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PARIS AGREEMENT: REFLECTIONS AND CHALLENGES FOR THE INTERNATIONAL CLIMATE CHANGE REGIME

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ABSTRACT

The objective of the paper is to present the challenges posed by the post-2015 international climate change regime to all countries in relation to mitigation measures to achieve the goal set in the Paris Agreement and to reflect on the contributions determined unilaterally by the countries, respecting their capacities and development needs and on the combined effect of reductions and removals of greenhouse gases, if sufficient to limit global warming by up to 2°C. Therefore, the work starts with a reflection on the Brazilian contribution to the new period and advances a brief analysis of the global context and the future of the regime. From the point of view of international regimes as governance actions, this paper briefly examines the climate change regime, highlighting the innovations introduced by the Paris Agreement. The method used to make the analysis of this study will be the analytical with support in theoretical research taking into account bibliographical and doctrinal surveys in relation to the international climate

change regime and to global governance. The article concludes that the environmental global governance promoted implementation and evolution of the principle of common but differentiated responsibilities within the climate change regime.

KEYWORDS: Paris agreement; climate change international regime; global governance of the environment.

ACORDO DE PARIS: REFLEXÕES E DESAFIOS PARA O REGIME INTERNACIONAL DE MUDANÇAS CLIMÁTICAS

RESUMO

O objetivo do trabalho é apresentar os desafios que o regime internacional de mudanças climáticas pós-2015 traz a todos os países com relação às medidas de mitigação para atingir o objetivo definido no Acordo de Paris e fazer uma reflexão quanto às contribuições determinadas unilateralmente pelos países, respeitadas suas capacidades e necessidades de desenvolvimento e quanto ao efeito conjunto das reduções e remoções de gases de efeito estufa, se suficientes para limitar o aquecimento global em até 2º C. Para tanto, o trabalho inicia com uma reflexão sobre a contribuição brasileira ao novo período e avança numa breve análise do contexto mundial e do futuro do regime. Partindo da visão de regimes internacionais como ações de governança, o trabalho realiza breve exame do regime de mudanças climáticas com destaque para as inovações introduzidas pelo Acordo de Paris. O método utilizado para fazer a análise deste estudo será o analítico com suporte em pesquisa teórica, tomando-se por base levantamentos bibliográficos e doutrinários em relação ao regime internacional e à governança global. O artigo conclui que a governança global do meio ambiente promoveu aplicação e evolução do princípio das responsabilidades comuns, porém diferenciadas no regime internacional de mudanças climáticas.

***PALAVRAS-CHAVE**: acordo de Paris; regime internacional de mudanças climáticas; governança global do meio ambiente.*

INTRODUCTION

The international climate change regime, organized within the framework of the United Nations System for 24 years, is in essence a dynamic institutional arrangement of permanent construction created to facilitate understanding and promote cooperation among the 195 signatory countries, with its own Legal structure and organizational framework, which aims to stabilize[1] the global climate system and contain global warming caused by greenhouse gas (GHG) emissions, such as carbon dioxide from fossil fuel combustion and deforestation/degradation of forests due to the use of land for agricultural activities and by urban occupation.

The realization of this unpostpable goal standardized in the United Nations Framework Convention on Climate Change interweaves the climate regime with global environmental governance as a mechanism for resolving conflicts and promoting the necessary cooperation among national states in a globalized, interdependent and complex world. Governance, as an instrument of expanded participation, with the involvement of state and non-state actors, based on consensus and persuasion for the elaboration of its self-regulation and anchored in a permanent institutional arrangement (CAMARGO, 2015), is the way forward to achieve this objective of climate stabilization in a timely manner.

This has been the concern of some scholars and the tonic of many questions about the effectiveness of the climate change regime: would the international regime constituted by states, which until COP21 had been conservative and more clingy to the principle of sovereignty, to the point of restraining the very development of the climate regime, be able to conduct and induce the necessary actions (especially reductions in GHG emissions) in time to avoid a rupture of the global climate system?

At this point, Camargo's closing words (2015, p. 92) apply well to the combat regime on climate change:

1 According to Article 2 of the Convention, promulgated by Decree 2. 652 of July 1, 1998,"The ultimate goal of this Convention and any related legal instruments adopted by the Conference of the Parties is to achieve, in accordance with the relevant provisions of this Convention, the stabilization of the concentrations of greenhouse gases in the atmosphere at a level that would prevent dangerous anthropogenic interference within the climate system. This level should be achieved within a time frame sufficient to allow ecosystems to adapt naturally to climate change, to ensure that food production is not threatened and to enable economic development to proceed in a sustainable manner. "

> The effectiveness of the International Regimes as actions of global environmental governance depends on the will of the nation-state to give up some of its dogmas in order to achieve the common global interest, with full transparency in the monitoring of its conduct and the degree of resistance of the proposed mechanisms, adjusted within each nation-state.

Under the climate change regime, the world can be seen in two blocs, one consisting of countries that are predominantly GHG emitters, usually industrialized, with developed or developing economies, that suffer less or less intensely the effects of climate change, and a second bloc, formed by countries that are feeling more of the effects of climate change than contributing to GHG emissions (FARIAS; REI, 2015, p. 119).

What was the will of the States at COP-21? In terms of standardization, details of the obligations of each country, definition of quantified reduction targets, metrics for meeting the reduction targets, and the necessary financial contributions that developed countries will make to developing countries so that they can achieve their reduction targets and bring about the necessary adaptations to the current climate change, it can not be denied that the Paris Agreement brought a rush of hope to the regime. The international community has undertaken to limit the temperature rise below 2°C and to continue efforts to limit the temperature rise to 1,5°C (preamble).

As a matter of fact, the objective of a maximum heating of 2°C in relation to the pre-industrial era was defined in 2009 at the COP in Copenhagen, and it implies a drastic reduction of greenhouse gas emissions, with measures such as energy savings, greater investments in renewable energies and reforestation.

Still at the COP in Copenhagen, developed countries pledged $100 billion a year from 2020 to help developing nations finance the transition to clean energy, as well as their adaptation to the effects of warming. As argued by developing countries, the paragraph 54 in the text of the Agreement states that the sum of $100 billion per year is only a “ceiling”, and that a new financial value will be set in 2025 (PARIS AGREEMENT, 2015, p. 8).

If it is true that the context of the climate agenda suggested a tense situation before COP-21, which raised at least two questions, the first regarding the criterion of distribution of the responsibilities of the States in relation to the adoption of mitigation measures and the second to the real

capacity of multilateralism to make effective the mitigation and adaptation efforts (REI; CUNHA, 2015, p. 21), the Paris Agreement promoted a significant change of tone.

As is well known, the climate regime is based on the principle of common but differentiated responsibility among countries, which aims to distribute, with fairness, the burden of obligations which each country must bear in mitigation actions, taking into account their historic contributions of GHG (and why not their current contributions?), their internal capacity to undertake mitigation and adaptation efforts and to assist other countries, without prejudice to their right of development.

In this sense, it should be emphasized that the distribution of GHG emissions mitigation commitments among countries has been one of the main issues in the international negotiations on the climate regime (REI; CUNHA, 2015, p. 34). And it was increasingly clear that developing countries, specially China, India, Brazil and South Africa, would have to shoulder their responsibilities with emission reduction targets, not just Annex I to the Convention (including developed countries, Members of the Organization for Economic Cooperation and Development (OECD) and Eastern European countries in transition to market economy). [2] In this sense, the Article 4 of the Agreement it is stipulated that the industrial countries should be at the forefront and set emission reduction targets in absolute terms, while developing countries should continue to increase their efforts in the fight against Global warming in the light of their national situation.

The reflections, challenges and opportunities for the future of the climate change regime develop from these political, normative, economic and cultural constraints, as we can evaluate next.

1 REFLECTIONS ON THE CONTRIBUTION FROM BRAZIL

In September 2015, in the countdown to COP-21, the then government of Dilma Rousseff announced its targets for reducing GHG emissions to lead to the long-awaited COP of the"turnaround" of the regime combat climate change.

Brazil is committed to reducing GHG emissions by 43% with reference to 2005. The then President announces, among the mitigation

2 Moreover, it should be noted that the United States has not signed the Kyoto Protocol since it has maintained a position that all countries of the Convention should commit to reduction targets, not just those in Annex I.

measures, that Brazil[3] will achieve zero illegal deforestation by 2030 (pay attention she only mentions illegal deforestation) and will restore something around 12 million hectares, recover 15 million hectares of degraded pastures and integrate 5 million hectares of crop-livestock-forests.

However, Brazil (through the Dilma Government) refused to sign the New York Declaration on Forests in September 2014, which had as one of its objectives zero deforestation in the world by 2030. It is also forgotten that the Aichi Biodiversity Targets[4] are more ambitious; and that there are specific and closer targets for deforestation reduction from the remaining 7% to 9% of the Atlantic Forest, for example.

An easy-to-do, but difficult to fulfill commitment in the current scenario, which suffered from a 16% increase in amazonian deforestation in 2014, in reference to the previous year. Commitment that meets the expectations of international (and national) actors on the contributions of"environmental power".

The Nationally Determined Contribution (INDC, in acronym in English)[5] from Brazil[6] is weak in terms of concrete actions to achieve reduction targets in the area of land use, forest management and conservation and presents only generic proposals:

a) implement activities based on Reduction of Greenhouse Gas Emissions from Deforestation and Forest Degradation, considering the role of conservation of forest carbon stocks, sustainable forest management and

3 In a separate paradiplomatic action, the governments of Mato Grosso and Acre assume within COP21 the commitment of zero illegal deforestation by the year 2020. http://www. mt. gov. br/-/governador-e-ministra-assinam-declaracao-de-esforcos-conjuntos-para-desmatamento-zero.

4 In the process of elaborating the Strategic Plan for Biodiversity 2011-2020, the Convention on Biological Diversity (CBD) proposed to establish a new set of targets, in the form of long-term objectives, which were embodied in 20 propositions, all aimed at reducing biodiversity loss worldwide. Called Aichi Biodiversity Targets, they are organized into five major strategic objectives: addressing the root causes of biodiversity loss, making biodiversity concerns permeate government and society; reduce direct pressures on biodiversity and promote sustainable use; improve the biodiversity situation, protecting ecosystems, species and genetic diversity; increase the benefits of biodiversity and ecosystem services for all; and increase the implementation, through participatory planning, of knowledge management and training.

5 The *Intended National Determined Contributions* (INDC), consists of the reduction contributions that countries intend to take on a voluntary basis since 2015 and mandatory from 2020 onward, when they will be invited to review them. "As in the Doha Round, INDCs can be established by each Party according to freely defined criteria. As the *Center for Climate and Energy Solutions* (2014) explains, the formation of INDCs is based on a *bottom-up* approach, according to which it is possible to use a wide range of parameters, such as: absolute targets for reducing emissions, or based on intensity-carbon or even *per capita* emissions ; broad goals economy or industry wide; goals that adopt different years as base - 1990, 2000 or trend projections; etc. "(REI, CUNHA, 2015, p. 22).

6 BRAZIL. Nationally Determined Contribution (INDC) To Achieve the Purpose of the United Nations Framework Convention on Climate Change. Available at: http://www. itamaraty. gov. br/images/ed_desenvsust/BRASIL-iNDC-portugues. pdf.

forest carbon stocks raise (REDD +), which still lacks development and sponsors;

b) reinforce and enforce the implementation of the Forest Code at the federal, state and local levels, without indicating the form;

c) expand sustainable management systems for the native forests through georeferencing and tracking systems applicable to the management of native forests in order to combat illegal and unsustainable practices.

That is, nothing really concrete, planned and detailed, leaving many doubts and uncertainties.

To make the Brazilian proposal even more fragile, on the eve of COP-21, Brazil was hit by a devastating accident of human, social and ecological dimensions never seen in the country's history, which was the rupture of the Samarco mining dam in Mariana (MG). Accident that, along with the multiple responsibilities taken by the holders, administrators and controllers of the mining activity, calls into question, at the international level, the capacity and effective action of the State in controlling and supervising the activities that cause risks and impacts such as mining.

Brazil, which has played a leading role in the first period of negotiations of the regime, seems to have lost its protagonist spot during the last years, being left out of the big decisions and articulations, due to the loss of priority of the environmental agenda in the Dilma government.

An issue presented to the current government is concerned to its behavior in the regime from COP-22 on, especially if it is able to realize the promises and targets of emission reduction which Brazil has committed, and what will be the space for participation of subnational and local governments, as well as other relevant multilevel governance *players*, who can make a valuable contribution.

2 THE GLOBAL CONTEXT AND THE FUTURE OF THE REGIME

The global context was not one of the most encouraging for the climate agenda, which still runs the risk of cooling down completely (while global temperatures will continue to increase) before COP-21. On top of the agenda were the fight against terror triggered by the attacks in Paris and the USA, and, in general, the priority remained international security, with attention focused on Syria, Iraq and Islamic State, as well as other endemic aggressions. The priorities were followed by the humanitarian crisis of refugees from Africa, Syria, Iraq and Afghanistan, and economic

issues, such as the sharp drop in oil prices, slowing international trade, and diplomatic tensions in relations between Russia and Western countries regarding the economic sanctions imposed by the European Union and US, due to Russian interference in the Ukrainian crisis.

Thus, it was plausible to consider that the priorities order of the international agenda did not favor the environmental demands. In fact, the UN Security Council is far from being the appropriate forum to deal with environmental issue, since it places its hopes on the environmental regimes and governance adopted by them, but not on the adoption of coercive measures, which will certainly empty the international environmental regimes. According to More (201?),

> The treatment of the environmental issue under the auspices of the principle of collective international security adopted in the Charter of the United Nations gives the subject known as ecological security, the status of international law of universal recognition, whose existence and coercive measures are subject to jurisdiction under the UN Security Council.

But the international climate change regime has stunned, persisted and resisted. In terms of *performance* - as observed by the noted regime scholar Young (2010) - the regime needed to be unlocked, if it wished to advance with the necessary agility to adopt the inevitable decisions about the future of post-industrial civilization in the anthropocene. And it should be noted that the then broad multilateral negotiating model in the Framework Convention had not advanced in the pace and proportion needed to halt anthropogenic global warming (GONÇALVES, 2015).

In addition, defensive attitudes of the constituting Countries hindered advances that could bring onus to the respective states, especially those related to eventual decrease of economic activity to reach GHG reduction targets, as Gonçalves (2015) points out.

Other factors also explained the failure of the Framework Convention's multilateral negotiating model, such as the need for consensus to deliberate, the formation of fragile and unstable agreements, the submission of vague and generic documents, the lack of sanctions in the treaties and the possibility of *free-riders*[7] who take advantage of other people's efforts, as well as the old and ever present background divergence between developed and developing countries (GONÇALVES, 2015).

7 Author's translation

In this sense, the adoption of strategies complementary to the multilateral negotiations (GONÇALVES, 2015, pp. 15-16) has come to good use: a) use of the"*bottom-up*"[8] which consists of encouraging countries to reflect and elaborate their proposals in the face of their own realities, to move towards the definition of global goals; b) conducting negotiations in blocs (bilateral or plurilateral) to achieve understanding faster with fewer participants, and c) strengthening processes and mechanisms involving global civil society in the negotiations. It is not a question of denying the multilateralism that underlies the current regime, but of proposing new, complementary ways of making decisions at a global level. And it was fortunately how it turned out.

The international legal framework for climate change is legally structured by four documents, the United Nations Framework Convention on Climate Change (approved at Rio/92, which entered into force in 1994), the Kyoto Protocol (approved in 1997, which came into force in 2005 and closed its first emission reduction period in 2012), the Doha Protocol Amendment (approved in 2013), which established new reduction commitments for developed countries for the second period of the Protocol, but did not came into force yet, and the Paris Agreement (approved in 2015 at COP-21 and enforced in 2016), as stated by Rei and Cunha (2015).

Concerning to the organizational design of the regime to combat climate change, it is formed by the following thematic axes: a) mitigation of climate change; b) adaptation to climate change; c) financing, technology and training; d) transparency; e) economic instruments and f) periodic review.

For an overview of these organizational arrangements, their mandates and their interconnections, and the progress of work under the Framework Convention, it is important to note the summary prepared by the Secretariat of the Convention at the request of the *ad hoc* Working Group of the Durban Platform, established in 2011 with the task of developing a protocol, legal instrument or agreement that binds all parties under the Framework Convention until 2015, to be adopted at the 21st Conference of the Parties and that this protocol or legal agreement may be implemented from 2020 onward, which actually happened.

Some arrangements are found in the United Nations Framework Convention on Climate Change, which point to multilevel governance with the participation of subnational and non-state actors. It should be noted that

8 Author's translation

the Paris Agreement expressly recognizes "the importance of commitment of all government levels as well as other different actors, in accordance with their respective national legislations of the Parties, in the fight against climate change" (preamble).

Although it is not legally possible to establish international agreements with social groups (indigenous people, forest people), third sector organizations and economic agents, it is possible to establish political commitments, such as the New York Declaration on Forests signed in 2014, on occasion of the United Nations Climate Summit.

Regarding the efficiency of the climate regime, one of the major challenges is to form a global social consensus on the risks of climate change (global warming, extreme weather events, acidification of the oceans, rising sea levels) as quickly as possible.

Hoffman's (2015) work on the cultural issue behind the climate change debate shows the american people's split on the theme as well as the polarization of the issue within the political scene between conservatives and democrats, and provides elements that explain very well why the US did not adhere to the Kyoto Protocol and remain one step behind in the Convention. Notwithstanding all the expectations generated by the commitments made by the Obama administration, the scenario seen in the Trump government seems to confirm the debate brought by Hoffman (2015).

Hoffman (2015) demonstrates that it is not enough to build the scientific consensus on the issue, even though the IPCC is the technical-scientific substrate of the regime, since it is also necessary to build a social consensus about the need to adopt the measures related to the stabilization of the global temperature and that these measures go through the realization of certain efforts and acceptance of some sacrifices.

Unfortunately, it is difficult to achieve followers only with discourse while people still regard the issue of climate change as something abstract or distant future; And it seems that we will have to wait for humanity and global governance actors at every level to "feel in their pocket and skin" the effects of climate change to build a minimum consensus that strengthens the cognitive element of the regime, fundamental to its effectiveness.

In this sense, it is necessary to "seize" (as opportunities) the extreme climatic events that happen in relation to global climate changes, in order to demonstrate to mankind what it can find in the near future if it

is not aware of the problem and the need to adopt mitigation, adaptation and other relevant measures to address climate change and anthropogenic global warming.

The relative success of the COP-21 around a new binding instrument ends up being fundamental not only for the future of the regime but for life on the Planet and human civilization. However, the celebration of the instrument, its entry into force, in a scenario that brings the climate issue to the political agenda of governments, is not at all significant in terms of the outcome of the regime. A new Agreement in the regime should encourage institutional rearrangements, which has not yet been seen at COP-22 in Marrakech, although this was basically the main demand of the 2016 Conference.

There are some of the regime's own challenges that must be tackled urgently, such as deciding on the use of sanctions for countries that do not meet their reduction targets or their obligations under the legal regime, in addition to national communications, monitoring, technology transfer and capacity building, financing and transparency of action.

2. 1 Routing of responsibility sharing

Another relevant challenging aspect, as we have already seen, lies in the implementation and application of the (abstract) principle of common but differentiated responsibilities. As a Principle developed within the International Environmental Law, common but differentiated responsibility carries within itself an unparalleled force of conviction which is the definitive and irreversible expression of its historical, philosophical, scientific, and juridical assertion.

Anywhere on Earth that emits a gram of GHG impacts on the whole atmosphere being (over) charged with increasing concentration of those gases; And it is also known that the effects of the changes will not be defined according to the place where the emissions took place, nor will these effects be restricted to certain places (RUIZ, 2012).

This lack of causal determinism in the global climate system, especially in the face of the globalization phenomenon, breaks with all the traditional solutions that law, as a technique of decidibility of conflicts can offer: the traditional civil liability scheme and its like, based on the paradigm of causal link is absolutely inoperative in the face of climate change; totally inconceivable is the idea that it is possible to exercise some

kind of Sovereign Power over the quality, composition, and movement of the atmospheric air from the air column above the physical territory of a state (Ruiz, 2012).

However, as stated above, recognition of the principle of common but differentiated responsibility is not enough. It must be concretized, drawn from the heights of abstraction, and brought into the real sociol-political realm of its historical and social application.

Sharing, State to State, people to people, nation to nation, economy to economy, vulnerability to vulnerability, technology to technology, this common responsibility will perhaps be the greatest challenge in the history of mankind to date.

And routing, the solution of this partition, it seems, is not within the reach of an international tribunal or a supra-state body, nor in a sovereign, polarized and conservative power struggle, much less in the use of military force.

2. 2 Governance practice

If there is any way in this solution, it starts from the assumption of the vulnerabilities and challenges that can only be achieved through governance, as a technique and process for democratic (with multilevel participation), self-regulatory (provided that it is effective and more than just *soft law*), institutional (but not locked or tied as it is) and reflective (managing climatic risks in a plastic and dynamic) of this common and urgent problem of humanity.

Only governance can point to the concrete measure and real dimension of responsibility (and sacrifice) of each unit (State) in this astronomically complex totality.

One possible path is seen when the Convention innovates in the development of GHG emission reduction targets and, unlike the Kyoto logic, calls on the parties to indicate their reduction commitments (INDCs), and these self-appointed commitments become mandatory and can be pressed by others involved, not only with sanctions, but with the possibility of actions and interventions, following a *bottom-up* strategy.

After all, as Dubois and Morosini (2016, p. 197) point out, "the consolidation of compliance control and sanctioning of noncompliance are generally analyzed as factors that lead to improved effectiveness" of

regimes.

But that is not enough. It is an excerpt from a long way since the individual commitments of each State, while tallying, does not guarantee that it will achieve the required emission levels for climate stabilization in the two above pre-industrial levels.

A next step in such a scenario would be to define criteria for cuts and this should be done in an additional painting to the Framework Convention, through governance so that all countries "contribute proportionately fairly" enough to stabilize the system climate change.

The tools available would be negotiation, dialogue, transparency of action, cooperation (training, financing, transfer of technology), among others more compatible with the practice of governance. And the other important point about the regime is its functional plasticity and adaptability.

On the basis of the precautionary principle, there is ongoing evaluation and review and building consensus among countries on the combined use of climate change coping strategies, namely: a) territorial planning for adaptation to climate change (the use of soil in coastal regions, installation of new developments in these regions, such as shipyards, among others), among other adaptation measures; b) de-carbonization of the economy, the creation of "green jobs" as well as cuts in GHG emissions in the various sectors; c) the development and use of technology such as geoengineering, without any of these coping strategies being simply discarded. They must, on the contrary, be integrated and produce synergy, so that the combined use of these strategies produces more effects in facing climate change than their isolated use, leading to efficiency gains.

Even if the Framework Convention succeeds in achieving its ultimate goal of stabilizing the climate system around a level of GHG emission and a reasonably safe and tolerable global temperature increase, it must be noted that the climate change regime may not be sufficient to prevent the possible occurrence of catastrophic or even systemic events from a realignment or new equilibrium state of the biosphere.

2. 3 The planetary boundaries

This idea is compatible with the view proposed by Rockström et al. (2009), about the so-called planetary boundaries, which, when overcome, could jeopardize the ecological balance at the planetary level: *If one boundary is transgressed, then other boundaries are also under*

serious risk. (p. 474)[9]

According to Viola and Franchini (2012), the notion of planetary boundaries appears as a new way of approaching sustainability, not in the same isolated and localized way as the classical environmental approach, but in a global, systemic way.

The planetary boundaries correspond to certain limits represented by physical factors of the environment (such as the pH of the oceans, the concentration of CO_2 in the atmosphere), or appear as limits of use, exploitation or degradation of environmental resources and goods within which human civilization could operate safely, without jeopardizing the planetary ecological balance.

These boundaries are formed by nine boundaries which, when exceeded, could jeopardize the environmental stability maintained during the last geological period prior to the Industrial Revolution, and consequently displace the balance of the global system (biosphere), which could lead to harmful or even catastrophic consequences In various parts of the globe[10].

In the words of Viola and Franchini (2012, p. 2):

> [...] nine planetary boundaries are identified, seven[11] of which can be quantified: climate change; acidification of the oceans; ozone; biogeochemical nitrogen and phosphorus cycle; fresh water use; changes in land use; biodiversity; chemical pollution; and concentration of aerosols in the atmosphere. Three of these nine planetary frontiers have already been overcome: climate change, biodiversity loss rate and nitrogen cycle.

As can be seen, together with the increase in heat resulting from the balance between the solar radiation that enters the planet and the energy that the planet releases in space, the concentration of GHG in the atmosphere, due to the anthropogenic releases since the pre-industrial era, would already have exceeded the levels considered safe for the maintenance

9 If one of the planetary boundary is surpassed, then the other boundaries are in serious risk. (Author's translation)

10 Transcribed from the considerations of the scientists who proposed the idea of planetary boundaries (PB): [...] *Since the Industrial Revolution, a new era has arisen, the Anthropocene [note4], in which human actions have become the main driver of global environmental change. This could see human activities push the Earth system outside the stable environmental state of the Holocene, with consequences that are detrimental or even catastrophic for large parts of the world* [...]"(2009, p. 474).

11 At present, eight of the nine planetary boundaries (PB) have been quantified, leaving only the quantification of the insertion of new biological entities.

of the stability of the global climatic system.

Similarly, the loss of biodiversity, quantified by the extinction rate of species per million existing species, may already be putting at risk the resilience of ecosystems, ie their ability to recover and remain structurally and functionally balanced, In the face of external pressures, such as the action of man.

The removal of molecular nitrogen from the atmosphere, to be used by man, quantified in millions of tons per year removed from the atmosphere, has already far exceeded the annual limit considered safe (ROCKSTRÖM et al., 2009, p. 473/4).

In addition to these three global boundaries, there is news that a fourth planetary frontier has already been crossed, the one regarding to changes in land (STEFFEN et al., 2015). Thus, the percentage of the original land cover converted to man's use (crop) would have already surpassed the 15% prudential limit of the original coverage.

By adopting the approach of the planetary boundaries within which humanity could operate safely, formed by nine frontiers whose planetary support capacities, when overcome, may jeopardize the stability and balance of the global system (biosphere), we must begin to think of one governance mechanism that integrates regimes, capable of articulating them.

Global environmental governance (although still deficient) is seen as the most appropriate tool to address the common problems of humanity, especially the ones regarding to environment, but it is understood that governance, in order to act effectively, needs the breaking of conservative paradigms (VIOLA; FRANCHINNI, 2012), as well as a minimum of order and stability, that is, a set of conditions and institutions that are incompatible with a return to global barbarism, an armed conflict, or absolutely unilateral positions of arrogance and intolerance.

CONCLUSION

The advancement of the United Nations Framework Convention on Climate Change since the entry into force of the Paris Agreement is a fact and, given the recognition that the planetary climate boundary has already been surpassed and mankind no longer operates in a safe space in relation to the stability of the climate system, it is essential that it generate results.

The efforts throughout the almost 25 years of negotiations under the international regime on the complex distribution of the common but differentiated responsibilities that each country has in the effort to mitigate emissions have had inefficient results to date which can not be despised. The expectation generated by the newly open stage on the world agenda since 2016 is not unaware that the decisions taken are still insufficient to guarantee the goal of climate stabilization, but they demonstrate the vitality of a complex process of multilateral negotiation, which already presented discouraging signs.

In view of the interconnected planetary boundary approach, it is necessary to emphasize that it is not enough to overcome the challenges of celebrating the achievements and then implementing a global agreement to reduce GHG emissions, without also promoting effective governance in combating desertification, deforestation/forest degradation, conversion of natural vegetation cover, loss of biodiversity and ocean acidification, reduction of atmospheric nitrogen removal, excessive consumption of water resources, chemical pollution and the release of aerosols into the atmosphere.

REFERENCES

ACORDO DE PARIS SOBRE O CLIMA. Disponível em: <https://nacoesunidas.org/acordodeparis/>. Acesso em: 2 jan. 2017.

BRASIL. Decreto nº 2.652, de 01 de julho de 1998. Promulga a Convenção-Quadro das Nações Unidas sobre Mudança do Clima, assinada em Nova York, em 9 de maio de 1992. In: SENADO FEDERAL (Ed.). *Protocolo de Quioto e legislação correlata.* Brasília: Secretaria Especial de Editoração e Publicações, 2004. p. 65-88.

BRASIL. *Pretendida Contribuição Nacionalmente Determinada (Indc) Para Consecução do Objetivo da Convenção-Quadro das Nações Unidas sobre Mudança do Clima*. Disponível em: <http://www.itamaraty.gov.br/images/ed_desenvsust/BRASIL-iNDC-portugues.pdf>. Acesso em: 7 dez. 2016.

CAMARGO, Luis Antonio de. Os regimes internacionais enquanto ações de governança global. In: COSTA E SILVA, A; ARAÚJO, E.L (coord.). *Direito ambiental temas polêmicos*. Curitiba: Juruá, 2015, p. 85/92 .

CONVENÇÃO-QUADRO DAS NAÇÕES UNIDAS SOBRE MUDANÇA DO CLIMA. Disponível em: <http://www.planalto.gov.br/ccivil_03/decreto/D2652.htm>. Acesso em: 2 jan. 2017.

DUBOIS, Sandrine Maljean; MOROSINI, Fabio Costa (Trad.). Mudanças climáticas: os desafios do controle do direito internacional ambiental e do Protocolo de Kyoto em particular. *Revista Veredas do Direito*, v. 13, n. 26, p. 195-210, mai./ago. 2016.

FARIAS, Valeria Cristina e REI, Fernando. De Berlim a Paris: a conferência das partes como espaço para o multilateralismo climático. In: GRANZIERA, M.L.M. e REI, F. (coord.). *O futuro do regime internacional de mudanças climáticas: aspectos jurídicos e institucionais*. Santos: Edital Livros Produções Editoriais, 2015, p. 97/120.

GONÇALVES, Alcindo. Regimes Internacionais como ações de governança global. *Revista Meridiano*, v. 12, n. 125, mai/jun, 2011.

[GONÇALVES, Alcindo. Impasse nas Negociações sobre Mudança Climática. *Política Externa*, v. 23, n.3, jan/mar, 2015, p. 87-103.

HOFFMAN. Andrew J. *How culture shapes de climate change debate*. Standford: Standford University Press, 2015.

MATO GROSSO. MT assina declaração de esforços conjuntos para desmatamento zero. Disponível em: <http://www.mt.gov.br/-/governador-e-ministra-assinam-declaracao-de-esforcos-conjuntos-para-desmatamento-zero>. Acesso em: 26 dez. 2016.

MORE, R.F.. *A segurança ecológica como princípio de segurança coletiva*. Disponível em: <http://www.more.com.br/artigos/

Seguran%FEa%20ecologica.pdf>. Acesso em: 2 ago. 2017.

NAÇÕES UNIDAS. *Acordo de Paris*. Disponível em: <https://nacoesunidas.org/wp-content/uploads/2016/04/Acordo-de-Paris.pdf>. Acesso em: 2 jan. 2017.

REI. Fernando; CUNHA, Kamyla. O Brasil e o regime internacional de mudanças climáticas. In: GRANZIERA, M.L.M. e REI, F. (coord.). *O futuro do regime internacional de mudanças climáticas: aspectos jurídicos e institucionais*. Santos: Edital Livros Produções Editoriais, 2015, p. 17/34.

ROCKSTRÖM et al., A safe operating space for humanity. *Nature*, v. 461|24 September 2009, p. 472-75.

RUIZ, José Juste. El régimen internacional para combatir el cambio climático en la encrucijada. In: GILES CARNERO, R. (coord.). *Cambio climático, energia y derecho internacional: perspectivas de futuro*. Madrid: Aranzadi, 2012. p. 37-49.

STEFFEN W. *et al*., Planetary boundaries: Guiding human development on a changing planet. *Science* 13 February 2015: v. 347 n. 6223.

VIOLA, E.; FRANCHINI, M. Sistema internacional de hegemonia conservadora: o fracasso da Rio + 20 na governança dos limites planetários. *Ambiente & Sociedade,* v.15 n.3, Sept./Dec. 2012.

YOUNG, Oran. *Institutional dynamics: Emergent patterns in international environmental governance.* Cambridge, MA: MIT Press, 2010.

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