation by dispossession* (HARVEY, 2003), and the concept of “market society” (POLANYI, 2000), for example.

This proposal demands a return to the study of property, answering how the exercise of property rights, in legal modernity, implies the degradation or emptying of common, social or collective rights. It fits very well with an historical approach, in a way to discover that legal

institutions, commonly presented in an ahistorical *aura*, was created or reformulated according to certain interests and needs. Plus, the comparative perspective shall be included; for example, studying the "Public Trust Doctrine" in the United States, Australia and other countries:

> The State's role as a trustee of the Commons is often mandated by the *public trust doctrine*, a legal principle that can reliability be traced back at least as far as the Roman Empire. The public trust formalizes the idea that society's governing bodies have an affirmative duty to protect natural resources for the health and well-being of present and future generations. The doctrine has traditionally applied to rivers, the sea, and coastal shoreline, protecting such activities as navigation, fishing and recreation. The idea is that the unorganized public has sovereign ownership interests over and above those of the State itself. The State may hold the legal title to the land or water, but the public is the beneficial owner. As a trustee, the State must exercise the highest duty of care in managing property that is necessarily held in common by all (WESTON; BOLLIER, 2013, p. 238-29).

Of course, it is important to be aware, in this study, of some crucial aspects. Apparently equal or very similar legal concepts in different countries – or even States (CRAIG, 2010) – often conceal very different meanings. Moreover, it is necessary to observe the contrast between theory and doctrinal concepts and the practice of the courts, and legal decisions in general, to observe which legal principles are in effect in each case, and what they concretely mean. It is important, overall, to observe *public trust doctrine* when it's related to environmental human rights (TAKACS, 2008).

5.3 THIRD TASK: CONDUCT APPLIED STUDIES NOTICING THE IMPLICIT USES OF IDEAS RELATED DO THE "COMMONS"

The third step is using these "mapping" of the commons as a tool to study cases and concrete issues, that is, to carry out applied studies from the perspective of the mapped categories. The proposal, therefore, is to investigate how legal (and political) terms are used in decision-making, echoing these traditions, formed around the problem of the *common*, in a decisive manner.

A simple but enlightening example is that concerning the Convention on Biological diversity and the Brazilian law (Lei 13.123/2015). The law usually treats genetic heritage as a common good. It echoes the way that Roman law classified goods, as a *res privatae* (private goods); *res publicae* (public goods); *res nullius* (nobody's goods, goods which belongs to nobody yet); *res communes omnium* (common goods, or goods which belongs to everybody).

History of law reveals that modern State empowers the right to property in a unique and unprecedented way. It's the most consistent of all rights, we should say it is the DNA of our law systems. The public institution, in modernity, was turned into a legal person, in a certain way that public goods has a private form, or the same legal structure of commodities, which are bought and sold. The *res nullius* is a private property, temporarily without an owner, but also reflecting the structure of commodities, since are destined to become private anytime. The common goods, which had been forgotten by modern legal systems, return in the last decades as things (or values) that cannot assume private form, because have no owner, not even a (public) legal person. But this occur mostly in a rhetorical scope, because of the way our legal institutions function.

Using Roman Law categories, it becomes clear that the biodiversity, the genetic heritage and the traditional knowledge, are not really treated as commons, by the law 13.123/2015. If we look closely, although these goods and values are rhetorically called commons, they are in fact *res nullius*, that is, things waiting for its owner. That is not what the law says explicitly, but that's what can be read in the details, in an implicit form. Instead of establishing *common* rights over these goods – rights of communities, concerning a shared use, production, fruition or protection –, the law organizes its economic exploitation. Even if we share economic benefits of these exploitation in a fair way (which certainly is not the case), this procedure reproduces a logic by which the world is a collection of commodities, and the law is a tool build to organize its exploitation. All the concerns about ecological functions and the importance of common knowledge appear mostly as a moral discourse, with no juridical guarantees.

For instance, if the authorities seek to justify that the law was approved without consulting indigenous and tribal people, in disagreement with International Labour Organization (ILO's Convention nº. 169), they might use the term "common good", or another analogous expression, like *public good*, *common interest,* or even *national interest*

This usage of "common good" as a "political-theological" notion, derived from a certain intellectual tradition, promotes, according to Laval e Dardot, antidemocratic postulates. In Aritotle the "common good" was something fair and beneficial to all. In Cicero, the Roman Consul, we can find the distinction between the benefit of people and the benefit of public institution, but the people's benefits prevail over the benefits of the State. However, in the fourth and fifth century it happens

a reversal of priorities: "to pursue what is useful to the community" became a kind of a justification to submit the community wishes to the benefit of the State. There is a large tradition in both Political and Theological philosophy dedicated to subjugating the "common benefit" to the will of a certain authority, whether it be civil or ecclesiastical, depending on the epoch (LAVAL; DARDOT, 2014, p. 28-32).

Therefore, the expression "common good" should be read, most of the time, as a code message for *imposing* a decision with no legitimacy, or even an illegal or unconstitutional issue. That is the case, concerning disrespect of principles and procedures for participation and consultation of indigenous people (ILO's Convention nº. 169) and many other matters, when public authorities "chose" the rules they want to enforce or leave without effect. The authority doesn't justify its decisions anymore, once it monopolizes what is good for the society. If a justification is made, it can no longer be contradicted, since it is the expression of the common good

6. CONCLUSIONS

6.1 The research project entitled "*Direito dos bens comuns ambientais: entre público e privado*", addresses the problem of the commons, applied to Environmental Law. It posits that the *common* is a key-concept for studying environmental law and should be investigated more in depth in our area, since it embodies both material and symbolical grounds of human life.

6.2 The term "commons" is interdisciplinary and touches on key issues, concerning: a) the possibility of living together, using and sharing natural and symbolic

resources in a sustainable manner; b) the need to understand ecosystems, biodiversity, cultural heritage as something else than properties or commodities – and yet something worthy of legal protection

6.3 Prior to starting more applied studies on the subject, it is necessary to organize the terminological field, and understand the conceptual roots of the "common", either understood as the utility of all; the wellbeing of a community; a good of shared use; a community jurisdiction or some conception of democratic actions around common interests.

6.4 For this reason, the project was conceived as research of a theoretical nature, which has no immediate application in terms of public policies or justice system; instead, it aims to construct a theoretical framework, providing tools for other studies, subsidizing researches of a more restricted subjects and more practical studies and applications.

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6. THE EPISTEMOLOGY OF THE COMPLEXITY OF LUIS ALBERTO WARAT AS A WAY TO OVERCOME THE LEGAL EPISTEMOLOGY OF MODERNITY AND TO PROTECT THE ENVIRONMENT

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Abstract: This article intends to analyze the main criticisms formulated by Luis Alberto Warat to the legal positivism, inserted in the paradigm of modernity, whose presupposition is the hegemonic rationality, capable of conferring objectivity and neutrality to the scientific knowledge, producer of a truth, supposedly *one* and absolute. Given that positivism includes a formalist, abstract and timeless view of the legal phenomenon that dominates the methodology of legal education, Warat

presents the proposal of carnivalization, with influence of the surrealist movement. Carnavalizing legal science makes it possible to establish a creative space for man and to criticize society by creating an open and polyphonic structure, which also encompasses the notion of the classroom as a magical and affective environment. In line with this thinking, Warat suggests embracing a new ecological paradigm and, dialoguing with Edgar Morin's theory, develops the epistemology of complexity as a way of overcoming the monological discourse of traditional positivist epistemology. In defending the significant multiplicity of phenomena and the extraordinary complexity of the social, this thought discovers the existence of many truths that dialogue with each other, enabling a true "epistemological revolution and a phase of undisciplined knowledge" (BEDIN, 2015; WARAT, 2004a).

Summary: 1. Introduction; 2. Legal Positivism in the context of Modern Epistemology; 2.1 The insufficiency of the Classical Theory of Law with the complexity of the social and the multiplicity of phenomena; 2.2 The need for dialogue between law and environment: perspectives with an "epistemological revolution"; 3. Waratian legal epistemology: from carnivalization to complexity; 4. Articulated Conclusions; 5. References

1. INTRODUCTION

The present work aims to analyze legal positivism, contextualizing it in the modern paradigm, as well as to propose a critique of this model, based on the epistemological proposal of Luis Alberto Warat that, through the insertion of a creative and affective language, seeks to subvert the ideal of rigorous and objective science for the establishment of "absolute truths" (WARAT, 2004a, p. 164).

In this sense, it is proposed to focus on an epistemology that adopts a critical attitude to the formalist interpretation

of the law, removing juridical science from its conformist and unifying role of the *status quo*, on the contrary, to recognize the legitimacy of conflict and plurality in truly democratic societies, which includes a significant change, including legal education (WARAT, 2004a, p. 74).

As a result, the essay is inaugurated from a study of the characteristics of legal positivism, focusing on the main exponents of that time, which is unable to understand the multiplicity of phenomena and the complexity of the social, which affects, including, the legal education system. Then, the need to break with the dominant paradigm will be analyzed, considering that it is based on a rationalist hegemonic model of separation between man and nature, the producer of various injustices, social and environmental. Finally, a study will be made of Luis Alberto Warat's critiques of this model, going through the proposal of carnivalization to the formulation of the epistemology of complexity, which comprises a new ecological paradigm to defend the proper holism of the environment, unlike those jurists who, inserted in the modern paradigm, reproduce the Cartesian rationalism.

2. LEGAL POSITIVISM IN THE CONTEXT OF MODERN EPISTEMOLOGY

The modern paradigm[55] is dominated by a totalizing model of rationality, excluding all forms of knowledge that are not based on its epistemological assumptions and its methodological rules (SANTOS, 2010). With the success of the scientific revolution, the social sciences began adopting, in the eighteenth century, the methods

[55]For KUHN (2006, p. 13), paradigms are "universally recognized scientific achievements that for some time provide modeling problems and solutions for a community of practitioners of a science".

of the natural sciences, having as presupposition the hegemonic rationality (SANTOS, 2010). The development of the social sciences in the nineteenth century culminated in the birth of positivist doctrine, supported by Cartesian rationalism and Baconian empiricism. According to the paradigm of modernity, the only valid mode of knowledge is the rational logic, which presupposes a mechanical and causal object, which can be logically apprehensible (SANTOS, 2010). In this way, the paradigm of modernity is based on the separation between human being (rational and knowledgeable) and nature (passive and object of knowledge to be mastered) - SANTOS, 2010.

The question concerning the status of scientificity in the social sciences is one of the most debated in the whole epistemological discourse and, from the beginning, is marked by the hegemony of the positivist philosophy of the natural sciences. In general, the problem is often asked whether the social sciences are the same or different from the natural sciences (SANTOS, 2000, p. 51-52). Positivism develops a scientific rationality coined in the natural sciences, a model that, when becoming hegemonic, is applied to the social sciences, especially with sociology, through Comte and Durkheim (SANTOS, 2000, p. 52). For SANTOS (2000, p. 52), positivism should be understood as a concept supported by the following assumptions:

> (...) the 'reality' while endowed with exteriority; knowledge as representation of the real; the aversion to metaphysics and the parasitic character of philosophy in relation to science; the duality between facts and values with the implication that empirical knowledge is logically discrepant to the pursuit of moral objects or observation of ethical rules; the notion of 'unity of science', in terms of which the social sciences and the natural sciences share the same logical and even methodological foundation.

Inserted in this context is the publication of Hans Kelsen's Pure Theory of Law, which represented a milestone in legal theory in the early twentieth century, given that such work consolidated one of the main paradigms of modern legal theory, the so-called legal positivism (BEDIN, 2015, p. 185). Due to its relevance, the most famous work of the distinguished Austrian jurist influenced several other thinkers, such as Alf Ross[56] and Herbert L. A. Hart[57],

[56] In the preface to the English edition of Law and Justice, his most famous work, Alf Ross clarifies that realism amounts to an interpretation of law according to the principles of an empiricist philosophy whose development would be the main idea of the book as opposed to the naturalistic doctrines. From the empiricist ideas would arise the methodological requirement to follow, in the study of law, the traditional patterns of observation and verification that animate all modern empirical science, and the analytical requirement of fundamental legal notions to be interpreted as conceptions of social reality. For this reason, he rejects the idea of a prior validity of law, reinterpreting it in terms of social facts (ROSS, 2000, p. 19). In this way, Ross understands that "norms are effectively adhered to because they are perceived as socially obligatory" (ROSS, 2000, p. 53). In this perspective, the author considers law a set of social facts, reduced to the world of empirical reality. Thus, the validity of a norm implies the analysis of two elements: the social effectiveness of the norm (external) and the way the norm is lived internally, as a motivator of conduct, felt as socially obligatory (ROSS, 2000, p. 11-12).

[57] Herbert L. A. Hart, in critique of Austin's thought of law conceived as coercive orders of the sovereign, (To analyze Hart's complete critique of Austin's theory, see HART, 2001) understood law as the union of primary and secondary rules. Primary rules establish duties and obligations, while secondary rules indicate how to recognize existing primary rules (secondary rules of recognition), how to change them (secondary rules of modification), and how to resolve conflicts arising from issues arising from violation of a given rule (secondary rules of judgment). With the insertion of the secondary rules, it goes from a set of rules to a structured legal system (SOUZA FILHO; STRUCHINER, 2015, p. 96). In this perspective, Hart focuses on the verification of the existence of the last rule of recognition that, when accepted, is used for the identification of primary rules of obligation and, thus, it would allow to establish the parameters of identification of the right. Hart explains that in a modern legal system with a variety of sources of law, the rule of recognition is often equally complex, so that the criteria for identifying the law are diverse, generally including a written constitution, approval by a legislative assembly and judicial precedents. In the event of a conflict, an ordering between these criteria is established in terms of hierarchy and primacy (HART, 2001, p. 112). According to Hart, the legal system would only exist if there was an acceptance by the officials and authorities of the rules of recognition, specifying the validity criteria and their rules of amendment and judgment (HART, 2001, p. 128). When there is no such minimum acceptance by the authorities of the law identification standards, there would be no legal system for Hart (SOUZA FILHO; STRUCHINER, 2015, p. 96). Therefore, Hart's rule of recognition is a rule that establishes the criteria for

which also contributed to the development of a contemporary legal theory (BEDIN, 2015, p. 185-186).

According to the positivist and normative conception of law, of which Kelsen is its greatest exponent, the law consists of a staggered set of norms, the validity of which would be measured from another norm which is superior to it until the Constitution and norm fundamental and presupposed. Violation of any of these rules imposes sanctions by the State, which monopolizes the exercise of coercive force, in order to restore peace[58].

The so-called "purity" of law[59] consists in the removal of the object of science from the law of any question that is not inherent in positive law (moral, ethical, political etc.) to consider it valid in the world of facts. The adoption of the methodological principle of purity, according to Kelsen, would be necessary to determine the autonomy of legal science in order to control interference in the law of non-legal sciences, such as sociology and politics (FALEIROS; MACIEL, 2015, p. 33-34). The attainment of this methodological purity is based on Kelsen's separation of causal science from normative science, so that it would

identifying the other rules of the system. It happens that the rule exists in the actual practice of the legal system, in a given country or in a certain social group, implying a number of heterogeneous social facts, in the sense of analyzing the legal phenomenon in the empirical reality of a social group, which agrees with the thought of Alf Ross (HART, 2001, p. 123).

[58] "The fundamental norm delegates in the first historical Constitution the determination of the process by which the norms establishing acts of coercion must be established. A norm, to be interpreted objectively as a legal norm, must be the subjective sense of an act put forward by this process - by the process according to the fundamental norm and has to establish an act of coercion or be in essential connection with a norm that it statue. With the fundamental norm, therefore, it presupposes the definition contained therein of Law as a coercive norm" (KELSEN, 1999. p. 56).

[59] "(...) The Pure Theory of Law has a pronounced anti-ideological tendency. (...) It wants to represent the Law as it is, not as it should be: it asks for the real and possible Law, not for 'ideal' or 'just' law. In this sense, it is a radically realistic theory of law, that is, a theory of legal positivism. It refuses to value positive law" (KELSEN, 1999, p. 118).

be possible, according to that thinking, to separate legal science from other areas of knowledge based on the law of causality (FALEIROS; MACIEL, 2015, p. 33-34).

In this perspective, Kelsen uses the expressions “to be” and “to must be” to differentiate what happened in the field of facts in relation to its corresponding prescription. While the “being” suggests a descriptive statement, the “must be” represents a normative judgment, by which the law would provide the corresponding response to the wrongdoing practiced (FALEIROS; MACIEL, 2015, p. 34).

Thus, the science of law, for Kelsen, does not concern itself with law in its social and empirical reality, but it postulates a legal theory which, in eliminating political and sociological reflections, is valid for all times and societies, whereas it covers a formalistic, abstract and timeless view of the legal phenomenon. This thinking will influence the methodology of legal teaching, which will be focused on legal dogmatism.

2.1 The insufficiency of the Classical Theory of Law with the complexity of the social and the multiplicity of phenomena

It is noteworthy that legal positivism predominated from the nineteenth century until the last two decades of the last century among jurists, whose concerns were limited to the study of norms put in social experience (FALEIROS; MACIEL, 2015, p. 38), having as its central aspect the Kelsenian normativism, according to which Law, by the mere fact of being put, is fair and must be obeyed, which would make it impossible to formulate criticisms of positive law by the recipients of the norm. The moral duty to obey the law would arise from the validity of positive law (STRUCHINER, 2005, p. 406-407) and this validity is

an a prior idea that can not be reduced to empirical terms defined through observable social facts.

Under the influence of legal positivism and codifications[60] occurred in the nineteenth century in European countries, it is established a "model of legal education positivist-legalist" (FALEIROS; MACIEL, 2015, p. 39), which entails the dogmatization of legal education. According to this new modern juridical epistemology, the science of law is reduced to mere "analysis of the validity judgment of the legal norm and to the cult of the text of the law, implying - necessarily - an hermetic, closed and compartmentalized education" (FALEIROS; MACIEL, 2015, p. 39).

There is no doubt that legal education still retains a dogmatic orientation, which privileges the memorization of concepts to the detriment of their actual learning, a position that is proven especially in the application of tests, such as the one required to join the ranks of the Brazil Bar Association (OAB), in College SAT's, in the National Examination of Student Performance (ENADE) and in public competitions (FALEIROS; MACIEL, 2015, p. 39). In most of these examinations, the candidate is confronted with a large number of objective questions that reproduce - quite literally - the text of the law, with fewest questions asking the understanding of doctrine and jurisprudence

[60] BOURDIEU (2004, p. 99-103) stresses the effects of codification by saying: "Codifying means at one and the same time putting it in the proper form and giving a form. There is *a virtue of its own in form*. (...) The objectification operated in the codification introduces the possibility of a logical control of the coherence, of a *formalization*. It enables the establishment of an explicit normativity, that of grammar or law. (...) The codification is closely linked to the discipline and normalization of practices. (...) The last trait associated with codification: the *formalization* effect. Codify means ending up with fluid, vague, poorly drawn boundaries and approximate divisions, producing clear classes, operating sharp cuts, establishing well-defined boundaries, at the risk of eliminating people who are neither flesh nor fish" (original graphics).

on a given subject. As the performance of higher education institutions is measured by the percentage of their students' approval in the OAB frameworks, the content of the classes ends up being defined to meet the requirements of such exams (BARROS, 2008 apud FALEIROS; MACIEL, 2015, p. 39).

In view of the fact that, in legal education, the emphasis is on memorization rather than reflection, law is highly conservative and, although it isn't the only one, the legal field[61] produces representations intended to legitimize the dominant social relations instituted. As Bourdieu (1989, p. 242-243) makes clear, law can only exercise its symbolic efficacy[62] insofar as it is recognized as legitimate (or not regarded as arbitrary). However, this endorsement is facilitated, since the agents responsible for producing the law or applying it have *habitus*[63] and interests similar to those demonstrated

[61] The notion of the field, together with that of *habitus*, is central to Pierre Bourdieu's theory, and can be understood in the juridical sphere, as follow: "The legal field is the place of competition by the monopoly of the right to speak the law, that is to say, good distribution *(nomos)* or good order, in which agents with both social and technical competence are confronted, essentially consisting of the recognized capacity to *interpret* (in a more or less free or authorized manner) a *corpus* of texts which consecrate the legitimate, just view of the social world" (BOURDIEU, 1989, p. 212) – original graphics.

[62] Pierre Bourdieu calls symbolic violence the ability to impose values, relations of domination and hierarchy to the dominated that is the result of symbolic capital. (BOURDIEU, 2002, p. 66). This, in turn, is formed by "economic or cultural capital when known and recognized, when known according to the categories of perception it imposes, relations of force tend to reproduce and reinforce the relations of force that constitute the structure of social space" (BOURDIEU, 2004, p. 163). Bourdieu points out, however, that this symbolic power - power given to those who have had sufficient recognition to impose their world view on others - depends on its symbolic effectiveness, that is "to the degree to which the proposed view is grounded in reality" (BOURDIEU, 2004, p.166).

[63] Pierre Bourdieu defines the concept of *habitus*, so relevant to the understanding of his work, as follows: "Thus the representations of agents vary according to their position (and the interests that are associated with it) and according to their *babitus* as a system of schemas of perception and appreciation, as cognitive and valuation structures that they acquire through the durable experience of a social world position. *Habitus* is both a system of practices production schemes and a system of perception and appreciation of practices. And in both cases, its operations express the social

by the dominant ones. Thus, one of the reasons for its effectiveness is due in particular to codification, a work that systematizes and universalizes conduct, provoking what can be called the "normalizing effect" (BOURDIEU, 1989, p. 246), which seeks to sanction all conduct that deviates from that pattern of conduct. As every form has a substance[64], the juridical norms that appear to have the characteristics of universality and impersonality are actually produced with the purpose of maintaining the already established order, in a totalitarian posture of castrating imposition of a unity, which does not admit the plural experience in society (WARAT, 2004a, p. 64).

Such inflexibility characteristic of legal science reflects a totalitarian model that denies the rational character to all forms of knowledge that are not based on its epistemological principles and its methodological rules. This new world view leads to two fundamental distinctions: between scientific knowledge and common-sense knowledge, on the one hand, and between nature and the human person, on the other. Modernity distrusts

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position in which it was built. Consequently, the *habitus* produces practices and representations that are available for classification, which are objectively differentiated; but they are only immediately perceived as such by agents who possess the code, the classificatory schemes necessary to understand the social sense" (BOURDIEU, 2004, p. 158) – original graphics.

[64] In this respect BOURDIEU (2004, p.106) explains: "But form, formalization, formalism do not only act by their specific, properly technical efficacy of clarification and rationalization. There is an intrinsically symbolic efficacy in form. Symbolic violence, whose achievement par excellence certainly is the right, is a violence that is exercised, if we can say, *according to the forms,* giving form. To give form means to give to an action or to a discourse the form that is recognized as convenient, legitimate, approved, that is to say, such a form can be produced publicly, before all, a will or a practice that, presented otherwise , would be unacceptable (this is a function of euphemism). The force of form, this *vis formae* of which the ancients spoke, is this properly symbolic force which allows the force to exercise itself fully by becoming unknown as it forces and making itself recognized, approved, accepted by the fact of presenting itself under the appearance of universality - that of reason or morality" (original graphics).

the evidence of our immediate experience, which would be illusory, since it would be the basis of vulgar knowledge (SANTOS, 2010, p. 20-25).

2.2 The need for dialogue between law and environment: perspectives with an "epistemological revolution"

SANTOS (2000, pp. 18-19) states that the world is facing a phase of crisis of degeneracy[65] which, in turn, corresponds to a crisis of the modern paradigm, because it crosses all areas of knowledge, albeit unequally, reaching them at a deeper level. Thus, the author questions the very form of knowledge of the real that the paradigm provides, going beyond mere criticism of the methodological and conceptual tools that allow him to access it.

It is a crisis of rare occurrence, in which the epistemological reflection consists in the perception of the insufficiency of the constructions that the paradigm in crisis provides. Therefore, its tendency is to consider scientific knowledge only as one of the possibilities of knowing, but not necessarily the best. It is necessary, therefore, to proceed to the de-dogmatization of science, through a hermeneutical reflection that understands that the existential objective of science is outside it (SANTOS, 2000, p. 25-30). This aim must be internalized by scientific

[65] SANTOS (2000, pp. 18-19) uses the term "crisis of degeneracy" to oppose it to Kuhn's (2006) expression "growth crisis". By the way, KUHN (2006, pp. 115-116) explains that the crises of a paradigm can have three different outcomes: "Sometimes, normal science turns out to be able to deal with the problem that causes crisis, despite the despair of those who saw it as the end of the existing paradigm. At other times, the problem resists even new seemingly radical approaches. In this case, scientists may conclude that no solution to the problem may arise in the current state of the study area. The problem then gets a label and is set aside to be solved by a future generation that has more elaborate instruments. Or finally, the case that interests us the most: a crisis can end with the emergence of a new candidate for paradigm and a subsequent battle for its acceptance".

practice, so as to create a configuration of knowledge that democratize and deepen practical wisdom, while at the same time being clarified (SANTOS, 2000,p.41-42). Hence the allusion of SANTOS (2000, p. 42) to the double epistemological rupture that allows to overcome the hegemony of modern science, without, however, losing the benefits generated by it. Thus, the new configuration of knowledge represents the hope that technological development contributes to the deepening of cognitive and communicative competence, transforming into a practical knowledge that helps to give meaning to human existence.

As the paradigm of modern science is based on the distinction between nature and society, SANTOS (2000, pp. 65-66) warns that overcoming this idea implies transcending the paradigm itself, currently in crisis. To go beyond the antithesis that supports all modernity consists in the breaking of a thought that instrumentalizes and controls the nature, through its desantropomorphism. This means conceiving nature as a passive and inert object, reduced to the condition of raw material, upon which man, rational and domineering, has the power to seek economic development at any cost.

In this way, SANTOS (2000, pp. 66-67) affirms that modern science causes an ontological rupture between man and nature, which triggers other ruptures, such as between the subject and the object, between the singular and the universal, between the mental and the material, between value and fact, between the public and the private, and, after all, the very rupture between social sciences and the natural sciences. However, such process of dehumanization of the nature and denaturalization of the man does not happen without serious consequences in the sociological and cultural plane. Although the conditions are present for

this supposedly disembodied man to exercise an arbitrary, ethical, and politically neutral power over nature, it is important to stress that one is not faced with any abstract entity. On the contrary, it is a historical man, situated in time, who corresponds to the bourgeoisie, which carries with it the liberal capitalist spirit and therefore establishes with nature a relation of exploitation to produce an unprecedented development of productive forces in the history of mankind.

For this reason, it can be said with SANTOS (2000, pp. 66-67) that the relation of exploitation of nature also corresponds to a relation of exploitation of man by man. Meanwhile, nature undergoes a drastic process of technological transformation by exploiting its natural resources to apply them to the production of consumer goods[66].

Unfortunately, the paradigm of modern science lives on this contradiction, but also lives it as a crisis. As an expectation of better days, the progressive recognition in the social environment, inside and outside the scientific community, that the scientific exploration of nature is intrinsic to the social exploitation of man by man, a circumstance that, although characteristic, is not exclusive to capitalist countries (SANTOS, 2000, p. 67), should gradually imply the change from the utilitarian practice of science in relation to nature to a relationship based on principles of social and environmental justice. Consequently, it must be abolished the defensive mentality of what BECK (2010) calls "organized irresponsibility" in the face of global environmental risk situations produced by industrial society causing damage and transboundary

[66] SANTOS (2000, p. 67) concludes: "In short, a global process of denaturalization and socialization of nature".

environmental disasters for which no one seems to be held accountable, but the whole collectivity - whether from developed or developing countries - is attained (SANTOS, 2000, p. 67), in its constitutionally guaranteed right to the ecologically balanced environment and essential to a healthy quality of life.

There is therefore a need to break with the modern paradigm, which does not respond to the claims of nature, in its inherent complexity, which was denied by Cartesian rationalism.

In this perspective, Luis Alberto Warat, in the late 1970s, begins to present concerns that reveal the inadequacies of legal positivism and a formalist interpretation of the law, based on a supposed epistemological neutrality present in modern legal theory (BEDIN, 2015, p. 190). Initially, Warat presents the proposal of carnavalization, influenced by the surrealist movement. Carnavalizing legal science makes it possible to establish a creative space for man and to criticize society by creating an open and polyphonic structure, which also encompasses the notion of the classroom as a magical and affective environment. In line with this thinking, Warat suggests embracing a new ecological paradigm and, dialoguing with Edgar Morin's theory, develops the epistemology of complexity as a way of overcoming the monological discourse of traditional positivist epistemology.

The epistemology of complexity is based on dialectical thought, which seeks to reveal links and relationships, demonstrating that "one exists for the other." For this reason, this thought is adequate to explain the relationship between man and nature, as well as to clarify what binds us and what separates us from the natural environment, that is, simultaneously affirming their similarity and their

difference between them. In this sense, complex thinking enables the recognition of the interdependence between all natural elements, reinforcing the idea that nature composes a holistic whole, which depends on the equilibrium of all living beings and abiotic components for their harmonic functioning (OST, 1995).

3. WARATIAN LEGAL EPISTEMOLOGY: FROM CARNIVALIZATION TO COMPLEXITY

In Brazil, Warat develops his studies in order to demonstrate the inconsistencies of legal positivism and a literal interpretation of the law. His project aimed at replacing the supposedly neutral modern juridical epistemology with a "nondogmatic" juridical epistemology that revealed its mythical dimension and its project of political domination, allowing the establishment of new and democratic conditions of production, circulation and consumption of knowledge legal theory, in order to enable a critical theory of law (BEDIN, 2015, p.190).

The establishment of a proposal of critical epistemology for the law is due to Luis Alberto Warat's approach to literature, especially to the rereading of the classic work of Jorge Amado, "Dona Flor and her two husbands", reviewed by Warat in his famous book *Legal Science and its two husbands*. He will identify the formalism and the hegemonic rationality proper to juridical dogmatics in Theodore Madureira, while Vadinho appears as the possibility of the new, the unknown, the affection, the pleasure, the seduction (ROSA, 2015). The opposition between Theodore and Vadinho refers, to Dona Flor's imaginary, to the places of duty and pleasure, that is, of bureaucratic marriage and of love. More than that: it reveals how the juridical epistemology of modernity has incorporated much of the

rigidity and conservatism of the male imaginary of the type of "Teodoros Madureiras", immobilizing the law, denying uncertainties and differences, which makes it impossible to create the new possible (WARAT, 2004a, p. 71-72). For this reason, Warat argues that juridical science, like Dona Flor, should tend to the feminine imaginary illustrated by Vadinho "to compensate for the overload of duties imposed by a Theodore" (WARAT, 2004a, p. 74).

Just as marriage can't be transformed into a duty, in which desire and life are absent, public space and democracy are places that presuppose dialogue and dispute, so that conflict is a factor of legitimacy of the society, and it is essential, therefore, for there to be an open, polyphonic and dialogical discourse (WARAT, 2004a, p. 103).

Applying this vision to the legal field, Professor Luis Alberto Warat reflects on the need to overcome the epistemological bases of law, in the sense that he understands that scientific discourse, including the legal discourse, is ideological, since it hides, under the cover of objectivity and neutrality, the relations existing between theories and the set of social determinations that mark them discursively (WARAT, 1995, p. 340).

In order to prevail a democratic, polycentric and dialogic discourse, however, Warat stresses the need to replace the monological discourse of science in the place of an open speech that includes "meaning moving towards its dispersion, its multiplication" (WARAT, 2004a, p. 103), a phenomenon technically called intertextuality, which simply means a quotation without ownership or democratization (WARAT, 2004a, p. 102).

At that moment, Warat, relying on Julio Cortázar, Roland Bathes and Mikhail Bakhtin, points to the proposal of carnivalization as "an attempt to escape the ideological

discourses" of science, especially legal science, with the introduction of a fragmented view, making it possible to create an open and polyphonic structure, ready for the signs of uncertainty and the new, proper to a democratic version of the world (WARAT, 2004a, p. 138-139).

In this perspective, the carnival worldview of life has the purpose of ascertaining the aging of unconsciously established scientific "truths" from the demonstration that the discourse of "carnavalization is the playful way of telling life, a space to fill, a world to create" (WARAT, 2004a, p. 152), as a way of subverting the idea of science as a rigorous and objective place, but instead establish a creative space for man and of criticism of society (WARAT, 2004a, p. 164).

Warat also stressed the need to denounce traditional didactics, through the carnavalization of teaching, in which the classroom should be seen as a magical, affective and creative environment, providing a playful and genuine free exchange place between student and teacher. The carnivalized methodology would be the one where all students, feeling welcomed by the teacher, would be comfortable to participate in the process of learning, not limited to the classroom, thus rejecting the use of a possible "authority of the teacher", reputed insignificant by Warat (2004a, p. 154), to force knowledge, which would reduce teaching to a mere act of obedience by the student, out of reverential awe.

As carnivalized didactics is a clear rupture of rational thought and legal dogma in general, it is the teacher's role, as mediator of "magic classes" (ROCHA, 2012), to combat the so-called "theoretical common sense of jurists", understood by Warat (1995, p. 96) as:

> (...) a conglomeration of opinions, beliefs, fictions, fetishes, expressive habits, stereotypes that anonymously govern and discipline the social production of the subjectivity of law-makers and the knowledge of law, compensating them for their needs. Visions, memories, scattered ideas, symbolic neutralizations, which establish a meaningful climate for the speeches of law before they become audible or visible.

In this way, criticism of theoretical common sense is directed at this set of beliefs that are (re) produced daily in the teaching and legal practice of the operators of Law (legislator, interpreter and applicator) and legal science itself as if they were absolute truths. However, it is necessary that such conceptions be deconstituted, since they are supported in ideological presuppositions falsely naturalized by pseudoscientific versions of the Law, with the function of legitimizing the discourse of the dominant power, as well as for the maintenance of the *status quo* (BEDIN, 2015, p. 177-178).

Continuing in this theoretical line of cut with a traditional legal epistemology, Warat introduces us to the manifesto of legal surrealism that, without breaking with the discourse of carnavalization[67], "invokes the dream, the magic of a supra-real look on the world, to look for a new order of values, without ears for the learned" (WARAT, 2004b, p. 188).

In this sense, Warat (2004b, 257-262) summarizes the main contributions of surrealism to modify the belief in hegemonic rationality that dominates legal science: (i) rethinking traditional pedagogy in the name of a surrealist

[67] WARAT, 2004b, p. 236: "When we talk about carnivalization we want to make, above all, reference to a certain type of imaginary: the carnivalized imaginary that is nothing else than a surrealistic imagination. An attempt to unlimit language".

pedagogy applied to legal education, in which knowledge must always be used for the formation of autonomous spirits, so that man can think for himself; (ii) pessimism in scholarly knowledge, inserting desire and passion as libertarian factors for existential and political practices; (iii) distrust of instituted knowledge and merely instrumental reason; (iv) understand that it is necessary to embrace poetry and dream as creative elements with transforming force of society; (v) striving for love and happiness is more important than having a respectable erudition; and (vi) to remove predefined beliefs based on a totalitarianism of consensus and similarities, through the understanding that a democratic society is built through conflict and recognition of differences and others as different.

In line with the discourses of carnivalization and legal surrealism, Warat begins to incorporate in his theory formulations of the proposals for the new ecological paradigm as a form of leader with the serious consequences brought by the current consumer society (globalization, ecological crisis, extreme poverty, structural unemployment caused by technological development, exacerbated individualism, military power, terrorism, chronic diseases, such as SIDA, disorded urbanization, increased violence in large cities, among others).

Worried about replacing an individualistic and competitive culture that currently governs globalized world relations, Warat (2004c, p. 435-445) proposes the paradigm of eco-citizenship, with the aim of creating better living conditions for living beings through recognition of the other with constitutive alterity, both of our differences and of our unity. Thus, individual and collective eco-autonomy must be sought through creative ties with one another. In this way, Warat (2004c, p. 447) suggests an

ecology of affections as a way of conflict resolution through eco-solidarity, saving man from loneliness, selfishness and body worship. At the same time, it is defended the importance of abandoning the traditional doctrine of the Rule of Law, in which the so-called empire of law prevails, in favor of its greening, in view of the commitment of solidarity with future generations, so that they can live in dignified conditions of freedom, health and material existence (WARAT, 2004c, p. 370).

As a consequence of the adoption of an ecological paradigm, Warat (2004c, p. 456) develops a thought that dialogues with Edgar Morin's theory about the need, ignored in modernity, to approach the human being in his complexity, in order to build his identity based on his singularities and his differences. Warat goes on to speak of a new form of knowledge production, of a new epistemology: the so-called juridical epistemology of complexity. It is an epistemology that considers the significant multiplicity of phenomena and the extraordinary complexity of the social, resulting in the overcoming of the monological discourse of the traditional positivist epistemology, consisting in the belief in the objectivity and neutrality of science, in the production of an absolute truth (it is understood that there are many truths that dialogue with each other) and, mainly, in the disciplined and compartmentalized organization of knowledge – thus, giving rise to an epistemological revolution and a phase of undisciplined knowledge (WARAT, 2004a, p. 173; BEDIN, 2015, p. 195).

Warat (2004c, p. 480-481) states that this new epistemological construction is also based on a feminine imaginary, which invokes a marginal, heterogeneous and plural rationality, in order to allow the elaboration of a knowledge that understands the human condition in his

complexity. It seeks to replace, in this way, the masculine paradigm of science related to logical-rational criteria that exclude from its analysis questions that escape the realm of neutrality and impersonality. However, it can't be denied that the choice of these so-called "rational" and "objective" parameters is fueled by world views, since modern science has been almost exclusively the result of the work of middle-class white men, reproductive of eurocentric discourses, based on a Western and modern ideal of masculinity.

Given that relationships are increasingly complex, appropriate responses are required to the current problems, requiring a thought that contextualizes knowledge, seeking it from various areas. It is necessary to break with the imaginary of a boxed legal epistemology and to move towards a rationality that promotes the dialogue of knowledge through the mentioned environmental complexity (BELCHIOR, 2017).

4. CONCLUSIONS

4.1 For a long time, scientific knowledge was related to a hegemonic rationality, supported by a supposed neutrality and objectivity of science that, in fact, concealed conservative ideologies of dominant thinking.

4.2 Legal positivism can be seen as the doctrine that will apply these values in law, so as to plaster it into a hermetic normative theory, unrelated to outside interference which, under the pretext of constructing a science of "pure" law, will produce a monological and totalitarian discourse, without support in the plural and conflictive reality.

4.3 In this sense, the proposal of carnivalization, combined with surrealist ideals, arises to combat the ideological discourse of legal science, with the introduction

of an open and dialogical speech, including in the classroom, considering that a democratic society is built through conflict and recognition of differences.

4.4 As a consequence of the increasing destructive potential of the planet by man, Warat insists on an ecological concern in his theory, insofar as he considers it necessary that law, in a duty of intergenerational solidarity, guarantees future generations the same material conditions of existence as those present generations, to establish a democratic Eco-State of Law.

4.5 The summit of Warat's reflections culminates with the epistemological revolution, which causes the breakdown of the juridical epistemology of modernity by the epistemology of complexity, necessary for the consolidation of a solidary, egalitarian and sustainable society.

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7. CORRUPTION, SUSTAINABLE DEVELOPMENT GOALS AND ECOLOGICAL RULE OF LAW

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INTRODUCTION

This article aims to approach corruption and its relationship with the Sustainable Development Goals (SDGs), in line with the orientation of an Ecological rule of law, in which environmental protection is a priority, in view of the 17 SDGs established by the Global 2030 Agenda, defined at COP-21 in September 2015, specifically under the Goal 16, which highlights the fight against corruption as one of the challenges to achieve sustainability. Thus, the targets of the Goal 16 are first addressed, as well as shown what the United Nations, Transparency International and

International Union for Conservation of Nature (IUCN) have on the subject. Next, the concept and structure of an ecological rule of law and its repercussion on the challenge discussed here are treated.

A brief overview of the relationship between SDGs and the effectiveness of an ecological rule of law is outlined, highlighting the main relevance for SDG compliance, since sustainable development is a challenge that requires a new political, legislative and, necessarily, legal position, with environmental law being the specific legal branch for the subject.

Finally, a comparative analysis is made between corruption, SDGs and the ecological rule of law, since sustainable development depends, inevitably, on institutions free of corruption and attentive to the effects that the phenomenon of corruption causes. Therefore, in order for the SDGs to be implemented by the year 2030, considering that when the theme is protection of the environment and quality of life, the values and essential principles belonging to an ecological rule of law are very important. The fight against corruption is essential for the achievement of sustainable development and for this to be possible a more ecological orientation of the traditional rule of law is required, especially from the observation of the targets of the important and paradigmatic SDG 16.

The research method used was the deductive one, with bibliographic and documentary procedures.

1. THE SUSTAINABLE DEVELOPMENT GOALS: THE IMPORTANT GOAL 16 AND CORRUPTION

It is important, in order to start in the present theme, to highlight what is understood as sustainable

development, since it is considered a concept not so recent in the international order. In the wake of the pioneering environmental conventions and declarations of the 1970s and 1980s, the United Nations, from the United Nations Environment Program (UNEP), produced and published under the coordination of the then Prime Minister of Norway, Gro Harlem Brundtland, the document entitled Our Common Future, whose major expression was in the establishment of the first conceptualization of sustainable development. According to the document, "Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs." (UNITED NATIONS, 1987).

In order to achieve and maintain sustainable development and its legacy for future generations, a plurality of actions, rights and duties, as well as social, economic and environmental policies are required. In order to do so, it is necessary the effectiveness of a rule of law concerned with social and environmental issues and attentive to the ecological crisis, because as Bosselmann (2008, p.53) states, "there can be no prosperity without social justice and there can be no social justice without economic prosperity; and both must be within the limits of ecological sustainability."

Thus, recently, as a result of the advance of the ecological crisis, on September 25, 2015, the 21th Conference of the Parties (COP-21) of the United Nations Framework Convention on Climate Change (UNFCCC) took place in Paris and the 11th Meeting of the Parties to the Kyoto Protocol (MOP-11), organized by the United Nations (UN). From this event, an international agreement was reached on the containment of climate change on the planet, with

the objective, for example, of keeping global warming below 2ºC. In addition, a plan of action called the Global 2030 Agenda was drawn up, whose main content is the 17 Sustainable Development Goals to be achieved by 2030, as well as 169 targets, so that the prosperity of the Planet and of mankind can be achieved, synonymous with sustainable development.

In this sense, among the 17 goals and 169 targets, there is an important challenge to reach a more balanced socio-environmental development that respects the natural conditions of the Earth, the Goal 16, which is to promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels (UNITED NATIONS, [s.d.]).

Based on the Goal 16, there are some targets that highlight corruption and the rule of law as essential challenges, such as: "promote the rule of law at the national and international levels and ensure equal access to justice for all", "by 2030, significantly reduce illicit financial and arms flows, strengthen the recovery and return of stolen assets and combat all forms of organized crime" and "substantially reduce corruption and bribery in all their forms" (UNITED NATIONS, [s.d.]).

From such SDG, specific terminologies are noted that are directly related to the corruption phenomenon, among which are transparency and its application, both in policies and in environmental legal action. The lack of transparency today is a propelling cause of corruption and of the collusions, deviations and criminal organizations that originated from it. Against this background, more social, political and legal participation and control can contribute to its attenuation. From transparency, sustainable

development can be more measured and stipulated.

Likewise, still in Goal 16 there are two other targets that have a direct relationship with an effective rule of law, consistent with the repercussions of corruption in sustainable development, namely: “strengthen relevant national institutions, including through international cooperation, for capacity building at all levels, in particular in developing countries, to prevent violence and combat terrorism and crime” and “promote and enforce non-discriminatory laws and policies for sustainable development (UNITED NATIONS, [s.d.]).

The fight and the preventive structuring in the face of crime and the socioeconomic phenomenon of corruption are registered in the United Nations Convention Against Corruption, established in 2004 in Vienna, Austria. This document (UNITED NATIONS, 2004) contains in its preamble a reference to the relationship between the advance of corruption, sustainable development and the rule of law.

> Concerned about the seriousness of problems and threats posed by corruption to the stability and security of societies, undermining the institutions and values of democracy, ethical values and justice and jeopardizing sustainable development and the rule of law,
> Concerned also about the links between corruption and other forms of crime, in particular organized crime and economic crime, including moneylaundering,
> Concerned further about cases of corruption that involve vast quantities of assets, which may constitute a substantial proportion of the resources of States, and that threaten the political stability and sustainable development of those States.

The study and treatment of corruption, the fulfillment of sustainable development and the effectiveness of the rule of law are themes that are known and studied by the

UN, thus proving the pertinence of the theme, especially nowadays, when countless nations around the world suffer from the advance of the corruptive phenomenon in their jurisdictions, like Brazil. Thus, with regard to the global commitment to sustainable development by the year 2030, nations that have adopted such goals should seek to establish an effective state structure to combat corruption, in particular that which affects nature (DILLON et al., 2006, p.14).

Corruption in the environmental field can occur at all levels of government and can take many forms, as the use of bribes, gifts, influence peddling, favoritisms, nepotism, kickbacks, embezzlement and, at the highest level, is a form of state capture, whereby the laws and policies themselves reflect strange interests or are designed to facilitate private gain via illegal and non-transparent activities (DILLON et al, 2006, p.14).

In this way, corruption is a challenge that affects sustainable development today, notably the ecological variable, essentially with regard to environmental goods, and in this sense, by way of example, the management of essential natural resources - water resources, the timber sector, mining, dams and hydroelectric dams, among others - as well as being considered a negative factor, whose influence is leverage in the face of the inspection of economic and environmental sectors related to non-renewable energy sources.

Transparency International, through the Corruption Perceptions Index 2016 (TRANSPARENCY INTERNATIONAL, 2016), has shown that among the countries with the highest corruption rates are Yemen (170th), Syria (173th), North Korea (174th), South Sudan (175th) and Somalia (176th), countries that have, publicly

and notoriously from their political and social contexts with repercussions throughout the world, extremely fragile political, economic and social systems in which corruption finds propagation factors, since in such countries transparency and accountability are vulnerable or fragile in principle, especially those related to environmental and sustainable development policies. Transparency and accountability are institutes that are directly linked to an effective rule of law, whose environmental orientation is one of its vectors of development, which, historically, are not present in the mentioned countries. This demonstrates that the greater the level of prevention and anti-corruption, the greater will be transparency, consequently there will be greater participation and possibilities of compliance with the Sustainable Development Goals, where lies the importance of SDG 16.

Corruption has real political, economic and social costs, which are often difficult to quantify, since corruption, by its nature, is difficult to measure, leaves people worse-off and prevents development all over the world, being an obstacle to democracy and the rule of law; it distorts the allocation of resources, reduces the productivity of public expenditures, lowers investment, and slows down economic growth, constituting a severe obstacle to entrepreneurship and innovation and leading the citizens of corrupt states to frustration and apathy, with an additional cost of environmental degradation implying deficiencies in the basic needs of housing, clean water, sanitation, and health care, which suggests the need for framing environmental problems within a broader perspective that encompasses world poverty and inequality (LEITÃO, 2016, p.1).

Corruption has been invading the socio-environmental sector and influencing the achievement

of the Sustainable Development Goals (SDGs), since it reaches strategic levels related to sustainable development, considering that, in order to have strong and responsible institutions, free of significant corruption affections, it is necessary a systemic, collaborative and transparent state, characteristics of a pluralistic, cooperative, transparent and fair State and society from the environmental point of view. The rule of law can not be excluded from this new paradigm of development.

While governments are expected to take the lead in reviewing progress on the SDGs, national-level monitoring needs to include civil society and other stakeholders, driven by a strong rationale for sustained civil society engagement, particularly with regard to the development of complementary indicators at national level to supplement the global indicators (TRAPNELL et al, 2017, p.8).

The follow-up and review architecture outlined in the 2030 Agenda, intended to ensure government accountability during the implementation of the SDGs, encourages member states to conduct regular and inclusive reviews of progress at the national and sub-national levels, which are country-led and country-driven, intended to be voluntary, state-led, undertaken by both developed and developing countries and involve multiple stakeholders, being expected to be inclusive, participatory, transparent, gender sensitive and include the most vulnerable populations, as outlined in very specific guidelines from the 2030 Agenda, which implies that reviews should include the contributions of non-governmental stakeholders and reflect national contexts and priorities (TRAPNELL et al, 2017, p.12).

In this way, and in line with a rule of law more closely focused on nature, as sustainable development

also depends on an effective rule of law that is alert to corruption in the environmental sphere, Bugge (2013, p.9) affirms that "regulations and laws, which have a traditional view that violates nature, should turn to the peculiarities of the environment".

The way nature is treated shows that there is in modern civilization no such a strong nature ethics that directs and limits human action and works as a defence against destruction or degradation of nature, but in reality there are still few ethical barriers in our societies against widespread destruction and degradation of nature, considering the rule of law as an anthropocentric ideal, which is not concerned with or relevant for nature as a subject of legal rules. One of the two main aspectos of the concept of a rule of law for nature is the importance of rule of law in general as a prerequisite also for proper management of nature and natural resources, as the environment is particularly vulnerable to lack of law, and to poorly developed legal and political systems (BUGGE, 2013, p.5-7).

In order to contextualize corruption on the global environmental agenda and the need for a rule of law for nature, one highlights the Declaration of the World Commission on Environmental Law, linked to the Swiss environmental organization International Union for Conservation of Nature – IUCN (2016, p.2), which states that "Strengthening the environmental rule of law is the key to the protection, conservation, and restoration of environmental integrity. Without it, environmental governance and the enforcement of rights and obligations may be arbitrary, subjective, and unpredictable".

Key elements on which the rule of environmental law is based include, among others, (i) measures to ensure effective compliance with laws, regulations, and policies,

including adequate criminal, civil, and administrative enforcement, liability for environmental damage, and mechanisms for timely, impartial, and independent dispute resolution; (ii) effective rules on equal access to information, public participation in decision-making, and access to justice; and (iii) environmental auditing and reporting, together with other effective accountability, transparency, ethics, integrity and anti-corruption mechanisms (IUCN, 2016, p.2)

Anti-corruption measures, including those that address unethical conduct and oversight, is listed as a mechanism to add procedural strength and help build the procedural and substantive components of the environmental rule of law at national, sub-national, regional, and international levels (IUCN, 2016, p.4).

Thus, in order to achieve sustainable development in line with the SDG 16 and its related targets, it is imperative an ecological rule of law, which represents greater public and private cooperation, based on transparency of environmental assets management, structured on the ideas of accountability and good governance, so that environmental law is likewise prepared for challenges such as that of environmental corruption.

Governance is a general term to describe not only government but all the norms, rules, and institutions by which authority in a country is managed and the United Nations defines good governance as participatory, consensus oriented, accountable, transparent, responsive, effective and efficient, equitable and inclusive and follows the rule of law (DILLON et al, 2006, p.11).

2. THE ECOLOGICAL RULE OF LAW: A NEW CONTEXT TO COMBAT ECOLOGICAL CORRUPTION AND COMPLY WITH SDG 16

Combating corruption and achieving sustainable development Goals, in particular Goal 16 - building strong and effective institutions - is now a public and private one, but above all depends on a new orientation for the rule of law, as highlighted in the previous topic.

In this perspective, the rule of law must be conceived through a transdisciplinary paradigm, in which there is a decision-making equity with other areas that hold the technical knowledge, to which environmental law refers for a greater guarantee and protection of ecological issues, preventing public and private arbitrary actions - corruption - in the treatment of environmental assets, according to Bugge's lesson (2013, p.7), stating that "rule of law for nature means predictability, security and the absence of arbitrariness and bias in decisions that afect nature and the full accounting of environmental values in decision-making – be it by private interests or public authorities".

On this path towards a concrete state ecological protection, which has challenges such as the confrontation of corruption in the environmental field, it has been that respect for the values of nature must consider its intrinsic character, as values independent of human interests, also represented by laws that provide nature with a legal status capable of resisting attacks and defending itself in political and legal procedures (BUGGE, 2013, p.8).

A rule of law that is geared to ecological protection may therefore influence a reformulation of the intensive anthropomorphism and its traditional objectives and actions, as well as to foster appropriate and transdisciplinary legislation, maintain strong and responsible democratic

institutions, establish transparency and participation, encourage public and private cooperation, to make available instruments that are linked to the intrinsic value of nature, since according to Bugge (2013, p.21), "the respect for and strengthening of rule of law in the general sense is a key to combat corruption and cronyism", which has contributed not only to the social, economic and political crisis in the world, but also to increase the current ecological crisis.

Kloepfer (2010, p.43), one of the pioneers in dealing with the theme of ecological rule of law, states that the concept of environmental rule of law intends to define a State that makes the environment safety its task, as well as the criterion and procedural target of their decisions.

Thus, this new situation of the rule of law becomes fundamental for the search for a more sustainable development, in which environmental law pay systematic attention to the complexity of ecological issues, as Voigt points out (2013, p.155):

> The rule of law is pre-eminent to the achievement of sustainable development. Sustainable development needs to be promoted through a variety of media and channels, that is education, political decision-making, ethics, research and so on – but also through law. In this context legal scholars and practitioners, in particular 'judges being such an important part of the legal establishment – must necessarily be involved in this – and sensitively involved'.

The ecological rule of law, in this way, is structured on a principle basis, which defines the position to be taken by the operators of environmental law. From the IUCN Declaration, Leite et al (2017b, p.184) teach about such nomenclatures in a systematic way:

> a) ecological principles, because it has nature as its destination: responsibility for the protection of nature;

> *in dubio pro natura*; and ecological sustainability and resilience; b) human-environmental principles, since they represent human rights with an environmental aspect, of a more traditional nature: the right to have nature; intragenerational equity; and intergenerational equity; c) socio-environmental principles, by including subaltern groups: gender equity; participation of minorities and vulnerable groups; indigenous and tribal people; and d) guarantee principles, since they aim to guarantee the protection of ecological existential realities that are minimal: non-regression; and progression.

The rule of law for nature represents an overcoming of the traditional rule of law and a revision of the environmental rule of law that occurs in the sense of strengthening its biocentric character, incorporating new understandings originating from the Anthropocene, without characterizing a questioning of the rule of law, but its complementation by modifying its rationality and structure to include the biology of life and to diminish the impact of human action on ecological processes, a necessary change, since the only instrumental valorization of nature, without recognizing its intrinsic value, is incapable to meet the needs arising from the worsening of the environmental crisis (LEITE et al., 2017a, p.83).

The rule of law protecting nature, therefore, is fundamental for compliance with SDG 16, and others, for protecting sustainable development and for evolving the effectiveness of environmental law in the face of the challenges of the environmental crisis, such as corruption, in the pursuit of the Sustainable Development Goals as a whole, especially the one that deals with the search for peace, justice and strong and effective institutions.

3. SUSTAINABLE DEVELOPMENT AND CORRUPTION: NEW PERSPECTIVES FROM THE RULE OF LAW FOR NATURE

Through a new rule of law, whose protection and articulation are directed towards sustainable development and essential ecological principles, corruption can be effectively combated, since laws and their implementations will be directed towards the intrinsic value of natural assets in order to balance the decisions and public policies applied to them.

The fight against environmental corruption gains strength under this prism of a new look of the rule of law, as guided by environmental democracy and citizenship. According to Leite (2015, p.164), to structure an ecological rule of law, it is important to establish a "legislative system that enables the community to participate in environmental decisions, to obtain information indispensable for awareness and issue opinions".

To speak about democracy under the aegis of the environmental rule of law only makes sense when it is possible to speak about citizens who are environmentally concerned, with an enlightened public opinion, who want, by reason of the environment, to make the correct decisions and to act in accordance with those decisions, moving away behaviors of immediate well-being and maximization of individual utilities (GARCIA, 2007, p.266).

Thus, when the agenda is focused on the socio-environmental issues, which constitutes a sustainable development, plural and popular participation is fundamental especially to avoid arbitrary and distorted decisions, away from the inherent social and ecological interest.

After living apart in a liberal State and interpenetrating themselves, as parties and partners, in a social State, State and society, they move into a situation in which cooperation and mutual assistance characterize the search for trust here and now, before the uncertainty of what is unknown, the impossibility of predicting the future and the duty of each one to preserve the continuity of a received and under construction life (GARCIA, 2007, p.325).

With this new perspective on the interpretation of corruption and sustainable development, in the context of a socio-environmental orientation of the rule of law, the judiciary, especially with regard to compliance with environmental laws, becomes the main actor for SDG 16 to be effectively achieved. The United Nations (UNITED NATIONS, 2017), in a draft scenario of the impact of corruption and sustainable development, once again citing the rule of law in relation to the fight against corruption, presents data on such context:

- Among the institutions most affected by corruption are the judiciary and police
- Corruption, bribery, theft and tax evasion cost some US $1.26 trillion for developing countries per year; this amount of money could be used to lift those who are living on less than $1.25 a day above $1.25 for at least six years
- The rate of children leaving primary school in conflict affected countries reached 50 per cent in 2011, which accounts to 28.5 million children, showing the impact of unstable societies on one of the major goals of the post 2015 agenda: education.
- The rule of law and development have a significant interrelation and are mutually reinforcing, making it essential for sustainable development at the national and international level.

Still about SDG 16, the United Nations (UNITED NATIONS, 2017) brings the repercussion of this sustainable development goal and its perspective to the public authorities and the participation of society in the search for repression and prevention to corruption, as well as to make possible the way to strong and transparent institutions:

> To achieve peace, justice and inclusion it is important that governments, civil society and communities work together to implemente lasting solutions to reduce violence, deliver justice, combat corruption and ensure inclusive participation at all times.
> National and local institutions must be accountable and need to be in place to deliver basic services to families and communities equitably and without the need for bribes.

IUCN World Congress on Environmental Law (2016, p.2) declares that "the environmental rule of law and robust institutions are essential to respond to increasing environmental pressures that threaten the ecological integrity of the Earth, in a way that respects fundamental rights and principles of justice and fairness".

The search for peace, justice and strong institutions is intrinsically linked to the effectiveness of the rule of law, since such goal requires special access to judicial bodies, greater involvement of society in public policies that affect the socio-environmental sphere of populations, especially the more vulnerable to the social and ecological crisis, as well as need more transparency and accountability, not only of the political powers but also of the judiciary.

Thus, in this new perspective for sustainable development, in which the rule of law must turn to ecological issues, as well as being attentive to the phenomenon of corruption that affects the environment, Voigt et al (2017, p.302), in order to achieve the goals set for sustainable

development - the focus of SDG 16 – emphasizes the need of applying the Principle of Integration by harmonizing the three republican powers, as well as the three traditional variables of sustainability: social, economic and ecological, namely:

> In other words, the principle of integration 'forms the backbone of sustainable development'.
> At the legislative, administrative and judicial level, the integration of sustainable development's multitude of elements usually refers to the need to take all aspects into account, that is, states must ensure that economic and social interests, where they are represented, do not disregard environmental considerations. Similarly, when measures are undertaken for purposes of environmental protection, their economic or social implications need to be taken into account.

In this sense, the fulfillment of the sustainable development goals requires that the democratic rule of law should have a more protective interpretation of environmental assets, a protection that considers corruption a significant variable for environmental institutions and, above all, for sustainable development.

Environmental laws, in this context, must be effectively fulfilled, in line with considering and protecting essential environmental assets, which are currently suffering most from the tentacles of ecological corruption throughout the world. In an ecological rule of law, therefore, in addition to preventing and combating the corruption phenomenon, it is more feasible to fulfill the Sustainable Development Goals, especially SDG 16.

4. CONCLUSION

4.1. The sustainable development goals, in particular SDG 16, are directly related to the fight against corruption

and impose on the public authorities and society an integrated action to combat corruption and deal with its consequences accordingly.

4.2. The work of the United Nations, the NGO Transparency International and the IUCN with criticisms and recommendations on the effectiveness of the rule of law from the ecological point of view stimulates a new interpretation of the corruption phenomenon and its unfolding in the current social and environmental crisis.

4.3. Sustainable development depends on the reduction of corruption and the effectiveness of environmental laws in order to materialize, and thus requires a reformulation of the traditional rule of law that promotes an action of the judiciary committed to the effective compliance with environmental legislation in the fight against corruption.

4.4. The greening of the rule of law is the most promising path to an effective fight against corruption in environmental issues and is characterized by a new political, legal and social position, with protection of essential ecological levels without forgetting the economic and social components of sustainability.

4.5. Combating corruption, sustainable development goals and the ecological rule of law are intrinsically linked to greater protection of essential ecological levels, reduction of socio-environmental inequalities and promotion of peace, justice and strong institutions.

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PART II – CLIMATE CHANGE AND THE OUTLOOKS OF THE PARIS AGREEMENT

8. FIRST IMPRESSIONS ON FORESTS AND CLIMATE CHANGE IN BRAZIL AFTER THE LAW 12.651/2012 AND THE PARIS AGREEMENT

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ABSTRACT

The aim of the article is to present the main changes in the Brazilian forest protection after the approval of the national law n. 12.651 of 2012. Five years after its entry into force, this law was only recently analyzed by the Brazilian Supreme Court (STF)[69]. The context of the analysis is framed by the latest advances in the international law concerning climate change and the forests themselves, considered a key element

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[69] This article was finished in 2017, before the judgment of those actions. The latest revision in 2018 was only able to deal with formal aspects, as the decision's full content had not yet been published.

to face the climate issue. After bringing this context to light, we will describe the main institutes in the 2012's forest law – Permanent Protection Areas (APPs), Legal Forest Reserves (ARLFs) and Rural Environmental Registry (CAR), as well as the most important criticism made. In the end, we intend to show some implications of the newest forest law on the Brazilian climate actions and policies, particularly concerning the country's Nationally Determined Contribution targets on Land Use, Land Use Change and Forests (LULUCF). In order to do so, we will bring to light some data on the deforestation in the Amazon region before and after the Law 12.651/2012.

Keywords: climate change, forest protection, Brazilian Forest Law

INTRODUCTION

Usual and fundamental gap on many national laws, the concept of forest depends on many technical criteria. The origin (planted or natural), the localization and usual interaction with natural factors (biomes and types of vegetation) are only some of the variants that could be added to a description of a forest. All of those possible variants count for a precise definition and, at the same time, make it hard to accomplish a general concept, able of funding a clear forest policy. It cannot be taken as a synonym of flora, as the latest refers to the ensemble of vegetal species present in a certain place or period (oxford dictionaries).

In the Brazilian traditional administrative doctrine, the forest was defined by MEIRELLES as "type of vegetation, natural or planted, constituted by a great number of trees, with minimum of space among them" (MEIRELLES, 1991, p. 470, our translation).

In brief and general lines, we can define forest as an area of significant size in the which the soil is covered by a

considerable amount of minimum height trees and bushes. The forests can be more or less dense, planted or natural, primary (without human intervention) or secondary (with human's relevant interventions). That group trees and bushes creates shadow areas that favor the occurrence of other flora species (AVZARADEL, 2016, p. 14, our translation).

Some definitions by the international UN bodies can be helpful to illustrate those first general lines. According to the Food and Agriculture Organization (FAO), forest is defined as "land spanning more than 0.5 hectares with trees higher than 5 meters and a canopy cover of more than 10 percent, or trees able to reach these thresholds in situ […]" (FAO, 2015, p. 3). As to UN's Convention on Biological Diversity, forest is "a land area of more than 0.5 ha, with a tree canopy cover of more than 10%, which is not primarily under agricultural or other specific non-forest land use" (UN, 1992).

Many other definitions are possible, according to the purpose it must achieve. As to CHAZDON ET AL (2016, p. 538), "forest definitions provide the conceptual, institutional, legal, and operational basis for the policies and monitoring systems that drive or enable deforestation, forest degradation, reforestation, and forest restoration". Depending on the definition used and the purposes at stake, some characteristics that inform forests can be more or less taken into account, such as composition (by native or non native species), origin (natural or planted), distribution (continuous or fragmented), timber value, carbon storage, support for traditional or forest dependent peoples, etc. In essence, each definition reflects specific management objectives (CHAZDON ET AL, 2016, p. 540 -541).

But why should we protect forests? Why are they vital to our sustainable future? Briefly because they play

important roles by fulfilling social and environmental multiple functions. MOLINA (2005, p. 299) divides the demands over forests and their resources in 3 groups: ecological functions (ex. carbon storage, biodiversity habitats, etc.); social services in a broad sense (ex. cultural, education, recreational, etc.) and strictly economical functions (ex. the supply of timber and numerous other forest resources).

Not willing to quote all possible functions played by forests (or, in line with another approach, the environmental services they deliver), we could add the following: protection against floods, erosion processes and landslides; protection of water sources. Nonetheless, despite all those features, forests are diminishing on large, continuous and daily bases.

As the United Nations 21 Agenda remarks, "the impacts of loss and degradation of forests are in the form of soil erosion; loss of biological diversity, damage to wildlife habitats and degradation of watershed areas, deterioration of the quality of life and reduction of the options for development" (UN, 1992b, item 11.10).

In order to reverse this trend and ensure such forest related functions, the international community approved over the last 25 years a series of declarations, non binding treaties and agendas on the issue such as the 21 Agenda (1992b), the Non-legally Binding Authoritative Statement of principles for a Global Consensus on the Management, Conservation and Sustainable Development of all types of Forests (UN, 1992a), the United Nations Instrument For Forests (UN, 2007) and recently the New York Declaration on Forests (2014). On the other hand, some UN's frame conventions and treaties apply to forests only on a limited basis as means to achieve their core objective. The so

called Conventions of The Earth Summit or The Rio's Conventions on Climate Change, biodiversity and to Combat Desertification are some good examples.

Lately, The Paris Agreement was approved after years of negotiations. It possesses medium and long term targets with the objectives of limiting the increase of the global average temperature to an extent considered safe (between 1,5 and 2 Celsius degrees above pre-industrial levels), to increase the adaptation capacity to the expected effects and enhance the financial resources flow in a coherent way to accomplish the two prior objectives. Therefore, in the terms of the article 3rd of the Agreement, the parts should adopt "ambitious and progressive" efforts upon self defined targets revised every 5 years. In this context, forests are truly highlighted on the article 5 of the Agreement (UN, 2015b).

The Paris Agreement was ratified by the Brazilian Government and also approved by its Parliament, being publicized by the Federal Decree 9.053 (BRASIL, 2017). On one hand, if Brazil has played an important role in the international climate negotiations on the past two decades, on the other hand the latest changes in the forest protection regime seems to be going in the wrong direction, favoring deforestation and green house gases (GEE) emissions.

1. FOREST PROTECTION IN BRAZIL: BRIEF HISTORICAL NOTE

The first norm to be called and considered a forest code was issued on 1934 at a period when the principal concern was to guarantee the wood stocks to favor economic activities that depended on this source since plastic and other materials we know today were not yet present on industrial scale. It established four main categories of

forests: protection forests, model forests, remaining forests and revenue forests. The last category was meant to subject to intense exploitation under the standards brought by the code. For instance, in public areas such activities were to be preceded by bidding. Model forests were planted and destined to supply seedlings of limited species. The remaining forests were disciplined closely to what we would call today as protected areas (BRASIL, 1934).

As to the protection forests, they depended on its recognition by the State's Federal Forest Agency and were intended to support the water cycle, protect populations against floods and landslides among other functions. In general lines, the legal framework of both remaining and protection forests was similar. Both were bounded for permanent conservation, untransferable and most activities required previous public authorization (BRASIL, 1934).

Moreover, accordingly to the First Forest Code, up to three quarters of each property spontaneous vegetation could be cleared. In other words, one quarter of each property' spontaneous vegetation should be preserved. The ancient code also prohibited the use of fire unless previously authorized and under the cases it referred. The unauthorized use of fire was considered a crime and punished as such (BRASIL, 1934).

However, the first code was considered too complex in its concepts and concrete implementation. For those reasons, a new one was debated and elaborated. The Second Forest Code was approved in 1965 by the Law n. 4.771 (BRASIL, 1965). This Code brought two essential instruments to the Brazilian forest policy: the Permanent Protection Areas (APPs) and the Legal Forest Reserve (ARLF). This law was amended several times during its validity.

However, it was not sufficiently and adequately enforced for almost three decades. What could explain such late change? The Brazilian Federal Constitution of 1988 brought, for the first time a chapter dedicated exclusively to the environmental protection, laid down on the article 225. Besides this section, many other constitutional norms concerning the matter were included throughout the entire text.

Among the various constitutional norms, we must underline the fundamental right to a balanced environment and the duty of both Government and community “defend and preserve it for present and future generations” (BRASIL, 1988, art. 225, main clause); the obligation of all federal spheres to “define, in all units of the Federation, territorial spaces and their components which are to receive special protection” (BRASIL, 1988, art. 225, § 1o, III); the obligation to fully repair environmental damages, besides subjection to administrative and criminal sanctions applicable (BRASIL, 1988, art. 225, § 3o); the duty for the property to fulfill its social-environmental function, generically laid down in article 5o, XXIII: “property shall observe its social function”. Urban properties should comply with the requirements of the City’s Master Plan – approved by the local parliament (BRASIL, 1988, art. 182). In turn, rural proprieties must comply simultaneously with the following constitutional requirements, according to the legally prescribed criteria and standards: “I – rational and adequate use; II – adequate use of available natural resources and preservation of the environment; III – compliance with the provisions that regulate labour relations; IV – exploitation that favours the well-being of the owners and labourers” (BRASIL, 1988, art. 186).

Furthermore, the Constitution strengthened the Public Persecutors regime of institutional guaranties and

ascribed it the power "to institute civil investigation and public civil suit to protect public and social property, the environment and other diffuse and collective interests" (BRASIL, 1988, art. 129, III). Even before the rise of the latest constitution, the Brazilian Public Persecutors were already filing class actions based on the Class Action Law 7.347/1985. After the Constitution, this institution had better conditions and groundings to investigate and use class actions to safeguard the environment.

This factors and the rise of awareness in Brazil concerning the environmental issues as the country prepared itself to host the most important international conference ever realized in 1992 fostered the application of the existing environmental legislation, including the valid Second Forest Code. Not only did the Brazilian government sign all the framework conventions presented in the Earth Summit, but it also created in the same year the Ministry for the Environment (MMA). At the same time, the conflicts involving the enforcement of the forest law institutes arose. Deforestation, above all in the Amazon region increased and called the world's attention.

As claimed by CHIAVARI and LOPES (2015, p. 2), "not until the 1990's did Brazil's executive and judiciary powers begin enforcing the Forest Code. The stricter enforcement frustrated many of the rural producers who wanted to clear-cut and manage their lands without government interference. This spurred a national debate about revising the Forest Code again".

This was the scenario when, in the 90's, the Second Forest Code started to be questioned on the National Congress. In a clear attempt to compose conflicts posed by pressures coming from opposite directions (environmentalists and, on the other side, big landholders

and industries), the Brazilian Government modified the Law 4.771/1965 through the so called provisional measures – acts by the Presidency with the same effects of a law that were supposed to take place in "in important and urgent cases, being immediately submitted to the National Congress" evaluation (BRASIL, 1988, art. 62). Nevertheless, the National Congress started to propose itself some bills of law whether to amend whether to substitute the Second Forest Code. The central piece was the Bill of Law 1.876 from 1999, to which many other proposals were annexed.

From 2008 onwards the bills of law to substitute the Law 4.771/65 were granted new speed and direction, due to two principal facts occurred in that year: a new administrative rule issued by the Brazilian Central Bank that restricted the access to rural special facility funds by demanding as a precedent condition the compliance with the environmental legislation. The second was the Decree n. 6.514, from July, 22nd. This decree, by granting a new regulation to the Federal Law 9.605's administrative environmental infractions and fines, increased the fine imposed to those who did not annotate the existence of the Legal Forest Reserve (ARLF) on the property's record in the Real State Registry Office (RGI). Not by coincidence, the date of the decree appears in many provisions of the actual forest law that enable partial restoration of the damages until this date and are, for this reason, criticized by the environmental doctrine (AVZARADEL, 2016, p.44).

The alternative bill presented by the Federal Deputy Aldo Rebelo was the basis for the Law 12.651. Although many public hearings took place in the National Congress in this process, some voices were not truly listen or attended. Various associations and environmental NGOs emitted public reports and petitions against the Deputy

Aldo Rebelo's alternative bill, defending its rejection by the parliament and thereafter its integral veto by the presidency. Just to quote some examples, The Brazilian Institute of Public Lawyers (IBAP) released a manifesto in favor of the environmental legislation that quoted the matter (IBAP, 2010); the Law for a Green Planet Institute published a report on the limits to the Second Forest Code amendment process (IDPV, 2010); The Federation of farm workers and small agriculture producers together with other associations launched The Committee to the Defense of Forests and the Sustainable Development and also did a manifesto in this line (CDBFDS, 2011); Many NGOs such as Greenpeace and WWF jointed themselves in the Coalition SOS Forests and positioned themselves against the alternative bill (Frente SOS Florestas, 2011); The Federal Public Persecutors (MPF, 2011) presented a critical study concluding not favorable to the amendments; The Brazilian Society for The Advancement of Science (SBPC) and the Brazilian Academy of Sciences (ABC) released a detailed report with critics to many provisions of the alternative bill (SBPC/ABC, 2012); The Federation of States Members' Environmental Agencies issued a technical note in disfavor of the alternative bill (ABEMA, 2012). The Association of Environmental Public Persecutors, The Association of Environmental Law Professors and the Law for a Green Planet Institute sent a public latter to President Dilma Roussef asking for the veto of the whole alternative bill (APRODAB et al, 2012).

Despite all this opinions against the substitution of the Second Forest Code by the so called Deputy Aldo Rebelo's alternative bill it was approved with an astonishing majority on May, 25th, just before United Nation's Rio +20 Conference that would be held in Rio de Janeiro on the

beginning of the following month, in 2012. Alongside with the veto of some provisions, the President Dilma Roussef issued the provisional measure (MP) n. 571 filling the blanks created by the same vetoes, which was approved with no considerable changes by the National Congress. The result of this process can be seen as a serious setback on the environmental protection and, in the long run, as a risk to the very agricultural interests that "justified" this change in the legislation (AVZARADEL, 2016, p. 60).

The Law entered into force on the same day it was officially published, without a transition period that could had made it possible to update, prepare and structure environmental bodies for its enforcement. Also, there were no provisions to foster the increase of human and capital resources of these bodies, in spite of the many additional and complex new duties and of their fragile structural conditions.

2. THE ACTUAL FOREST CODE IN A BIRD'S EYE VIEW

Until the beginning of 2018, Four direct actions of unconstitutionality (ADIs 4901, 4902, 4903 and 4937) and two declaratory actions of constitutionality[70] (n. 42 and 50) facing various provisions of the Law n. 12.651/2012 awaited for the judgment at the Brazilian Supreme Federal Court (STF). This article was finished in 2017, before the judgment of those actions. Thus, we will present the principal instruments of the law and some arguments concerning their agreement with the federal constitution without acknowledging the final result of this judgment by the STF.

[70] The terms "actions of unconstitutionality" and "declaratory actions of constitutionality" were taken from the article103 of the English version of the Brazilian current constitution (BRAZIL, 1988)

2.1 The Permanent Protection Areas (APPs)

Created and listed by the Second Forest Code in 1965, the Permanent Protection Areas (APPs) were only granted a general definition in the 90's by a provisional measure (MP). Such definition was roughly maintained by the Federal Law 12.651 as laid down on article 3, II: "protected area, covered or not with native vegetation, having as environmental functions to preserve water sources, landscapes, geological stability and biodiversity, facilitating the fauna and flora's genetic flow, to protect the soil and to assure the well-being of human populations" (BRASIL, 2012, our translation).

The concept of area instead of forest or vegetation gives this institute a broader utility. Some characteristics of APPs are: a) they should remain with native and intact flora and or geological features, unless in the three cases the law admits its occupation or the flora's suppression: public utility, social interest, low impact – all defined on the code. Thus, a part from those exceptions, it is prohibited to built on APPs; b) they can be identified directly by the law (most ordinary and known case) or declared in concrete opportunities by the Executive's Chief (President, Governor or Mayor) when, proved not present the cases legally defined, there is the need of other or additional APPs to protect or favor an environmental function. For instance, to stabilize sand dunes or protect watersheds, contain erosion processes, avoid landslides; c) once an APP is degraded, the actual landholder must repair it, no matter the fact that is was damaged by the previous proprietary or by an illegal occupier. Such restoration is an *in rem* obligation (AVZARADEL, 2016, p. 66-76).

One of the critical points of the current Forest Code is that it brings two different legal regimes to the APPs

(an innovation when compared to the previous ones): the permanent regime is applies to the ordinary cases; the special transitory regime is granted to those who suppressed APP's vegetation or occupied it (ex. constructed on it) before July 22nd of 2008.

2.1.1 The APP's permanent regime

Regarding the permanent regime, some setbacks must be highlighted. Taking into account that 11 types of APPs are defined directly by the law and the complexity of its rules and exceptions, it is only possible here to focus on a reduced number of APPs and critics.

Riparian APPs (BRASIL, 2012, art. 4º, I) are strip areas alongside riverbeds that usually host specific fauna and flora. The extent of the area is defined on both sides by the rivers bed width, with a minimum of 30 meters (for a width of 10 meters or less) and a maximum of 500 meters (for a width of 600 meters onwards). Accordingly to a report by SBPC and ABC (2012, p. 80), ecosystem services provided by riparian APPs, such as "preventing sediment, organic matter, soil nutrients, fertilizers and pesticides used in agricultural areas to reach the aquatic environment" are much-publicized.

In the permanent regime the main changes are: the actual code innovates to only protect riparian APPs of "natural" rivers. That can exclude those rivers that were modified by public works, particularly in urban areas. Another change was the reference edge from which the strip's extension is measured. In the Second Forest Code it was the highest water margin or bed known – generally observed in the rain season. The actual legislation defines it as the average margin (without the necessary previous statistic data for this end), what represents a reduction in

the extension of the protected riparian areas and a risk to those who may build in the new available lands. Besides the modified rivers, also the considered ephemerals (usually lasting some days after a rainy period) were excluded from the newest code's incidence (AVZARADEL, 2016, p. 77-84).

The surrounding areas of "natural" lakes and lagoons are also protected as APPs - the modified ones are neglected. The minimum radius' width here depends on whether the lake or lagoon is located on a rural or urban area and also on the size of its water surface. In rural areas, the radius width is of 50 meters in the case of those lakes or lagoons with up to 20 hectares[71] of water surface. The bigger ones should bare a radius of 100 meters width. In urban areas the radius is of 30 meters (BRASIL, 2012, art. 4º, II).

Nonetheless, an important and new exception is brought on the § 4o of the same article 4o: the APP rule does not apply to water surfaces with less than 1 hectare, what excludes many smaller lakes and lagoons. The provision says it does not allow itself new suppressions in these cases, submitted to previous administrative authorization. Considering that this exception did not exist before, the provision indirectly turn legal occupations in areas once of permanent preservation according to the Second Forest Code in such lakes and lagoons.

2.1.2 The APP's transitory special legal regime

One of the most critical points in the current forest legislation is the special regime that applies to those who illegally (without consistency with the Second Forest Code) suppressed vegetation in APPs or occupied these areas until July 22nd of 2008 (BRASIL, 2012, art. 3o, IV). In

[71] Each hectare is equal to 10.000 square meters.

this case, the new forest code either demands a partial and incomplete restoration of the damaged area - proportional to the property' size, either simply allows the activities to keep on going, without any restoration required. Thus, it seems clear that those provisions are not constitutional, as they do not seem compatible with the obligation to repair environmental damages – not restricted on the article 225, § 3o, neither seem compatible with the propriety's socio environmental function on seen in the Brazilian Federal Constitution of 1988 (AVZARADEL, 2016).

The article 61-A and its 17 paragraphs allow the continuity of agricultural, ecotourism and tourism activities in the consolidated rural areas – defined as those with such activities established earlier than July 22nd of 2008. Nonetheless, there is not a previous public mapping that could allow us to tell apart what was done before and after the selected date (AVZARADEL, 2016). Just to quote some examples, paragraphs 1 to 4 bring riparian APP's partial restoration rules according to the property' size measured in fiscal modules, regardless of the riverbed width. A similar logic is laid down the paragraph 6, concerning the partial restoration of lakes and lagoons.

We ought to say that the fiscal module is a unity created to implement a federal tax on rural proprieties. It is regulated by the Brazilian Agency for Land Reform (INCRA) for each local district (municipality) and can vary from 5 to 110 hectares. As it was not meant for environmental purposes and its concrete limits are established by an Agency not dedicated to environmental affairs, the fiscal module seems totally inadequate to be used in the forest policy. It could never be the cornerstone of a system of environmental restoration, among other reasons, because it does not take into account environmental features in its

configuration (AVZARADEL, 2016).

The paragraph 5 requires that in the so called rural consolidated areas, the restoration of water fountains and springs be of only up to 15 meters radius, against the 50 of the permanent legal regime. Moreover the provision of article 62 limits the total restoration of all APPs existent in each property to a percentage, once again according to the number of fiscal modules, whereas the article 63 admits the continuity of activities in other APPs such as hilltops without requiring any restoration. The articles 64 and 65 (recently amended) bring special rules to informal homes in urban areas.

2.2 Legal Forest Reserves (ARLF) permanent and transitory regimes

The Legal Forest Reserve (ARLF) is definitively not a new instrument. It traces back to the First Forest Code's provision that one quarter of each property' spontaneous vegetation should be preserved (BRASIL, 1934). The Second Forest Code (BRASIL, 1965) brought the institute with some distinctions considering the localization (region) and type of forests, establishing percentages of the propriety's vegetation that should remain intact. At that time, Brazil was still predominantly rural in its economy e demography.

Like the permanent protection areas, the legal forest reserves experienced many alterations during the validity of the Second Forest Code, whether by ordinary laws, whether by provisional measures in the 90's. The institute's concept present in the Second Forest Code was then introduced by the lasted fashion, and it had two defining features: the institute would apply to rural proprieties only, the percentages maintained as legal reserve should be in general composed with native species and excluded of

economic intense exploitation, being admitted only forest sustainable management (BRASIL, 1965, art. 16).

On those grounds, the Legal Forest Reserves, working as small native forests fragments, could develop important environmental functions such as "to decrease the isolation of the few larger fragments, functioning as ecological springboards in the displacement of species across the landscape" (SBPC/ABC, 2012, p. 72).

In this context, ARLFs could be an important instrument to accomplish the social and environmental functions of rural proprieties, as laid down on articles 5o, 186 and 225 of the Brazilian Constitution. By fulfilling these functions, it seems that maintaining ARLFs could only benefit the agricultural activities managed in rational and sustainable terms. However the enforcement of the Second Forest Code was incipient in this aspect and the majority of rural properties did not have the area correctly delimited and registered on the property's record in the Real State Registry Office (RGI).

The current Code defines Legal Forest Reserves as: "area inside a rural property or ownership, delimited in the terms of the art. 12, with the functions to *assure the economical use* of the natural resources in a sustainable way, to aid the conservation and the rehabilitation of the ecological processes and to promote the conservation of the biodiversity, as well as to shelter and the protect wild fauna and of the native flora" (BRASIL, 2012, art. 3o, III, our translation).

Quoted above the article 12 brings the percentages of the rural propriety that must be maintained as ARLF. The location of this area inside the rural property or ownership shall be approved by the an official environmental body, after the information contained in the property's record

on Rural Environmental Registry (CAR) and based on environmental plans and data available (BRASIL, 2012, art. 14).

The percentages vary in according with the biome present in the so called Legal Amazon Region - that comprises the Member States Acre, Pará, Amazonas, Roraima, Rondônia, Amapá and Mato Grosso, the north portion of Tocantins and Goiás and the west part of Maranhão (BRASIL, 2012, art. 3o, I). Properties included in this area should bare an ARLF of 80% if they host Amazon Forest, 35% if they have the Cerrado's vegetation, 20% if they hold other vegetations. Outside the Legal Amazon Region the percentage is of 20% (BRASIL, 2012, art. 12).

Nonetheless, the highest percentage of 80% in the properties with Amazon Forest in the Legal Amazon Region is a not absolute rule. As a matter of fact, it is just the opposite as the Law 12.651 brings many provisions enabling to dismiss the general rule and reduce the ARLFs percentage in the case to 50% of the property (articles 12 and 13). It would be more transparent and clear to set 50% as the general rule on those cases (AVZARADEL, 2016, p. 180-181).

Moreover, the current Forest Code (article 15) makes it now easier to include in the calculus of the ARLF areas of permanent protection (APPs). In the past regime this operation was exceptional and only possible if the percentages of both ARLFs and APPs together surpassed certain percentage limits (BRASIL, 1965, article 16).

The actual Forest Code (Law 12.651) brings a new conception for the Legal Forest Reserves, turning it, as a matter of fact, into a different institute since it is now possible: to have non-native species in this area on ordinary bases; to exploit it for commercial and non commercial purposes;

to easily include on the percentage calculus of ARLFs those APPs existent in the same propriety (AVZARADEL, 2016, p. 155-181).

Here once again we have the specific transitory regime, for those who, before July, 22nd 2008, suppressed vegetation on Legal Forest Reserves. Similar to what have been seen the cases of APPs, the articles 66 to 68 tend to limit the restoration of affected ARLFs cleared of not in compliance with the Second Forest Code. For instance, article 66 allows those who had not respected the previous Code percentages to compensate the lacking difference by, among other options, using certificates disciplined by the same law and called Environmental Reserve Quota (CRA). In turn, the provision laid down on article 67 allows properties with up to 4 fiscal modules to remain with the same ARLF they had in July 22nd 2008 with percentages inferior to the requirements of the Forest Code valid at the time.

Another significant difference from the previous legal regime is the fact that it is no longer mandatory for ARLFs to be registered on the property's record on the Real State Registry Office (RGI). Instead, it must be declared on the Rural Environmental Registry (BRASIL, 2012, art. 29). This tool is also a condition to many provisions of the Law 12.651 as, for instance, some from the transitory regime.

2.3 The Rural Environmental Registry (CAR)

The Rural Environmental Registry (CAR) had already been used in some Federal State Members such as Pará and Mato Grosso before the Law 12.651 made it a national instrument and the newest cornerstone of the forest policy. Some relevant issues are: it is a set o platforms (Federal and State Member's) through which the land owners inform the environmental features of their proprieties or possessions;

the environmental official bodies must analyze this information in order to approve or reject the registry. But those bodies' structures, human and capital resources are limited and the law simply made no provision to address this problem. The old enforcement problem is once again present, what is not an urgent issue to landholders as the Forest Code in many provisions requires only the record's creation instead of its approval (AVZARADEL, 2016, p. 164-171).

Although the CAR was told to be the answer to forest management problems, it was not complete after five years of the current forest code's entry to force. According the Brazilian Forest Service (SFB) latest data (BRASIL, 2017b)[72], until the end of September of 2017, the total area able to be registered is 397.836.864 hectares and a total of 416.491.664 hectares were already registered (thus, more than 100%). At the same time, the puzzling numbers show that three geographical regions have not accomplish 100% properties registry (South – 96%, Center-West – 94%; Northeast – 78%). That reveals that this data most be reviewed and that more investment in the public environmental agencies is needed.

Furthermore: recent studies and reports show that the CAR is not a friendly or inclusive platform for the record by traditional and indigenous people's management practices (DE SIQUEIRA et Al, 2017, p. 22); without the necessary surveillance of environmental body, the self declared records can be used to favor land grabbing practices and frauds concerning forest management. In 2017 some data derived from CAR and other records showed more than 11 thousand CAR Records located inside indigenous peoples lands and protected areas (FASE, 2017) (ISA, 2007) (G1, 2007).

[72] This article was finished in October 2017.

2.4 Some prospects on deforestation and climate change

Yet, a question that can be raised and which answer could help us to understand the results of the current Forest Code and its enforcement in the past five years is: how have deforestation rates behaved in this period? Although deforestation rates had been declining in the period between 2008 and 2012, there is not a clear consensus about what have been going on after the Law 12.651.

The declining trend that seems to have ended in 2012 was not only due to agricultural commodities lower prices, but also to public policies. ASSUNÇÃO, GANDOUR and ROCHA (2015) underline measures adopted in 2004 such as the "Introduction of real-time remote-sensing forest monitoring technology" and in 2008 such as the Decree 6.514/2008 and the regulation on rural credit facilities funds.

The clearing of forests has been the Brazilian main GEE emissions drive together with Land Use, Land-Use Change and Forestry (LULUCF). These represented net emissions 70% in 2005, 28% in 2010 and 18% in 2014. As to agriculture related emissions, they represented 14% in 2005, 32% in 2010 and 33% in 2014. In turn, when considered gross emissions (without sinks) LULUCF represented 76% in 2005, 54% in 2010 and 49% in 2014. Agriculture stood for 11% in 2005, 20% in 2010 and 21% in 2014. The difference between gross and net GEE emissions is attributed to the growing of managed forests (BRASIL, 2016a).

Regarding the data from 2014, agriculture and LULUCF still represent half of the net (51%) and 70% of gross emissions. According to the Brazilian Third National Communication of Brazil to the United Nations Framework Convention on Climate Change (BRASIL, 2016b, p. 28-29), between 2005 and 2015, Brazil held "a prominent position

among the countries that have decreased their emissions and deforestation rates […]".

However, some reports and studies point to alarming tendency of growth of deforestation rates after the law 12.651 of 2012. The Akatu Institute claims that the declining trend was inverted since the 2013 and that in this year alone the deforestation rate increased by 20% (AKATU, 2016). AZEVEDO ET. AL. (2016) also stress that deforestation rates enhanced significantly in 2016.

This scenario of growing deforestation and related emissions, particularly in the Amazon context can, among other negative aspects, make it hard for Brazil to accomplish its self defined targets in accordance with the Paris Agreement. The global national goals set are: the reduction of GEE emissions by 37% in 2025 and by 43% in 2030 - both below 2005 levels (BRAZIL, 2015). In other to realize such targets, the country proposed "to achieve, in the Brazilian Amazonia, zero illegal deforestation by 2030 and compensating for greenhouse gas emissions from legal suppression of vegetation by 2030"; to restore and reforest "12 million hectares of forests by 2030, for multiple purposes", among other goals.

Taking into account that deforestation rates have returned to rise on the last 2 two years and that this trend comes back during the edge of an economic crisis in Brazil, it seems that worse scenarios should be considered in the planning of forest policies. And that includes a detailed evaluation of the Law 12.651 enforcement, of its setbacks and fragilities.

CONCLUSIONS

- The forest protection by international treaties is predominantly composed of non legally binding declarations and instruments. Some frame conventions and international agreements bring the forest protection as a mean to accomplish specific objectives.
- The Paris Agreement relies on the forests potential as carbon sinks. In line with it, Brazil submitted its Nationally Determined Contribution, which comprises forests protection and tackling deforestation in the Amazon region.
- The Law 12.651/2012 brings considerable setbacks concerning forest protection, particularly in the case of permanent protection areas (APPs) and legal forest reserves (ARLF). At the same time, the current legal frame relies on the rural environmental registry (CAR), a platform based on self declarations, as an enforcement tool to control deforestation.
- The latest information on the deforestation in the Amazon indicates that the rates are again rising and that this trend has returned after the entry into force of the actual forest Code, in spite of the recent Brazilian economic crisis. This could represent a difficulty to accomplish the self defined targets under the Paris Agreement.

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9. CLIMATE LITIGATION IN THE BRAZILIAN SUPERIOR COURTS

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INTRODUCTION

Brazil has a specific Act on climate change. However, it needs to be enforced and interpreted in accordance with the constitutional principle of sustainable development so as to be effective. The principle of sustainable development is provided for by Act 12.187/2009, which established the National Policy for Climate Change -NPCC. The Act - although imperfect and lacking in some respects - is a breakthrough and a milestone in the fight against climate change and global warming. It has clearly incorporated concepts of international instruments that protect the environment.

The Act 12.187 is implemented by Executive Order 7.390/2010, which, among other important points, states that

greenhouse gas emissions should be reduced from 36.1% to 38.9% by the year 2020. However, before the United Nations Conference on the Post-2015 Development Agenda, held in New York in September 2015, Brazil promised that the reduction would be of 37% by 2025 and 43% by 2030(THE GUARDIAN, 2017), exceeding the goals established in the Executive Order. The big question is whether Brazil will have the structure, technical capacity and political will to seriously achieve these goals. The shortage of structure to monitor sources that emit greenhouse gases; the increasing deforestation of the Amazon rainforest; transport dependent on fossil fuels (YACOBUCCI, 2014, p. 543; NOLON, 2014, p. 505); the lack of environmental education in schools; and corruption(THE NEW YORK TIMES, 2015,p. 22) are all serious obstacles to be fought against so that this goal can be achieved.

The Act provides the principles, goals, guidelines and instruments of NPCC [Article 1]. Important technical concepts were created for the Brazilian Law, such as the concepts of adaptation; of adverse effects of climate change; of emissions; of emission sources; of greenhouse gases; of impact; of mitigation; of climate change; of GHG sink and of vulnerability [Article 2, inc. I, II, III, IV, V, VI, VIII, IX and X]. These technical definitions needed to be clearly spelled out and translated into legal language, since they must be employed with the greatest possible care and accuracy in the formulation and implementation of public policies as well as judicial and administrative decisions.

Among other things the Act provides that economic and social development must be compatible with the protection of the climate system [Article 4, inc I]. The relationships of the environment to the economy must always be considered when planning and implementing reductions of carbon emissions.

The NPCC establishes that Brazil must promptly comply with all of its commitments to the United Nations Framework Convention on Climate Change and other international documents on climate change which the country will eventually sign [Article 5, inc. I]. Therefore, the Brazilian Government needs to abide by the provisions of COP 21. Once new international documents on climate change are approved, it is essential that Brazil immediately adopt them as guidelines, especially when they provide resilience and adaptation measures compatible with the fundamental duty of environmental protection, provided for in Article 225 of the Federal Constitution.

The Act provides for tools under the NPCC tools, including the National Plan on Climate Change, the National Fund on Climate Change and, in particular, the assessment of environmental impacts on the microclimate and the macroclimate [Article 6, items I to XVIII]. Among the institutional instruments for the work of the National Climate Change Policy are the Interministerial Committee on Climate Change, the Brazilian Research Network on Climate Change and the Coordination Committee of Activities in Meteorology, Climatology and Hydrology.

Significantly, Article 8 provides that official financial institutions will make available credit and financing lines in order to produce and encourage clean energy.

Principles, goals, guidelines, public policies and government programs must be compatible with the principles, objectives, guidelines and instruments of the National Policy for Climate Change [Article 10]. The Act provides that the Executive Order, in accordance with the National Policy for Climate Change, must set sectoral plans for the mitigation and adaptation to climate change in order to create a low-carbon economy in the generation and distribution of electricity; in urban public transportation;

in the interstate transportation systems of cargo and passengers; in the durable consumer goods manufacturing industry; in chemical industries; in the pulp and paper industry; in mining; in the construction industry; in health services; and in agriculture. The goal is to meet gradual emission reduction targets, considering the particularities of each sector.

Brazil plays a major role in the global fight against climate change, especially because of its vast forests. However, the amount of deforestation now occurring is in great dispute. Between August 2014 and July 2015, for example, deforestation in the Amazon rainforest increased by 215% according to Imazon Research Institute.[73] Contrarily, according to Brazil Government, the increase was only 16%.[74]

This paper discusses the role that legislation and litigation are playing, and the roles they may and should play in the future, in combatting deforestation and other factors relevant to climate change in Brazil.

1.CLIMATE CHANGE LITIGATION

Climate change litigation has been occurring in the United States for years and is now common, but in Brazil it is very recent and rare.[75] This is particularly due to the fact

[73] See about Imazon Institute i*n* http://imazon.org.br/institucional/. Last accessed in: 01.05.2017.

[74] According with Brazil´s Government data, 5.831 square kilometers of land was cut down or burned in the Brazilian Amazon one year before to August 2015. In other words, trees covering an area more than seven times the territory of New York City have been cleared in the Brazilian Amazon over the past year. See Amazon Deforestation Report Brazil Paris Climate Talks, *The Guardian*, Source: http://www.theguardian.com/world/2015/nov/27/amazon-deforestation-report- brazil-paris-climate-talks. Last accessed in: 01.05.2017.

[75] In Brazil it is necessary to go a long way forward regarding Climate Change Law. This matter is still poorly developed, and climate change law, which is of great importance, is dealt with as a small part of the Brazilian environmental law. In the United States, on the other hand, there are relevant works, with global importance,

that there is not a sound doctrine regarding the Climate Change Law in the country. The jurisprudence presents few interesting cases. Most important is a decision by the Supreme Federal Court, discussed in detail below. This decision is a cause of concern, as it authorizes burning straw in the harvest of sugarcane, despite its contribution to global warming.

This decision is in conflict with the provisions of the Climate Change National Policy Act (Act 12.187/2009), and with the Paris Agreement, which went into force on November 4, 2016. Likewise, the decision is in conflict with a precedent from the Supreme Federal Court itself, which, construing the Article 225 of the Federal Constitution of 1988, stated that a balanced environment is a public asset, a fundamental constitutional right and that it must be protected in the interest of present and future generations.[76]

Four cases will be reviewed in the present paper. First the case judged by the Supreme Federal Court will be discussed. Then there will be brief discussions of three cases that have already been judged by the Superior Court of Justice. These cases relate to the anthropogenic factors causing climate change (though not always in such terms) and some mention their sometimes catastrophic effects.

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of Climate Change Law, such as: GERRARD, Michael; FREEMAN, Jody (Ed.). *Global Climate Change and U.S law*. New York: American Bar Association, 2014. GERRARD, Michael. *The Law of Clean Energy*. Efficiency and Renewables. New York: American Bar Association, 2015; FREEMAN, Jody, The Uncomfortable Convergence of Energy and Environmental Law, 41 *Harv. Envtl*. L. Rev. 339 (2017). POSNER, Erik A; WEISBACH, David. *Climate Change Justice*. Princeton and Oxford: Princeton University Press, 2010; FARBER, Daniel: A U.S. Perspective, 2 *Yonsei L. J.* 1 (2011),Available at: http://scholarship.law.berkeley.edu/facpubs/2275. Accessed on: May 2nd, 2017; WOLD, Chris; HUNTER, David; POWERS, Melissa. *Climate Change and the Law*. New York: LexisNexis, 2013.

[76] BRAZIL. Supreme Federal Court Extraordinary appeal no. 22164/SP. Reporting Judge: Justice Celso de Mello. Brazilian Justice Gazette, Brasília, DF, Nov. 17th, 1995. Available at: <http://stf. jusbrasil.com.br/jurisprudencia/745049/mandado-de-seguranca-ms-22164-sp>. Accessed on: May 2nd, 2017.

We will start with the decision of the Supreme Federal Court (STF) that deemed unconstitutional the Act of the Municipality of Paulínia, in the State of São Paulo, which prohibited the use of intentional fires for agricultural purposes.

2. SUPREME FEDERAL COURT (STF) CASE. SÃO PAULO STATE, SINDICATO DA INDÚSTRIA DA FABRICAÇÃO DO ÁLCOOL DO ESTADO DE SÃO PAULO – SIFAESP AND SINDICATO DA INDÚSTRIA DE AÇÚCAR NO ESTADO DE SÃO PAULO – SIAESP VS. CITY AND CITY COUNCIL OF PAULINA (RE 586224/SP. DJE 07-05-2015)

The Supreme Federal Court is the guardian of the Constitution, and it gives the last word in constitutional matters, either in its original competence or in its appellate competence. Its competence is provided for in Article 102 of the Federal Constitution of 1988. It is the most important court of the country, equivalent to the Supreme Court in the United States.

The Union of the Alcohol Manufacturing Industries of the State of São Paulo (Sindicato da Indústria de Fabricação do Álcool) (SIFAESP) and the Union of the Sugar Industries in the State of São Paulo (Sindicato da Indústria de Açúcar) (SIAESP) filed a claim asserting the unconstitutionality of the Municipal Act 1.952, of December 20th, 1995, of the Municipality of Paulínia, which prohibited completely the use of intentional burning of sugarcane straw in its territory.

The article of the contested municipal law provides: "Article 1- It is prohibited, under any manner, the employment of fire for soil cleaning and preparation

purposes in the Municipality of Paulínia, including preparation for planting and for harvesting sugarcane and other crops."

The plaintiff unions claimed that such municipal law breached article 23, item e, article 14, article 192, § 1, and article 193, items XX and XXI, all from the Constitution of the State of São Paulo.

The claim was dismissed by São Paulo State Court, on the grounds that burning sugarcane straw is a primitive and rudimentary method, harmful to the environment, and that might be most conveniently replaced with mechanization. The Court understood that the Municipality could expand environmental protection through the Municipal Law, according to the Federal Law 6.766/79.

The State of São Paulo presented an extraordinary appeal to the Supreme Federal Court against the decision of São Paulo State Court. for the State of São Paulo. It argued that Resolution no. 237/97 of CONAMA did not assign administrative competence to municipalities to deal with the matter. According to the State of São Paulo, the municipal law that prohibited fires in harvests was harmful to the economy of the State and hampered the environmental control of the activity, making annual harvests unfeasible to rural workers.

The State of São Paulo argued that the municipal law, by prohibiting the burning of sugarcane straw, was beyond the limits of the interests of the Municipality of Paulinia, and that it affected the state economic order and the tax revenues of the State of São Paulo and caused social disturbance due to the potential dismissal of employees of the sugarcane industry and the resulting unemployment.

Sindicato da Indústria da Fabricação do Álcool do Estado de São Paulo – SIFAESP and Sindicato da Indústria

de Açúcar no Estado de São Paulo – SIAESP also presented an extraordinary appeal in line with that of the State of São Paulo, requesting the reversal of the decision of São Paulo State Court.

The Supreme Federal Court reviewed the appeals of the State of São Paulo, of Sindicato da Indústria da Fabricação do Álcool do Estado de São Paulo - SIFAESP and of Sindicato da Indústria de Açúcar do Estado de São Paulo - SIAESP and reversed the decision of São Paulo State Court.

According to the Supreme Federal Court, in an opinion of Justice Fux:

> The Municipality of Paulínia is competent to legislate on the environment, up to the limit of its local interest and given that such regulation is harmonious with State and Federal rules (article 24, VI c/c 30, I and II of the Brazilian Constitution). The Judiciary Branch is inserted in the society and, therefore, it must respond to its expectations, in the sense of keeping in mind the objective of meeting the needs, as it is also a public service. In this case, it is undeniable the multidisciplinary content of the matter, involving social, economic and political issues. Such as: (i) the relevant decrease - progressive and planned - of burning of sugarcane; (ii) the impossibility to handle machines upon the existence of rugged cultivating areas; (iii) cultivation of sugarcane in smallholdings; (iv) workers with low education level; (v) and the existing pollution regardless of the chosen option. Although full mechanization in the cultivation of sugarcane is inevitable, it is necessary to reduce as much as possible its negative side. Thus, considering the weighted values, a State Law regulating the manner it understands to be suitable to meet the needs of its respective population was issued. Such diploma reflects, unquestionably, a desirable means of compatibility with the society that, together with the power directly granted by the Constitution, overly consolidates its position

> in the state system as a standard to be followed and respected by other units of the federation connected to the State of São Paulo. Therefore, it is not allowed an interpellation by the Supreme Federal Court which does not recognize the interest of the Municipality in providing a balanced environment for its population. However, it is impossible to identify a local interest that provides ground to keep the Municipal Law effective, as both pieces of legislation aim at meeting the same social need, which is the maintenance of a balanced environment, specifically regarding the burning of sugarcane.

According to the interpretation of the Constitution by Justice Fux, which was followed by other Justices (less by Justice Weber that dissented), the Act of the State of São Paulo authorizing the fires and providing for a progressive decrease until the year 2031 shall prevail over the Municipal Law of the Municipality of Paulínia, which provided for the immediate termination of the fires within the Municipality and aimed at instant environmental protection. The Supreme Federal Court stated that the Municipal Law no. 1.952, of December 20th, 1995, of the Municipality of Paulínia, was unconstitutional. The Supreme Federal Court decision did not mention either the severe risk of emission of greenhouse gases deriving from the fires, or the Climate Change National Policy Act.

On the other hand, Justice Fux wrote in his opinion that the "use of machines of crops have had negative impacts on the Environment and the cane decomposition emit methane and contributes to global warming what not take place in the burning of the cane". This honorable opinion unfortunately has a scientific mistake.

Global warming potential (GWP) and human health indicators of sugarcane ethanol production in Brazil, in the pre-mechanization (100% burned), current

(~50% burned) and future (100% without burning) scenarios, were calculated. In the past, the GWP of ethanol production was 1.1 kg CO2 eq L−1 and BC emissions were 32.6 kg CO2 eq L−1. The human health impact in disability adjusted life years (DALY) was 3.16E−05 DALY L−1ethanol. The current ethanol production process has a GWP 46% smaller, while BC emissions are seven times smaller than before mechanization started. The human health impact is currently 7.72E−06 DALY L−1. In the future, with complete mechanization and the integration of first and second generation ethanol, the expected GWP emissions will be 70% smaller, and BC emissions will be 216 times smaller than when all sugarcane was harvested with burning(GALDOS, CAVALETT, SEABRA, NOGUEIRA, BONOMI, 2013, p. 582). According a specific research about this issue, the major part of the total emission (44%) resulted from residues burning; about 20% resulted from the use of synthetic fertilizers, and about 18% from fossil fuel combustion(FIGUEIREDO, PANOSSO, ROMÃO, LA SCALA, 2010; LOARIE, LOBBEL, ASNER, QIAOZHEN, FIELD, 2011, p. 107). In the same sense, sugarcane burning cause a tremendous negative respiratory health effects (RIBEIRO, 2008, p. 42).

This decision also ignored International Treaties, Conventions and Agreements related to measures against emissions caused by anthropogenic factors, of which Brazil is a signatory.

3. SUPERIOR COURT OF JUSTICE (SCJ) CASES

The Superior Court of Justice is headquartered in Brasília. According to the articles 104 and 105 of the Brazilian Constitution, it is competent to judge, in a special appeal, the cases decided, in sole or last instance,

by Regional Federal Courts or by the courts of the States, Federal District and Territories, when the decision under appeal: a) goes against treaty or federal law, or denies its effectiveness; b) judges as valid an act by local government contested due to a federal law; or c) construes a federal law differently from other courts. This Court reviews cases related to environmental law when non-constitutional rules are being debated.

The Superior Court of Justice (SCJ) has adopted a progressive jurisprudence regarding the protection of the environment as an independent legal asset and fostering sustainable development. This can be clearly seen in several situations. The first of them is the recognition of the inversion of the burden of procedural evidence against the alleged polluter, so that it must show that its activity does not damage the environment. Actually, for having better information on the alleged dangerous action and for being the causing agent of risks due to its activity, the defendant must prove that the environment and the collectivity are not subject to risks or damage threats. In this regard, the SCJ decided to enforce the article 6, item VIII, of the Act 8.078/90 in concrete cases[77] involving environmental matters. As a fundamental right, the environment is protected by a set of procedural rules – including the inversion of the burden proof against defendant - encompassing the Act 4.717/65, 7.385/85 and the Act 8.078/90.[78]

In the same regard, the SCJ has adopted the theory of full risk to check environmental damage. The evidence of

[77] BRAZIL. Superior Court of Justice. Agaresp no. 206748. Reporting Judge: Justice Ricardo Villas Boas Cueva. Brazilian Justice Gazette, Brasília, DF, Mar. 27th, 2013. Available at: <http://stj.jus brasil.com.br/jurisprudencia>. Accessed on: May 2nd, 2017.

[78] BRAZIL. Superior Court of Justice. Special appeal no. 200400011479. Reporting Judge: Justice Luiz Fux. Brazilian Justice Gazette, Brasília, DF, Aug. 31st, 2006. Available at: <http://stj.jusbrasil. com.br/jurisprudencia>. Accessed on: May 2nd, 2017.

damage and causal link is enough to present the obligation to indemnify. The Court overruled the risk-gain theory, as it does not accept exemptions from civil liability, such as the victim's exclusive guilt, fortuitous event or force majeure and the contractual clause that provides for the prerogative of hold harmless.[79]

SCJ has also recognized that theres no statute of limitation (deadline) for proceedings aiming at remedying environmental damage, considering the peculiarities of the damage that is spread and is beyond the limits of time and space. It is a position that aims at providing maximum effectiveness to the principle of environmental damage remediation and makes a mechanism available for the State, the collectivity and the individual able to protect the fundamental right to a balanced environment in an intergenerational perspective.[80] The objective is remedying and restoring the environmental asset at any moment and prevent unsustainable development activities.

Finally, going beyond the theory of guilt of public service (faute du service) of French law, the Superior Court of Justice understands that the liability of the State for environmental damage occurs not only in cases of State action, but also for omission, according to the interpretation of the art. 37, § 6, of the Federal Constitution of 1988.[81] The

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[79] BRAZIL. Superior Court of Justice. Interlocutory appeal in the special appeal no. 1412664. Reporting Judge: Justice Raul Araújo. Brazilian Justice Gazette, Brasília, DF, Mar. 11th, 2014. Available at: <http://stj.jusbrasil.com.br/jurisprudencia/25017000/agravo-regimental-no-recurso-especial-agrg-no-resp-1412664-sp-2011-0305364-9-stj>. Accessed on: May 2nd, 2017.

[80] BRAZIL. Superior Court of Justice. Special appeal no. 201002176431. Reporting Judge: Justice Castro Meira. Brazilian Justice Gazette, Brasília, DF, Feb. 4th, 2013. Available at: <http://www.lexml. gov.br/urn/urn:lex:br:superior.tribunal.justica;turma.2:acordao;resp:2009-09-08;769753-1112299>. Accessed on: May 2nd, 2017.

[81] BRAZIL. Superior Court of Justice. Special appeal no. 1071741/SP. Reporting Judge: Justice Antonio Herman Benjamin. Brazilian Justice Gazette, Brasília, DF, Dec. 16th, 2010. Available at: <http://www.lexml. gov.br/urn/urn:lex:br:superior.tribunal.justica;turma.2:acordao;resp:2009-03-24;1071741-1075754>. Accessed on: May 2nd, 2017.

presence of the assumptions of civil liability, damage and causal link motivates the imputation of State liability in the acts of commission and omission of its agents in the event of environmental damage.

The liability for restoring the environment or remedying environmental damage is assigned to the owner purchaser of the real estate, even if the defendant has not caused the damage. This is the position of the SCJ, which understands that the liability of the purchaser of the real estate is of propter rem nature. These precedents encourage the fulfillment of the social function of the property in its element and in its environmental sense and encourage ecologically sustainable development,[82] overcoming the Napoleonic civilist individualism and the bourgeois liberal rationale of laissez passer and laissez faire.

Pursuant to these comments, we will review three cases judged by the SJC that are relevant in fighting the anthropogenic factors causing climate change.

3.1. State Prosecutor's Office of the State of São Paulo Vs Filipe Salles Oliveira and Others (AgRg in EDcl in the Special Appeal no. 094.873 – SP 0)

The Superior Court of Justice, based on article 27 of the old Forest Code, ruled in favor of the State Prosecutor's Office of the State of São Paulo against the farmers Filipe Salles Oliveira and Others, and found that it is illegal to use the technique of burning in the harvest of sugarcane due to its negative impact on the environment and the emissions of CO2, contributing to global warming, in addition to

[82] BRAZIL. Superior Court of Justice. Special appeal no. 201100461496. Reporting Judge: Minister Herman Benjamin. Brazilian Justice Gazette, Brasília, DF, Sep. 11th, 2012. Available at: <http://stj.jusbrasil.com.br/jurisprudencia>. Accessed on: May 2nd, 2017.

causing respiratory damage to people, especially to farm workers. This decision came to the opposite conclusion than the later decision from the Supreme Federal Court in the case of the State of São Paulo and others vs. the City and the City Council of Paulínia

In the decision it was stated that academic studies show that the burning of sugarcane straw causes significant environmental damage and that, considering sustainable development, there are modern instruments and technologies that are able to replace the burning practice without making the economic activity unfeasible. The Court clarified that the exception of the sole paragraph of the article 27 of the Act 4.771/65 (old Forest Code) to the prohibition of fires must be construed restrictively when it authorizes the fires for agro-industrial or agricultural activities, as the economic interest cannot prevail over the environmental protection when there are techniques less harmful to the nature.

According to Justice Martins:

> The interpretation of the rules that protect the environment do not comprise only, and solely, the use of strictly legal instruments, as it is a fact that the sciences related to the study of the soil, to the study of life, to the study of chemistry, to the study of physics must help the jurist in his/her daily activity of understanding the fact that is harmful to Environmental Law. The cane field absorbs and incorporates CO_2 in large amounts throughout its growing period, which lasts from 12 to 18 months on average, and the burning releases it all almost instantly, i.e., in the period of one fire, which lasts approximately from 30 to 60 minutes. Therefore, the fire releases the CO_2 collected from the atmosphere during 12 to 18 months in a little longer than 30 or 60 minutes. In addition, other gases are formed and released in the atmosphere together with CO_2.

According to the Justice "a study carried out by Universidade Estadual Paulista – UNESP, which concludes that the PAH's (Polycyclic Aromatic Hydrocarbons) released by the fire causes cancer, affecting the bodies of workers in cane fields who are exposed to the smoke".

The old Brazilian Forest Code provides for:

> Art. 27. It is forbidden the use of fire in forests and other types of vegetation. Sole paragraph. If local or regional peculiarities justify the employment of fire in agricultural or forestry activities, the permission shall be granted by act of Public Authorities, restraining the areas and establishing precautionary rules.

The rule uses the expression *"local or regional peculiarities"*.According to the Justice:

> …the appellants have shown that the procedure is archaic and obsolete by stating that it is a secular conduct, i.e., a method used in times of major technological limitations, surely today the progress of agro-industry enables a mitigation of environmental damage without compromising its economic feasibility.

Therefore, according to the opinion, the activity must be developed with modern industrial instruments and technology to reduce the environmental impact and not using fires in cane fields for the harvest that contribute with climate change.

The voting was unanimous, with Justices Benjamin, Campbel, Calmon and Meira following the vote of the reporting Justice.

We will review the second case ruled by the Superior Court of Justice.

3.2 Braulino Basílio Maia Filho Vs. Instituto Brasileiro do Meio Ambiente e dos Recursos Naturais (Special Appeal 1000.731- RO)

Braulino Basílio Maia Filho filed an ordinary proceeding against IBAMA - Instituto Brasileiro do Meio Ambiente (Brazilian Environmental Institute), aiming at revoking a fine, from 09/20/1995, applied due to a fire in a pasture carried out in an area of 600 hectares.

The federal judge ruled in favor of the plaintiff, on the grounds that the legal instrument that justified the fine (article 14, item I, of the Act 6.938/1981) could not be applied in this case.

After an appeal by Ibama, the Regional Federal Court reversed the decision on the grounds that "the penalties for violations of the environmental legislation have express legal provision inserted in the article 14, item I, of the Act 6.938/81" and that Ibama has legal competence to enforce them.

Braulino Basílio Maia Filho, dissatisfied with the decision, appealed to the Superior Court of Justice, which decided that it is legal to apply a fine due to the burning of 600 hectares of pasture, pursuant to the provisions of the Act 6.938/1981. According to the Act:

> Article 14 - Notwithstanding the penalties defined by federal, state and municipal legislation, non-compliance with the measures required to the preservation or correction of inconveniences and damages caused by degradation of the environmental quality shall subject the violators:
> I - to a simple or daily fine, in amounts corresponding, at least, to 10 (ten) and, at most, to 1,000 (one thousand) Readjustable National Treasury Bonds - ORTNs, aggravated in case of specific recurrence, as provided for in the regulation, and the Federal Union is not allowed to collect it if the fine has already been

> applied by the State, Federal District, Territories or Municipalities.

Justice Benjamin, in his opinion which the other judges signed onto, explicitly mentioned the relation between the fires and climate change. He stated that:

> The law provides for application of fine for non-compliance with the measures required to the preservation or correction of inconveniences and damages caused by degradation of the environmental quality. It is certain that the expression 'non-compliance' includes acts of degradation not only by omission, but also by action. In this case, the appellant's conduct, of carrying out the burning of an area corresponding to 600 hectares without authorization from the environmental agency, violates the law.
> The fires are incompatible with the purposes of environmental protection established in the Federal Constitution and in the environmental laws. In times of climate changes, any exceptions to this general prohibition, in addition to being expressly provided for in federal law, must be restrictively construed by the manager and judge.

The Superior Court of Justice, with this foundation, understood as legal the fine applied by Ibama to Braulino Basílio Maia Filho, due to carrying out fires in 600 hectares of pasture.

We will review the third case ruled by the Superior Court of Justice.

3.3. Federal Prosecutor´s Office Vs H. Carlos Schneider S/A Comércio e Indústria and Other (Special Appeal no. 650.728 – SC)

The Federal Public Prosecutor's Office of Joinville, Santa Catarina, filed a public civil proceeding against H. Carlos Schneider S/A Com. e Ind. and S.E.R. Parafuso, a labor entity congregating the employees of CISER Group.

The Federal Public Prosecutor's Office claimed that the defendants filled and drained a mangrove forest in an urban property, even after being notified by IBDF, by FATMA (environmental bodies), by the City Council of the City of Joinville and by the Port Authority.

Federal Judge Moraes condemned the defendants to a) removing the landfill and any buildings that are on the mangrove forest, and b) specific reforestation of the mangrove forest.

The decision by Judge Moraes was confirmed by the Regional Federal Court of the 4th Region. The defendants appealed to the Superior Court of Justice.

The SCJ rejected the defendants' appeal and upheld the original decision favorable to environmental protection.

In his opinion (which the other judges signed onto), Justice Benjamin, mentioning again the risks of climate change, especially increasing sea levels, stated in the opinion:

> As a result of the evolution of scientific knowledge and changes in the ethical attitude of the human being towards Nature, several functions are recognized in mangrove forests: a) ecological, as a sea nursery, a core piece in the reproductive processes of a large number of species, a biological filter that retains nutrients, sediments and even pollutants, a buffer zone against storms and a barrier against the erosion of the coast; b) economic (source of food and traditional activities, such as artisanal fishing); and c) social (vital environment for traditional populations, whose survival depends on the exploitation of existing crustaceans, mollusks and fishes).
>
> Current Brazilian legislation reflects the scientific, ethical, political and legal transformation that repositioned the mangrove forests, taking them from a condition of health risk and undesirable condition to the level of a critically threatened ecosystem.

> Aiming at protecting its ecological, economic and social functions, the legislation assigned them a legal nature of Permanent Preservation Area. Accordingly, it is everyone's duty, owners or not, to ensure the preservation of mangrove forests, an ever-increasing need, especially in times of climate changes and increasing sea levels. Destroying them for direct economic use, with the permanent incentive of easy profit and short-term benefits, draining them or land filling them for real estate speculation or soil exploitation, or turning them into garbage dumps constitute serious harm to the ecologically balanced environment and to the welfare of the collectivity, a behavior that must be promptly and vigorously repressed and sanctioned by the Administration and the Judiciary.

Concluding his opinion, the Justice stated that:

> it is unacceptable, after the Federal Constitution of 1988, which valued the preservation of fundamental ecological processes (article 225, § 1, item I), and full non-compliance with the Forest Code of 1965, intending to give the mangrove forest other destination that is inconsistent with the untouchability assigned to it by law, as a Permanent Preservation Area.

The decision of the Superior Court of Justice was unanimous in the sense of condemning the defendants: a) to remove the landfill and any buildings that are on the mangrove forest, and b) to make a specific reforestation of the mangrove forest.

Justices Calmon, Noronha, Meira and Martins have also participated in the decision and following the vote of the reporting Justice.

CONCLUSION

In such context, it is possible to see:

1. That there is recent and still fragile climate litigation in Brazil. It is important to mention that the Act 12.187/2009, which instituted the National Policy on Climate Change, with imperfections and abstractions, is a considerable progress as a milestone in fighting climate change and global warming(WEDY, 2016). This act clearly incorporates the concept of international treaties and agreements on environmental protection, which is, in fact, extremely positive.

2.The legislation is regulated by the Decree 7.390/2010, which provides, amongst other important issues, the baseline of emissions of greenhouse gases for 2020 to be estimated in 3.236 GtCO2-eq. Thus, the corresponding absolute reduction was established between 1.168 Gt-CO2-eq and 1.259 GtCO2-eq, 36.1% and 38.9% emission decrease, respectively. Brazil, however, has committed, before the United Nations Conference of Agenda 2030 for Sustainable Development, held in New York in September 2015, to present reductions of 37% by 2025 and of 43% until 2030(THE GARDIAN, 2015), exceeding the numbers established in the decree.

3.The decisions of the Superior Court of Justice, in this scenario, are according to the provisions of the Paris Agreement and the National Policy of Climate Change, even though they are not mentioned, and the Brazilian Constitution, which is mentioned. On the other hand, the decision of the Supreme Federal Court in the case of the State of São Paulo, Sindicato da Indústria da Fabricação do Álcool do Estado de São Paulo – SIFAESP and Sindicato

da Indústria de Açúcar no Estado de São Paulo – SIAESP vs. The City and the City Council of Paulínia, authorizing the fires to carry out the harvest of sugarcane, raises major concerns.

4. It is important that the Brazilian Judiciary Power take seriously, in its decisions, the severe threats posed by climate change, such as droughts, floods, increased storms and sea levels and major environmental, social and economic losses deriving from these facts.

5. The Brazilian Constitution, the National Policy of Climate Change and the Paris Agreement are important instruments for legal decisions favorable to the environment and to stabilization of the climate for the benefit of present and future generations.

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10. HUMAN RIGHTS AND INTERNATIONAL ENVIRONMENTAL LAW: THE CASE OF THE ENVIRONMENTAL REFUGEES

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1. INTRODUCTION

Contemporary guidelines has significantly intensified the presence of human rights and transnational aspects of guardianships of minimum guarantees and dignity. There is particular concern about the importance of establishing fraternal relations among States to ensure the dignity of the human person on the issue of migratory crises and with greater sensitivity to refugees. One group,

however, ends up being helpless against these guidelines for terminological and theoretical issues that hinder the application of International Environmental Law (which, among other things, safeguards human life and the right to a safe, healthy and sustainable environment) refugee status to environmental displaced persons.

The link between environmental law, human rights and constitutional law prompts interdisciplinary reflection on global practical issues, where the issue of environmental refugees[83] is addressed, which receives insufficient attention in the global legal and academic context. On the other hand, the number of environmentally displaced people, traditional populations affected by environmental disasters, as well as a setback in environmental legislation grows exponentially.

These contemporary dynamics require that the Law thinker be open to understand the internal and external relations of its legal system and develop competences and reflections mature and concatenated with the socioeconomic and humanistic dimensions of the state tutelage of its public policies. Complex thinking is one of the main features of Environmental Law, it is to reflect the interdisciplinary and holistic manner, abandoning the linear and Cartesian thought; seeking to achieve an effective environmental justice, as well as the balance of the environment, thus achieving some of the objectives of the Rule of Law for Nature. The following paper is a proposal to examine the issue of environmental refugees (or migrants or even environmentally displaced people) in the light of International Environmental and Human Rights Law.

[83] By recognizing environmental refugees, you recognize the problem. By recognizing the problem, you start on the road to accepting responsibility and implementing solutions. Jean Lambert

Considering that migratory crises are especially motivated by economic, religious and war factors, the key issue to be pointed out is that such crises involve massive flows of populations to regions other than their home location, which can, and usually causes, internal and humanitarian crises. In other words, regardless of the reason why these groups leave their homeland and need to settle in new regions, they face various problems (ranging from linguistic problems to being able to establish themselves professionally, in addition to recurring discrimination in situations of this nature).

The problem is intensified when the motivation for migration is environmental, since this reason is not considered as a refuge factor, which may prevent the immigrant from entering, in that situation, without the right of protection and acceptance by the country of destiny. So talking about displaced people and environmental refugees opens the door for reflection on climate justice[84], which has been specially developed by the Mary Robinson Foundation, which proposes answers to this question (CAPDEVILLE, 2017, p. 489).

This essay seeks to analyze the issue of environmental refugees and the responsibility of the Brazilian State in this process. In the mentioned intention, it analyzes the constitutional and infraconstitutional legislation, as well as the norms of Human Rights, and the paradoxes that the contemporary Brazilian profile presents, given that refugees

[84] "The climate justice links human rights and development to achieve a human-centered approach, safeguarding the rights of the most vulnerable and sharing the burdens and benefits of climate change and its resolution equitably and fairly. Climate justice is informed by science responds to science and acknowledges the need for equitable stewardship of the world's resources". MARY ROBINSON FOUNDATION. *Principles of Climate Justice. Discussion Paper – Human rights, migration and displacement related to the adverse impacts of climate change.* 2016.

are people who are at the highest level of vulnerability, even with the existence of legal instruments that impose the protection of these individuals, which justifies the importance of this essay.

It is a matter of legal relevance (for dealing with Human Rights, Constitutional Law, International Law, Environmental Law and Theory of Law) and social relevance (for affecting human lives, touching aspects of social crises, economic and political, public policies and state action).

The methodology used to collect and analyze data, in an attempt to present a possible path (not an answer, due to the complexity of the theme), was the exploratory descriptive method. This methodology contributes to the formulation of concepts (or, as in the case of the present essay, to clarify some concepts), allowing to be a contribution to future research, obtaining information on practical research questions with observation of real life (SELLTIZ et al, 1974, p. 60). It should be noted that this research modality allows exploring in a generic way a certain fact or phenomenon, especially when it comes to an unexplored topic and it becomes more difficult to formulate precise and operable causal hypotheses (GIL, 1999, p. 43).

2. THE MIGRATORY CRISIS AND THE ENVIRONMENTAL LAW: THE CASE OF ENVIRONMENTAL REFUGEES

At the outset, the concept of refugee should be emphasized, given the fact that more and more people fall into this situation due to climate change, as well as the environmental disasters that have occurred in the Anthropocene Era. Climate change is one of the central

guidelines in the contemporary scenario. It demands rapid responses from the States and the law for the various negative implications it causes, among them the issue of human displacement. Thus,

> Environmental refugees are people who are no longer able to live a safe life in their homeland because of unusual environmental factors. These factors include drought, desertification, deforestation, soil erosion, water scarcity, climate change, as well as natural disasters such as cyclones, storms and floods. Faced with these environmental problems, the population involved feels that there are no alternatives left but to seek sustenance in other places, inside or outside the territorial limits of their country, temporarily or permanently (SERRAGLIO, 2014, p. 78) (free translation).

The term environmental refugee first emerged in the 1970s, created by Lester Brown, and came to be recognized as of 1985 from the Environmental Refugees report written by Essam Ei-Hinnawi in Egypt and presented at the United Nations Conference in Africa. There is no consensus on the concept of environmental refugees, for example, the International Organization for Migration prefers to use the term "environmentally displaced persons". Regardless of the denomination, there are several causes[85], caused by climate change, that force these people to leave their homes (LEAL, 2017, p. 79).

[85] DERANI, Cristiane. Refugiado Ambiental, em *Dicionário de Direitos Humanos*, Disponível em < http://escola.mpu.mp.br/dicionario/tiki-index.php?page=Refugiado+Ambiental> "These five scenarios provide a good starting point for analyzing the nature of displacement and assessing the protection and assistance needs of those affected: (a) hydrometeorological disasters (floods / typhoons / cyclones, landslides, etc.); areas designated by governments as high risk and dangerous to inhabit them; (c) environmental degradation and a slow onset of disasters (eg reduction of water availability, desertification, recurrent floods, salinization of coastal areas, etc.); d) the case of the sinking of small island states, and e) armed conflicts caused by the depletion of natural resources (eg water, land, food) due to climate change."

It is important to make it clear that environmental refugees and environmental detachments are different concepts, since these refer to those who remain within their country, without crossing the international border. Hernando Valencia Villa clarifies what is displacement: "A violent migratory phenomenon in which thousands of individuals are forced to abandon their ancestral lands or habitual places of residence and work to badly settle in in other regions of the same national territory" (LEAL, 2017, p. 82).

It is important to make it clear that environmental refugees and environmental displaced persons are different concepts, since these refer to those who remain within their country, without crossing the international border. Hernando Valencia Villa[86] clarifies what is displacement: "A violent migratory phenomenon in which thousands of individuals are forced to abandon their ancestral lands or habitual places of residence and work to settle in badly in other regions of the same national territory" (LEAL, 2017, p. 82).

US Department of State geographer William B. Wood proposes to use the term "ecomigrants" instead of environmental refugees. In his article Ecomigration: Linkages between Environmental Changes and Migration, Wood states that the meaning of the proposed expression is: "... the concept applied to include any person whose original motive for migration is influenced by environmental factors" (PEREIRA, 2011, p. 227).

It is important to emphasize the critical classification of Richard Black in his article "Environmental Refugees: Myth or Reality?" in which the author highlights the

[86] VALENCIA VILLA, Hernando. *Diccionario Espada de Derechos Humanos*. Prefácio de Baltasar Garzón. Editora Espasa Calpe, Madri, 2003, p. 143.

three main and possible causes for forced displacement of environmental refugees: environmental conflicts, the rise of sea levels and desertification (PEREIRA, 2011, page 228).

The migratory crises have occupied several contemporary patterns due to the economic and humanitarian reflexes that these phenomena end up provoking. Strangeness and aversion motivated by being (physically, culturally, linguistically, religiously and politically) exacerbates the situation of the refugee[87] who is already in conditions of multifaceted vulnerability. Much of what happens today (especially when it comes to how Europe - and the European Union - has acted on this subject, and even in Brazil) indicates that resistance to the reception of this group arises from fear, ignorance and of prejudice. There is a reluctance about how the presence of these populations could coexist without negatively impacting native populations.

To better understand this figure of the refugee and how they are inserted in the migratory issue we can observe the explanation of Arisa Ribas Cardoso and Danielle Annoni, where it is seen that the migrations of populations around the world "exist since the beginnings of the civilization", only in the recent centuries refugees have become a prominent group within the context of migration. The authors point out that the Convention relating to the Status of Refugees only took place in 1951 (coming into force in 1954) and even seven decades later the term refugee needs better understanding (2015, p.152-153). Thus, "refugees are categorized according to national and international

[87] It is not forgotten that immigrants in general also feel this strangeness to a greater or lesser extent and can be victims of some kind of prejudice. However, when speaking of refugees, they are in a greater degree of vulnerability because they have left their homelands against the will and, not infrequently, in an emergency to guarantee their own existence.

legal parameters as forced migrants crossing the national borders of their countries of origin or habitual residence" seeking "protection against systematic persecution as a consequence of well-founded fears of political regimes partisan and / or arbitrary, power struggles or civil wars that provide grounded persecution". "Race, religion, nationality, social group or political opinion" motivates these persecutions (SILVA, 2015, p.21).

It should be noted that Law 9.474 of July 22, 1997 (which defines the mechanisms for the implementation of the 1951 Refugee Statute and determines other measures) informs that any individual is recognized as a refugee who: due to well-founded fears, if he is outside his country of nationality and is unable or unwilling to accept the protection of that country. This includes also those who do not have nationality and are outside the country where they previously had their habitual residence, cannot or do not want to return to it, depending on the circumstances described in the previous section. Finally, they are those who due to serious and widespread human rights violations, are forced to leave their country of nationality to seek refuge in another country.

The 1984 Cartagena Declaration defines as a refugee those individuals who "fled their countries because their life, security or freedom have been threatened by widespread violence, foreign aggression" or even "internal conflicts, massive violation of human rights or other circumstances which have seriously disturbed public policy ". These and other international documents provide the basis for the International Refugee Regime, which has served as a reference for state actions in formulating refugee policies.

The intensification of economic crises, policies, situations of war and environmental disasters has forced

the States to (re) think how to receive these groups and provide them with subsidies so that they can settle in (which requires from policies of reception to insertion in the labor market , access to education and health). Many nations have complained about the difficulty in allocating resources to these populations and resistance from their own internal public who harass refugees and immigrants (when they do not go as far as physical violence).

The very conceptualization of refugees, or the understanding of the dimension covered by this concept, is a challenge. Briefly, refugees constitute themselves as "displaced populations", labeled as "undesirable" and created by a dynamic of economic, social and political processes. These populations are placed on the margins of the world, facing increasingly closed borders[88] (BIRMAN, 2009, p.360). However, while valuing the environment is a growing concern, environmental refugees are often excluded from these approaches.

Regarding environmental refugees, it can be said that, according to the United Nations Environment Program (UNEP), environmental refugees are those who have "been obliged to temporarily or permanently abandon the area where they traditionally live due to the visible decline of the environment (for natural or human reasons)", as this environmental decline ends up ""disturbing its existence and / or its quality in such a way that their livelihood is endangered". In this sense, "with the decline of the

[88] With the intensification of nationalist, conservative and discriminatory discourses, it is to be recognized that these frontiers are not limited to geographical boundaries, conforming under the logic of invisible (but real) borders of separation between "better" and "worse", "worthy "And" unworthy, "" heroes "and" terrorists, "" those who deserve "and" those who do not deserve. " These invisible borders are built on relations of power and exclusion, within a logic that the refugee is a "stranger" who comes to destroy the way of life and "steal" the few available jobs, that is an enemy and that, within that logic perverse, must be fought.

environment, there is the appearance of a transformation in the physical, chemical and / or biological field of the ecosystem, which, therefore, will make the environment temporarily or permanently unusable" (SOUZA, 2012, p.430).

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The theme arouses special tension, as one of the concerns of International Environmental Law is the recognition and protection of the rights of environmental refugees. In this respect, it is necessary to highlight,

> It occurs that new facts exclude individuals from the International Refugee Regime refugee definition, such as the intensification of natural disasters that cause house destruction, which forces resettlement; warming and drought cause destruction of agricultural production, reduction of livelihoods and access to clean water; rising sea levels make littoral impossible to inhabit; and competition over natural resources that causes conflicts that precipitate displacement. Therefore, there are gaps regarding the situation of people displaced by environmental issues, such as environmental degradation and climate change. (PACÍFICO; GAUDÊNCIO, 2014, p. 135).

The climatic aspect as a motivating factor of migratory crises is not necessarily a recent fact. In 1995, a study[89] indicated 25 million environmental refugees, most of them in sub-Saharan Africa. This same study predicted that by 2010, at least 50 million people would become refugees because of environmental degradation (LEÃO, 2011, p. 15). Carolina de Abreu Batista Claro points out that in 2014 more than nineteen million people (according to data from the International Displacement Monitoring Center) were forced to migrate due to environmental factors (2016, p. 2015).

> As global warming intensifies, there may be as many as 200 million people affected by disruption of monsoon systems and other rain regimes, droughts of unprecedented severity and duration, and rising sea levels and coastal flooding (MYERS, 2005).

The United Nations says that more than 50 million people worldwide have left their places of origin because of natural disasters, climate change and the like. It is estimated that by 2050 the number of refugees from environmental causes is close to 250 million to 1 billion people (ACNUR, 2012, p. 26).

The emphasis is salutary for pointing out that the International Refugee Regime excludes the environmentally displaced person. These individuals (the displaced or environmental refugees) are those who have been forced to flee their home sites (inside or outside their own country) because of drastic environmental changes and environmental disasters that could jeopardize their lives. The life of this group is threatened, becomes unsustainable

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[89] MYERS, Norman; KENT, Jennifer. *Environmental Exodus:* An emergent crisis in the global arena. Oxford University, 1995. Disponível em: < http://climate.org/archive/PDF/Environmental%20Exodus.pdf> Acesso em 27 de out. 2017.

in a mediate or immediate reality because of these unusual environmental causes.

Thus, recognition of the status of "environmental refugee" is much more a media term (since it is widely used in the media), but it is not technically recognized within the system, which is why many refugee researchers prefer to use the term "environmentally displaced persons" or even "environmental migrants".

There is resistance to the use of the term "refugee" when it comes to environmental motivations, because this displacement is supposed to be internal, not inferring in cross-border issues. It should be noted, however, that this notion of "internally displaced persons" is used (by humanitarianists and decision makers), but there is no full clarity about its meaning and size. Not even the international community has established guiding definition (both formally and legally) and only limited analysis of the subject is available (ACNUR, 1998, p. 97).

3. ENVIRONMENTAL REFUGEES AND THE BRAZILIAN POLICIES

Even in Brazil, this lack of recognition of environmental refugees is perpetuated, despite constitutional provisions that could resolve the issue. It should be noted that the Brazilian Constitution of 1988 provides for the dignity of the human person with a central position in the legal system. Also in the constitutional text is established international cooperation, the prevalence of human rights among other rights and guarantees. However, there is no sign of action for such environmental refugees (or displaced persons or even immigrants) as an assertive policy of human rights compliance and in light of International Environmental Law.

It is observed that, as regards the defense of human rights, the Brazilian Constitution of 1988 provides in article 4 that the international relations of which Brazil is a party shall be governed, among others, by the principle of the prevalence of human rights. Prior to the Constitution, Brazil's ratification[90] of the 1951 United Nations Convention on the Rights of Refugees made the premises of the document valid and as early as 1954, the country sheltered about 40,000 European refugees (LEAL, 2012, p. 48). Rocha and Moreira (2010: 22) affirm, "(the convention) does not contemplate people who move in the face of natural catastrophes or economic factors, considering only those who are motivated by political issues". Resulting in the lack of normative instruments at the national and international levels covering such contemporary issues, which makes it difficult to apply refugee standards to environmental decentralism.

International Environmental Law through the United Nations Declaration on Environment and Development (adopted in 1992 in Rio de Janeiro), known as the Rio Declaration, establishes in its seventh principle that States will cooperate (in a spirit of global conservation, protection and restoration of the health and integrity of the terrestrial ecosystem, with common but differentiated responsibilities. The inaugural principle of the document (principle one) states that human beings are at the center of concerns for sustainable development, having the right to a healthy and productive life, in harmony with nature.

Well, if the same nature or environment in which a particular group is inserted becomes harmful by

[90] It is important to emphasize that Brazil was the first country to regulate the protection of refugee rights in South America, ratifying the main international norms on the issue (LEAL, 2012, page 50).

compromising the life of that group (environmental and climatic disasters), it does not make sense that international concerns should be directed towards safeguard measures and protection, since "humans are at the center of concerns"?

Human Rights recognize the right to a healthy and ecologically balanced environment as a right of third dimension or even as a right of solidarity. Because it is an internationally recognized human right, the right to a healthy environment should (at least in theory) legitimize the recognition of states by their state of vulnerability, essentially when the human rights agenda is an international agenda and that binds all participating countries of the international society (mainly those composing the United Nations).

In the Brazilian case, as indicated, the Brazilian Constitution of 1988 provides for the protection of refugees, being clear about the Brazilian insertion in the International System for the Protection of Human Rights. This constitutional provision covers the protection of refugees and the figure of asylum, with an express prevalence of Human Rights.

In 2010, an earthquake triggered a catastrophe on the Caribbean island of Haiti, leaving thousands people dead and injured and two million homeless, according to UN data. Because of this environmental disaster, many Haitians chose Brazil as a destination to rebuild their lives. According to Conare data, Brazil received 1,534 requests for refugees from Haitian migrants in 2011, who entered irregularly in Brazil through the borders of Bolivia and Peru (LEAL, 2012, page 53).

> Brazil took command of the operation called MINUSTAH (United Nations Stabilization Mission in Haiti) as a means of showing concern for international

> humanitarian issues. It is understood that, with this attitude, more than humanitarian aid, Brazil was demanding a permanent seat in the UN Security Council, since credibility plays a fundamental role in the international scenario, understanding that only with the preservation of a good reputation the country would be recognized and respected worldwide. Despite criticism, MINUSTAH was able to win the sympathy of Haitians and the recognition of the International Community. However, it generated in the local population a false idea that migrating to Brazil would be the answer to all problems. In this point, the problematic lies: there is a discrepancy between the Brazilian discourse and the practice regarding foreigners who seek refuge in the country, which leads to the question of whether behind the humanitarian ideal there would be other interests of the Brazilian government (LEAL, 2012, p 53).

The consequence of all this Brazilian opening was a super population of Haitians in the country, who came to live in inhumane conditions. Thus, it is concluded that in order to address the issue of environmental refugees, it is necessary to widen the look at migrations caused by natural disasters, since international legislation effectively protects people who flee from warlike conflicts (which are traditionally considered as refugees). Even because, with increasing climate change, the number of environmental displaced persons tends to increase more and more[91].

If an earthquake such as occurred in Haiti or some other environmental disaster occurred in Brazil, we would have many internally displaced persons. In this sense, the legal understanding is that UNHCR Brazil has a subsidiary competence to protect the environmental displaced if the

[91] In the current contemporary scenario, with significant climate changes, it is observed that today there are more people displaced by environmental disasters in the world than by wars (CRUZ VERMELHA, 2009).

Brazilian authorities do not do it correctly, that is, they did not correctly carry out the resettlement and empowerment of the affected population[92] (PEREIRA, 2011 , p. 225).

In this way, given that the climate change framework is, now, irreversible and is progressively increasing, it is obvious that there will be a significant increase in environmental refugees throughout the Planet. It is necessary to create specific documents to protect this part of the population, because as already mentioned, environmental refugees are above all human beings who have the right to their dignity.

4. FINAL THOUGHTS

5.1 The presence of environmental refugees in national territory is already a reality, little reflected by researchers and decision makers. It should be noted that there are relevant social and legal developments, and this research works only as a contribution in this process of dialogue and maturation of the theme.

5.2 Climate change is one of the central guidelines in the contemporary scenario. It demands rapid responses from the States and the Law for the various negative implications it causes, among them the issue of human displacement. Talking about environmentally displaced people and environmental refugees, opens the door to reflection on climate justice; this is because the refugee, regardless of any concept, is a human being worthy of all the rights inherent to the human person recognized internationally.

[92] Imagine, for example, the controversial flooding of large areas of the Amazon rainforest and of towns and villages in the region to create the dam at the Belo Monte Power Plant, generating masses of unemployed individuals with no place of residence, since they have lost, forever , the possibility of living there (Pereira, 2011, 225).

5.2.1 The migratory crises have occupied several contemporary patterns due to the economic and humanitarian reflexes that these phenomena end up provoking. Strangeness and aversion motivated by being (physically, culturally, linguistically, religiously and politically) exacerbates the situation of the refugee who is already in conditions of multi-faceted vulnerability.

5.2.2 The intensification of economic crises, policies, situations of war and environmental disasters has forced states to rethink how to receive these groups and provide them with subsidies so that they can settle in (from host policies to entry into the labor market, access to education and health).

5.3 It should be noted that the Brazilian Constitution of 1988 provides for the dignity of the human person with a central position in the legal system. Also in the constitutional text is established international cooperation, the prevalence of human rights among other rights and guarantees. However, there is no sign of action for environmental refugees (or displaced people or even immigrants) as an assertive policy of human rights compliance and in light of International Environmental Law.

5.3.1 Considering the above mentioned, a possible way to avoid leaving those who fled (and will flee) from natural disasters and environmental degradation in a situation of helplessness, would be the creation and adoption of an international document at the heart of the UN (through its organs or UNHCR itself, for example). This document should define the concept of "environmental refugee", its characteristics, principles, limits and legal scope of application; so that environmental justice can be effectively achieved and the principle of the dignity of the human person is fully guaranteed to this vulnerable group.

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11. JUDICIAL APPROACH FOR ENVIRONMENTAL (DE)PROTECTION: THE CASE OF UPPER PARAGUAY RIVER BASIN AND PANTANAL BIOME

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1. INTRODUCTION

The present work seeks to expose a Brazilian environmental case, its geographical, social and environmental peculiarities, to bring to the discussion questions emerged with its judicialization in accordance with the environmental protection system. It refers to the effectiveness of Brazilian judicial mechanisms of environmental protection in the face of economic activities

complexity of energy generation, leveraged by public policies.

The description is the result of an interdisciplinary research carried out in the context of a master's degree in agro-environmental Law at the Federal University of Mato Grosso, constituting at this opportunity a legal analysis of the judicial case reported in the dissertation.

The Public Civil Action in object is currently concluded for sentence in 1st degree; the discussion will have as object of analysis the decision in the appeal of the injunction rendered by the 3rd Regional Federal Court. Due the current procedural configuration, this decision was essential to direct - and frustrate - the intended social -environmental protection.

The case can take different paths of analysis. It is possible under more than one theoretical framework and, still, by another methodology, proper to other sciences. In this opportunity, we sought to meet the objectives of the legal exchange event among environmental law scholars, exposing a concrete case, the mechanisms of environmental protection available and a position of the Judiciary, with the deepening that space and opportunity allows.

It is understood that the exposed case is characteristic of the so-called Post-Modernity (SANTOS, 2001), to the imminence of a new scientific and cultural paradigm, facing the globalized socioeconomic relations potentialized with the progressive technological advance. This social configuration is surrounded by risk (BECH, 2011).

The actual scientific paradigm is not only presenting unsuccessful proposals to solve the complex socio-environmental relations, but it's also a blind trust in technological progress and the classic (and outdated) free disposal of natural resources.

By promoting the generation of energy sustained in the current scientific paradigm, without a critical questioning of its matrices, in an environmental use and capital appropriation, it ends in the ecological impacts and risks of a region that cannot be totally explained by that one. The judicial decision in focus it's an example of the necessity of a new scientific approach due the Post-Modernity issues.

There is an attempt to effect the environmental protection in the Brazilian legal system, with the existing mechanisms hovering on this paradigm; in the judicial sphere, there is a need for creation on the activity of interpretation and motivation of the decisions, supported by the legal order, in the civil law tradition.

2. UPPER PARAGUAY RIVER BASIN AND THE PANTANAL

The threats to the Pantanal biome and the influence of the mentioned factors are widely researched - in relation to the social, cultural and environmental peculiarities involved - in the Upper Paraguay River Basin (JUNK *et al.*, 2011) and was a formal provocation of the Embrapa Pantanal to the local Public Prosecutor's Office, which led to the judicilization of the environmental case. (BRASIL. Public Civil Action n.º 000521-24.2012.403.6007, p. 45).

The Upper Paraguay River Basin is located in the states of Mato Grosso and Mato Grosso do Sul, and is basically composed of two geomorphological parts: the plateau and the plain, according to Figure 1. The plain has a unique and peculiar biome, the world's largest tropical wetland, the Pantanal.

The Pantanal is a seasonally flooded area, has endemic species and a biodiversity of its own, but its

major peculiarity, which directly influences the ecology, socio-cultural relations and development of the region, is the flow of its waters. It is characterized by a river distribution system (JUNK et al, 2011), within a flood and dry dynamic that provides immeasurable environmental services, verifiable flooding control and natural water filtration. Environmental management aimed at ecological preservation and promotion of scientific research in the Pantanal is legally recognized in areas defined as Ramsar Sites (BRASIL. Decree n.º 1.905/1996) and Biosphere Reserve (BRASIL. Decree n.º 3.179/1999).

The Paraguay River is the largest river in the Pantanal and the main one in the Upper Paraguay River Basin (its considered a subbasin of the extensive Prata Basin in South America) and, together with the biome in question, it plays a prominent role in environmental services.

Figure1

Fonte: ECOA, 2017.

The biome has revealed risks around its ecological integrity and the environmental services provided, such as the practice of agribusiness (in scale and industrial mode) in the states of Mato Grosso and Mato Grosso do Sul, and the installation of hydroelectric plants of varying size, in particular the large number of small hydroelectric plants on the high plateau of the Upper Paraguay River Basin.

The ecological affectations of the River Basin region involves fundamental rights and guarantees manifested in a diffuse form, as is the case of the risks to the maintenance of the Pantanal's dynamics, in terms of water, physical-environmental integrity, and those manifested collectively, which is the case of the traditional population that, while using the biome, helps to maintain it. (SARLET, FENSTERSEIFER, 2012; SANTILLI, 2005).

3. PUBLIC CIVIL ACTION

Technically, given the interdisciplinary science involved, Federal and State Public Prosecutor's Office in Mato Grosso do Sul together promoted a detailed work in the scope of a Civil Investigation in order to procedurally instruct the Public Civil Action which aimed to suspend the licensing of hydroelectric projects in the Upper Paraguay River Basin until a study to assess existing and future damage to the Basin was carried out in accordance with the National Policy on Water Resources (BRASIL. Law n.º 9.433/1997).

The objective was to suspend the risks to the integrity of the Upper Paraguay River Basin, and the Pantanal into, and, in order to solve the impasse, to generate the obligation on the part of the Public Administration to carry out an environmental evaluation for the described region. In particular, the installation of hydroelectric plants in the

Upper Paraguay River Basin has appeared, in physical-environmental studies, as the cause of ecological issues at the region. (GONÇALVES, 2011, GIRARD, 2011). It is important to highlight that the environmental studies determined by the legislation are carried out by each hydroelectric project individually, whether they are simplified or with specific methodology for the Environmental Impact Assessment.

In the Civil Investigation, it was possible to elaborate technical reports that identified specific impacts and risks related to ichthyofauna, water quality and use (both in relation to the maintenance of the ecosystem, and to human consumption) and to culture and livelihoods of traditional groups in the Upper Paraguay River Basin.

Therefore, in the petition, it was requested that the defendants (environmental licensing agencies at the Basin) should:

> a) refrain from granting any type of License (Preliminary, Installation or Operation) to any hydroelectric projects to be implemented without the prior presentation, analysis, approval and implementation of the Sectorial Strategic Environmental Assessment [SEA] for the generation of electricity at Upper Paraguay River Basin [BAP];
> b) insert expressly in all the Previous and Installation Licenses issued for hydroelectric projects in BAP, whose works have not been initiated, the condition relating to the previous presentation and observance of a study related to the Sectorial Strategic Environmental Assessment for the generation of electric energy in the Upper Paraguay River Basin Project, without which no type of activity can be carried out, including construction site and camp;
> c) refrain from issuing an Operating License for hydroelectric projects that have an Installation License issued and in actual physical execution of the works, until the integrated study of the basin referred to above has been presented, analyzed and approved, as well as

> the respective EIA/RIMAs;
> d) expressly insert in the Operation Licenses of new projects that are in operation, new requirements that may arise from the Sectorial Strategic Environmental Assessment for the generation of electric energy of the Upper Paraguay River Basin when renewing the respective licenses. (BRASIL. Public Civil Action n.º 000521-24.2012.403.6007, free translation).

Thinking about methodology for the environmental assessment of the impacts and risks in the Basin, in an attempt to see the right to the balanced environment ensured in the Federal Constitution (1988), it was requested that, jointly, the defendants (both agencies and enterpreuners) were sentenced to:

> a) to prepare a Sectorial Strategic Environmental Assessment (SEA) for the generation of electricity in the Upper Paraguay River Basin (BAP), in order to make energy generation compatible with the conservation of biodiversity and to maintain the hydroecological balance of the biome pantanal;
> b) to observe, in the preparation of the SEA, the rules and criteria established by the specialized literature, ensuring at all stages of the evaluation the broad participation of the scientific sectors and organized civil society, so that the studies of the Strategic Environmental Assessment result in an adequate instrument for the management of the environmental resources available in the Upper Paraguay Basin (...);
> c) to adopt the Strategic Environmental Assessment (SEA) as a tool to analyze the integrated environmental management of potential hydroelectric projects in the Upper Paraguay River Basin (BAP), to be carried out before the Environmental Impact Assessment of new ventures;
> d) to evaluate the environmental situation of the Upper Paraguay River Basin (BAP) with the implemented and potential hydroelectric projects, considering its cumulative and synergistic effects on natural resources and human populations; as well as the current and

> potential uses of water resources in the current and future horizon of planning, taking into account the need to reconcile energy generation with the conservation of socio-biodiversity and the maintenance of the hydro-ecological balance of the Pantanal. (BRASIL. Public Civil Action n.º 000521-24.2012.403.6007, free translation).

On that occasion, the Public Prosecutor's Office requested the anticipation of the effects of the requests with an injunction mechanism, in order to prevent the continuation of all the licensing processes without prior realization of the desired Strategic Environmental Assessment (SEA).

The 1st degree Federal Court in Coxim – Mato Grosso do Sul, where the Action was first filed, granted the injunction, in part, forcing the suspension of all hydroelectric licensing projects (at any stage) by the licensing agencies, in the Upper Paraguay River Basin, until de SEA was accomplished.

A series of appeals by the defendants were proposed at the 3rdRegional Federal Court, mainly questioning the competence of the 1st degree Federal Coxim Court to judge the Public Civil Action. Then, the Regional Court decided by the annulment of all the decisions rendered in the scope of the 1st degree Federal Coxim Court – located in the environmental issue – and determined the referral of the case to the 1st degree Federal Court of Campo Grande – Mato Grosso do Sul's capital. In this opportunity, we do not proceed with the discussion of the environmental legal competence, generated with the change of forum, although it is the first environmental legal issue found in the case.

In the injunction, already in the 1st degree Federal Court of Campo Grande, it was decided, based on the decision in Coxim, according to the following terms:

> [...] I refuse the request for anticipation of the effects of judicial protection with regard to the prohibition of the issuance of new operating licenses and any renewals, in accordance with the reasoning. I defend the request for anticipation of the effects of judicial protection regarding the prohibition of the granting of previous environmental licenses and of installation, according to the rationale, until the strategic environmental assessment covering the entire Upper Paraguay River Basin is concluded, considering the cumulative properties and synergistic impacts of all hydroelectric projects, under penalty of payment of a fine of […], per license issued, by the public servants who participate in the expedition.I defend the request for anticipation of the effects of judicial protection, as regards the immediate determination to prepare the environmental strategic study of the Defendants, for the reasons stated above. (BRASIL. Public Civil Action n.º 000521-24.2012.403.6007, free translation).

The reasons where the same described in the 1st degree Federal Court of Coxim. It was determined, as requested by the Public Prosecutor's Office, the realization of the Strategic Environmental Assessment (SEA), based on specialized bibliography and reliable methodology for the study. This decision was made on December 19, 2012.

In answer, an appeal was filed in the 3rd Regional Federal Court by Brazilian Association of Clean Energy Generation (ABRAGEL), a group of private defendants, entrepreneurs, alleging, among other instrumental (procedural) issues:

> [...] the aggravated decision, when suspending the environmental licenses, can cause greater impact to the environment, due both to the lack of monitoring of the works already carried out and to the need to replace the source of energy production to allow the supply consumption; [...]
> - the MPF's [Public Prosecutor's Office] interest in acting

> is dying, both because the Strategic Environmental Assessment (SEA) of the Upper Paraguay Basin has already been elaborated (Green Paper on the Strategic Assessment of the Pantanal–[a book published] carried out in 2008), or because an SEA of the basin only on the sector of electric power generation would not be useful, since the impacts of agriculture and livestock, main activities considered as degrading of the region, would not be taken into account by said study; [...]
> - according to the second table, presented in the Technical Report [...], comparing with the numbers of other sub-basins, BAP has a low utilization rate;
> - there is no risk of inefficiency of the final provision [in view of the suspension of licenses imposed in the preliminary decision], since the control system in force does not leave the protection of the Alto Paraguay Basin uncovered;
> - the legal objective of the Ecological-Economic Zoning is precisely the one sought by the Federal Public Prosecutor's Office, based on the need to reconcile energy generation with the conservation of biodiversity and the maintenance of the hydro-ecological balance of the Pantanal. it is necessary to impose a new EPA when the Pantanal already has a specific EPA (the Green Strategic Environmental Assessment of the Pantanal), and- the determination contained in the aggravated decision is disproportionate. (BRAZIL. Public Civil Action n.º 000521-24.2012.403.6007, free translation).

Finally, in this opportunity the defendants asked for the suspensive effect so that the hydroelectric licensing processes could continue, and the reform decision imposed in the 1st degree.

The 4th Class of the 3rd Regional Federal Court decided to grant the required suspensive effects of the Public Civil Action guaranteed injuction. In short, it was understood that:

> In the hypothesis of the case, it is observed that the aggravating factor added an analytical document

> issued by the Ministry of Mines and Energy in which it is verified that the Federal Government opted for the hydroelectric generation because it is clean energy. In this sense, the studies foreseen by law, were carried out and to the exhaustion, this is an environmental procedure in which several organs must manifest themselves, being sure that in this aspect it is important to emphasize the accomplishment of the EIA - Environmental Impact Assessment. [...] However, the realization of the EIA [Environmental Assessment] in Brazil cannot be undermined and it is not given to the Public Prosecution Service, much less to the Judiciary to impose obligations on parties that do not derive from the legal analysis in force in the legal system. We all have a responsibility to the environment and healthy quality of life, and it is not acceptable to impose restrictions on the public power to develop essential activities for people's lives, such as energy, relegating all studies to install it and operate the enterprise. [...] Thus, considering the relevance of the reasoning invoked and the possibility of irreparable damage on the energy plan goals, I grant […].(BRASIL. Public Civil Action n.º 000521-24.2012.403.6007, free translation).

The licenses for hydroelectric plants in the Upper Paraguay River Basin, at any stage, were released of the Strategic Environmental Assessment. This decision dates from Mai 03, 2013.

4. ENVIRONMENTAL (DE)PROTECTION AND JUDICIAL APPROACH

The decision above reveals some legal approach. Specially the non intervention on Public Administration when fundamental rights are being affected (and the recognition of ecological balanced environment as one) and the Strategic Environmental Assessment (SEA) release, a local strategic study.

With the 3rd Regional Federal Court decision on the appealed injuction, all hydroelectric licensing in the Upper Paraguay River Basin were released without a determination of a SEA. It characterized, due the procedural mechanisms and environmental case, an unsuccessfully demand of the Public Civil Action.

By the interpretation of the Post-Modern case as a dichotomy in wich environmental protection is in one side and development in another, it was decided to continue hydroelectric licensing at the Basin. Many of them were in an ideal stage of suspension for effects check before continuing the licensing procedures, according to the Public Civil Action.

The Federal Constitution of 1988 brought, in the face of the recognition of rights, as the right to the ecologically balanced environment, the phenomenon of judicialization of certain matters. There has been, with the constitutional degree of the environmental matter, "[...] the growing number of cases appreciated by the Federal Supreme Court, which is, by express constitutional diction (article 102 of CF88), committed the custody of the constitutional order." (SARLET; FENSTERSEIFER, p. 227, free translation).

The judicialization of certain matters raises the discussion of Judiciary intervention legitimity, especially in environmental cases, although this does not occur with its actuation in the imminence of other rights and fundamental guarantees violation. Thus, "[…] the constant recourse to the Judiciary, in spite of the increasing diffusion of other alternatives - especially the Civil Investigation and the Adjustment Term of Conduct [procedural environmental protection mechanisms] - has increasingly acted as a privileged agent in the sphere of environmental protection "(*Idem*, 228-229, free translation). In the present

case, the Judiciary was sought in order to stop violations and threats to fundamental rights, after the exhaustion of administrative and political alternatives.

The Public Prosecutor's Office, as a legitimized and structured body for the use of environmental protection mechanisms, carried out in the scope of the Civil Investigation a work concerned with the technicity that the environmental cases require, and sustained at Brazil's legal order, to justify the realization of an integrated study for the Upper Paraguay River Basin, in order to mitigate impacts and create a management plan for the region in sought to deal with the risks.

The decision in the second instance to overturn the injunction that determined the SEA revealed that "[…] the characteristics of contemporary ecological risks, evidenced in data such as these [environmental degradation], raise problems of magnitude disproportionate to the legal means used to combat them." (SILVEIRA, 2014, p.86, free translation).

The existence of appropriate technical and legal means for preventive and precautionary action in the present case, contrasts with the ease with which these means are removed, with flagrant lack of enforcement on constitutional and infraconstitutional rights aimed at environmental protection.

It is known that Brazil has an extensive legal production in environmental matters, with a guardianship system, even with legal difficulties due to, for example, the importation of the common law instrumental strategies for a system built on civil law. (SILVEIRA, 2014).

This critical observation regarding the protection system does not prevent the judicialization of environmental issues, on the contrary, as mentioned above,

with the constitutional right to the ecologically balanced environment, there is a growing demand on the Judiciary to environment protection.

Turning again to the case presented and the decision of the 3rd Regional Federal Court, the reasons for releasing licences in any of its administrative stages affirmed that it is not possible to impose to the Public Administration "restrictions to the development of essential activity for the life of the people, as it is the case of the energy", even if this activity is demonstrably affecting fundamental rights, from a perspective of ecological dimension of the human dignity (FENSTERSEIFER, 2008) brought with the Federal Constitution of 1988; as occurs in this case.

The constitutional duty of environmental protection binds "[…] State Powers to the point of limiting their freedom of establishment in the adoption of measures - administrative and legislative" (SARLET, FENSTERSEIFER, 2011, p.11, free translation). It is up to

> Judge [Judiciary Power] to supervise the compliance of the other powers with the constitutional and infraconstitutional standards of environmental protection. In the case of the executive branch in particular, there is a clear limitation to its power of discretion in order to restrict its freedom of choice in the choice of protective measures for the environment, always with a view to ensuring the highest possible effectiveness of the fundamental right in question. (SARLET and FENSTERSEIFER, 2011, p.12, free translation).

In the decision, by reinforcing the State's discretion in promoting public policies for certain matters - in this case, energy -, no analysis was made of the energy route for the region - the Upper Paraguay River Basin - as far as the judicial control of rights and fundamental guarantees,

translated in this case to the right of ecologically balanced environment.

Added to this is the existence of a Water Resources Policy, expressed in the legislation and basis of the judicial challenge, to justify the scope of study and management directed to the region of the Upper Paraguay River Basin.

In addition, it should be noted that the National Environmental Policy itself provides instruments for its promotion, as "environmental impact assessment" and "licensing and review of activities that are effective or potentially polluting" (BRASIL. Law n.º 6.938/1981, 9th, IV).

The existence of legislation with political guidelines applicable to the area and to the concrete case justify, as a minimum, the appreciation of the existing conflicts regarding the affectation of the rights described in the initial one.

Regarding the suggested solution to the case, regarding the implementation of SEA for the Upper Paraguay Basin region, the decision affirms that "it is not justifiable to be required of entrepreneurs and local, regional and federal administrative bodies, other instruments than those provided by law and in the Environmental Resolutions issued by CONAMA [National Environment Council]."

The SEA is conceived by the doctrine as an Environmental Impact Assessment, which is a generic terminology to designate environmental impact studies and it is granted in the National Environmental Policy (9th, III).

Applied to policies, plans, programs and projects (in this hierarchical order of the planning process), SEA applies to sectoral actions (such as the energy sector), practices that are not related to specific projects, but causes environmental

impact, as in the adoption of new technologies or which there are several activities in the same area (BURSZTYN, 2012).

> Among the advantages associated with SEA is the improvement of the consideration of cumulative impacts, the elimination of environmentally problematic alternatives still in the initial phase and the improvement of the collection and organization of a regional and / or sectorial database. (BURSZTYN, 2012, p. 504, free translation).

The SEA requires a great deal of information, "making data collection and consolidation complex and the lengthy time required to consider the study" (*Idem*, p. 504, free translation) - which may be a limitation in theory. Nevertheless,

> "[…] the fulfillment of licensing requirements by separated projects involves two types of problems: on the one hand, repetition of exhaustive environmental studies of the same region unnecessarily burdened the process; and on the other, the licensing of each, in isolation, allows for possible cumulative or synergistic impacts to be neglected in the analysis. (*Idem*, 504-505, free translation).

Thus, the SEA is a highly relevant tool not only to prevent environmental damage, but also to reduce costs and mitigate the shortcomings of the impact assessment process. It is an instrument for the environmental consideration on the state policies, as those turned to energy generation.

To understand the importance of that type of instrument in the will to reconcile activities of the current society, it is necessary a "[…] paradigmatic questioning of the contemporary view of the State, the law and the process […]", which "[…] can point out more adequate ways to challenge the legal protection and, in a specific sense, the

judicial protection of the environment." (SILVEIRA, 2014, p. 87, free translation).

5. CONNECTED CONCLUSIONS

1. The environmental case of the Upper Paraguay River Basin is proper of the Post-Modernity society and exposes the blind trust in technological progress and the classic and outdated free disposal of natural resources.

2. By promoting energy generation in the current scientific paradigm, Public Administration may have interference in its discretion due to the fundamental right to an ecologically balanced environment and the non-obviation of Judiciary jurisdiction.

3. In the Brazilian judicial sphere there is a need for critical vision of the society risks actual configuration to make way to the use of mechanisms such as Strategic Environmental Assessment in order to create decisions that effectively tries to compose complexes environmental issues.

4.Brazilian environmental legal protection may have appropriate technical and legally instruments for preventive and precautionary action, but it contrasts with the flagrant lack of enforcement of rights aimed at environmental protection, when properly used.

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PART III – ENVIRONMENTAL JUSTICE: SETBACKS AND OUTLOOKS

12. HUMAN RIGHTS TO ENVIRONMENTAL SUSTAINABILITY AND RATIONALITY: A CRITICAL TO MODERN RATIONALITY FOR THE CONSTRUCTION OF A PLANETARY LAW

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ABSTRACT

Environment and human rights are concepts intrinsically related, which traditionally base the studies developed by juridical doctrine - especially in Environmental Law. However, faced with the aggravation of socio-environmental problems, there is a need to deepen the theoretical scope of this topic,

including the insertion of new concepts and the search for a new rationality that allows face the environmental crisis and rethink the epistemological frameworks of legal science, of law and the state. Thus, through an critical analysis, highlights the importance of the inclusion of the concept of sustainability in this discussion, as it deepens the relationship of man with nature, and urges this new commitments with their peers in social, economic and generational. In order to do so, it is important to emphasize, as instruments that make possible the transformation of this qualitative approach, environmental legal education and the (re) definition of human rights. It is in this context that the present article is developed.

Key words: human rights; sustainability; rationality; environment; planetary right.

1 INTRODUCTION

This article, whose object of study is the conceptions of law, rationality and state in the perspective of the human right to environmental sustainability, seeks to develop seemingly incompatible themes under the umbrella of a traditional view in which nature is opposite the constructed human. Thus, we will develop the concepts of human rights and environment at a level of complexity through concept of sustainability and the critic of modern rationality. In this way, what was related to the environment presents under construction with sustainability. We will develop the different dimensions of human rights, which at the end incorporates, through the diffuse rights, their relationship with nature, whether in the discussion of legal protection and the legal framework that protect the environment, bolder proposals that conceives the environment as a true subject of law.

Finally, we propose to show how much the concept of sustainability deepens the relation with nature and at

the same time imposes a new commitment of man with his fellow man, both socially and economically, as well as generational. In conclusion we will develops some ideas that presented themselves as redeemers of post-Communist society and that in the reality have worsened the social problems associated with the economic crises that the hostages of the speculative financial system, and this is one of the most unsustainable forms of organization of society and with the aggravating of ignoring in its the regulation of the right that has always been the ultimate weapon in defending the vulnerable and own idea of civilization.

2 SUSTAINABILITIES AND ENVIRONMENTAL LAW

At the juridical level, we have noticed a presence of environmental issues and of direct application in other traditional institutes of the Law, beginning with the Constitution, including the new Civil Code with the objective environmental responsibility, passing the Tax Law with the principle of polluter pays and the Criminal Law with the law of environmental crimes and being present in various rules of administrative law, as in so many other branches of Legal Science. We can say that there are no fields on Law that environmental law is not present throughout the full range of legal science, whether public or private, national or international, of objective or subjective right and thus successively.

We argue that the approach we should take in Environmental Law should not be restrict only a discipline towards dogmatic and doctrinal term, since it cannot be exhausted in its principles and in a specific field of Law. On the contrary, it crosses transversally the other fields disciplines and even surpasses it , at the same time as it

has its own object with its own rules and procedures, as in the case of National Environmental Policy Act (Law no. 6. 938/8 1).

The environmental approach is inserted under different logics, for example, the Forest Code which has a clearly preservationist character, while some environmental items are other legislation such as the Neighborhood Impact Report, into the Statute City. It is through the dissemination of the environmental values present in different legislations that we see the strength of its normative force, always in the sense of perfecting the quality of life of the citizen - mainly urban; sustainability of the cities, but both, like all others, can be seen under the broad range of we call environmental law - *lato senso*.

All of that are constantly referred by studies and has been the subject of monographs and dissertations, in this way we ask ourselves: where in fact is the new on Environmental Law? In our view it is found not only in the current norms that extend approach, but mainly in the change of attitude and behavior face the norms, principles and values derived from Environmental Law which has influenced in determinant form in the legal science itself and questioned its epistemological approach. It is precisely here that - we want to believe - lies the new one in environmental law, in this critical mass that allows us to observe the Law under another focus or even as a more refined lens, where legal, social and environmental facts are part of a same universe of actions, redefining even the performance of the legal operator of the 21st century with a view to sustainability.

We are moving towards a paradigm shift in the legal sciences, in which the juridical epistemological approach tends to confront our predatory behavior - that many call them a society of risk - with the perspective of

sustainability. We could say that we are going through the heyday of Environmental Law for a processing; the qualitative approach, within which enters the critical role of legal education environmental, redefined the values and epistemological principles of Law as a set of values and actions that seek to re-question the principles that underlie the traditional Science and to induce civilization to a new attitude with a view to establishing a legal order that points to the sustainability of current and future generations.

In this new behavior, the State itself can no longer be defined solely by as the guarantor of the security and distribution of justice according to the liberal legacy, or transforming it into a provident state, which intervens in the economy to protect the society through more distributive social justice. It is necessary to widen the concept of citizenship conquered by civilization in the eighteenth century.

No matter how good the distribution is and in keeping with the promises of modernity, the contemporary state needs not only to meet the growing demands of civilization as it is required to act in guaranteeing the quality of life and the balance of the environment as well as guaranteeing the quality of life for future generations. For another, on the other hand, issues related to income concentration and social injustices are redefined under view of sustainability itself, since it can be seen that the environmental risks can cause undetermined damage, reaching everyone indiscriminately, but the most hit invariably they are those who are in situation of social fragility and vulnerable economically and socially. Therefore, the traditional issues of distribution policies wealth and social inclusion are also the subject of concern for the environment, although this is not the purpose of this article.

Another confrontation, this one of differentiated nature, will take place inside the own environmental thinking and will wonder what will be the best approach: anthropocentric, ecocentric or deep ecology; dialectical or systemic and/or holistic. These themes increasingly leave the closed circle of initiates in the discussions environmentalists and become a questioning of the way of living, producing and to relate in society. However, is relevant a new logic of understanding of contemporary phenomena, which aims at more than decorating some concepts or to reproduce the dogmas that formed the so-called theoretical common sense of jurists, because it is necessary to advance in the critique of the values and foundations that allowed the evolution of the economy that put in risk the existence in the planet and that, on the other hand , spread anthropocentric values in which nature served as a mere transformation instrument for have economic value.

What we are proposing here is an approach within this emerging paradigm - which of Environmental Law for Juridical Ecology -, the questioning of the functioning of the society, law, economics and civilization itself from education as a environmental citizenship and the historical evolution of human rights as rights political and redefinition of the very act of civilization with a view to its overcoming. The innovative element in the construction of this concept and key to understanding the present will be the inclusion of the term sustainable in approaches that concern the environment. We can see that the idea of sustainability has been redefined throughout the few years since its inception, when the Brutland report, which served as the basis for the 1992 Environment Conference in Rio de Janeiro, also known as Eco-92.

Roughly speaking, we can identify that the concept of sustainability sought to three elements: the ecologically balanced environment, distributive social environment and the economy that did not act predatory allowing its development to serve the present and future generations. These initial concepts have included other elements such as sustainability cultural heritage, revaluing indigenous and traditional communities in their way of acting, produced over several generations and which took into consideration the inclusion of the their way of life.

Another element that is gradually being incorporated into the concept of sustainability is the technological stability, in which the materials used allow innovation and value new products without jeopardizing the exploitation of natural resources and can be recycled, reused and more durable. In a panoramic and simply referential way, we will present further concepts that are not incorporated into sustainability, but that need at least reflection, such as political sustainability (addressing mainly different systems and corruption as an element of the imbalance of democracies stable and serves as a factor of instability and unsustainability of modern democracies); financial sustainability, which, unlike economy that is linked to a productive system and economy of trade and capacity to accumulation, the financial system works with the currency as an element of production of the capital through loans and interest that make the success of your own business.

With the Fall of the Berlin Wall and the End of Communism, we can observe the advent of a neo-liberalism in which the speculative financial capital once more took the center of processes instead of productive economic capital, aggravating the concentration of income and increasing the social gap, not to mention that it was through the tax heavens that they have found a loophole

so that money from corruption, drug trafficking, animals, bodies and persons, and other illicit activities and could find a lodgment subsequently entering the formal market, creating artificial situations and economic bubbles in which the most fragile sector of society was always the biggest loser.

This one brief sketch requires us to think of another way of working with the financial system, not leaving its own regulation but under the control and tutelage of the collective interests that must express themselves through a legal system of their own. In this way the financial system should also be achieved by the term sustainability, as a form of control and balance for the social development of present and future generations and not with crises, imbalances and great scandals as we have seen lately in the financial system.

This other way of working fights for another way of thinking, conceiving, perceiving and apprehending law, economy, and the environment, taking as its motto the critique of legal- economic rationality and its unsustainable relationship with the environment through proposing a new rationality, an environmental rationality, capable of including the third excluded of the binomial economy-right: the environment, which we will discuss in the following paragraphs.

3 LEGAL-ECONOMIC REASON AND ENVIRONMENTAL CRISIS IN THE 21ST CENTURY: THE STATE, RIGHT, ECONOMICS AND THE ENVIRONMENT

We start this section, in the context of environmental crisis in which we are immersed today, whose crisis is implicated ontologically into a crisis of natural resources, cultural meanings, policy choices, economic strategies,

legal forms and individualistic and fragmented ethics, of a homogenous and homogenizing existential model, global and globalizing, whose crisis:

> Emerges as a *crisis of civilization*: of Western culture; of the rationality of modernity; of the globalized world economy. It is not an ecological catastrophe or a simple imbalance of the economy. It is the very disarticulation of the world of being and the overexploitation of nature; is the loss of the sense of existence that generates rational thought in its negation of *otherness*. The environmental crisis, as a fact of the world, has its roots in the symbolic nature of the human being; but it begins to germinate through the modern positivist project that seeks to establish the identity between the concept and the real (LEFF, 2006, pp. 15-16). The environmental crisis is the crisis of our time. The ecological risk questions the knowledge of the world. (...) The environmental crisis, understood as a crisis of civilization, could not find a solution through the theoretical and instrumental rationality that builds and destroys the world. (...) The environmental crisis is a result of the ignorance of the law (entropy) that has unleashed in the economicist imagination a 'growth mania', of a production without limits (LEFF, 2002, pp. 191-195). In effect, the *environmental* crisis erupted in the 1960s and 1970s as a crisis of knowledge that built an *unsustainable world* (LEFF, 2016, p.91).

This environmental crisis, therefore, configures the need to reflect, rethink, deconstruct and construct a new civilizing model, based on a new rationality that guides modernity to the questioning of reason itself, of thought, of meanings, of relationships, of self, of the other, the time, the space so that, from this (de) construction can be reconfigured, in order to figure together, even in the path of pluralities, multiplicities and differences.

We approach this crisis in the sense of rupture, of "a fact or circumstance or group of them that produce a

pause, a before and after and that can mean the destruction of something" (TAVEIRA, 2016, 84). This pause, which has a before and after, concerns the Enlightenment context from which a modern rationality has been built that has led to two clearly delineated paths: progress with aggressive economic growth and depletion of natural resources; overvaluation of scientific knowledge as the Truth; which means a major crisis that is the civilization crisis in which the ampler unfolding is the environmental crisis.

This environmental crisis and the legal crisis take place in society that is constituted by a complex system formed by other subsystems that are interconnected, that interact with each other, that are related in a constructive and destructive way. Its vibrations, ruptures, imbalances and rebalances help to order and to clutter and to organize the whole system from the set of all the parts together. This gives rise to a system larger than the mere sum of the parts. It is a new social system with emerging characteristics.

Thus, it is the system formed by the juridical, ethical, economic, social, environmental, political, and cultural subsystems that, in a time and a space, are related to building, destroying and rebuilding themselves in a dialectical relation of reflexive transformation in a permanent process of coadunation of differences and multiplicities, since each subsystem of this has its own specificity. Your codes. Your platforms. His axioms. Your own *ethos*. His peculiar way of existing and maintaining oneself. However, when observed from the point of view of the totality of the system they form a new reality.

Characteristic of law as a technique of a legal system is: the anxiety of being a subsystem above others, special, strong, obligatory, powerful, full of arms of vigilance and repression. This all gives scope and context to the most

varied forms of crisis: there is crisis in the legal, economic, political, social, environmental, cultural subsystem. Each with its specificity, whether normative, production, corruption, violence, scarcity, moral and values. Modernity has reached a level of heterogeneity, plurality and difference, that reconciling all this existential variety has become a constant and hither to unharmonized challenge.

One cannot speak of a single crisis or that there is an easily identifiable relation of cause and effect as in natural phenomena. It is not so in the social instance. We can categorically affirm that every social subsystem is defiled by crisis. It is not ambitious to say that this scenario is related to the economic aspect. The economic subsystem allied to the legal one has been an effective tool of social ordering by the lenses of the dominant groups.

Hence we strongly believe in a crisis system strongly marked by two preponderant rationalities: the juridical and the economic, which together hold social control. One is by way of imposition, another by the path of wealth and both interact in a mainstay of power relations to which the other social subsystems are subordinated, after all values, morals, customs, politics, ethics and society have been means effective to achieve very clear ends: guaranteeing private property through surveillance and sanction mechanisms.

It is enough to observe the accelerated transformation that the whole world has undergone in the last 200 years: it is a constant globalization of Europea and North American ways of life, sharing the effects while not sharing the wealth and benefits of the exploitation processes. Especially the West has been living a process of importing the living standards of Western Europe and the United States that has deconstructed traditional models of life, local cultural values in the name of a homogenization and a technological

and scientificized model that is becoming more and more the supreme model of existence, whose standard imposes a common house or a global house that disregards local customs, values and *ethos*, so important in the historical construction of a people, a community, a tradition.

Those have been lost in the sole of hegemonic thought. Everything is one thing. The world is the same. The jeans you wear here have to be worn there. The amount of travel done here has to be done there. Food that is consumed in one country has to be consumed in the other. All of this is about globalization. And whoever is outside globalization is virtually nonexistent or, if it exists, is deliberately regarded as invisible. What you have for the moment is the global village.

This unique thought, however, is ontologically irreconcilable with the meaning and role of the environment, for the natural nature and the artificial nature has something of local and global, material and spiritual, individual and collective that nourishes life and allows the transformation of all things. Although at the expense of his own sacrifice, nature is this matrix of generosity and solidarity that implies the total system, which is its meaning and formation itself.

It is nature, naked or clothed with transformations, that system formed by the interactive junction of the subsystems and whatever it undergoes, suffers the whole system, because there is no dimension of material existence more agglutinative and totalizing than nature, understood here not as synonymous with natural elements untouched but understood as the only possible global system, omnipresent, omniscient and omnipotent of human material existence, where all beings are formed and where all beings return in their material destination.

Thus, subsystems are interwoven with each other and nature in a relationship of mutual dependence that breaks down and breaks down due to the vibration of any of the subsystems, because the collapse of one will collapse another, the survival of one will cause the survival of other.

That is why no single thought can fit. Complex thinking is also the basis of rationality that will confront the crisis of economic rationality and the crisis of legal rationality as an effective way for the oxygenation of other subordinate rationalities, such as cultural, moral, political and social. Thus, legal rationality cannot privilege one or another social component in its spectrum of action, since other subsystems form the social fabric that, in order not to collapse in crises, requires the interaction of all elements and all parts that an action model that establishes parameters to overcome the crisis.

This social fabric that unites heterogeneous and inseparable components and that unite in a multiplicity of interactions composes the environment in its totality, because the environment itself is this complexity that unites and interconnects all aspects of existence, even in a timeless way. Therefore, the crisis of one component implies the crisis of the other and, reflectively, the crisis of this other causes the crisis of a third party and thus all the complexity goes into crisis making the environmental super crisis.

The economic and legal reasons form a dominant crisis context that suffocates the environmental complexity that surrounds them, aggravating the crises that lead to the super crisis: to the system crisis. As long as economic and legal reasons are techno-scientific, excluding knowledge, values, culture, principles, morals, ethics, social aspirations and interests in conflict with dominant groups, it will not be possible to overcome the crisis.

This takes place in the field of a new ethic, a new rationality, a thinking and acting that completes a path of solidarity, recovery of the traditional structures of local groups, appreciation of the different, disobjection of being and resignification of the having, implying the latter two in a quest to understand living beings as bearers of intrasubjectivities, intersubjectivities and individual and collective needs, returning to the sensible world of beings their condition of otherness and repositioning objects and things to their *status quo ante* of *res* .

But this path, to be followed, will require of the dominant groups the understanding that the material order of things does not belong to them exclusively and that they are not alone, that they are part of a system that is greater to them and whose implosion necessarily implies the commitment of the existence of beings. The legal-economic rationality built by modernity has given clear signs that the world is in a crisis context and that the platforms of law and the market are not enough to give answers or to restructure the system in the way they are designed.

For the destruction of the environmental crisis and the conquest of a non-environmental crisis - even if non-crisis implies the presence of problems, since these are inevitable because it is a construct of human relations - it becomes *conditio sine qua non* a paradigmatic change in legal and economic structures, a change that encompasses new patterns of reason and conduct, which grasp a dialogue and solidarity of thinking solutions to the reconciliation of as many interests as possible and not only the aspirations of some, it is not possible to consider an environmental rationality as a viable mechanism for the reconstruction of the legal-economic rationality itself.

Modern legal rationality was built historically in the wake of the Enlightenment project of emancipation of reason in relation to faith, characterized by the process of fragmentation and social disintegration, described as a divorce between the public and private spheres, in the separation of civil society and the State, in the fragmentation of action systems at the boundary of human activities, differentiation of the reasons of social systems in the concrete separation was reduced to private business, forming a junction of indifferent individuals, increasing indeterminate degree the complexity of the social system (DE GIORGI, 1998) .

This process of fragmentation of reason was accompanied by the liberal project of the American and French bourgeois revolutions that settled their revolutionary ideal on the basis of the natural right of universal reason, erecting in law, namely the American Declaration of Independence and the Universal Declaration of Rights of Man and the French Citizen, aspirations and interests that emerged victorious from the revolutionary scenario, such as the universal natural right to private ownership of the means of production and the individual freedom to participate in the public space (VILLEY, 2007; DOUZINAS, 2009) .

This political-economic context of the eighteenth century also received the influences of the Industrial Revolution that, through new ways of producing and changing nature, gradually enabled the empire of scientific and technological space as preponderant knowledge, favoring such forms of knowledge to the detriment of other knowledge which have become subordinate and even disappeared in the new Western world (LEFF, 2006).

With regard to the impacts that this political, economic and scientific apanage had on society, there was a profound change in the ways of doing, creating and living in society, which, markedly agricultural, slavish and alienated from public life, began to become own goods and services, advanced knowledge of technical, political representation, which allowed new spatial and social distribution of industrial and agricultural wealth which has "necessary new social controls (...) established by power, class industrial, by the class of the owners (...) to which an authoritarian and state version was given " (FOUCAULT, 2013, p.101) .

From this point on, the *raison d'être* becomes the *raison d'état* , which, marked by law and legislated, becomes the new form of social control that, therefore, formed the right scenario for positive law to gain space public life and interfere with private life with social legitimacy and institutional and market acquiescence. This is how the culture of the normalization of social life is formed in the West: against the backdrop of the rhetorical discourse of universal protection of rights and the concealment of real interests veiled by the veil of normativity.

Thus, the norm has become, historically, the instrument of operationalization of interests of economically and politically privileged groups in society, considering its validity, imperative, obligatory, coercive and punishable character. In this context, law as a technique of social control was the most effective way to secure the interests gained by the new structures of power, for how could the bourgeoisie - North American and French - ensure the political and had achieved in the revolutionary context?

To give strength to these achievements, the law, the norm and the right came, therefore, to fulfill this role

- and has been fulfilling until the present time, because for restructuring social inequalities, contradictions and imbalances, it was necessary to create a greater and more imposing force than the force of social contradictions: law, which is nothing more than "the force that killed its own force" (BARRETO, 1966, p. 444).

Positive law then becomes the mechanism of guaranteeing social interests with effective means to ensure compliance with their determinations, subordinating other forms of social control such as custom, negotiation and self-direction. From then on, it is worth the rule- bound state will, forged and woven in the laboratory of legitimate institutions, and it is up to the social body to comply under penalty of sanction.

However, law is not the way, the truth and life and "*law is not in the origin and essence of things*" (LEFF, 2001, p.25), is not an exclusive way to confront social conflicts and seek solutions to them. Moreover, in various situations, notably in the environmental issue, the right as a technique of social control presents itself much more as a generator and/or maintainer of environmental conflicts than a lifeline. That in the current context of crisis reveals something troubling and confirms the need to review the modern legal model as instrument of solving the environmental crisis.

Still, it considers that the right arises from the fact that relations between things; the source of it is the social utility, the need for certain things result from certain assumptions and the strongest probability of finding the meaning of this object of legal science is the requirements of social life, whose role it is primarily the judges, either through attribution of meaning to the rules in the gaps and shortcomings in the legal sources, is the creation of law directed at social utility through the judicial process

(CARDOZO, 2010, p. 81). This is a legal perspective, which is located, specifically, the right as the result of the creation process carried out by the magistrates in the courts.

Immediately thereafter, this view of law as a system of rules reflecting social interests and aspirations and winning concrete contours through the court decision raises the problem right as technical domination. If he - the right - is derived from the requirements of social life and if the will of the legislator and the judge should be directed by the needs of society, we have to take into consideration that the social requirements can direct the process of creating the right in a engineered form of induced form as the predominant interests and the various social forces, of which:

> Which of These forces Shall dominate in any case, must depend largely upon the comparative importance, or value of the social interests que will be there by promoted or impaired [...] There must be nothing in its action que savors or prejudice or please or even fitfulness arbitrary whim of [...] uniformity ceases to be a good when it passes from uniformity to oppression (CARDOZO, 2010, p. 82).

In this perspective, the right begins to appear with an instrument of domination in society, in the sense that the right is used to favor a group for reasons of logic, custom, historical, utility and standards of conduct causes a break with uniformity and impartiality required and the expected norm and the decision which rupture can occur in the oppression and domination spectrum.

In this respect, the right beyond protects society from the arbitrary power and preserve it from dictatorial tyranny, "is also a workable instrument that frustrates the aspirations of the less privileged and allows the use of techniques of control and domination which, in complexity, is accessible only to a few specialists"(FERRAZ JR, 2003,

p. 32), domination this understood in the Weberian sense of the term , which means" the probability of finding obedience to an order of specific content, among certain people indicative" (WEBER, 1994, p. 33), or pursuant to specific orders within specific group of people.

The three types of legitimate domination are: Legal domination of rational character, which is based on the belief in the legitimacy of the orders laid and the right to send those who are appointed to exercise this domination; traditional domination, which is based on the belief in the traditions prevailing in the course of history and the legitimacy of those who represent the authority; Charismatic domination, which is based on extra-ordinary veneration of holiness, of heroic power or a person of exemplary character and orders for this revealed or created (Weber, 1994, p. 141).

The thesis that the law is a workable instrument through technical and domination (FERRAZ JUNIOR, 2003) is based on the design of the legal rule, according to which: the right may be requirements established by rational means in order to be respected the dominated; the right is a set of abstract rules normally laid with certain intentions; who obeys is obeying the law and not to the person of the Lord which has the power of authority (WEBER, 1994, p. 142).

In the way of what was said, regarding the establishment of rules that reveal - or conceal - certain intentions, the law as an instrument of domination is based on the maintenance of interest to the *status quo* of "hegemonic segments of society: rich, white, male, heterosexual and others. In the interest of social order, inequalities are kept materials that legitimize the exercise of oppressive power of some members of society over others" (VIANNA,

2008, p. 120). In this sense, the law reflects the economic relations through the abstract norms and also the judicial creative process that sometimes regulate these relations consolidating the process of domination operated by the bourgeois legal project.

Particularly with respect to environmental law, this process of domination takes place in a context where a paradigm shift was introduced in the man/nature by industrial- revolutionary ferment of the eighteenth and nineteenth centuries, technological-revolutionary of the nineteenth and twentieth century's that influenced deeply the form of exploitation of the resources of nature and the transformation of this for the purpose of production and marketing, wealth accumulation and profit taking.

In this case the man/nature significantly has changed inaugurating a model of technical, scientific and technological rationality imposed reification of nature, people, values, cultural and ethical ways, because of the subordination of nature to the *ethos* capitalist fundamentally liberal matrix. This civilization model, to perpetuate in time, said - and still has - with the social legitimacy through the legalization of market and economic practices that have significantly altered the relationship of humans with nature.

In this sense, the laws and judicial decisions that are basic platforms of operation of law as a technique of social control, began to internalize values and economic interests that represent relations of power and domination in society. This occurs by means of positive law that internalizes the standard private interests and elitist because of heavily privatized and individualistic matrix that has, although it makes up with democratic and social content.

Thus, through the legislative process and the court decision, the legal form uses codes that hide interests around the use and appropriation of natural resources, subordinating the interests of the community to the political interest which in turn is structured under the logic of the market. Considering this assumption right as a tool or technique of social domination, political and economic, institutionalized through the authority and state power through legal proceedings - regulation and judicial decision - it is urgent to consider the strong economic bias environmentally positive law through the commoditization of natural resources and assertiveness economic interests in environmental exploitation in order to do a remake of this rationality from the sustainability and the idea of a law beyond the borders of a right based on an environmental rationality and global repercussions.

4 OUTLINES OF A PLANETARY RIGHT

The various forms of sustainability lead us to think of another law that we understand should think about the boundaries beyond the mark creator of its own legal order which was the sovereignty, this limited geographically by the physical environment of the nation state and its borders, also known by territory. Other traditional elements of sovereignty would be the people and the legitimately elected government.

Our proposal is deceptively simple, but it contains within itself a profound complexity, we understand that thinking about legal sustainability requires us to think of the right in another milestone other than the State Nation. Simply put we propose that the territoriality that gives basis for a new sovereignty is the entire planet, or rather that the borders are those where there is life, that is that we

establish a new legal protection framework in the biosphere as a border legal one sustainable new law. In the absence of a better call denomination Law Planetarium. Think a space where are abolished the traditional boundaries of the State nation such as we know it has been practiced.

We saw this with the creation of the European Union, which although it has been constituted as one in full state, we can see that this movement of unification occurred through time with two goals, a historical and secular, which was to prevent war within the continent, given the past of destruction and totalitarianism experiences and burnt, the other goal was more immediate and competitive, which was to create a business and shopping district with a strong currency that made front of the single currency that emerged in the post communism it was the dollar. Thus was born the Euro and the traditional European borders have resulted in another space where it can be driven freely, even if preserving the language and culture of each region. Our proposal is based on the logic of necessity and urgency, as well as the issue of currency and market which boosted the European Union and not just a market common. We understand that the urgency of the environmental issues should cause us to face the environmental challenges as one people, the people of the land, made up of different languages, different cultures and different traditions. Having a common goal does not mean giving up our identities instead find our differences in a form of possibility of common existence based on another model of development that there are no major social inequalities and especially a model that allows progress without destroying the environment or that it is a concern within the Earth community.

The challenge is to give a legal form for this utopia more than concrete, for true utopia in the sense of the impossible is to imagine that we can live selfishly in our states nations competing wildly with each other and causing wars and destruction in the name of market and domination. We can summarize what we do not know how will the new legal and social order, but we know that it cannot repeat for another 150 years what was its legal model and economic development of the current industrial society. Think again even though there becomes more palpable than to imagine playing the old model predatory and unsustainable.

5 CONCLUSIONS

5.1 With the ongoing placed neoliberal process and the society called 20 by 80, we are probably experiencing a setback ever seen by humanity, for any of the values in the French Revolution and co-constituent of the process of building citizenship, equality, liberty and fraternity, is respected by this process that establishes the economy as superior to other sciences and dogmatically unquestionable, it is the only know that the mass societies must submit.

5.2 On this setback which does not share neither value but speculation, we can observe that it is no more accumulation by the industrial bourgeoisie, but the speculation by financial markets, undemocratic impersonalized and without any ethical value that determine the functioning of our societies.

5.3 As this neoliberal construction process believed to be free of value because it reflects the interest of the market and the only existing system, as paradoxical as it may seem, neoliberalism does not propose any state model, not liberal

or socialist, well not be, or anything; just speak in a minimal state, which in our view does not say much.

5.4 We are at the threshold of a new barbarism, as the capital and the economy, are not only limited to any law, but associated to her in many situations, since to do so, as would Kelsen, you need a standard key hypothetical and is in legal terms are to give to the existence of a state and its materiality to consolidate the sovereign Constitution.

5.5 Now, with the deconstitution process of sovereignty in the name of saving neoliberal market, what you see is the total lack of regulatory capacity to regulate these same markets, combined with a lack of ethics that extends from the economy to science, we see it is interesting economically, we can move in all fields knowledge without any regard to ethics, including genetic manipulation, affecting also humans.

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13. SITUATING JUSTICE: A NOTION OF URBAN-ENVIRONMENTAL JUSTICE

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1. INTRODUCTION

Claims that distributive justice issues arise from environmental and planning law and decision-making have been well explored in the vast body of evidence-based research and literature produced on the grassroots origins of the environmental justice movement and its contextual manifestations (Bullard 2000; D. Taylor, 2000; Walker and Bickerstaff 2000; Cole and Foster 2001; Agyeman 2002; Martinez-Alier 2003; G. Mitchell and Dorling 2003; Bryant and Hockman 2005; G. P. Walker and Bulkeley 2006). This scholarship shows that the notion of environmental justice has become a powerful example of political mobilization

used to question the unequal territorial and population distribution of benefits and environmental negative costs resulting from development particularly at the local level. When environmental laws are unevenly enforced, they might generate distributional implications (Lazarus 1993). Land use regulation is potentially a powerful tool either to address or reinforce socio-spatial inequality (Been 1992; Arnold 1999).

Also, environmental justice has evolved to become an influential element in environmental law and policy debates over the last two decades. In this respect, authors have looked at the progression of the different environmental justice discourses into policy guidance and regulatory frameworks, in particular in the USA (Lazarus and Tai 1994; Gerrard 1994; Rhodes 2005; Gerrard and Foster 2009) and in the UK (Agyeman and Evans 2004; Bulkeley and Walker 2005; Slater and Pedersen 2009; Pedersen 2011). Even though criticism remains with regards to the limited developments in enforcement strategies (Hernandez 1995; Holifield 2004: G.P.Walker 2007), legislation initiatives (Pedersen 2011, 296; Pedersen 2014) and case law (K. Smith 1996; Binder 2005; Pedersen 2011, 299–300).

However, environmental justice lacks a more precise definition in order to be framed as an analytical tool and policy principle. The terminology used is still vague and therefore the legal effectiveness of environmental justice measures remains uncertain and sometimes weak (Carruthers 2008, 2). Critical studies have already flagged the tension between the broad, flexible approach emerged from the political grassroots movements and the need for a consistent set of principles for analysis, interpretation and decision-making (Pellow and Brulle 2005, 16; Benford 2005,

46; Connelly and Richardson 2005, 403; Pedersen 2011, 295).

Considering this, this chapter argues that a narrower, contextualized, and thematically specific concept of environmental justice is needed to allow for it to be applied as a practical guidance for assessing policy and legislative responses. The chapter is particularly focused upon providing a foundation for analysis of a localised and urbanised meaning of environmental justice, able to inform the formulation of judgement criteria and regulatory and policy indicators within urban-environmental decision-making. To do so, the chapter draws upon a general account of key theoretical debates on distributive, environmental and territorial justice to outline a notion of urban-environmental justice. The chapter starts by reviewing – albeit very briefly - approaches to environmental justice focusing on how it progresses from, collides and cooperates with notions of distributive justice. Then, it analyses plural theoretical discourses working within an expanded form of environmental justice, such as intergenerational justice, global justice, ecological justice, and the sustainability rhetoric. Finally, it relates these understandings of environmental justice to literature on spatial justice and urban sustainability.

2. BRIDGING CORE DEBATES ON JUSTICE AND ENVIRONMENTAL JUSTICE

2.1 Theorizing approaches to calls for distribution, participation and recognition

Since the rise of the environmental justice movement, there have been proposals for categorising the different concerns embodied in the notion of environmental justice under philosophically informed discourses. This

reflects an effort towards identifying meanings and normative implications to environmental governance and decision-making. Classifications have pointed to varying 'taxonomies' (Kuehn 2000) of multi-fold combinations of notions of distributive justice, procedural justice, corrective justice, and recognition.[93]

As explored in detail in the specialised literature, environmental justice as a field of scholarship has been influenced strongly by liberal conceptions of distributive justice, in particular Rawls's idea of 'justice as fairness'.[94] This is for Rawls's theory encapsulates the argument in favour of distributive mechanisms and democratic institutions, which relates to the strong procedural aspect of the environmental justice claims (Schlosberg 1999, 10). When environmental justice political protest is translated into a conceptual framework, key distributive concerns emphasize claims for consideration of fair distribution of environmental resources (benefits) and of environmental risks (burdens) when assessing the outcomes of environmental policies (Pedersen 2011, 283). This implicates questioning who benefits and to what extent, and whether equal opportunities are available in institutional decision-making. Rawls's distribution principle grounded in moral equality ('difference principle') provides explanation by affirming priority for equal rights and liberties, where social and economic inequalities are to be accepted only

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[93] For example: Manaster identifies distributive, corrective and procedural justice (Manaster 1995). Kaswan opts for distributive and political justice (Kaswan 1997). Taylor highlights distributive and corrective justice (Taylor 2000). Kuehn includes distributive, procedural, corrective and social justice (Kuehn 2000). Schlosberg talks about social and procedural justice and recognition (Schlosberg 1999).

[94] In his early work, Rawls affirms that natural resources are not part of the distribution of primary social goods (Rawls 1973). Later, he addresses the possibility of extending his theory to environmental questions, although in general terms (Rawls 1996, 36). For an overview of distributive theories, see Lamont and Favor 2013.

under conditions of equal opportunities and to the greatest benefit of the least advantaged (Rawls 1996, 291). The emphasis is therefore on ensuring fair process through which decisions are made, and which becomes the measure for fair outcomes (H. Campbell 2006a, 94).

Nevertheless, environmental justice scholarship has also incorporated critiques of liberal theories and claims for contextualization (Nussbaum 2008; Sen 2010; Taylor 1994; Sandel 1998; Kymlicka 2002; Walzer 2008) and consideration of social difference (Fraser 1998; Young 2011), towards an understanding of justice that is plural and contextual. As within developments in political philosophy in general, these evolving perspectives have contributed to clarifying what environmental and social justice represent by balancing the emphasis on individual liberties and fairness of procedure (impartiality/proceduralism) with collective interest, matters of values and contextual settings (H. Campbell 2006a, 106; Dobson 1998, 63).

Of particular relevance for an environmental justice critique is the capabilities approach developed by authors such as Sen (Sen 2010) and Nussbaum (Nussbaum 2007). They challenge moral equity as the normative orientation for distributive justice to emphasize recognition of human dignity as a central principle. These ideas relate to a human rights approach, for capabilities represent minimum human entitlements to be respected and implemented by governments in terms of positive or moral rights (access to goods and services) (Nussbaum 2007, 70).[95] Nussbaum goes further to articulate a list of capabilities, which would

[95] While Sen associates capabilities to conditions prioritizing the development of the individual (Sen 2010, 106), Nussbaum articulates her understanding of capabilities as 'what people are actually able to do and to be, in a way informed by an intuitive idea of a life that is worthy of dignity of the human being' (Nussbaum 2007, 70).

work as core elements defining the idea of human dignity as well as shaping the basic content of social justice as political goal (Nussbaum 2007, 75).[96]

Nevertheless, Young's work on politics of difference is the main body of literature that takes into account that distributional injustice is based on social differentiation (cultural, symbolic and institutional) (Young 2011, 18). Accordingly, social difference based on oppression (constrain on self-development) and domination (constrain on self-determination) results in devaluation of individuals and communities at cultural and political levels, affecting conditions for participation in decision processes related to access to goods, and, therefore, distribution patterns (Young 2011, 34). Then, alongside just distribution of goods and opportunities, social justice must include recognition of oppressed groups' shared identity (Young 2011, 33) and, consequently, ensure representation and effective participation in decision-making (Young 2011, 183).[97] Recognition theory, in this sense, contributes to theoretical debate about environmental justice because it shads light on the argument that discrimination suffered by specific groups with respect to accessing environmental decision-making or unevenly experiencing the effects of environmental harms would be the result not only of socio-economic injustices but also of the lack of recognition of their cultural identity and ways of life.

[96] The list of capabilities encompasses: life; bodily health; bodily integrity; senses, imagination, and thought; emotions; practical reason; affiliation; coexistence with other species; control over one's environment (political and material) (Nussbaum 2007, 76–78).

[97] Also, drawing on politics of difference, Fraser develops a particular understanding of a bivalent approach to social justice based on the distinction between politics of redistribution (socio-economic aspect) and politics of recognition (symbolic-cultural aspect) (Fraser 1998, 432–445). Interestingly, the debate is polarized into two competing theoretical approaches to recognition, Fraser's (moral conception of justice) and Honneth's (ethical conception of justice). See: Fraser and Honneth 2003.

Amongst authors who acknowledge that a distributive theoretical approach *per se* does not fully encapsulate the various meanings of socio-environmental claims, Taylor and Schlosberg have highlighted recognition as an element. Taylor relates struggles for environmental justice to the development of uneven power relations and to political, economic and cultural domination reflected upon the opportunities of access to decision-making when it comes to distribution of resources and burdens (Taylor 2000, 540–542). She then identifies claims for autonomy as a component part of the environmental justice movement, which includes demands for sovereignty, self-determination, and respect for cultural diversity (Taylor 2000, 535–536). For Schlosberg, the call for environmental justice 'focuses on how the distribution of environmental risks mirrors the inequity in socio-economic and cultural status' (Schlosberg 2004, 522–523). Therefore, embracing Young and Fraser's critiques of liberal theories, Schlosberg advocates a concept of justice with multiple and integrated meanings, encompassing recognition of cultural identity and participatory rights alongside distribution of goods and benefits (Schlosberg 2004, 536).

2.2 Expanding Environmental Justice: The 'Specialization' of the Discourse

The interpretation of environmental justice has been expanded so that the concept can be applied to different contexts and particular problems. As a result, a plural rhetoric has been developed in support of factoring equity discourse into temporally, geographically and thematically enlarged environmental concerns. However, difficulties of applying liberal theories to circumstances they were not conceived for are also apparent in this particular field (e.g.

beyond the boundaries of national states and to enlarged communities of justice). Most importantly, policy and legislative strategies are demanded to respond to these thematic conceptions, making disputes over notions of justice also a matter of legitimacy and effectiveness of environmental law as a whole (Ebbesson 2009a, 3). Considering this, this section seeks to outline the main developments focusing particularly on identifying how distinct layers are added to the definition of environmental justice which can have implications for the normative framework the chapter proposes.

2.2.1 Temporally expanded concerns: intergenerational justice

Responsibility towards future generations is at the heart of environmental law (Weiss 1992, 19), and the notion of justice plays a central role in justifying corresponding obligations. This, however, has proven to be a complex, controversial task, not only theoretically but also practically (Weiss 1990; Brunnée 2009).

Amongst early scholarship on intergenerational justice, Weiss, for instance, analyses the relationship between generations on the basis of the notion of stewardship and human rights regimes, developing a set of principles that orient the content of future generations' rights while conditioning the behaviour of present generation. This includes conserving 'options' (environment capable of sustaining life and sufficient resources to enable future generations to achieve their own goals), of 'quality' (to pass on environmental conditions no worse than received), and 'access' (equal right to access resources) (Weiss 1990, 200–

202).[98] Wissenburg, in turn, advocates the compatibility of liberal theories with intergenerational justice concerns based on Rawls's 'saving principle', according to which such a relationship implies considerations of care rather than justice, based on intuitive or natural sentiments of responsibility/solidarity/care for descendants, in particular for proximate generations.[99] Hence, he develops what he calls 'principle of restraint', referring to a commitment to avoid destroying goods in cases where they are irreplaceable, as well as justifying compensation measures (Wissenburg 1999, 193).

Barry, by contrast, emphasizes that ensuring justice for future generations depends on strengthening distributive justice for the present generation. This highlights that not all of the present are equally responsible for environmental degradation at the same level and therefore do not bear the same obligations towards caring for future generations (Barry 1999, 69). Also, dissenting from mainstream understandings, Barry criticizes the concept of sustainable development as a medium for interpreting obligations towards future generations, once it fashions '[…] a conception of progress in which social development is still largely within terms of production and consumption of good and services'. He proposes the idea of development associated with that of 'progress' (meaning that 'the future will be better that the present'), but emphasizing that what progress entails should be determined democratically through increasing human autonomy and self-determination (of individuals and groups) (Barry 1999, 66–68).

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[98] This is in accordance with the concept of sustainable development adopted by the Brundtland Report (1987).

[99] Rawls reformulates his account to include the ignorance of those in the original position about the generation they would belong to (Rawls 1996, 274).

Importantly, despite differences, the intergenerational justice approach offers grounds for placing responsibilities on governments towards protection of ecological processes and risk management either through implementation of policies or through controlling private initiative. Consequently, it can also allow for public interest litigation. However, it arguably remains within the constraints of sustainable development rhetoric.

2.2.2 Geographically expanded concerns: global environmental justice

The geographical expansion of justice concerns in relation to the environment has raised theoretical struggles which are shared within a larger global justice framework (Nagel 2005). The use of fairness rhetoric in international environmental negotiations embodies in particular discursive disputes in the context of the North-South relationship (Shelton 2009, 68), being applied to from sustainable development debates (1992 Rio Declaration), to depletion of the ozone layer (Mickelson 2009, 297), poverty and access to resources (Martinez-Alier 2003), biodiversity (UN Convention on Biological Diversity), climate change (Brunnée 2009), and corporate activities (Ebbesson 2009b; Bugge 2009).

The principle of common but differentiated responsibilities has become the main medium for justice rhetoric in multilateral environmental agreements (Stone 2004, 276). It conveys that states' contribution to environmental problems is differentiated (historical responsibility), and also is their economic and technological capacity to tackle solutions (respective capabilities) (Mickelson 2009, 297). Therefore, the principle invokes the justice argument in order to justify differentiated

responsibilities, in terms of mediating the allocation of benefits and burdens, as well as the costs of mitigation measures through the transference of financial and technological resources (both distributive and corrective justice dimensions) (Shelton 2009, 68). Notwithstanding, the content of such obligations and the constraints of their binding nature remain disputable in all the fields (Stone 2004, 277; Brunnée 2009, 325–326).

Notably, however, environmental global justice is tied up with local environmental justice concerns because poor and minority populations are likely to be disproportionately affected by global processes. Consequently, governance scales and structures to tackle environmental inequality shall operate equally at global, national and local levels. This is particularly striking, for example, in climate change debates. In this regard, mitigation measures trigger distributive justice at the global scale on the grounds of historic responsibility and burden-sharing under the UNFCCC regime, and equally at the national scale in terms of impacts of domestic emission mitigation commitments. Nonetheless, adaption is mainly linked to adoption of action at the local scale, for it is closely related to the spatial distribution of impacts and social distribution of adaptive capacity to be managed locally, at the level of the climate-impacted natural resource of livelihood (Adger 2006).[100]

2.2.3 Expanding the community of justice: ecological justice

When debating whether the community of justice should be expanded to include nonhuman nature,

[100] However, there is also extensive consideration of the (in)adequacy of a justice frame itself for justifying and orienting climate change mitigation strategies (Posner and Weisbach 2010).

environmental justice theorists have drawn upon ways of rendering environmental ethics approach and liberal theories of justice compatible. This is a disputable debate on the moral status of nonhuman nature (e.g. whether enjoying intrinsic value or (un) equal moral worth), in terms of what are the broader values to be considered in environmental decision-making.

Some argue for accommodating nonhuman interest within the boundaries of liberal theories. Drawing on Rawls's distinction between public reasoning (moral agents agreeing on a conception of good, which is part of basic constitutional principles, as in Rawls 1973, 505) and comprehensive ideals (issues that are not a question of justice but that can be subject to deliberation thorough democratic processes), Bell offers the concept of 'liberal ecologism' (D. R. Bell 2006, 207). Although duties to nonhuman nature are not a question of justice, and hence are excluded from constitutional debate (Rawls 1996, 246–247), liberal states can legitimately promote policies for ecological or ecocentric reasons considering that they have been endorsed through democratic processes (Bell 2006, 215). Consequently, only humans are moral agents and, therefore, entitled to citizenship, while nature is only worthy of moral consideration and entitled to protection (Bell 2006, 219–220), to be promoted under stewardship schemes (Rawls 1996, 247).

Others elaborate on liberal theories to further justify including nonhuman nature within the community of justice, presenting a different standing point. Amongst them, distinct positions express different understandings about the identification of recipients of justice,[101] as well as

[101] For Baxter, for example, both species and individual specimens are recipients of ecological justice (Baxter 2004). For Taylor, this includes any 'entity having a good of

the principle of distributive justice to be applied.[102] In this field, Baxter includes in his account of ecological justice the distribution of benefits and burdens not only among human beings but also the rest of the natural world. Being all living entities worth of moral consideration (Baxter 2004, 51–56)[103] although on the grounds of different moral weights (Baxter 2004, 129–135), their welfare interests shall be ensured. Hence, they are recipients of distributive justice in terms of their fair share of environmental resources (primary goods), which implies 'not to deprive them without good moral reason of the environmental basis of their continued existence and ability to reproduce themselves' (right of access and to use) (Baxter 2004, 86 and 139). Therefore, contrary to Bell, Baxter argues that institutional arrangements must be made through constitutional provisions (Baxter 2004, 101),[104] including, for example, guardianship (Baxter 2004, 163ff).

Other approaches express concern for involving nature interests in democratic processes and discourses. Eckersley, for example, drawing on Habermas's discursive democracy, identifies a form of trusteeship held by humans for nature to explain how non-human nature's speech would be represented, as well as uses the precautionary principle as a tool for ensuring that ecological concerns

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its own', what encompass animals and plants (P. W. Taylor 1986). For Johnson, this includes also the interests of ecosystems (Johnson 1993).

[102] There is some dispute between biospherical egalitarianism (equal consideration of each member of the community) and the argument of the intrinsic value (unequal moral worth). For a comparative analysis of the diverse discourses, see Dobson 1998, 63.

[103] Baxter builds his argument criticizing authors who advocate moral status only to individual sentient animals.

[104] When it comes to possible models for those arrangements, the author suggests an elected guardianship body, but refers also to other solutions. For an analysis of ideal forms of institutional arrangements which should be aimed at in order to pursue the goal of ecological justice, see Baxter 2004, 163ff.

would be considered within decision-making processes (Eckersley 2004, 130–135). In a different way, Schlosberg expands his three-fold conception of justice towards recognition to nature, which might be supported by either nature's intrinsic value or human self-interest and argues for the widening of public standing throughout different social groups within environmental decision-making (Schlosberg 2009).

To sum up, it turns out that notwithstanding the sophisticated nature of the arguments or the guiding theoretical traditions, distinct approaches to a notion of ecological justice, based on identifying moral responsibilities towards nonhuman nature, suggest similar institutional arrangements. These include stewardship or guardianship structures and the expansion of standing rules for contesting decisions involving nonhuman welfare. This is also the solution addressed by proposals towards assigning rights to nature, although its relevance and practical implications to environmental law structures and institutions remains a cloudy issue.[105]

2.2.4 Returning to the sustainability frame

Despite efforts to approximate liberal theories and environmental ethics with the purpose of justifying institutional arrangements to accommodate ecocentric concerns, there remains scepticism. Authors such as Dobson and Bosselmann, for example, conclude that liberal theories and a notion of ecological justice are not always compatible. This is for considering that liberalism is essentially anthropocentric and reinforces individualism

[105] For potential normative approaches, see The Earth Charter and the Declaration of the Rights of Mother Earth.

(Dobson 1998, 240), resulting only in 'contingently green policy' (Bosselmann 2006, 144). Bosselmann also criticises environmental ethics for its inconsistency with democratic processes (Bosselmann 2006, 130–131). These authors therefore return to the frame of sustainability as main conceptual tool, offering their own understandings over its meaning and interplay with distributive justice.

Dobson presents a useful and comprehensive account of the theoretical/conceptual relationship between environmental sustainability and social justice through building a typology of the multiple meanings assigned to each term and the varying ways they relate to each other.[106] He concludes, however, that this relationship is 'fundamentally a contingent one', rather than necessary, considering that social justice agenda (distributional aims) will not always be designed to encompass environmental sustainability goals (nature preservation) (Dobson 1998, 240). In his understanding of sustainability, sustainable development represents a dimension mainly concerned with maintaining or increasing human welfare, whereas environmental sustainability is related to the maintenance of critical natural capital. Therefore, the latter would account for a preferable framework for allowing mainstreaming other motivations than human interest and for a potentially broader community of justice (Dobson 1998, 60–61).

In his account of the debate, Bosselmann proposes an understanding of ecological justice departing from

[106] Dobson classifies three conceptions of sustainability based on the type of capital they seek to sustain: critical natural capital, biodiversity, nature's value (Dobson 1998, 39). He then classifies theories of justice according to key questions they address, mainly theory's structure (impartiality v. substantiveness; procedural v. consequentialist; universalism v. particularism); what is distributed (environmental goods and bads; benefits and burdens; primary goods; preconditional goods); distributive principle (needs; desert; entitlement; equality; utility; to the benefit of the least advantage; multiple principles) (Dobson 1998, 63).

a notion of sustainability that includes concern for nonhuman nature (interspecies justice) alongside inter- and intragenerational justice. Although still remaining an anthropocentric conception (Bosselmann 2006, 155), it would reinforce the ecological sustainability dimension of the concept for firmly including recognition of the intrinsic value of 'nonhuman others' (critiquing weak sustainability approaches) (Bosselmann 2006, 131). This has practical implications for emphasizing the need to take into account ecological integrity into the formulation and development of policy and legal tools.[107]

By contrast, Agyeman and others (Agyeman et. al. 2002, 78) build upon the UK's responsiveness to environmental justice claims and opt for a notion of sustainability that expresses the linkage between justice and the environment through emphasizing social justice as key element. 'Just-sustainability', as they call it, should then result in sustainability policy and legislation agendas which clearly encompass equity claims as a means of fostering environmental protection (Agyeman et. al. 2002, 78; Agyeman 2002; Agyeman and Evans 2004). The authors also highlight the relevance of discussing a rights approach alongside equity and sustainability dimensions, which includes consideration of both substantive (right to a clean and healthy environment) and procedural rights (access to justice, access to information and participation) (Agyeman et. al. 2002, 85). In this respect, although procedural rights are already implied in legislation implementing the Aarhus Convention framework, the justiciability of a

[107] The author mentions as examples of ecosystemic approaches to law-making the Convention on Biological Diversity (1992), Protocol on Environmental Protection amending the 1959 Artic Treaty (1991), World Charter for Nature (1998), the Earth Charter (2000) (Bosselmann 2006, 161–162).

fundamental right to a clean and healthy environment is still controversial in EU Law (Krämer 2009).[108]

Approaching environmental justice from a sustainability perspective seems to be pragmatic for operating within an existing and well-established conceptual framework, one which does not rely solely on moral considerations. Notwithstanding, such an approach remains linked to mainstream legal and political responses, and therefore vulnerable to current critiques addressed to sustainable development discourses. These include the conceptual ambiguity and the tension between strong and weak sustainability, which does not necessary leads to ensuring strong consideration either of ecocentric values or distributional aspects.

3. EXPANDING ENVIRONMENTAL JUSTICE TOWARDS A NOTION OF URBAN-ENVIRONMENTAL JUSTICE

3.1 Thinking about justice geographically in the urban locus

Planning has also long engaged with theories of justice (H. Campbell and Marshall 2005. Notions of justice related to procedural concerns have been more prominent, which have informed the institutionalization of participatory mechanism, e.g. consultation, referendums, and representative local councils (Fainstein 2010, 28–30). Questions of substance have been also brought to the fore, highlighting the relevance of policy and decision-making being informed by judgements based on values and

[108] For a rights-based approach to environmental protection, see the recent Advisory Opinion issued by the Inter-American Court of Human Rights on the recognition of a right to a healthy environment (OC-23/17).

principles (H. Campbell 2006b, 92). Consequently, calls for substantive equity and diversity also challenge the unequal distribution of benefits and burdens of planning decisions (Fainstein 2010, 67–76). However, as in environmental justice debates, the notions of justice at the core of the most influential formulations vary, and not always result in practical normative frameworks.

In this field, debates about justice are underpinned by disputes over the spatial implications of socio-economic and environmental processes (how social justice and space interact through decision-making and institutional arrangements). This raises questions about what social rights entail in the urban context (D. M. Smith 1994). Therefore, alongside the influence of liberal theories of justice and politics of difference, the basis for theorizing territorial aspects of justice is also formed by Marxists interpretations of space as a social product. This derives mainly from Lefebvre's and Harvey's works, both of whom acknowledge space as socially produced and therefore relational: space is constantly shaped by social processes and, concomitantly, it conditions social life (Lefebvre 1991, 25; Harvey 2008, 25).

Lefebvre explains such an entangled relationship by interpreting space as 'product-produced', as 'product-producer', and as 'product-medium' (Lefebvre 1991, 34). Hence, both material and symbolic meanings of space are socially constructed through social relations derived from the struggle between heterogeneous groups through participation, social interaction and exchange (Lefebvre 1991, 67). Also, his idea of 'the right to the city' is particularly influential. He highlights two key aspects for a fair urban space: first, equitable access to and use of public spaces (what he calls 'right to appropriation', considering the 'use value'

rather than the 'capital value'), and, second, the central role of city inhabitants in decision-making impacting on the production of space ('right to participate'). However, as noted by Purcell, despite having largely informed research and political responses, Lefebvre's right to city remains highly theoretical and abstract (Purcell 2002), and therefore efforts to devise new strategies growing out of such an open-ended notion would call for grounded interpretations of what the right to city encompass.

Harvey's contribution relates particularly to his call for a contextualized and relational understanding of social justice, situated in human practice and dependent upon social position and historical and geographical context, rather than an abstract conceptual approach such as proposed by liberal arguments (Harvey 2008, 15 and 294–295). Harvey focuses on how principles of social justice relate to the territorial allocation of resources and burdens and urban planning principles and practices, and how these are key to the notion of territorial distributive justice. He formulates social justice as 'just distribution just arrived at' (Harvey 2008, 98). Harvey then concludes that 'the spatial organization and pattern of a regional investment should be such as to fulfil the needs of the population' and that 'deviation in the pattern of territorial investment may be tolerated if they are designed to overcome specific environmental difficulties' (Harvey 2008, 107–108 and 116).[109]

Fainstein introduces an insightful example of urban theory of justice which associates these different theoretical

[109] Drawing on Young's work, Harvey offers a list of general just-driven norms: non-exploitation of labour power, elimination of forms of marginalization of social groups' access to political power and self-expression, elimination of cultural imperialism, humane forms of social control, and mitigation of the adverse ecological impacts of social projects (Harvey 2000, 7:400).

perspectives combining Rawls's difference principle with Lefebvre's and Harvey's formulations and politics of difference (Fainstein 2010, 37). As Schlosberg proposes in the environmental justice debate, Fainstein also advocates a three-fold concept of justice based on equity, democracy, and diversity. However, she gives central attention to a substantive concept of justice based on equity for understanding that emphasis on procedural aspects only 'works properly in situations of equal opportunity' (Fainstein 2010, 28). This requires that distributional outcomes of decision-making be measured in terms of favouring the less well-off not only economically but also politically, socially and spatially (Fainstein 2010, 36). She complements this by combining Nussbaum's capabilities approach with the purpose to define content (Fainstein 2010, 54–56). Fainstein concludes:

> Judgements would be based on whether their gestation was in accord with democratic norms, whether their distributional outcomes enhanced the capabilities of the relatively disadvantaged, and whether groups defined relationally achieved recognition from each other. […] Applying the difference principle amplified by the capabilities approach, such that our concern extends beyond primary goods, we should opt for that alternative that improves the lot of the relatively disadvantaged or minimally does not harm them (Fainstein 2010, 54–55).

Fainstein then derives a normative framework encompassing a set of principles for evaluating urban policies and institutions towards just-orientated intervention at the local level. [110] Accordingly, equity-driven norms include

[110] Fainstein clarifies that she is proposing 'non-reformist reforms' towards 'incremental changes', unlike authors such as Harvey, who argues for the impossibility of justice in cities within global capitalism and therefore argue for revolutionary change. Additionally, she is concerned with the achievement of the just rather than

affordable housing policy, no involuntary relocation, and the requirement that major projects should provide direct benefits to low-income population. Diversity, which means non-discrimination based on gender or ethnicity, for instance, should be enhanced through accessible public space, zoning for inclusion, mixed land uses, and wider access to opportunity by vulnerable groups. Finally, democracy takes an instrumental role, for consultation processes and representation by advocates enhances broad participation of diverse interests in decision-making (Fainstein 2010, 172–174).[111]

Such a combined approach of distributive analysis and recognition of difference is nevertheless the target of criticism. Based on Lefebvre's and Harvey's relational conceptions of space and its social production and representation, as well as Young's politics of difference, Stanley posits that the analytic focus of justice should shift from distribution to difference (Stanley 2009, 1001). According to her, this would shed light on how mechanisms of production and representation of space contribute to the creation and maintenance of social exclusion and difference arising from dominant authority and power, and therefore to 'the making, normalization, and disqualification of meaning in environmental justice' as well (Stanley 2009, 1003–1004). Stanley, nevertheless, does not provide answers

the good, which brings her work closer to Sen's and Nussbaum's understandings of justice (Fainstein 2010, 170).

[111] For a similar list of planning and policy guiding based on 'planning for distribution', 'planning for recognition', and planning for encounter', see: Fincher and Iveson 2008. Also, Arnold offers similar practical orientation when considering opportunities for factoring environmental justice into land use planning, indicating the necessary coordination with plans in terms of substance (allowed uses) and process (access to information and participation), with assessment of impacts on health and safety of residents as well as on community character, observation of non-conformance rules (that can result in public nuisance), and mechanisms such as conditional uses, performance zoning (standards) and buffer zones (Arnold 2000).

about how to translate such a theoretical and conceptual analysis into practice.

Importantly, there is also an effort to factor a more sophisticated notion of 'spatial justice'. This derives from criticism of current approaches that, for remaining attached to liberal social justice conceptions, would be constrained to denote merely 'concept context' instead of offering 'concept content', as described by Pirie (Pirie 1983, 470); that is to say, remaining a 'geographically informed version of social justice' (territorial social justice) (Philippopoulos-Mihalopoulos 2010, 206; Philippopoulos-Mihalopoulos 2011, 189). However, spatial justice is also a disputable concept. For instance, whereas Pirie (in urban geography) turns to reinforce a notion of space contextualized as a social product by referring to Lefevbre's and Harvey's theories (Pirie 1983, 469), Philippopoulos-Mihalopoulos (writing at the intersection of law and geography) engages with philosophical discourse of emplacement and embodied ethics (Philippopoulos-Mihalopoulos 2010, 202). Others debate the nature of the causal relations between social and spatial injustices. In this respect, Soja posits that causes of social injustices always have spatial aspects at their core (which are not merely a subcategory of the former); therefore, strategies to tackle social injustice should focus on spatial impacts (Soja 2010b, 60–62; Soja 2010a). By contrast, Marcuse understands that spatial injustice is part of broader processes of social injustice (socio-economic and politic struggles) and should be addressed accordingly (Marcuse 2010, 88–90; Marcuse 2009). The focus on theory means that none of these authors, however, offers a sufficiently elaborated conceptual framework that could lead to shaping guidelines and practices.

Orientation for a grounded and practical perspective can be found in law and geography scholarship, for justice is also a medium for examining how law shapes and legitimizes spatial and social order (N. Blomley 2003, 27). In this regard, Mitchell debates social justice in the urban context by exploring its linkages with Lefevbre's idea of the right to the city and access to public spaces (D. Mitchell 2003, 18), reinforcing the relevance of the rights discourse to (D. Mitchell 2003, 25; N. K. Blomley 1994). Mitchell identifies claims for rights as part of the process of producing space, for social struggles between different interests shaping the creation of abstract and differentiated spaces (Lefebvre's categories) reflect upon law and policy when institutionalized (D. Mitchell 2003, 29). Also, he relates public space to representation, in accordance with Young and Fraser. In this respect, planning of and accessibility to public spaces would lead to 'the ability of various groups to represent themselves' (D. Mitchell 2003, 34–35; D. Mitchell 1996). Hence, Mitchell identifies the public space as the space where social struggles are placed and, consequently, where social justice discourse is structured (D. Mitchell 2003, 233), or 'the space of justice' (D. Mitchell 2003, 235).[112]

3.2 Urban sustainability

The search for a situated notion of urban-environmental justice implies giving some account of urban sustainability. This is relevant in order to consider the role of environmental justice in mainstreaming distributive issues into sustainability efforts fit for the urban context. The difficulty is that, like sustainable development,

[112] On the development of the idea of the right to the city into a consistent rights-based approach see: Fernandes 2007.

urban sustainability is addressed under a wide range of theoretical, technical and policy perspectives, remaining open for interpretation and therefore leading to constrained implementation (Allen 2005, 20). In such a complex setting, this section seeks to address, particularly, elements capable of shaping an urban sustainability normative dimension to inform legal and regulatory frameworks.

This analysis departs from scanning international debates, which have long incorporated concerns with increasing world urbanization and consequent socio-spatial segregation and environmental degradation by linking healthy living conditions in human settlements to the realisation of human rights (civil, economic, social, cultural and environmental rights).[113] However, it is particularly from the 1990s debates on development and sustainability that the building of a consistent policy framework for sustainable urban development was consolidated. This ranges from documents deriving from the major international conferences on human settlements and sustainable urban development under the United Nations Habitat framework, to the adoption of Agenda 21 (at the Rio Earth Summit, 1992), to commitments to the World Development Goals.

Key international documents[114] encompass both a rights-based approach and concerns with urban-environmental and socio-economic justice issues. This includes, amongst others, preservation of biodiversity and

[113] For example: 1966 International Covenant on Economic, Social and Cultural Rights; 1966 International Covenant on Civil and Political Rights; 1989 Declaration on the Right to Development.

[114] See: Vancouver Declaration on Human Settlements (First UN Conference on Human Settlements - Habitat I -, Vancouver, 1976); Agenda 21 (1992); Agenda Habitat (Second UN Conference on Human Settlements - Habitat II -, Istanbul, 1996); Declaration on Cities and other Human Settlements in the New Millennium (Istanbul + 5, New York, 2001).

ecosystems, resource management, realisation of peoples' basic needs, employment and income generation, poverty reduction, cultural diversity and non-discrimination, equal access to resources and infrastructure (housing, land, water, sanitation and waste management), energy and transport efficiency. More recently, the Post-2015 Sustainable Development Agenda (September 2015, New York) recognised the need for an urban sustainable goal within the new 17 sustainable development goals to be achieved by 2030.[115] Goal 11 adds mitigation and adaptation to climate change and resilience to disasters within main strategies. This was also the subject of the 'New Urban Agenda', the resulting document of the Habitat III (October 2016, Quito).

However, the set of general goals addressed in these documents do not clarify fully what legal aspects a notion of urban sustainability entails. Some critical appraisal is demanded. In this regard, authors such as Campbell (S. Campbell 1996) and Allen (Allen 2001; Allen 2005) have shed light on the hidden contradictions of urban sustainability as a policy agenda. They suggest that the inherent tensions between urban sustainability's multiple-dimensional yet competing goals must be taken into consideration in the shaping of urban policies and implementation of urban and environmental planning and assessment tools. Despite using different allegories for portraying urban sustainability dimensions, they indicate similar categories of conflicting relations.

Whereas Campbell (S. Campbell 1996, 298) uses a 'planner's triangle' allegory (social justice, economic growth and environmental protection), Allen (Allen 2001, 155–157) outlines a five-dimensional notion of urban

[115] Available at <https://sustainabledevelopment.un.org/post2015/transformingourworld> accessed 12 October 2015.

sustainability adding physical sustainability (capacity of urban infrastructure and services in relation to population and production activities) and political sustainability (decision-making processes and urban governance). Allen also emphasizes that achieving urban sustainability would be equally dependent on keeping urban development within the boundaries of 'the ecological capacity of the urban regional ecosystem' (Allen 2001, 156). In this way she links urban sustainability with notions of carrying capacity and ecological footprint.

One of the main polarisations that both authors highlight consists in the 'economic-ecological' tension, relating to the stressing of natural ecosystems for the intense exploitation of resources, and therefore between economic and public interests (S. Campbell 1996, 299; Allen 2005, 9). The other consists in the 'environmental-equity' (S. Campbell 1996, 300) or 'social-physical' (Allen 2005, 9) tension, which relates to disputes over the priority of development goals in terms of fostering social justice while ensuring environmental protection, as well as reflecting upon how the uneven distribution of risks and limited access to natural resources, services and infrastructure are mediated by socioeconomic factors. Campbell refers to a third 'growth-equity' tension to emphasize disputes over competing uses of land (for defining e.g. zoning rules, mixed uses and green spaces) and hence the relevance of the doctrine of social aspects of property in the urban context (S. Campbell 1996, 298).

Considerable attention has been also paid to the concept of sustainable community, largely within policy literature that associates urban sustainability predominantly with the social dimension of sustainable development at the local scale. For recognising community/neighbourhood

as a socio-spatial construct (Burton and Mitchell 2006; Jenks 2007), such an approach links sustainability with dynamics of socio-spatial segregation in the urban territory, as well as with institutional scales of governance (Dempsey et al. 2011, 291–293). More far-reaching debates also deploy notions of social cohesion and social capital, which allows for identifying components of urban sustainability that may be employed in policy action (Forrest and Kearns 2002) (Pennington and Rydin 2000).[116] In light of this, Dempsey et al map out five main categories referred to in the wide-ranging literature in the field (Dempsey et al. 2011, 295–297): (i) *social interactions* (drawing attention to how social networks and social cohesion can be influenced by the definition of land uses, planning and density); (ii) *participation*; (iii) *community stability* (inter-generational equity component – 'well-established, long-term residents'); (iv) *pride and sense of place* (related to feelings of place attachment – to the physical environment - and sense of community – feeling of belonging, of attachment to residents, social order and culture); and (v) *safety and security* (levels of trust).

In terms of the development of legal and policy framework design, Pearsall and Pierce offer an interesting perspective to improve a distributive approach. When analysing and critically assessing urban sustainability plans in the UK, the authors conclude that, for environmental justice purposes, ensuring the presence of general social justice concerns and ecological indicators is not satisfactory if both are not, first, clearly linked to distributional and/or procedural aspects; second, not well-articulated through

[116] See the concept of sustainable communities adopted by the Bristol Accord. Available at: <http://www.espon-usespon.eu/dane/web_usespon_library_files/1248/bristol_accord.pdf> accessed 12 October 2015.

policy initiatives, actions strategies and indicators; and third, restrained to aggregate changes/improvements, meaning not taking into consideration distributional aspects within neighbourhoods (geographical/ spatial scale) and social groups (e.g. across race, class, gender, traditional communities) (Pearsall and Pierce 2010, 575–577). Otherwise, urban sustainability strategies would remain descriptive and environmental justice would be only adhered to weakly. This argument relates to broader debates within environmental law and policy: assessing sustainability targets depends on what background information is available, collected and considered, and by whom. Therefore, it implies issues regarding value judgements, uncertainty, and recognition of different perceptions and priority setting.

4. URBAN-ENVIRONMENTAL JUSTICE MATRIX

Despite such theoretical developments there is still confusion about a firm conceptual basis for environmental justice which may be capable of offering normative guidance for decision-making in situated contexts. Different approaches lead to different policy and legislative solutions (Been 1992, 1084). Considering that, and drawing on the varies perspectives represented in the review above, the chapter now turns to outline a contextual, grounded, understanding of urban-environmental justice. This is not an attempt to innovate theoretically, or to offer a specific account of the content of justice principles. It is rather an effort to organise environmental justice claims and conceptual formulations in a matrix of dimensions, themes and subthemes that matter most for the urban context. This matrix emphasizes what should be considered in order to

mainstream environmental justice normative goals, and therefore orient urban-environmental decision-making towards a justice-based agenda concerned with social and environmental rights.

The proposal aligns with Schlosberg and Fainstein to adopt a multidimensional, three-fold concept of environmental justice, combining distributive justice (socially just), participation (procedurally just) and recognition dimensions (inclusive). This is framed by a combination of Rawls's idea of justice as fairness (fair distribution of benefits, mitigating disadvantage, democratic institutions), Fraser's politics of difference (articulation of claims for distribution and recognition) and Harvey's contextual perception (territorial social justice). Furthermore, it recognises the relevance of claims for rights (something highlighted by the capabilities approach and also by legal geography under Lefevbre's right to the city and by urban sustainability notion). The proposal does not explore the concept of ecological justice, although it includes a fourth element: environmental sustainability. Hence, this remains an anthropocentric (although attenuated), liberal understanding which encompasses a rights-based approach (to emphasize social and environmental rights) and sustainability concerns.

The core dimensions and key themes and subthemes of a notion of urban-environmental justice are outlined as follows in the table below. The matrix organises elements identified in the review of literature presented in the chapter. Relevant sources to be highlighted include: Habitat Agenda, Agenda 21, Sustainable Development Goals, Fainstein 2010, Pearsall and Pierce 2010, Dempsey et al 2011, Barton and Bruder 2014, Allen 2005, and Arnold 2000.

Urban-environmental justice matrix

Dimensions	Themes	Subthemes
Socially just	Fair distribution of socio-economic and environmental benefits and costs of urban development To the benefit of the least well-off Minimisation of social and health impacts on the most vulnerable Rights over natural resources and urban infrastructure (social individual and collective rights)	Basic needs and well being Effects on human health, clean air and ecological services Access to urban land, open spaces, affordable housing Provision of urban infrastructure: transport, energy, water, sanitation, leisure Effects on local development (demographic change, income, employment, land market) Major projects should provide direct benefits to local low-income population No involuntary relocation, resettlement assistance, compensation schemes Climate change adaptation
Procedurally just	Equal opportunity and meaningful participation Access to information Access to justice Due process Accountability	Consultation and public hearings (environmental and planning development plans and development consent) Representative bodies and data production Publicity of documents and studies Education and consciousness building Informed consent

Inclusive	Non-discrimination Promotion of social and cultural diversity Respect to social status and self-determination	Social status (gender, income, ethnicity, age) Local perceptions on sustainability Impacts on cultural and historical heritage and livelihoods Material and symbolic appropriation of the territory and resources Social cohesion and sense of place Land rights Socio-spatial segregation Land-use rules favouring social mixing and diversity
Environmentally sustainable	Management of natural resources Carrying capacity Enforcement of environmental health regulation	Special protected areas and water resources within the urban system Ecological services Waste management Sustainable transport and energy Management of risk areas Climate change mitigation

5. CONCLUSION

5.1 This chapter explored how abstract theories of justice have been employed to inform approaches to environmental justice. Largely, attempts to debate environmental justice theoretically have been dealt with on a liberal and distributive basis, drawing heavily on Rawls' idea of justice as fairness. But they have also incorporated critiques of distributional thinking to encompass broader concerns. Expanded understandings include placing context (the urban locus is one such context which is of particular concern here) and recognition (social respect and diversity) at the basis of distribution arrangements, as well as encompassing obligations to the international

community (international/global justice) and to future generations (intergenerational justice). Moreover, social justice has been also articulated as a critical element of the sustainability rhetoric; notwithstanding that debates about reconciling environmental justice distributional foundation with ecological justice are still unsettled.

5.2 The chapter also introduced a proposal for defining an urban-environmental justice normative framework. This was presented in the form of a matrix comprised of dimensions-themes-subthemes which emphasizes a distributive justice agenda connected closely to the urban context and with profound implications for substantive and procedural rights. The goal was to address conceptual difficulties towards building a consistent understanding of environmental justice as a policy objective and legal guidance focused on the enhancement of procedural aspects that may increase the likelihood of distributional substantive outcomes in environmental and planning decision-making processes.

5.3 Nevertheless, a further step is required. The urban-environmental justice matrix here presented shall be developed into indicators and empirically assessed against the legal form, regulatory regime, and practice of key development consent control mechanisms (i.e planning application and environmental assessment). This practical focus may be useful for framing case study analysis aiming at assessing whether and how distributional aspects are taken into considerations within planning and environmental decision-making in an urban geographical setting.[117]

[117] See for example: Been 1992; Connelly and Richardson 2005; G. P. Walker 2007; Fainstein 2010.

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14. THE SEARCH FOR ENVIRONMENTAL JUSTICE IN FOOD PRODUCTION: THE SUSTAINABILITY CHALLENGE

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Summary: The article aims to address the issue of colonialism related to food production, as well as the issue of environmental justice in its broad concept involving distribution, recognition, participation and capabilities. In this context, the issues of food justice will be discussed to finally address the legal requirements of material sustainability.

Key-words: Environmental justice, food security, sustainable production, colonialism, food justice

1 INTRODUCTION

Life's sustenance processes occur through food chains and trophic levels. The success of extant animal species is related to food sources, shelter and protection from predation. Therefore, food security is both an environmental and a human right issue. So, injustices involving the right to healthy eating, both in production and distribution, and in food itself, generate struggles that are pursued by environmental justice movements. Thus, the question of colonialism related to food production will be dealt with in this paper, as well as the issue of environmental justice in its broad concept involving distribution, recognition, participation and capabilities. In this context, the issues of food justice will be discussed to finally address the legal requirement of material sustainability.

2 FROM RURAL AGRICULTURE TO UNSUSTAINABLE DEVELOPMENT

The word agriculture refers to the field culture, from the Latin *colere* meaning cultivate (PORTO-GONÇALVES, 2015: 208). This action of field cultivation occurred independently worldwide and, through different 'cultures', the human being achieved food security, which is one of the factors responsible for the human flourishing[118] all over the globe. Therefore, each human culture created its own knowledge according to its own environment to be able to guarantee food security.

Thus, "One of humanity´s biggest inheritance is the diversity of produce cultivated in different niches [...], as

[118] According to David Schlosberg (2007): "Amartya Sen and Martha Nussbaum have developed a theory of justice that focus on the capacities necessary for individuals to fully function in their chosen lives. The focus is [...] on how those goods are transformed into the flourishing of individuals and communities". In this sense, the word flourishing was used in the text.

much as the answers to keep, through culture (technical, mythic and religious knowledge), the balance of the selected and cultivated species" (PORTO-GONÇALVES, 2015: 211). In this manner, the development and decadence of civilizations are related to food security through cultural produce techniques.

Cultural diversity was dismissed and threatened by European colonial domination. Colonization – as dominant culture – tried to destroy local native knowledge (DUSSEL, 1993). As noted by Vandana Shiva (2003: 23), the first violence against local knowledge is to dismiss it as proper knowledge. Therefore, exploratory and mercantilist colonization, like what happened in Brazil, brings inequality in the distribution of income and means of production which leads to hunger and malnutrition in the most vulnerable population (CASTRO, 2010). Additionally, it is possible to note an environmental deficit where there was the detriment in the ecosystems and the benefit for the colonial domination.

The term food security was used in Europe during World War I and was related to national security and the productive capacity of each country. After World War II, widespread hunger led to the creation of the United Nations (UN) specialized agency with the intention of eradicating hunger and improving nutrition in the world - the Food and Agriculture Organization of the United Nations (FAO).

Balakrishnan Rajagopal (2005: 50-54) explained that, after the Second World War, the relationship between colonizer and colonized was substituted by a relationship between developed and underdeveloped. In this manner, the discourse of "development" made new nations mirror the image of their nations based on the image of developed countries, the goal was to achieve prosperity and peace via

an increase in production, by amplifying the scientific and technical knowledge.

It was during this post-war period that the Green revolution started: where new seeds and procedures (industrial input and mechanization) aimed to increase agricultural production. At that time, food security was perceived as matter of insufficient production of food for the poorer countries (BURITY et.al., 2010: 11). In this manner:

India was the place of the first trials, they got a large increase in the food production without any real positive impact over the country's starvation. Terrible negative environmental, financial and social consequences from such practices were later identified, as such: biodiversity reduction, lower pest resistance, rural exodus, soil and food contamination with pesticides. (BURITY et.al., 2010: 11)

Like it happened in the past[119], colonization and transferring 'development' to the south territories still plays a role in agriculture today. Carlos Walter Porto-Gonçalves explains such 'knowledge' transfer and the dismissal of traditional culture:

> [...] all of forestry and agronomy sciences, based on European scientific knowledge, which is about efficiency for high yields of biomass on temperate regions that have less solar power than tropical regions, has been applied to tropical regions, it is a nonsense explained by the importance given to a certain knowledge, scientific-technical knowledge, lawfully property acquisition (patents e similar), which support hegemonic countries and large corporations that, today, monopolize such scientific knowledge. (PORTO-GONÇALVES, 2015: 217)

[119] See the Portuguese colonization during sugar cane plantations in Brazil's northeast and how the land dried up.

In this manner, the knowledge from large multinational companies' laboratories is protected by intellectual individual property (patent) which goes against the patrimonial, collective and communal knowledge, so typical of rural, native, African based, among others. Traditional knowledge – hand seed selection from the best natural harvest – was absorbed by companies which acquired the genetic material without paying for it, differently from the improved seeds that get exported (PORTO-GONÇALVES, 2015: 219-220).

This new "improved" knowledge substitutes local farming procedures standardizing agriculture, destroying genetic diversity and increasing harvest vulnerability. (PORTO-GONÇALVES, 2015: 221). According to this seed monopoly model, production does not relate to propagation and, in this manner, food security is dependent on corporations which will enslave society through their power and food uncertainty will be the norm (PORTO-GONÇALVES, 2015: 221-222).

As Vandana Shiva explains (2003: 89), there is a technological and financial tendency to exchange biological diversity for uniformity in agriculture, fishing, forestry and in animal breeding, this is how large-scale biodiversity destruction occurs. In this manner, monocultures repudiate the legacy of local farming in search for food security. Monoculture, by definition, is not geared towards feeding people but towards selling its produce. (PORTO-GONÇALVES, 2015: 213).

Meanwhile, "[...] small farmers are pushed to extinction, as monocultures replace biodiverse crops, as farming is transformed from production of nourishing and diverse food into the creation of markets for genetically engineered seeds, herbicides [...]" (SHIVA, 2000: 7). The

areas of the globe specialized in exporting their crops, especially Asia, Africa, Latin America and the Caribbean, are usually dealing with food insecurity, because the best lands are used for exports and land ownership is in the hands of a few (PORTO-GONÇALVES, 2015: 214).

Food insecurity was tackled in the seventies, after a worldwide food production crisis, by strategic food storing and offering policies, along with an increase in food production. But, an increase in food production did not guarantee better food accessibility, since food surplus was put on the market as industrialized goods, without eliminating starvation (BURITY et.al., 2010: 11-12).

In the eighties, however, environmental justice movements started to get organized. At the same time, it was recognized that there was a lack of financial and physical access to food, due to poverty and lack of proper resources to access food, especially related to access to wages and land as main causes for food insecurity.

However, it is perceived that the injustices involving agricultural cultivation are old and, in Brazil, can be identified in the process of colonization that, besides ignoring the traditional knowledge, encouraged the concentration of land in monoculture production, causing the depletion of the soil and contributing to the hunger situation. Today there is a new form of colonization in developing countries, especially in Latin America, about the productive potential (such as the production of agricultural commodities) and consumption (of agrochemicals and processed foods) evidenced by environmental injustices which will be dealt with below.

3 FOOD SECURITY AS AN ENVIRONMENTAL JUSTICE ISSUE

Environmental justice, which is related to "justice on environmental issues among the human population" (SCHLOSBERG, 2007), is commonly associated with distributional patterns: "[…] the fact that poor communities, indigenous communities, and communities of color get fewer environmental goods, more environmental bads, and less environmental protection" (SCHLOSBERG, 2007). However, David Schlosberg (2004, 2007, 2013), while analyzing the meaning of justice of "environmental justice", noted that "defining environmental justice as equity is incomplete" (SCHLOSBERG, 2004: 517) because the social movement demands were beyond distributional issues. He noticed that there were other dimensions to the problem, such as recognition, participation, capabilities and the way people function. In this manner, he states that: "[...] the issue is that justice theory has developed a number of additional ways of understanding the processes of justice and injustice" (SCHLOSBERG, 2007).

For this reason, this paper proposes to connect food justice and food security issues to the broad conception of environmental justice developed by David Schlosberg bringing examples of environmental injustice related to topics in food production and security to try to build a sustainable way.

3.1 Unequal distribution and unsustainable production

In the realm of distribution, environmental justice movements connect food security to social and environmental problems, moreover they also criticize how the food system and food processes deprive people from

their means of survival, while northern corporations enrich. (SCHLOSBERG, 2007). So “[...] farmers are transformed from producers into consumers of corporate-patented agricultural products” (SHIVA, 2000: 7), while “the global economy becomes a means for the rich to rob the poor of their right to food and even their right to life” (SHIVA, 2000: 7).

The environmental justice movements proclaim that the use of pesticides in the basis of agriculture models creates serious problems to the most vulnerable populations who suffer the environmental damage. Such inequality in environmental damage distribution, in rural areas, is clearly an example of double standards[120]: forbidden dangerous products in some northern hemisphere countries are relocated to southern hemisphere ones.

> [...] the Food and Agriculture Organization of the United Nations estimates, there are more than 100,000 tons of obsolete pesticides in developing countries, generally left-over pesticides that can no longer be used because they have deteriorated through prolonged storage, or have been banned while still in store (WODAGENEH, 1997).

This attitude, besides verifying double standards, also damages the prevention principle[121]. Moreover, food

[120] The double standard means that products or risks considered unsafe in the industrialized world may be promoted and sold in the developing nations. So, the same risk can have two different preventative measures in different countries, even for the same company.

[121] The preventive principle aims to minimize environmental damage. According to Philippe Sands: “The preventive principle requires action to be taken at an early stage and, if possible, before damage has actually occurred. The principle is reflected in state practice regarding a broad range of environmental objectives. Broadly stated, it prohibits activity which causes or may cause damage to the environment in violation of the standards established under the rules of international law. [...] The preventive principle is supported by an extensive body of domestic environmental protection legislation which establishes authorization procedures, as well as the adoption of international and national commitments on environmental standards, access to environmental information, and the need to carry out environmental impact assessments

production based on the use of pesticides usually also employs the use of genetically modified seeds. A feeding development strategy based on genetically modified items does not help resolve the social inequality related to land access, water, energy, credit, markets and other social goods that allow communities to build their own food security. On the contrary, a feeding strategy based on technology is more effective in directing resources away from areas of social inequality (SCHLOSBERG, 2007).

In other words, in pursuit of the proclaimed "increase of productivity in the field", what happens is the gradual poisoning of living beings and dependence on oligopolies - monopolies exercised by the chemical industries. This scenario of poisoning and dependence can be observed in Brazil - the largest consumer of pesticides in the world. In effect, the model of agricultural production adopted in the country prioritizes the rural "latifundium" that produces grains for export, not food, but commodities. The environmental injustice in the realm of distribution can be observed by the concentration of arable land and by the fact that agricultural population is more exposed to pesticides, besides the fact that low-income populations - in the city - do not have the financial conditions to buy organic products.

However, one can observe the reaction and resistance of the social movements linked to the distribution of land. There are rural cooperatives, small farmers - those who really feed the country - dedicated to producing food that is free of chemical components, bringing health to the people's table and preserving both soil and water.

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in relation to the conduct of certain proposed activities". (SANDS, 2003:247)

3.2 Lack of recognition in cultural food inheritance

To address the idea of justice as recognition, David Schlosberg (2004, 2007, 2013) brings the work of authors such as Iris Young, Nancy Fraser and Axel Honneth, which examines real world[122] injustice, then it is possible to state that

> [...] the lack of recognition in the social and political realms, demonstrated by various forms of insults, degradation, and devaluation at both the individual and cultural level, inflicts damage to oppressed individuals and communities in the political and cultural realms (SCHLOSBERG, 2007).

Regarding feeding, global systems rationale sees traditional and cultural methods for food production and distribution as inefficient, but technological improvement is seen as one of the solutions by the northern hemisphere towards the southern hemisphere inequalities, which has been accepted as mentioned above. In this manner, monocultures continue to be a sad example regarding the loss of cultural diversity. In this way, "The call for justice, in this instance, is a call for recognition and preservation of diverse cultures, identities, economies, and ways of knowing" (SCHLOSBERG, 2007). The same as for the harvest, the uniformization process weakens local culture and its own community.

Shiva warns (2000: 8): "The seed, for the farmer, is not merely the source of future plants and food; it is the storage place of culture and history. Seed is the first link

[122] The "[...] critiques of distributional theory are thoroughly influenced by the real world of political injustice, rather than the imagined realm of an original position" (SCHLOSBERG, 2007). The original position is a key concept in the theories of John Rawls which "focused on a conception of justice defined solely as the distribution of goods in a society and the best principles by which to distribute those goods" (SCHLOSBERG, 2007).

in the food chain. Seed is the ultimate symbol of food security". Moreover, the author here explains that some food items have a value beyond its feeding properties; they are also utilized in religious ceremonies and are part of people's cultural identity. So, feeding diversity goes hand in hand with cultural diversity, many cultures are defined by their local diet: "Festivals held before sowing seeds as well as harvest festivals, celebrated in the fields, symbolize people's intimacy with nature. For the farmer, the field is the mother, worshipping the field is a sign of gratitude toward the Earth [...]" (SHIVA, 2000: 8).

Globalized food distribution, does not recognize traditional practices, devastates food supply, and destroys local practices and its cultural identity. Furthermore,

> [...] new intellectual-property-rights regimes, which are being universalized through the Trade Related Intellectual Property Rights Agreement of the World Trade Organization (WTO), allow corporations to usurp the knowledge of the seed and monopolize it by claiming it as their private property (SHIVA, 2000: 8-9).

Such panorama shows that local agriculture gets substituted by a corporative process with high quality engineering. The basis of such injustice is the lack of recognition of the value and validity of traditional food supply systems to people. (SCHLOSBERG, 2007).

Recently, in Brazil, this lack of recognition can be noted in Article 9º of the Law nº 13.123/2015[123]. This legal instrument ignores a large part of Traditional Knowledge

[123] The Law nº 13.123/2015 regulates the section II of § 1 and § 4 of article 225 of the Federal Constitution; Article 1, point j of Article 8, point c of Article 10, Article 15 and §§ 3 and 4 of Article 16 of the Convention on Biological Diversity (CBD), and provides for access to genetic heritage, on the protection and access to associated traditional knowledge and the benefit sharing for conservation and sustainable use of biodiversity.

Associated[124] with Genetic Heritage because the §2º of article 9º states that if the knowledge is not identifiable[125] there is no need to informed consent. The issue here is that §3º of the same article defines that, in agricultural activities, all traditional knowledge is non identifiable.

Legislation chose to ignore a large part of Genetic Heritage associated with agricultural activities classifying them as "non-identifiable origin" which is, in fact, the result of selection and adaptation of indigenous people, people and traditional communities through time, and should have been recognized as Traditional Knowledge Associated with Genetic Heritage (MONTEIRO, 2017). Such Traditional Knowledge is protected by international legal apparatus: Convention 169 of OIT, Nagoya protocol and Convention on Biological Diversity (CBD)[126] – which claim that it is a duty to consult communities when they have access to their traditional knowledge, even when it is used for agricultural activities. The law here analyzed reduces the benefit-sharing regime (MONTEIRO, 2017:147) when it does not fully recognize the associated traditional knowledge. The above legislation opens the possibility

[124] In legal terms, associated traditional knowledge is the "information or practice of the indigenous population, traditional community or traditional countryman on the properties or direct/indirect uses associated with genetic heritage".

[125] Article 2º, III, of the Law nº 13.123/2015 brought the concept of "Associated Traditional Knowledge of unidentifiable origin", which is described as: "Associated Traditional Knowledge where the origin is not identifiable to, at least, one indigenous population, traditional community or traditional countryman".

[126] In this manner, the article 8º (j) of CBD declares that the state must legislate over In-situ Conservation in a way to - Subject to its national legislation, respect, preserve and maintain knowledge, innovations and practices of indigenous and local communities embodying traditional lifestyles relevant for the conservation and sustainable use of biological diversity and promote their wider application with the approval and involvement of the holders of such knowledge, innovations and practices and encourage the equitable sharing of the benefits arising from the utilization of such knowledge, innovations and practices; it demands that national legislation respects and preserves associated traditional knowledge, beside encouraging the equal benefit partition from utilizing such knowledge.

for large agricultural enterprises to use the associated traditional knowledge without benefit sharing as CBD ensures (MONTEIRO, 2017:147).

According to David Schlosberg, "Part of the problem of injustice, and part of the reason for unjust distribution, is lack of recognition of group difference" (SCHLOSBERG, 2004: 518-519). Also, there is a "[…] direct link between a lack of respect and recognition and a decline in a person's membership and participation in the greater community, including the political and institutional order" (SCHLOSBERG, 2004: 519). The case of Brazilian Law nº 13.123/15 clearly demonstrates that the lack of recognition of the totality of the Traditional Knowledge Associated – through the creation of the "non-identifiable" figure of knowledge – will lead to a lack of community participation, since prior informed consent will not be necessary in that case.

3.3 Participation as part of sustainable production

Democratic participation is very important to ensure food security and sustainable production; on this, "[…] participatory decision-making institutions is at the centre of environmental justice demands" (SCHLOSBERG, 2004: 522). Thus, there is criticism about the lack of democratic participation in the transition process from local food production to a global one, since communities are not usually part of this process. The concern is that, with multinationals getting involved with food production, they will become the only decision makers.

In the specific case of agrochemicals, the problem is not only about the unequal distribution of their risk, but also to the fact that agribusiness and corporations have a major influence in the decision processes which makes

it difficult to recognize the harmfulness as well as the possibility of making such information public. In Brazil, the current policy, influenced by agribusiness, aims to facilitate approval, registration, commerce, storage and transportation of those substances, which would certainly increase the presence of herbicides and pesticides in Brazilian agriculture, along with the ecological damages inherent to their use.

David Schlosberg (2007) warns that poor and rural communities have been put aside regarding decision making when the new genetically modified technology was introduced. In Brazil, there was no public consultation regarding the use of genetically modified organisms (GMO); on the contrary, the first seeds were illegally introduced in the Brazilian fields, the Brazilian government just agreed to it by sanctioning a law (Law nº. 10.688/2003), which legalized the use of GMOs. As Leite and Caetano explain (2012: 178), the Law 11.105/05, responsible for the analysis and release of transgenics, suppressed democracy when it decided that the CTNBio[127] decides about the release of GMOs without the participation of the citizens or the disclosure of information. Environmental injustice in respects to democratic participation is exponentially growing in Brazil, and in regards to GMO, there is legislation attempting to remove the transgenic label requirement from products which include GMOs. Such legislation goes against consumer's rights for food labelling information. The right to information is one of the fundamental principles of the Rio Declaration on Environment and Development (UN)

[127] National Technical Biosafety Commission (CTNBio) is a multidisciplinary collegiate body, part of the Ministry of Science and Technology with the purpose of providing technical advisory and advisory support to the Federal Government in the formulation, updating and implementation of the National Biosafety Policy.

and it validates an open democratic process. As Vandana Shiva argues, the food democracy must be part of the ecological sustainability and social justice agenda (Shiva, 2000:17).

Regarding democratic participation in the decision making on food security and sustainable production, there is one example from Ecuador. One of Ecuadorians main civil problems – as informed by Richard Intriago Barreno and Elizabeth Bravo Velásquez (2015) – was the danger of transgenic contamination in the native and wild varieties being cultivated, and the possible danger of this technology to human health, since there's not much information about it yet. In this manner, Ecuadorian society, mainly the countryman movements, agricultural movements and consumers got organized to ensure that their Constitution could be used to prevent the national land being contaminated by transgenic organisms. Therefore, the Ecuadorian Constitution forbids such contamination in articles 15, 73 and 401[128] and only the president can allow

[128] Article 15. "The State shall promote, in the public and private sectors, the use of environmentally clean technologies and nonpolluting and low-impact alternative sources of energy. Energy sovereignty shall not be achieved to the detriment of food sovereignty nor shall it affect the right to water. The development, production, ownership, marketing, import, transport, storage and use of chemical, biological and nuclear weapons, highly toxic persistent organic pollutants, internationally prohibited agrochemicals, and experimental biological technologies and agents and genetically modified organisms that are harmful to human health or that jeopardize food sovereignty or ecosystems, as well as the introduction of nuclear residues and toxic waste into the country's territory, are forbidden".

Article 73. "The State shall apply preventive and restrictive measures on activities that might lead to the extinction of species, the destruction of ecosystems and the permanent alteration of natural cycles.

The introduction of organisms and organic and inorganic material that might definitively alter the nation's genetic assets is forbidden".

Article 401. "Ecuador is declared free of transgenic crops and seeds. Exceptionally, only in the interest of the nation as duly substantiated by the President of the Republic and adopted by the National Assembly, can genetically modified seeds and crops be introduced into country. The State shall regulate, using stringent standards of biosecurity, the use and development of modern biotechnology and its products, as

such changes if there is national demand for it[129]. After Constitution was promulgated in 2008 - which is a reference due to its environmental and ecological lines, because of its ethical stance that moved away from anthropocentrism to favor biocentrism, by admitting the rights of nature (*Pachamama*) and the rights to the development of a good quality of life "*buen vivir*" (*Sumak Kawsay*) – the Ecuadorian legislative body committed itself to the Law of the Food Sovereignty Regime, which reaffirms the position of a transgenic-free nation (BARRENO; VELÁSQUEZ, 2015: 265-266 and UNCETA; ACOSTA; MARTINEZ, 2014).

Barreno and Velásquez (2015: 268) explain that, the constitutional declaration that Ecuador is a GMO-free country has been well received by society, consumers, social movements, peasants and agro-ecological movements; because the declaration was the result of a decade of work in defense of food sovereignty, agro-biodiversity and agro-ecology as a production model. However, the same authors warn that, unlike society's expectations, the government has shown an interest in including the development of agricultural technology and introducing GMOs in agriculture. This would mean a change to the country's Constitution. Such changes disregard article 423.3 of the Ecuadorian Constitution which recognizes the principles of progressive and non-regressivity of environmental rights, including the prohibition of the development, production, import, export, storage and use of genetically modified organisms potentially damaging to health, food

well as their experimentation, use and marketing. The application of risky or experimental biotechnologies is forbidden".

[129] According to a correspondence from the US embassy in Ecuador and filtered by Wikileaks, the presidential exception contemplated in the Constitution was the result of the agribusiness lobby. (BARRENO; VELÀSQUEZ, 2015).

sovereignty and ecosystems (BARRENO; VELÁSQUEZ, 2015, p. 271).

The Ecuadorian example supports Rajagopal's thesis (2005) about the importance of social movements as instruments of resistance against the violence of so-called "development", because it is Ecuadorian civil society efforts that are keeping the country free of GMOs. Furthermore, it demonstrates that democratic participation in food production decision-making is capable of building ecologically sustainable production.

3.4 The Capabilities approach and the environmental justice

David Schlosberg (2007, 2013) also addresses the theory of justice developed by Amartya Sen and Martha Nussbaum "[…] that focuses on the capacities necessary for individuals to fully function in their chosen lives" (SCHLOSBERG, 2007). In explaining the approach, David Schlosberg (2007) states that it

> […] gives ethical significance to this functioning and flourishing, and finds harm – injustice in fact – in the limiting of them. Capabilities theory examines what is needed to transform primary goods (if they are available) into a fully functioning life – and what it is that interrupts that process (SCHLOSBERG, 2007).

Martha Nussbaum (2006) includes health and nutrition, which is a key need for a functional life, in her list of capabilities. Amartya Sen, on the other hand, did not draw up a list of capabilities, but states that poverty impedes achievement of basic capabilities (SEN, 2010: 120). For Sen (2010: 211), nutrition is a matter of substantive freedom for the individual and their family to acquire food. The socio-environmental movements involved in food

security campaigns usually bring health and nutrition as a right, demanding not only access to food, but a right to food (SCHLOSBERG, 2007).

In Brazil, the right to food received constitutional protection in 2010, with amendment no. 64 to the Federal Constitution of 1988. This right is in the list of social rights, which demand positive action from the State. To bring effectiveness for the constitutional norm, the Law nº 11.346/2006 was introduced, creating the National System of Food and Nutrition Security (SISAN). That Law brought the concept of food security and prescriptions about the performance of public power in that theme, in its article 4º[130]. It is possible to verify that the legislative forecast meets the demands of environmental justice regarding food and sustainable food production. However, as demonstrated earlier, public policies, including other laws, are not in full harmony with this law.

All the above questions lead to the question of how to build a material sustainable relationship with the environment.

[130] Article 4 Food and nutritional security covers: I - the expansion of conditions for access to food through production, especially traditional and family farming, processing, industrialization and marketing, including international agreements, food supply and distribution, including water, as well as the generation of employment and the redistribution of income; II - the conservation of biodiversity and the sustainable use of resources; III - promoting the health, nutrition and nutrition of the population, including specific population groups and populations in situations of social vulnerability; IV - assuring the biological, sanitary, nutritional and technological quality of foods and their use, stimulating food practices and healthy lifestyles that respect the ethnic, racial and cultural diversity of the population; V - the production of knowledge and access to information; and VI - the implementation of public policies and sustainable and participatory strategies for the production, commercialization and consumption of food, respecting the multiple cultural characteristics of the country.

4 ENVIRONMENTAL JUSTICE AND MATERIAL SUSTAINABILITY

The treatment of food as a commodity of economic value, accompanied by technological development, accentuated the inequality in agriculture and demonstrated the human capacity of manipulation and even the destruction of nature itself. In this context, there are struggles of equal distribution, recognition, participation and possibility of human flourishing.

> The idea of the food justice movement is to transform our relationship with food, its production, transportation, and consumption. It is not simply about supplying a basic need; it is, in addition, awareness that such basic needs that supply the functioning of a community should themselves be sourced without creating injustices (SCHLOSBERG, 2013: 49).

But, in the globalized market, economic development reaches the level of a social ideal to be pursued and becomes the parameter of political-judicial decisions, even in the food production. An important issue is how to connect development – which implies environmental impact, remembering that growth is not the same as development – with the notion of sustainability. However, the known idea about sustainable development seems to come from a concept developed on the Report of the World Commission on Environment and Development: Our Common Future ("Brundtland Report"), in which "Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (World Commission on Environment and Development, 1987: 41). This concept has three linear dimensions – environmental, social and economic – which allowed for governments to

minimize sustainability (BOSSELMANN, 2015: 17) to an economic policy. Therefore, the Brundtland Report cut down the idea of sustainable development to a weaker sustainability. To Klaus Bosselmann (2015), "sustainability" is a wider concept in which the need to protect ecological wholeness is intrinsic and not only created to support human needs. Leite and Caetano (2012: 153) explain that, material sustainability is made of two legal framework principles: precaution and intergenerational fairness; they enable a material content to the concept. The notion of strong sustainability developed by Gerd Winter, in which the environment appears as a foundation, allows us to move away from formulas dominated by the economic aspect or the balancing of values that are not susceptible to equalization (LEITE; CAETANO, 2012). In the words of Leite and Caetano:

> Although a little idealistic, the parameter of strong sustainability added to the precautionary principle seems to provide important subsidies to achieve a real intergenerational solidarity (intergenerational equity), and thus form the hard core of sustainability (LEITE; CAETANO, 2012: 180).

Still, the concepts of prohibition of ecological regression and existential minimum could help draw the limits of this Material Sustainability.

As David Schlosberg (2013: 48) notes, environmental justice movements related to food security "[…] are not satisfied with purely individualistic or consumerist responses to environmental concerns […]", because they want the construction of "[…] new practices and institutions for sustainability - practices and institutions that embody […] a broader sense of sustainability […]" (SCHLOSBERG, 2013: 48), calling for "[…] a more reconstructive

environmental justice, based on a conception of sustainable materialism" (SCHLOSBERG, 2013: 48).

5 ARTICLE CONCLUSIONS

5.1 Colonialism has had an influence on injustices involving the issue of food production and there is a new form of colonialism in which economic power determines the productive potential, such as the production of agricultural commodities, and consumption of agrochemicals and processed foods.

5.2 Environmental justice should not be understood only as a matter of maldistribution, but instead in its broad concept in which issues of recognition, participation and capabilities are also discussed.

5.3 The environmental injustice related to the issues of food production can be seen both in its aspects of maldistribution, lack of recognition, and lack of participation in decision-making, which prevents the capacities to function fully and flourish.

5.4 Environmental justice, within the theme of food justice, requires a legal approach that emphasizes sustainability in its material aspect. Thus, an approach in which the principles of precaution and generational equity could lend material content to sustainability.

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15. THINKING OF ECOLOGICAL JUSTICE FROM A TRANSDISCIPLINARY PERSPECTIVE OF COOPERATION

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1. INTRODUCTION

Understanding and promoting changes in the spheres of culture and knowledge to address the ecological issues facing humanity at the beginning of this century, requires a complex approach through interdisciplinarity. It demands to search for a fresh look that can help the construction of alternatives to overcome the increasingly evident challenges related to the limits of the planet and to the harmful practices created in the Anthropocene.

It is a matter of recognizing the shortcomings of modern science and of asking the same question in other aspects, including the influences of the subject on the object

under study and facing possible paradoxes, as suggested by the new epistemological lines related to theories of self-organization, systemic thinking and complexity.

The issues related to the man/nature relationship are at the heart of contemporary problems, given the emergence of mitigating the risks that threaten human lives and other species, in the face of the ongoing climate change. It is necessary to think about the Law and its philosophical bases as the concept of Justice under an ecological bias and it is with this intention that this study aims to contribute.

In this sense, the present discussion should begin by situating the complexity of knowledge, bringing the theme "cooperation", the psychosocial characteristic of human beings, to a transdisciplinary approach. Subsequently, it is intended to identify the uses and results of cooperation within Environmental Law, its character and scope. In a third moment, as an outcome, the concept of Ecological Justice, which is being elaborated, will be approached, allowing to envisage cooperation as a proper element of the formation of the new concept, reflecting on its extension and the consequent ethical and legal repercussions.

2. WHAT IS "COOPERATION" - A TRANSDISCIPLINARY APPROACH

Humanity is facing a deadlock regarding the future. It becomes increasingly evident that men as an individual cannot use all freedom in an inconsequential way, since this individualistic attitude has a negative impact on the viability of the common project of mankind's survival as a collective. It is necessary that every human being who inhabit the Earth contribute minimally, so that the future result is not disastrous as it is glimpsed, especially as far as the environment is concerned.

This concern goes back to the Stockholm Conference, which manifested the intention of taking care of and safeguarding the ecological balance for future generations and was welcomed by many countries in their internal legislation. Nevertheless, by refusing to accept that human beings are also part of nature, modern civilization only accentuates individualistic practices that imply exacerbated consumption and exploitation of nature, to its exhaustion. As a result, climatic changes with serious repercussions are already being felt, and, according to United Nations research bodies, will directly affect the ability to produce food and drinking water, thus threatening the survival of thousands of people, as well as other impacts on biodiversity.

The cooperation of all humans in the process of safeguarding the conditions of life on the planet is an indispensable condition. However, although this is the expected and desirable attitude, the perception of the individualistic and anthropocentric world has made the altruistic or cooperative tendencies relegated to the background. What is the social behavior of cooperation and its contours, and how it can contribute to the confrontation of the problems that afflict humanity, we must ask ourselves.

From the perspective of the natural sciences, Maturana and Varela (1995), in neurobiology, propose to explain the social phenomena between living beings, and do so starting from the notion of “third-order couplings”, that is, those derived from interactions between organisms. In living beings that have a nervous system, explains the authors, a varied possibility of couplings and, consequently, different forms of social organization are possible. A typical example of such couplings would be the existence of various modes of sexual behavior and care of offspring between birds: the female jaçanã, a bird found in South America, prepares

several nests for different partners and each of them will take care of one egg; on the other hand, among penguins, the adults stay together, protecting the newborn penguins of a couple.

Behavioral coupling is also present in other situations, in addition to those related to reproduction. This is the case of social insects, such as ants, termites, wasps and bees. (MATURANA; VARELA, 1995). According to the authors, a coupling phenomenon called "trophallaxis" occurs between insects, an exchange of secretions that distributes certain hormones among all members of the colony so that the role that each one occupies in the group becomes identifiable as it happens with the queen among the bees. Thus, "a rainha torna-se o que é pelo modo como é alimentada, e não hereditariamente"[131]. (MATURANA; VARELA, 1995, p.221).

Among vertebrates, due to their nervous system being more developed than that of the insects, interesting interactions occur from a social point of view. Antelopes, for example, flock and adopt a form of protection: whenever a threat approaches the herd escapes to a raised top, and while the group advances through the valley one of the herd males is left behind in the previous top, to watch over the intruder. It is a way for the group to organize itself so that it coordinates its actions in favor of the collective. Another example is that of the pack of wolves, when together they can hunt an elk, which would be impracticable for an isolated individual. The interactions that allow this collective action are visual, auditory and olfactory. (MATURANA; VARELA, 1995).

[131] "The queen becomes what it is by the way it is fed, and not by heredity" (free translation).

To this behavior of coordinated attitudes among individuals of the same species towards a certain purpose, Maturana and Varela (1995) call communication. They argue that coordinated actions in social animals take place in such a way to promote a balance between individuals and group subsistence. Thus, ethologists would recognize as altruistic the actions that somehow beneficially reverberate to that collective.

According to their research, the authors consider it doubly false that the animal is selfish: in the light of nature's own history and because "the natural drift", in other words, the nature of its development, wouldn't be compatible with the egoistic view that the one's wellbeing requires the harm of another, on the contrary, concludes that natural drift depends on conservation and adaptation, not on competition. (MATURANA; VARELA, 1995). What happens, the authors explain, is that the altruistic attitude does not contradict the individual's interests, because by doing so, it guarantees his belonging to the group, and its individual achievement depends on it. Goldsmith (1995, p. 273), resuming the beginnings of ecological studies, reinforces this understanding, that the cooperation is the essential form of the Gaia's relations.

The achievement could be understood within an evolutionary perspective, that values the transmission of genes to future generations, says Lencastre (2010). The author adds to the discussion Boyd's interesting theory, that in humans, the cooperation would exceed the close group and could reach a much larger dimension due to the concomitant evolution of altruistic genes and the development of a culture of cooperation, which acts by punishing selfish attitudes. Thus, the stimulus to cooperation and altruism, and punishment to selfishness,

would make the former be strengthened as a genetic trait to be maintained. (LENCASTRE, 2010).

Wyman and Tomasello emphasize the connection between cooperation and the development of language, since the symbolic is due to the constant sharing of mental states and attention in stable altruistic groups. (LENCASTRE, 2010). This is also the understanding of Maturana and Varela, according to which verbal language derives from neuronal development followed by a social dynamic. Human self-consciousness and human life are made feasible in this recursive practice of intermittent behavioral and linguistic coordinated actions. And from language, men produce a world with other human beings. (MATURANA; VARELA, 1995).

The possibilities of combinations, configuration modes of these behaviors that are established in the communicative dynamics in a certain social group and that are maintained and conserved during the subsequent generations, Maturana and Varela denominate of "cultural" conducts. These are the forms that have settled down and make the group identifiable. Imitation is an important part of this process, as is a continuous selection of behaviors within the group. Culture is understood by the authors as a form of communicative behavior, which does not differ from the very mechanism that makes it viable. Language, the authors explain, is also a form of ontogenic structural coupling, which in humans promotes a radical drift that, by allowing one to describe oneself and events, unfolds in reflection and consciousness. (MATURANA; VARELA, 1995).

What is perceived from the biopsychological perspective of the authors mentioned is that, in the natural world the individual is always understood as an integral

part of a species and that coordinates his actions so that this species is preserved through its interactions with each other and with the environment. The fulfillment of the individual only happens in the group.

From the self-organization theory point of view, the understanding that experience integrates the being by promoting knowledge recognizes in the practices of a collective or social group elements of cohesion that overlap the individual. Cooperation belongs to this type of attitude. It implies accepting that humanity as a species understands its members as an organized collective that depends on this mutual protection, care, and love exchanges to stay alive.

Cooperation, therefore, is understood as an inherent behavior of social animals and therefore also of human society, which in this way is strengthened and potentialized as humans differentiates themselves from other species in the construction of his own world through language.

When researching on the psychological development and the moral of babies, Bloom (2014), concludes that, from an early age, humans demonstrate empathy and compassion, and even notions of fair behavior and equity. Despite of the fact that human beings effectively develop morality thanks to the capacity for reasoning, imagination and compassion that improves themselves during collective and individual human history, Bloom (2014), alerts that living in the world of man-made culture requires more than the morality of a baby human being, and therefore we must reject interpretations that moral decisions would be the product of unconscious feelings and prejudices. On the contrary, reflection and awareness would be the vectors to make life easier in the world of culture.

It is certain that the human being cannot be understood in isolation. Edgar Morin's thoughts are added to that of

Maturana and Varela and other authors mentioned, in this sense. According to Morin (2007), humanity as such emerges from a juxtaposed combination of trinities, to which it belongs and by which it is affected: individual/society/species; brain/culture/spirit; reason/affectivity/drive. As a physical and metaphysical being, man is the result of a continuous process of self-eco-re-organization, which integrates and contains at the same time the whole cosmos, life and humanity. (MORIN, 2007).

The recursive movement between the elements of each trinity and of these between them portrays a dialogical relation, that is, at the same time antagonistic and complementary. Thus, it is possible to affirm, with Morin (2007), that individual, society and species compose a triad in which the terms are means and ends between each other. They are not limited to biological or cultural commands, there is conflict and contradiction, interests and desires beyond each of these influences to challenge all determinism.

The social and political conformation between humans is intimately linked to the affections that develop and stimulate in it. To Safatle (2015), affections allow a social adhesion and society's transformation, while acts and promotes certain forms of existence. The affective relation permeates the social. (SAFATLE, 2015). It is then up for human society itself to choose the affections that it wants to reinforce in the behaviors and, thus, to reflexively reach a new stability, more proficient to the survival of the human species.

Social pacts raised as norms of moral and legal conduct seek, or should seek to achieve, this role of discouraging selfish behavior and reinforcing altruistic and cooperative attitudes. It is about setting behavioral rules at different

levels, so that the affections that bind us to society allow us to preserve humanity in the light of the traps that it has engendered. This is the case of the Environmental Law norms, whose cooperative nature is under discussion.

3. COOPERATION IN ENVIRONMENTAL LAW

With the awakening to the ecological issue as a cross-border, intra and intergenerational problem, in the second half of the twentieth century, a space for environmental policy was established at the international level, whose agenda is to lay down guidelines for joint management of the subject. It is therefore based on the recognition that measures are of a practical or legal nature, of protection and care for the planetary ecosystem and its impact on human life, depend on the support, participation and cooperation of the various national States and political actors of the various spheres, both public and private.

In international law, environmental cooperation involves the need for countries to recognize a certain level of interdependence and to seek to act together by collaborating with one another on specific objectives, as Le Prestre (2000) explains. Such cooperation, among other specific forecasts, highlights Mirra (apud LEITE, 2003), implies the duties: to report on risk situations that may reach other States; to inform and consult in advance about projects that may affect the neighborhood countries; to aid and provide mutual assistance in disasters and significant ecological degradation; and to prevent pollutants from their practices from affecting or being transferred to other countries.

The historic Stockholm Conference of 1972 expresses that understanding well, especially in Principles 7 and 24 (ONU, 1992). In subsequent moments that marked the

international Environmental Law, cooperation has been a constant, always a reiterated and praised element, as a recognition of the co-responsibility for the destiny of the common space of life shared by humanity.

From the United Nations Conference on Environment and Development, known as Rio/92, a number of joint commitments have been made, based on the cooperation, in accordance with Principles 7, 9, 12 and 27. They concern conservation, protection and restoration of health and the integrity of the terrestrial ecosystem; strengthening the qualification for sustainable development by enhancing scientific understanding through the exchange of scientific knowledge; promotion of an open and favorable international economic system conducive to economic growth and sustainable development in all countries; the intention to cooperate in good faith and with a spirit of partnership for the realization of the principles embodied in the Declaration and for the progressive development of international law in the field of sustainable development (UN, 1992).

In the context of International Environmental Law, the Aahrus Convention made an essential contribution to cooperation. Based on the tripod: information, participation and access to environmental justice, directs its attention to the democratization of decisions that affect the environment and the countries' responsibility to share and cooperate with each other to protect the balance of the ecosystem. According to Mazzuoli and Ayala (2012), the Convention, which dates from l998 and has not yet been ratified by Brazil, is the expression of a movement that recognizes the integration of the national legal order into what would be a global culture, focused on environmental rights and strengthening protection of life. It has proved particularly

relevant to enable a kind of external control of what nation-States are effectively doing to contribute to the protection of the environment in global terms. (MAZZUOLI, AYALA, 2012).

The recent United Nations Framework Climate Change Conference, which took place in Paris, mobilized around two hundred countries and came into force in record time in November 2016, further mirrors this condition that cooperation is a fundamental principle, not only of the International Law but also specifically International Environmental Law. In view of the high objectives proposed, starting from the initial considerations, the Parties affirm that they agree to promote cooperation. (UNFCCC, 2015).[132]

As disciplined in Articles 7.6 and 7.7, 8.3 and 8.4, 14.3 of the Agreement, there is a clear commitment to cooperation with adaptive measures and dissemination of knowledge, new technologies and scientific studies that can contribute to the objectives, especially in relation to the vulnerable groups; improve understanding, cooperate and improve comprehension of specific risks such as those involving an early warning system, emergency situations and even slowly emerging hazards; risk assessment and resilience, among others.

Also in the domain of international law, mention should be made of the Amazon Cooperation Treaty (TCA) signed in 1973 by Brazil together with Bolivia, Colombia, Ecuador, Guyana, Peru, Suriname and Venezuela (GALBIATTI, 2015), which verses about the protection of the

[132] "Convenant de soutenir et de promouvoir la coopération régionale et internationale afin de mobiliser une action climatique plus forte et plus ambitieuse de la part de toutes les Parties et des autres acteurs, y compris de la société civile, du secteur privé, des institutions financières, des villes et autres autorités infranationales, des communautés locales et des peuples autochtones, [...]". (UNFCCC, 2015).

Amazonian ecosystem; as well as the Mercosur Framework Agreement on the Environment, dated 2001, which deals with the commitment of cooperation among member countries, aiming at the sustainable use of resources aimed at quality of life and sustainable economic, social and environmental development. (MAZZUOLI, AYALA, 2012).

Brazilian Environmental Law embraces cooperation as a principle from the constitutional order, either by the content of article 225, which establishes that the duty to defend and preserve the environment rests with both the Public Power and the collectivity, as in article 23, when defining the competences of public entities, when they impose on them competing material competence, regarding environmental protection standards, preservation of forests, fauna and flora, and pollution control. And in addition to environmental issues, specifically, Brazil welcomes in its article 4, IX, together with the principle of the prevalence of human rights (Article 4, II), the principle of cooperation among peoplefor the advancement of humanity, which extends the dimension of relevance and commitments under international environmental law.

By means of the Law of Environmental Crimes, law n. 9.605/98, Brazil undertakes to cooperate internationally in the preservation of the environment, especially in Articles 77 and 78, which, according to Mazzuoli and Ayala (2012), includes the obligation to allow a criminal proceeding initiated abroad, as well as to allow and assist in the fulfillment of extrajudicial acts in Brazil, resulting from international environmental protection actions.

Cooperation is also relevant to environmental education, whose Brazilian law, Law 9795/99, art. 5, V, understands the need to incorporate it as a fundamental objective, and in order to promote the collective commitment

of the various regions of the country to the construction of a society based on sustainability, solidarity, democracy, freedom, equality, responsibility and social justice.

More recently, the Law of the National Solid Waste Policy, Law no. 12.305/2010, has cooperation between the different spheres of public power, business sector and other segments of society as one of its basic principles. It defines among its objectives the technical and financial cooperation between the different spheres of public power and with the business sector, for the integrated management of waste, for research and technological development and for new products suitable for the purposes of the law, as well as cooperation between federated entities.

The express presence of cooperation as a premise, an objective or an instrument in the legislations mentioned, but not restricted to them, demonstrates the fundamental aspect attributed to cooperation, whether in the international sphere, or between the federative entities or even with society in the various forms of public and private representation. This is due to the perception that it is through the broad and democratically shared knowledge about the risks and the sustainable workarounds, that alternatives to the global ecological crisis will be feasible. It is what sustains the condition of principle to cooperation in the field of Environmental Law, which is expressly recognized by the doctrine.

According to Leite (2007), it is necessary to implement an informed and proactive citizenship, participatory and aware of the urgency of protecting the environment, imbued with solidarity and aware of the responsibilities to avoid environmental degradation and the perverse and incalculable effects that it can produce. In this sense, the democratic participation of the various actors of organized

civil society, through NGOs, the scientific community, and the business community must be promoted and encouraged. It is explained by Canotilho that such cooperation regarding environmental protection is a function of all and not only of the Public Power, since the environment must be considered a good of public interest whose needs an environmental democracy. (LEITE, 2007).

The ecological crisis brings humanity together around a unique and vital interest. The cooperation, at the different levels, from the broadest and most diffuse environmental education, to the long-term oriented and projected actions around the democratization of information and knowledge and collective participation in management decisions related to events and projects of environmental impact, to international negotiations and commitments, is an effective and humanizing measure. This understanding that permeates and ground environmental law is formally manifested by the commitment to intergenerational equity. To promote cooperation is to make known and bring together individuals and groups of ecological issues so that the affections awaken to cooperate collectively in the direction of constructing paths towards the ecological balance, that allow humanity to survive on the planet.

Even if biopsychosocial factors favorable to cooperation are recognized, and the human being who has developed consciousness and language from this communicative/cooperative practice, who through the culture has established norms of behavior, which allow to prevent risks and to conduct in a manner less impacting its existence on the planet, which does not guarantee that the attitudes correspond, it is necessary to go beyond.

What complexes even more the task of bringing together the various actors of the international politics

and citizens of the different States around an interest that overcomes the individual, is the fact that it is necessary to extend this solidarity and the care towards the other beings, aiming towards an Ecological Justice. A change not merely normative or politics and management, but a perception of the world, of sensitivity and of affection, that protects life by itself.

4. ECOLOGICAL JUSTICE AND COOPERATION

Bugge (2013), in "Twelve fundamental challenges in environmental law: an introduction to the concept of rule of law for nature", takes up the history of the ecopolitics to propose a reflection on the world course, recognizing the limitations and questioning about strategies and future possibilities. For environmental laws to be effective in safeguarding human living conditions on the planet for future generations, deep changes in ethics, policy priorities, the economic system, and lifestyle are critical, he concludes.

In the rule of law, the law is the fundamental element in the relations between authorities and citizens and of each other, it means that people, companies and entities are governed by legal and legally responsible institutions, in the formal and material aspects. It is, however, an anthropocentric ideal, as it concerns the interests and manners of man's conduct towards his fellow men, and so it does not embrace nature as a subject of rights. Thus, the need for an Ecological Rule of Law is imposed so that nature is protected by better and stronger laws and by ecological values. (BUGGE, 2013).

The Ecological Rule of Law is based on a notion of Justice that is equally new, which includes non-human beings as subjects of law (BUGGE, 2013): The Ecological

Justice, whose scope includes the cooperative behavior that permeates this discussion. Cooperation as an effective element of linkage with the purposes of protecting the environment and the quality of life for the present and future generations.

Justice is an ethical value that appears because of social elements at a certain historical moment, from previous experiences and referents. Postmodernity imposes this revision of values, and the ecological perspective is present as an element rescued in the critique of modernity. Facing the challenges of sustainability requires a rethinking of man's way of life, whether in the economy and production of goods, education, sciences, cities and ways of inhabiting it, in fellowship with other men and other species of living beings which make up nature. Therefore, it also implies a rethinking of what sense of Justice is based and/or should be based on contemporary societies for the unprecedented challenges that they offer.

There is an important transition to be promoted regarding environmental Law and Justice, as pointed out in the work organized by Voigt (2013), since after about five decades of international mobilization around ecological issues and the first theoretical studies on sustainable development and intergenerational justice, the Law is limited to formalize behaviors adjusted to the anthropocentric understanding of Justice, consistent with modern rationality.

The term Ecological Justice is a recent concept still under construction, imbued with the ideas of deep ecology, which defends a personal form of fulfillment that surpasses the individual itself, and is based on the identification with the nonhuman nature. (GUDYNAS, 2010). According to Rammê, Ecological Justice is a perspective that requires

respect, dignity and fair treatment sought by human beings to other forms of life and nature itself. (RAMMÊ, 2012). It means that to maintain the conditions of existence of human life on the planet Earth, it is imperative that man understands and acts as being interdependent with the other beings of nature.

The paradigmatic change that embraces complexity and uncertainty as elements of the existence of living beings and therefore also of men, has the positive effect of retaking the sciences, including the so-called human sciences, to adopt a broader and systemic understanding of the existence of man as individual, species and society, in their various interactions and retroactions. (MORIN, 2007).

The cooperation that is expressed as a fundamental principle in Environmental Law, in the various international treaties and agreements, and domestic laws, must be effective and reach not only people of the present generation and/or those who live in rich countries. It is urgent to overcome the individualist vision that persists and to adopt a cooperative behavior that helps the countries with less economic capacity to invest in technologies for sustainability, that democratize the necessary knowledge to the adaptations that the ecosystem practices require, that sees the natural resources as goods common to humanity to be guarded with all commitment and care in its preciousness. May the human conviviality in living nature cooperate with its cycles, respecting its time and modes with the least possible negative impact.

Through cooperation and biophilia, man tends to assume a behavior compatible with health and resilience, both of nature and human society. (VOIGT, 2013). Cooperation can and should be cultivated, thus strengthening reciprocity and fostering the exchange

of skills of their own; the creation of spaces for cultural exchange for the benefit of biodiversity; support for environmental refugees and immigrants in general; extending to the cooperation of humans with nonhumans, by biophilia, when recognizing to nature its own value. (ROBINSON, 2013). Thus, cooperation, resilience and biophilia emerge as ecological principles to be adopted and reinforced in the formulation of an Ecological Rule of Law, which present great potential for Ecological Justice.

The contribution of Gudynas (2011) is illuminating as to the necessary distinction between Environmental Justice and Ecological Justice. According to the author, Environmental Justice deals with human interests in relation to the environment. The Ecological Justice recognizes the nature as subject of rights.

Therefore, Ecological Justice, which understands nature as a subject of rights independent of human interests, requires intense interspecies cooperation; demands to deepen the bonds that bring humanity closer to other living beings, to sensitize it to the affections of care for nature, thereby valuing what makes possible the existence of life on the planet, in such a way that, in feeling nature recognize human beings, cooperating for the preservation of humanity as such.

Hans Jonas (2006), in drawing principles for an ethics of the future, exposes the concern that man does not dehumanize himself by artificializing his way of life, interests and values, consequently making his vital and relevant condition impossible, ecosystemic conditions and human dignity, the legacy of the culture that distinguishes it and allows it to be aware of and act in favor of survival. The author proposes a new ethical imperative that results in the obligation to preserve the conditions necessary for

the indefinite conservation of humanity on Earth. (JONAS, 2006).

Ecological Justice, which effectively includes respect for the other species of beings of nature and which understands Environmental Justice and intergenerational, is a justice that is based on the fraternity, in which all solidarity and brotherhood for being children of Pacha Mama, the Mother Earth. There are no foreigners, aliens, enemies, territories to defend, only human and not human, beings of nature, to protect with loving care, to protect life as a greater good.

Questioning anthropocentrism is a revolutionary attitude. There is no need to promote such changes without conflict of ideas, without error, without doubt. The Andean countries that have promoted nature as a subject of law face these issues. The need for legal representation, the fear of biocentric equality, and the dilemma of untouched nature are some of them. For, as well emphasize Gudynas (2010) the discussion involves the pillars of modernity.

It is above all a great ethical turn towards a deep ecology, in which anthropocentrism loses space for a relational ontology (GUDYNAS), and that overcomes the dichotomies and limitations of modern rationality by theories of self-organization and complex thinking. Accompanying the change of values and perception of man and human existence in the universe, by reflection on the just within this new context, the Law must also change.

What is at stake is the life of mankind and cooperation is a basic survival behavior of the species. It is not a matter of blindly accepting instinctive tendencies or allowing nature to dictate its objectives; man's cultural condition does not allow such limitation. To do justice to human nature implies recognizing the human being's ability to understand and

act with purpose, to be aware of his actions and to have no absolute control over himself and the universe that surrounds him, and, as well as his intellectual capacities have led to the current condition of environmental crisis, can also contribute to its reversal and/or limitation of damages.

5. FINAL THOUGHTS

5.1 Understanding the human being as a being that constitutes of nature and culture, as intrinsically related elements, as pointed out the theories brought to the discussion in this study, we conclude that the most precious thing is life itself ecologically viable, and that we should look with hope at the future to make it the best it can be.

5.2 There remains much to be done in favor of what is most valuable to human life: care, affection, intraspecies cooperation, which humanize and make possible peaceful communication and understanding; on the other hand, interspecies cooperation to contribute to the possible rebalancing of the ecosystem and keep the planet alive.

5.3 However, it is necessary to go beyond environmental norms interpreted under an anthropocentric bias. What is being discussed now is a bold new route: to constitute an Ecological Rule of Law, which recognizes the rights of nature by its intrinsic value.

5.3.1 The notion of an ecological justice that conforms indicates the necessity of the recognition of the ethics propelled by the deep ecology, that aims to protect the life.

5.4 Collaborative practices are constructive and allow for mutual understanding, contributing to knowledge and harmony in living together. In this way, the recognition that

humanity shares this characteristic of nature strengthens and encourages the promotion of cooperative behavior.

5.5 Thus, Ecological Justice calls for life to be the greatest value to be considered, by proposing cooperation as an attitude and as value, as a practice of affections and relationships dedicated to overcoming the challenges, and as a conscious and reflected act, desirous of constructing the conditions of overcoming.

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1.. THE PARTICIPATION AS LEGITIMATION CRITERIA OF DECISIONS APPLIED TO ENVIROMENTAL PUBLIC POLICIES: THE EXTINCTION OF RENCA AND THE DISCOMFORT OF THE EXCLUDED

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Abstract: the field of public resources allocation and decision taking that involve public polices confers to the State the possibility of driving the structure of State in a way that is able to satisfy the needs and yearnings of society. The decision taking that will define the public policies adopted, as well as the interests that will be attended, however, maybe lined in an almost infinite roster of methodological options, which vary from the ultimate utilitarianism to the weighing of rights and principles. Even if the decision adopted by the Administration rules the decisions taken in the most *aseptic* and technically

correct way to the scientific and legal primacies, the subtraction of the participation of the concerned, in some measure, creates social discomfort and delegitimizes the implemented public policy. The management of mineral resources – good that belong to the Union by constitutional definition – without any doubt belongs to the faculties of the State. This faculty, however, is not a guarantee that the management aligned to an economic *developmentist* public policy that excludes the interests of the concerned does not creates *inquietation* and distrust between the Administration and the administrated. Precisely in this way, the recent extinction of RENCA, through the Decree n. 9.147/17 has generated questionings about the legitimacy of this measure since, although legal, disrespect any criteria of participation of the concerned in the field of environmental preservation.

Keywords: public policies; participation; legitimacy; concerned; RENCA; environmental protection; mineral resources.

1 INTRODUCTION

The allocation of public resources and the adoption of public policies have been responsible by the worsening of tensions between sectors of society imbued of interests, in some measure, opposite. The fact that the criterion adopted by State in the conduction of public policies do not be, in many cases, clear and participative, creates an environment that is propitious to the propagation of distrust and to questioning about the exempt of the decision adopted.

The society distrust about the capacity of State in managing and allocating public resources in a way that is able to satisfy the interests of the concerned with exemption and probity points to a crisis of governability and governance: in one side, the crisis of governability is referred to the (in)capacity of formulation, management,

implementation and articulation of public policies; in the other side, the transition of a logic of governance to a dynamic of governance is associated to the legitimacy of State as an actor and an political arena in the decision-making process (MILANI, 2008, p. 553).

Even if the State applies daily measures that implements public policies directed to the satisfaction of specific sectors of the society, more or less inflamed repercussions will be verified as the concession of resources and rights are directed to fields more or less distant to the sectors of organized society. Even in the validity of a Constitution that points the material rights to be sheltered, it is evident that process of vindication if part of the legitimacy criteria of the decisions taken by Administration (COELHO, 2004, p. 21).

The subtraction of the society participation in the process of decision taking involving public policies, however, generates an environment of dissatisfaction and distrust in relation to the State, in the measure that the legitimacy of the decision adopted in absentia of the concerned reduces or even subtracts it legitimacy. Even if the decision adopted lines itself to the legal prediction or be achievable to the teleological demonstrable technically, the fence to the deliberation, participation and manifestation of the concerned harms the capacity of governability of State.

Cases like the extinction of the Reserva Nacional de Cobre e Associados – RENCA (Nation Reserve of Cooper and it's Associated), implemented through the edition of two subsequent decrees, in August of 2017, reveal the institutional fragility of decisions about public policies in the field of environmental protection applied without observance to the legitimator criteria of participation of the concerned. The expedition of Decree n. 9.142/17 and,

six days after, it revocation and the expedition of the Decree n. 9.147/17 generated a range of repercussions between the civil society and the media, in the measure that a consternation about the possibility of environmental degradation in relevant areas of national and global biome, the devastation of indigenous thorps and the privatization of Amazon rainforest.

Such repercussions, however, are ventilated in the traditional media imbued with a strong charge of distrust and dissatisfaction related to the State, in the measure that inexists the promotion of a qualified and participative debate involving the concerned. The absence of deliberation and participation of the concerned, allied to the deficiency of information about the decision taken in the field of public policies, its repercussions and objectives, flows out in the phenomenon of politic apathy (NINO, 2003, p.153) and in the manifestation of dissatisfaction and distrust based on impertinent or irrelevant factors to the core of the real politic discussion involved.

In the measure that the extinction of the RENCA through a decree consubstantiates an act of the federal government practiced due to the Programa de Revitalização da Indústria Minerária Brasileira (Program of Revitalization of the Brazilian Minning Industry), its condition of public policy applied to the fields of the environmental protection and economic development are evidenced. The adoption of measures that are related to the concern not only to the entrepreneur sector, but also to the environmentalist sector, to the indigenous sector and to the organized civil society, in this sense, requests a broad participation of all concerned to possess legitimacy.

In the same way, and with the aim to reduce the informational asymmetry involved in the discussions

that, eventually, can cause repercussion in the thematic of environmental protection and economic development, it is essential to promote the discussion about the legal instruments applied to the mining in Brazil, as well as the development of the legal instruments over the time. The understanding of the dimensions of the measures adopted by federal government, in it broader cognition, depends of the understanding of the approach adopted by the State in the operationalization of this sector of Brazilian economy.

2 THE MINING ACTIVITY AND THE LEGAL AND CONSTITUTIONAL FRAMEWORKS

The mining activity in Brazil was developed since its Discovery, having been one of the reasons of the endeavors to its up-country by pathfinders, hungry to find precious gems. Although small findings, just after 1674, in consequence of Fernão Dias expedition, the mining activity became more professional and ostensive, being responsible, in part, by the clearing of Brazil countryside, what happened with bigger intensity in the territory of Minas Gerais, since the Discovery of gold in its territory in 1693, by Rodrigues Arzão (HENRIQUES, 2008, p. 27).

In consequence of the relevance of this activity, as well as of the possibility of assessment, the Portuguese government rapidly established a rigorous taxation program to the Brazilian mining production, with the objective of maximizing the profits decorrent from the mining activity in the Brazilian colony. The Codes from 1603 and 1618, although allow the free exploration of mining goods in Brazil, imposed the obligation of paying 20% of tax over the value of the metals extracted. This codes mentioned only gold and silver – the only mining goods extracted from Brazilian ground in a first moment –,

having been applied by analogy to the exploration of other metals in the following years.

As a consequence of the incipient mining exploration at the time – restricted to the gold alluviums mining – and the reduced countryside population (SIMOSEN, 2005, p. 333), the Codes of 1603 and 1618 were affiliated to the *regaliano system*, which conditioned the dominion of the goods existent in the subsoil to the Portuguese government (BARBOSA, 2003, p. 75). In consequence, the propriety of the ground and the propriety of the subsoil distinguished themselves, not existing right to the ground owner to the exploration of the mining good existing in the subsoil of its lands, having only the right to indemnity decorrent from the exploration occurred.

When big gold reserves were discovered in the territory of Minas Gerais, the countryside population increased. In decorrence of the rise of the mining activity, the Portuguese government, in 1702, promulgated the *Regimento dos Superintendentes, Guarda-mores e mais oficiais*, related to the gold mines. Once again, this new legislation was created specific to the gold and silver exploration, having been applied to the exploration of other metals by analogy, revealing the Portuguese government concern with the taxation question exclusively.

This legislation kept the regaliano system, having been promulgated with this specific goal of organize the public apparatus related to taxation and oversight of the mining activity, without and concern to the environmental preservation or to the rational exploration of natural resources. The division of *datas*[133]adopted, as a criteria, the number os slaves owned by the mining entrepreneur, being

[133] The portion of land in which mining activity was allowed by the Portuguese government.

attributed bigger *datas* to the miners who had more slaves. The propriety of the mining resources, however, kept with the Portuguese government, in observance to the regaliano system.

In the imperial period, although the guarantee of the propriety rights foreseen in the text of the Constitution of 1824, the distinction between the propriety of the ground and the propriety of the subsoil was sustained, in a way of maintaining the interests of the imperium in the appropriation of the mining resources of the subsoil. In this way, the idea of the regaliano system was maintained in this period, inexisting any relevant change in the regulation of the mining activity (FEITOSA, 2016, p. 14).

After the proclamation of the Republic – and, in consequence, the promulgation of the Constitution of 1892 –, the traditional regaliano system was substituted by the acession system, in which the propriety of the ground and the propriety of the subsoil are indistinct. This modification lines itself with the liberal ideal of this period in the Brazilian politic, which was aligned with the ideas of the full right to the propriety and the freedom to the entrepreneur activity, relevant to the satisfaction of the bourgeois class and the big propriety owners. Although, the refusal of a landowner to the realization of mining activities inside it own propriety was not possible, yielding the expropriation (Lei Pandiá Calógeras – Decreto n. 2.933/2015) (FEITOSA, 2016, p. 15), what reveals the preponderance of the public interest in the exploration of mining resources.

With the promulgation of the Constitution of 1934, however, once again the exploration system was changed, moving away the acession system. Once again it was foreseen, in constitutional level, the distinction between the propriety of the ground and the propriety of the subsoil

(BRASIL, 1934), conditioning the mining activity to the authorization of the federal government (BRASIL, 1934).

Over almost 400 years the regulation of the mining system in Brazil is based in the primacy os the State over the management of the mining resources, had been moved away just by a short period of time, when de acession system was adopted. In the same way, the interest of the State in the fast and efficient exploitation was constant[134], outlining the almost unique interest in the taxation of this activity, without concerns related to the environmental protection.

After the approval of the 1967 Mining Code – law that is still today in force – were established general rules that regulate the mining activity in Brazil, which are specially relate dto the public interest in the adequate and rational exploitation of the mineral resources. Although the existence of formal requirements to the achievement of public authorizations to the mining search and the mining exploration, the public decision about those requirements is not a simple linked act of the public administration, but an act of the decision that must be submitted to the sieve of convenience and opportunity of the administrator (BRASIL, 1967).

3 THE PRIORITY MODEL AND ITS ADEQUACY TO THE BRAZILIAN SCENARIO

In consequence of a constitutional prevision (BRASIL, 1988), the propriety of mining resources existent in the subsoil – known or unknown – belongs to the Brazilian

[134] The Code of 1702 determined that the begin of mining activities should start 40 days after the government authorization, under the penalty of the loss of the authorization.

government. This prevision fits a modern conceptualization related to the attendance of public interest of rational exploitation of mineral resources, in compliance to the environmental protection, assimilating a modern and adequate concept of State and sovereignty (SANTOS, 2005).

The State propriety over mineral resources, however, does not leads to the conclusion that the exploitation of these resources will be accomplished by State. Contra wise, the rule established by the Brazilian Constitution determines that the research and the mining will be realized by the private initiative, through authorization or concession given by the Federal Union, in observance of the necessary satisfaction of public interest related to the decision of authorization or concession of mining or research rights.

The conduction of research and mining activities by the particular initiative stems from a legislative option that, although the prevision of the own Constitution about the State propriety over mineral resources, shifts the initiative to research and exploit those resources to the particular initiative. This option accrues from the fact that the mineral resources are spread over the national territory, making impossible to know the technically correct location of relevant mineral reserves. In summary: Although the fact that the mineral resources belong to Brazilian government, it is impossible to know, previously a technical research work, where the mineral reserves can be economically exploited.

In decorrence of the ignorance of the State about the dimension and location of mineral reserves over the national subsoil, the priority system was adopted, in the way of enable, although the authorization of mineral researches to the particular initiative, the posterior mining of resources form the subsoil – through an additional

concession of the State. Although the authorization of the particular initiative to the realization of research work, the State gets access to detailed information about the mineral formation over the national subsoil.

The conduction of research Works by the private initiative allows the State to, simultaneously, obtain information about the total extension of the national soil/subsoil and to have specific information about specific areas that are interesting to mining companies which have made research Works over its extension. The fulfillment of research Works, in this sense, have the purpose of feeding the State with technical information about the quality and the quantity of mineral resources existing on the areas that are object of research authorizations, in order to allow adequate decisions, in pursuit of the satisfaction of the public interest, about the management of mineral resources.

The concession of mineral rights adopted by Brazil, in this way, reveals two facets that, although apparently opposite, complement each other and points to the adequate bias concerned with the satisfaction of public interest. The priority model is, simultaneously, aligned with the nationalist conception of public resources management – concerned with the protection of the environment –, and the express refute to the acession system, which guaranteed unrestricted rights of mineral exploitation to the landowner.

The removal of the possibility of unlimited and unrestricted fruition of mineral resources by the landowner, and the development of a legal framework that binds the research and the exploitation of mineral resources the analysis, evaluation, authorization and concession by the State denote the irrestrict binding of the exploitation of mineral activity to the satisfaction of public interest.

The long historic of the Brazilian legislation about mining, strongly ingrained to propriety rights and to the satisfaction of regional interests, denounced in the *colonelist*, *clientelist* and *patriarcalist* questions, reveals the almost constant interference of particular interests to the arena of the public decisions (GABARDO, 2009, p. 167). The existence of a strong relationship between the satisfaction of private interests and the maintenance of the Brazilian State structure is a constant march since the Republic Proclamation. In this way, the disruption of the acession system and the adoption of the priority system represents a legislative option that is aligned with the satisfaction of the public interest, breaking the *continuism* of a system that only keeps the maintenance of benefits to the traditional landowners.

4 THE CREATION OF THE RENCA: HISTORICAL PANORAMA AND THE ENVIRONMENTAL QUESTION

On August 22, 2017, was edited the Decree n. 9.142/2017, which revoked the Decree n. 89.404, from 1984, which instituted the RENCA – Natural Reserve of Cooper and its Associated. The expedition of generated a range of repercussions between the civil society and the media, since the fear of an uncontrolled devastation of the Amazon rainforest biome and of the native populations have been spread.

In consequence of this repercussion, six days after the edition of the Decree n. 9.142/2017, the federal government promulgated the Decree n. 9.147/2017, which kept the revocation of the RENCA. The text of the Decree n. 9.147/2017 did not bring any change in terms of meaning, compared to the text of the Decree n. 9.142/2017,

bringing only na expanded version of the old Decree, with explanations about the changes that were just implied in the composing of the Decree n. 9.142/2017.

The RENCA was created through the expedition of the Decree n. 89.404/1984, by the Brazilian president, João Batista Figueiredo, answering to a request made by flag-officer Gama e Silva. The RENCA covers an area that is considered relevant to the exploitation of cooper and other minerals in the states of Amapá and Pará. The Decree n. 89.404/1984 previewed the exclusivity of the CPRM – Mineral Resources Research Company – to execute research and exploitation works in the area covered by RENCA, through its own investments or agreements with GEBAM (Executive Group to the Low Amazonian Region) (BRASIL, 1984). The conferment of mining rights to private companies would be possible only through negotiations made directly with CPRM – what never happened until now.

The creation of the RENCA, therefore, broke with the priority system adopted by the Brazilian Constitution and the Mining Code, inasmuch as moved away the possibility of exploitation of the mineral resources inside the limits of the RENCA by the private initiative, restricting the achievement of research and exploitation works by the CPRM – a national company. The creation of the RENCA, however, was never related to the adoption of environmental protective measures, but to the protection of the national interest in managing this mineral resource.

The politic scenario that involved the promulgation of the Decree n. 89.404/1984 was relate dto the last days of the military regime in Brazil, which was very focused in the protection of the national interests and the defense against the foreign investments over natural resources.

The Discovery of manganese reserves in the Carajás in the 1960's and 1970's and of gold in the Tapajós in the 1980's created really races directed to these reserves, stirring the greed of sourdoughs and big mining companies from all over the world (SANTOS, 2002, p. 128). The possibility of exploitation of mineral resources by foreign companies – a consequence of the adoption of the priority system – took Brazilian government to create reserves – like RENCA – immune to the priority system, rendering ineffective the exploitation by the private initiative – national or foreign.

The creation of RENCA, therefore, was not a consequence of the concern about the environment protection, since the Decree n. 89.404/1984 did not bring any kind of prevision about mechanisms of environmental or cultural guardianship. Only after the creation of RENCA – and through autonomous and independent vias – environmental reserves were instituted in parts of the limits of the RENCA, like the National Park Montanhas do Tumucumaque, the State Forests of Paru and of Amapá, the Biological Reserve of Maicuru, the Ecological Station of Jari, the Extractive Reserve River Cajari, the Sustainable Development Reserve ofRiver Iratapuru, being the mining activity forbidden in all of them, except in the State Forest of Paru (WWF, 2017). There were created also indigenous reserves – Waiâpa, in Amapá and River Paru D'Este, in Pará – whose genesis and goal in nothing resembles with RENCA creation.

The extinction of RENCA, through Decree n. 9.147/2017, is part of the Mining Industry Revitalization Program, which has, as scope, the increase of legal safety of investors, the raise of investments (foreign and national) in the mining industry and the *"unlocking"* of the mining activity in Brazil (BRASIL, 2017). The implementation of this

program is happening in a fast pace having been, recently, created the Mining National Agency, in substitution of the National Mining Production Department, through the Provisory Measure n. 791/2017, what reveals a rash movement of Brazilian federal government.

The adoption of measures related to the development of the national mining industry represents the federal government tillering to a public policy attached to the progress of an economic sector of the primary industry. The adoption of such public policy, however, brings direct repercussions to other public policies in course, like the environmental protection policy and the cultural diversity public policy. Even considering the relevant role of the development policy in the politics and economic scenario, the concerned must not only assume the reciprocal perspective relate dto the public policies adopted, but also change the perspective of a participant by the perspective of an outsider, transforming it (HABERMAS, 1989, p. 180).

The fact that the extinction of the RENCA has not directly interfered in the sphere of environmental protection does not withdraw the necessity of discussion with the concerned about the politic decision to be taken. Since the promotion of a public policy reverberates over the management and maintenance of other public policies in course, affecting players inserted in several realities, the evaluation about the integrality of the reality involved must be fulfilled, in a way to allow the achievement of a full diagnosis of the compensations, that is, of the advantages and disadvantages of adopting determined public policy (ROTHBERG, 2010).

5 THE PARTICIPATION AS A CRITERIA OF LEGITIMATION IN THE IMPLEMENTATION OF PUBLIC POLICIES: THE EXTINCTION OF THE RENCA AND THE PARTICIPATION OF THE CONCERNED

Among a series of initiatives proposed in the Brazilian Mining Industry Revitalization Program, the extinction of the RENCA revealed itself, to the federal government, as a measure of big relevance, since have been carried out even under big mediatic repercussion and even judicial questioning (Popular Action n. 1000585-86.2017.4.01.3100). Even after an injunction that suspended the effects of the Decree n. 9.142/2017, the position adopted by the federal government was close dto the dialogue with the concerned: the measure adopted was the edition of the Decree n. 9.147/2017, with an extended composing, but the same practical effect.

The adoption of such position is related to a public policy of support of the mining industry (foreign and national). The criteria adopted by the federal government, in this way, lines itself to the effectiveness of goals outlined under the scope of the Brazilian Mining Industry Revitalization Program, demarcating the politic character of the public policy adopted by the federal government. The measure adopted, therefore, is justified by a goal that is supposedly directed to the satisfaction of the public interest (DWORKIN, 2002, p. 134), but it is not clear if the measures adopted in this way fits as a public policy or a government policy.

The implementation of measures, which aim the implementation of social public policies, however, makes indispensable the participation of the concerned in the deliberative process. The suppression of the possibility

of participation of the people who will be affected by the public policies adopted, shifting the attention of the effects of the public policy adopted to the own governor or to sector of the society that are illegitimately benefited, contrary the idea of decentralization of government power in favor to a participative management, which confers bigger emphasis to governance systems (MILANI, 2008, p. 558).

The need of participation in the deliberative processes involving public policies is related to the indispensability of the existence of a procedure that is adequate to the free manifestation of the concerned. Since the rule of law legitimates itself by the effective emancipation and by the participation of the concerned, the politic participation of the society reveals a propellant element of the uncertain and hard way of the humanity toward its own emancipation (HABERMAS, 1983, p. 376).

In this way, the eventual need of protection relate dto certain society groups, principles or rights is not a consequence of the protection guaranteed by the Constitution, but by the need of effectiveness of the right to participate on the public decisions and of the right of expression. About public policies adopted by the State. The interest of the federal government or the representation of strong sector of the society are not enough to overlap minorities[135]. In this way, the minorities can be understood as the people or the sector of society that are not able to have political representation, or as the people or sectors of society that are not able to build a coalition.

[135] I will add, as a fifth circumstance in the situation of the House of Representatives, restraining them from oppressive measures, they can make no law which will not have its full operation on themselves and their friends, as well as on the great mass of society… if it be asked, what is to restrain the House of Representatives from making legal discriminations in favor of themselves and a particular class of the society? I answer: the genius of the whole system; the nature of just and constitutional laws; and above all, the vigilant and manly spirit which actuates the people of America (MADISON, 2001, p. 286).

This interpretation makes the traditional concept of Constitution – taken as a document that incorporates solid and guiding values, that should be preserved – be substituted to a concept related to the idea of formal instrument of representativeness and control of government acts. The protection of the minorities, therefore, is not a consequence of a constitutional prevision, but an outcome of the own State structure and shaping and of the need of a representativeness that extrapolate the field of the majority (ELY, 2010, p. 82).

The participation, in the habermasian understanding (HABERMAS, 1997, p. 157), has the goal of shifting the citizen activity in the majority process from a mere instrument to the reach of objectives of the elites to a central role in the decision-making process. Habermas adopted, in this way, a positioning about the individual that is similar to Kant's vision, which comprehends the participation in the decision-making process as an act of safeguard to the individual autonomy, fundamental and inseparable to the basic idea of humanity.

The procedure alone, or even combined with a wide possibility of participation of the concerned, however, it not enough to satisfy the need of a real democratic criteria of decision-making in the field of public policies, specially related to the environmental protection policy. In order to guarantee the impartiality in this process – as well as the interests of the concerned –, it is indispensable that the positions adopted or protected by the players involved in the decision be exempt and free, not committed with the maintenance of positions in the society, economy or politics, that is, with the maintenance of the *status quo* in any way.

This guarantee is indispensable to reach a decision that attends to the primacy of the rule of law, even if a more embracing conception of the contractualism must be adopted. The rawlsian model adopted by John Rawls in his work "Theory of Justice", in this way, does not presents instant solutions to the problems related to the decision-making process in the field of public policies, but appropriate procedures to find solutions related to the decision-making process. John Rawls, in partial discordance with the habermasian theory, defends that the mere prevision of a procedure that conducts to the decision to be adopted does not guarantee the fairness of the decision, what would be reached only by the existence of a procedure that would be able to indicated the way to find an impartial decision[136].

Such initial position – an hypothetical one, which gives the name to the "hypothetical contractualism" – depends on the inexistence of values or positions to be defended in the decision-making process. In consequence, the individuals who deliberate about the social contract to be designed must, at least shortly, disregard any knowledge about the positions or the interests that concern to themselves in the society, as well as their positions, their physical conditions, their wealth, the intelligence, etc. This situation is previewed and defined by Rawls as the *"veil of ignorance"* (GARGARELLA, 2008, p. 20). This incapability

[136] The impartiality of the hypothetical social contract proposed by John Rawls is just the main march of hawls model. Related to the question of impartiality, must be considered the *locus* of application of this model, which is the society structure in a wide and organized way. The model proposed by Rawls is not destined to the resolution of everyday problems of justice, but to the distribution of rights and duties in the economic, political and social fields. In the same way, the rawlsian model adopts the premise of the existence of an organized society, which searches for the welfare of its components, considering the existence of vulnerability and scarcity. The inexistence of vulnerability and scarcity represents the overcoming of the necessity of implementation of justice models related to the redistribution or the protection of some citizens of parts of the society.

of perception of this condition, however, must not preclude the ability of knowing the social structure, the advances of the Science and the social economy.

The rawlsian propose, however, is not enough and sufficient mature to bear the spread of pluralistic interests involved in the decision-making process in the field of politics. Since the individualist proceduralism propose made by John Rawls is able to lead to decisions whose content may be related to a moral elitism, while decisions taken under the lens of the habermasian theory may lead to populist decisions (NINO, 1999, p. 165), Santiago Nino proposes a reflexive method based on the intersubjective discussion, privileging the Exchange of idea between the concerned.

Nino, however, does not ambitionates the reach of a consensus, what delimits the distinctive trace between the pretention of his theory and the proposes made by Rawls and Habermas. Nino's propositions are based on the discussion and the dissent as keys to reach a decision that is closer to a criterion of justice, avoiding pleas related to the majority criteria. In this way, the distinction between the unanimity and the majority must be pointed, not as a numeric criterion, but as the deliberative character that influences the unanimity, which is not present in decisions taken exclusively by the majority criteria.

The legitimation of the deliberative public decision proposed by Santiago Nino, therefore, elapses from the possibility of debate about the positions involved in the decision-making process, even admitting that self-interested arguments may be aroused. In this sense, the distinction between Habermas, Ralws and Nino is curial, since Habermas and Rawls craves the creation of an aseptic ambient, while Nino is detached from this ambition,

pretending the application of his theory to an ambient that is closer to the reality. Nino's demand, however, is that the deliberative field must be composed by citizens disposed to hear other concerned citizens and understand the arguments under discussion, in the way of preventing partial or self interested decisions (GODOY, 2011).

The theory proposed by Carlos Santiago Nino is adequate, in a special way, to the field of public policies discussions, mainly the questions related to a wide spread of interests that may be under represented. Since Nino's theory moves away from the idealization of a ideal deliberation arena – what will necessarily conducts to a consensual decision –, admitting the possibility of the proposition of decisions lined in selfish interests, evinces knack to the material applicability to decisional fields with an institutional democratic shortfall.

The case under discussion in this article can be framed in the field of decision-making related to public policies, involving interests from sundry sectors of the society. The promotion of a wide debate about the extinction of the RENCA necessarily will demand a qualified and informed discussion, aiming the reach of a conscious decision able to contemplate all the concerned.

Since the extinction of the RENCA is a politic measure situated in the scope of the Brazilian Mining Industry Revitalization – which is a framed as a economic public policy program to be accomplished through Brazilian federal government affirmative actions in the sphere of the mining industry (BRASIL, 2017) – necessarily must be submitted to a deliberation involving all the sector and individuals concerned by the effects of the decision to be taken. Even admitting that the decision in question is related to the entrepreneur sector, the repercussions of

the implementation will reverberate over a wide range of society sectors, specially linked to the environmental protection question, to the regional cultural guard and to the indigenous tutelage.

Thus, even if the decision adopted did not bring immediate repercussions to the environmental protection or indigenous reserves demarcation spheres – as the traditional media rapidly has been diffusing –, the implementation of the measures linked to the present public policy must be submitted to the qualified deliberative sieve. The legitimation of the decision taken by the federal government, in a question that involves the expansion and the promotion of an economic activity that is fulfilled from the reduction of rights of the own State over the management of mineral resources and from the interference of the economic activity over areas covered by environmental and indigenous reserves need to be submitted to a qualified deliberation of the concerned, taking in account the opinion of the involved (NINO, 2009, p. 202).

In the same way, even if the public policy in question would be adopted taking in account only the interests of the mining sector, other alternatives could be suggested to the satisfaction of the entrepreneur involved. The mining industry is not concentrated in the Amazon rainforest region, being spread along the Brazilian territory, exploiting resources that go from the simple sand to niobium and radioactive metals[137].

[137] Brazil is considered a big international player in the production of asbestos (4th biggest producer in the world), bauxite (2nd bigger producer in the world), iron (2nd bigger producer in the world), grafite (3rd bigger producer in the world), manganese (2nd bigger producer in the world), niobium (1fs biggest producer in the world) and tatanium (2nd biggest producer in the world) (MARINI, 2016, pp. 20-21).

In this way, the wide participation of the own mining entrepreneurs in the decisions to be taken in the implementation of public policies related to the revitalization and promotion of the mining activity would be valuable to create a better public policy. Considering the big number of mining companies working in several other areas around the Brazilian territory, it is probable that other suggestions would be made in this scope, making possible a considerable increase in the list of options available.

6 CONCLUSION

The Brazilian decisional arena in the field of public policies still lacking a bigger participation of the concerned, being evident the democratic deficit in the decision-making process involving a wide variety of society sectors. The lack of implementation of participative procedures, however, is not the only cause of the democratic deficit verified in the decisions taken about the implementation of public policies, what is seen with much more plainness in decisions related to economic interest activities.

Beyond the absolute absence of arenas that are able to allow deliberation, what is easily verified in the case of RENCA's extinction, the absence of information and orientation about the approached themes is ignored, not existing any measure related to the informational promotion of the concerned. The informational asymmetry in the Brazilian society is accentuated, yet, by the inexistence of participation of the concerned, since a subsistence condition is imposed to a considerable part of the Brazilian society, moving away any possibility of participation, as long as the own survival overlaps any attempt of participation.

The inexistence of a competent ambience to the promotion of deliberation, as well as the confirmation

that de *locus* of decision-making about public policies ignores the disability of the concerned in taking part in a qualified debate denotes the lack of legitimacy in the decision adopted. Even considering the fact that inexists na appropriate channel to the popular participation in the decision-making process, the adoption of the measure that extinct the RENCA reverberated so high that the own Brazilian government revoked the first Decree and promulgated a new one.

The revocation of the Decree n. 9.142/2017, however, was not enough to the federal government to perceive the lack of legitimation of the measure adopted. Even confronted to the necessity of revocation of the Decree n. 9.142/2017, the Brazilian government instead of promoting a qualified debate about the measure in question, involving the environmental protection sector, the indigenous representatives and the mining entrepreneur, chose to redact a new Decree, with the same practical effect.

In some extent, big part of the mediatic repercussion provoked by the extinction of the RENCA is consequence of the lack of participation of the concerned. The inexistence of deliberative channels, able to promote the qualified, participative and self-conscious dialogue (GODOY, 2011) may have been responsible by the restlessness and discomfort of the population, since the decision adopted by the federal government was simply communicated after done.

It is not possible to point what would happen if adequate deliberative measures had been taken, however, it is possible to conclude that other measures could be fanned and attend the interest of the government in promoting the mining industry. Between these new options, certainly would exist better choices under the perspective of the

participation criteria, without considerable losses to the promotion of the mining industry.

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