

Reflections on the Climate Urgency and the Political Response

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Climate change is on its way to significantly impact the world economy and people's wellbeing. It is one of the most unequal problems faced by humankind, where those who caused the problem (richer people) are much better protected from its impacts, while those at greatest risk are the poor people who contributed least to climate change. Solutions to the problem have been negotiated by countries under the UNFCCC, the United Nations Framework Convention on Climate Change, which has proven incapable of addressing the problem at the required speed. Alternative arrangements are discussed where focus should be on a much narrower set of countries responsible for the problem and capable of financing worldwide solutions.

Keywords: Climate change; UNFCCC; governance; power-balance; responsibilities.

<http://doi.org/10.1590/1981-3821202400010005>

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The risks that both global warming and climate change are causing are profoundly threatening. The efforts to tackle the problem and adapt to it will affect the entire global economy. Climate is a priority and a central theme for all governments, diplomacy, major international forums, and multilateral agencies have the climate issue as a priority and central theme. This is because human survival on Earth is really at risk. This is not an opening catchphrase, but the certainty that, at best, the planet we are leaving to our descendants will be profoundly more inhospitable - and sometimes unbearable - than the one we live on. This is quite a cursed inheritance.

It would be, or is, incongruous for international economics and politics to focus on the climate issue and for political science not to keep up with it - and perhaps get ahead of it. Of course, the matter is not new, but it is perhaps still little debated at the national level. Brazil is a major player in the global climate agenda and there must necessarily be broad discussion and internal consensus about what is really at stake in the discussions on this agenda and what is 'up to' Brazil. It is impossible to find a more fascinating topic in political science, and in the context of all science, economics, and history, because, once again, the dimension of both the risks and challenges of the climate issue is unprecedented.

Before presenting our political science understanding of the problem, we need to know the basic data and information about global warming and climate change, which also justify their importance and priority on the international agenda. This basic knowledge is crucial to understand what is actually at stake (the scale of the problem), what are its causes (economic activities, technologies), who are the main culprits (countries, income classes). Finally to think about viable and fair solutions (how to decarbonize, who funds them), and how to propose both political and institutional mechanisms (governance) to better solve the problem.

This short text offers some ideas on how to move forward on this governance agenda, in line with the BPSR Forum section, while limiting itself to summarize the scientific aspects of the climate issue at a level compatible with its readers.

Global warming and climate change: facts and risks

Global warming results from the increase in the concentration of the so-called Greenhouse Gas (GHG) – the most well-known and important of which is CO₂

(Carbon Dioxide) - in the atmosphere. A change either in the composition or in the concentration of the gases in the atmosphere changes the amount of solar radiation that enters the Earth and goes out of it. In this case, that CO₂ lets through the radiation that comes in, but it 'traps' the one that is reflected into the space. This effect is similar to a greenhouse that lets sunlight in and heats it up, but the glass prevents the heat from escaping - hence the name of the global phenomenon. With the radiation trapped, the Earth heats up. And the warming of the Earth and the oceans changes the factors that determine the planet's climate. Tampering with all these factors is definitely not a good idea.

CO₂ is emitted into the atmosphere mainly by burning fossil fuels - in other words, by using energy. That involves transportation, industries, agriculture, in short, almost all economic sectors as well as our actions and consumption. Only around 20% comes from deforestation, agriculture and waste. Brazil is a major global exception, since 50% of its emissions come from deforestation.

Global carbon emissions began with the Industrial Revolution (1760), with the burning of coal as an energy source both in industry and in rail transportation. This is considered ground zero for the climate problem. Emissions took a big leap since World War II, when oil became the main energy source. Since then, emissions have grown continuously and rapidly. CO₂ concentrations in the atmosphere have risen at the same rate.

One of the most impressive facts about the whole climate issue is that, historically, those concentrations have never exceeded 300 parts per million (the measure of CO₂ concentration in the atmosphere). At least not in the last 800,000 years, a period that covered much of the ice age and ended around 15,000 years ago.

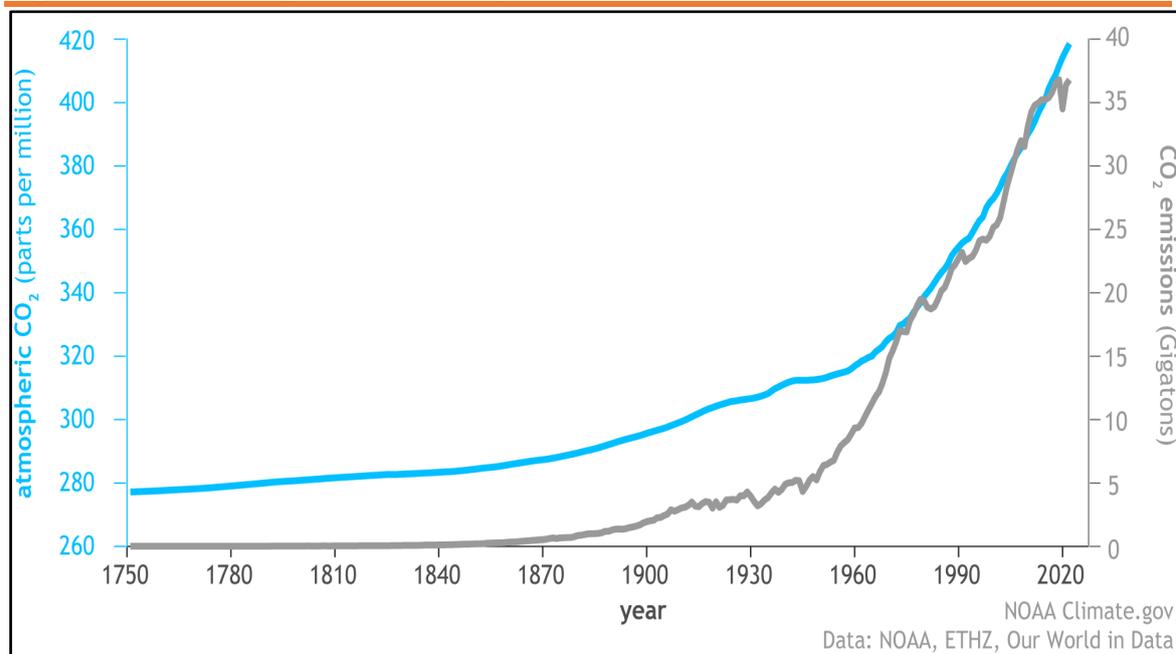
Since then, the climate on Earth has been extraordinarily mild and has allowed for the rapid evolution of man - including the invention of agriculture 12,000 years ago and the wheel around 5,000 years ago. Finally, it is easy to understand that tampering with these climatic conditions threatens to throw all the progress of human civilization in the recent period down the drain.

It is not the place of this short article to provide a deep presentation of the scientific aspects of climate change (see MARGULIS (2020) who introduces the subject to laypeople). We'll just recap the main issues with a view to understanding and analyzing them from the point of view of political science.

The increase in global temperature is the parameter on which there is very little disagreement in science. Not only has the temperature been rising systematically (Figure 01), but 09 of the last 10 years have been the hottest on record.

Thus, the entire world has been experiencing a growing series of extreme weather phenomena of increasing intensity - torrential rains, floods, landslides, prolonged droughts, heatwaves, forest fires, as well as occurrences in atypical periods or places. There is a clear tendency for these events to worsen. The greatest concern is the occurrence in poor countries and locations without adequate infrastructure and services.

Figure 01. Global temperature anomaly, 1880 – 2020



Source: NASA's Earth Observatory Website (2022).

As far as water resources are concerned, both the increase and the decrease in rainfall affect them immediately, which lead to often dramatic impacts, such as the water shortage in the city of São Paulo in 2014. In Brazil, around 60% of electricity comes from water, which threatens its availability in the country. Although the oceans are the great 'savior' of global warming, absorbing most of the excess heat on Earth, the rise in their temperatures has alarming impacts, including changes to the ocean circulation system, which determines the global climate, as well as their acidification, which has a direct impact on all marine life and ecology alike.

We are approaching tipping points, events that might have a tragic dimension if they eventually occur. The break-up of gigantic ice blocks will have immediate and potentially catastrophic effects on sea levels. The deforestation of the Amazon combined with the already observed temperature rises may lead to the so-called 'die-back' of the forest, or its savannization. The aforementioned changes in ocean circulation also have a catastrophic dimension. There are also the potential emissions of huge quantities of methane contained in the ice sheets of the northern extremes of the same hemisphere, which will be emitted if the ice melts.

Who is in charge (and pays the bill)? And what are the costs of decarbonization?

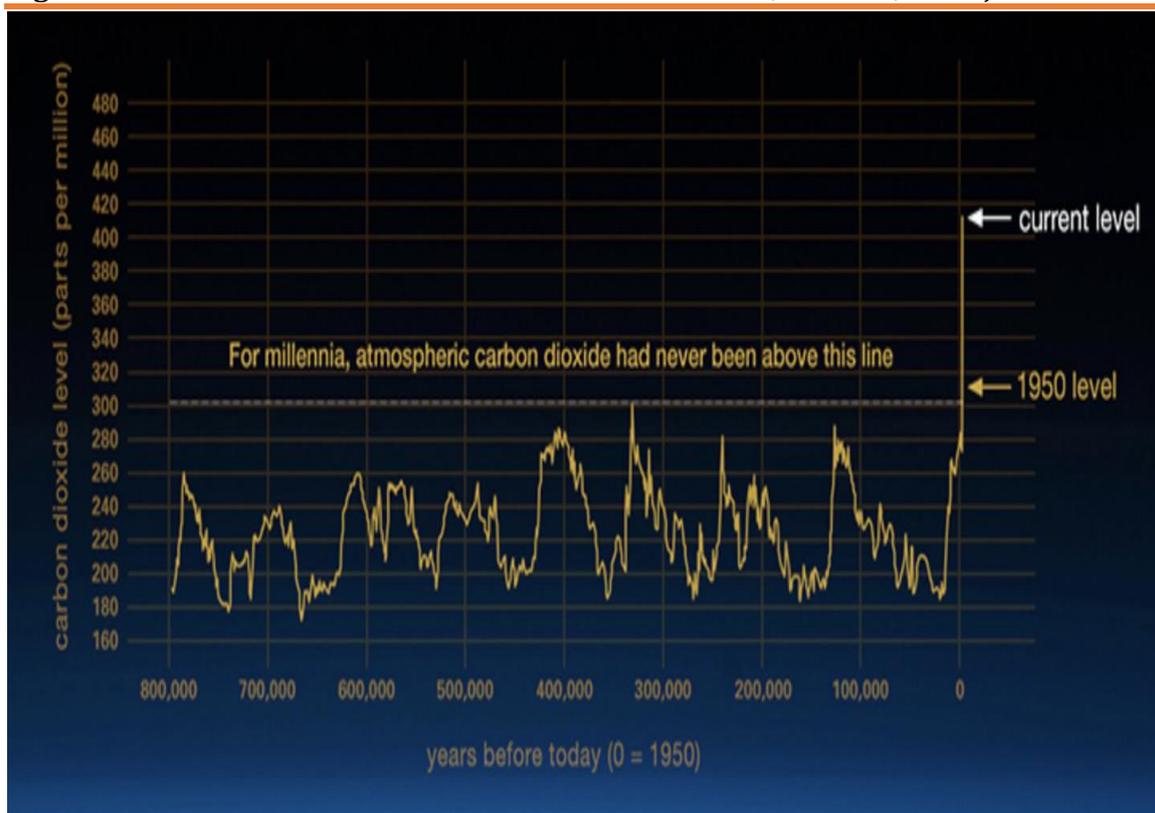
There are many ways to account for emissions. Two fundamental considerations are: 01. do we start counting from the moment when the world realized the seriousness of the problem (1980s-1990s), or from the Industrial Revolution, when emissions started, which is what matters, but nobody was aware of it? 02. should emissions be measured in gross terms or per capita, considering taking into account that all people are entitled to equal amounts of emissions?

Figures 02 and 03 below show that 01. historically, the United States has been by far the biggest villain of the problem, both in gross and per capita terms; 02. since the 2000s, China has become the champion of emissions, which are higher than the sum of all developed countries! In per capita terms, however, the United States is once again the big villain, followed by Russia. Brazil, which is the 4th largest historical emitter, has the bulk of its emissions from deforestation (land emissions in Figure 02). This places the country, along with Indonesia, with a unique emissions profile, which in the other countries derives from the production and use of fossil fuels.

Two additional aspects are crucial to understand climate responsibilities and negotiations. The first one is the fact that, since the emissions come from the use of energy, the richer people are much more responsible than the poor, since they consume much more energy. This takes place regardless of the country where the person lives. On the one hand, an upper middle-class citizen in Brazil has similar emissions to those of an American citizen (use of cars, house appliances, the consumption of red meat and occasional air transportation). It's alarming to verify

that the 10% of the richest people in the world are responsible for 50% of all emissions. On the other hand, the 50% of the poorest emit 10% of the emissions. It is hard to find other global problems which such an inequality. It becomes even more unequal when we consider that it is exactly the poorest people, who did not cause the problem, who will suffer its impacts the most: rich people and countries, who cause the problem, will deal with it much better and in a much easier way.

Figure 02. Cumulative emissions since Industrial Revolution, All GHGs, 10 Major Emitters

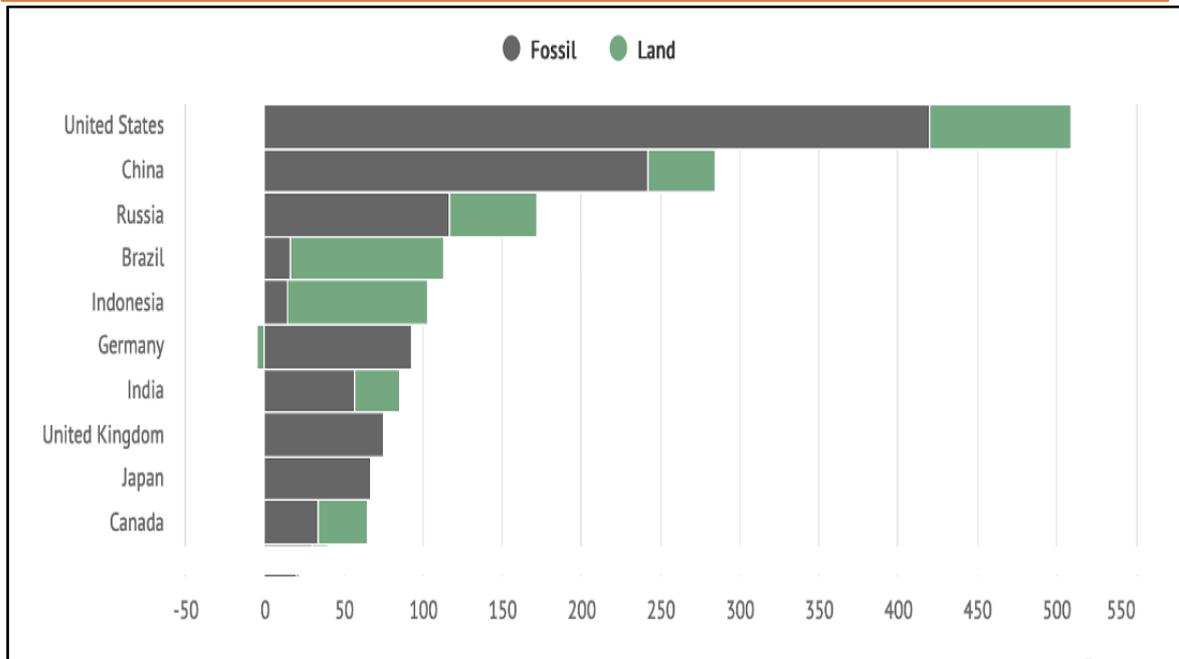


Source: Carbonbrief Website (2021).

The second aspect has to do with future emissions. Knowing that we have a maximum threshold of emissions to avoid catastrophic climate changes (called the carbon budget), we must necessarily benefit as much as possible from those remaining emissions. In other words, the economic profit of each ton of carbon emitted must be the greatest possible. The problem is that the richest countries are much more efficient and capable of generating economic profits when they burn one ton of carbon than the poor countries. From the point of view of inequality, it would be more than justifiable to ensure that the poor countries use the remaining emissions, which would allow them to reach a greater development

level. The efficiency aspect is clearly opposite to that of equality, and, as we will see next, the global climate negotiations insert that economic duality in the rankings of the countries.

Figure 03. Countries with highest total GHG emissions, 1990-2020 (GtCO₂-eq)



Source: Climatewatch website (2023).

Decarbonization represents the effort of all countries to deal with the global warming problem. It means literally to eliminate the carbon emitted to the atmosphere by the human activities – and to reach the so-called net-zero. Since we use energy either directly or indirectly in almost all our activities, decarbonization will have an impact on the entire economy and on many of the things we do daily, in some cases changing partially both habits and choices, while in others changing them radically. Aside from the major technological challenges, probably the greatest problem of decarbonization has to do with its costs. The estimates vary a lot, but they range between US\$ 125 trillion and US\$ 275 trillion until 2050 (McKINSEY GLOBAL INSTITUTE, 2022; UNFCCC, 2021).

That is equivalent to an annual average spending of US\$ 4.2 to US\$ 9.2 trillion. To give an idea of what this represents, US\$ 9 trillion are equivalent to approximately one-tenth of the global annual GDP, which is the sum of everything that all the countries produce each year. The Japanese GDP is US\$ 4.9 trillion per year and that of Germany is US\$ 4.2 trillion. This is a gigantic and unprecedented spending and that,

although the effort has to be made by all countries in the world, only the rich countries are able to face them, which leads to complex process of global negotiations, which will be discussed next.

The global negotiation process

The signing of the United Nations Framework Convention on Climate Change (UNFCCC) in Rio de Janeiro in 1992, which was ratified in 1994, is considered the initial milestone in the study of the climate issue by international politics, shortly before political science did so. For the purposes of this article, we consider both approaches to be convergent and will therefore speak of political science/international relations (PS/IR) (FRANCHINI, 2016; KEOHANE, 2014; PATERSON, 1996).

As the climate problem worsens, the dilemma of cooperation that the issue brings with it becomes more evident, as does the frustrating level of response from the international community. Climate change is a cooperation problem that still receives very limited responses from the international system. As Keohane and Victor (2016, p. 01; 2011) argue, so far the UNFCCC has had little real impact on emissions. There has been a lot of talk about climate, but little climate action (PATRICK, 2021).

The Paris Agreement, which is the most important global agreement currently in force, illustrates this process. After successive frustrations in reaching a top-down agreement with detailed emission reduction targets, the UNFCCC negotiators committed themselves to adopting a new formula for climate cooperation. To promote participation and avoid strong resistance from most countries, the core of the Agreement was built around voluntary emission reduction targets, which each country establishes according to its own capacity and will (VIOLA and FRANCHINI, 2018). The Nationally Determined Contributions (NDCs) were agreed in 2015, but the trajectory of most countries has not been consistent with them. Unlike the first and well-known Kyoto Protocol, now all the countries have their own targets, but there is still no penalty in the event of non-compliance.

Even more serious, even if all NDCs are reached in the foreseen deadline and with the goals fully reached, the world would reach an average global warming between 3 and 3.5°C, much higher than the range between 1.5 and 2°C desired.

Even so, some people believe that the outcome of Paris was a historical advance in the global climate governance, since it was the first time that almost all the countries agreed to limit in some way their own GHG emissions (STAVINS, 2015). For others, it was yet another failure to avoid the worse global warming effects, given the loose and non-binding nature of the commitments of each country and their lack of ability to avoid the limit close to 1.5°C of increase in the Earth's temperature. The analyses vary a lot between these two extremes.

In our opinion, the Paris Agreement doesn't represent a consistent 'solution' for the climate problem – it is very likely that humanity is far beyond of reaching that objective. Theoretically, the mechanisms that the Agreement created may foment the ambition and the compliance with the goals, mainly those focused on increasing the transparency of the communication of emissions and on the compliance with goals by all countries. Those who defend the Paris Agreement tend to highlight this aspect as being a major advance in the negotiations (STAVINS, 2015). However, the so desired establishment of universal standards and mechanisms for the communication of emissions is far from being a reality (VICTOR, 2015), since the main emerging countries, such as China and India, always resisted this kind of measures.

This is a central part of the Paris Agreement that most of its supporters are neglecting or underestimating. The creation of transparent and universal rules to report emissions is central to the monitoring, and eventual success of the Agreement but has proved extremely difficult. This is because it means a major departure from the past behavior of major emitters like China and Russia, not only because their regimes are nationalistic and autocratic, but also because they have a tradition of using the 'developing card' (in China's case, which is followed by most upper-middle-income countries in the so-called Global South) to avoid obligations, claiming that they don't yet have the resources and capacity to do their part. In addition to these two, Saudi Arabia and Brazil are upper-middle-income countries that are closer to the wealth of high-income countries than to the misery of low-income countries.

Even if those systems were successfully established, the core of the Agreement - and its impact on global emissions mitigation - would still depend on national decisions, given the lack of enforcement instruments outlined by the

UNFCCC. In other words, the Convention would not be able to demand more ambitious targets or even to punish possible non-compliance by any country.

Ultimately, the Paris Agreement involves an almost universal expansion of mitigation responsibilities. However, it also largely softens the definition and implementation of these obligations, making them almost exclusively dependent on state action.

From a theoretical point of view, the outcome of the Paris Agreement supports analyses based not on the dynamics of the international climate change regime, but on the behavior of state actors, particularly the powerful ones. It is important to point out here that a firm and definitive commitment by the countries not to exceed 1.5°C of warming could be implemented based on the so-called carbon budget. Since we know the maximum amount of emissions that can still be emitted in order to hit this warming ceiling (or 02°C), the countries could negotiate a distribution of this amount of carbon among themselves. This would automatically lead to a very high carbon price, but that is precisely what is needed to achieve the targets. Not adopting this system means creating all the political economy considerations to postpone the achievement of the targets, ensuring greater rights for the countries that already have the actual decision-making power.

Those limitations observed about the Paris Agreement in fact result from the very nature of the United Nations as a cooperative system based on a strict notion of sovereignty - which continues to exist as the world moves towards more complex globalization structures. In such a scenario, the result that the system produces tends to be the lowest common denominator, since each party is potentially a veto player. Thus, effective, efficient and rapid action is often impossible, and this is the main reason why the UNFCCC has been unable to change the 'path dependence' of the trajectory of carbon emissions (VIOLA et al., 2013).

This does not mean that the UNFCCC, as an archetypal example of the universal rule of the United Nations, has no impact on the climate behavior of its members. On the contrary, one can point to the plethora of voluntary commitments that followed the Conference of the Parties (COP) 15 in Copenhagen, or the construction of mitigation targets for 2030 that were not in the plans of several countries - such as Argentina and Colombia - before the Paris Agreement process.

However, a central question remains: if the UNFCCC is immanently incapable of delivering a result consistent with the scientific evidence, isn't it time to look for answers elsewhere?

Solutions outside the framework of the United Nations?

One of the main questions regarding climate change in PS and IR studies is: what are the limits and possibilities of cooperation? Initially, PS/IR has focused excessively on the UNFCCC negotiations to assess the path of climate cooperation (ANDONOVA, BETSILL, and BULKELEY, 2009; GUPTA, 2010). In these studies, the alliances, discourses and negotiating positions of state actors - conceived mainly as 'black boxes' - are the main sources of information and analysis. This traditional focus has shown its limitations when it comes to understanding climate policy (BRENTON, 2013; COLGAN, GREEN and HALE 2020; KEOHANE and VICTOR, 2016; VICTOR, 2008; VIOLA, FRANCHINI and RIBEIRO, 2012).

The climate regime was born in the Western democracies in the post-Cold War period, and even in a favorable systemic context it had many difficulties in being implemented (global carbon emissions continued to grow at a rate of 2% per year). In recent years, particularly after Xi Jinping's autocratic retreat in China and the Russian invasion of Ukraine, we have entered the Second Cold War, which has important differences from the first (high economic interdependence), but which implies a return to the dominance of geopolitics over economics, as occurred during the First Cold War.

In an assessment of the state of the art of political science studies in relation to climate change, Bernauer (2013) states that the focus on the systemic level is useful but tends to ignore strong variations between political entities and the extent to which they can contribute to the stability of the global atmosphere. The existing levels of commitment are partly due to international negotiations.

However, countries face the same international institutions but exhibit different levels of commitment. International institutions, therefore, cannot explain the variability in commitment levels, and there must be a focus on national-level factors (MILDENBERG, 2020). Brenton (2013) argues that cooperation between the Great Powers is a necessary element when it comes to advancing the climate change agenda at the international level. Thus, he criticizes the universal approach that has

guided the structure of negotiations within the UNFCCC since the early 1990s, in which the national preferences of 190 countries require accommodation.

From another point of view, Giddens (2009) emphasizes the role of the state player in the international politics of climate change, since it concerns international negotiations, the signing of agreements, the regulation of emissions markets and the encouragement of technological development. In addition, Giddens (2009) argues that to deal with the challenges of climate change, there must be a new type of state - one that ensures long-term plans, stimulates society to find answers to problems and guarantees a certain level of concrete results.

It is increasingly clear that we need to move away from the ongoing fixation on the international climate change regime and develop alternative theoretical approaches to PS/IR that leave more room for domestic politics.

In our theoretical vision, the focus is on the political and economic developments of state players, particularly the leading ones in terms of GHG emissions and technological economic potential for decarbonization, which we refer to as 'climate powers'.

In climate politics, it is especially easy to pick out those that can act as 'Major Powers'. They are the states whose combination of economic power, global political influence and level of GHG emissions (three criteria that are, in fact, closely correlated) make their involvement crucial to achieving any worthwhile agreement. The list - responsible for more than 70% of global CO₂ equivalent emissions - includes the USA, the European Union/United Kingdom, Japan, Russia, China, India, Brazil, Indonesia and Saudi Arabia. These countries are all members of G20. Since its creation as a summit of heads of state in 2008 - a consequence of the global financial crisis triggered in September - G20 has debated climate change mitigation every year (with opposition from the Trump administration between 2017 and 2020), which has been reflected in its statements. In theory, the G20 arena would be a more appropriate place to negotiate climate policy, but in reality, the same divisions and conflicts that run through the climate change COPs are reproduced in the G20. Its functionality has deteriorated since Russia's invasion of Ukraine.

We define the climate powers as Nation-States with unique capacities to change the 'climate outcome of society' at a 'global level' (VIOLA and FRANCHINI, 2014). And we understand 'climate outcome of society' mainly in terms of climate

mitigation, that is, the capacity to reduce the carbon emissions – not in terms of adaptation. That's because mitigation must be a global global/cooperative effort so that it is always effective, while adaptation is mainly a local concern, at least as it is nowt.

The concept of climate powers involves a combination of two distinct power dimensions. The first one has been widely contemplated in the tradition of PS/IR – economic power. The second dimension – climate power – is more innovative, but it is closely related to the domain of climate change, involving mainly the volume and the path of the GHG emissions of each country. The human and technological capital available to generate a transition to a low carbon economy and the relation between the resources and the energetic culture – the latter often referred to as “energy behavior” (VIOLA, FRANCHINI, and RIBEIRO, 2012).

Thus, there are two kinds of climate powers, depending on their level of impact on the climate outcome of the society: Major powers, including the United States, the European Union/United Kingdom, China and India; and medium powers, including Brazil, Japan, Russia, Indonesia and Saudi Arabia. The future of any successful response to the climate crisis depends on the coherent interaction among those agents – mainly the Major Powers, whose cooperation will be crucial for any global agreement (VIOLA and FRANCHINI, 2018).

The States are considered as plural players – the combination of governments, businesses and civil society – and the definition of national interest varies through time and the government coalitions. The concept of global climate governance recognizes the multiple and relational nature of power and it considers that the State and the society are connected. As such, the concept recognized a wide variety of players that participate in the process of ruling over climate change and points to the appearance of new governance arrangements.

This understanding of global governance is connected to our aforementioned objection to the tendency of the PS/IR tradition to focus too much on the UNFCCC as the main means to face the climate challenge. This understanding is also connected to a wider perception among the IR scholars, which has become more popular since the mid-1990s, of the limits of a global order based on international regimes.

In short, the range of the global governance concept (ANDONOVA, BETSILL, and BULKELEY, 2009) turns it an appropriate instrument to approach both the

amount and the complexity of the social processes related to the climate changes discussed in the IR literature. Particularly, the global Governance approach allows to consider several agents in its analysis – state and non-state players located at different levels (subnational, national, international, transnational) and encouraged by a complex structure of incentives – and not only for the rational utilitarian concept of self-interest.

The use of this structure challenges the scholar to combine two main considerations in his/her analysis – 01. the governance levels, which reflect the local global dynamics; and 02. the governance sectors, whose two ends are the public and the private spheres. Thus, each governance area would include different players, located in different positions along the local-global/public-private continuum, and would have different agency levels (influence on the social outcome).

Finally, the global governance approach allows power considerations to be included in the assessment of an evaluated social outcome. The Global Climate governance is basically a political process involving those who have both authority and legitimacy to propose rules that guide the practices of the States, Global Corporations and NGOs, and who will benefit and who will lose with the adoption of particular rules and their implementation.

In addition to climate power, the path of global climate governance is defined by how agents behave regarding the mitigation of emissions. In other words, by their level of climate commitment, which may be broadly defined as the degree to which societies and political decision-makers assimilate and respond to the climate crisis as a central challenge for humanity (VIOLA and FRANCHINI, 2018). Ultimately, the climate commitment indicates if a society is contributing to either aggravate or to mitigate the global warming problem. Using the concept of climate commitment as a categorization criterium, we identify three kinds of climate stances: conservative, moderate and reformist.

Reformist states are those willing to take ambitious measures to tackle climate change by opting for the transition to a low-carbon economy. They thus move beyond national interest to a broader notion that links them to the universal interests of humanity and the planet. It also implies a shift from short-term concerns and actions to long-term ones. Conservative states, on the other hand, are those that resist

major changes and continue to prioritize a traditional carbon-intensive development paradigm. Moderate states are in an intermediate position.

The international system is dominated by conservative forces, which makes any breakthrough in the international governance of the climate system difficult. Among the major and medium-sized powers, only the European Union/United Kingdom are a reformist force, while the United States under Republican governments, India and Russia are conservative. China went from conservative to moderate in 2014. Under Democratic governments, the US tends to be moderate and, particularly under the Biden administration, has moved a little closer to reformism. Brazil, on the other hand, was conservative until 2003, became moderate from 2004 and remained so, with ups and downs, until 2018. The Bolsonaro government was extremely conservative and Lula's third term is in transition to a moderate force that could eventually evolve to a reformist level in the coming years.

Since climate change is the greatest global governance challenge facing humanity - along with human rights, economic and financial governance, and all the other planetary frontiers - the fact that the international system has not been able to give an adequate response to it makes the system conservative.

Some considerations regarding inequality in the global climate politics and its traditional division between developed and developing countries within UNFCCC, which is informed by the 'Principle of the Common But Differentiated Responsibilities' (CBDR). The discussion regarding the part of the effort - in terms of mitigation, financing and technology transfer - to stabilize the climate system is extremely complex and it requires the balance of three main dimensions, namely: climate power, mitigation costs and development/income level.

The greater the participation in the global emissions (particularly regarding both present and future), the greater should be the participation in the climate effort. The smaller the mitigation cost, the greater should be the participation in the climate effort, and the greater the development level, the greater should be the participation in the climate effort.

Ultimately, the fact that the major economies with a high participation in the global emissions have been using the argument of the 'development stage' to avoid mitigation obligations is a great form of injustice. In addition, the balance of the UNFCCC in the international system has undergone profound changes in the last

decade, further blurring the boundary between the developing and developed world. That's why we think that the most appropriate ranking of countries is that of the World Bank, which divides countries into high-income, upper-middle-income, lower-middle-income and low-income.

The role of the emerging world in the international economic politics of climate change has also been changing, increasing both in terms of its participation in global emissions, which is the cause of the problem, as well as in to low carbon capital, which is part of the solution. Simultaneously and mutually part of this material transformation is the gradual consolidation of a new international rule over the last decade that requires emerging economies to be more involved in mitigation efforts.

This movement was both accelerated and consolidated in 2015 with the Paris Agreement. The 26th Conference of the Parties (COP) that took place in Glasgow in 2021 concluded the negotiation of the pending points of the Paris Agreement. A group of less conservative countries signed declarations to eliminate deforestation by 2030, to reduce methane emissions by 30% by the same year and reduce the proportion of coal in the energy mix. The 27th COP (Sharm El- Sheikh, 2022), already in the context of the Russian war against Ukraine, brought no significant progress.

Final thoughts

Four key points are critical to understand the current objective situation of climate change, its mitigation efforts and the challenges for political science/international relations to analyze it.

Firstly, emissions continue to increase at a very high rate in the 2020s (between 01% and 02% per year). The greatest increases are in China (30% of the annual growth) and India (15% of the annual growth), with Russia, Saudi Arabia, Indonesia and Brazil also standing out. The latter saw an increase until 2022, but a sharp drop in 2023, due to the return of reduced deforestation. No country is reducing its emissions to the extent required to avoid exceeding the 1.5°C warming target. On the current trajectory, the target will be exceeded at the end of this decade or early next decade.

Secondly, in the brief history of the international political economy of climate change, there have been three alternative scenarios. The first is the negotiation at the

UN, which began in 1990 and has produced three treaties (the Rio Convention, in 1992, the Kyoto Protocol in 1997 and the Paris Agreement in 2015) with few concrete results so far, since global emissions continue to rise sharply. The heart of the disagreements has been the extremely disparate interpretation of the 'Principle of Common but Differentiated Responsibilities', which has resulted in high-income countries unwilling to transfer the necessary financial resources to low- and lower-middle-income countries and most upper-middle-income countries unwilling to make proportionate mitigation commitments.

In the second sphere, the G20, that has so far only made limited negotiation attempts, would have the advantage of significantly reducing the number of players to only include the major emitters. Nonetheless, the G20 has so far reproduced the same rank differences among the main players as the UNFCCC. The proposal to put climate mitigation on the G20 agenda took place at its second summit, in London, in 2009; at the time, only the European Union and the Obama administration were in favor. At subsequent summits, there was a slight increase in the presence of the climate issue on the agenda, but it never went beyond generic declarations without a path to action. Between 2017 and 2020, the Trump administration hindered climate issues at the G20. In Italy, in 2021, the Biden administration promoted a strong presence of the climate issue at the G20, following the position of the EU, but the final declaration did not propose concrete actions either. After the Russian invasion of Ukraine in 2022, the functionality of the G20 deteriorated profoundly. In 2023, China began to prioritize the BRICS over the G20, succeeding in expanding it to 6 more countries (Saudi Arabia, Iran, the United Arab Emirates, Egypt, Ethiopia and Argentina), 05 of which are autocracies that have no serious commitments to climate mitigation.

A third scenario has been proposed recently - the establishment of a Climate Club, in which only the countries with the greatest sensitivity to the climate issue. So, those willing to take on ambitious emission reduction targets (such as the targets taken on in April 2021 by the US, EU and United Kingdom), will be members, with these countries being the pillars of this club and others would join gradually.

As of 2021, there were discussions at the G7 Summit about forming such a Climate Club, which would adopt a common policy towards the rest of the world

(particularly the unified border adjustment rate¹, following the path of the EU), but so far there has been no concrete progress. There are some difficulties for this path: the opposition of the vast majority of the Republican Party to consistent climate policies, the protectionist component of the Inflation Reduction Act of August 2022² and doubts as to whether Japan would agree to participate.

The third topic has to do with the fact that the objective conditions to negotiate and carry out global mitigation measures have worsened since the Russian invasion of Ukraine, to the extent that countries have prioritized energy security over energy transition in the short term, expanding coal consumption and resuming investments in oil. The objective conditions have become more acute since the start of the Israel/Hamas war and could become even worse in the event of an escalation of the war. This is because Iran would likely block the Strait of Hormuz, through which 1/3 of the world's oil trade passes, with its price skyrocketing leading to a probable global recession. On the current path of increasing conflict in the international system, it is difficult to foresee an effective improvement in international cooperation to mitigate climate change.

Finally, the progress made in incorporating climate change into PS/IR has been achieved with a normative bias (wishful thinking) on the part of many analysts. In the current situation, there is a tendency to underestimate the impact of increased systemic conflict on international climate policy. It is true that the issue of climate change is very serious and needs to be tackled and grown within the framework of PS/IR, but it would be necessary for analyses of the present and the near future to incorporate more systemic obstacles and reality criteria for international cooperation.

Translated by Rodrigo Sardenberg
Submitted on October 16, 2023
Accepted on November 29, 2023

¹The border adjustment tax consists of charging an amount on the carbon content of a given imported product. It is justified when the country is protecting its industry, which already pays an equivalent carbon tax internally, and the country from which it is importing does not have this tax.

²A federal program that seeks to reduce the deficit in order to combat inflation, invest in industry and clean energy production, reducing carbon emissions by around 40 percent by 2030.

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Appendixs

Acronyms

CBDR	Common But Differentiated Responsibilities (in Portuguese, 'Princípio das Responsabilidades Comuns, Porém Diferenciadas')
CEO	Chief Executive Officer
CO ₂	Carbon Dioxide (same acronym as in Portuguese, 'dióxido de carbono')
COP	Conference of the Parties (same acronym as in Portuguese, COP)
G20	Group of Twenty* (same acronym as in Portuguese, G20)
EU	European Union (UE in Portuguese)
GHG	Greenhouse Gas (in Portuguese, GEE – gás de efeito estufa)
GtCO ₂ -eq**	Gigaton of CO ₂ equivalent (same acronym as in Portuguese)
NASA	National Aeronautics and Space Administration
NDC	Nationally Determined Contributions (mesma sigla em inglês, NDC)
NGO	Non-Governmental Organization (in Portuguese, Organização Não-Governamental – ONG)
PS/IR	Political Science/International Relations (in Portuguese, CP/RI, Ciência Política/Relações Internacionais)
UNEP	United Nations Environment Programme (in Portuguese, PNUMA – Programa das Nações Unidas para o Meio Ambiente)
UNFCCC	United Nations Framework Convention on Climate Change (in Portuguese, Convenção Quadro das Nações Unidas Sobre Mudanças Climáticas, same acronym as in English)

Note: *1't comprises 19 countries and the European Union. The 19 countries are Argentina, Australia, Brazil, Canada, China, France, Germany, India, Indonesia, Italy, Japan, Republic of Korea, Mexico, Russia, Saudi Arabia, South Africa, Turkey, United Kingdom and United States'. **1'01 Gigaton equals 01 billion ton. The CO₂-eq is a metric to transform emissions from all greenhouse gases in terms of an equivalent amount of CO₂, because every gas has a different 'warming potential'