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CLIMATE JUSTICE,
BETWEEN GLOBAL AND INTERNATIONAL JUSTICE
-INSIGHTS FROM JUSTIFICATION THEORY

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*Climate justice, between global and international justice -
Insights from justification theory*

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Abstract

For 20 years, climate negotiations have faced the difficult task of designing an international regime accepted by the main parties as fair, equitable and efficient. Climate justice is called for from all sides, but there is no agreement as to what justice actually requires. The goal of this paper is to propose a critical overview of the intellectual landscape surrounding the concept of climate justice, and to clarify the challenges, positions, arguments and theoretical background of a concept that is dramatically exposed to the risk of being reduced to either naive moral calls, simple ideological slogans or political gesticulations from stakeholders and parties to negotiations. I will dispute the idea that moral intuition offers a sufficient basis to elicit the correct standard of justice. To begin with, I will underline the sharp contrasts between four rival intellectual constructs: utilitarianism, cosmopolitanism, international justice and the rejection of the relevance of the concept of justice in the context of international relations. In particular, cosmopolitan justice is shown to be inconsistent with and wholly inappropriate to the situation of climate negotiations. The second part of the paper develops an alternative analysis based on justification theory: the pluralism of justification is consubstantial with complex societies, but the criterion of the appropriateness of norms of justice to situations helps us to understand which norms of justice can be supported and which should be disregarded. In particular, the choice of a given coordination regime is shown to have huge implications for the appropriate norms of justice, taking the case of international carbon trading in a Kyoto Protocol-type regime as an example.

Keywords

Climate justice, cooperation, justification, cosmopolitanism, emissions trading

JEL Classification: D63; Q54; F02; F53s

Introduction*

Climate justice is certainly one of the most difficult and controversial issues. People may have strong views and beliefs about this, and thus be reluctant to accept any discussions or new thinking that may call these views into question. It is also an issue that has been highly politicised within the field of international negotiations, as seen in the discourses and proposals exchanged between State representatives, as well as within the various stakeholder networks forming the so-called “civil society” surrounding the negotiations; the latter includes NGOs concerned with different causes (development, environmental protection, health care, the fight against corruption, and so on) and business organisations. Some networks of academic researchers and activists have taken over the concept of climate justice to give it a very specific content and to disseminate it as self-evident norms; they generally support radical views about international relationships and, more often than not, charge the North as a whole with huge obligations towards the South as a whole, due to the presumed “ecological debt” of the former.

As a matter of fact, debates, thoughts and proposals aimed at contributing to a definition of the content and limits of this concept of climate justice are far more diverse than would appear after a rapid look at the most strongly voiced claims. Moreover, the variety of positions is deeply embedded in fundamental debates on current moral and political philosophy as well as on pragmatic sociology.

Thus, the goal of this paper is to propose a critical overview of the intellectual landscape surrounding the concept of climate justice, and to clarify the challenges, positions, arguments and theoretical background of a concept that is dramatically exposed to the risk of being reduced to either naive moral calls, simple ideological slogans or political gesticulations from stakeholders and parties to negotiations.

After a first section setting as prolegomena two opposite positions of well-known philosophers, Henry Shue and John Rawls, about the very concept of justice, I will consider various features of the climate puzzle that are important to establishing the thinking on climate justice. Since moral philosophers are fond of stories to stimulate and guide intuition towards their preferred solutions to challenges or conflicts, I will take some of these enhanced climate change stories and then add some of my own in order to reveal what is, to my mind, one of the key features of the field, in other words the pluralism of references that are circulating around the requirement of justice, a little like electrons spinning around the nucleus of an atom. The following section will introduce some basic typologies that help us to understand the framework of the field and give each argument or proposal its proper place. Next, I will introduce four theoretical universes that have explicit implications for the climate change issue: utilitarianism, cosmopolitan justice, international justice, and the rejection of the relevance of the concept of justice in the context of international relations. The contrasted outcomes of these theoretical viewpoints will lead to a conclusion: it is necessary to reconsider the basic features of international climate negotiations in order to identify the reasons behind the cacophony and deadlock in which previous developments in the thinking on justice are caught.

The final section will attempt to propose a different approach that could help to find a way through obstacles and indeterminacy, taking us to the stage of precise proposals. It will mobilise the justification theory (Godard, 1989, 1990; Boltanski and Thévenot, 2006) as the main intellectual

* The paper is an outcome of the research programme on climate economics developed at the Economics Laboratory under the supervision of Jean-Pierre Ponsard with the support of Chair Business Economics and Chair Sustainable Development of Ecole Polytechnique. It is based on an invited presentation given at the Executive Seminar on Climate Governance, organized by the Global Governance Programme of the European University Institute in Florence, 13-15 June 2011. I am grateful to Chairs of Ecole polytechnique and the EUI for their intellectual and financial support to the preparation of the paper. I also thank Denny Ellerman, MIT and EUI, for his confidence and risk-taking when inviting me to come to Florence, and Mrs Anna Kiff for the final English editing of the paper.

resource and will demonstrate the strong link between the nature of the situation in which concepts of justice are tentatively mobilised, the type of coordination regime that is chosen by the Parties, and the framing of justice issues. As an example, the type of regime introduced in 1997 by the Kyoto Protocol (national caps and the opportunity to exchange quotas internationally) under the UN Framework Convention on Climate Change (UNFCCC) will be examined in order to reveal the implications of this regime for the very definition of issues pertaining to justice and their solutions.

Prolegomena

Let us begin with two strong positions of two well-known philosophers regarding the perimeter of the concept of justice and the contribution of theoretical thinking to clarifying issues, directions and solutions.

In his presentation at the SBSTA¹ Technical Briefing on Historical Responsibility, held in Bonn in June 2009 (one of the side events of a preparatory meeting for the upcoming Conference of the Parties (COP) to the UNFCCC in Copenhagen in December 2009), Henry Shue of Merton College, Oxford University, provocatively stated that:

“No one needs academic theorists to tell them what is right and wrong. (...) Theorists can make two modest contributions. First they can answer misguided objections to common-sense principles of right and wrong raised by other theorists and thereby restore the situation to common-sense zero. And, second, they can sometimes systematize some of the plurality of common-sense principles into a coherent whole (...)”.

Were it not for the fact that these words were part of an introduction that was intended to be witty, this would be one of the most misleading sentences I have ever read about justice. Taken seriously, Shue is suggesting that basic intuitions without rational thinking can be a necessary and sufficient basis for making pragmatic judgments about right and wrong, fair and unfair, for a complex matter like international climate policy.² With the release of John Rawls' *Theory of Justice* in 1971, we began to consider that raw intuition should give way to a reflective approach combining intuition and a rational examination of consequences and to concern about the coherence of specific judgments with a larger set of values and principles. Far from dismissing rational thinking, philosophers should aim to reach this point of reflective equilibrium between a shared, revised intuition regarding solutions to a specific case and other well-established moral and political beliefs. In so doing, they must also try to elucidate the link between a framework of principles and judgments and the features of the very situation that raises disputes in which the idea of justice is mobilised by various parties. Shue's plea for basic common sense against a mocked rational thinking could paradoxically be seen as a veiled admission of his uneasiness with his own proposals regarding global climate justice, but also offers a good point of departure for asking what justice at the international level is about.

To help us to provide an answer, let us turn to John Rawls and examine how he approached the concept of justice in his *Theory of Justice*. In this major work, he adopted this fundamental Humean principle:

¹ The Subsidiary Body for Scientific and Technological Advice is a formal structure created by the first COP of the UNFCCC in 1995 to explore the scientific and technical background of issues addressed by the Convention. The SBSTA is one component of the UNFCCC governance, whereas the IPCC, whose work establishes the science on climate change, impacts, scenarios and policy instruments, is an intergovernmental body independent of the UNFCCC that was created under the auspices of the World Meteorological Organization and UNEP in 1988, nearly four years before the adoption of the UNFCCC.

² As a matter of fact, the humoristic quality of the statement is disputable. Already in his 1999 paper, Shue was appealing to universal common sense in order to defend his views on the obligation of industrialised countries to pay for GHG emissions reductions and other sources of global environmental disruption.

“The circumstance of justice may be described as the normal conditions under which human cooperation is both possible and necessary” (p. 126 of 1971 Edition)

The concept is relevant only under specific circumstances. It is not a primitive, all-founding concept as Shue (1999, 2009) or Vanderheiden (2010)³ seems to consider, but a derived one. The core idea from which the idea of justice is derived is that of cooperation. In spite of its huge importance for human affairs, the idea of justice is relevant only under circumstances concerning human cooperation. Issues of justice arise because and to the extent that human beings need to cooperate.

According to Rawls, the concept entails objective and subjective conditions. The main objective conditions are the following:

1. human beings who coexist within a specific geographical territory (physical link and interaction);
2. human beings who have comparable capacities and competences, with no-one in a position to dominate the others (similarity and the need to make voluntary agreements or to refer to rules that would be agreed upon voluntarily);
3. human beings who are vulnerable to the actions of others, and who can oppose their projects (mutual dependency and common interest in devising cooperative settings to achieve one's ends);
4. the resources required are scarce since respective projects and interests are conflicting; but resources are only moderately scarce in the sense that, through cooperation, solutions can be found that provide satisfying outcomes for everybody without condemning some people to starvation.

There are also subjective conditions:

5. each person has developed a conception of the good, which he feels deserves to be considered and acknowledged by the others;
6. distinct individual ends, purposes and plans result in conflicting individual claims to resources;
7. all people are rational and reasonable, but mutually disinterested. This means that they are not essentially altruistic; they are not ready to sacrifice their own interests for the benefit of others. At the same time, they take into account the presence of others and seek mutually acceptable rules of coexistence and cooperation.

It is interesting to compare these conditions with those involved in the climate puzzle in order to assess the degree to which they fit together: to what extent does the climate change issue belong to the perimeter of justice?

1. as the global climate is a global public good that is produced or disrupted in a decentralised manner through the behaviour of billions of human beings, its protection through mitigation policies that organise a strict control of greenhouse gas (GHG) emissions clearly requires the cooperation of most of the people in the world. In particular, stringent mitigation action by developed countries alone would not be nearly enough to achieve this goal. Under the goal of “avoiding a dangerous interaction with the global climate”, cooperation between developed, emerging and developing countries is a necessity imposed by the objective characteristics of the situation. However, the picture is different if instead of mitigation the focus is placed on adaptation or geo-engineering: whereas mitigation is aimed centrally at producing a global public good, adaptation provides only local private goods for those who take action to adapt (Barrett, 2008a). Geo-engineering provides an intermediate case: if its interests are sufficiently threatened by climate change, a powerful state – the USA today, China in the near future – could decide by itself to use technological solutions (sending aerosols into the atmosphere, introducing iron into the oceans, installing big mirrors in space to limit the solar radiation reaching the Earth, and so on)

³ Vanderheiden (2008, p. 49) writes: “justice is related to equality, and this typically takes the form of a premise that all persons are morally equal. (...). Assuming that persons are moral equals further entails that *ceteris paribus*, no person should be better or worse off than any other. (...) arbitrary or undeserved inequality in outcomes is taken to be unjust”.

without being obliged to obtain the agreement and active cooperation of other states (Barrett, 2008b); this would be a case, as with monetary regimes, in which a leading power is sufficiently concerned by an issue to undertake alone the production of a global public good;

2. a climate regime is mainly negotiated among states and major, critical commitments are expected from states. Essentially, such a regime belongs to the realm of international relationships. The basic entities to consider in arguments are then states, rather than individuals or various types of informal cross-border communities (friends of Facebook, for example). We must consider the same sort of switching of central figures as operated by Rawls in his Law of Peoples (Rawls, 1993a): international society is first and foremost a society of states.
3. climate policies are costly, whatever the controversies about the level of costs involved (moderate, acceptable or high) resulting from various strategies. At the same time, the scarcity of resources is not such a constraint that it is unthinkable or impossible for human beings to keep their global GHG emissions under control at a level that would not be expected to entail a dangerous interaction with the global climate: experiencing dangerous human-induced climate change was not the fate of humankind when this began to be considered as a governmental issue in the late 1980s. Fifteen years later, it could still be possible to address the challenge with the systematic and coordinated use of existing or imminent technologies (Pacala & Socolow, 2004);
4. embedded in different cultures and socio-economic conditions, different countries clearly and legitimately have different ends, purposes and priorities, specifically regarding the importance to be given to environmental protection in relation to economic development; these differences result in conflicting plans and claims concerning climate action, which is reflected in the hesitation on the path towards international coordination over the last 20 years;
5. states, those “cold monsters” as they are sometimes presented, are clearly not altruistic, but they learnt long ago that they must try to find a *modus vivendi* with others and even to cooperate with them for specific goals.

The conclusion is straightforward. The climate case legitimately belongs to the perimeter of the concept of justice because it calls for cooperation. However, although international cooperation is valuable, its necessity is not uniform across climate strategies. Cooperation is imperative for stringent mitigation policies to be efficient in terms of their ultimate declared purpose. Nevertheless, it is not a *sine qua non* for any climate policy. Here, motivations and requirements for cooperation are linked: adaptation and geo-engineering may provide “alternatives”, if not substitutes, in case cooperation cannot be achieved under acceptable conditions. With climate change, the issue is not to determine which general foundations to give to a just global society, as was Rawls’ ambition for national societies. Here we must tackle a field of action framed by “possibly huge but limited needs of cooperation”. The intellectual place of justice claims cannot avoid being accordingly restricted and bound.

More on the climate change puzzle

I assume that the main features of the scientific background of climate change are common knowledge. I would just like to stress some features that are critical to the discussion about climate justice.

Global risks due to climate change are mainly independent of the geography of GHG emissions, but their impacts will affect different regions in very different ways, in spite of the possible instability of this distribution regarding temperatures, rainfall and extreme events. The global climate machine makes it impossible to identify a link between given emissions from one place and given impacts in another. The unequal distribution of impacts has no link with the geographical distribution of emissions.

Climate change is surrounded by all-pervasive uncertainty due to the global, very long-term and dynamically complex nature of the issue, but also to historical uncertainty regarding future GHG emissions trajectories. The general concept applying to such a context is that of risk, in its broader meaning that covers uncertainty. The implication is that although present global climate change can very probably be at least partially linked to GHG emissions since the 19th century (IPCC, 2007), and will be more so in the future, it is and will be impossible to establish a direct causal link between identified GHG emissions and identified, localised damage generated by specific weather events. Each time an extreme event occurs, scientists explain that it is not possible to assert a direct link with global climate change. We can only speculate on statistical presumptions about overall tendencies, not on individual events. And everyone knows that there is still debate about the respective roles of natural causes and human responsibility in current climate change. This certainly puts serious obstacles on the path to founding climate justice on liability for “damage” caused to “victims” by “polluters”, even before we question the basic concepts that would make it possible to talk of “damage” and “victims”.

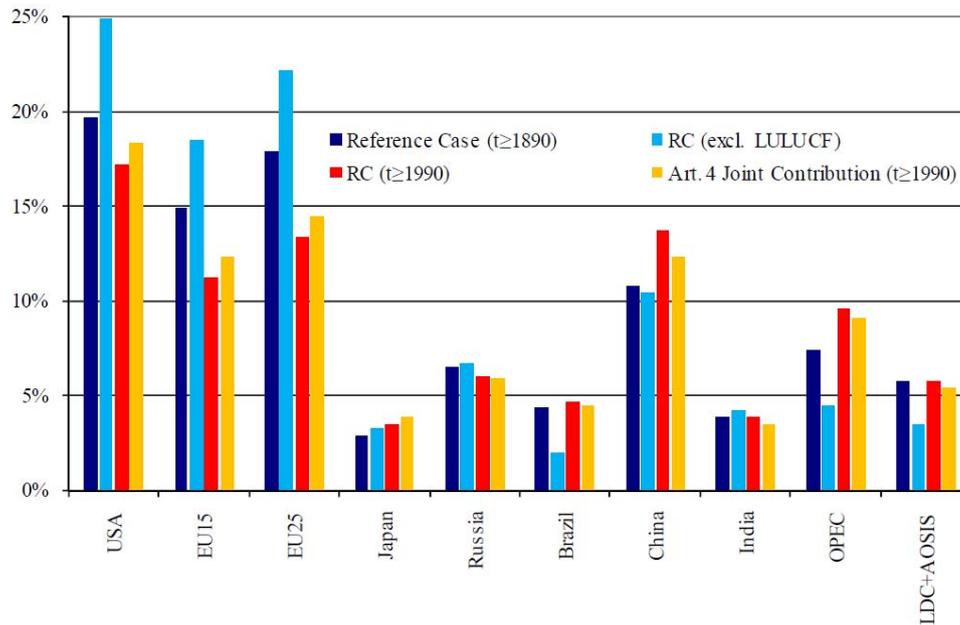
One way out may be to disregard damage-based liability foundations and turn towards the idea of responsibility for GHG emissions as the core concept for justice, since emissions are the certain cause of any potential human-induced climate change. In this case, the picture is that of a huge contrast between objective responsibility for past emissions and objective responsibilities for future ones, due to the ongoing explosion of emissions from emerging countries since the 1990s (China’s emissions doubled between 1990 and 2005, making China the first global emitter in the world since 2007, but South Korean and Saudi Arabian emissions also nearly doubled in the same period, for instance).

This asymmetry between the past and the future led emerging and developing countries to propose the backward-looking concept of the historical responsibility of developed countries as the basis of a just and fair agreement, trying to escape responsibility for future emissions in the name of their right to development, at least for the time period needed for them to reach the same level of development as industrialised countries. This is often misleadingly translated, on factual grounds, into strong statements according to which developed countries, being responsible for the bulk of the issue, should also bear the entire burden of addressing climate change policies, first by radically cutting their own emissions and second by massively transferring finance and technology to victim countries, whereas the latter are not committed to any specific mitigating action, since this could only hamper their development.

The asymmetry of historical causal responsibility across countries is a fact, but not to the extent often claimed. Figure 1 provides an assessment of the cumulative historical emissions of major countries (Müller et al., 2007; 2009). Developed countries can be held causally responsible for 54.5% of GHG emissions (not only CO₂, but other GHGs, including land use, land use changes and forestry, LULUCF). This means that the developing world, the part of the international society that did not make quantified commitments at the Kyoto meeting in 1997, is historically responsible for 45% of the problem. Individual shares per country are as follows: US (19.7%), EU25 (17.8%), EU15 (14.8%), China (10.8%), OPEC (7.3%), Russia (6.5%), AOSIS+LDC (5.7%), Brazil (4.3%), India (3.9%), and Japan (2.8%).

Moral responsibility is not the same as objective causality. Figure 2 divides the shares of presumed moral responsibility according to three sets of assumptions. The reference case, called *strict responsibility* (dark blue) by the authors, is in fact a combination of “responsibility” and “rights” approaches, and is based on the following criteria: equal per capita share for harmless levels of emissions (set at 7Gt CO₂e per year, mainly reflecting the absorptive capacity of the oceans) and responsibility proportionate to historical cumulative emissions since 1890 above this floor. The second case, called *epistemically constrained responsibility*, takes account of ignorance and uncertainty about climate change and its causes, with the assessment beginning in 1990. The third case adds to the previous one the idea of rights to subsistence emissions acknowledged for all humans; this threshold is generously set at 2t CO₂e for every person earning less than \$1 per day.

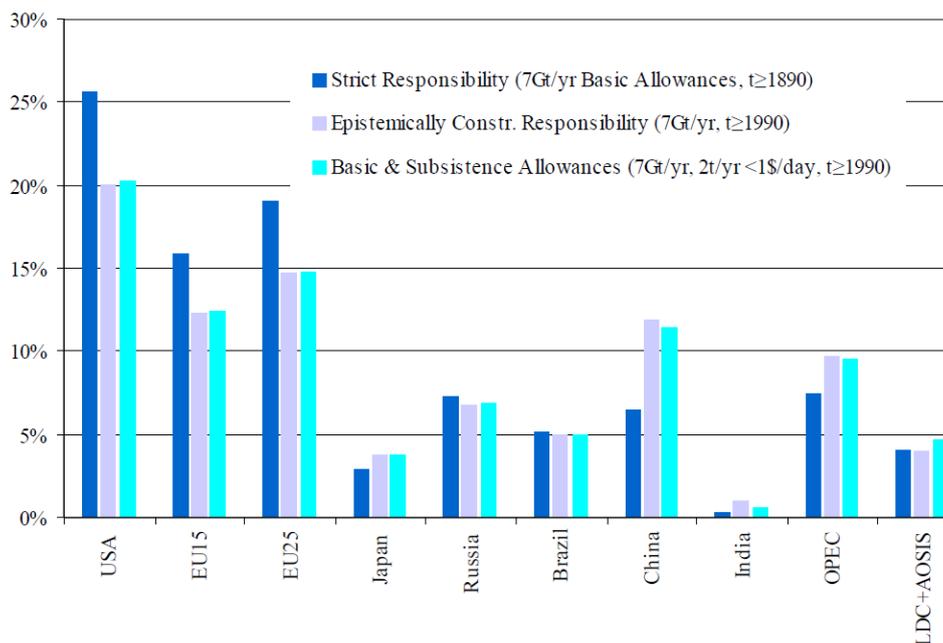
Figure 1. Causal contributions to climate change



Source: Müller et al. (2007)

The reference case (dark blue) considers cumulative GHG emissions since 1890, including LULUCF. Variants alter the picture. Excluding LULUCF (which would have no rational foundation other than the quality of data) implies a higher share for developed countries and a lower one for developing countries. Rather surprisingly, beginning the assessment in 1990, the reference year of the UNFCCC and the Kyoto Protocol, does not turn the picture upside down, although it does introduce significant changes for some countries: the EU share falls by 4% and China's share increases by 3%. Taking account of joint production cases (i.e. induced emissions by one country on the territory of another) slightly alters the distribution, without changing the hierarchy itself.

Figure 2. Moral responsibilities for climate change



Source: Müller et al. (2007)

Due to the differences between basic causal responsibility and strict “moral responsibility” as defined by the authors, the responsibility of the US increases by 5%, from 20% to 25%, and China’s falls from 11% to 6%. When analysis begins in 1990, differences are smaller; for instance the responsibility of the EU25 jumps from 13 to 15 %, whereas that of China falls from 14 to 12%. On the whole, under the “strict responsibility” assumptions, industrialised countries become “morally” responsible for 64% of cumulative emissions. Although this figure begs the question of the relevance of the concepts used, it does not deliver a message about the exclusive responsibility of the industrialised countries.

These figures mean that the whole issue of historical responsibility has been somewhat overdone in the public expressions of different parties and has been used to veil the fact that the developing world cannot avoid being concerned by any mitigation policies, not only for empirical reasons but also when certain moral views are introduced. The usual counter-argument is that emissions levels should be calculated per capita and not per country. This argument also calls for justification for adopting a per capita basis, which is not straightforward, as will be seen later, but does not unquestionably blame the developed countries alone.

To understand why, it is useful to consider the respective levels of emissions over recent years. Table 1 gives the CO₂ emissions in 2007, excluding other GHGs and LULUCF, since data have not yet been compiled by WRI for that year.

It is clear that China is the first major emitter in the world at country level. Taken together, 12 political entities (China, the US, the EU27, Russia, India, Japan, Canada, South Korea, Iran, Mexico, Australia, and Indonesia) represent more than 80% of CO₂ emissions; six of them are emerging or developing countries. Interestingly, the top ten per capita emitters are the following: 1. Qatar; 2. United Arab Emirates; 3. Bahrain; 4. Kuwait; 5. Trinidad & Tobago; 6. Luxembourg; 7. the US; 8. Australia; 9. Canada; 10. Brunei. The figures in Table 1 also show that in 2007, China was not far behind France and certainly overtook it in the last few years on a per capita basis. In fact, since 1990 China has gained an intermediate position in country distribution: its per capita emissions are four times higher than those of India, but four times lower than those of the US. Surprisingly enough, South Korea’s per capita emissions are 75% higher than those of France; also per capita, both South Africa and Iran emit more than France, and Venezuela emits the same amount.

Table 1: CO₂ emissions in 2007 (without LULUCF)

Country	MtCO ₂ e	Rank	% of world total	Metric tons CO ₂ e per person	Rank
China	6,702.6	(1)	22.70%	5.1	(66)
United States of America	5,826.7	(2)	19.73%	19.3	(7)
European Union (27)	4,064.5	(3)	13.76%	8.2	(39)
Russian Federation	1,626.3	(4)	5.51%	11.4	(18)
India	1,410.4	(5)	4.78%	1.3	(122)
Japan	1,270.1	(6)	4.30%	9.9	(25)
Germany	817.2	(7)	2.77%	9.9	(26)
Canada	583.9	(8)	1.98%	17.7	(9)
United Kingdom	530.2	(9)	1.80%	8.7	(34)
Korea (South)	517.1	(10)	1.75%	10.7	(21)
Iran	512.1	(11)	1.73%	7.2	(47)
Mexico	467.3	(12)	1.58%	4.4	(73)
Italy	461.3	(13)	1.56%	7.8	(43)
Australia	401.1	(14)	1.36%	19.0	(8)
Indonesia	400.4	(15)	1.36%	1.8	(107)
France	380.4	(16)	1.29%	6.1	(56)
Brazil	373.7	(17)	1.27%	2.0	(104)
Saudi Arabia	373.4	(18)	1.26%	15.5	(11)
Spain	371.9	(19)	1.26%	8.3	(37)
South Africa	352.6	(20)	1.19%	7.4	(45)
Ukraine	321.4	(21)	1.09%	6.9	(51)
Poland	313.2	(22)	1.06%	8.2	(40)
Turkey	289.7	(23)	0.98%	4.0	(78)
Taiwan*	285.6	(24)	0.97%	12.5	(14)
Thailand	243.5	(25)	0.82%	3.6	(81)
Kazakhstan	193.3	(26)	0.65%	12.5	(15)
Egypt	189.4	(27)	0.64%	2.4	(96)
Malaysia	188.7	(28)	0.64%	7.1	(49)
Netherlands	183.7	(29)	0.62%	11.2	(19)
Argentina	168.9	(30)	0.57%	4.3	(77)
Venezuela	164.8	(31)	0.56%	6.0	(57)
Pakistan	148.9	(32)	0.50%	0.9	(132)
United Arab Emirates	138.4	(33)	0.47%	31.7	(2)
Czech Republic	124.6	(34)	0.42%	12.1	(17)
Uzbekistan	115.9	(35)	0.39%	4.3	(76)
Vietnam	112.8	(36)	0.38%	1.3	(120)
Belgium	110.0	(37)	0.37%	10.4	(24)
Iraq*	106.3	(38)	0.36%	3.5	(82)
Greece	106.1	(39)	0.36%	9.5	(31)
Algeria	102.8	(40)	0.35%	3.0	(87)

Source: WRI (2011). In red, countries listed in Annex 1 of the UNFCCC

Due to tropical deforestation, the figures for countries like Indonesia and Brazil rise sharply if we include LULUCF: in 2005 Indonesia reached 9.3 tCO₂eq per capita, with LULUCF and other GHGs, instead of 1.8 with CO₂ alone; and Brazil 15.3 tCO₂eq per capita, instead of 2. Both countries then rank among the top 5 biggest GHG emitters in the world. All this demonstrates that the per capita

criterion does not unambiguously absolve the developing world of any responsibility. Per capita arguments may or may not be well-founded. But this has no straightforward link with the North/South divide.

The international climate regime in place since 1992

Legal steps

The formal existence of a climate regime dates back to 1994, when the UNFCCC began to be enforced following ratification by a sufficient quorum of states. This convention was adopted in May 1992 and presented at the Rio Summit in June.

Regarding aspects linked to justice, it is well known that this Convention has adopted three references for burden-sharing between countries: equity, common but differentiated responsibilities, and capabilities. Specifically, Article 3.1 states that: “The Parties should protect the climate system for the benefit of present and future generations of humankind, on the basis of equity and in accordance with their common but differentiated responsibilities and respective capabilities. Accordingly, the developed country Parties should take the lead in combating climate change and the adverse effects thereof”.

In the name of these principles, the developed countries listed in Annex 1 of the Convention (Western countries plus Eastern European countries and Russia in transition to market economies) committed to taking appropriate measures for reducing their emissions to their 1990 levels by the year 2000. In addition, Western developed countries agreed to finance specific and commonly agreed action taken by non-Annex 1 developing countries for the sole purpose of mitigating climate change. The Convention also reaffirmed the principle of the sovereignty of nation-states in international cooperation to address climate change.

The Kyoto Protocol (adopted in December 1997 and enforced in spring 2005) retained the basic structure of the UNFCCC, but consolidated it within a new time schedule. Quantitative mitigation commitments were taken by Annex 1 countries (except the US and, for several years, Australia) for the 2008-2012 period. If all countries that committed to Kyoto in 1997 had persisted, the targeted overall emissions levels for this group of countries would be 5.2% lower than in 1990. Non-Annex 1 countries were still not concerned by quantitative commitments.

The divide between two regimes of action, one for developed countries and another for emerging and developing countries, is what has been considered to be unsustainable by most industrialised countries in discussions about how international action should be organised in the post-2012 period. The outcome was the turning point of the Copenhagen COP in December 2009 (Godard & Ponsard, 2011): a new era of uncertainty as to the future existence of the Kyoto Protocol then began.

Main proposals for equitable burden-sharing (1990-2009)

For almost 20 years, many analyses and proposals were made to devise just and fair principles for burden-sharing or to allocate emissions rights to countries. Below is a summary of the main ideas put forward by states in the negotiations, with an indication of which country led support for the idea:

- *India*: The distribution of emissions rights to countries should be based on their respective populations (Government of India, 2009).
Justification: the atmosphere is a global public good; every citizen of the Earth has an equal right to use the atmosphere.
- *Brazil*: The distribution of obligations to cut emissions should be based on the historical responsibility of countries in inducing global warming, often understood as proportional to the

cumulative emissions since the beginning of the industrial era (1850).
Justification: polluters should pay.

- *Bolivia*: The developed countries should compensate the developing world for the damage already done and for obstacles to their future development imposed by constraints on the use of fossil sources of energy (State of Bolivia, 2009).
Justification: victims should be compensated for any kind of damage done to them.
- *France*: The convergence of long-term per capita emissions rights.
Justification: long-term equality of individuals in a world where development inequalities should progressively disappear.
- *US*: All countries should commit to controlling their emissions according to goals and targets they set themselves (*bottom-up approach*), while taking into account the commitments of other Parties (the US would never join a regime in which emerging countries do not make significant commitments).
Justification: states are sovereign and no international institution can impose anything on them: a climate change regime is about voluntary cooperation. Since the Copenhagen COP, this approach has generated the “pledge and review” regime.

Alongside government negotiators, numerous NGOs, groups and concerned scientists have also elaborated discourse on climate justice. I will take only one example. A coalition of NGOs was established in 2002 as the International Climate Justice Network. Having met in Bali, they produced the *Bali Principles of Climate Justice* from which the following are extracted:⁴

1. Communities have the right to be free from climate change. This entails a general obligation for polluting countries to cut emissions with a view to eliminating them completely in the future.
Concept involved: the “right to a stable climate”.
2. Communities and indigenous peoples have the right to represent and speak for themselves, and to play a leading role in negotiations.
Concept involved: “procedural justice for communities at the bottom”.
3. Climate justice opposes the role of transnational corporations in shaping unsustainable production and consumption patterns.
Concept involved: “ecological sustainability as a principle of justice” for communities and indigenous peoples.
4. Climate justice calls for the recognition of the ecological debt of industrialised countries; victims of climate change should receive full compensation, restoration and reparation for losses.
Concept involved: “full historical responsibility”.
5. Communities have the right to access renewable energy.
Concept involved: “technological justice”: access of all communities to alternative, non-polluting technologies is a requirement of justice.
6. Climate justice calls for a moratorium on all fossil fuel exploration and the building of large hydro dams and new nuclear power plants.
Concept involved: “all new developments of damaging technologies should be banned”.
7. Climate justice is opposed to the commodification of nature and its resources.
Concept involved: “market hubris is intrinsically opposed to the genuine interests of communities by imposing the disruption of natural systems and resources”.

As for the debate among experts, the main discussions on how GHG quotas should be allocated have focused on three criteria: population, GDP, and past emissions in a given reference year. Beyond the sharp differences in their distributive impacts, what stands out is the ambiguity attached to those

⁴ This list is not an exhaustive, literal report of the Bali Principles.

criteria. In fact, each of them can be used as a source of rights or alternatively as a source of obligations and duties:

- *Population*: either allocate emissions quotas in proportion to the population of each country (theory of equal access rights for individuals to a common resource) or with lower amounts for countries that have had a high level of population growth (theory of state responsibility for their population dynamics) since 1990.⁵
- *Gross domestic product*: according to a theory assuming that capacities are proportionate to GDP levels, more abatement should be asked of (and fewer quotas given to) countries with high GDP levels than of countries with low GDP. Alternatively, GDP may be seen as a synthetic criterion of economic activity and then as an expression of physical requirements regarding rights to emit GHGs. Generally speaking, non-Annex 1 countries have adopted the first theory to define the obligations that developed countries should undertake, and the second theory for themselves (because their development is an absolute priority, they claim, they cannot accept any limitations on their GHG emissions).
- *Emission levels at a given date (1990)*: this is the core of the opposition between those who call for an inverse allocation of quotas in the name of historical responsibility or excess use, and those who believe that, just like customary rights, levels of emissions at the moment when a new regime is put in place should be considered as the appropriate basis for organising future limits on emissions. The latter is generally known as “grandfathering” in the literature, referring to an old practice in the US in relation to the rights granted or denied to African Americans in order to determine who was entitled to take part in elections of representatives. This criterion also ties in with the sovereignty principle: for several decades, GHGs were emitted by sovereign states in line with the international law of the time and no judgment by international courts condemned them as illegitimate; consequently those emissions were rightful.

Two additional criteria have been supported by some countries at certain times. Both target a situation of dependency that constrains capacity to reduce GHG emissions:

- *The area of the territory*: the population / land density index and the area as such have significant impacts on land use and transportation needs, and therefore on GHG emissions: *ceteris paribus*, small and dense countries should emit less than large ones.
- *The economic dependency on fossil energy sources*: when countries generate considerable wealth through the exploitation of fossil energy sources or when consumer countries have no access to alternatives for meeting energy needs, this “needs” constraint should be taken into account, claim representatives of Australia and OPEC.

Objections raised

Unsurprisingly, all propositions met with objections and counter-arguments. Without discussing these in full, let us identify the main lines of criticism and begin with the most challenged concept, that of the “historical responsibility” of states.

No mention of historical responsibility in the UNFCCC

First, there is no mention of this concept in the UNFCCC text and all attempts to interpret “common but differentiated responsibilities” as a principle of historic responsibility are just an abuse. The

⁵ In order to take account of the potential population feedback, Grubb (1995) mentioned the possibility that CO₂ quotas could be allocated in proportion to the adult population and not to the total population. One alternative is to choose the population at a given past date as a definitive fixed reference.

Convention only notes “that the largest share of historical and current global emissions of greenhouse gases has originated in developed countries”.

Responsibility is bound by the absence of knowledge and control

Less formally, recalling Aristotle’s theory of virtue, it has been said that a natural person cannot be held morally responsible for damage suffered by others if he or she is ignorant of this damage or has no control over the events involved.

Since human-induced climate change is still disputed on scientific grounds, and no direct link can be established between single events causing damage to “victims” and the specific actions of responsible agents, a damage-based approach cannot be easily supported. There is a logical issue too, linked to joint action situations:⁶ cumulative emissions from 1850 to 1990, as such, did not put the global climate in great danger. Harm generated by cumulative emissions until the end of the 1980s, before the adoption of the Convention, would be very modest – at most damage linked to a less than 1°C increase in mean global temperature. The bulk of the damage comes with the GHGs added since 1990. Previous emissions are retrospectively assessed as dangerous or damaging because emissions have continued to grow at an increasing pace since 1990. At the same time, the historical emissions of developed countries will eventually count for very little in future climate change if the major emerging countries continue to emit without stringent restrictions (Posner and Sunstein, 2008). All this means that the amount of presumed damage attributable to grandparents, creating a symmetrical obligation to repair that would be inherited by their descendants, is not fixed at the moment emissions are generated and depends on the future behaviour of their grandchildren: will the latter continue emitting at an increasing pace or will they drastically cut their emissions? So damage possibly linked to historical emissions could only be undetermined, had grandparents considered the issue, as underlined by David Miller (2009).⁷

Furthermore, it is often argued that it would be unfair to proceed as if present generations are responsible for the behaviour of past generations over which they evidently have no control, and as if past generations in developed countries were clearly aware of the detrimental effects of their GHG emissions. With this line of argument, an historical approach taking the form of criteria based on cumulative emissions could only be seriously defended by adopting year 1992 as the starting point, when all signatories to the UNFCCC acknowledged the threat of global climate change.

Mistaken transposition of concepts from individuals to nation-states

General arguments about personal moral responsibility cannot be transposed to political bodies like states, nations, or peoples. For instance, due to migration flows, numerous present inhabitants of developed countries would be condemned to pay in the name of their supposed historical responsibility, when their parents or grandparents were living in other states, and often in developing countries. Would this be fair? Similarly, many people presently living in developing countries, especially in Latin America or Africa, had parents and grandparents living in developed countries.

⁶ See the comment by Daniel Farber (2008) on US court decisions regarding this issue of joint sources of damage, when each source would have sufficed by itself to cause the damage, which is not the case with historical responsibility for climate change. The defence counsels pleaded that since their client’s contribution was not necessary for the damage to occur (*ceteris paribus*, it would have happened anyway), they should be exonerated of any liability. The judges said that the problem being reciprocal, exonerating one source would imply exonerating the others; but considering that no one person is responsible for the damage would amount to asserting that the damage did not happen or was produced naturally, which is false. The only rational solution was thus to consider the different sources as each being wholly responsible, even though each of them, taken separately, was not a necessary condition for the damage.

⁷ I will show later in this paper that the same reasons make it impossible to implement a norm of equal per capita transgenerational levels of GHG emissions.

Why should they be exonerated if the concept of historical responsibility is taken seriously? To be valid, this concept should be applied to individuals,⁸ which requires that the whole history of each family be traced back to the year 1850. For evident practical reasons, this is not possible.

Alternatively, if the collective behaviours of nation-states are to be taken together as a whole, the same argument opposes isolating presumed damage from climate change from other aspects of the relationships of presently developing countries with developed ones throughout the same historical period: acknowledging that the former are suffering from the latter in relation to the climate issue, this damage should be integrated into an overall cost-benefit analysis of all costs and benefits (the stimulation and dissemination of scientific and technological progress, innovation and aid for medical and education services, foreign investment, etc.) generated by the development of industrialised countries, in order to obtain a net historical account.

Heritage from the past and intergenerational paradoxes

The usual answer to the previous objections is to stress that what matters is that people take advantage of the society in which they presently live and then benefit from all the services, opportunities and infrastructures inherited from the past behaviour of this society, including its GHG emissions. This is what Axel Gosseries (2004a) calls “trans-generational free-riding”, which occurs when the present descendants of past generations are still benefiting from the actions of their ancestors that have caused damage for other people, with contemporary populations still suffering from their consequences. According to Gosseries, though not morally responsible for the damage currently suffered by the victims, the present beneficiaries have the moral obligation to compensate living victims of their parents and grandparents.⁹

This position depends on several assumptions about difficult issues. One is the aforementioned undetermined nature of damage, depending on future emission behaviours. Another is empirical by nature: to what extent is the present wealth of a society imputable to the technological choices and economic behaviours adopted several decades ago, or even more than a century ago? The economic breakdown of East Germany when it was reunified with the West, or that of the USSR in the 1990s, illustrates the limitations of a vision imputing present wealth to investment and choices made in the distant past: decades of massive investment in heavy industry implying intense GHG emissions have only led to the collective ruin and disqualification of useless productive capital. Political stability and strong democratic institutions may be more important to explaining the capacity of a society to sustain wealth for its citizens than past investment in industry. These qualities are not the direct product of GHG emissions. To a large extent, past emissions are “sterile costs” regarding present wealth, i.e. costs without any present positive counterpart.

There are also two theoretical puzzles: i) the “non-identity problem” initially formulated by Thomas Schwartz (1978) and developed by Derek Parfit (1984)¹⁰, and ii) the conditions under which it is appropriate to refer to concepts of “damage” and “victims”. The non-identity problem relates to a logical paradox arising when categories relevant to apprehending relationships between coexisting people are used in the context of intergenerational relationships between non-overlapping generations:

⁸ Chakravarty *et al.* (2009) made a step in the direction of individualisation by computing distributions of individual CO₂ emissions in each country. To this aim they adopted a characteristic function linking CO₂ emissions to income and fixed caps on the emissions of major individual emitters according to global emissions targets. These uniform individual caps are then aggregated to determine the amount of quotas accruing to each country, which will depend on the number of “high emitters” the country hosts. Mitigation efforts are determined as if only one billion major emitters were to shoulder them. However, under this proposal quotas are still allocated to countries who may adopt domestic policies that will follow another course by sharing the burden another way.

⁹ This position was previously endorsed by Shue (1999) and Beckerman and Pasek (2001).

¹⁰ In the context of global climate change, see Page (2006).

individuals composing future generations would never be in a position to blame previous generations about the state of the world they inherited since, had previous generations behaved differently, all the clocks of reproductive relations would have been modified and these individuals would never have come into existence; other individuals would have then been conceived. It is only by making a logical mistake that present generations could imagine that their future great-grandchildren could blame them for their carelessness since, for this blame to be formulated, the latter would have to make a logical mistake too by imagining themselves as able to live in another, better-preserved world due to care by their great-grandparents. This “non-identity” argument dismisses any concept of intergenerational justice based on the potential blame of previous generations and claims for compensation for damage suffered by would-be non-existent future people. However it would not dismiss any concept expressing a concern for the interests of future generations. As Axel Gosseries (2004b) has shown,¹¹ the category of damage is inappropriate when the attribute one is tempted to call this way is inseparable from the identity of those involved. The French expression “mettre au monde”¹² refers to this intimate solidarity between humans and the world in which they arrive by their birth, as it is transformed historically.

Beyond that first problem, the concept of damage is itself dependent on that of rights, as demonstrated by Ronald Coase (1960) in his seminal article “The Problem of Social Cost”: as the respective rights have not been defined by an institution, it is impossible to describe a situation in terms of damage caused by one person and suffered by another, except to use dubious ideas of “natural rights”, outside of history and institutions, and to consider that every individual has a “natural right” to a given climate.¹³ In the case of climate change, no such rights have ever been defined and acknowledged. So, strictly speaking, if damage is defined by a breach of rights, it is inappropriate to speak of damage caused by GHG emitters. The conceptual framework of utilitarian philosophy may give the illusion of a solution in this regard. Ignoring issues of rights and identity, it routinely supports the comparison of welfare positions of abstract individuals in different scenarios, which results in observations such as: “the people living in 2100 in a given region will have a lower welfare, due to climate change, than the people living in the same region if there is no climate change”. But this cannot be correctly translated as either “people living in 2100 with climate change will suffer damage that they would avoid if no climate change happens, and this is unfair” or “people living in 2100 with climate change will suffer damage that people in a scenario without climate change would not experience, and this unfair”. The last two judgments would not be acceptable for several reasons already presented: i) people have no right to a given climate; ii) people will not be the same according to scenarios; iii) people in different scenarios do not coexist in the same world, and issues of justice and fairness can only be raised for coexisting people, i.e. people taking mutual advantage of their cooperation.

After being born, the condition in which some individuals are placed can certainly be characterised in terms of handicaps compared to the average condition of their contemporaries; and a society organised according to a social value of “equality of opportunity” would seek to mitigate or alleviate such handicaps, but this would entail no claim of damage, compensation for which would be asked of previous generations and then of their descendants. Indeed, there is no sense in the idea that later generations would have rights against previous, deceased generations.

¹¹ The demonstration is based on the analysis of a French court decision concerning the case of a child born with a severe congenital disability not detected by medical examination of the pregnant mother (Perruche case).

¹² Literally, “to put into the world”.

¹³ This was the first principle of the Bali declaration. However to claim a right to a thing at least requires the thing to be under the control of human agency. Clearly, this condition is not met with the climate, even at country-level, until geo-engineering technologies are mastered, proven efficient and introduced.

Equity?

The first principle referred to in the UNFCCC is equity, but the text gives no indication as to how to interpret its requirements in a non-redundant way with the two other principles. It is no surprise that some Parties do not acknowledge the same implications within this principle. Does it target the international redistribution of wealth or the conditions for participation by the less developed countries in the negotiations and the governance of the new regime? Does it mean that the climate regime should redress all international economic inequalities, give clear priority to the concept of needs (according to the formula “each according to his needs”), or make a crude distinction between survival emissions and luxury ones? These are open questions, as the way in which these three principles could be combined is undetermined.¹⁴

Steve Vanderheiden (2008, p. 58) gives his own answer: “equity here refers to distributive justice, and ‘responsibilities’ and ‘capabilities’ refer to the differential national levels of historical GHG emissions and respective national abilities to reduce present levels of national emissions”, while underlining later that the UNFCCC also calls for “an equitable and balanced representation of all Parties within a transparent system of governance (Article II.2)”. Other answers are possible. We have already seen that the concept of historical responsibility can be translated in different ways according to baselines and dates. As for the distributive interpretation of equity, analysts have underlined that a focus on equal per capita emission rights would entail huge welfare inequalities (Posner and Sunstein, 2009): if the international community really wants to reduce economic inequalities worldwide, the best means of doing so is not to allocate emissions rights in proportion to the population of nation-states, which is an arbitrary criterion in this respect. So, which variable should be the target of a distributive criterion? Which equality should have precedence?

The focus on reducing inequality as such can be called into question from several viewpoints. For Copp (2005), what really matters is not the level of worldwide inequality, but the fact that the basic needs of numerous populations are not met. The basic needs approach would focus on mobilising resources for particular groups (Streeten, 1979) and would avoid the general distribution of quotas to national governments. For Miller (2007), national self-determination is the critical issue. So international inequalities of wealth are not unjust if they do not jeopardise the satisfaction of basic needs, are not the legacy of past injustices and do not entail a significant limitation of the power of self-determination of the poorest countries.

Finally, the realistic school questions the relevance of the concepts of justice and fairness for international relationships. From Rio to Copenhagen, we have seen uncertainties and obstacles opposing stringent preventive action. Disputes about fair and just burden sharing for GHG emissions reduction efforts have contributed considerably to this poor result. As a matter of fact, the climate regime can only be set up through voluntary action and the commitment of governments. Understanding the requirements of justice is necessarily permeated by the object and goal of cooperation and restricted by the acceptability of solutions. It would be pointless to put in place a climate regime that did not include the biggest emitters. Thus the issue is not to oppose idealistic and realistic approaches, but to understand how normative concepts are legitimately shaped by the specific features of the situation. Hence the question: how should we characterise the situation in which the international society has to address threats affecting a critical global public good, namely the Earth’s climate?

¹⁴ A strong focus on the idea of the historical responsibility of states would make it necessary to downplay the requirements of wealth redistribution, since what happened historically to all states, including less-developed countries, could then be said to be the result of their own political choices regarding institutions, public spending and priorities in matters related to peace and war. After all, according to this line of argument it could be said that since African countries have experienced so many tribal and civil wars – sources of economic ruin – both before and after colonisation, Northern countries cannot be blamed for this any more than African countries can be blamed for the nearly ongoing warfare state seen in Europe from the year 1000 until 1945.

Stories about allocation

Moral philosophy makes frequent use of stories based on situations of interpersonal relationships to stimulate intuition of right and wrong. Climate philosophy does not escape this usage. This attractive method may facilitate the appropriation of arguments as well as making it possible, as with economic models, to grasp the essential features of an issue through a purification process. However, these short stories may be a vector for hidden biases or unjustified subliminal messages due to the gap between metaphors used and the real situations to which they are applied. Let us give two examples of these stories intended to clarify what should be done about climate change; they are taken from Henry Shue (2009):

- A son inherits a suit from his dead father. He discovers that the tailor has not been paid for the suit. What should he do, other than repay the debt? This story is supposed to be a metaphor for the so-called “ecological debt” that industrialised countries should repay to developing ones. We see: *i*) personal moral norms being transposed to international political relationships; *ii*) the principle of biological continuity represented by the father-son relationship being used to apprehend the history of polities (nation-states); *iii*) the framework of ordinary obligations generated by voluntary contracts between people being used to tackle situations of international relations where no contractual relations have been established about the use of a free-access global resource; *iv*) the metaphor of a benefit (the suit) having a direct counterpart (the debt) being used to cover the historical development of industrialised countries as if developing countries paid for this development in full and should now be reimbursed for the whole thing.
- To cross a desert, one camel is chosen to bear the trunks of four travellers. It turns out that the real carrying capacity of the camel is limited to three trunks; when the fourth traveller puts his trunk on the camel, the animal breaks down. Shue asks who is responsible for this breakdown? Only the fourth traveller? The lesson the philosopher wants to impart¹⁵ is that there is no reason for the person using a common resource after others to be the only one to be blamed for the disruption of that resource; all users should be equally blamed or should be equally concerned by avoiding overload. The fact that developing countries are taking off and developing after industrialised countries does not mean that they alone should bear the burden of resource limits; those who have exceeded their equal “rights” compatible with the overall carrying capacity should first offset this excess in order to leave a fair share available to the others. Incidentally, basic economics suggests that each traveller should pay a fee reflecting the limited carrying capacity so that each traveller is encouraged to rethink his choice of luggage in order to meet the global constraint.

In this story we see: *i*) people sharing a common goal (the end destination of their journey), a common endeavour (crossing the desert) and a common critical element without which the whole endeavour would fail (the camel) at a common time (travellers are travelling together); these people are linked by a contract covering the common use of the resource (the carrying capacity of the camel) and they are obliged to cooperate regarding the load if they are to have a chance of reaching their destination; they form an integrated community of action; *ii*) some property rights are assumed (the camel belongs to someone and its carrying services are jointly hired by the travellers); *iii*) each traveller is supposed to have the same needs as the others; *iv*) the short time period of the event places travellers in a symmetrical position and allows rapid feed-back action to solve any problem of excess load. A different case would be one in which the first three travellers made their journey with the camel the previous week and did not know that this camel would be so exhausted by this first journey that a single trunk for a new journey would bring it to its knees; nor did they know that the camel would be hired the following week

¹⁵ In fact Miller (2009) had used nearly the same camel story before Shue, just to demonstrate that it was not a good metaphor for historical responsibility for GHG emissions.

for a new journey, since this second journey may in fact not happen, being a contingent event beyond the contractual links accepted by the three travellers.

These examples demonstrate that short stories provide food for thought, but that changing the details may make a big difference to the conclusions obtained; it is important that their authors should not frame them just to impose specific pre-conceived solutions to the issues raised. Let me illustrate these points with some short stories of my own. The first five are based on a classical metaphor of distributive issues, that of a cake divided between several children.

1. If you have no information about the children and each of them is assumed to eat his slice of cake with pleasure, concern for fairness means finding a procedure that ensures equal slices or, failing that, an equal opportunity to receive a given slice. If equality of outcomes is prioritised, you should cut the cake with a scientifically tested method (such as a laser) to ensure strict equality of slices before they are distributed (the paternalistic solution) or adopt the rule that the child chosen to cut the cake will get the smallest slice, if there is one (the incentive approach). If equality of opportunity is the target, a common solution is to send one child under the table and to ask him to name at random the beneficiary of each unseen slice proposed.
2. The problem is the same as in case 1, except for one feature: now you know that some of the children are four years old and others are 15. Should you not take account of food needs and health considerations when determining the size of slices given to the two groups of children? This would call into question the criterion of equal slices.
3. The problem is the same as in case 2, except for one additional feature: some children have baked the cake and others are only presumed consumers. Should you not take account of the merit of the cooks by giving them a double share?
4. The problem is the same as in case 3, but you have additional information: some children come from wealthy families and are used to eating very good cakes, while others come from poor families and rarely have the opportunity to eat cakes. Should you not take account of redistribution goals in favour of the poor children and wish to give them priority in order to enrich their life experience?
5. Now the children are no longer supposed to have a single choice, i.e. eating the cake, but they may also take their slice of cake to market and sell it. What is a fair distribution in this case? Should you not take account of either the unequal ability of children to sell their slices of cake and get an income from it or of a general standard of wealth redistribution, instead of health and food needs? Should you not have different criteria according to the fact that in one case you are organising a fair final allocation of goods and in the other you are just sharing initial resources?
6. Many patients suffering from an incurable disease are awaiting a kidney transplant to give them a chance of long-term survival; knowing that kidneys for transplant are very scarce, which fair criteria should you adopt to choose beneficiaries? Age (prioritising young people, assuming that older ones have already had a fair opportunity to experience life)? Maximising the chances of transplant success on the basis of medical criteria (efficiency in the use of a scarce resource)? Anteriority in the queue (procedural equity)? At random (equality of opportunity)? Willingness to pay (maximising welfare by satisfying the strongest preferences)? Compensation for social inequalities by giving a clear priority to poor people? If fairness is the ultimate goal, can we identify one generally superior criterion?
7. Like many trains, the Blue train stops at several stations before reaching its final destination. Most seats are already occupied from the departure station; remaining ones are taken by people at the first stop. What would be a fair allocation of seats during the whole journey, taking account of newcomers? Would it be reasonable to reallocate seats from scratch at each station? On the basis of which criteria? We know that real-life practices have generated three basic solutions: *i*) introducing different classes of comfort for different rates, each class with its own capacity constraints; *ii*) first in, first served; if there are not enough seats for all travellers, some newcomers

stand up until seats become available, but with exceptions: a limited number of seats are reserved for certain priority groups of people (pregnant women; disabled people); *iii*) a binding system of reservation that allocates seats to travellers for their whole journey (equivalent to the definition of rights) in exchange for a payment. Is this not a just metaphor for the solutions to be brought to the climate change threat? Why should we prefer the camel story?

Lessons from these stories are: *i*) raw intuition is not sufficient for finding a justified solution since, when considering all the characteristics of a situation, things become complex ... even for cutting a cake; *ii*) most importantly, several reference concepts exist that must be considered and possibly combined for tackling a fair allocation: impartiality, needs, merit, wealth, equal opportunity, incentive for production, rights, and initial versus final allocation. Using them with relevance depends on the circumstances of the situation. What is just and fair depends on situations to such an extent that appropriateness to situations should precede and guide choices in terms of providing a practical solution to the general quest for justice.

Concepts for justice: basic typologies

Several distinctions frame the landscape of the philosophy of justice. Here is an overview of them.

“Global” justice and “local” justice

“Global” justice concerns the design of just institutions within a polity. Here, the term “global” refers to a whole society, not specifically to issues pertaining to the Earth system. For instance, Rawls’s theory is a “global” justice theory in this sense, though he is not frontally considering international issues. Here we are considering general rules and principles that should cover a great variety of situations through space and time. The level of abstraction is high.

“Local” justice concerns the fair treatment of individuals in a specific situation of social interaction (buying goods at the supermarket, signing a contract for a job, acceding to hospital services, etc.) within a given polity. Systematic interest in “local justice” traces back to Jon Elster’s book of 1992. When an issue is tackled as a “local” justice problem, it means that it should be solved under the constraints placed on the basic institutions and rules of society, although certain institutions or agents still have autonomy in designing fair, practical solutions for the allocation of local resources or goods. Local justice is not only concerned by the so-called “commutative” aspects of social interactions (fair treatment of partners), but also by the distributive aspects, at a “local” and limited level and in specific ways linked to the specific nature of the goods in question, as shown by the case of dividing a cake between a family. Evidently, the specific nature of the situation (circumstances) and the specific aims of the organisations involved are very important to defining the issue and finding appropriate solutions.

Distributive, corrective and procedural justice

Justice has three main fields: distributive or social justice pertaining to the distribution of material and social resources (income, awards, property rights); corrective or compensatory justice for torts and damages unduly imposed upon victims whose rights are breached by certain members of society; procedural justice (fair access to expertise, public debate and decision-making; impartiality in considering the interests of all parties; free will for social transactions, etc.). These fields are interwoven to some extent: for instance, procedural fairness is critical for the implementation of corrective justice.

Procedural and consequentialist approaches to distributive justice

Distributive justice can be approached in two opposite ways. Procedural conceptions of justice consider it impossible to say anything about an observed distribution of primary goods (income, awards, etc.) if observers have no information about the initial situation and the social processes generating these outcomes. Was the initial situation legitimate? Were the social and economic interactions that developed from this initial situation fair or not? For instance, for a libertarian theory (Nozick, 1974), legitimate initial property rights and voluntary transactions result in a just distribution of income, whatever the outcomes, to the extent that any redistributive public policy based on taxation is viewed as illegitimate. As such, observing inequality of income or property rights does not permit judgments regarding the fairness and justice of the situation.

On the contrary, consequentialist conceptions of justice assert the possibility and legitimacy of judging the justice of outcomes without knowing anything about the social processes generating such outcomes. They consider it sufficient to use criteria for a fair distribution and to assess the gap with real distribution. But there are many criteria for assessing the justice of distributional outcomes according to consequentialist views:

- strict equality in the distribution of net benefits or costs,
- equality of opportunity (society should compensate for involuntary handicaps so as to ensure equal opportunities for everyone),
- priority to satisfying the basic needs of the poorest,
- from each according to his abilities, to each according to his needs,
- standard utilitarianism (the right distribution is the one that maximises overall welfare),
- the Rawlsian principle of difference: once basic liberties are guaranteed for all, inequalities are fair and just inasmuch as equality of opportunity of access is ensured and inequalities sustainably benefit the poorest; this strange formulation takes account of economic processes that condition growth and also of incentive compatibility.

Most proposals regarding global climate change mobilise both procedural and consequentialist approaches. As could be expected, various criteria of justice and fairness have been proposed, depending on the social values that proponents put at the top. Proposals for giving content to the claim of climate justice are synthesised in Table 2 extracted from Okereke (2010).

Such proposals clearly result in very different outcomes regarding what is considered fair and just for the same situation. This is certainly a source of trouble since it means that as long as the edification of an international climate regime is considered from the sole viewpoint of justice, there will be no convergence towards a solution. However, the various criteria in competition are all deeply rooted in well-argued philosophical theories, each one sustaining a certain conception of society. Were these theories simply proposing a guide for personal behaviour, this pluralism would not matter so much, and would simply contribute to social diversity. But given that the global climate is a public good and that a climate regime can only exist by choosing a single set of constitutive and allocating rules, the problem remains entire: what should be done with this pluralism in order to achieve a single, fair and just climate regime? There are three possible solutions:

- the first would undertake a critical examination of alternative theories in order to dismiss most of them and elect the “true” one; it would assume that pluralism is only a transitory state due to unfinished philosophical work, or that it is compatible with consensual general meta-principles; the latter approach echoes the ambition of John Rawls’ political thinking in *Political Liberalism* (1993b): unanimously finding just institutions that subscribers to various social values and conceptions could approve.

Table 2: Equity principles and their interpretations

<i>Equity Principle</i>	<i>Interpretation and Burden Sharing Rule</i>
Equal per capita entitlements/ Egalitarianism	Emission entitlement divided equally among world population
Sovereign equality	Equal entitlement and burden for each country
Status quo/grandfathering	Share entitlements and burdens in reference to relative emissions levels between countries. Historical or current emissions constitute 'squatter rights'
Basic needs/ maxi-min/ subsistence emissions	Allocate rights to survival emissions and share remaining burden to benefit the least well off
Property rights/market justice	Create tradable permits to achieve lowest net world cost for abatement
Polluter pays/ historical responsibility	Allocate abatement burden corresponding to current (and historical) emissions
Mutual advantage	Allocate benefits and burden in terms of agreements that have a positive net benefit for all
Kantian allocation rule	Countries choose abatement levels at least as high as the level they would like countries under comparable situations to undertake

- the second would explore the possibilities of shaping sufficient common understanding, convergent proposals or compromises between some of these doctrines to obtain majority support for a given set of rules;¹⁶ in the context of climate negotiations, this exercise would generally imply mitigating the requirements of justice and those of political acceptability; several contributions by economists (Bohm and Larsen, 1994; Ringius et al, 1998; Rose, 1990) have attempted to find the combination of justice criteria that provides outcomes that are acceptable for all parties; in this case, justice criteria do not provide the legitimate foundations for rules and burden sharing, but are only instrumental to the overriding criterion of political acceptability;
- the third attempts to find the source for selecting the most appropriate doctrine and criterion in the relationship between theories and situations; the solution is not then sought in the pure theoretical realm, but in the appropriateness of "universes" stylised by theories to the critical features and components of the situation in which nation-states have to find a cooperation regime for tackling climate change; this is the third method that I will follow henceforth.

Theories of climate justice

Among the theories of justice that have been mobilised in the context of climate policy proposals, I will distinguish four main theoretical positions.

Utilitarianism and climate change

Utilitarianism provides the standard background for normative welfare economics, even if well-known scholars such as Amartya Sen (1977, 1979) have expressed strong criticism of this reductionism. Economic utilitarianism combines individual welfarism, consequentialism, impersonality (ignorance of issues concerning rights and personal autonomy) and a vision of the general interest of societies as a sum of individual welfares to be maximised ($\text{Max } \sum a_i U_i$) (Sen and Williams, 1982). One of the main

¹⁶ This is what Shue (1999) suggests, but without taking account of political acceptability in international negotiations. Recently Sen (2009) advocated this approach of looking for points of convergence between several moral and political constructs in order to make progress in correcting huge injustices, instead of exacerbating differences and the incompatibility of premises and searching for the "perfect" solution.

qualities of this theory is that it has low demands for data since it disregards many features that other theories consider relevant. It also fits the instrumental perspective that is praised by both business in relation to mass consumerism and academic circles in relation to the huge possibilities for formal developments. The usual criticisms are that utilitarianism confuses rationality with the egoistic defence of self-interest by every human agent, is indifferent to the moral motivations of agents, does not acknowledge the intrinsic value of the freedom of choice of people and societies, does not acknowledge basic human rights and so does not see principled objections to sacrificing some people for the benefit of all others,¹⁷ and does not recognise that the social values and goals of a community cannot be reduced to the sum of individual satisfaction in relation to the personal preferences of each consumer. Utilitarianism is then at odds with the contractarianist tradition of political philosophy from Rousseau to Rawls.

The standard economic view of the distribution of private goods is that equity and efficiency are separable: there are as many Pareto optimums as there are initial distributions of income and property rights. Income and property rights can always be redistributed according to social values without interfering with an efficient allocation of goods. For more than 50 years the practical criterion recommended for public investment decisions in that context is the Hicks-Kaldor efficiency criterion: a project should be supported when the expected social benefits exceeds the expected social costs, which would make it possible for agents to whom benefits accrue to compensate those bearing net costs; this is the criterion of the potential compensation of losers by winners.

Economic models pertaining to climate change developed on this basis show that a single worldwide carbon price should be set to achieve productive efficiency; this could be done through an international tax or a world market for carbon emission quotas (Stewart and Wiener, 2003; Tirole, 2009). Regarding distributive aspects, the non-cooperative game-theoretic framework used (Barrett, 2003) underlines the need to find a rule for burden-sharing that ensures a net benefit for each party (the Pareto approach): in particular, no major GHG emitter should be a net loser in the new climate regime. This constraint goes against many of the proposals made in the name of climate justice, such as an equal per capita allocation or a burden allocated in proportion to historical responsibility. This analysis exemplifies the aforementioned Gordian Knot of justice and cooperation.

However, within utilitarianism, proposals do not stop there. A given state of the global climate is mainly produced as a by-product of economic activities (GHG emissions result from burning fossil fuel, rice cultivation or cattle-rearing). In other terms, as far as mitigation is concerned, we are faced with a case of the decentralised production of a global public good. In that case, according to some authors (Chichilnisky and Heal, 2000; Sheeran, 2006), from a welfare viewpoint, efficiency and equity are not separable: there is no degree of freedom as in the case of an economy of private goods.

A welfare optimum would be reached when agents pay for a public good only an amount equal to their marginal willingness to pay for the corresponding level of supply of the public good to which they are given access.¹⁸ Due to unequal income levels worldwide, trade-offs between private and public goods differ considerably, as does the marginal willingness to pay for a given level of the public good. Thus, if in order to achieve productive efficiency a single carbon price is imposed on all countries, welfare efficiency will be seriously impaired, unless transfers of assets (allowances, finance, technology) are set up in parallel towards low-income countries and people. This is not primarily for equity, but for efficiency in terms of maximising welfare.

¹⁷ In the context of a discussion on fair practice in organ transplantation, Elster (1992) echoes a proposal made by a utilitarianist to set up a lottery to kill some people every year in order to take their organs and transplant them for the benefit of ill people. Since, with one body, several organs can be extracted and several lives saved, the solution would increase social welfare by adding a net benefit in terms of life expectancy.

¹⁸ For public goods, total demand results from the matching of production costs to the aggregated marginal willingness to pay of all agents.

If such transfers are not envisaged or if their level is too low, a second best solution is to set differentiated CO₂ prices across the regions of the world in order to ensure the marginal utility cost imposed by the relinquishment of some private goods is equal to the marginal utility benefit obtained from the provision of a certain level of the public good. In one of their first papers on the subject, Chichilnisky and Heal (1994, p. 444) reached the conclusion that: “*It is not generally true that Pareto optimality requires that marginal abatement costs be equated across countries: this is true only if marginal utilities of income are equated across countries, either by assumption or by lump-sum transfers across countries. If richer countries have a lower marginal valuation of the private good, then at a Pareto efficient allocation, they should have a larger marginal cost of abatement...*”

According to this often forgotten analysis, the choice of the climate target, the international price regime and the level of transfers are definitely linked: they cannot be chosen separately. Several combinations could become attractors for international negotiations, as shown in Table 3 considering four possible levels of transfers:

- * loose targets, differentiated prices and no transfer,
- * stringent targets, single price and massive transfers,
- * loose targets, single price and low transfers,
- * stringent targets, differentiated prices and significant transfers.

Table 3: Possible attractors for international climate negotiations

GHG concentration targets		
World carbon price	Loose (650 ppm CO₂e?)	Stringent (450 ppm CO₂e?)
Single	Low transfers	Massive transfers
Differentiated	No transfer	Significant transfers

Since these early analyses, research has been developed to determine which approach would be less demanding in terms of commitments by states yet still not very far from an environmentally and economically efficient and fair burden-sharing. In this respect, an integrated approach to international financial mechanisms, international sectoral agreements (for power generation, iron and steel, and cement, for instance) and regional emissions trading of auctioned quotas looks promising (Meunier and Ponsard, 2010, 2011).

Cosmopolitan climate justice

Cosmopolitan climate justice, of which Axel Gosseries (2007) and Steve Vanderheiden (2008) are the best supporters,¹⁹ applies a cosmopolitan philosophical framework to climate issues. It is based on an exclusively moral and abstract foundation, considering individual human beings as the sole relevant, non-arbitrary subjects of moral consideration and seeing humankind as a single human community that should adopt just and fair rules. Gosseries (2007, p. 280) explains: “*It is cosmopolitan in the sense that we assume that justice among members of different countries is not of a significantly different moral nature from justice among co-citizens or co-residents. In other words, in principle, each of us is supposed to have as strong obligations towards a foreigner living on another continent than towards*

¹⁹ Beyond the climate change issue, see Beitz (1979, 1999), Pogge (1992), Shue (1999), Moellendorf (2002), Van Parijs (2007), Brooks (2008), Brock (2009).

one of her co-citizens living next door". At the same time, curiously, in the name of realism, Gosseries keeps states as the central points of reference at the moment of defining obligations and duties.

As already seen, cosmopolitanism primarily mobilises moral intuition working on the idea of natural law. It derives from the absolute primacy of the principle of equality of dignity and respect of all human beings and a highly favourable view of egalitarianism in every possible matter, except when strong arguments justify unequal treatments. Contingencies of birth (place, date) and nationality are said to be morally arbitrary and should not influence judgments.

The atmosphere is seen as a common resource of humankind that should be shared out according to egalitarian norms. For instance, an informal representative of the Chinese government at a UNFCCC technical meeting (Teng Fei, 2009) developed a proposal based on a principle of equality of per capita cumulative emissions within an overall intertemporal budget of emissions calibrated to be compatible with the maximum 2°C target; in his view, the French proposal of long-term per capita convergence was not sufficient to achieve equitable burden-sharing. Alternatively, Henry Shue suggested a principle of lexicographical priority for minimum survival emissions over the 21st century, assessed as the present level of emissions of India (Shue, 2009); applied with precaution regarding future population growth and economic development over the century, this principle would almost completely exhaust the immediate yearly available stock of emissions rights.

What first stands out about these proposals and similar ones²⁰ is their huge departure from the present state of respective emissions by the countries composing the international society, and also their use of concepts of justice and fairness as a sort of retroactive implementation of an alternative international legal order based on egalitarian concepts that no claiming country is actually applying domestically. Contrary to the classical Rawls-type approach, in which international relations obey standards of responsibility and justice that are less stringent than those which should govern well-ordered, liberal national societies, because of the more intimate cooperation links between citizens of the same society and the opportunity given to citizens to take part in political self-determination processes, cosmopolitanism appears to give rise to a set of obligations and duties that are far more demanding than those proposed in domestic contexts.

On the whole, there is a major discrepancy between these proposals and the present situation in which the climate change issue is addressed: six months after the SBSTA held a meeting on historical responsibility and saw participants outbidding each other with staggering proposals, the Copenhagen COP came close to failure. Either the proposed cosmopolitan standards of justice were not convincing, or a sense of global justice only played a limited role in these international negotiations. In both cases, there is a problem with the appropriateness of proposals.

Another point of interest concerns the vision of political organisation and the status of the sovereignty of nations-states: the latter are treated as purely instrumental for the implementation of moral injunctions elaborated by philosophers, and these injunctions are supposedly developed from pure, autonomous moral foundations, without giving an ounce of consideration to the moral value and significance of having sovereign states as organised polities of citizens capable of self-determination.²¹ Yet, if sovereignty is taken seriously on moral grounds, each polity will have to choose its set of social values, define equilibriums and found its institutions accordingly, and no universal moral rule will be able to uniformly and unambiguously dictate social norms of justice across the world. This would not dismiss the quest for international justice, but would make the absolute reign of cosmopolitan views

²⁰ Khor (2009) suggested introducing the concept of "negative emissions" to embrace all the obligations presently weighing upon industrialised countries; the latter are assumed to have exceeded their fair share of emissions to such an extent that their present rights are nil and they must also reimburse developing countries for the accumulated debt, either by creating sinks or by financing cuts in developing countries.

²¹ Shue (1999) acknowledges his poor consideration for state sovereignty and existence and Vanderheiden (2008, p. 90) sees in it "a relic of a bygone era".

on global justice somewhat questionable as long as humankind has not adopted the democratic institutions of a well-ordered society at the global level.

However, the most critical point for the cosmopolitan approach in relation to climate change is its obsession with making industrialised nations-states the focus of obligations to repair and compensate for historical emissions and to put an end to present international inequalities, deemed to be unjust. This is certainly a fracture point in the coherence of the approach. If a cosmopolitan view is justified by moral individualism and the rejection of the existence of borders and states as arbitrary and insignificant features, it cannot thereafter focus all its arguments on those collective entities – nations-states – to define obligations and fair burden-sharing through GHG quota allocation. Since GHG emissions are intertwined with nearly every human activity, and past human history is also made up of intertwined events and relations, why does cosmopolitanism not consider that past GHG emissions were either those of humankind, globally, or those of individuals taken with their family links and heritage? The same argument should be made regarding present inequalities of wealth, which are as considerable within emerging and developing countries as they are between developed and developing nations. To be coherent, cosmopolitanism should deliver solutions using application points other than states.

It is striking that a cosmopolitanist like Kok-Chor Tan (2008) comes to support Miller's theory of collective national responsibility and the inheritance of remedial duties (Miller, 2007) to save the construct of the historical responsibility of industrialised countries, even though collective responsibility breaches the premise of moral individualism according to which only individual people are moral agents to whom obligations and duties can be assigned.

International justice

For the supporters of an international justice in the vein of John Rawls' liberal views, the existence of nations-states does matter. Humankind is not made up of a single society with seven billion members, but is arranged as a society of sovereign nations-states. In this international society, whenever formal rules are shaped, primacy is given to formal equality of states, taking account of responsibilities and means: states with the same conditions should be treated the same way. One application of this principle is the regime of votes at the UN General Assembly: whatever their population or economic and political power, each state has the same right of vote.

Sovereign states are not only a political reality of the contemporary world, but one that is justified by the highest values, combining the protection of the basic liberties of citizens with access of the latter to deliberation aimed at setting new goals and rules for the community. States are the only bodies that grant rights to individuals and are organised to protect them, since international institutions are just acting as emanations voluntarily created by states. In this respect, citizens can only be citizens of a nation-state.

The precedence of the principle of sovereignty and loose cooperation relations mean any proposed international rule must pass the test of the free consent of each state under a fair international discussion and negotiation process. In this respect, a key component of international justice is the fair access of all states to international negotiations and to the governance of common institutions, such as green funds or different committees. Beyond that, equity is a benchmark to interpret existing law, rather than to impose new norms from the outside.

Since international cooperation is the key, it requires the net benefits of cooperation to be at least positive for every state and, more preferably, fairly distributed. This ideal is specifically valuable for the equitable sharing of the benefits gained from global commons, inasmuch as their use requires international cooperation and governance.

Although international justice does not offer much room for the ambitious redistribution of resources and wealth, some redistribution duties are acknowledged under two items (Rawls, 1993a;

Miller, 2007): *i*) ensuring the satisfaction of basic needs in case of threats to survival, whether caused by natural events (droughts, earthquakes, etc.) or by social events (wars and conflicts or dictatorships); *ii*) under approval by beneficiaries, helping every state to achieve the economic and social conditions enabling it to shape or restore just and efficient public institutions capable of promoting self-determination.

Taking stock of these ideas, the United Nations first acknowledged the right to development for all countries, with the UNFCCC later acknowledging the right to sustainable development.²² The general translation of these rights takes the form of different binding obligations or rules according to the levels of wealth reached. For instance, preferential treatment in trade relationships has been introduced for the benefit of less-developed countries.

Against that background, some leading proposals made in the context of climate negotiations can hardly be defended. The often suggested burden-sharing rule of “equal shares of carbon emissions per capita” would entail huge inequalities in terms of the burdens to be borne by states as an outcome of international cooperation, and would clearly result in unfair terms of international cooperation: insisting on this criterion would be the best way to lead international cooperation to failure. This is all the more detrimental given that it is not the most efficient and just way of redistributing world wealth, should the international community choose to go in that direction (Posner & Sunstein, 2009).

From a theoretical viewpoint, this criterion of per capita allocation would generate a contradiction between the alleged foundation (equal citizens of Earth should have equal access to a common resource) and the universe and procedures involved, that of international relations: quotas are proposed for allocation to states, not citizens (Godard, 1992; Posner & Sunstein, 2009). In this respect, since the basic needs and rights of individuals are not concerned, the idea of “equal citizens of the world” appears as a self-interested, opportunistic use of justice concepts by their proponents.

Rejection of the concept of justice in the international context

For analysts like Thomas Nagel (2005), the criticism of cosmopolitanism must go further. It is the very use of notions of justice in an international context that lacks any significance. Interpreting Hobbes, he holds that claims of justice can only make sense and be implemented within the public institutions of a sovereign state through an appropriate legal order benefiting from means of enforcement. Justice is an emergent property of human relations when they are organised by a democratic state. It is this democratic order established within a nation-state that transforms a “population” into “equal citizens” who have rights and are able to claim justice. Justice is a property of links between the citizens of a state through its institutions. Consequently, the concept of justice cannot be applied directly to either pure private choices or relations between different societies and between members of different societies. Although the idea of a global justice is pure illusion, states may have duties regarding solidarity and assistance towards the poorest worldwide. Refuting the idea of global justice does not imply adopting a cynical and egoistic view of international relations and a lack of concern for misery and poverty or threats to survival: other sources of moral concerns, not linked to reciprocity, may be mobilised.

²² The Preamble of the UNFCCC writes in this respect: “*Recognizing* that all countries, especially developing countries, need access to resources required to achieve sustainable social and economic development and that, in order for developing countries to progress towards that goal, their energy consumption will need to grow taking into account the possibilities for achieving greater energy efficiency and for controlling greenhouse gas emissions in general, including through the application of new technologies on terms which make such an application economically and socially beneficial”. Article 3.4 also says that: “The Parties have a right to, and should, promote sustainable development”. All states having signed this text cannot claim a “right to development”, whatever the environmental cost of this development or its consequences for the protection of the global climate would be. For all states the right is limited to sustainable development.

Regarding climate change, this approach brings to the forefront issues of political acceptability, i.e. cost-benefit indexes for joining an international agreement, or not, balanced by assistance programs to help the poorest countries to adapt to climate change and to adopt efficient low-carbon technologies each time there is a convergent interest of givers and beneficiaries. However, political acceptability is a hazy concept since it involves the political understanding of each government of the set of interests and values engaged in a given position: some countries may prefer to block an agreement, though it would bring net benefits to them, in order to obtain even more in another negotiation or to gain acknowledgement of new international principles and norms that will influence many other matters of international relationships.

Mobilising an alternative approach to justice: justification theory

Justice claims as a dead-end?

The previous examination can only leave us with an impression of being engaged on a treacherous path, if not heading towards a dead-end. There are several layers of difficulties. The deeper ones concern the very relevance of the idea of justice for international relations and eat away at the idea of global distributive justice. Then, for those who accept the idea of justice in an international context, there are disputes regarding its content between the supporters of international justice bound by motives and conditions of international cooperation and the supporters of a superseding cosmopolitan distributive justice directly addressing all human beings on Earth. At both levels, the moral and political significance of the existence of sovereign nations-states is at the heart of controversies. On top of these layers, there are more specific difficulties raised by concepts put forward in direct association with the climate change issue, such as “historical responsibility” as a basis for allocating present and future burdens to countries, or calls for “equal rights of access to the atmosphere for every citizen of the world” as a basis for allocating carbon emissions rights to countries in proportion to their population. With these concepts, controversies concern alternatively their intrinsic validity or their operational translation into proposals.

Across all debates there is tension between moral philosophy and political philosophy and between moral individualism, according to which only individual human beings are moral agents, and nations-states as the addressees of the allocation of rights and duties. In the present state of the debate, beyond the general UNFCCC formula referring to equity, common but differentiated responsibilities and capabilities, it does not seem that any theory or proposal could become an efficient attractor of international negotiations aimed at establishing a climate regime. Can we try to find a way out?

To my mind, the forced suspension of the search for a unanimous judgement on what is just reflects the lack of well-formed tests allowing the parties to arbitrate between contradictory claims as to what would constitute just allocations. Regardless of theoreticians’ efforts to reconstruct a just global society *ex nihilo* starting from intuitions and intellectual models taken from interpersonal relationships, the judgment regarding a just division of rights and obligations cannot be separated from a political community’s institutional equipment, which implies the very existence of this community as a prerequisite. This political prerequisite would allow for the establishment of a common ground for deliberation and testing, from which the question of the just may emerge, progress and succeed. Reflection on the just and equitable sharing of GHG emission rights cannot ignore its embeddedness in the organisation of world governance; should it do so, it will succumb to a radical and fruitless idealism leading to nothing but bad conscience and increased difficulty in reaching a common understanding.

I would also like to emphasise the irreducible pluralistic character of the principles of justice and the strong link between the issue of justice among humans and the appropriateness of solutions for particular situations, with a key intermediate role given to the specific nature of social goods.

Situations entail more than the standard requirements of equity, referring to general principles such as the ‘equal treatment of equals’. They matter because, when they are well-shaped, they are aimed at a specific “world” or “sphere”²³ characterised by a certain conception of the common good and the appropriate place of human beings and things. Thus, before aiming at a just allocation, the first challenge should be to reach a common understanding of how to characterise the situation.

Orders of justification and criteria for equity

The point of departure²⁴ is the following: the criteria for what is just must be appropriate to the nature of the situation. No substantive universal concept of the norms of distributive justice could be applied to every situation. Nonetheless, there are certain abstract principles, such as the principle of impartiality, that allow us to steer the search for substantive concepts, but which require additional elements to come to fruition. A social situation concerns and engages both human subjects and a world of objects. In a society with a particular culture and social organisation, subjects and objects are qualified through a world of meanings that endows them with specific features: a man may be a worker, a consumer, a father, a citizen, a union man, a believer, and so on. His values and preferences, as well as the norms of behaviour he tries to meet, are not the same according to his social roles and the situations in which he plays these roles. Consequently, subjects and objects in a well-shaped situation are not co-present by chance, as contingent events: they fit together. This co-presence engages a process of qualification crystallised within social norms and rules, on the basis of a list of qualifiers that constitutes a pool of social resources available to people. This way, people qualified by social roles are able to discern the nature of the social situation and steer their conduct by seeking appropriate coordination with others.

Different social justification orders coexist within Western democratic societies as reference points. They constitute the matrices within which questions regarding the appropriate means of coordination and suitable action are conceived and solutions found, thereby generating the procedures and criteria needed to untangle conflicts or to overcome uncertainty about the collective path to follow. This is the objective of justification theory (Boltanski and Thévenot, 2006; Godard, 1989, 1990; Dequech, 2008): to take stock of how ordinary judgments are formed about what is appropriate in a range of day-to-day social situations.

A situation is well-formed if it is entirely constituted within a given order of justification. In that case, it brings together suitable subjects and objects, without distortion, according to their characterisation by the order of justification through which they are viewed. On the contrary, an unformed, contingent situation brings heterogeneous beings together in a fortuitous manner. It has no pre-established coordination procedures to resolve differences or problems. It is distinguished by a sense of loss of meaning and the absence of benchmarks. When these traits are exacerbated, for example during a natural disaster, we say it is chaos, not only because of the horror of the events striking the victims, but mainly because all distinctions constitutive of different orders are abolished and we find subjects and objects become hugely mixed up. Finally, there are intermediate situations that may potentially be established within a given order of justification, but which also entail objects and subjects coming from other orders or remaining ambiguous. This is a source of uncertainty between the qualifications and tests belonging to different orders, leading from the outset to indecisiveness. Which one would be the most appropriate to do justice to the situation? The problem of climate change seems to belong to this type of intermediate situation.

²³ The first author to give a theoretical status to the pluralism of spheres of justice is Michael Walzer (1983). This pioneer work could be excessively interpreted as fixing different norms of justice for different spheres (family, religion, education, the market, etc.) delineated by different social goods, as if the reality of these spheres imposed such norms once and for all, as essential features determined by the spheres. There is far more historical flexibility and geographical variety in the interplay between social goods, spheres and norms of justice.

²⁴ The following analysis is inspired by Godard (1990, 1992, 2007, 2011).

Indeed, bringing climate change into the context of international politics reveals the involvement of four principal orders of justification, linking “polities” to “worlds”. These are the ‘civic’, ‘industrial’, ‘domestic’ and ‘market’ orders, according to the designation adopted by Boltanski and Thévenot (2006). The ‘civic’ order reveals its presence in systematically advancing the values of equality of all “citizens of the world” and the primacy of the form of universal law supposed to apply to the totality of human beings, beyond borders. The ‘industrial order’ is revealed in three features: the physical and technical dimensions of CO₂ emissions, which are an obvious fatal by-product of the operation of physical capital and networks for production and consumption; the importance given to scientific knowledge and expertise; and the reference to economic *needs*. The ‘domestic’ order is seen in the manner of claiming rights given by old practices (grandfathering) and responsibility for an intergenerational future time structured by the idea of the intergenerational transmission of a precious heritage for survival. The market order is reflected in the determination to mobilise market mechanisms to provide flexibility and to ensure economic efficiency (minimising the total implementation costs of a given goal) within the regulatory regime for worldwide emissions. Faced with this pluralism, the question is: what is the real nature of the problems to be solved by international action aimed at the prevention of global climate risks? Ultimately, under what order of justification do they essentially fall?

Are these problems of a ‘civic’ nature? One should then give precedence to the concern for equality of the people in question. Hence the criterion of sharing emission quotas among states according to the size of their population. This proposal is discussed later.

Is this mainly a matter of improving the functioning of what could be called the global economic production machine? If one considers the problem as an “industrial-type” issue, needs arising from current production conditions should take precedence. It would be advisable to allocate quotas to countries according to their role and their contribution to the production underway, in order for them to correctly fulfil their productive function and, in so doing, to respond to the needs of the others to which they are linked by the international division of labour. The aggregate criterion that best expresses this need is therefore an index derived from GDP, the measure of a country’s gross economic activity: the only components to take into account are those involving a physical activity generating carbon emissions; speculation on real estate markets would be disregarded. Note that the developing and emerging countries that until 2009 refused to enter into the system of international commitments implicitly endorsed this approach when they justified their refusal by their desire and right to develop.

Could this be first and foremost a question of promoting the major extension of ‘market-type’ relationships into a new domain, as denounced by those who claim “the world is not a commodity”? While this was and continues to be technically feasible, nobody has proposed that a worldwide authority put emission rights up for auction, on the basis of an annual global cap or a five-year cap, for example. According to basic economic concepts, each country would have then revealed its real preferences through its willingness to pay. The large number of countries and the existence of a secondary market (the quotas thus purchased could be resold) would have guaranteed the competitive nature of the system, especially if the rules for using funds were known in advance. The money thus collected could be deposited in an international fund dedicated to the sustainable development of the planet, ensuring a financial flow for the adaptation and development of the less advanced countries as a priority. The fact that such a procedure has never been seriously suggested in expert debates shows, at the very least, that dimensions other than the market are at work. Nonetheless, for the first time at the international level, the Kyoto Protocol incorporated the possibility of exchanging quotas derived from the obligation to reduce emissions to which the signatory states are bound. The carbon market was at the heart of the Kyoto regime, but with an instrumental role. Will this role be maintained in the post-Kyoto arrangements still to be negotiated?

The final question goes in a different direction. Are we not dealing here with a problem arising from the extension of the traditional domestic order? The current reference to the criterion of

grandfathering, the rights earned by “grandparents” and then passed on as a legacy, suggests that this reference is not irrelevant. The atmosphere has already been used for a number of decades by all countries, although with different intensities. The whole world has been fully aware of these uses for decades and, until recently, accepted them, even if this was with a disregard for their climactic consequences. Thus, past emissions can be seen as a source of acquired rights of a customary nature.²⁵ If we adopt this characterisation, it would be contrary to justice to violate such rights (a procedurally unjust action), even if this were for the “good cause” of protecting the environment. It would not only be unrealistic but also unfair to ignore these rights or, worse, to transform these rights into obligations to repair and compensate or into a source of punishment in the form of sharply diminished allocations in the future. In other words, the atmosphere in 1990 was not a new manna to be shared amongst everyone without taking account of past uses. The best models for a just sharing of access to the atmosphere’s capacity to absorb GHGs might then be found instead in cases of agrarian reform, where changes to property rights are at stake.

Significantly, countries demanding recognition of indigenous populations’ historical rights to their ancestral lands and the natural resources they contain use the same argumentation based on an alleged link between the current rights they claim and the past practices of their ancestors. If their arguments are deemed to have merit in these cases, it is hard to see why they should be rejected out of hand in the case of climate issues, unless to yield to opportunism in approaching these problems, in other words to renounce the search for a just solution, one that is justified.

The four orders of justification involved in the global climate problem govern alternative ways of characterising situations and shaping the world, which open up substantially different operational criteria for defining a just distribution. Each of the criteria at work involves a legitimate and appropriate concept of equity in sharing rights and obligations within a certain order of justification, and loses its relevance outside this order. The question of choosing operational criteria for sharing rights and obligations has shifted. It is no longer primarily a matter of directly determining which criteria (population, GDP, emissions from a certain date, historical emissions, etc.) are to be used in the situation under consideration, but of better discerning the degree of proximity between the international coordination of climate policies and different orders of justification. If the issue that triggered our reasoning is “how do we proceed to a just sharing of effort and rights?”, another question logically precedes this one: what is the fundamental nature of the situation? The answer to this question will determine the most appropriate criterion or the best balanced set of criteria of justice to apply.

The criteria of fair distribution to be used must also fit the type of coordination regime chosen as the basis of the international regulatory system, since this regime is a key component of the situation. Even if we distinguish two stages of regime-building on logical grounds, choices of how to share the efforts and rights, and choices of mechanisms for coordination and regulation on the basis of this initial allocation, the intellectual framing of the two problems of choice cannot be divorced from one another. In other words, the selection of a mode of coordination cannot be relegated to a secondary and strictly instrumental compartment (Godard, 1989), to which we would have recourse once arbitration concerning a just allocation of rights was completed. The coordination mechanism and criteria for a fair and equitable allocation must be adjusted to suit each other.

The required adjustment concerns not only the operational dimension of these criteria, that is, their precise specifications, but also the very concepts of equity that are relevant. The reason is simple

²⁵ Of course, this historical appropriation does not respect the Lockean requirement that states that there must still be as much atmospheric capacity available for all the countries as the industrial countries had for their own development. But this requirement has always proved extremely problematic, concerning as it does natural resources in what has become “spaceship Earth” (Boulding, 1966). At the same time, technological progress over the last century changed what developing countries can legitimately claim today in the name of fairness: they can develop on the basis of technologies that were not available when industrialisation began in the 19th century.

enough: the choice of an operational mechanism of coordination implies a decision regarding the characterisation of the situation and thus the order or orders of justification finally deemed pertinent to serve as a reference, and therefore regarding the appropriate criteria to use.

Concerning the climate change issue, international coordination can be based on quite varied systems of action: national pledges that may take different forms; international mechanisms to finance projects (various funds); research and development or public investment policies; the adoption of common technological standards; economic instruments such as tradable permits or carbon taxation, and sectoral agreements at the global or multilateral level. These instruments themselves may be implemented in a more or less coordinated or decentralised fashion. Thus, for taxation, this could involve an agreement on harmonised national taxes or an international tax paid by states to an international body (Godard, 1993a). They could also be accompanied by more or less drastic changes to the existing rules: a carbon tax could simply be added to the fiscal measures already in place or it could be the key to more extensive fiscal reform; a technological research policy might or might not be supplemented by international technological transfer mechanisms.

Thus, the guiding principle proposed here is the following: the type of international coordination chosen affects the conception of the equity of alternative schemes or the allocation of rights and obligations to each state. For example, appreciation of the fairness of a given allocation would vary, depending on whether the emission quotas are tradable or non-transferable: the organisation of the international carbon market changes the terms of the problem, at least by turning a problem of final allocation into one of the initial allocation of quotas.

Therefore, two major factors emerge to contradict the idea of a universally equitable criterion to ensure the allocation of rights and obligations to states in the domain of climate policies: on the one hand, different orders of justification, giving legitimacy to different criteria, actually coexist in the situation facing the international coordination of climate policies. On the other hand, the mode of international coordination intervening in practice downstream of an allocation of obligations and rights cannot avoid impacting upstream on the legitimate initial definition of a just allocation of obligations and rights. It is against this background that I propose to first return to an examination of the population criterion.

An allocation proportional to population?

The exclusive and immediate application of an equal allocation of GHG emissions rights per inhabitant of the planet would involve such huge international transfers of resources that, realistically, no diplomat really dreams of organising immediate action on this basis. On the other hand, many experts rally to the notion of the long-term convergence of emissions per person, which enables them to conserve the same criterion, but for the long-term future.²⁶ The justification of this criterion obviously belongs to the civic order of justification. Within this view, the only factor that would present obstacles to deploying this criterion in practice would be political and economic realism. According to this approach, that which would be truly equitable would not be realistic and that which would prove realistic would not be fair.

This representation of the issue strikes me as both false and misleading. As has already been said, other criteria are solid legitimate candidates for determining an equitable allocation, and the general superiority of the population criterion has not been established. Discussing this criterion in more depth will lead us to question the right place for civic references for the situation in which we consider the climate problem.

²⁶ However it is self-evident that if global emissions must be reduced to almost nil, this would automatically impose a process of international convergence.

Is the civic framing relevant?

The fundamental problem posed by the choice of civic framing is whether organising international action to protect the planet's climate is similar to giving a country's citizens the right to vote or recognising the primary basic rights of people as free citizens. The first question is: are GHG emissions linked to the very basis of fundamental human rights and liberties, those minimal rights that must not be tampered with regardless of the benefits of doing so, as in the Rawlsian vision of things?²⁷ For that to hold true there must be a close tie between GHG emissions and the existence or the dignity of human beings. Certainly, we find some proximate notions within the range of economic and social rights, such as calls for the right to minimal access to food, energy and sanitation, or a right to sustainable development. Nonetheless, these rights do not take the form of strict equality, but rather that of minimum requirements in relation to basic needs.

Even if internationally recognised, neither one nor the other would suffice to make the emission of CO₂ and other gases an essential human right that, in the name of equity, would prevail over any other consideration. If we disregard emissions resulting directly from human biological existence, which everyone knows are not an issue for climate change, we have to acknowledge that technology and the economy mediate between these economic and social rights and GHG emissions. GHG emissions result from economic activity and depend on the economic, social and territorial organisation of each society and of the international economy. Therefore, many technical and organisational solutions, each with very different emission profiles, provide access to food or energy. Consequently, GHG emission rights do not belong to the fundamental liberties and rights that must be ensured equally for all people.²⁸

Since emission rights can be detached from people, we must now reaffirm the major objection to cosmopolitan views. Humankind does not constitute a single political society organised according to principles of justice, but rather a society of nation-states. International society is endowed with structures of governance, but not with a fully capable single government. It is within this framework that the problem of an international climate policy occurs. Nevertheless, all parties agree on one aspect of the issue to be addressed: it is a case of sharing emission rights, not amongst individuals, but amongst states; moreover, since the Rio UNFCCC in 1992 (provision for joint implementation) and more explicitly with the Kyoto Protocol, these rights are designed to be tradable to a large extent, through the use of flexibility instruments that, with varying degrees of constraints and conditions, enhance carbon markets. Readiness to trade on the market logically requires states to be able to sell the rights in their possession without violating the rights of their people. This means that states do not receive emission rights with the aim and obligation of restoring them to each individual living on their territory, as representatives would have to. In this respect, the system is radically different from the civic model because the basic equality that the latter supposes could not legitimately be reengineered on the market. Citizens are not entitled to sell their right to vote in elections...²⁹

Pursuing this line of argument, the issue is one of sharing rights and obligations among states, which are the relevant subjects in this situation. Thus, the theory of states' political sovereignty and their formal equality within the international society of states must form the basis of the argument.³⁰ So if we consider it relevant to deploy a civic logic analogous to that of the equal representation of

²⁷ For Rawls (1971), primary social goods are divided into two categories: basic freedoms that should unconditionally be equal for all people, and other primary goods to which the principles of equal opportunity and difference are applied.

²⁸ This conclusion, which I formulated in the early 1990s (Godard, 1992; 1993b), has been reached independently by authors such as Hayward (2007) and Miller (2009).

²⁹ See in chapter 4 of Walzer's book (1983) the section on blocked exchanges, and Sandel's thoughts (2000) about what money should not buy.

³⁰ As previously noted, it is this shift that Rawls (1993a) rightly operated when he considered the 'Law of Peoples.' His veil of ignorance here covers an assembly of state representatives, one for each state.

citizens in creating the general will, the criterion of civic equality should be applied at the level of states. We should therefore allocate the same emissions endowment to each state, to Belgium as well as to China, in the same way that these countries have the same voting rights at the UN. Technically, such a solution could be considered once emission rights are exchangeable, but it has never been proposed in debates during climate negotiations. We must see this absence as an indication that, clearly, the nature of the situation does not essentially fit the archetype of a civic situation within the society of states.

The fact that humanity does not form a unified polity also undermines the foundation of the principle of difference presented by Rawls for goods other than basic liberties within a society that is well-ordered according to the principles of justice.

Finally, projections concerning the population criterion in the long run, combined with the notion of long-term emissions convergence, must also be examined. They give rise to other problems of coherence in the desired foundation.

Long-term convergence of emission rights and intergenerational equality

Is it possible, without raising moral or logical objections, to readily determine the rights of current generations as a function of the goal of long-term convergence of emission rights per person? Moreover, is it possible to develop a rule for allocation based on the idea of equal per capita intergenerational rights of carbon emissions?

Let us begin by examining the possibility of an egalitarian sharing of emission rights among the generations concerned up to 2100. According to demographic scenarios proposed by the UN and used by the IPCC in its 1995 report (Bruce et al., 1996), the world population in 2100 could be between 6 and 17 billion people, or an approximate ratio of 1 to 3. Meanwhile, the cumulative quantity of CO₂ emissions between 1991 and 2100 should be between 630 and 1,080 billion carbon tons (tC) to reach a level of atmospheric concentration not exceeding 450 and 650 ppm respectively (Bruce et al., 1997). Indeed, the acceptable level of cumulative emissions depends on the final environmental objective to be reached: the one set by the UNFCCC is that a dangerous interaction with the planet's climate should be avoided. The combination of figures mentioned would lead to an annual right to emit from 0.5 tC to 1.6 tC per person on the Earth during this 100-year period. Therefore, a stabilisation of the world population at its current level, combined with a moderately demanding goal (650 ppm), would then permit the allocation to each individual during the next century of an annual level of emissions close to the one reached by the French in 1990 (1.8 tC). On the other hand, a more challenging goal for atmospheric concentration, combined with high global demographic growth, would reduce the individual quota to be allocated by a factor of three compared to the previous scenario and would require halving global 1990 emissions on average.³¹ In this calculation, I reject the extreme scenarios of 1,000 ppm or the return to 350 ppm.

Under an egalitarian constraint, the logical structure of the intergenerational sharing of rights implies that the current generations' right to emit GHGs depends on the size of the future population and therefore on future generations' choices in terms of procreation. The usual approach consists of broaching this question from the viewpoint of demographic predictions, as if we were dealing with a natural phenomenon beyond human choice. Since we are considering GHG emissions as a political and moral issue, to the point of suggesting the responsibility of present generations for the behaviour of their ancestors at a time when leaders and citizens lacked solid knowledge about global climate change, such asymmetrical treatment calls for debate on moral grounds.

³¹ It would be necessary for French people to divide their emissions by four and for American people by eleven, in relation to 1990 levels.

Let us adopt the idea that the procreation choices of each generation carry their own moral responsibility. Indeed, a generation possesses the collective power to influence the number of its offspring. Demography, like economics, is ultimately built around individual choices. Furthermore, most states have explicit population policies, either to encourage growth (tax assistance for public services for young children in France) or to discourage it (China's one-child policy). Therefore, the public authorities cannot plead incompetence or irresponsibility in this field. From the perspective of the search for justice, these policies should naturally be compatible with the rights of individuals, but, as Hans Jonas (2000, pp. 167 on) emphasises, the right of individuals to have offspring is a weak right, that is to say a right that does not generate active obligations on the part of others to ensure its achievement, and one that could be the object of public policies, either dissuasive or encouraging, depending on various social considerations regarding the general interest.

One practical consequence of this situation is that the present generation is not in a position to determine *ex ante* the equal share that it could claim, since this share depends not only on its own procreation choices but on the free procreation choices of successive generations over the next century.

The idea of the long-term convergence of emission rights per capita is problematic in the same way, since, while the numerator (total level of annual emissions) could be the result of a concerted political decision echoing a precautionary strategy, the denominator is affected by the same uncertainty as in the strict egalitarian model. This is not a matter of scientific uncertainty that could be eradicated with the advancement of knowledge. The emission rights of each generation and the range of evolutionary trajectories compatible with the ultimate goal obviously depend on the severity of the ultimate per capita objective, which is related to the number of inhabitants and the procreation choices of their parents.

This situation, in which the rights of present generations are dependent on free choices made by others in the future, clearly raises the question of defining the limits of each generation's responsibility. Would it be fair to ask present generations alone, propelled by a supposedly "ethical prudence" like the one Shue (2009) proposed as a final word to the controversy on justice, to assume in advance the consequences of possible choices made freely after them, by others than themselves, and to determine their own rights on the basis of what one could call a "worst case demographic scenario"? In so doing, my feeling is that they would be displaying moral hubris since they would choose to take the whole responsibility for decisions made by all others to come. In fact, this claim would not respect the future generations' status as moral persons; instead it would be treating them implicitly as irresponsible.

At the very least, it is wise to implement a shift like the one that the Brundtland Report (World Commission on Environment and Development, 1987) made in its understanding of sustainable development:³² the objective is to satisfy the needs and aspirations of the present without compromising the *ability* to meet those of the future. It is impossible to reason about the rights of present generations without taking into account the capacities of future generations. Since future generations, considered from our present, will have the capacity to ensure that the world population stabilises at 6 billion inhabitants or so, without infringing on people's fundamental rights, the present generation could legitimately determine its share on the basis of a scenario of this type, which would authorise a level of emissions three times higher than in the "ethical prudence" scenario.

This line of argument allows us to reframe the problem to be solved. In the context of a civic world and the criterion it seems to advocate, that of allocating rights on a per capita basis, the equality that should be promoted could not be that of emissions per capita. The definition should be derived from a

³² A. Gosseries (2005) stresses that the Brundtland Report definition is insufficient for one who believes in "equality of opportunity" that, according to the author's interpretation, would require the prohibition of both dissaving and saving, once a sufficient level of economic development is reached to sustain fair institutions.

principle of equality of burden corresponding to the respective capacities and responsibilities of successive generations. This would be in phase with the moral status of people and their fundamental liberties. Over time, the rights of living generations should be revised as a function of the real demographic changes observed, generation after generation. This approach thus supposes that the long-term objectives are formulated in terms of atmospheric concentrations or global emissions, with no reference to long-term emissions per person.

However these developments do not as such justify the adoption of the civic framework as the most appropriate to the situation of establishing an international regime for the protection of the global climate.

The upstream effect of an international carbon market on problems of equity

As noted previously, the choice of an instrument of coordination affects both the definition of problems involving considerations of equity and the criterion of justice used. The creation of an international market for carbon quotas is an instrument of this type, an instrument for which the Kyoto Protocol laid the foundations. What are the consequences?

First, the equitable sharing of national quotas must vary depending on whether this is defined as a final intangible allocation, as would be the case with non-transferable national quotas, or as an initial allocation designed to be open to further exchanges. Except in the case where the initial allocation would be economically efficient from the start, the possibility of trading would lead to a reshuffling of the cards and the final distribution of emissions achieved would differ greatly from the initial one. If, hypothetically, the initial allocation of quotas is made on a per capita basis, the logic of trading would be to undo this equalisation. The judgment on this state of affairs depends on the goals of justice one is pursuing: equality of opportunity or equality of outcomes? Introducing an international carbon market reveals and implies that no value is attached to the idea of the equalisation of actual emissions per capita. Conversely, if such a value existed, which has not been demonstrated, establishing a carbon market would be an inappropriate and morally reprehensible mode of coordination.

Next, if one agrees to see the possibility of trading as a mechanism to restore efficiency harmed by a given initial allocation of rights, the very existence of a carbon market gives rise to an economic surplus resulting from the minimisation of collective costs to be borne in order to meet the overall emission abatement cap. These supplementary gains will themselves pose a new problem of distributive fairness, in addition to the one raised by the initial allocation. Once again, the coordination procedure (emissions trading) imposes its own logic that influences the content of a fair initial allocation.

Finally, the existence of the international market allows for the transformation of a physically grounded right into a portion of the general world wealth, through the monetisation performed by the market. This transformation itself has considerable consequences for defining a truly equitable allocation of quotas.

Let us return to the last two points.

Sharing the gains from trading on the international carbon market

The logic of trading in a competitive market determines respective shares in the gains from trade, even if we accept the basic idea that when it is freely agreed upon, the exchange is necessarily advantageous for the parties involved in comparison with the initial situation.³³ Indeed, in competitive conditions,

³³ However, there could be cases where one of the participants in the trade is indifferent and the other seizes the entire benefit. Moreover, when trade generates external effects, the idea that it is still win-win for all the parties concerned could be wrong. This is what R. Guesnerie (1998) shows in a model of international trade where the specialisation

the economic equilibrium of transactions in such a market is determined by both the initial rights of each party and their objective characteristics (production function, location, technological opportunities to improve carbon efficiency, etc.), synthesised by the marginal abatement cost functions.

This is what Figure 3 shows in the case where two groups of agents – here I am thinking of an aggregate representation of two groups of countries, North and South – have different marginal abatement cost functions, starting at point Z that corresponds to the initial situation before any agreement on emissions abatement has been reached. Let us assume that the initial allocation of quotas from a given cap requires a parallel effort represented by point I. This allocation entails very different total costs (areas IDZ and ICZ) for the two groups of countries. We bring in a competitive market³⁴ to trade emissions quotas. Figure 3 displays the aggregate results for the two groups of countries. The quantity exchanged, bought by some and sold by others, is x . In the case depicted in the Figure, where the group of countries with the highest marginal abatement cost at point I, that is the buyers, is also the one for which the marginal cost function has the steepest slope on the relevant section (between points Z and I), the logic of the competitive exchange is such that the benefit from trade for the buyer countries (area ADE) is higher than the gain by the seller group, whose marginal cost function has a slowly growing slope (area ABC). This result is a geometrical affair: one of the sides of each triangle having the same value x , it is the slope that determines the area of each triangle. The steeper the slope, the larger the area.

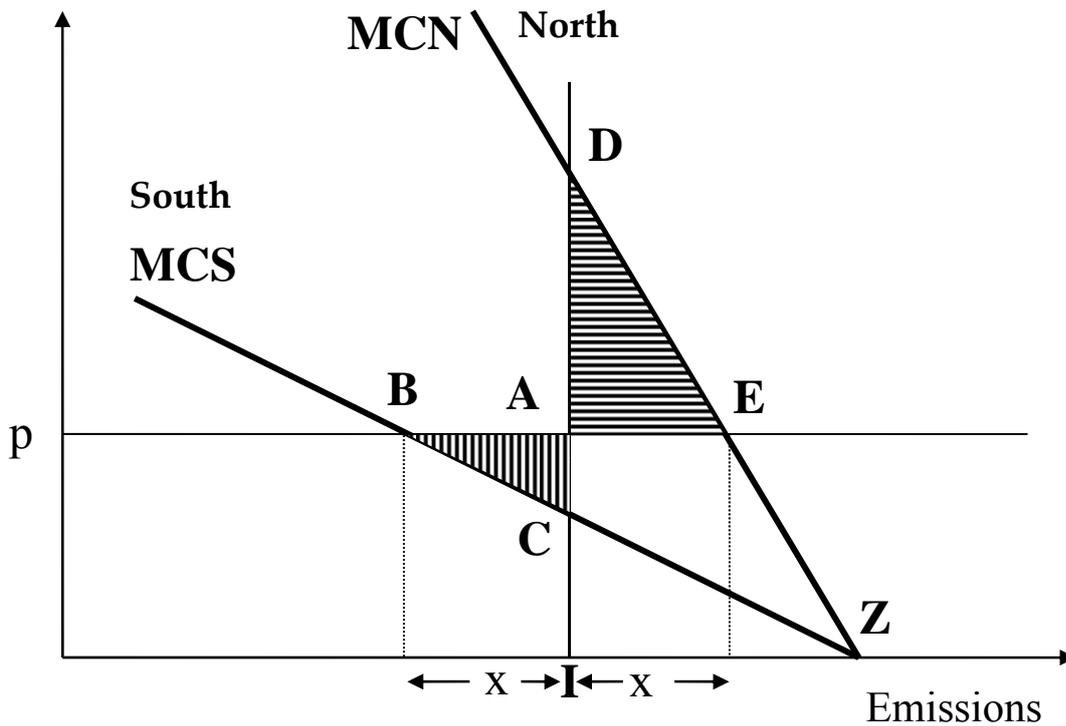
There is no reason for technological factors and market mechanisms to ensure a fair distribution of the gains from trade, whatever the consequentialist criteria we want to use; only a purely procedural conception of justice may be systematically satisfied. Let us assume an extension to the South of the regime adopted in Kyoto for the industrial countries listed in Annex I of the Protocol. If we admit that the latter have both the highest marginal abatement costs at the beginning of the post-Kyoto period, and the steepest slope, then the logic of a world competitive carbon market will be to enable the North to gain more (in terms of avoided abatement costs) from the existence of the market than the South can obtain in terms of income gained by selling quotas. Whatever the corrections that a utility analysis may bring – one dollar has more utility for poor people than for rich ones – inequality in the distribution of benefits from international carbon trading raises a specific problem of how to fairly share benefits from trade.

(Contd.) _____

authorised by the exchange induces asymmetrical macroeconomic effects on endogenous technical progress within different countries; dynamically; this entails a progressive increase in the income gaps between them. Another example comes to the fore when one considers international differences in taxes on complementary goods of emission permits. In the context of the Kyoto Protocol, this could concern differences in taxation for energy inputs. In the latter case, trading remains advantageous for the companies who participate in the exchange, but may work to the detriment of the state in which taxation is heavier. See O. Godard (2001, p. 16) and M. Babiker et al. (2004).

³⁴ Therefore, I do not presume that each group of countries constitutes, in the exchange, a monopolistic block, which would invalidate the hypothesis of a competitive market and lead to a confrontational situation of a monopoly and a monopsony.

Figure 3: Sharing the benefits from trade between two groups of countries



We can envisage two possibilities to address this issue. The first one is to break with the mechanisms of a competitive market by introducing, for example, the concept of “fair trade” in emissions quotas, which would imply an administrative, non-competitive pricing that echoes early proposals by Anil Agarwal and Sunita Narain (1991); this solution nevertheless runs the risk of reducing the cake to be shared by introducing allocative inefficiencies. The second one is to modify the initial allocation at the source so as to compensate in advance for the unequal sharing of benefits resulting from carbon trading. In both cases, we see that the possibility of trading and the solution found to the problem of the equitable sharing of the benefits of trading interfere with the content of the initial allocation considered to be just. Introducing a market affects judgment on the fairness of the allocation of obligations among countries.

Moreover, other reasons relative to the political process explain why the possibility of recourse to an international carbon market modifies the behaviour of states negotiating an agreement on binding emission limits, notably their capacity to consider criteria for redistributive justice, whatever they may be: paradoxically, it is the existence of the market that makes consideration of redistributive equity politically acceptable at the time of defining states’ respective rights and obligations. Without trading, each country will fight to obtain the highest quotas consistent with their expected needs for growth and sovereignty, no room being left for international redistributive purposes. Trading makes it acceptable to have a gap between initial rights and needs since trading can reduce this gap. GHG quotas that could threaten to be an absolute obstacle to development if not transferable become just an additional cost to bear for a country to preserve its future growth and power.

A change in the nature of the problem of justice

Introducing the possibility of trading permits has another effect, which is even more important for structuring the problem of a just sharing of emission rights. It turns a ‘confined’ problem of justice,³⁵ limited to organising access to a given physical good – in this case the capacity of the atmosphere to absorb and recycle GHG emissions – into a broader problem of distributive justice whose horizon is nothing less than the fair sharing of global wealth. When the climate problem is considered as a ‘confined’ issue whose scope can be limited to a problem of access to the atmosphere, while understanding the inadequate nature of the civic justification in this context as the main referent order, reasoning could focus on the problem as posed with no pretensions of resolving global inequalities on this occasion. An allocation based on current needs, combined with an added concern for efficiency, may correspond to the type of legitimacy at work in the order that we have designated as “industrial.” This would be reflected in a physically-based GDP criterion: each country would receive for a given period a grant of CO₂ quotas proportional to its physically-based GDP in the previous period.³⁶ According to the relative pace of countries’ economic development, allocation would vary, increasing more rapidly for countries with the highest growth rate – think of China and India today. This approach is interesting, but does not completely do justice to the situation created by the very existence of a market for carbon emissions. In fact, it would best correspond to a problem of sharing non-transferable emission rights, that is to say a different problem from the one posed by a Kyoto Protocol-type regime.

The fact of establishing an international carbon market as the principal mode of coordination would turn obligations to reduce GHGs into something else, the way the problem of sharing a cake amongst children is transformed when all the children have the possibility of reselling their piece of cake and of freely disposing of the money received in exchange. Money makes it possible to buy any traded good offered on the planet. The circulation of emission rights and obligations gives access to parts of global wealth, through the money dispensed. The carbon market would thus be part of the larger movement of the circulation of all the goods that could be bought or sold. Consequently, what is shared through the allocation of carbon quotas is not fundamentally the physical right to emit GHG gases, since this right will be redistributed as a function of the circumstances of the trade, but rather access to shares of global economic wealth in a generalised system of trade in goods. This means that there is no longer any justification for focusing on the issue of equal rights of access to the atmosphere as a problem in itself. With the possibility of trade, the problem of allocating carbon quotas is no longer distinguishable from the broader issue of sharing wealth in general, and in particular of sharing all the natural resources that states have garnered according to historical and geographical contingencies, such as Middle Eastern oil.³⁷

The way in which the market unravels the climate problem turns an issue of ‘confined’ justice into a broader problem pertaining to the justice of global wealth distribution at the level of all humanity. Paradoxically, the introduction of an international carbon market makes the criterion of an egalitarian per capita sharing of emission quotas politically conceivable, in spite of the gaps between the resulting allocation and national needs, provided that realistic transitions are introduced.³⁸ But at the same time,

³⁵ The comparison that I make here between issues of “confined” justice and issues related to “global” justice is close to the distinction between ‘local justice’ and ‘global justice’ made by Jon Elster (1992) and already mentioned. The term “confined” is more appropriate here than that of “local,” which in the context of climate change could lead us astray.

³⁶ This rule assumes that GDP is not a direct variable of climate policy in any country. Were that the case, the GDP-focused allocation rule would deliver an inappropriate incentive since more growth would increase the quotas received but also the level of GHG emissions.

³⁷ Natural resources have a specific place in the argument about justice. By definition, they are not the fruit of human activity and genius. Their appropriation is thus vulnerable to moral challenge for being arbitrary and iniquitous.

³⁸ In contrast, the approach in terms of non-transferable obligations would make it totally impossible to select this criterion in a process of voluntary commitments.

international carbon trading clearly undermines the foundations and justification of such an egalitarian allocation that would focus only on GHG emissions.

Unfortunately, the broader problem of justice is even more difficult to resolve than the 'confined' one, both in theory and in practice: we fall back on oppositions between cosmopolitan, international and nationalist views on justice. We see no indication that humankind is reaching agreement on principles for the just sharing of all natural resources and, even less, of the entire world's wealth. To move forward, we are first invited to pursue the exploration initiated by John Rawls concerning the principles of justice to be established between states (the Law of Peoples). Then we must recognise that, due to the dramatic differences between levels of income and the ability to meet basic needs within the world population, the issues of North-South relationships overdetermine the problem of the appropriate sharing of GHG emission quotas. In this context and based on the choice of the market as the principal method of coordination, simply following the respective physical needs of countries would not be enough.

Thus, with an international market for carbon emissions, it is no longer possible to cling to an approach limited to confined justice, but we do not know how to effectively resolve the new broader problem that arises because it depends on the resolution of the vaster general challenge of the international distributive justice of wealth. What we have to face at this point is a problem of alternatively "iridescent" (Leseur, 2004) or "oscillating" justice between a 'confined' justice and a 'global' one. The first term reflects expectations about the viability of compromise solutions borrowing certain attributes from both types of justice. The second invites us to consider a dynamic view, in which the definition of the problem historically oscillates ceaselessly between the 'confined' and the 'global' type of justice, without any non-arbitrary stopping point. In other words, the latter invites us to consider a situation coloured by the logical instability of the applicable norms of equity.

Proposals

One line of argument must come to a conclusion. I propose at present to bring together different elements of the situation of international negotiations about the prevention of the major risks raised by climate change. This will occur in several proposals that, because of uncertainty surrounding the subject, do not take account of the unequal distribution of possible 'damage' resulting from climate change that will take place in any case, regardless of whether or not the international community's fixed objective of controlling emissions is attained.

Taking account of the existing uses of the atmosphere is deemed legitimate. It makes the organisation of a progressive transition starting from 1990, the basic point of reference for the Rio Convention and the Kyoto Protocol, a requirement for equity and not only for political realism. This point is more in accordance with a concept of international justice than with the broader cosmopolitan one.

International action must provide long-term indicators that take account of the level of scientific uncertainty regarding the dangers and damage, notably from the perspective of their geographical and temporal distribution. These markers could be defined first in terms of the range of admissible increase in average temperature and increased speed of temperature change, then in dated target GHG concentration, and finally in annual emission ceilings. The long-term goals must not be formulated in terms of ratios per person.

Due to the very nature of GHG emissions, which are closely linked to the technological basis of production and the territorial organisation of human economic activities, it is the aggregate criterion reflecting the level of physical activity of a country's economy that should be the focus of attention to define a just allocation. At first glance, this would be a physical-based GDP. Indeed, from the standard GDP, one must deduct services with no substantial material substratum, since they do not directly contribute to GHG emissions. The reason for this is that it would seem unwise to allocate emission

rights to activities (insurance and banking) or phenomena (real estate speculation that raises the price of services rendered to tenants, for example) that depend little or not at all on these. Without this restriction, in the climate context, an unmerited bonus would be given to the economies of the North, in which services account for a higher percentage of GDP.

When using an international carbon market as the heart of the international climate regime, it would be wrong to dismiss demands for the redistribution of global wealth to benefit the economic and social development of poor people. At the same time, it is unreasonable to expect to achieve the total eradication of global injustices through the sole vehicle of the regime designed to protect the global climate. Furthermore, there is no generally accepted principle decreeing the quantity of resources that should be transferred to that end. But we can ground the approach in existing internationally approved objectives such as the Millennium Development Goals. This is certainly a minimum that can be considered, echoing the idea that international justice may clearly take account of demand for survival.

To determine a reasonable, proportionate, supplementary rule of wealth redistribution, we can mobilise Kant's maxim of universalisation. Adapted to the climate problem, it becomes to "determine the rules for the redistribution of wealth to be carried out by a climate regime so that, if applied to all natural resources and ecosystem services, either open to free access or presently appropriated by states, this level of redistribution would allow for full financing to achieve the Millennium Development Goals." A simple calculation enables us to determine the ranges of numbers involved. Let us assume that attaining the Millennium Goals requires transfers of around \$500 billion per year by 2020 and that this should be financed from the pool of all natural resources and ecosystem services, including the atmosphere's capacity to absorb GHG emissions. Let us suppose that in 2020 the market price of a ton of CO₂e is about \$35 for a global annual emissions cap of 40 GtCO₂e, leading to a total market value for GHG emissions of \$1,400 billion. Let us assume that the annual economic value of the services provided by natural resources and ecosystems is twice the expected world GDP.³⁹ If world GDP in 2020 is around \$79,000 billion,⁴⁰ this would give a total economic value for natural services and resources of \$158,000 billion. The market value for rights to use the atmosphere as a GHG receptacle would then represent 1/113th of the value of ecosystem services. This proportion of 1/113 should be used to determine the fair share of supplementary funding that the climate regime should provide for the benefit of developing countries in order to achieve the Millennium Goals. This would only amount to an annual \$4.4 billion. Let us assume a counterfactual: the value of ecosystem services had been overestimated by 50%. This would imply that the climate regime should provide an additional \$9 billion every year from industrialised countries to developing ones. We see that this sum remains very modest in relation to the amount of transfers committed to by Annex 1 countries as part of the Copenhagen Agreement (\$100 billion per year by 2020, still to be found). This means that the transfers agreed upon at Copenhagen respond to other more specific political justifications for the climate problem than the application of a general redistributive rule inspired by the neo-Kantian maxim of justice mentioned above. This could be interpreted as the footprint of the concession of industrialised countries to the historical responsibility concept pushed by developing countries and the more general South-North dispute.

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The concern for the justice of an international agreement on climate policy certainly cannot be removed from the theory and practice of international negotiations. However, claims for a fair and just agreement cannot be considered to be a factor facilitating the successful conclusion of negotiations. This is first due to the contradictory views put forward by various banks on behalf of justice. It is also

³⁹ In the mid-1990s, a study conducted by R. Costanza *et al.* (1997) estimated that the quasi-market value of ecosystem services could reach about 1.8 times the world GDP. I assume the value is twice the world GDP in order to take account of non-renewable resources and the increasing scarcity of resources.

⁴⁰ World GDP was estimated at \$57,000 billion in 2009. With 3% growth, we get \$79,000 in 2020.

explained by the huge gap between the proposals and the real state of the institutional equipment of the present international regime. Negotiations on climate strategies have to meet an absolute constraint: finding a system of rules and burden-sharing that major states in a position to act on the problem, in other words those that are now the largest GHG emitters, may wish to join. It is often argued that fairness and equity will work in favour of the conclusion and implementation of an agreement (Vanderheiden, 2008). At first sight, this is a nice idea, one we may wish to be true. However, if this formula was meant to be based on the concepts of fairness and justice that each party puts forward, it is certain that no agreement will ever be obtained.

In order to find a way to make the demand for justice and equity a constructive element in the development of an international climate protection regime, priority should be given to coherence between the norms of justice considered and the state of international governance and the nature of the climate problem. Issues of appropriateness take precedence over justice issues, since they guide the definition of problems and the search for solutions. From this point of view, because of their wilful disregard for the fact that humanity is organised into a society of sovereign states, the proposals gathered under the umbrella of a "cosmopolitan justice" are not only unrealistic, but also erroneous due to the uncontrolled back and forth switching of arguments between individual people and states, and are themselves additional barriers to the integration of considerations of justice in a climate regime.

This is indeed one of the lessons from the course of negotiations followed from Rio de Janeiro (1992) to Copenhagen (2009) via Kyoto (1997): taking into account considerations of distributive justice calls for both a tightly coordinated system around common goals and rules, and a coordination regime providing considerable flexibility at the implementation stage, so that possession of GHG quotas does not become a primary issue of economic survival and sovereignty. In other words, it is a highly integrated regime, as would be an extended Kyoto-type regime combining quantified commitments and international carbon trading or, alternatively, a system based on an international tax paid by each state on its emissions into a Global Fund, which would lend itself best to the inclusion of justice considerations. However, as we have seen, the choice of a particular regime of coordination has implications for the definition of problems and norms of justice. In particular, the greater the importance of flexible market mechanisms in this regime, the more the climate problem is deconfined, and issues of climate justice are dissolved into the broader issue of the worldwide redistribution of global wealth extracted from natural resources and ecosystem services. Conversely, the more the regime limits itself to a loose coordination between bottom-up climate pledges and initiatives by various states, as suggested by the direction taken in Copenhagen in December 2009 and confirmed in Cancun in December 2010, and the more climate action problems are split into several different questions and several autonomous areas of partial coordination, the less possible it is for considerations of international distributive justice to play a significant part. Indeed, this type of minimalist agreement reflects the parties' inability to agree on the essential: the common good to be protected and the best collective rules to adopt in order to encourage fair and efficient action accordingly.

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