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Climate Responsibility as a Distributional Issue

Abstract: It is evident that the problem of global climate change is closely bound up with questions of distributional justice, both intra- and intergenerational. Questions of justice are raised by two kinds of burdens: reductions in the emission of greenhouse gases, and the financial and knowledge transfers necessary to enable the poorest countries to compensate the harms suffered by the ongoing process. Both burdens involve considerable costs and opportunity costs. On the backdrop of a prioritarian version of utilitarianism, it is argued that the answer should be a split strategy. While reduction of emissions should be based on the polluter-pays principle, obligations of compensation should be based on the criteria of overall economic strength.

1. Introduction

‘Climate responsibility’ is a new term that refers to the specific obligations resulting from our rapidly growing knowledge about global climate change. Whether there are such obligations is a matter of controversy, and to that extent the new term may be a provocation to some readers. In the following, however, I will start from a number of premises from which it seems to follow that the climate changes before us, and their economic and social consequences, make the question of responsibility not only legitimate but also one of the most urgent global ethical questions of our time.

The first premise is that there is no morally defensible alternative to a global strategy of limiting atmospheric and hydrospheric warming, given the dominantly negative consequences of global warming, primarily for the countries of the southern hemisphere. Everything should be done to keep the average temperature below the critical value of two centigrades above the average temperature of the pre-industrial era. According to the present state of knowledge, this can only be achieved by a radical decrease in the emission of greenhouse gases, especially of carbon dioxide. The recent resolution of the G8-summit at L’Aquila in July 2009 postulates that emissions of carbon dioxide worldwide should be halved in relation to 1990 by 2050. The contribution of the industrialized world is postulated to decrease, relatively to 1990, by no less than 80%.

The second premise is that even a rapid adaptation of energy use and other processes associated with emissions of carbon dioxide (unlikely as it is) will not prevent negative effects on the vegetation and the weather conditions, and there-

by on the economic conditions, of many Third World countries given their strong dependence on agriculture. The climatic effects starting with the beginning of industrialisation in the 19th century and successively increasing until now behave like an ocean liner whose course can be controlled only with long delays. Even if the emission of greenhouse gases were stopped overnight, considerable damages would have to be expected.

The third premise is that both the reduction of emissions and the alleviation, or compensation, of expected damages are associated with high costs and opportunity costs. In consequence, the question arises how these costs should be distributed. Both mitigation and adaptation strategies raise questions of distributive justice. Who is to bear the costs of reduction and compensation? On what criteria should the distribution be based if this is to be qualified as adequate or just—the extent to which a country is affected, the extent to which a country causally contributes, the capacity and preparedness to adopt adaptive measures, or unspecific criteria like general economic strength?

Questions of distributive justice and of the allocation of responsibility arise in many contexts of global environmental protection. Interestingly, these questions are discussed in a very different way on the level of ethics and on the level of politics. In politics, the primary concern is to devise pragmatic solutions that start from the status quo and attempt to steer future developments, with appropriate diplomatic restraint, in the direction that is judged to be right but which is rarely spelled out in detail. The criteria that determine how responsibilities for the realisation of the agreed aims are assigned remain largely implicit, probably in order to minimize potential conflict. This has the effect that, in the context of climate protection, reduction targets are not defined absolutely but incrementally, with reference to the status quo, for example, in case of the Kyoto protocol, in relation to the reference year 1990 ('weak grandfathering'). Reduction targets are defined as a percentage of former emissions that seem realistically attainable and do not imply a too radical upheaval in economic structures. The 'justice' of the distribution of costs is primarily seen to lie in the fact that the reduction targets hold equally for a number of countries and impose roughly equal burdens on everyone. The inequality of the status quo that serves as the starting-point is not called in question.

In contrast to what might be called the *process orientation* of political strategies, the models discussed within the ethics of climate protection are much more focussed on the *distributional structures* that are potentially changed by these strategies. Since ethical models are under no necessity to take into consideration the difficulties of political consensus formation, they are much less inclined to accept existing inequalities. On the contrary, they usually emphasize the necessity to call into question the inequality of initial levels. Instead of distributing responsibilities in relation to certain conditions taken as given, they judge the merits and demerits of strategies primarily according to how far they seem appropriate to effect a distribution of benefits and burdens that qualifies as adequate or just, independently of the chances of implementing these strategies in the real world.

In contrast to the procedures of a *pragmatic* allocation, the procedures of *systematic* allocation typical of ethical approaches involve two steps. The first step consists in examining which of the possible allocations of responsibility are both appropriate to achieve the results required by morality and in accordance with principles of justice. In a second step, it is examined which allocations are politically feasible and how the aims of justice and efficiency have possibly to be revised in order to balance moral requirements and political realism. It does not come as a surprise that the rules of systematic allocation discussed in the ethics of global climate protection (and of global environmental problems generally) have a much simpler structure than the political strategies, which have to take account of much more complex considerations. Furthermore, they seem more or less utopian under the given conditions, and are in fact accepted by politicians, if at all, only as ‘visions’ for a remote future.

Typical examples of an ethical approach to the allocation of climatically relevant emissions that are both ‘utopian’, though to a very different extent, are the following:

- (1) Each individual living on the earth has an equal right to the emission of greenhouse gases. The sum of globally tolerable emissions is translated into emission rights and equally distributed, on a global scale, in the form of emission certificates. A global market is instituted in which emission rights not required to cover existing emissions can be sold, and additional emission rights necessary to match emissions can be bought.

This proposal, which generalizes instruments that have already been successfully implemented in environmental politics on a regional scale, is supported, among others, by Peter Singer (cf. Singer 2004, 35ff.). Apart from its simplicity, this proposal combines a number of ethical and pragmatic advantages. By treating all people equally, it avoids differentiations that might lead to endless controversies, such as according to traditional life-styles or to climate-dependent needs; it promises Third World countries, which at present have comparatively low emissions, additional resources for the development of their economies; and it creates incentives to reduce greenhouse gas emissions and to restructure economies in the direction of low-emission-technologies, thereby preventing repetitions of the climatic sins committed by the industrialised world during the last 150 years.

A second proposal coming from other participants in the ethical debate additionally takes into account aspects of historical justice:

- (2) Each of the individuals that have lived since about 1850 has the same right to the emission of greenhouse gases. The sum of globally tolerable emissions is translated into emission rights and equally distributed among all people living in that time period, on a global scale, in the form of emission certificates. A global market is instituted in which emission rights not required to cover past and current emissions can be sold, and additional emission rights necessary to match past and current emissions can be bought.

Both rules of systematic allocation abstract from the initial levels of relative contributions to climate change. Both combine an aspect of efficiency with an egalitarian principle of justice. Both distribute emission rights in a way that assures that total emissions are kept within given limits and that everyone has an equal share in the costs. Both make it possible to adjust the sum of certificates distributed to the development of population and to the course of scientific and technical progress. They differ, however, in the extent to which they take account of historical emissions. Even with equal current emissions, nations looking back on a long history of industrialization would have to bear a much higher burden than, e.g., newly industrialized nations like China and India.

2. Normative Foundations

Which allocation of responsibility is efficient in relation to a certain set of targets is an empirical question that has to be answered, ultimately, on the basis of historical and social experience. Which allocation of responsibility is just or morally adequate is, in contrast, an ethical question that can only be answered with reference to criteria that cannot be based exclusively on empirical data, but which require one to assume, factually or hypothetically, a certain moral position.

In the following, I will adopt a normative position that takes over elements of classical utilitarianism but which modifies them in a way to make its results more consonant with widespread moral intuition. The defining characteristic of a utilitarian theory of allocation is that it makes the moral quality of a distribution of responsibilities exclusively dependent on its prospective efficiency, i.e. on its prospects of achieving a certain result with the least possible cost or effort. This ‘result’ is the attainment of the maximum sum of subjective well-being calculated over all sentient beings without spatial and temporal limitations. That means that responsibilities should be distributed in such a way that a sustainable state of maximum well-being is attained. It is important that this aim is defined in purely subjective terms. It is not the objective conditions of life (including the economic conditions) that count, but the way these are reflected in subjective experience. One consequence is that in view of the historically well-documented capacity of humans to adapt even to objectively difficult situations, this ‘vision’ is much less demanding than it might seem at first sight. In order to achieve the maximum, it is not necessary to realise a maximum of economic well-to-do-ness for the whole of humanity. It is only necessary to prevent catastrophic conditions such as extreme poverty, lack of food, political repression and war.

Nevertheless, it seems necessary to revise utilitarianism in one important point in order to take account of elementary intuitions of justice, and to exclude, at least to a certain extent, redistributions of utility from those who are worse-off to those that are better-off. There are conditions under which classical utilitarianism does not exclude such redistributions, or even requires them. In order to make this consequence more unlikely it is advisable to assign greater weight to additions and reductions of utility on lower levels of utility in relation

to those on higher levels. This proposal, termed *prioritarianism* (cf. Meyer/Roser 2006, 236 following Parfit 1997, 213ff.) originated from the tradition of so-called ‘negative utilitarianism’ (cf. Birnbacher 1989, 26f.). It has the effect that in balancing the likely positive and negative effects of an action on the totality of those affected, the positive and negative effects on the relatively worse-off have a larger impact on overall utility than those on the utility of the better-off. This can be looked upon as a parallel to the law of diminishing returns. While the law of diminishing returns says that the marginal utility of a good decreases with an increase in the availability of the good, prioritarianism says that the marginal value of increased utility decreases with an increase in the level of utility attained.

Utilitarianism revised in a prioritarian direction has a number of consequences which are immediately relevant to climate politics. First, as all versions of utilitarianism, it implies a far-reaching obligation to take account of distant consequences of actions and omissions in space and time. In order to be morally defensible, actions and omissions must admit of an altruistic justification, namely by contributing to the prevention or alleviation of actual or prospective emergency situations worldwide. (This does not mean that they must be altruistically motivated—in a consequentialist moral framework only likely consequences count, not motives). While, given the evolutionary origins of morality, we tend to restrict our responsibilities to family, local or regional context, utilitarianism, as all genuinely universalistic ethics, demands an ‘extended responsibility’ beyond the limits of our sympathies and capacities to empathise. As far as climate responsibilities are concerned, this means that the way distant peoples (e.g. the population living in the coastal areas of Bangladesh) are affected by climatic change does not count less than the harm that befalls the ‘near and dear’: relations, fellow citizens and countrymen.

The same holds for the temporal dimension. In his philosophy of history, Kant wrote that “it is an inherent trait of human nature that it cannot be indifferent to even the most far-away epoch that impacts on our species, if only it can be expected with certainty” (Kant 1902ff., vol. 8, 27). Even if this image of human nature is excessively flattering and underestimates the human tendency to be ‘forgetful of the future’, it is characteristic of all universalistic moralities not to recognise any limits in the responsibility for the future consequences of actions and omissions. As for Kant, the only legitimate restriction of responsibility to the future for the utilitarian is the uncertainty about the consequences that, as a rule, increase with temporal distance. The extent to which the temporally distant positive and negative effects of present actions are included in the calculation of consequences must not be reduced for reasons of temporal distance as such. ‘Discounting’ the consequences for temporal distance, as is routinely done in political planning (cf. Birnbacher 2003), is as illegitimate as discounting for geographical or social distance.

Other consequences of the normative framework that is here taken as a point of departure will presumably seem much less acceptable, especially to Kantian moral sensibilities. But again, they are in no way peculiar to utilitarianism but are inherent in any consequentialist ethics that interprets the partly deontolo-

gical principles of everyday morality (as far as they can be justified) on the background of their consequences, i.e. under functional aspects. Among these aspects are the safeguarding of personal security, the reduction of envy, the possibility of feelings of community, the prevention and correction of actually or potentially harmful behaviours and motives, and the freedom of the individual from excessive moral pressure. This gives us a basis for estimating how far and under what conditions moral rules that are not explicitly consequentialist can be given an indirect consequentialist justification, such as the normative differentiation between intended and unintended harmful consequences (intended harms are, as a rule, more strongly condemned than actions with expected but unintended harmful consequences), the normative differentiation between actions and omissions (active harms are, as a rule, more strongly condemned than harms by omission), but also principles of equality and principles of compensatory and distributive justice. On the background of a consequentialist ethics, principles of justice are not self-justificatory but stand in need of a consequentialist and, as a rule, context-sensitive justification. Egalitarianism is not by itself morally superior to inequality, equality of results not by itself better than unequal results, retribution of injustices not by itself better than forgiveness. Instead, the extent to which they can be justified depends on the functions these principles take over in their respective ‘spheres’ (Walzer 1983). One important consequence for the present context is that the principles that have proved to be of high usefulness within the context of the family or of local or national communities is not automatically applicable in the sphere of international and global politics. In view of the global and long-term dimensions of the climate problem most of the categories that have proved their worth in the more limited dimensions of group morality lose their functionality in the global domain. A morally defensible climate strategy must have a more long-term orientation than policies with consequences and side-effects of a spatially and temporally more limited impact; sins of omission cannot be more pardonable than morally indefensible actions and decisions; and principles of equality cannot claim the same priority as in the intra-national sphere where inequalities undermine social cohesion and the motivation to solidarity. Even a principle that has proved to be efficient intra-nationally and trans-nationally like the polluter-pays principle (a principle derived from the principle of just compensation) must be restricted in its validity for the present issue if the prioritarian premises from which we started are to be maintained.

3. What Principles Should Govern Global Climate Strategies?

The foremost aim of global climate policies must be to prevent emergency situations that make excessive demands on the adaptability of humans and consequently impose intolerable suffering on those affected. That means that the crucial indicator for the quality of a climate strategy is how far it reduces what has been called a global development’s *right violation potential* (D. Roser), i.e.

the risk that human beings fall below a certain minimal level of quality of life. Talking about ‘rights’ in this connection should not be misunderstood as implying that these rights are violated, exclusively or primarily, by active intervention. Rights are likewise violated by tolerating emergencies (like the absolute poverty of great parts of the population in the Third World) given that these, though not or not primarily caused by decisions and actions of the developed world, are in principle preventable by appropriate action. As far as minimising the risk of emergency situation is concerned, it cannot be relevant whether these situations can be traced back to an active causal contribution of those that are in principle able to prevent or alleviate them.

This suggests a split moral strategy. As far as the reduction of emissions is concerned, the polluter-pays-principle has much to recommend itself. By assigning the primary responsibility for the costs of mitigation to those that causally contribute to the emergency, it creates a strong incentive to reduce emissions. On the other hand, the obligation to support the adaptation to unavoidable damages should not primarily be governed by the-polluter-pays principle but by a principle of beneficence that demands a preventive reduction of risks and positive aid even in the absence of any active causal contribution.

From the viewpoint of a modified utilitarianism on the lines developed, the ultimate justification of both principles lies in future-directed considerations. The polluter-pays principle recommends itself from a utilitarian perspective primarily for instrumental reasons and not for reasons of compensatory justice. Its advantage lies primarily in raising the costs of emissions and thereby encouraging efforts to reserve the use of fossil fuels to the most important economic objectives, substituting them as far as possible by alternative energy sources. Whereas this strategy is dependent on the assumption that climate change is, at least in part, induced by the emission of greenhouse gases, the second strategy is not. As far as compensation is concerned, it does not seem to matter at all whether or how far the expected climate changes can be traced back to past and present greenhouse gas emissions at all. The obligations to make provisions for those who are most severely affected by climate change would in no way be different from what they are if the factors causing these developments were completely non-anthropogenic. Whether an emergency is caused by nature or by human intervention cannot be relevant for the responsibilities following from the existence of the emergency. It is true, it is a fact that humans tend to accept anthropogenic disaster and anthropogenic risks much less than natural disasters and natural risks. But this does not imply that a corresponding distinction can be justified in ethical terms. The anthropological tendency to accept natural risks more readily than ‘artificial’ risks is no reason for a corresponding ethical privilege.

A second aspect that follows from the principles stated is the necessity to concentrate preventive and supportive measures on the Third World. The reasons for this are evident. First, these countries are among those that are globally worst-off not only objectively (e.g. according to the *Human Development Index*), but often also with regard to their subjective quality of life. Second, according to present estimates, these countries are the most strongly affected by global war-

ming. Third, climate change can be expected to have a far greater impact on the populations of these countries than on the populations of others. Their mainly agrarian economic basis is much more vulnerable to changes in climate than the economies of the industrialized world. What is more, these populations suffer already from severe environmental problems such as lack of water, soil degeneration, environmental degradation and climatically conditioned or co-conditioned epidemics and pests. Even more important is a fourth, the demographic reason. We have to expect that the effects of greenhouse gas emissions will make themselves felt mainly in the following generations. In these generations, however, the population of the poorest countries of the world will be more numerous than today, while the population of the industrial countries will have stagnated or decreased. That means that more individuals will be negatively affected by the changes in climatic conditions than would be if these effects occurred now. From the perspective of a consequentialist ethics the number of people affected by a preventable emergency is not irrelevant. *Numbers count*. For an estimate of the extent and urgency of preventive responsibility, not only the quality of the consequences to be prevented matters but also quantitative aspects. A fifth reason is the uncertainty of the economic prospects of the poorest Third World countries. It can be assumed for the industrial world, as well as for some of the newly industrialized countries, that they will have at their command considerably improved possibilities of technological and social innovation and will be able, with further economic growth, to transform their economies in the direction of low-emission technologies and to adapt their life-style to the new challenges. In contrast to this, the chances of the poorest and throughout strongly traditionalist countries to participate in the global progress of economic activity, education and medicine are uncertain. In some of these countries, most of the advances in productivity achieved in recent years have been absorbed by high population growth and environmental degradation. Exactly those countries that are most heavily affected by the impending climate changes will have the greatest difficulties in reducing, or compensating, the negative effects by their own economic, technological and social resources. They will remain dependent on the resources of the developed world, which of course does not imply that these should allocate their resources irrespective of the chances of success. To meet the ‘bottomless pit objection’, aspects of efficiency have to be brought in even if this implies that not all requirements of distributive justice can be met.

4. Beyond the Polluter-Pays Principle

So much for the focus of climate responsibility on the part of the objects of responsibility. What about the subjects of responsibility? Who should bear the burden of taking the responsibility for reducing emissions and making compensation?

Again, the answer is different for reduction and compensation. Concerning the reduction of emissions, responsibility should lie primarily with the countries with the highest emissions, for incentive reasons. Concerning the compensation

of damages caused by climate change, responsibilities should be assigned not so much according to the extent of causal contribution than according to general economic strength, for example in the form of contributions to a global fund. Intuitively, this may seem hardly acceptable. Though in general, the well-to-do countries are those that contribute most to climate change, it could happen, if only in exceptional cases, that a country would be obliged to make a much larger contribution to the fund than corresponds to its actual or historical emissions. Low-emission countries like Norway or Switzerland might wonder why they should be obliged to pay for damages that have been caused mainly by others.

This question is understandable. However, once responsibility is understood in a beneficence-oriented sense, a country would not be exempted from the responsibility to pay for the compensation of damages even in the absence of a causal contribution. As was said above, even if climate change and its negative effects were wholly ‘acts of God’, nothing would be changed in the assignment of responsibilities. It is the very point of a utilitarian allocation of responsibility that the extent of responsibility is exclusively determined by considerations of efficiency and that retrospective assignments of causal contribution can have only a secondary and supportive function, dependent on how far they coincide with efficiency considerations. From this perspective, a distribution of responsibility according to economic strength is clearly preferable. The more resources a country commands, the less burdensome it will be to sacrifice the resources necessary for the alleviation of climatically induced harms. It has to be admitted, however, that the aspect of minimizing sacrifice and the aspect of agency do not fully coincide. The majority of economically strong countries contribute (or have contributed) to the climate problem, but not, for example, the oil-exporting countries of the gulf region.

What about the historical dimension of emissions? Should they be taken account of in setting reduction targets and defining obligations to compensation? Let us have a look, to simplify things, at the two ‘utopian’ models sketched above. According to the first model, emission certificates must be bought on the emission market for any quantity of greenhouse gases emitted in the present and can be sold for any quantity of greenhouse gases not emitted but within the range of admissible emissions. According to the second model, emission certificates must be bought on the emission market for any quantity of greenhouse gases emitted in the present and in the past, i.e. since industrialization. According to this model, countries with a long industrial history would have to compensate not only the harms caused, intentionally or unintentionally, since the time when the connection between emissions and climate change was known, but also those that, failing knowledge, could not have been avoided.

Both models appeal to deep intuitions of justice. Both conceive of the obligation to solidarity as requirements of compensatory justice, with the difference that in the one case only avoidable harming, and in the other case also unavoidable harming is taken into account.

How plausible is the second model according to which the industrialized countries should be burdened according to their historically accumulated emissions,

at least to the extent that their borders have remained relatively unchanged so that historical emissions can be assigned to present countries without problems?

What is problematic about this model is, first, that it transfers ideas of compensatory justice that are appropriate to individuals to intertemporal entities like nations, by which these are illegitimately personalized. A country or a state (or any other corporate or collective subject) cannot be classified as a moral subject in the same way as an individual can. A legal person is not the same thing as a moral person. Responsibility is connected with a number of other concepts, such as motives, attitudes and mentality, that are applicable only to individuals. Corporate or collective responsibility can only serve as a *façon de parler* for an aggregate of individual responsibilities. It follows that as far as 'responsibility' is understood in a substantially moral sense, the responsibility of the inhabitants of the present industrialized countries for the alleviation of climatically induced damages cannot depend on the extent to which their ancestors contributed to these damages. It has to be admitted, though, that the defenders of the historical variant of the polluter-pays principle have made a serious attempt to dissociate their proposal from any allegation of guilt (cf. Neumayer 2000, 189). They usually concede that the present inhabitants of formerly 'exploitative' countries cannot be held guilty for actions that, for logical reasons, they were in no position to prevent. They rather base their proposal on a historical principle of equality of opportunities: All nations should have the same opportunity to emit greenhouse gases. But even this justification depends on the problematic construction of a moral collective subject 'nation'. In addition, there are normative reasons to doubt the adequacy of assigning compensatory responsibility on historical grounds. Should Great Britain, for example, be burdened, on the background of its longer industrial history, with much higher costs than France or Spain? Is it a requirement of justice that those pay more who have consumed their virtual share of emissions and thereby deprive others of the opportunity to consume the share ideally allotted to them? Should they also be required to pay more if they have accumulated a heavy historical burden, but have meanwhile fallen into poverty? It is true that a historical polluter-pays principle does more justice than an actualistic principle to the thought that the obligation to accept compensatory responsibility cannot depend only on how much greenhouse gases a country emits at present but must also depend on the extent to which its present economic well-being has been achieved through the consumption of exhaustible resources that thereby are no longer available to later generations which need them to the same or even higher degree. But this consideration is fully taken account of in a beneficence model of the distribution of responsibility, though on a different justificatory basis. There are, furthermore, a number of pragmatic problems with the historical polluter-pays principle. For the older industrialised countries it would imply compensatory sacrifices on an enormous scale. The prospect that they will in fact be accepted is minimal.

Does this mean that the first 'utopian' model is a satisfactory solution of the distributional problem? I think that, as far as the obligation to contribute to compensatory efforts is concerned, it is hardly plausible. In view of the enormous reductions in greenhouse gas emissions projected in the recent consensus

of the G8 summit, it is conceivable that the emissions in the highly populous newly industrialized countries will soon be higher than those of the 'old' and less populous industrial countries. Is this a reason for these countries to bear the largest share of the adaptation costs falling on the less developed countries? Should these countries be obliged to transfer resources that they themselves need to attain their modest development aims, while the developed world could justify its inactivity with reference to its successes in reducing emissions? My personal intuition of justice points to a different result. Instead of aspects of compensatory justice, aspects of solidarity should be paramount. These aspects favour a distribution of responsibility according to relative economic capacity.

What can we say about the feasibility of a corresponding scheme under the disillusioning conditions of *de facto* international politics? There is at least one document that holds out the promise that such a solution may in fact seem acceptable, namely the Framework Convention of the United Nations on climate change published during the preparations of the Rio Conference in 1992. In this document the historically extremely unequal distribution of contributions to the climate problems is referred to only in the preamble. The main thrust in the assignment of responsibilities is future-oriented. In Article 3,1 one reads:

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.

While the reference to "differentiated responsibilities" leaves it open how and on which criteria responsibilities shall be graded, the references to equity and to capabilities can be seen as mirroring the conception advocated here. Considerations of efficiency play an important role in other passages of the convention, too, for example in focusing the least developed countries:

The Parties shall take full account of the specific needs and special situations of the least developed countries in their actions with regard to funding and transfer of technology. (Art. 4, 9)

And in the insistence on cost efficiency:

Where there are threats of serious or irreversible damage, lack of full scientific certainty should not be used as a reason for postponing such measures, taking into account that policies and measures to deal with climate change should be cost-effective so as to ensure global benefits at the lowest possible cost. (Art. 3, 3)

From the perspective of practical politics, however, a consensus on distributional principles for harm prevention is more urgent than for adaptation and compensation. In this case, too, it seems more adequate, from an ethical and from a meta-ethical point of view, to take individuals instead of collectives like nations or transnational communities as units of responsibility and to calculate the emissions permitted to each individual citizen of the global community, given that

emissions are to be kept within the limits of acceptable climatic risks. According to present expert opinion, this amounts to 2 or 3 tons per head and year, leaving it open whether the annual total emission should have to be successively lowered if serious risks are to be avoided (cf. Müller 2009, 191). Ideally, it would be appropriate to start with a level of emissions below the sustainable level, not least in view of the historical overexploitation of atmospheric resources (cf. Wolf 2009, 371). The only realistic option seems, however, to approach the sustainable value ‘from above’. If one compares these figures with the fact that there is an rapid increase in greenhouse gas emissions at present, and that Germans emit 10 tons and Americans 20 tons per head and year, one is in a position to estimate the challenge involved in these benchmarks. It seems only just, however, that an egalitarian system of distributing emissions rights leads to a distribution by which the poorest countries and the newly industrialized countries receive a greater number of emission rights, and the industrialised countries a lower number of emission rights than corresponds to their *de facto* emissions in the present and in the near future. The realisation of a “contraction and convergence” model on these lines (cf. Vanderheiden 2008, 57) would be an important contribution to the redistribution of opportunities from the over-consuming rich to the under-consuming poor and thereby to *the* central moral challenge of today’s world. It would be a crucial advance towards global justice.

5. Conclusion

From the viewpoint of a prioritarian version of utilitarianism both the necessity of capping the emission of greenhouse gases and of compensating the populations harmed by the ongoing climate change are evident. There is not only an urgent need to develop and to apply alternatives to the burning of fossil fuels but also for a fair compensation of those countries, most of them poor, that can be expected to suffer most from the emissions of the industrialized world, and increasingly from newly industrialized countries like China and India. The distributional issues raised by this situation are complex, and the proposal presented here may be too simple to do justice to this complexity. However, the combination of a polluter-pays principle for the reduction of emissions and a solidarity principle for the alleviation of harms, with the over-all aim of avoiding climatic risks and promoting global equity, might serve as a first step towards a more comprehensive distributional scheme.

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