

Cosmopolitan Luck Egalitarianism and Climate Change¹

Axel Gosseries

(submitted to *Canadian Journal of Philosophy*, suppl. vol. 2005)

Introduction

Evidence provided by the scientific community strongly suggests that limits should be placed on greenhouse gas (GHG) emissions.² This means that states, firms and individuals will have to face potentially serious burdens. Which principles of justice should guide a global regime aimed at reducing GHG emissions originating from human activities, and most notably from CO₂ emissions? This is both a crucial and difficult question. Admittedly, it looks like a too ambitious question, given the uncertainties and complexities characterizing the issue of climate change. Rather than listing them all at this stage,³ let us address the question in a straightforward manner, introducing to some of these complexities only as the need arises. The aim of this paper is to identify guiding principles rather than detailed policy rules, as the latter would require from us to get to grip in an in depth manner with a much wider array of factual issues.

The theory from which we shall attempt at answering our initial question is both cosmopolitan and luck egalitarian. 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

¹ Earlier versions of this paper were presented in Paris (IDDRI, March 30, 2004), Louvain-la-neuve (Climneg, June 3, 2004) London (UCL, Sept. 16, 2004), Montreal (CREUM, Oct. 1, 2004), Geneva (Univ. de Genève, Feb 25, 2005), and Bucharest (SNSPA, April 18, 2005). The author is extremely grateful to these audiences and also wishes to warmly thank P. Bou-Habib, L. de Briey, C. Fabre, F. Gaspart, S. Gardiner, O. Godard, A. Marciano, P. Vallentyne, V. Vansteenbergh, A. Williams and one anonymous referee for their often extensive written comments and their suggestions. Moreover, it is not possible here to list all the articles and books that have been written on the ethical dimensions of climate change. We refer the reader to the rich bibliography of Gardiner (2004).

² IPCC (2001)

³ See IPCC (2001) and Gardiner (2004)

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 one of her co-citizens living next door.⁴ However, this cosmopolitan assumption will not prevent us here from taking states as entities of reference. We will do so because states remain up to now the best agents able to represent the individuals that constitute them and because, as a matter of fact, they are currently the most relevant units in the context of global attempts at curbing GHG emissions.

The perspective adopted here is also *luck egalitarian*.⁵ It regards as central the question of whether costs that individuals are incurring result from their circumstances or their choices. Two key principles underlie a luck egalitarian approach. On the one hand, society as a whole should fully compensate any disadvantages resulting for their members from circumstances over which they have no control. Think about individuals suffering from the effects of severe congenital disabilities or exceptional natural disasters. This excludes of course the harmful consequences of voluntary actions from third parties. In such a case, compensation should not come from society as a whole, but only from such harmdoers. On the other hand, society as a whole is not bound to compensate individuals suffering from the bad consequences of their own choices, whether it involves a significant risk dimension or not. The paradigmatic example is whether the collectivity as a whole should support financially those suffering the bad consequences of practicing extreme outdoor sports or driving well beyond the speed limits. Luck egalitarians will generally answer in the negative. This means in practice that egalitarians will expect from the unlucky sportsperson the full reimbursement of the costs incurred to save her. Of course, the choice-circumstance distinction is not as neat as one may wish, both on the factual side (e.g. to which extent is smoking or obesity the result of a choice?) and on the normative one (e.g. is it reasonable to deny compensation to the victims of risk taking, whatever the purpose of the latter?). Still, it is beyond the scope of this paper to provide a full defence of that theory of justice.⁶ The purpose is rather to show that if we are ready to adopt such a theory, it is capable of delivering some significant indications

⁴ See as well Fabre (this volume)

⁵ See Dworkin (2000)

⁶ See e.g. Dworkin (2002)

regarding the way in which we should set and share the burden of addressing the global warming issue.⁷

Let us now mention three further assumptions underlying the argument. Regarding the definition of the climatic problem we are dealing with, one assumption is that we are indeed moving, because of our human activities, towards a climatic system that will be *worse on aggregate* than the natural one that we would otherwise experience in the absence of significant GHG-intensive human activities. This contrasts with an alternative view according to which the true problem does not reside with the fact that tomorrow's climate will be globally *worse* than the one we are experiencing today. Rather it would have to do with the costs resulting from the *change*, and even more from the rate of this change in our climatic condition. Such transition costs would obtain even if we were moving toward a climatic system that, while being different, would not be a worse one on aggregate.⁸ Arguably, both the "worsening" and "change" issues arise. For the purposes of this paper however, we shall limit ourselves to dealing with the "worsening" dimension. Notice that adopting one or the other assumption only makes a difference from the point of view of *intergenerational* justice (whether the next generation will inherit a climate that is worse overall than ours), not directly from the one of international justice. Thus, the nature of the problem may well differ from the intergenerational justice perspective depending on which of the two dimensions we emphasize more (overall worsening v. mere change). Still, from the point of view of international (intragenerational) justice, there will be losers and winners as compared to a business as usual scenario, no matter whether we focus on the "change" or the "worsening" dimension.⁹

⁷ Let us add one further ingredient to our cosmopolitan luck egalitarian view. We will rely here on its *maximin* version. In other words, we will not care so much about equalizing people's situation in terms of access to advantage. Rather, we will aim at a world in which the least well-off are as well off as possible (see e.g. Van Parijs, 2003). In most cases, such a maximin luck egalitarian view will not diverge from a strict luck egalitarian version, as inequalities should only be accepted if they are necessary to improve the situation of the least well off. However, adopting a maximin version will make a difference in some cases, e.g. when incentives are at stake. For a critical discussion of the argument from incentives : Cohen (1992)

⁸ On this distinction: Gardiner (2004: 557-558)

⁹ Thanks to Thierry Bréchet for pressing me on this point.

Another assumption underlying this paper can be best explained through the following analogy.¹⁰ If we look at the absorptive capacity of the environment as if it were a bin, using it up is equivalent to filling in a bin till the top. No negative consequences on anyone arise until this point has been reached. Similarly, it is only when the environment becomes unable to absorb any additional greenhouse gas particles we emit (e.g. through oceanic waters or carbon incorporated by forests) that our climate can start being affected. Of course, this is a very rough analogy, implying the existence of a clear threshold effect insofar as depreciation rates of stock pollutants are concerned. If we agree with that however, in terms of theories of justice, there might be reasons to treat differently two problems: the problem of sharing the use of the bin until up to its top (or sharing the right to use up the absorptive capacity of the atmosphere) and the one of dealing with impacts and with further waste production once the bin is full (or once we have used up the absorptive capacity of the environment). It may well be that different principles of justice are needed to deal with each of these two problems. Here, we shall bracket the former one and deal only with the latter.¹¹

Finally, one further assumption is that we will adopt to some extent a “local justice” approach,¹² which should not be understood in a geographical sense. Local is to be understood here as “good-specific” or “problem-specific”. If we look at justice in education or in employment, we may care about a fair distribution of certain types of goods (e.g. access to some type of knowledge content, to a job). We could be tempted to do so without caring about the distributive impact of such an allocation in more general terms, i.e. “all-things-considered”, e.g. in terms of equal access to opportunity for welfare, which requires looking at the whole economy, the amounts the tax system is able to levy, etc. This is an especially relevant distinction for those adopting a maximin egalitarian approach.¹³

Thus, in asking ourselves what a generation or a country is entitled to impose upon another in terms of climate change, and in asking how much effort each country should make to reduce its emissions, we will not consider this task as part of a general redistributive enterprise. The latter would seize the opportunity of a problem-specific regime to further a

¹⁰ See e.g. Singer (2002 : 27f.)

¹¹ On this distinction: Gardiner (2004 : 580)

¹² See Elster (1992)

¹³ For an illustration of an all-things-considered approach to an issue of job market justice : Gosseries (2004c). On maximin, see note <x> above.

general redistributive goal. Here, we will only apply our egalitarian approach to inequalities that are directly related with the climate change problem, i.e. inequalities arising at the level of GHG-inducing activities, and at the level of the impact of the greenhouse effect.¹⁴ In other words, we shall pretend as if the background allocation of territories, of natural resources among countries were a fair one (although we know that it is not). Such will be our baseline. There are two reasons for adopting such a problem-specific approach. The most serious one is methodological: we want to clarify things at this level first, before getting involved in a more complex “all-things-considered” enterprise. The other reason is “political” (or second-best): it is worth making clear how demanding such a “minimalistic” approach may already be, before moving towards politically more ambitious targets. We will however indicate in due course which difference it could make to shift to a “general” distributive approach.

Time has come now to move to the actual argument. We shall address two of the three philosophical issues that are politically significant in the climate change debate. First, how should we define a cap on GHG emissions, i.e. the profile of annual levels of emissions that it is fair to send to the atmosphere? Second, once the level of this cap has been defined at a global level, we shall ask ourselves how to share the burden of reducing our global GHG emissions accordingly among countries. Our starting point will consist in asking ourselves whether we should depart in that respect from allocating emission rights on a population-based manner, hence approximating the idea of an equal individual right for all to emit GHG gases at a planetary level. There is a third issue: whether it is fair to allow such national quotas to be tradable among countries. This also raises interesting issues, including problems of articulating commutative and distributive intuitions.¹⁵ It will be left aside here however. We will thus assume that quotas are not tradable internationally.

It is the contention of this paper that cosmopolitan luck egalitarianism has a distinctive message to convey on each of these issues, and that even a “minimalistic” problem-specific version of such egalitarianism calls for dramatic changes in our emission patterns. As we shall see, this message is both about the level at which the global cap on emissions should be

¹⁴ This is referred to elsewhere as interactive justice: Gosseries (2004b). See as well the notion of cooperative justice in de Briey & Van Parijs (2001).

¹⁵ On this issue: Gosseries & Vansteenberghe (2004)

set and about whether departures from a population-based allocation of national countries could be acceptable for egalitarians.

I. A Fair Cap on Emissions

1. The intergenerational constraint

A principle of strict equivalence

Defining a global cap requires to look first at the issue from an intergenerational angle. In order to address the intergenerational dimension, let us briefly summarize what a general luck egalitarian theory of intergenerational justice would require. Luck egalitarians first have to decide whether they want to go for a “two stage” model in which a steady-state stage is preceded by an accumulation phase. Rawls advocated such a model.¹⁶ During the accumulation phase, each generation is expected to transfer to the next one *more* than what it inherited from the previous one.¹⁷ At a certain point however, “once just institutions are firmly established and all the basic liberties effectively realized, the net accumulation asked for falls to zero”.¹⁸ Rawls is thus clear both as to the turning point between the accumulation phase and the steady-state stage, and as to the rate of savings to be applied to the second stage. Generations living at steady-state stage are only bound, according to Rawls, not to dissave, i.e. not to transfer to the next generation less than what they received from the previous generation.¹⁹ They are free to transfer more however if they wish.

The Rawlsian two-stage theory essentially raises two challenges. First, how to justify an obligation of generational saving during the accumulation phase, given that this is not an intergenerational profile such that the worst off people will end up being as wealthy as they possibly could? For a world in which the earlier (and poorer) generations are *not* expected to achieve some positive generational savings would certainly be one in which the worst off generation would be better off than in the Rawlsian accumulation phase. There are ways to justify such a generational obligation to save, however. One of them consists in arguing that

¹⁶ Gosseries (2004a: chap. 4)

¹⁷ Rawls (1999a: 255)

¹⁸ Rawls (1999a: 255)

¹⁹ Rawls (1999b: 107, note 33)

since there is a priority of basic liberties, this may justify a violation of maximin as incorporated in the idea of an obligation to save generationally. This is plausible if we can show (empirically) that a minimum level of wealth is necessary to increase the probability of a genuine protection of basic liberties (through the existence of stable institutions).²⁰ Luck egalitarians, in so far as they are ready to accept some lexicographic priority of basic liberties should thus be able to accept the Rawlsian approach to an accumulation phase.

However, provided that we consider the level of average wealth per head now reached globally on Earth as sufficient to support such stable institutions, there is no reason anymore to impose on current generations an *obligation* to transfer to the next ones more than what they have themselves received. Rawlsians would then stick to the prohibition on dis-savings. We believe however that this is not what luck maximin egalitarians should call for. It is fairer to stick to a rule of strict equivalence : « neither less, nor more ». In other words, each generation should transfer per head to the next one a capital (broadly understood) neither larger, nor smaller than what it inherited from the previous generation. Towards whom would it be unfair to transfer *more* (per capita) to the next generation than what we received from the previous one? Answer: it would be unfair towards the least well off members of our own generation. In other words, if we can anticipate that a surplus could be left at the end of our generation's life, such a surplus should benefit the least well off members of our own generation, rather than to the members of the next generation. It is beyond the scope of this paper to provide a detailed account of this intuition, a reply to potential objections and a specification of its exceptions.²¹ Let us simply assume that we should now stick to this rule of strict equivalence: *In principle, each generation should transfer to the next one neither less, nor more (per capita) than what it inherited from the previous one.*

Three implications for climatic justice

Having made explicit the basics of a theory of intergenerational justice, we are sufficiently equipped to look at three of its implications, the second and third ones having to do with human-induced climate change. *First*, let us assume for a moment that human activities have no significant impact on the evolution of our climate. Still, *ex hypothesi*, there would be a long run natural and predictable trend such that the climate that the next generation can be

²⁰ For a discussion on this point: Gosseries (2004: 217ff.)

²¹ See Gosseries (2004a chap. 4), Gaspart & Gosseries (2005)

expected to experience will be on aggregate worse than the one the current generation is facing. Think about natural global warming or a small ice age. In such a case, intergenerational egalitarianism will call for an obligation falling on the current generation to transfer to the next one more (in terms of general capital – broadly taken) than what it inherited itself from the previous generation. This compulsory generational saving should be such that the next generation would not end up having benefited from generational circumstances (which includes climatic ones) worse than the current generation. Lucky generations would then be expected to operate transfers to the benefit of unlucky ones, which may entail not only forward, but also backward transfers within the limits of generational overlap. If the current generation is not the only lucky one, there is no reason why it should contribute alone to help unlucky ones. An intergenerational climatic solidarity fund is an option in this respect.²²

Second, this qualification not only holds for natural climate change. It also applies to adverse climate change originating from the GHG-intensive activities of *earlier* generations. For the purpose of intergenerational justice, the possibly adverse impacts of such historical emissions should be treated as if they resulted from purely natural phenomena. The assumption here is that current and future generations cannot be held morally responsible for the impact of gases that were emitted by their ancestors. *Ceteris paribus*, if the climatic impacts resulting from such historical emissions do not spread equally across the current and future generations, intergenerational transfers will have to take place to compensate for such inequalities of circumstances.²³

This leads us to a third - and more crucial - consideration. If we stick to the case of historical emissions (i.e. emissions associated with the activities of earlier generations), there will be non-climatic impacts associated with the effects of climatic change, but also with what these historical emissions allowed to produce (e.g. durable goods, technological progress,...). From the perspective of a *general* egalitarian theory, there is no reason not to consider such impacts as well in assessing whether a generation is more or less advantaged. This point is of more general relevance however. It equally applies to the intergenerational distribution of costs and benefits that are causally *unrelated* with GHG emissions. And it also

²² I am indebted to Paul Bou-Habib for pressing me on that.

²³ For an alternative treatment of the historical emissions issue : Gosseries (2004b)

applies beyond the limited case of historical emissions. The general claim can be phrased as follows. It may very well be that due to our own GHG emissions, the next generation would find itself in a situation climatically more adverse than the one we inherited from the previous generation. However, it may also be that at the same time, such climatic degradation is compensated by benefits of another nature (investments in education, technological discoveries,...), be they causally related or not with the activities leading to the GHG emissions.

In the course of an international negotiation focusing on climatic issues, such a consideration may be deemed irrelevant. From the perspective of a first best theory of justice, it is certainly not. However, even from the latter perspective one could want to deny substitutability and claim that compensating climatic degradation with improvements in other dimensions of our lives is not acceptable. The problem is that we need arguments to justify such non-substitutability. Even people's very life (which is often deemed in folk thinking to have "no price") has an implicit value, visible once we look at the size e.g. of our health care or traffic safety budgets. This example suggests that normative arguments against substitutability will be hard to come up with. Here, we assume that such arguments are not yet available to impose a separate treatment of climatic and other "goods" and to apply to each of them separately the rule of strict intergenerational equivalence enunciated above. Hence, what intergenerational justice imposes in terms of cap definition is to consider the impact of climatic change in terms of e.g. productive potential and to weigh such an impact against other possible positive or negative intergenerational transfers likely to take place in other spheres.²⁴ Notice that technically, the ceiling on emissions will have to be defined in such a way as to take into consideration the impact of emissions taking place over a given *period* on the *complete life* of the members of each of the next generations (cohortal impact).

2. The principle of compensation and the missile analogy

A (weak) principle of compensation

²⁴ On the impact of climate change: Broome (1992), Beckerman & Pasek (2001: 94ff.), Tol (2002a & 2002b).

As briefly mentioned above, one of the surprises of looking more closely at the issue of climatic justice is that one could believe at first sight in the following task-sharing: the definition of a global cap is a matter of intergenerational justice and the allocation of emission quotas, once a global ceiling has been defined, is a matter of international (*intragenerational*) justice. This is not so. In defining a ceiling on emissions for each period of time, we should also consider the intragenerational impact of such emissions. To take a domestic analogy, we know that urban pollution leads to the premature death of thousands of people every year. Similarly, the greenhouse effect resulting from current emissions may well benefit some of us. It will negatively affect others, including members of our own generation, due to increases in extreme temperatures, evolutions in food availability, spreading of some diseases, etc. The assumption at play here is that the impacts from emissions of the members of a given generation will *not* be totally delayed in such a way as to affect negatively *only* the members of the following generations.

Let us now imagine the following situation. The planet is divided into three territories, each of them corresponding with a state, benefiting from equivalent resources and being inhabited by only one citizen. Each of these three citizens benefits from an equivalent set of opportunities for welfare (or access to advantage). Each of them also exhibits a particular attitude towards the violation of her territory and towards terrestrial impacts that may follow. Now, one of these three persons would like to test a missile that she has just put together, which requires sending it into the territory of one of the two other countries. However, none of the two potential recipients is ready to accept that even a tiny bit of her territory be overflowed, and even less, bombed, by such a missile. The surface of the emitting person's territory is however too small to allow for such testing. Let us add that it is unlikely that any of the potential recipients might benefit (be it in the long term) from positive repercussions of such missile tests. Under which conditions would it be morally acceptable that such missiles be sent into one of the two other countries?

One possibility is the following *principle of compensation*:

Sending an object into another territory is morally acceptable, even without the prior agreement of the potential recipient, provided that the emitter is ready to compensate the victim in case of harm, at the price that the latter would impose, based on a sincere

assessment by the latter of the loss in welfare resulting for her from receiving this object on her territory.²⁵

At least two remarks on this principle are in order. The *sincerity proviso* is hard to rely on in practice, which could explain why in real situations, such as conflicts between neighbours or car drivers, one will not tend to base the estimation of compensation on the victim's own views as to the true importance to her of the harm she suffered (risks of bluffing). Moreover, such a compensation principle presupposes a rather weak property right since the *prior consent condition* is abandoned here. It is clear however that if the aversion towards missiles of the two potential recipients is considerable if not infinite (whatever the reasons underlying such an aversion), sending a missile towards such countries will not be morally possible given the extremely high price to be paid in order to ensure compensation of the consecutive harm, and the inability of the potential emitter to pay such a price.

The (demanding) implications for ceiling definition

Let us now modify the description of this hypothetical world in two respects. First, we replace missiles with solid waste, be it radioactive, toxic or merely bulky. Second, we introduce a difference between the preferences of the two potential recipient countries. Let us thus re-describe the situation as follows. *Rudogena* is a net waste exporter. *Rudophilia* has a very weak aversion to waste disposal on her territory, allowing her to offer quite a low price to *Rudogena* for accepting to dispose the latter's waste on the former's territory. As to *Rudophobia*, she has an extremely strong aversion to waste disposal. She is not ready to accept any waste disposal at all on her territory. She is extremely committed to preserving pristine landscapes. Hence, this new situation is different from the initial one. Does the difference consist in the fact that the objects sent abroad are of a less problematic nature than missiles? The answer is negative. For, first, the purpose served by missile development will not necessarily be more futile than what made waste generation necessary. Second, wastes may have impacts as detrimental as those of missiles. Third, once the impact of CO₂ emissions is known, it is hard to argue that such effects are less intentional than those of missiles. However, what matters much more in this second version of our hypothetical world is the

²⁵ For developments on the prohibition/compensation issue: Nozick (1974: 57-87). See also Hicks (1939) and Kaldor (1939).

fact that at least one of the potential recipients has a low aversion towards waste reception on her territory. Given the possibility of choosing such a destination for her missile, Rudogena is able to comply with the compensation principle. The larger the number of countries in our hypothetical world, the more likely it is that we will come across such Rudophilian countries.

Finally, let us move one step further, modifying one of the ingredients again, namely the dispersal behaviour of the transboundary good. Let us indeed replace solid waste with a *uniformly mixed* gas, namely CO₂, the most emblematic GHG. “Uniform mixing” refers to the fact that this gas will spread in a uniform manner above the whole surface of the Earth, irrespectively of where it has originally been emitted. Notice here that while the pollutant is uniformly mixed, it does not follow that the impact of global warming resulting from it is uniformly spread.²⁶ The key challenge that uniform mixing raises is that, contrary to the case of solid waste, the final destination of this gas is thus *out of control*. In contrast, other gases or particles end up concentrating above some locations, forming so-called “hot spots” when the concentrations are high. Uniform mixing is often seen as a positive factor when it comes to advocating the tradability of emission quotas, since the risk of hot spots following from trade does not obtain. However, uniform mixing rather proves to be a source of trouble in this case. This becomes clear as soon as we contemplate the possibility of a single country, out of a very large community of states, being infinitely averse to CO₂.

This third hypothetical world thus helps to point out a key challenge that an egalitarian theory of justice should address in providing a principled answer to the definition of a fair cap on emissions. Unlike the missile world, the degree of aversion towards CO₂ reception in this hypothetical world might differ very much among the (net) recipient countries. However, such a difference in degree of aversion does not help to ease compliance with the principle of compensation. For unlike what happens in the solid waste world, Rudogena is not only unable to control the direction of its CO₂ emissions. Due to the uniformly mixed nature of CO₂, some of it will necessarily locate itself above the territory of Rudophobia, in proportion to the latter’s relative territorial size. If Rudophobia’s aversion is extreme (or

²⁶ The fact that the consequences of these uniformly mixed CO₂ particles are not themselves uniformly mixed (some countries being more affected by climate change) does not affect the argument that follows. What matters here is the very fact of having particles concentrating on top of all the territories of the planet.

infinite), even a small amount of CO₂ locating itself above the latter's territory will suffice to render compliance with the compensation principle practically impossible.²⁷ This matters because in a large community of countries, the existence of at least one rudophobic country is very likely. Hence, beginning with a rather weak principle of compensation (to the extent that it does not require prior approval), we end up with an extremely demanding constraint on the moral acceptability of CO₂ emissions. Such demandingness arises because of the conjunction of two facts. First, the uniformly mixed nature of CO₂ is likely to lead to a veto on *any* emissions, in line with the compensation principle. Second, nearly each and every one of our activities, including those devoted to the satisfaction of very basic needs, presupposes, as things stand today, the emission of CO₂. In other words, imposing on others full compliance with the compensation principle through a veto – if such compensation cannot be paid – may entail in some case, condemning them to death.

There are several ways out of such an extreme outcome. They all amount to weakening the strong property rights in external resources implied in our hypothetical model. One way of doing so consists in restricting the scope of the compensation principle as follows. The obligation to compensate would only apply above a threshold of periodical emissions defined by the level of per capita emissions of the *recipient* country itself (the net reception approach). Hence, a country could not veto a behaviour that it is enacting itself. Those who are sincerely the most averse to the consequences of CO₂ emissions should also be the most worried about imposing the same consequences on others.²⁸ Imagine that both Rudophilia and Rudophobia emit a per capita level of CO₂ of 10 per year. As to Rudogena, it emits an amount of CO₂ of 16 per year. Compensating Rudophobia will only apply from the 11th unit of emissions onwards. More precisely, if Rudophobia covers a third of the planet's territory, and considering CO₂'s uniform mixing property, Rudogena will have to pay Rudophobia to compensate it for the reception of 2 units of CO₂.

²⁷ The fact that even a small amount of CO₂ would be enough, is especially important for those who consider that the intra-generational effects of CO₂ emissions (i.e. the climatic impact on a generation of her own emissions) are minor.

²⁸ There is a simplification at play here: even in a world where we all share the same utility function, there is no strict parallel between the amount of CO₂ sent to each other's territory and the amount of harm inflicted upon each other. While CO₂ is uniformly mixed, the physical consequences of the greenhouse effect are not. The argument presented here thus only approximates a more sophisticated argument that would focus directly on the harm inflicted as a result of CO₂ emission.

Such an avenue will likely (but not necessarily) coincide in practice with a second strategy: the *sufficiency* approach. Here, the idea is not, as before, that people should not impose on others restrictions that they are not ready to accept for themselves. Rather, property rights in territories and the column of air attached to such territories, should give way once basic needs are at stake.²⁹ While the net reception threshold approach can remain fully in line with luck egalitarianism, the sufficiency approach implies that the egalitarian view be *complemented* with another one giving special importance to the ability for each of us to cover our basic needs (eating, resting, basic education, etc.). This approach amounts to saying that when it comes to basic needs, their compensation should not be subject to the differences in actual utility functions obtaining among different people.³⁰

What does each of these two central alternatives (“net recipient” and “sufficiency”) imply in terms of global cap definition? Adopting the net recipient approach means that we should look at the readiness to compensate of the emitters and fix the ceiling at the level at which they begin not to be ready anymore to compensate any further, as requested by the net recipient countries. Such a level can be quite low if at least one of the net recipients is very much averse to receiving CO₂ particles. In contrast, adopting the sufficientarian approach entails that the cap *should not* be lower than the global level of annual emissions required to satisfy the basic needs of the Earth’s current inhabitants, under the constraint that this does not jeopardize as well the ability of the members of the next generation to provide for their

²⁹ See as well Fabre (2002)

³⁰ For an overview of sufficientarian developments in the climate change context: Gardiner (2004: 585ff.). Notice that we can even combine the net recipient view and the sufficiency one into a *double threshold* approach. In such a case, the principle of compensation should only apply to emissions exceed in the highest of the two levels (sufficiency for all or net per capita emission in the most rudophobic country). One further approach worth mentioning would consist in renouncing to reduce the scope of the principle of compensation while considering the average level of aversion to CO₂ rather than the recipient’s actual loss of utility associated with the reception of CO₂ particles on its territory. This would admittedly buffer the risk of veto. It would not eliminate it however, as some recipients may still be atypically affected by this, which may considerably level up the average level of aversion. Moreover, if each of the countries has the *same* territory size, the uniformly mixed nature of CO₂ already leads, as a matter of fact, to an approximation of such an “average aversion” view.

own basic needs.³¹ One might consider it *prima facie* unlikely that the “net recipient” approach will require a lower cap than the sufficientarian one, if we assume that no country is likely to emit less than what is needed for reaching sufficiency. However, the levels of emissions necessary to meet people’s basic needs vary from country to country, depending on e.g. local environmental characteristics (e.g. weather conditions or frequency of earthquakes). In real world conditions, under the net recipient view, an emission-averse and environmentally-favoured country that would need little per capita emissions to reach sufficiency for all its citizens may thus still impose on other countries a *per capita* level of emissions that would be insufficient for them to reach sufficiency because of more adverse environmental circumstances. Convergence between the “net recipient” and the sufficientarian approaches will thus not necessarily hold, on the one hand because the former may plausibly impose emission levels insufficient for *another* country to cover its own basic needs, and on the other because sufficientarians are indifferent towards “excessive veto” once all countries can emit enough to take care of their basic needs, and provided that the ability of the next generations to cover for their basic needs is not under threat. Moreover, there does not seem to be any argument to be found *within* egalitarianism itself to decide whether the “net recipient” proviso has to be preferred, or whether one should move to a form of sufficientario-egalitarianism, the distinction between choice and circumstance only applying once the basic needs of all are met.

Two things matter here however. First, both the “net recipient” approach and the sufficientarian view may allow for (and indeed require) a global intragenerational cap that would be quite demanding on large per capita emitters. Second, the outcome of the two views outlined here (i.e. compensation principle with a “net recipient” and/or a “sufficiency” proviso) certainly differ from the one of agregativist approaches according to which the global CO2 ceiling should be set at the level where the marginal cost of emissions becomes larger than the marginal benefit of emissions. Of course, sufficientarian-like or egalitarian-like outcomes can be reached in part through enriching an agregative approach with assumptions such as the one of diminishing marginal utility. Still, even such a sophisticated agregativist theory will remain unable to fully lead to luck egalitarian-like outcomes. This is so for several possible reasons. Some people’s psychology will not be in line with the diminishing marginal utility assumption. Such agregativism may also be

³¹ This constraint follows the same logic as Brundtland’s sufficientarianism. See Gosseries (2005)

indifferent to the reason(s) why a given person ends up being more or less wealthy (choice-circumstance).

II. Should we depart from the *per capita* allocation criterion?

Once a fair global ceiling on emissions has been defined, the emission reduction effort has to be divided up among all the countries involved.³² One of the important choices to be made at this stage is whether such a quota allocation should be done on an auction basis or through an initial distribution operating free of charge. In other words, would countries have to buy their emission rights from an international authority? Theoretically, an initial auction should not necessarily be rejected by egalitarians, even if the international distributive background is unfair, provided that the money hence gathered by an international institution is (re-) distributed in line with luck egalitarian principles. The alternative consists in allocating these rights without requiring any payment from the countries to which they are allocated.

Here, we shall assume that the initial distribution is indeed made free of charge, partly because this is the way things are actually taking place in the Kyoto context. More precisely, we shall take it for granted that most egalitarians will agree *prima facie* with a population-based allocation of such quotas - leaving aside whether such quotas should be tradable or not. The intuition underlying a population-based allocation is that *ceteris paribus*, there is no reason for a Chinese or a Peruvian not to have a right to emit CO₂ equal to the one of a Canadian or a Hungarian.³³ Let us now examine whether luck egalitarians would not have

³² For a paper comparing the various allocation criteria: <...>. Note that the articulation between a global cap and the allocation of emission rights among countries does not amount to an articulation between an ideal and a non-ideal stage. Here, we assume that the global cap is defined for an ideal world (i.e. a world of full compliance) and that the allocation of emission rights among countries to implement the required cap is also defined for an ideal world, i.e. one in which all actors are willing to shift from the current situation to an ideal one. We do not deal with whether the division of emission rights between countries should be different in the (realistic) case in which some of the countries would be expected not to comply with their reduction emission obligations as defined by the theory of justice defended here.

³³ See e.g. Singer (2002 : 35f.).

good reasons to depart from (or amend) such a per-capita criterion.³⁴ The two first ones we will examine could possibly justify a transitory departure from the per capita criterion, whereas the two last ones could constitute grounds for amending the per-capita criterion on a more permanent basis.

1. Two possible reasons for a *transitory* departure

Grandfathering and transition losses

The main criterion offered as an alternative to a population-based allocation is *grandfathering*.³⁵ In the climate change context, promoting grandfathering amounts to saying that if two countries have actually reached a different annual level of CO₂ emissions per head on a given base year (e.g. 1990), each of them would in principle have to reduce its ulterior annual emissions by a given percentage of its 1990 level. Each country could thus preserve its relative position while committing herself to the same rate of reduction. Those who were larger polluters per head during that base year will be entitled to continue to pollute proportionally more than others that, due to a lesser development level or to early efforts at improving their energy efficiency were polluting far less per head during the same base year. Those supporting grandfathering do so mostly for political feasibility or economic efficiency reasons while those opposing it generally do so on distributive grounds.

The concept of grandfathering exhibits an unexpected pedigree. It goes back to attempts at further delaying the actual enfranchisement of black voters in the late 19th century in some of the Southern US States. In short, after the Civil war, one strategy aiming at preserving the exclusion of most black voters in a non-explicit manner consisted in introducing poll tax and/or literacy requirements. However, such a strategy was running the risk of disenfranchising some of the potential white voters as well. This is why in some of the southern US states, a special exemption was introduced, stating that all those whose grandfather or father already had the right to vote would be exempted from having to fulfil poll-tax and/or literacy requirements. Of course, none of the black's grandfather had had the

³⁴ We will only focus here on some such reasons, leaving aside others that we find *prima facie* less compelling. One of these is the Malthusian worry according to which the adoption of a per capita criterion would encourage population growth.

³⁵ For a standard defense of grandfathering : Baumol & Oates (1988)

right to vote. Hence, grandfathering meant in practice that *all* potential white voters would remain enfranchised, while *most* of the potential black voters would remain disenfranchised through poll tax and/or literacy requirements.³⁶ This practice was later judged unconstitutional by the US Supreme Court.³⁷

The word “grandfathering” remains widely used however. In general, it refers to a temporary exemption from the scope of some new rule, which constitutes an extensive use of its original meaning. For example, in some cases, if new standards are adopted with regard to a given type of product, this will only apply to those products that have not entered the production chain yet. As we said, in the climate change debate, grandfathering refers to a specific variety of this extensive use of the context. It amounts to the allocation of emission reduction obligations that would leave the *relative* levels of pollution of various countries unmodified. Hence, the exemption from the scope of new rules is not as strong as in the product standard case: large emitters should reduce their emissions, but only in the same proportion as small emitters, which still allows the former to emit more than the latter.

The interesting question to ask is whether luck egalitarians have good reasons to oppose grandfathering in general and its use in the climate change context in particular. In fact, grandfathering, in so far as it exempts some actors already involved in a given activity from the application of new standards is an in-kind equivalent of cash measures aiming at compensating the losers of a change in legal rules. More precisely, some actors will suffer transition losses whenever the expected return on their investments decided under the regime of an initial rule is lower because of the introduction of a new standard. There may be cases in which such transition losses should be compensated, in the same way as other disadvantageous circumstances call for compensation along luck egalitarian lines.

Let us take two examples. Consider first a sudden shift in road traffic regulation such that all of us will have to buy a new car by the end of the coming year. Those who bought a new car just before the introduction of the new rule was announced will suffer a larger loss than those who have had their car for longer and had to buy a new one soon anyway. Intuitively, it may seem fair in this case to compensate those who suffer to a larger extent than others

³⁶ See e.g. Van Deusen (1936)

³⁷ *F. Guinn and J.J. Beal v. United States*, 238 U.S. 347 (1915).

from what can be regarded as bad brute luck. Second, take a completely different context: legal standards ruling out gender discrimination in the workplace. Let us consider a legal regime indifferent to gender discrimination on the job. It will not rule out unjustified wage differences between men and women or any of the causes of so-called “glass ceilings”. All of a sudden, we shift to a new regime strongly opposing such forms of discrimination through a variety of measures. Obviously, many men will suffer transition losses. This is the case e.g. for those who have invested in their career, suddenly facing a shrinking of their promotion perspectives. Should transition losers be compensated in such a case? Intuitively, many of us will tend to answer by the negative.

Here is a possible account of the reasons underlying the differences in intuitions that may arise between the two cases. Two key variables are at stake: the *predictability* and the *legitimacy* one. More precisely, we have to ask first whether one could reasonably have expected the reform to actually take place. And we also need to ask ourselves whether the potential transition losers should not have considered the initial regime as obviously illegitimate. The reason why the predictability variable is relevant from a normative point of view has to do with the idea that, to a certain extent, the victims of someone else’s behaviour should take whatever reasonable measures that would easily help reducing the size of the harm they will suffer (this is a rule obtaining in some tort law regimes). As to the legitimacy variable, the idea is the following. Even if the shift towards a fairer workplace from a gender-oriented perspective has not been announced in advance, it would be morally unacceptable (and even absurd) to allow men to claim compensation from women for losses resulting from the cancellation of clearly undue privileges.

There are of course difficulties associated with such a test. One of them is that we do not offer here any account of the relative importance of the two variables (predictability/legitimacy). This would be needed to deal with cases such as the long advertised introduction of a new standard ruling out a practice that was not blatantly immoral. Another problem with the twofold test implied here is that the idea of an “obviously illegitimate” practice, while relatively uncontroversial when applied to gender discrimination remains admittedly very vague. Still, we believe that the two variables identified above are both central and relevant.

Egalitarians should certainly not reject in any circumstance the acceptability of compensating transition losers in contexts in which there was a low predictability of change and no clear illegitimacy of the initial regime. Such compensation, whenever it is deemed appropriate, may take a grandfathering (in kind) form. Now, we need to examine how things should be dealt with in the climate change context. Our claim is the following: the comparatively high emission levels of industrialized countries preceding the adoption of the Kyoto protocol are comparable to e.g. the unfair wage differential between men and women on the labour market of many of our countries. Or at the very least, from 1995 onwards, when the scientific community unanimously recognised the impact of anthropic CO₂ on the world climate,³⁸ measures should have been taken to start reducing the emissions of the larger polluters. Hence, the legitimacy requirement of the twofold test discussed above is not satisfied in the case at hand, at least from 1995 onwards. For current emissions are higher than the level of emissions that countries should have aimed at from that date onwards. As soon as the reality of the greenhouse effect became clear, no plausible justification - from a luck egalitarian point of view - was offered to justify the fact that the largest GHG emitters would continue emitting as much as they did.

There may then be two avenues to justify some extent of grandfathering, but for a very limited period of time only. First, grandfathering could be relied upon to compensate transition losers for investments made before the time when it became clear that we had a problem with the greenhouse effect. But even for those “pre-unanimous-knowledge” years, compensation should only apply to net transition losses. In other words, if large emitters derived proportionally larger benefits than other countries from their “pre-unanimous-knowledge” GHG emissions, this should be fully discounted from what is to be regarded as their transition losses. Second, the other possible reason for temporarily integrating some extent of grandfathering as part of the allocation formula is of a *second best* type. In other words, luck egalitarians may accept some extent of grandfathering, not because it would be fair (as in the case of our first justification), but because doing so is the only politically feasible option to get enough countries to become part of a viable international regime that will in the end benefit the least well off. There is thus a second-best luck egalitarian argument for some extent of grandfathering. It would be temporary grandfathering however, whose weight in the allocation formula should rapidly diminish.

³⁸ On the variety of possible dates: Gosseries (2004b)

When a circumstance becomes a choice

Let us now envisage another possible reason to amend the population-based criterion. It has to do this time with geographical factors affecting either the capacity of states to reduce their GHG emissions, or the extent of the harm they are likely to suffer as a result of global warming. To illustrate the former case, think about an extreme climate (e.g. the Canadian one) requiring significantly larger air conditioning and other expenditures to preserve the same average level of opportunity for welfare. Similarly, a high dispersion of housing (e.g. Australia) increases the need for transportation, which has a clear impact in terms of GHG emissions per capita. Let us refer to such variables as *upward* factors in so far as they increase the dependency of such countries toward GHG-intensive resources. In other words, we are dealing with geographical factors increasing the amount of GHG-intensive resources required to generate a given unit of welfare.

In contrast, other factors - *downward* ones - increase the risks of harm resulting from climate change, some states being more vulnerable than others, and, more importantly, some areas within states being more exposed than others. For example, whenever urban areas are implanted close to the seashore, or below the sea level (e.g. in Bangladesh or in the case of small Pacific Islands). As mentioned earlier, the fact that CO₂ is uniformly mixed does not mean that the harms caused by the greenhouse effect exhibit the same dispersion pattern. Altitude, latitude and proximity of the seashore - to name but a few - will all constitute factors affecting the vulnerability of the countries potentially harmed.

In short, environmental factors may either determine the “need” for more or less important GHG emissions (*upward* factors), or the extent of the impacts resulting from the greenhouse effect (*downward* factors). One may want to consider such factors as pure circumstances. Were this so, it would constitute a second reason to depart from a population-based allocation. *Ceteris paribus*, this could justify - as one of the possible redistributive avenues - the allocation of *larger* per capita emission quotas to countries like Canada (extreme weather conditions), Australia (high dispersion of population), Bangladesh (vulnerability to sea rise). Notice that this is totally unrelated with the level of wealth per capita of such countries. A higher quota per capita would be granted to Bangladesh here, not because of its level of GDP/capita, but rather because of its geographical vulnerability.

However, an important consideration should be added regarding the choice/circumstance distinction. As time goes, the extent to which such factors should play a role in justifying higher emission rights per capita for such countries should gradually diminish. What can be considered a circumstance at the outset of a new regime of rules and/or once we discover a new problem, should not necessarily be seen as such forever. Gradually, the choice dimension in such a situation becomes more prominent, notwithstanding the difficulty of assessing to which degree exactly. To take a domestic analogy, it is one thing to suffer flooding damage in an area where such flooding could not reasonably have been expected. It is another to keep building in such an area in full knowledge of the serious risk of flooding it is subject to, and knowing that there is constructible and comparably cheap land in better protected areas – which is of course not always the case in practice. In the former case, the consequences of flooding will be regarded as *brute* bad luck. In the latter, they are to be seen as *option* bad luck. Society as a whole would not be bound to compensate the victim of such option bad luck for the disadvantages it may result in.

Mutatis mutandis, there is room for an analogous reasoning in the international context. Urban dispersion may well be considered a circumstance right at the moment when its environmental consequences begin to be discovered. The same holds for building on the shore until we start learning about the great risks of sea rise associated with the greenhouse effect. As the need to reduce GHG emissions and as vulnerability factors become more obvious, some level of adaptation should be expected, at least if it does not entail significantly greater costs. In the case of upward factors, countries less subject to them might rightly argue after a hundred years or so that urban dispersion or location in extreme climates has become to some extent an expensive taste that the other countries should not be expected to fund through the allocation of relatively lower emission quotas. Similarly, if a country collectively decides to keep building on the seashore while having known the risks associated with this for several decades, this could not justify granting them a larger quota anymore. Here, in the case of downward variables, the rationale is in part the one underlying the predictability requirement above: to a certain extent, potential victims (here: collective ones) should take reasonable measures to minimize the harm done by others. It follows that the upward and downward factors identified here can only justify a transitory departure from a population-based allocation of quotas between countries. Let us turn now to two

possible reasons for amending on a more permanent basis a strictly population-based rule of quota allocation.

2. Two possible reasons for a *permanent* departure

The Exporta case

Let us envisage for a moment a country – referred to here as Exporta – having decided to concentrate on her own territory the whole of the heavy industry of the area, hence emitting huge amounts of GHGs. Such a state specializing itself in GHG intensive production is far from consuming all its production. It is exporting a significant percentage of these goods to neighbouring countries in which nationals and residents are consuming them. The Exporta example illustrates the extent to which a population-based criterion only roughly approximates the idea of allocating to each citizen on Earth an equal right to emit CO₂. For emissions needed to produce goods consumed by citizens from one country may very well have taken place on the territory of another country. Ideally, we should not base our allocation on the location of the emissions. Rather, we should look at the size of the GHG emissions that were needed for the citizens of a country to derive well-being from the goods they consume as end consumers. Hence, we can consider the importing neighbouring countries as exporters of emissions into Exporta's territory.

The quick way of dealing with the Exporta case consists in requiring for it a larger emission quota per capita than for its neighbouring countries without further discussion. Doubts may arise however once we consider the possibility for Exporta firms to fully pass costs increases resulting from their national quota on to the end consumers, whichever country they are nationals of. Foreign consumers would thus pay not only for the costs resulting from their own national quota, but also for part of those resulting from Exporta's quota, through upwards adjusted consumption prices. If this were possible, there would of course be no reason to grant Exporta a higher per capita quota anymore.

It is however most likely that the pressure resulting from the imposition of a national quota will also have significant repercussions on how other stakeholders than the consumers will fare. More specifically, workers from Exporta may suffer wage reductions and/or a degradation of their working conditions as an attempt to buffer the impact of the extra costs

imposed to the firms of Exporta by a tight quota. If the cost increase cannot be fully passed onto the end consumers, a significant part of which are living abroad, there remains a strong case for allocating Exporta a higher per capita quota than other countries – unless of course Exporta is compensated through other means than a quota increase. At least, Exporta should be compensated if we can show that doing otherwise would entail that local actors would be unfairly affected by the quota once compared with foreign actors. Hence, Exporta should receive a higher quota per head, not for reasons of the grandfathering type, but as an attempt at better approximating at the national level what an equal individual right to emit GHGs would entail.

Furthering a general egalitarian goal through a problem-specific regime

There is a second reason why cosmopolitan egalitarians might find a population-based criterion insufficiently egalitarian. Let us insist first on the fact that a population-based allocation of emission quotas between countries is already redistributive in a *weak* sense. For if we accept that, whatever its weaknesses, GDP/head provides some approximation of people's wealth,³⁹ and if we add that countries with a low GDP/head also exhibit a low level of GHG emissions/head, there is some sense in which the introduction of a new climate regime reduces the latitude of rich countries while leaving the one of poor countries rather unaffected for a while. If we take as a baseline the current level of per capita emissions, richer countries would certainly have to tighten up their belts while poor countries would not. This is why a per capita allocation in fact amounts to the opposite of a grandfathering approach.

We may ask ourselves whether a global regime dealing with climate change should not go further, seizing the opportunity of such a problem-specific scheme to pursue further redistribution. This could be done through considering an "inverse of GDP" coefficient, or the inverse of any better suited coefficient. Allocation would take place on an equality per capita basis, complemented by some degree of consideration for the average wealth per head of each of the countries. This may seem natural to a luck egalitarian at first sight. There are only two potential reasons to worry about it.

³⁹ For a recent presentation of alternative indicators: Gadrey & Jany-Catrice (2005)

First, a country's wealth per head may result from historical and geographical circumstances. However, if luck egalitarians believe in the importance of the choice/circumstance distinction, this should also apply to collective circumstances or choices. Such a distinction is implicit e.g. when it comes to asking ourselves whether the foreign debt of some of the poorest countries should be cancelled. The most plausible ground - if any - for resisting such a move certainly connects with the problem of moral hazard, which implies that some states would be more active than others at adopting the right policies and making the right choices. We do not provide here any argument to justify the possibility of relying on a notion of collective choice - therefore of collective option bad luck. But it is certainly our intuition that if the choice/circumstance distinction is to make some sense in cases of individual action, the same should hold, at least to some degree, at the collective level. Hence, to the extent that some of the wealth inequalities can be traced back to people's choices and countries' choices, luck egalitarians should resist the view that we should depart from the equality per capita criterion on such grounds.

Second, one may also ask whether it is fair to use a problem-specific regime to achieve more general redistributive goals. Let us take a domestic analogy again. In many countries, general redistribution operates through an efficient tax system and/or compulsory insurance schemes, aimed at funding disability benefits, unemployment benefits and the like. However, even in such countries, there are still many other places where further redistribution takes place. This is so for example when public transport or concert halls offer special fares to the unemployed. The point is that even when a general redistributive scheme obtains, it might still make sense for egalitarians to set up additional *good-specific* - often *in kind* - redistributive schemes. Possible justifications include the fact that a general redistributive scheme may only imperfectly play its role in practice, or the desirability, on paternalistic grounds, of operating some of the redistribution in an *in kind* manner. Returning to the international context, it is worth stressing that no such general redistributive scheme obtains at this level. This should provide us with an extra reason to seize the opportunity of an existing problem-specific (or problem-focused) regime to try and achieve general redistributive goals.

Now, for egalitarians, the only possible reason to renounce the latter move would be of a *second best* type again, i.e. one aiming at avoiding the risk of such a global redistributive demand resulting in a complete failure at trying to set up a global regime dealing with

climate change. Again, egalitarians should be sensitive to such political feasibility issues. They should make clear however that in the absence of any general redistributive regime at the global level, a problem-specific scheme such as the one set up through the Kyoto protocol, indifferent to unjustified inequalities – be they unrelated with climatic issues – cannot be presented as a first best regime. It will only aim at ensuring compensation for harms directly related with the greenhouse effect. In other words, such a problem-specific regime would only aim at bringing people back to a (counterfactual) baseline situation that might still be extremely unfair from an egalitarian point of view. Now, what turns out to be especially worrying is that we can plausibly argue that current policy in terms of climate change falls short, not only of such a general redistributive approach, but even of the more minimalistic problem-specific approach.

Conclusion

In this paper, we focused on two central dimensions that negotiators and citizens concerned with justice should keep in mind when it comes to establishing a global regime aimed at addressing climate change issues. First, justice requires that a global cap on emissions be defined. The surprising fact here is that both intergenerational and intragenerational constraints are relevant at this stage. With regard to the latter, we based ourselves on a weak compensation principle and on the missile analogy, ending up with a very demanding international constraint on cap definition. Two avenues have been proposed to limit such demandingness (the “net recipient” and the sufficientarian one). Still, even in its less demanding form, the international constraint, together with the intergenerational constraint are likely to be violated by far both by current emissions and by the levels called for in the Kyoto protocol.

Once a global cap has been defined for each period of time (e.g. on an annual basis), we need to allocate the corresponding emission quotas between countries. Our starting point consisted in taking a population-based allocation seriously as a *prima facie* central criterion of allocation. We then proceeded with the examination of some possible reasons to depart from this criterion. From the argument unfolded above, a few points emerged. *First*, some reasons to amend the per capita criterion will at best hold transitorily, whereas others rather constitute reasons justifying a more permanent (partial) departure from the population-based criterion. *Second*, two of the four possible reasons we focused on were merely of a second-best nature (grandfathering and restriction to a problem-focused approach). In other words, they should not be accepted if we were all luck egalitarians. From a luck egalitarian perspective, one may however let them play some role insofar as it is unavoidable given the political forces at play. *Third*, it turns out that larger polluters (understood as countries that emit relatively more GHGs per head from their territory) *may* be entitled to larger per-capita quotas, for three types of reasons: those referring to what can be seen at least initially as adverse geographical circumstances (the examples from Australia, Canada and Bangladesh), those justifying grandfathering (compensation of transition losers to some extent) and those dealt with when dealing with the Exporta case (need to stick more closely to the idea of an equal right of each citizen of the world to emit GHGs). *Finally*, the choice-circumstance

distinction is relevant at various stages. The issue pops in when we rely (on two occasions) on the idea of an obligation of the victim to take reasonable measures to reduce harms imposed on her by others. It also comes up when deciding whether specific causes of vulnerability to climate change or GHG-intensive ways of life should be regarded as the result of (collective) choice or circumstance. We suggested that the answer to this latter question should evolve through time. The issue is also relevant when it comes to asking ourselves to which extent countries' wealth results from their choices or circumstances.

Such considerations on climatic justice are of course desperately rudimentary once we consider both the significance and the complexity of the problem at stake. We hope to have shown however that a luck egalitarian approach to dealing internationally with the greenhouse effect produces serious arguments on key questions such as "at which level should the global cap on emissions be set?" or "To what extent should grandfathering be seen as fair?".

Bibliography

- Baumol, W. & W. Oates, 1988. *The theory of Environmental Policy*, Cambridge : Cambridge University Press
- Beckerman, W. & J. Pasek, 2001. *Justice, Posterity and the Environment*, Oxford: Oxford University Press, 217 p.
- Broome, J., 1992. *Counting the Costs of Global Warming*, Cambridge: The White Horse Press, 147 p.
- Cohen, G. A. , 1992. Incentives, Inequality and Community, *The Tanner Lectures on Human Values*, University of Utah Press: 261-32
- De Briey, L. & Ph. Van Parijs, 2002. "La justice linguistique comme justice coopérative", *Revue de philosophie économique*, issue 5: 5-37
- Dworkin, R. , 2000. *Sovereign Virtue. The Theory and Practice of Equality*, Cambridge: Harvard University Press, 511 p.
- , 2002. "Sovereign Virtue Revisited", *Ethics*, 113: 106-143
- Elster, J. , 1992. *Local Justice. How Institutions Allocate Scarce Goods and Necessary Burdens*, Cambridge: Cambridge University Press, 283 p.
- Fabre, C., 2002. "Justice, Fairness, and World Ownership", *Law and Philosophy* 21: 249-273
- , 2005 (this volume)
- Gadrey, J. & F. Jany-Catrice, 2005. *Les nouveaux indicateurs de richesse*, Paris: La decouverte, 123p.
- Gardiner , S., 2004. "Ethics and Global Climate Change", *Ethics*, 114: 555-600
- Gaspart, F & A. Gosseries, "Should Rawlsians Oppose Growth?" (mimeo)
- Gosseries, A., 2004a. *Penser la justice entre les générations. De l'affaire Perruche à la réforme des retraites*. Paris: Aubier (Flammarion), 320 p.
- 2004b. "Historical Emissions and Free-riding", in L. Meyer (ed.), *Justice in Time: Responding to Historical Injustice*, Baden-Baden: Nomos, pp. 355-382
- 2004c. "Are Seniority Privileges Unfair?", *Economics & Philosophy*, vol. 20(2): 279-305
- 2005. "The Egalitarian Case Against Brundtland's Sustainability", *Gaia*, 14(1): 40-46
- Gosseries A. & M. Hungerbühler, 2004. "Rule Change and Intergenerational Justice" (mimeo)
- Gosseries, A. & V. Vansteenbergh, 2004. "Pourquoi des marchés de permis de polluer? Les enjeux économiques et éthiques de Kyoto", *Regards économiques* , issue 21: 1-14
- Hicks, J., 1939. « The Foundations of Welfare Economics », *Economic Journal* 49 : 696-712.
- IPCC (Intergovernmental Panel on Climate Change), 2001. *Climate Change 2001. Synthesis Report*, Cambridge : Cambridge University Press, available at <http://www.ipcc.ch>
- Kaldor, N., 1939. « Welfare Propositions of Economics and Inter-Personal Comparisons of Utility », *Economic Journal* 49 : 549-552.
- Nozick, R., 1974 (1996). *Anarchy, State and Utopia*, Oxford : Blackwell, 367 p.
- Rawls, J. 1999a. *A Theory of Justice. Revised edition* , Oxford/New York: Oxford University Press, 538 p.
- Rawls, J. 1999b. *The Law of Peoples, with « The Idea of Public Reason Revisited »*, Cambridge/London, Harvard University Press, 200 p.
- Singer, P. , 2002. *One World. The Ethics of Globalization*, New Haven: Yale University Press, 235p.

Tol, R., 2002a. "Estimates of Damage Costs of Climate Change. Part I: Benchmark Estimates", *Environmental and Resource Economics*, vol. 21: 47-73

Tol, R., 2002a. "Estimates of Damage Costs of Climate Change. Part II: Dynamic Estimates", *Environmental and Resource Economics*, vol. 21: 135-160

Van Deusen, J. G., 1936. « The Negro in Politics », *J. of Negro History*, vol. 21(3) : 256-274

Van Parijs, Ph., 2003. "Difference Principles" in S. Freeman (ed.), *The Cambridge Companion to Rawls*, Cambridge University Press, pp. 200-240