SURVEY ARTICLE

Ethics and Global Climate Change*

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VI. RESPONSIBILITY FOR THE PAST

> I'll tell you one thing I'm not going to do is I'm not going to let the United States carry the burden for cleaning up the world's air, like the Kyoto Treaty would have done. China and India were exempted from that treaty. I think we need to be more even-handed. (George W. Bush, quoted by Singer 2002, p. 30)[71]

> Even in an emergency one pawns the jewellery before selling the blankets. . . . Whatever justice may positively require, it does not permit that poor nations be told to sell their blankets [compromise their development strategies] in order that the rich nations keep their jewellery [continue their unsustainable lifestyles]. (Shue 1992, p. 397; quoted by Grubb 1995, p. 478)

> To demand that [the developing countries] act first is patently unfair and would not even warrant serious debate were it not the position of a superpower. (Harris 2003)

Suppose, then, that action on climate change is morally required. Whose responsibility is it? The core ethical issue concerning global warming is that of how to allocate the costs and benefits of greenhouse gas emissions

70. O'Neill and Oppenheimer 2002 suggest stabilization at 450 parts per million of carbon dioxide, which would require a peak in global emissions between 2010 and 2020.

71. From the second televised presidential debate of 2000.

and abatement.[72] On this issue, there is a surprising convergence of philosophical writers on the subject: they are virtually unanimous in their conclusion that the developed countries should take the lead role in bearing the costs of climate change, while the less developed countries should be allowed to increase emissions for the foreseeable future.[73]

Still, agreement on the fact of responsibility masks some notable differences about its justification, form, and extent; so it is worth assessing the competing accounts in more detail. The first issue to be considered is that of "backward-looking considerations."[74] The facts are that developed countries are responsible for a very large percentage of historical emissions, whereas the costs likely to be imposed by those emissions are expected to be disproportionately visited on the poorer countries (IPCC 1995, p. 94).[75] This suggests two approaches. First, one might invoke historical principles of justice that require that one "clean up one's own mess." This suggests that the industrialized countries should bear the costs imposed by their past emissions.[76] Second, one

72. Shue usefully distinguishes four issues of distributive fairness here: how to allocate the costs of preventing avoidable change; how to allocate the costs of coping with change that will not be avoided; the background allocation of wealth that would allow fair bargaining about such issues; and the allocation of the gases themselves, both in the long run and during any period of transition to it (Shue 1993, p. 40).

73. Some try to account for the convergence. For example, Peter Singer claims that it arises because the facts of climate change are such that all the major traditional lines of thought about justice in ethical theory point to the same conclusion (Singer 2002); Henry Shue argues that three "commonsense principles of fairness, none of them dependent upon controversial theories of justice" all support the position (Shue 1999*b*, p. 531); and Wesley and Peterson believe that the United States should accept heavier burdens because they are justified by "at least four of Ross's *prima facie* duties" (see Wesley and Peterson 1999, p. 191).

74. The term is from Traxler. Singer calls them "historical." Shue objects to that label, preferring to use a fault-based and no-fault distinction. (He argues that no-fault principles are not necessarily ahistorical: an ability to pay principle might emerge from a historical analysis; Shue 1993, p. 52.)

75. Singer cites Hayes and Smith 1993, chap. 2, table 2.4, which says that, even from 1950 to 1986, the United States, with about 5 percent of world population, was responsible for 30 percent of cumulative emissions, while India, with 17 percent of world population, was responsible for less than 2 percent. (Another study suggests that the developed world is responsible for 85.9 percent of the increase in atmospheric concentration of carbon dioxide since 1800; see Grubler and Fujii 1991, cited by Neumayer 2000, p. 190; and IPCC 1995, p. 94.) Furthermore, Singer says that "at present rates of emissions . . . including . . . changes in land use . . . contributions of the developing nations to the atmospheric stock of GHG will not equal the built-up contributions of developed nations until about 2038. If we adjust . . . for population—per person contributions. . .—the answer is: not for at least another century" (Singer 2002, pp. 36–37).

76. This approach is reflected in the conventional environmental "polluter pays" principle and in Shue's first "commonsense principle" of equity (Shue 1999*b*, p. 534). (Shue suggests that his principle is wider than "polluter pays," since he claims that the latter is exclusively forward-looking, demanding only that future pollution costs should

might characterize the earth's capacity to absorb man-made emissions of carbon dioxide as a common resource, or sink (Traxler 2002, p. 120),[77] and claim that, since this capacity is limited, a question of justice arises in how its use should be allocated (Singer 2002, pp. 31–32).[78] On this approach, the obvious argument to be made is that the developed countries have largely exhausted the capacity in the process of industrializing and so have, in effect, denied other countries the opportunity to use "their shares." On this view, justice seems to require that the developed countries compensate the less developed for this overuse.

It is worth observing two facts about these two approaches. First, they are distinct. On the one hand, the historical principle requires compensation for damage inflicted by one party on another and does not presume that there is a common resource; on the other, the sink consideration crucially relies on the presence of a common resource and does not presume that any (further) damage is caused to the disenfranchised beyond their being deprived of an opportunity for use.[79] Second, they are compatible. One could maintain that a party deprived of its share of a common resource ought to be compensated both for that and for the fact that material harm has been inflicted upon it as a direct result of the deprivation.[80]

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be reflected in prices. But many writers seem to use 'polluter pays' in a wider sense than this.)

77. Shue characterizes the issue as one of an international regime imposing a ceiling on emissions and thereby creating an issue of justice, through making emissions a zero-sum good (see Shue 1995*b*, p. 385).

78. Singer suggests that it is this feature of the problem which renders the Lockean Proviso, of leaving "enough and as good" for others, inoperative under the circumstances for climate change.

79. Traxler suggests that they produce "very much the same results" (Traxler 2002, p. 120). But this might not turn out to be the case. For example, I might be responsible for some of the costs of upkeep of a common resource, so that the compensation due to me for a given level of pollution might be less than if there were no common property involved; or use of the resource might necessarily involve some imposed costs, of which I am expected to bear a fair share. Neither would be true on the other principle.

80. A further point to be made about the approaches is that they are potentially rebuttable. In particular, proponents of historical accounts of appropriation generally suggest that due compensation is typically paid, in the form of the increased standard of living for all that the appropriation allows. Singer, however, argues that such arguments will not work for climate change. For one thing, he says, the poor do not benefit from the increased productivity of the rich, industrialized world—"they cannot afford to buy its products"—and, if natural disasters ensue, they may even be made substantially worse off by it (Singer 2002, pp. 33–34). For another, he claims that the benefits received by the rich are wildly disproportionate. (Singer dismisses Adam Smith's argument that there is an invisible hand at work so that, though the rich take the "most precious" things, "they consume little more than the poor . . . [and] divide with the poor the produce of all their improvements." Instead, Singer claims, there is nothing even close to an equal distribution of the benefits of greenhouse gas emissions, because "the average American . . . uses more than fifteen times as much of the global atmospheric sink as the average

Offhand, the backward-looking considerations seem weighty. However, many writers suggest that in practice they should be ignored.[81] One justification that is offered is that, until comparatively recently, the developed countries were ignorant of the effects of their emissions on the climate and so should not be held accountable for past emissions (or at least those prior to 1990, when the IPCC issued its first report).[82] This consideration seems to me far from decisive, because it is not clear how far the ignorance defense extends.[83] On the one hand, in the case of the historical principle, if the harm inflicted on the world's poor is severe, and if they lack the means to defend themselves against it, it seems odd to say that the rich nations have no obligation to assist, especially when they could do so relatively easily and are in such a position largely because of their previous causal role. On the other hand, in the case of the sink consideration, if you deprive me of my share of an important resource, perhaps one necessary to my very survival, it seems odd to say that you have no obligation to assist because you were ignorant of what you were doing at the time. This is especially so if your overuse both effectively denies me the means of extricating myself from the problem you have created and also further reduces the likelihood of fair outcomes on this and other issues (Shue 1992).[84]

A second justification for ignoring past emissions is that taking the past into account is impractical. For example, Martino Traxler claims that any agreement which incorporates backward-looking considerations would require "a prior international agreement on what constitutes international distributive justice and then an agreement on how to translate these considerations into practical allocations" and that, given that "such an agreement is [un]likely in our lifetime," insisting on it "would

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Indian" and so effectively deprives the poor of the opportunity to develop along the same lines [see Singer 2002, pp. 34–35]. Shue argues that "whatever benefits the LDCs have received, they have mostly been charged for" [Shue 1999*b*, p. 535].)

81. Other considerations are discussed by Beckerman and Pasek (1995), Neumayer (2000), Shue (1993, pp. 44–45), and Grubb (1995, p. 491).

82. Singer and Jamieson both want to ignore emissions prior to 1990, and both mention ignorance as a relevant factor. However, their endorsement of the ignorance defence is lukewarm, and this may indicate that they are more concerned with practicality. (Singer suggests that there is a "strong case" for backward-looking principles but imagines that the poor countries might "generously" overlook it [Singer 2002, pp. 38–39, 48]. Jamieson argues that emissions prior to 1990 are at least not morally equivalent to those after, because they do not amount to an intentional effort to deprive the poor of their share [Jamieson 2001, p. 301].)

83. It is perhaps worth noticing that U.S. tort law allows for circumstances of strict liability—i.e., instances where a party causing harm is liable for damages even when not guilty of negligence—and that this concept has been successfully upheld in several environmental cases and employed in environmental legislation.

84. According to Shue, far from being irrelevant, backward-looking considerations exacerbate the problems through creating compound injustice.

amount to putting off any implementation concerning climate change indefinitely" (Traxler 2002, p. 128). Furthermore, he asserts that climate change takes the form of a commons problem and so poses a significant problem of defection:[85] "Each nation is (let us hope) genuinely concerned with this problem, but each nation is also aware that it is in its interest not to contribute or do its share, regardless of what other countries do. . . . In short, in the absence of the appropriate international coercive muscle, defection, however unjust it may be, is just too tempting" (Traxler 2002, p. 122).

Though rarely spelled out, such pragmatic concerns seem to influence a number of writers. Still, I am not convinced—at least by Traxler's arguments. For one thing, I do not see why a complete background understanding of international justice is required, especially just to get started.[86] For another, I am not sure that defection is quite the problem, or at least has the implications, that Traxler suggests. In particular, Traxler's argument seems to go something like this: since there is no external coercive body, countries must be motivated not to defect from an agreement; but (rich) countries will be motivated to defect if they are asked to carry the costs of their past (mis)behavior; therefore, past behavior cannot be considered, otherwise (rich) countries will defect. But this reasoning is questionable, on several grounds. First, it seems likely that if past behavior is not considered, then the poor countries will defect. Since, in the long run, their cooperation is required, this would suggest that Traxler's proposal is at least as impractical as anyone else's.[87] Second, it is not clear that no external coercive instruments exist. Trade and travel sanctions, for example, are a possibility and have precedents. Third, the need for such sanctions (and indeed, the problem of defection in general) is not brought on purely by including the issue of backward-looking considerations in negotiation, nor is it removed by their absence. So it seems arbitrary to disallow such considerations on this basis. Finally, Traxler's argument seems to assume (first)

85. I will comment on the appropriateness of describing the climate change problem in this way toward the end of the article.

86. One reason comes from historical precedent. Thomas Schelling argues that our one experience with redistribution of this magnitude is the post–World War II Marshall Plan. In that case, "there was never a formula . . . there were not even criteria; there were 'considerations' . . . every country made its claim for aid on whatever grounds it chose," and the process was governed by a system of "multilateral reciprocal scrutiny," where the recipient nations cross-examined each other's claims until they came to a consensus on how to divide the money allocated, or faced arbitration from a two-person committee. Though not perfect, such a procedure did at least prove workable (Schelling 1997).

87. This concern is exacerbated by the fact that the principle of "differentiated responsibilities" was explicitly agreed to long ago, under the Framework Convention for Climate Change, and ratified by all the major governments. So, LDCs would have a procedural as well as several substantive reasons to defect.

that the only truly urgent issue that needs to be addressed with respect to climate change is that of future emissions growth, and (second) that this issue is important enough that concerns about (i) the costs of climate change to which we are already committed, and (ii) the problem of inequity in the proceeds from those emissions (e.g., that the rich countries may have, in effect, stolen rights to develop from the poorer countries) can be completely ignored. But such claims seem controversial.[88]

The arguments in favor of ignoring past emissions are then, unconvincing. Hence, contrary to many writers on this subject, I conclude that we should not ignore the presumption that past emissions pose an issue of justice which is both practically and theoretically important. Since this has the effect of increasing the obligations of the developed nations, it strengthens the case for saying that these countries bear a special responsibility for dealing with the climate change problem.

VII. ALLOCATING FUTURE EMISSIONS

> The central argument for equal per capita rights is that the atmosphere is a global commons, whose use and preservation are essential to human well being. (Baer 2002, p. 401)
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> Much like self-defense may excuse the commission of an injury or even a murder, so their necessity for our subsistence may excuse our indispensable current emissions and the resulting future infliction of harm they cause. (Traxler 2002, p. 107)

Let us now turn to the issue of how to allocate future emissions. Here I cannot survey all the proposals that have been made; but I will consider four prominent suggestions.[89]

1. Equal Per Capita Entitlements

The most obvious initial proposal is that some acceptable overall level of anthropogenic greenhouse emissions should be determined scientifically, and then that this should be divided equally among the world's population, to produce equal per capita entitlements to emissions.[90] This proposal seems intuitive but would have a radical redistributive

88. It should also be clear that to restrict concern to future emissions growth has the effect of addressing only the single issue that matters to the rich countries. Again, this heightens the risk of poor country defection.

89. For critiques of some other possibilities, see Baer 2002; and Jamieson 2001.

90. Versions of this proposal are made by Agarwal and Narain 1991; Jamieson 2001; Singer 2002, pp. 39–40; and Baer 2002. Politically, it is also advocated by China, India, and most of the LDCs.

effect. Consider the following illustration. Singer points out that stabilizing carbon emissions at current levels would give a per capita rate of roughly one tonne per year. But actual emissions in the rich countries are substantially in excess of this: the United States is at more than 5 tonnes per capita (and rising); and Japan, Australia, and Western Europe are all in a range from 1.6 to 4.2 tonnes per capita (with most below 3). India and China, on the other hand, are significantly below their per capita allocation (at 0.29 and 0.76, respectively).[91] Thus, Singer suggests (against the present President Bush's claim at the beginning of the previous section), an "even-handed approach" implies that India and China should be allowed increases in emissions, while the United States should take a massive cut (Singer 2002, pp. 39–40).[92]

Two main concerns have been raised about the per capita proposal.[93] The first is that it might encourage population growth, through giving countries an incentive to maximize their population in order to receive more emissions credits (Jamieson 2001, p. 301).[94] But this concern is easily addressed: most proponents of a per capita entitlement propose indexing population figures for each country to a certain time. For example, Jamieson proposes a 1990 baseline (relevant due to the initial IPCC report), whereas Singer proposes 2050 (to avoid punishing countries with younger populations at present). The second concern is more serious. The per capita proposal does not take into account the fact that emissions may play very different roles in people's lives. In particular, some emissions are used to produce luxury items, whereas others are necessary for most people's survival.

91. Agarwal, Narain, and Sharma point out that "in 1996, one U.S. citizen emitted as much as . . . 19 Indians, 30 Pakistanis, 107 Bangladeshis . . . and 269 Nepalis" (Agarwal, Narain, and Sharma 1999, p. 107).

92. This is even without taking into account the historical issues. The IPCC 1995 report says: "If the total CO_2 absorption were assigned on an equal per capita basis, most developing countries are in fact 'in credit'—their cumulative emissions are smaller than the global average per capita absorption, and so on this basis their past contribution is not merely small but actually negative" (IPCC 1995, p. 94).

93. Other issues include the need, in practice, to assign the rights to countries rather than to individuals and the need for large transfers of resources from rich countries to poor. The former undermines the egalitarianism of the proposal, since governments might have other objectives; the latter may undermine its political feasibility. For discussion, see Baer 2002, pp. 402–4; and Beckerman and Pasek 2001, p. 183.

94. Singer suggests merely that it will give nations insufficient incentives to combat population growth and that this is an issue because under a fixed ceiling such growth effectively reduces other country's shares (Singer 2002, p. 40). But note that whether there is an incentive to increase population is an empirical issue, involving more than one factor: while it is true that the growing country's allocation will go up, that country will then have an extra person to look after. So, a larger population is desirable only if an extra person "costs" notably less than their emissions allotment.

2. Rights to Subsistence Emissions

This concern is the basis for the second proposal on how to allocate emissions rights. Henry Shue argues that people should have inalienable rights to the minimum emissions necessary to their survival or to some minimal quality of life.[95] This proposal has several implications. First, it suggests that there might be moral constraints on the limitation of emissions, so that establishing a global emissions ceiling will not be simply a matter for climatologists or even economists. If some emissions are deemed morally essential, then they may have to be guaranteed even if this leads to an overall allocation above the scientific optimum. Traxler is explicit as to why this is the case. Even if subsistence emissions cause harm, they can be morally excusable because "they present their potential emitters with such a hard choice between avoiding a harm today or avoiding a harm in the future" that they are morally akin to self-defense.[96] Second, the proposal suggests that actual emissions entitlements may not be equal for all individuals and may vary over time. For the benefits that can actually be drawn from a given quantity of greenhouse gas emissions vary with the existing technology, and the necessity of them depends on the available alternatives. But both vary by region, and will no doubt evolve in the future, partly in response to emissions regulation. Third, as Shue says, the guaranteed minimum principle does not imply that allocation of any remaining emissions rights above those necessary for subsistence must be made on a per capita basis. The guaranteed minimum view is distinct from a more robust egalitarian position which demands equality of a good at all levels of its consumption (Shue 1995*a*, pp. 387–88); hence, above the minimum some other criterion might be adopted.

The guaranteed minimum approach has considerable theoretical appeal. However, there are three reasons to be cautious about it. First, determining what counts as a "subsistence emission" is a difficult matter, both in theory and in practice. For example, Traxler defines subsistence

95. Shue views the "maintain an adequate minimum" requirement as a no-fault principle and so as having the advantage that no inquiry needs to be conducted to see who is to blame. (Resources are to be generated through an "ability to pay" criterion.) See Shue 1993, pp. 53–54. (Moellendorf endorses an "ability to pay" criterion as a no-fault principle, but only to the extent that the rich countries should pay 40 percent of the costs, which is equivalent to their current percentage of global emissions; see Moellendorf 2002, p. 100.) Traxler accepts Henry Shue's argument for the importance of subsistence emissions but argues that the difference between subsistence and luxury emissions is one of degree and that a fair allocation of costs would involve a "fair chore division" between nations based on their marginal costs. See below.

96. Traxler does admit that those committing the harm have an obligation to minimize the damage inflicted on others and may still owe compensation for the damage they cause (Traxler 2002, pp. 107–8).

emissions in terms of physiologically and socially necessary emissions but characterizes social necessity as "what a society needs or finds indispensable in order to survive" (Traxler 2002, p. 106). But this is problematic. For one thing, much depends on how societies define what they find "indispensable." (It is hard not to recall the first President Bush's comment, back in 1992, that "the American way of life is not up for negotiation.") For another, and perhaps more importantly, there is something procedurally odd about the proposal. For it appears to envisage that the climate change problem can be resolved by appealing to some notion of social necessity that is independent of, and not open to, moral assessment. But this seems somehow backwards. After all, several influential writers argue that part of the challenge of climate change is the deep questions it raises about how we should live and what kinds of societies we ought to have (Jamieson 1992, p. 290; and IPCC 2001*a*, 1.4; questioned by Lomborg 2001, pp. 318–22).

Second, in practice, the guaranteed approach may not differ from the per capita principle, and yet may lack the practical advantages of that approach. On the first issue, given the foregoing point, it is hard to see individuals agreeing on an equal division of basic emissions entitlements that does anything less than exhaust the maximum permissible on other (climatological and intergenerational) grounds; and easy to see them being tempted to overshoot it. Furthermore, determining an adequate minimum may turn out to be almost the same task as (*a*) deciding what an appropriate ceiling would be and then (*b*) assigning per capita rights to the emissions it allows. For *a* would also require a view about what constitutes an acceptable form of life and how many emissions are necessary to sustain it. On the second issue, the subsistence emissions proposal carries political risks that the per capita proposal does not, or at least not to the same extent. For one thing, the claim that subsistence emissions are nonnegotiable seems problematic given the first point (above) that there is nothing to stop some people claiming that almost any emission is essential to their way of life. For another, the claim that nonsubsistence emissions need not be distributed equally may lead some in developed countries to argue that what is required to satisfy the subsistence constraint is extremely minimal and that emissions above that level should be either grandfathered or else distributed on other terms favorable to those with existing fossil-fuel intensive economies. But this would mean that developing countries might be denied the opportunity to develop, without any compensation.

3. Priority to the Least Well-Off

The third proposal I wish to consider offers a different justification for departing from the per capita principle: namely, that such a departure might maximally (or at least disproportionately) benefit the least well-

off.[97] The obvious version of this argument suggests, again, that the rich countries should carry the costs of dealing with global warming, and the LDCs should be offered generous economic assistance.[98] But there are also less obvious versions, some of which may be attributable to some global warming skeptics.

The first is offered by Bjorn Lomborg. Lomborg claims that the climate change problem ultimately reduces to the question of whether to help poor inhabitants of the poor countries now or their richer descendents later. And he argues that the right answer is to help now, since the present poor are both poorer and more easily helped. Kyoto, he says, "will likely cost at least $150 billion a year, and possibly much more," whereas "just $70–80 billion a year could give all Third World inhabitants access to the basics like health, education, water and sanitation" (Lomborg 2001, p. 322).

But this argument is far from compelling. For one thing, it seems falsely to assume that helping the poor now and acting on climate change are mutually exclusive alternatives (Grubb 1995, p. 473, n. 25).[99] For another, it seems to show a giant leap of political optimism. If their past record is anything to go by, the rich countries are even less likely to contribute large sums of money to help the world's poor directly than they are to do so to combat climate change (Singer 2002, pp. 26–27).

A second kind of priority argument may underlie the present President Bush's proposal of a "greenhouse gas intensity approach," which seeks to index emissions to economic activity.[100] Bush has suggested

97. I have in mind both the Rawlsian requirement of fairness, captured in his famous Difference Principle, and the milder views of present-day "prioritarians." For the former, see Rawls 1999; for the latter, see Parfit 1997 and, for climate change in particular, Beckerman and Pasek 2001.

98. Offhand, one would expect utilitarian approaches to recommend the same thing, based on global inequalities in welfare and diminishing marginal returns to utility. But two things make the utilitarian approach difficult. The first is logistical: calculating the maximally happiness-inducing climate policy seems to be impossible; the second is ethical: the rich might claim that they have become so used to emissions-intensive lifestyles that they will suffer more from losing them than the poor will through being denied access to them and, hence, should be required to sacrifice less. Singer claims that the logistical problem can be dealt with by treating the other distributive criteria as secondary principles to utilitarianism and that there is no ethical problem since the rich have a legitimate concern, but one that can be accommodated by allowing them to buy emissions permits from the poor (Singer 2002, pp. 45–48). Beckerman and Pasek are more pessimistic (Beckerman and Pasek 1995, p. 406).

99. Lomborg himself seems to recognize the criticism at the end of his chapter (Lomborg 2001, p. 324).

100. This would give the United States a larger share of global emissions than per capita principles, since it has a large share of the global economy. Raul A. Estrada-Oyuela suggests a more complex, international "standard of efficiency for work performed approach," with different criteria for different economic sectors (Estrada-Oyuela 2002, p. 44).

reducing the amount of greenhouse gas per unit of U.S. GDP by 18 percent in ten years, saying "economic growth is the solution, not the problem" and "the United States wants to foster economic growth in the developing world, including the world's poorest nations" (Singer 2002, p. 43). Hence, he seems to appeal to a Rawlsian principle.

Peter Singer, however, claims that there are two serious problems with this argument. First, it faces a considerable burden of proof: it must show that U.S. economic activity not only makes the poor better off, but maximally so. Second, this burden cannot be met: not only do CIA figures show the United States "well above average in emissions per head it produces in proportion to per capita GDP,"[101] but "the vast majority of the goods and services that the US produces—89 per cent of them—are consumed in the US" (Singer 2002, pp. 44–45). This, Singer argues, strongly suggests that the world's poor would be better off if the majority of the economic activity the United States undertakes (with its current share of world emissions) occurred elsewhere.

4. Equalizing Marginal Costs

A final proposal superficially resembles the equal intensity principle but is advocated for very different reasons. Martino Traxler proposes a "fair chore division" which equalizes the marginal costs of those aiming to prevent climate change. Such a proposal, he claims, is politically expedient, in that it (*a*) provides each nation in the global commons with "no stronger reasons to defect from doing its (fair) share than it gives any other nation" and so (*b*) places "the most moral pressure possible on each nation to do its part" (Traxler 2002, p. 129).

Unfortunately, it is not clear that Traxler's proposal achieves the ends he sets for it. First, by itself, *a* does not seem a promising way to escape a traditional commons or prisoner's dilemma situation. What is crucial in such situations is the magnitude of the benefits of defecting relative to those of cooperating; whether the relative benefits are equally large for all players is of much less importance.[102] Second, this implies that *b* must be the crucial claim, but *b* is also dubious in this context. For Traxler explicitly rules out backward-looking considerations on practical grounds. But this means ignoring the previous emissions of the rich countries, the extent to which those emissions have effectively denied the LDCs "their share" of fossil-fuel-based development in the future, and the damages which will be disproportionately visited on the

101. It is worth noting that the "per capita" clause makes all the difference. Developed countries typically produce more GDP per unit of energy than LDCs; see Jamieson 2001, p. 295.

102. For a discussion of the commons in reference to climate change, see Gardiner 2001.

LDCs because of those emissions. So, it is hard to see why the LDCs will experience "maximum moral pressure" to comply. Third, equal marginal costs approaches are puzzling for a more theoretical reason. In general, equality of marginal welfare approaches suffer from the intuitive defect that they take no account of the overall level of welfare of each individual. Hence, under certain conditions, they might license taking large amounts from the poor (if they are so badly off anyway that changes for the worse make little difference), while leaving the rich relatively untouched (if they are so used to a life of luxury that they suffer greatly from even small losses).[103] Now, Traxler's own approach does not fall into this trap, but this is because he advocates that costs should be measured not in terms of preferences or economic performance but, rather, in terms of subsistence, near subsistence, and luxury emissions. Thus, his view is that the rich countries should have to give up all of their luxury emissions before anyone else need consider giving up subsistence and near-subsistence emissions. But this raises a new concern.[104] For in practice this means that Traxler's equal burdens proposal actually demands massive action from the rich countries before the poor countries are required to do anything at all (if indeed they ever are). And however laudable, or indeed morally right, such a course of action might be, it is hard to see it as securing the politically stable agreement that Traxler craves, or, at least, it is hard to see it as more likely to do so than the alternatives. So, the equal marginal costs approach seems to undercut its own rationale.

103. This kind of point is made by Amartya Sen in a classic piece (Sen 1980).

104. One might also object that there are plenty of rich people in poor countries, and poor people in rich countries, so that it doesn't seem fair to deny some rich people (those in rich countries) their luxuries, while leaving the luxuries of others (the rich in poor countries) untouched.

105. The best guide to the Kyoto agreement is Grubb et al. 1999. Also very informative is Victor 2001. On the role played by ethical considerations in international environmental agreements in general, see Albin 2001.

106. Gore, then a U.S. senator, was criticizing the first Bush administration's performance in Rio. The subsequent irony of this remark is, perhaps, tempered by Gore's subsequent comment, early in his term as vice president, that "the minimum that is scientifically necessary [to combat global warming] far exceeds the maximum that is politically feasible" (McKibben 2001, p. 38).