

CLIMATE CHANGE IN THE CONTEXT OF INTERNATIONAL RELATIONS

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Abstract: Similarly to other environmental problems, the planetary scope of climate change has challenged important aspects of the current dynamics of international relations. The need for concrete action to address the problem and reduce it (mitigation) or diminish its impacts (adaptation) presupposes not only the development of science and technology but also, more importantly, a radical change in the production and consumption patterns now prevalent in countries, and this indirectly brings consequences for the power relations among these actors. Furthermore, climate change, by ignoring legal borders between states, demands new forms of governance, and forces a discussion about the concept of sovereignty, its fundamental elements, and its application. In view of these facts, the aim of this article is to bring to discussion the (in)ability of the current dynamics of international relations to respond effectively to global environmental problems, particularly global climate change. This study is structured as follows: first, a panorama of this environmental problem is given, introducing its main features, causes, and expected impact. From this overview, some issues are raised which have been demanding an effective response from international relations. Finally, some considerations are presented.

Keywords: Climate change; Realism theory; International negotiations.

Resumo: Assim como outros problemas ambientais, a mudança global do clima tem desafiado importantes aspectos da dinâmica das relações internacionais atuais. A necessidade de uma ação concreta para lidar com o problema pressupõe não somente o desenvolvimento científico e tecnológico, mas sobretudo uma mudança radical nos padrões de consumo e produção que prevalecem atualmente nos países, o que indiretamente traz consequências para as relações de poder entre esses atores. Além disso, a mudança climática, ao ignorar fronteiras legais entre Estados, exige novas formas de governança, e força uma discussão sobre o conceito de soberania, seus elementos fundamentais e suas aplicações. Tendo em vista esses fatos, o alvo desse artigo é trazer à tona essa discussão sobre a (in)abilidade das relações internacionais atuais para responder eficazmente a problemas ambientais globais, em especial à mudança climática global. O estudo aborda inicialmente um panorama desse problema ambiental e apresenta suas principais características, causas e impacto esperado. Dessa visão geral, alguns pontos que demandam uma resposta efetiva por parte das relações internacionais são levantados.

Palavras-chave: Mudança climática; Teoria do Realismo; Negociações internacionais.

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I. INTRODUCTION

Climate change resulting from the increased concentration of greenhouse gases (GHG) in the atmosphere is a major item in the international agenda to be addressed by states. Even in the face of scientific uncertainty about the extent of the problem and the degree to which mankind contributed to it, there is a growing consensus that anthropogenic activities are increasing the concentration of GHG in the atmosphere, largely because of growing emissions, particularly from fossil fuel energy generation and use, and from deforestation.

Similarly to other environmental problems, the planetary scope of climate change has challenged important aspects of the current dynamics of international relations. The need for concrete action to address the problem and reduce it (mitigation) or diminish its impacts (adaptation) presupposes not only the development of science and technology but also, more importantly, a radical change in the production and consumption patterns now prevalent in countries, and this indirectly brings consequences for the power relations among these actors. Furthermore, climate change, by ignoring legal borders between states, demands new forms of governance, and forces a discussion about the concept of sovereignty, its fundamental elements, and its application.

In view of these facts, the aim of this article is to bring to discussion the (in)ability of the current dynamics of international relations to respond effectively to global environmental problems, particularly global climate change. This study is structured as follows: first, a panorama of this environmental problem is given, introducing its main features, causes, and expected impact. From this overview, some issues are raised which have been demanding an effective response from international relations. Finally, some considerations are presented.

II. CLIMATE CHANGE: A GLOBAL ENVIRONMENTAL PROBLEM

The study of the problem of global warming began to gain attention in scientific fora in the 1970s. In 1988 the Intergovernmental Panel on Climate Change (IPCC) was instituted at the initiative of the World Meteorological Organization and the United Nations Environment Programme (UNEP). The main attribution of the IPCC is to analyze, in a broad, objective and systematic way, the scientific, technical and socioeconomic information available in the academic world (IPCC, 2003). With a cooperative network of scientists and scientific institutions from all over the world, the IPCC is regarded as the premier authority on the state of knowledge about climate change, and has significantly influenced international political negotiations on ways of addressing the problem (Siebenhüner, 2006).

According to the IPCC (2001a), the planet's average temperatures are increasing faster since the beginning of the Industrial Revolution, and in the twentieth century alone this rise varied from 0.2 to 0.6°C. After observing extensive glacier reductions in non-polar regions throughout the twentieth century, the IPCC (2001a) also reported that it is very likely that the extent of snow coverage decreased by about 10% since the 1960s. In Latin America, episodes of intensification of the "El Niño" phenomenon are also expected, resulting in temperature and precipitation changes in tropical regions.

The scientific community has gradually recognized that climate change is already causing environmental, social and economic impacts, although scientific uncertainties still remain about their extent, intensity, and severity (UNFCCC, 2003). According to the IPCC (2001b), scientists point to evidence of regional climate change, particularly temperature rise, affecting physical and biological systems and causing glacier contraction, late freezing and early ice melting in rivers and lakes, decline of some plant and animal populations, intensification of drought periods and floods in critical regions, etc. The exacerbation of chronic water shortage, particularly in arid and semiarid regions, is also expected (IPCC, 1997), raising the numbers of people exposed to malaria and dengue fever vectors, and increasing flood risk in some human settlements (IPCC, 2001b). Interaction of climate change and disturbances already caused by intensive agricultural activity may affect agricultural productivity, leading to a general reduction in the potential of arable land in most tropical and subtropical regions (IPCC, 2001b). Climate change tends to affect fish abundance and population dynamics, with negative impacts on fish-dependent human communities in coastal regions (IPCC, 2001b). Mackellar et al. (1998) use the phrase 'environmental refugees' and reckon that such impacts will intensify existing pressures for international migration and violent conflicts around natural resource scarcity.

Problems that may arise in case these predictions come true indicate an alarming socioeconomic picture. It is conjectured that the hardest-hit regions may be developing countries, particularly poorer ones, which already are massively affected by poverty, hunger and inequality. These countries are more vulnerable to climate change for different reasons. First, they already face problems related to factors that condition adaptive capacity, such as wealth, technology, education, information, and infrastructure, among others (IPCC, 2001b). Second, a greater interference of climate change in these regions is expected, aggravating existing problems.

Although world climate always exhibited natural variations, and although the extent of man's contribution to this cannot be ascertained, scientists assert that global warming is partly consequence of human activity. A study by the IPCC (2001a) demonstrates that natural events do not contribute significantly to GHG increase, whereas anthropogenic activities do. Since the beginning of the Industrial Revolution around 1750, over 270 billion tonnes of carbon have been added to the atmospheric reservoir as a result of fossil fuel burning alone (Dunn, 2000). In the view of IPCC, the intensive use of these fuels continues to be the main source of CO₂ emission in the last 20 years, and contributes with 2/3 of total emissions; the rest is attributed to land use change,

particularly deforestation. Both in historic and in contemporary terms, developed countries are the main GHG emitters, contributing with nearly two-thirds of global emissions. However, estimates point to a significant emission increase in developing countries. If current tendencies persist, China, India and Brazil will exhibit in the future emission levels above those of developed countries, particularly if their economic growth needs are taken into account (IPCC, 2001b, OECD/IEA, 2002).

Scientific findings about the significance, consequences, impacts and causes of climate change led Mateo (1992) to describe global warming as a universal threat, because the climate, as other elements of the environment, constitutes an ecological continuum extending over spaces subjected to the sovereignty of states and beyond -- which makes climate change a threat common to all human beings (Ruiz, 1999). The global character of climate change brings climate balance close to the notion of common good of mankind, to be equitably shared by all human beings, under a rational and necessarily pacific management (Rei, 1993-4). In other words, addressing global warming demands an eminently international response, based in the effective cooperation and broad participation of all countries, particularly the main emitters (Pershing & Tudela, 2003). Because of the non-linearity between cause and effect, this response must contemplate long-term measures, taking into account the right of future generations to a balanced climate (Ashton & Wang, 2003).

However, in the face of the realities of international dynamics, the effective and necessary response to global environmental problems meets with severe difficulties for its success, particularly from the realist perspective.

Based on the assumption that international society is primarily formed by sovereign states, the realist theory analyses international relations from a perspective of balance of power (Aron, 1982). According to this theory, the international system lacks the notion of monopoly of force and coercion in international law, and resembles an anarchic system operating by the dynamics of power games, marked by a hierarchical power: a few powerful states dictate the rules, even though the system is pluralist (Pistone, no date). In other words, in the absence of an effective legal system, the balance in international relations is given by the law of force and power among states, even though this hardly implies a democratic reality (Aron, 1985). And in general the extent of this force and power is proportional to national interests, although they may come from different spheres of society.

Now, how to conceive an effective cooperation in favour of long-term solutions in an international system based on power relations among sovereign states? In addition, if international relations still are, to a great extent, structured on power theories, under which state borders are considered inviolable and sovereignty proclaimed as absolute, how to reconcile this with environmental problems that transcend the territoriality of states in their causes, impacts, and combat measures (Miyamoto, 1991)? This is what will be discussed below.

III. COOPERATION AND EFFECTIVENESS: THE DIFFICULTY OF RESPONSES FROM INTERNATIONAL RELATIONS

For the realist theory of international relations, state sovereignty means the absence of a supra-state authority, and this supports the idea of autonomy or independence among states. In addition to the notion of autonomy, sovereignty also involves two other elements: control -- the ability to produce effect --, and authority or legitimacy -- the exercise of legitimate power (Litfin, 2000).

Confronted with global and regional environmental questions, the notion of autonomy is the most affected, since the principle of international cooperation and the understanding of environmental quality as a common interest suggests the interference of norms of international law in the realm of domestic law. In general, such norms have been agreed upon via international treaties formalized under the coordination of UN.

Focusing once more on climate change, the institution of two treaties can be mentioned: the United Nations Framework Convention on Climate Change (UNFCCC) and the Kyoto Protocol (KP), that together regulate a complex framework regime founded on two keystone principles of international environment law: Precaution, and Common but Differentiated Responsibilities. This regime, established and coordinated by the UN, institutes obligations for the states, which they sovereignly accept but are bound to fulfill, either by implementing domestic measures (such as carbon tax, energetic efficiency incentive programs, etc.) or via international cooperation (such as transference of technology and resources, emission reduction and emission rights trading, etc.). This is what Miyamoto (1991) calls "shared sovereignty"¹.

One of the main features of the so-called climate regime is the imposition of differentiated obligations on developed countries listed in Annex I of UNFCCC, defined as quantified GHG emission reduction targets to be fulfilled in the so-called first commitment period, which extends from 2008 to 2012. As foreseen by KP, international negotiations about the regime to be in force after this first period began in 2005.

Under the treaties of the "framework" kind, UNFCCC and the KP are periodically regulated in Conferences of Parties², in which diplomatic delegations of countries formally participate. In practice, these meetings are marked by games of interests among states, and in general important decisions are taken before their formal approval, since fundamental aspects are defined in backstage diplomatic activity among countries which hold a greater bargaining power (Andresen & Agarwala, 2002).

¹ Authors such as Viola (2002), Litfin (2000), and Bodansky (1999) mention other examples of shared sovereignty: the constitution of the European Union, and the role of the environmental directives on the internal regime of member states, as well as several international treaties in the field of nuclear safety and environmental protection.

² For the UNFCCC these meetings are called Conferences of Parties (COP). For the KP they are called Meetings of Parties (MOP).

An examination of the evolution of climate regime negotiations -- from the early WMO conferences to the latest COP -- reveals a progressive move from an eminently scientific approach to a prevalence of power games and a direct influence of strategic domestic interests in the position of the main participating countries (Andresen & Agarwala, 2002). The best illustration is, of course, the conduct of the current United States (US) government.

As the main GHG emitter (currently contributing with about 25% of the global emissions), and given its political and economic importance in the international arena, the US are one of the main actors in international climate negotiations. Since the 1980s, global warming is a topic under discussion in the country's government circles. In the Clinton-Gore administration (1990s), the theme drew attention and, in spite of the reluctance of conservative sectors of the congress and the oil industry lobbies, the American delegation was crucial in the process of formatting the climate regime. Indeed, the main aspects of the KP, particularly the flexibility mechanisms³ and market instruments built into it, resulted from a confrontation between the US and the European Union (EU) in which, of course, the former made gains (Christiansen, 2003).

However, in spite of the significant participation of the country in formatting the KP, in early 2001 the Bush administration announced that it was not going to ratify the treaty -- a consequence of the unanimous approval by the senate of the Byrd-Hagel Resolution. The Resolution itself, as the whole position of the government since, resulted both from the influence of internal interest groups⁴, and from an approach focusing on the economic costs of the KP. Effectively, the prospect of assuming an obligation of reducing emissions translates, in practice, in a reduction of fossil fuel consumption, which might be seen as a threat to the productive activity of a country highly dependent on oil for energy generation and other purposes. The climate question was not confined to the environmental discussion: it turned out to be a topic of economics and even of energy security (Christiansen, 2003).

The focus on the economic cost of mitigation was illustrated by the condition, expressed in the Byrd-Hagel Resolution, to the ratification of the Kyoto Protocol by the US: the imposition of GHG emission reduction targets on the more industrialized developing

³ The CDM originated from a proposal by the Brazilian delegation -- the creation of a Clean Development Fund, with resources from fines paid by countries unable to meet their emission reduction targets. Before COP 3 (Kyoto) started, and even during formal negotiations, the American delegation requested a formal intervention in the discussion of the Fund, transforming it into the CDM -- a mechanism allowing countries listed in Annex I of the UNFCCC to invest in projects of emission reduction or sequestration in developing countries in exchange for Certified Emission Reductions (CER), to be used to complement the attainment of their targets. Similarly to the CERs of the CDM, reduction units of other flexibilization mechanisms (Joint Implementation and International Emissions Market) constitute the basis of the current carbon market.

⁴ Among these interest groups, one is worth highlighting: the Global Climate Coalition, a coalition against the KP which had as their main members the American Petroleum Institute and the oil company ExxonMobil.

countries, notably Brazil, India and China (Viola, 2002). The inclusion of these countries means a greater dilution of mitigation costs (Girardin, 2000). Ratification of the KP by the US was to become even more improbable as the Bush administration grew more and more opposed to the KP and took a more isolationist position, as in other aspects of its international policy. The institution in 2005 of the Asia-Pacific Partnership, a technological cooperation agreement on climate change signed by the US, Canada, China, India and Australia, was a token of the American environmental unilateralism (Holtwisch, 2006).

Ironically, this agreement also marked a change in the country's strategy: instead of pressurizing developing countries to assume more specific mitigation commitments, the US began to promote alliances with those countries in parallel with the KP, in a clear demonstration of opposition to the UN regime. The aim now is to win the support of these countries against the continuation in the post-2012 period of a KP-based regime (Bang et al., 2005).

For the negotiations and implementation of the climate regime instituted by the UN, the refusal of ratification by the US, and its subsequent opposition to the KP, influenced in a way the position of other players: the EU and the Group of 77 and China⁵. Just after the announcement by the Bush administration of its withdrawal from the KP, what was seen instead of a collapse in negotiations was a strong reaction of European countries, which made the EU dawn as the great champion of the climate regime. Effectively, several measures were implemented in the regional level in an attempt to give the regime a degree of effectiveness: the European regime of GHG emission trading formally began operation (in 2005), incentive programs for energy efficiency and renewable sources were created in most member countries, and an intensive and protracted negotiation with Russia was started, aiming at making feasible the entry in force of the KP (Bang et al., 2005).

In fact, the more proactive position of the EU is not only a result of increased environmental awareness and pressure of internal environmental groups. There is a strong economic component as well: with a more limited economic growth than the US, and given the characteristics of its energy mix, the EU would have less difficulties and costs in assuming the mitigation goals. Furthermore, the move to a less carbon-intensive energy pattern, made viable by the availability of Russian natural gas, is the energy strategy of the group. From the perspective of international politics, the leadership in the climate change negotiation would confer the EU a more positive image, in contrast to the US (Michaelowa, 2005).

From the beginning of the political negotiation of the climate regime, and even combining the most diverse interests of developing countries, the G-77 succeeded in

⁵ The G-77 was formed in 1964 as a group of developing countries for the defence of their common interests in the sphere of the UN. In the climate regime negotiations, the G-77 gained the support of other developing countries and of China, making it a group of 145 countries with widely diverse and even diverging political positions (Deplege, 2002).

maintaining a considerable degree of cohesion, at least with regard to the common interests of developing countries such as the defense of the right to development, the demand of greater efforts from rich countries in combating global warming, the request of greater guarantees of technological and financial resource transference, etc. (NAE, 2005). However, the growing pressure for developing countries to assume emission reduction commitments, rather than strengthening the bonds within the group, has been functioning as a factor of disarticulation of its participants, cooling down its bargaining power. This is due to a large extent to the diversity of economic, political, social and ideological circumstances among countries, which influences their respective interests. From an economic perspective, the tendency of appearance of distinct positions in the discussions about the post-2012 regime is influenced by the possible effects that mitigation policies may have on the international competitiveness of the main economic activities of developing countries. Based on these considerations, Girardin (2000) found that countries that oppose any form of mitigation commitment -- particularly China, India and other Southeast Asian countries have generally had high GHG emission levels, with a tendency for continuity, in view of the economic growth projections, resulting to a large extent from their dependence on fossil fuels, particularly coal.

The undeniable influence of national circumstances of countries, mainly those involving the guarantee of structural aspects (such as security of energy supply), expressed in terms of strategically defended interests, ends up by imparting to international negotiations on climate protection a conflicting character, threatening the effectiveness of the regime (Viola, 2002). In addition, these interests are generally confined to a short-term perspective, instead of the long-term approach required for addressing global problems, particularly climate change (Diringer, 2003).

In the context of international relations, marked by the absence of a supra-state coercive power, and by the need of consensus in the establishment of international measures, the outcome of this conflict finally depends more on the political will of the states than on the duty to cooperate, giving rise to a real risk of ineffectiveness (inefficiency) of the international regime. The implication in the context of the post-2012 regime negotiations is that, in the face of diverging interests, the hypothesis cannot be discounted that important countries will create difficulties for cooperation, impose conditions for their inclusion in the regime, or even participate in a merely formal way (Höhne, 2003). In view of the results of the last COP⁶, this threat is real (Müller, 2006).

Effectively, UNFCCC data (2005) confirm that, compared to 1990, GHG emissions of Annex I countries, except for East European countries, increased by 9.2% in 2003, despite the obligation to reduce by an average of 5.2% till 2012. The situation of some countries is even more disappointing: between 1990 and 2003, Canada increased its GHG emissions by 24.2%, Australia by 23.3%, and the USA by 13.3%. With the

⁶ In COP 11 in late 2005, discussions about the post-2012 climate regime were polarized into two formal negotiation routes: that of KP, and the one called "dialogue" with the participation of all UNFCCC parties. The first goal limited itself to the discussion of Annex I targets, and the second kept a programmatic, long-term approach (Müller, 2006).

exception of Germany (reduction of 18.2%) and the United Kingdom (reduction of 13%), most EU member countries exhibited poor results, and the EU itself could reduce its emissions by just 1.4% in the same period. Among developing countries, China, India and Brazil already are considered the third, fifth and sixth largest GHG emitters in the world, respectively.

On the one hand, it is certain that the realist theory, by focusing in the power relations among states, succeeds in explaining the prevalence of power games of countries in the configuration and implementation of the climate regime, identifying leaderships and putting the conflict in context, but on the other hand this theory is unable to give satisfactory answers about how to effectively address the problem. Furthermore, returning to the discussion on sovereignty, by focusing on current power games in international negotiations, and by recognizing the scant efficacy of the regime, climate change ends up affecting another element of this notion, so dear to the realist theory -- legitimacy.

IV. LEGITIMACY AND NEW WAYS OF RESPONDING TO ENVIRONMENTAL PROBLEMS

Legitimacy is conceived by Bodansky (1999) as a quality that leads a people (or a state) to accept authority -- independently from coercion, self-interest or rational persuasion -- as a result of a general sense that authority is justified. Legitimacy is a thorny topic for traditional international relations theories, because it is intimately linked to the state-society interaction (Litfin, 2000).

As previously mentioned, because the international route is officialized by means of agreements signed by consensus by states in the sphere of international institutions, it suffers the direct influence of private interests of states. In general, these interests do not harmonize with the requirements of addressing global environment problems, because they have a short-term horizon, or emerge from predominantly economic or strategic perspectives, whereas environmental problems demand long-term actions and a broad view. Besides, the impact of global environmental problems ignores state barriers, calls for effective cooperation, and leads to an understanding that such problems are ultimately a matter of common good (Bulkeley, 2005), so much so that such impacts are concretely felt in infra-state levels (Bodansky, 1999). When contrasted to the complexity of response via action of the states within international law, the notion of common good is able to inculcate a sense of intergenerational responsibility in all levels of social organization (Litfin, 2000).

In fact, the notion of intergenerational responsibility, by recognizing the right of future generations to environmental quality, requires decisions made in the present to take into account the guarantee of future access to the common good. But who entrusts the states with the authority to decide about questions directly affecting future generations? In

other words, can decisions clearly based on short-term interests be considered legitimate?

The lack of answers to these questions and the need of practical actions to address global environmental problems "legitimated" the emergence of new forms of authority. Though devoid of the elements of sovereignty, autonomy and control, these new structures gain a voluntary legitimation from the civil society (Dedeurwaerdere, 2005), originating from the recognition that effectively addressing global environmental problems demands the cooperative and coordinated action of governance systems based on different levels (state, supra-, infra- and inter-state) and composed of state, infra-state (regional and local) and non-governmental actors, each performing a variety of roles (Bulkeley, 2005).

In the realm of climate change, in addition to the emergence of eminently scientific networks with strong influence on the conduction of international decisions, such as the IPCC, and to the expansion of the action of non-governmental organizations (NGOs), local level intergovernmental networks have been created, as for instance the International Council for Local Environmental Initiatives (ICLEI) and others on the regional level, such as the Network of Regional Governments for Sustainable Development (NRG4SD). Other developments worth mentioning are some infra-state initiatives, such as some American states, California among them, which have been implementing mandatory mitigation measures, flouting the wishes of the federal government (Jonas & Pincetl, 2006).

Even without formal space in international law, the networks mentioned above (scientific, intergovernmental and interstate), the NGOs and infra-state actions occupy real space and legitimize in the factual plan the action of non-sovereign actors in the international relations arena.

Indeed, networks such as ICLEI and NRG4SD already participate formally in the COPs, albeit with limited strength of action. Underestimating their role both in the construction of effective measures to address environmental problems and in the recognition of the legitimacy of non-sovereign actors would be equivalent to ignoring a real search for the solution to these problems.

V. CONCLUSIONS

Because climate change is among the most serious global environmental problems, it challenges the theories of international relations to give effective responses.

Thus, this study attempted to indicate the difficulty of traditional theories, notably the realist theory, in dealing with global environment issues.

This is not to deny that realism can explain the dynamics of international negotiation about the regime of combat of climate change, mainly by identifying power and interest games underlying the positions held by countries. However, it is argued that the theory is unable to give answers to the need of effective cooperation for the sake of the common good.

This reasoning calls into question the concept of sovereignty, putting into perspective the elements of autonomy and legitimacy, and notes the emergence in practice of other spheres and structures in the infra-state and inter-regional levels that, having been perceived as more effective in understanding how climate change combat should be conducted, are winning from society higher levels of voluntary legitimacy, enabling them to challenge the role of the state as the sole subject of international relations.

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