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After You: May Action by the Rich Be Contingent Upon Action by the Poor?

HENRY SHUE*

Equity, or fairness, is at the heart of debates about possible international action to constrain global warming.¹ As two of the most important commentators on these negotiations, Michael Grubb and James Sebenius, have remarked:

The allocation problem is unavoidable whatever control system is adopted, whether it be national emission targets, taxes, or other approaches. All systems that will have global impact will impose costs on participants, and must include some resource transfers if poorer countries are to take part. . . . [I]n practice, some degree of equity considerations have appeared as a consistent feature in a large number of negotiated international environmental and natural resource regimes. . . . Pure equity may well have a stronger role to play than in many agreements, in part because of the economic stakes involved combined with the need to gain widespread and very long term adherence to a control regime.²

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Professor Shue has concentrated upon ethical issues in foreign policy, including the appropriate role for human rights in foreign policy, the moral basis for American relations with the Third World, moral issues affecting the Strategic Defense Initiative and alternative forms of nuclear deterrence, and—currently—the fairness of the terms of international agreements to deal with global environmental problems like global warming.

1. Lawyers talk of "equity." Philosophers, and ordinary people, talk of "fairness." Belonging to at least one of the latter two categories, I will talk of "fairness." On the matters at hand, nothing that I can see turns on this terminology.

2. Michael Grubb & James K. Sebenius, *Participation, Allocation and Adaptability in International Tradeable Emission Permit Systems for Greenhouse Gas Control*, in *CLIMATE CHANGE: DESIGNING A TRADEABLE PERMIT SYSTEM* 193 (OECD Documents 1992). I have explored some implications of the impossibility in this case of skirting around the issues of fairness in Henry Shue, *The Unavoidability of Justice*, in *THE INTERNATIONAL POLITICS OF THE ENVIRONMENT* 373, 373-97 (Andrew Hurrell & Benedict Kingsbury eds., 1992).

By “pure equity,” Grubb and Sebenius mean equity taken seriously in its own right, equity per se, as distinguished from instrumental uses of equity for rhetorical and political purposes not intrinsically connected with equity.

The issues about equity, or fairness, can be distinguished into four practically related but analytically separable questions:

1. What is a fair allocation of the costs of preventing the global warming that is still avoidable?;
2. What is a fair allocation of the costs of coping with the social consequences of the global warming that will not in fact be avoided?;
3. What background allocation of wealth would allow international bargaining (about issues, like 1 and 2, to be a fair process)?; and
4. What is a fair allocation of emissions of greenhouse gases (over the long-term and during the transition to the long-term allocation)?³

It is a mistake to attempt to answer question 1 about the costs of prevention, or mitigation, without simultaneously answering question 2 about the costs of coping, or adaptation, because what is a fair allocation of the costs of prevention depends in part upon what the allocation of the costs of coping is going to be.⁴

In this article, I will discuss one aspect of the relation between the answer to question 4 (long-term allocation of emissions) and question 1 (costs of mitigation). If the current allocation of emissions is grossly inequitable, or unfair, compared to an allocation that would be acceptable over the long-term, those with the inequitable current advantage ought to begin reducing emissions immediately at their own expense, and thereby contribute to the cost of global warming prevention, irrespective of whether an international agreement exists regarding any of the four questions. In other words, I suggest that one can get at least a partial answer to question 4 quite readily with implications about how to answer question 1.

3. Henry Shue, *Subsistence Emissions and Luxury Emissions*, 15 *LAW & POLICY* 40 (1993). The heart of this analysis has also appeared as Henry Shue, *Four Questions of Justice*, in *AGRICULTURAL DIMENSIONS OF GLOBAL CLIMATE CHANGE* 214 (Harry M. Kaiser & Thomas E. Drennen eds., 1993).

4. Shue, *supra* note 2.

I. COOPERATIVE STRATEGY BETWEEN RICH AND POOR

What would be the *quid pro quo* in a cooperative strategy between rich peoples and poor peoples to prevent, or at least to combat, global warming?⁵ I assume that the global total of greenhouse gas (GHG) emissions must, at the very least, be prevented from continuing to rise. The most authoritative study by leading scientists from several countries holds that the global total must be sharply reduced.⁶ Although I am thoroughly convinced that we face this far greater challenge of scaling back the total emissions, any cooperative strategy faces a difficulty of the same shape, although not the same magnitude, even if we must only stop increasing the total. Even so, the task is daunting. While the global total of GHG emissions must stop growing, GHG emissions generated by the impoverished masses of the planet must grow if these individuals are to rise above the poverty in which generations have been trapped. The overall total of GHG emissions must cease growing while there is continued growth in one part of that total, the part generated by the poor. Arithmetically, this can be accomplished only if the only other part, the part generated by the rich, shrinks. In other words, even if the scientific consensus were wrong and the overall total did not need to shrink but needed only to be held constant, the contribution to the total by the rich would have to shrink by at least as much as the amount by which emissions by those rising out of poverty increase.

What is a reasonable *quid pro quo*? What may the rich and the poor ask of each other?

5. I will sometimes use "peoples," along with "nations," "states," and "countries," in order to signal that I am not committed to any particular form of organization for large political societies and certainly not to the contemporary nation-state. Cf. John Rawls, *The Law of Peoples*, in *ON HUMAN RIGHTS* 41 (Stephen Shute & Susan Hurley eds., 1993).

6. CLIMATE CHANGE: THE IPCC SCIENTIFIC ASSESSMENT (J.T. Houghton et al. eds., 1990); the brief "Policymakers' Summary" is also available in a separate and more colorful form as SCIENTIFIC ASSESSMENT OF CLIMATE CHANGE: THE POLICYMAKERS' SUMMARY OF THE REPORT OF WORKING GROUP I TO THE INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE (WMO/UNEP 1990). See also CLIMATE CHANGE 1992: THE SUPPLEMENTARY REPORT TO THE IPCC SCIENTIFIC ASSESSMENT (J.T. Houghton et al. eds., 1992).

A. Contributions by the Poor

Two dramatic requests that need to be made of the poor peoples are abundantly clear. First, the rich are clearly asking the poor to settle for levels of emissions per capita far below the current levels of the rich, that is, the rich are asking the poor to choose never to approach the levels that the rich currently produce. The poor must prepare to live with a level of economic activity compatible with per capita GHG emissions well below the present levels of the rich.⁷ The planet simply could not tolerate a majority emitting GHGs at the per capita rate reached by today's rich minority, or anywhere near that rate. Even per capita rates well below those of the current rich minority, if produced by a majority of humanity, would send the global total emissions—which must, at the very least, be held constant—skyrocketing.

A unique sacrifice is, then, being asked of the poor majority of humanity: never before in recorded history have people ever *chosen* to live at an economic level both (a) much lower than levels previously attained by other people, and (b) lower than they themselves could sustain, for at least some time, with their own resources. The long-run unsustainability of higher emissions levels would eventually reach everyone, including the poor, but they could temporarily enjoy the good times that the rich have been enjoying for decades. Is it humanly possible for whole peoples to choose less rather than more? We are asking people who have never enjoyed a plentiful, or even an economically adequate life, to accept and help to implement a limit on the hopes they can have for their children's and grandchildren's economic welfare. They are asked to conspire in the imposition of limits on their own children's dreams.

Everything said thus far would be true even if there were now zero growth in human numbers, not the already frequent doubling of the global human population, which is becoming more frequent. The more humans there are, the lower the per capita emissions rate must be in order for the global total of emissions to hold constant. This is arithmetically evident.

7. As I briefly indicate *infra*, emission levels could be kept low without keeping economic activity low provided only that we developed and switched to an energy technology that emits no GHGs, like solar energy. I do not take this seriously in this discussion only because our politicians do not take it seriously in practice.

At some number of humans, the emissions rate per capita would become unbearably low.

The second request to be made of the poor, then, is energetic family planning. The rights of poor women to make their own choices must be respected, but all women and men must be shown reasons and provided with incentives to have small families. I hasten to add what I hope is generally understood by now: population growth is stimulated, not discouraged, by poverty. Starvation is not an effective, even were it a morally tolerable, method of population control over the long-term. "Energetic family planning" is not intended here as code for continuing to tolerate absolute poverty. On the contrary, even if there were no other sufficient reason to promote economic improvements,⁸ promoting effective family planning would be reason enough to relieve crushing Third World debt and to take the other measures necessary for economic growth among the poorest.⁹

The second request, like the first, is unprecedented and extreme. Fertility rates among the rich decreased only when the prospects for each successive generation seemed to be better than the one before. Parents in today's poor countries will, by contrast, be asked to have fewer children in a context in which economic improvement, though perceptible, is limited. At best, this is uncharted psychological terrain. Possibly, the rich will be asking parents in the poorest regions of the world to show a level of concern about the global environment unimaginable among today's rich. There must, we said first, be a limit on their children's dreams. There must also be a limit on the numbers of those very children. What are the rich prepared to offer as their part of the global effort?

B. Contributions by the Rich

The rich countries must emit less greenhouse gas. The rich countries must reduce their GHG emissions in order for the global total to remain constant, if the poorest billion are to be able to improve their lives. We must consume less and, probably, produce less. This too will obviously be

8. There are several others, including ethical ones.

9. Cf. Nathan Keyfitz, *Population Growth Can Prevent the Development that Would Slow Population Growth*, in *PRESERVING THE GLOBAL ENVIRONMENT* 39 (Jessica Tuchman Mathews ed., 1991).

unprecedented. It will take a genuine leader, a kind not now visible, who will, as must be done, promise people less.

There are two respects in which this overstates the challenge. First, there is undoubtedly a huge difference between standard of living, as measured by conventional economics, and quality of life. Much of what sustains a consumerist economy not only clogs our landfills but dulls our senses, clutters our minds, erodes our health, and fritters away our time and natural resources. We could clearly live much richer lives if we could be free from many of the gadgets, widgets, and other expensive junk that we sell to each other and then quickly discard. All that can be said for much of the stuff that expands the gross national product (GNP) is that making it, advertising it, distributing it, and discarding it all create jobs. Jobs are vital, so the rich need to create different kinds of jobs that, besides providing people with income, add to the quality of life.

A less wasteful way of life would surely reduce some aspects of "standard of living" as it is currently (mis-)defined: there would certainly be fewer goods produced and fewer resources, probably including less energy, consumed. Insofar as less carbon-based energy was consumed, we would thereby reduce GHG emissions. A gallon of gasoline not purchased and burned means a smaller GNP (which has been considered bad) and less GHG emissions (which is, in fact, good). We could surely reduce GHG emissions while uncluttering and improving the quality of our lives. This would be doubly efficient: using less (quantity) to produce more (quality). Obviously, quality is complex. But many people would grant at least the negative thesis that quality of life would increase if the goods and services of our bizarre consumerist society, driven by artificial wants created out of whole cloth by television advertising, were reduced.

Second, more advanced energy technology would allow maintenance of current levels of economic activity with great reductions in GHG emissions. We could, if we chose, reduce the destructive emissions while maintaining, or even increasing, the economic activity, provided the energy sources were not carbon-based. All fossil fuel (coal, oil, and gas) is carbon-based. Burning it for energy releases carbon dioxide (CO₂), the single worst man-made GHG. As long as energy comes from burning fossil fuel and releasing CO₂, we face a wrenching choice between expanding the economy and reducing GHG emissions. Yet that choice is forced upon us only by our failure to invest enough in researching and developing alternative sources of energy and requiring internalization of the astronomical military,

social, environmental, health, and other costs of reliance on a system of oil-moving tankers whose spills wreck the habitat and gas-burning automobiles whose fumes wreck the cities.¹⁰

If we switch to non-carbon-based energy, we may safely, as far as the danger of global warming is concerned, continue to increase levels of economic activity. We could, then, continue, in particular, to stimulate artificial wants and to satisfy them with expensive, expendable, energy-eating but employment-producing gadgets, if that was how we wanted to keep each other in jobs. In sum, if we would dethrone fossil fuels, we would not need to reduce economic activity. Our consumerist economy is sterile, without soul and not worth saving if we are not capable of creating different kinds of jobs that add to the quality of life instead of detract from it. But that is no argument against developing energy technologies which would give us the choice. More importantly, the world's impoverished need higher levels of economic activity and millions more jobs, and it would be wonderful if this activity were created and sustained without GHG emissions, as it certainly could largely be.

Nevertheless, this argument is based on the assumption that current political leaders are incapable of breaking the fossil fuel dependency. Without effective leadership, GHG emissions can be reduced only by reducing energy usage. This would require reducing economic activity and GNP, once maximum efficiency has been attained through the elimination of sheer waste. This assumption is born out of political pessimism, for no leader in an industrialized country yet shows vision and courage to lead a revolution from entrenched energy habits, especially now that the fossil fuels of the former Soviet Union lie open to outside exploitation. If this assumption is, in fact, without merit, I will be very happy, and the problems discussed here will be considerably easier to handle.

II. FAIR TRANSITION

Issues concerning the fairness of alternative plans for transition to a world with a constant and sustainable total of GHG emissions and only

10. Solar energy is one of several sources with absolutely no GHG emissions; obviously this is not the place to consider which is precisely the best alternative, or package of alternatives, to fossil fuel, so I will simply refer negatively to non-carbon-based energy.

moderate inequalities in global levels of emissions fall mostly on the side of the rich peoples. The poor have little flexibility and few choices.

A. "Aggressive Population Control"

If it were possible to stabilize population size through an aggressive program of population control, one might have to consider the moral merits. The quality of life of future generations might depend upon the population size at which human population is stabilized. In short, the stakes are high enough that one might at least consider even the violation of rights in order to improve the outcome for numberless succeeding generations. It may be worth mentioning very briefly why this melodramatic option is not open in the poor countries. For the more people among whom the global total of emissions must be divided, the smaller the per capita share. This makes the stakes in bringing the explosion of population under control very high. It might be thought that the urgency of the crisis dictates some kind of aggressive campaign of population control.

Recent experiences of the world's two most populous countries, China and India, are widely seen as testimony to the fact that "aggressive population control" is an intellectual's fantasy and the kind of quick-fix that virtually never works in practice. Men and women care profoundly about how many children they have, and the worse their economic condition, the more children they tend to want. Attempts by the State to force them to have fewer than they want meet either open rebellion, as in the case of Indira Gandhi's India, or evasion and subversion, as in the case of Deng's China. The aggressive Indian policy was openly abandoned; the Chinese one-child policy is quietly unraveling as the central government loses its grip on the levers that it used to employ to coerce or pressure would-be parents. Without thorough totalitarianism, parents must themselves want fewer children if they are to have fewer children. The desire for fewer children tends to come only with improving economic conditions (which, interestingly, are arising in China for some of the same reasons the State is losing its ability to enforce the one-child policy). Accordingly, while the demographics are far more complex than indicated, draconian measures, while perhaps fascinating for intellectuals to debate, are of no practical interest. Basically, birth rates will decline when quality of life improves, and not before.

For the rich, the fundamental question is: how rapidly, and at what price in economic dislocation for ourselves, should we reduce GHG emissions? How much time may we take in reaching the goal of a fair share of a sustainable total? What are the factors, ethical and non-ethical, that determine the answer? Within the ethical considerations, exactly what kind of imperative do we face? Here, we face real choices.

B. The No-Regrets Budget

The reduction in emissions has at least two stages. First is what might be called the no-regrets stage, the stage in which sheer waste of energy, the production of which emits GHGs, is reduced. Continued use of incandescent light bulbs, for example, simply wastes electricity, the production of which releases annually as much GHG as the burning of thousands of acres of tropical forests. New generation short fluorescent bulbs provide the same light for so much less electricity that the savings in electricity bills quickly pays for the new bulbs, even though they cost several times the price of incandescents.¹¹ Only ignorance, indifference, and vested interests in obsolete technology stand in the way of a great deal of no cost—indeed, profitable—reduction in emissions.¹²

In Eastern Europe and the former Soviet Union the waste is still more colossal. Not all this environmentally destructive waste of energy could be eliminated at a net profit over a short time. Many instances require the wholesale replacement of large facilities by expensive new technology. Naturally, disputes are underway about the full extent of profitable reductions of the pure waste of energy. Whatever the precise extent of the no-regrets changes, there is a broad consensus that the opportunities for them are extensive and economically significant. Meanwhile, from an ethical point of view any failure to act in these instances is analogous to a refusal to rescue a drowning person by someone who would benefit from the exercise involved in the swim: it is fecklessness approaching perversity.

Thus, it is only after the initial stage of no-regrets reductions in emissions—primarily through reduction in waste of energy—that any net

11. See Thomas E. Drennen & Duane Chapman, *Negotiating A Response to Climate Change: The Role of Biological Emissions*, 10(3) CONTEMPORARY POLICY ISSUES 49, 55-56 (July 1992).

12. Alliance to Save Energy et al., AMERICA'S ENERGY CHOICES: INVESTING IN A STRONG ECONOMY AND A CLEAN ENVIRONMENT (1991).

costs in conventional economic terms would be incurred. We must budget for the necessary changes, for example, purchasing fluorescent bulbs. Yet this budget can be replenished from the savings its investment will generate in the short-run. Call this the “no-regrets” budget.

C. The Mitigation Budget

Only at a second stage come the true costs of mitigation. These are the costs of doing what we would have no other reason to do if we were not bound to resist global warming. Here is where the ethical considerations come to bear in major and non-obvious ways. Here is where the ethical issues about how costs are conceived make all the difference, provided one assumes that it is possible to cut emissions faster by spending more efficiently. How large any mitigation budget ought to be (another way of asking how rapid the transition ought to be from where we are now to where we ought to end up) depends on what kind of act, from an ethical point of view, a people would perform in resisting global warming to any specific extent. Specifically, whether their action and its attendant cost would constitute their volunteering discretionary help or their ceasing wrongful harm. Most people seem to think that it is much worse to keep wrongfully harming others than it is not to start helping them.¹³ Thus an obligation to eliminate certain emissions would be much stronger if the emissions were wrongfully harming others than it would be if the elimination of those emissions would merely be helpful to others.

A person can be wronged without being harmed (e.g., denied seating through racial discrimination on a plane which then crashes, leaving the wronged party much better off for having been wronged), but one cannot be harmed without being wronged. Simply being made worse off (e.g., driven out of business by a legal and fair competitor) does not constitute suffering harm. To be harmed means to be made worse off in some wrongful way. One clear example of being harmed is being made worse off through the violation of one of one’s rights (e.g., denied seating through racial prejudice on a plane that would have delivered one to one’s destination safely and on time). One can also be harmed by being made worse off through being

13. I am inclined to slice the conceptual pie at a different point from the line between not helping and harming, but since I am in a minority, it is more important to see what follows from the standard view held by most people.

deprived of one's fair share. Harms can be inflicted directly or indirectly, although, all other things being equal, the more indirect the infliction of the harm the less moral responsibility the source of the harm bears for it.

The next question is: does the rich's continual engagement in business as usual (emitting large quantities of GHGs) constitute an infliction of harm on anyone? Or does it constitute instead merely declining to pitch in to help with the problem of global warming? This query relates to the issue of the speed at which the rich should make the transition away from current practices; when one is actually engaged in harming others one ought to stop.

Obviously, one could consider whether past emissions of greenhouse gases were wrong. Yet, I want to concentrate here on future emissions for two main reasons. First, if no good case can be made for treating future emissions as wrong, it will be all the clearer that past emissions cannot reasonably be treated as wrong. Past emissions involve additional issues. One example is the foreseeability of the seriousness of the risk of global warming.

Second, it is urgent that we know how to think about future emissions for the simple reason that we still control them and can still decide how much effort to make to reduce them. If it is wrong to release future emissions, it is much more imperative to stop them than if their release were merely costly but not genuinely wrong. Although it is important to settle whether our forbearers did wrong to other people in releasing past emissions, the emissions themselves have either done their damage or are doing it in ways that we cannot any longer affect. What would make future emissions wrong? They are wrong if they consume a grossly unfair proportion of a limited total. They are wrong if they make others worse off in a manner that is unfair.

III. NATURALLY LIMITED SUPPLIES

Supplies of things come in at least four rough categories. First, there are supplies that are entirely within human discretion (e.g., the money supply). If the relevant bureaucrats think more money is a good idea, then more money is, for better or worse, printed. The increase in the supply of money is by no means without costs, such as inflation, but if those with power decide there should be more, there is more.

Second, there are supplies that can be increased, not by bureaucratic fiat, but only through human investment of some combination of money, effort, and ingenuity, plus the “cooperation” of the relevant natural or social forces. For example, the supply of paper at some future date could be increased by planting more trees now, or the supply of jobs at a future time could be increased by intelligent selection of economic policies now, provided a number of factors outside of human control go well. These two kinds of supplies are more or less under human control, although the latter depends on contributing factors that are not.

Third, there are supplies that are, for all practical purposes, natural and beyond human control but unlimited (e.g., sunlight). Relative to imaginable human demand, the total supply is unlimited; the overall supply vastly exceeds any conceivable demand. Notoriously, it is turning out that fewer and fewer things actually belong in this category of unlimited natural supplies. Yet, while sunlight is limited in particular places at particular times, both naturally and as a result of smog, the aggregate amount available to the planet as a whole exceeds any imaginable need (which is one of the many appeals of solar energy).

Water, on the other hand, which used to seem abundant overall, is turning out to be chronically and severely limited. Even in the areas with relatively abundant and reliable rainfall, copious irrigation by massive agribusinesses, combined with profligate usage in burgeoning suburbs where brown lawns are viewed as evidence of criminal negligence, pumps down the groundwater levels much faster than normal rainfall can replenish them. Thus we confront an instance of the fourth kind of supply: supplies that are natural and limited and, for all practical purposes, cannot be increased by humans—by money, effort, and ingenuity, or by any other currently feasible means.

All this about supplies, man-made and natural, limited and unlimited, is perfectly obvious, if fairly crude. The only point for which I want to employ these categories is: dramatic implications result from the discovery that something that had generally been believed to be naturally unlimited is in fact naturally limited, that is, something that had been placed in the third category (correctly or incorrectly) belongs now, if not also then, in the fourth. A huge store of ethical considerations that are irrelevant to unlimited supplies “lock-in” when there turns out to be scarcity. Where there is scarcity, important ethical issues arise that do not arise amidst plenty. The fundamental fact is that it does not matter who gets what

portion of an unlimited supply—it is not evident that “portion” really makes any sense in that instance, any more than one can calculate a percentage of an infinite number. When, by contrast, there is scarcity, everything changes and who gets which portion becomes overridingly important. When the total supply is fixed and beyond human control, human shares become “zero-sum”: each bit that I get is a bit that you do not get, and vice versa. This means that I can only become better off by making someone else worse off. In economists’ jargon, no Pareto improvements are possible.¹⁴ As I emphasized above, making someone worse off need not entail harming her; one person has harmed another only if he has made her worse off in a manner that is wrong.

An earlier belief that the supply of something was natural and unlimited also need not have been false, at least as a belief relative to human demand at that earlier time. Water is a leading case. When human population and agricultural activity were sufficiently small, there was, for all practical purposes, an unlimited supply of water. Events may have overtaken him to a greater extent than he realized by the time that he said it, but Locke was certainly correct, at least about earlier periods, when he wrote about drinking from the stream while leaving “enough and as good” behind for others.¹⁵ Even after it came to be necessary to move large quantities of water for the satisfaction of human demand, via dams and pipelines, plenty was available if human ingenuity and investment could deliver it to the right place. But no more: some of the most vicious political battles in the U.S. today are over water in the Southwest and California.¹⁶ The same is true around the world from the Narmada to the Yangtze. Relative to human demands for water, the supply of water is limited; the total natural supply cannot be changed by human action.

Odd as it may sound, an intellectual revolution is occurring on the subject of man-made wastes, although the word is spreading much too slowly. I am old enough to remember having been unashamed as a youth to have the job of gathering up the household box of tin cans and carrying it back into the woods where I dumped the cans into what we called “the

14. A Pareto improvement is a change that makes at least one party better off without making any party worse off.

15. JOHN LOCKE, *TWO TREATISES OF GOVERNMENT*, ch. V, para. 27 & 33 (Peter Laslett ed., 1960).

16. See PETER H. GLEICK, *WATER IN CRISIS* (1993); Richard Conniff, *California: Desert in Disguise*, NATIONAL GEOGRAPHIC, Nov. 1993, Special Edition, at 38-53.

sink-hole,” where the ground had conveniently opened up a depression. At the time it seemed as if everyone who had a woods must have had a sink-hole for their tin cans. I did not realize that something later to be named “solid waste” would become a national problem, nor that “trash collection” would become “waste management.” By now, most well-informed people understand the basic point about solid waste, although the international traffic in toxic wastes, which are dumped in the poor countries by rich countries with about as much concern or care as I discarded my tin cans in the woods, is being kept as quiet as possible by the rich.¹⁷

The invisible non-solid wastes that seem to be drifting off harmlessly into the sky and on into the endless universe are another story. Where something visible to the human eye, like bad urban smog, results, people notice, with or without taking action. Yet even reasonably well-informed ordinary people have not internalized sufficiently what they may know in the abstract about emissions of greenhouse gases into that great sewer, the sky: there are natural limits, too, on what the sky can swallow up (without effects, like the surface temperature rising). As Garrett Hardin, with whom I profoundly disagree on the policy implications, is correct to keep insisting: “One can never do merely one thing.”¹⁸ The sky is not a great open pit with the planet Pluto at the bottom; our own planet’s atmosphere is a net that catches many things, and greenhouse gases are among those things. Without the greenhouse effect, the Earth would of course be uninhabitably cold.

17. The Clinton Administration is opposing the movement to create a total ban on the shipment of toxic waste produced in rich countries to poor countries; the U.S. wants to continue shipping its toxics to poor countries whose governments provide “assurances” that they are handling them properly. The ban is proposed under the now very weak Basel Convention on the Transboundary Movements of Hazardous Wastes and Their Disposal. See *Basel Convention Working Group Says Progress Made on Waste Disposal Guidelines*, 16(12) INTERNATIONAL ENVIRONMENT REPORTER: CURRENT REPORTS 431-32 (June 16, 1993). The Clinton Administration’s position appears to be flatly in contradiction of Principle 14, RIO DECLARATION ON ENVIRONMENT AND DEVELOPMENT: “States should effectively cooperate to discourage or prevent the relocation and transfer to other States of any activities and substances that cause severe environmental degradation or are found to be harmful to human health.” I have discussed some of the general issues underlying such practices in Henry Shue, *Exporting Hazards*, 91 ETHICS 579, 579-606 (1981) reprinted with revisions in BOUNDARIES: NATIONAL AUTONOMY AND ITS LIMITS, 107-45 (Peter G. Brown & Henry Shue eds., 1981).

18. GARRETT HARDIN, *LIVING WITHIN LIMITS* 199 (1993). Cf. David Feeny et al., *The Tragedy of the Commons: Twenty-Two Years Later*, 18 HUMAN ECOLOGY 1, 1-19 (1990).

There are two different points here we still fail to comprehend. The underlying one is that, however imperceptible gases like CO₂ may be to the naked human eye, these gases are not nothing. There are limits to the net quantities of these gases that the atmosphere can handle without making adjustments, like surface temperature increases, that are quite uncongenial to humans and many other species of plants and animals. Like a malign Noah we will carry many other species along with us to their extinction. Fully appreciating this is for many people (except the scientists who study the dynamics at work) still a matter of a psychological incorporation, or emotional internalization, of something we already know only in the abstract, akin to a headline on CNN so devoid of context as to be virtually meaningless except as an answer to a trivia question.

Much more intellectually revolutionary, and far less appreciated or internalized by our economic and political leadership, is the ethical point that these facts make applicable to us now. Since there are unchangeable limits on the atmosphere's capacity to absorb net emissions (without increases in surface temperature), there is a limited supply of absorptive capacity. The capacity of the planetary atmosphere for gaseous emissions, no less than the capacity of the local landfill for solid waste, is limited. This capacity is valuable, indeed vital, but scarce. Who gets how much of it, therefore, is a basic ethical issue. In particular, it raises all the questions about justice that are raised by the choice of a process for allocating any scarce natural resource, especially a resource essential for minimal economic welfare or subsistence.

Three qualifications that are scientifically important should be noted, although they in no way undercut the normative significance of the realization of the limited capacity of the atmosphere for gases. First, it is not the case that there is some natural limit on the total capacity of the planet to deal with GHGs by all possible means. At least for naturally occurring GHGs like CO₂, as opposed to human concoctions like the chlorofluorocarbons (CFCs), there are naturally occurring sinks as well as natural sources. If one increases the supply of sinks (by, for example, planting new forests), one can increase the supply of the gas without increasing the net load upon the atmosphere. In this case the new terrestrial sinks deal with the additional CO₂ at the surface of the planet. Surface recycling of CO₂ has been going on for millenia. All that coal and oil that we have recently been gobbling up has, indeed, sequestered phenomenal amounts of CO₂, keeping it safely out of circulation. This is why it is such

a horrific problem that over mere decades we are, by racing through the coal and oil, thrusting carbon back into the atmosphere that had been removed from it for millennia. It is net emissions to the upper atmosphere on which there are limits. If increases in the supply of any gas are matched by increases in the supply of its sinks, everything is handled at the surface and there is no net increase in atmospheric levels. We are, of course, not adding sinks remotely as fast as we are pouring carbon into the atmosphere by burning oil and coal. On the contrary, we are not making a net addition of sinks at all. We are both vastly increasing the supplies of CO₂ and simultaneously significantly decreasing the sinks for CO₂ (e.g., cutting down more forests than we plant). So we are compounding net atmospheric levels. It is difficult to imagine how we could be doing more to upset the carbon balance if we tried.¹⁹

Second, a technical point simply needs to be acknowledged. Evidently, as the concentration of CO₂, in particular, in the atmosphere increases the capacity of the oceans to sequester CO₂ also increases. The increase in the ocean's capacity to absorb, however, by no means matches the increase in atmospheric concentration, nor is it unlimited.²⁰ Hence, the same scientists who point out that one should note this variable oceanic sequestering for full accuracy also emphasize that one should take no great comfort from it. So, for all practical purposes, the limit of net atmospheric emissions that can be handled without increases in surface temperature is fixed.

19. For a straightforward and short overview pointing to more technical discussions in the same volume, see IRVING M. MINTZER, *Living in a Warming World*, in *CONFRONTING CLIMATE CHANGE: RISKS, IMPLICATIONS AND RESPONSES* 1-13 (Irving M. Mintzer ed., 1992). For a more passionate but no less well-informed, sadly beautiful, and book-length treatment of the profound human significance of human-induced climate change, see BILL MCKIBBEN, *THE END OF NATURE* (1990).

20. Some had hoped that the "fugitive carbon," the unaccounted-for difference between calculations of sources and calculations of sinks, would turn out to be in the oceans, proving them to be a larger sink than previously thought. It now seems more likely that the sources have been over-stated through over-estimates of the carbon released by deforestation, most notably in Brazil. See David Skole and Compton Tucker, *Tropical Deforestation and Habitat Fragmentation in the Amazon: Satellite Data from 1978 to 1988*, 260 *SCIENCE* 1905, 1909 (1993). See also R.T. Watson et al., *Sources and Sinks*, in *CLIMATE CHANGE 1992: THE SUPPLEMENTARY REPORT TO THE IPCC SCIENTIFIC ASSESSMENT*, 25, 25-46 (J.T. Houghton et al. eds., 1992).

That the CO₂ released by deforestation in the Third World was being over-estimated—in particular, by World Resources Institute (WRI) in Washington—was the central *scientific* thesis in Anil Agarwal & Sunita Narain, *GLOBAL WARMING IN AN UNEQUAL WORLD: A CASE OF ENVIRONMENTAL COLONIALISM* (1991). Their *political* thesis, that Third-World deforestation was being intentionally exaggerated in order to blame more of global warming on the Third World, seems to me to be groundless. Their *ethical* thesis I take very seriously. For subsequent analysis by WRI, see World Resources Institute, 1992-93 REPORT 118-20, 348, 352-53 (1992).

Third, besides the oceans there are other little-understood feedbacks, with clouds being probably the most important. Some cloud activity provides a negative feedback to global warming. No one fully knows the overall effect of water vapor at various heights above the surface. Nevertheless, it is not inconceivable that some increases in global warming will, for example, unleash water vapor from the surface into the air. This will produce a negative feedback to the warming (e.g., by cloud blockage of sunlight) which will actually increase the net amount of CO₂ the atmosphere could handle without further warming. One can only speculate about the recursive feedbacks that would then occur.

Still, my fundamental point about limits and scarcity holds. Whatever exactly the capacity for net atmospheric CO₂ (and other GHGs) is, that capacity will be limited by natural processes not decided by humans. The absorptive capacity may be scarce at a somewhat higher absolute amount, or at a somewhat lower absolute amount, but *it will be scarce*. That is, there will be much less than humans would like, at least as long as the politically entrenched dependence on fossil fuel is perpetuated. How the total amount of emissions is divided is important, and ethically charged, without anyone's understanding the extraordinarily complex ricocheting atmospheric phenomena that will determine the absolute level of the total. Only if all the natural feedbacks taken together turned out luckily to be strongly negative (against surface warming) and so negative that they always stayed ahead of the pressure of endlessly increasing human emissions of GHGs, would the problem of scarce absorptive capacity disappear. However, there is no reason to count on that being the case.

Accordingly, I accept the following:

1. global warming is dangerous enough that it ought to be minimized, at least until the costs of doing so in the quality of human life and the enjoyment of basic rights, become excessive,
2. global warming can be minimized only if a constant global total of GHG emissions is sustained (i.e. the total global GHG emissions must soon stop rising), or
- 2'. global warming can be minimized only if a constant global total of GHG emissions much smaller than the global total in 1990 is reached

and then sustained (i.e. total global GHG emissions must soon be reduced significantly below the 1990 level).

For those who like the servings on their plate divided into facts and values, (1) is my basic relevant value (2) and (2') are my basic relevant facts. The difference between (2) and (2') is a scientific issue. I rely, as I already mentioned, upon only the far weaker (2), although I am in fact persuaded, by the breadth of the scientific consensus behind it, of (2').²¹ A naturally limited planetary capacity to absorb CO₂ (and other GHGs) and a consequent shortage of emissions capacity relative to human demand need to be handled in some civilized manner. How should that scarce capacity be allocated among humans?

IV. PRE-AGREEMENT STANDARDS OF FAIRNESS

Before we take up this question, it may be worth discussing its origins. We had turned to the question of what I would like to call the true "mitigation budget," as distinguished from the no-regrets budget that could take measures to eliminate waste with no long-term costs. Unlike the no-regrets budget, the true mitigation budget involves expenditures directed solely at global warming. In principle, there is a total annual mitigation budget for the globe, the overall amount that would be reasonable to spend each year to control GHG emissions (that is, either [2] to stop total global GHG emissions from rising or [2'] to reduce total global GHG emissions to a lower sustainable level).²² It is far more likely that enough will be spent actually to do the job of controlling emissions if there is agreement about how the totals are to be shared across nations. In any case, extensive international negotiations have in fact been underway to formulate an

21. The difference between (2) and (2') does not matter here because either way we have a naturally limited total of a valuable resource, permissible emissions of GHGs, that must be allocated across humanity. The difference between (2) and (2') matters greatly as one spells out distributive principles more fully and concretely because, generally speaking, the more severe the scarcity, the more radical the principles appropriate. On the scientific questions, see the sources cited in note 6 above.

22. Needless to say, all kinds of issues arise about how to arrive at annual totals, most notably issues about allocations across generations. Simply in order to try to deal with one impossibly difficult problem at a time, I am restricting my attention here to issues about how to share the costs (to be borne at any one time) across nations. Obviously the international and the intergenerational are interconnected, and one will almost certainly need later to revise whatever will have been said about one as soon as one can see what to say about the other.

agreement allocating the costs.²³ For obvious reasons, only a few nations will take expensive measures without assurance that other nations will do their part as well.

The original question was: how should the total costs of mitigation be shared? By what principles should portions of the total be assigned among various nations (or other parties)? My suggestion earlier was that it would make a great deal of difference if some nations were, at the start of the mitigation process, already doing something wrong. The purpose of the intervening discussion about naturally limited supplies was to provide the background to make judgments about nations doing wrong. In what sense could a nation already be doing something wrong before any agreement had been reached about who should pay for what? Once there is an international agreement specifying how much of the total costs of mitigation each nation should bear, a nation obviously could do wrong by failing to provide its share of the costs. This would be a wrong specifically in the form of an unfairness: an agreement would specify fair shares of the total cost, and then a nation would refuse to bear its share while other nations paid their shares.²⁴ But how could a nation be doing anything wrong before any agreement had been made specifying who was to pay for what?

In fact, we do not generally believe that one is bound to do only what one has explicitly and voluntarily agreed to do. On the contrary, we regularly judge agreements to be fair and unfair, which reflects the fact that we take some elemental principles of fairness to be more fundamental than explicit agreements and to include standards that agreements themselves

23. See generally, Daniel Bodansky, *The United Nations Framework Convention on Climate Change*, 18 *YALE J. INT'L L.* 451 (1993).

24. I do not believe that one is bound to do one's share only if everyone else is doing hers. If the shares are indeed fair, and if the undertaking in question does not depend for its success on unanimous cooperation, one is, I think, normally bound to do one's own share in spite of unfair non-performance by others. This does not mean, of course, that one should make fruitless contributions merely because they were part of an original plan that is subsequently coming unstuck. Presumably helping to control global warming is less like helping to construct an arch than a wall: an arch will collapse if not every stone is put into place—so trying somehow to stick one's own stone into place in the absence of others is pointless—but a wall that is not as tall as it was supposed to be may stand nevertheless and may do some good—so one should add the stone one promised even in the face of betrayal by others. David Hume used the metaphor to contrast benevolence and justice as he understood them. See DAVID HUME, *ENQUIRIES CONCERNING HUMAN UNDERSTANDING AND CONCERNING THE PRINCIPLES OF MORALS* 305-06 (P.H. Niddich ed., 3d ed. 1975), *quoted and discussed in* BRIAN BARRY, *THEORIES OF JUSTICE: A TREATISE ON SOCIAL JUSTICE* 150-52 (1989). See also Brian Barry, *Can States be Moral? International Morality and the Compliance Problem*, in *LIBERTY AND JUSTICE: ESSAYS IN POLITICAL THEORY* 171-74 (1991).

must satisfy in order to be binding.²⁵ This means that there are elemental moral standards that laws, treaties, and other human agreements must satisfy in order to deserve compliance—in order to be morally as well as legally binding. In the extreme case, civil disobedience may be considered necessary when what is legally binding is believed to violate more fundamental standards that are morally binding.

Since these standards might be in some sense prior to human conventions, one is tempted to call them “natural.”²⁶ That is a mistake. That conceptualization creates unnecessary problems, introduces false issues, and invites misleading comparisons. It is enough for present purposes to notice that there is a standard human practice of assessing agreements as fair and unfair, which it is very difficult to imagine giving up or wanting to give up.²⁷ Regardless of whether this reflects anything “natural,” it certainly reflects something very deep, which ordinary people respect and are not about to abandon (nor is there any reason why they should). This is enough. So I will speak of pre-agreement standards and post-agreement standards. The latter are based upon particular agreements. The former are used to judge which agreements to take seriously, and include standards of fairness.

V. EXCESS AND ENCROACHMENT

Thus, the suggestion is this: prior to any agreement about how the costs of mitigation ought to be shared, a nation might be doing something wrong—as judged by a pre-agreement standard of fairness. It could be using more than its fair share of the naturally limited supply of capacity to absorb emissions, thus producing more than its share of emissions. I will explain this against the background provided by the preceding discussion of naturally limited supplies.

25. Even the Western social-contract theorists, who probably assigned about as exaggerated a role in human life to voluntary agreement as one conceivably could, all without exception assumed “natural rights” that were more fundamental than agreements and contracts and could not be violated by any contract that anyone could be bound to keep.

26. See Joseph Boyle, *Natural Law and International Ethics in TRADITIONS OF INTERNATIONAL ETHICS* 112-35 (Terry Nardin & David R. Mapel eds., 1992).

27. We also assess agreements as voluntary and involuntary, which reflects another kind of standard that is more fundamental than any particular agreement. Many have thought this reflects a “natural” right to liberty.

It is essential to notice that my focus of attention has moved from shares of mitigation costs to shares of GHG emissions, from dollars to gases. The proposed connection between gases and dollars is this: a country has no right to emit gases in excess of its pre-agreement fair share. Not only does one have no right to produce those emissions, but it is wrong to produce them because, in using up a scarce and valuable capacity, a country is unfairly impinging upon the fair shares of others to the extent that it is exceeding its own share. Consequently, even prior to any agreement about sharing mitigation costs, a country ought to eliminate the emissions that go beyond its entitlement. The costs of cutting back those emissions and the costs of stopping unfair wronging, ought to be paid no matter what (even if there should be no agreement to undertake other mitigation of global warming). Most particularly, a country ought not to use the threat of refusing to cut back the excess emissions as leverage in the bargaining over the terms of any cooperative mitigation effort. A threat to refuse to stop doing what is wrong is simple bullying in any case.

The preceding paragraph highlights two separate theses. One is that it makes sense to talk about fair shares of emissions quite apart from international agreements—violating pre-agreement fairness is wrong. The other is that ceasing to commit wrongs is not an acceptable part of the *quid pro quo* of the bargaining about further mitigation. That this kind of bullying is unacceptable within any process of bargaining that purports to be fair is readily apparent, but it is a somewhat separate point from the fact that not all judgments of fairness depend upon prior agreements.

Three aspects of the nature of pre-agreement unfairness merit discussion. First, the kind of wrong involved in exceeding one's share of allowable emissions has nothing to do with intention or foreseeability. One can wrong others without intending to and without having been able to foresee that one would. Naturally, it is worse still to commit any given wrong with foresight or intention than to do the same thing without them, but the absence of intention and foreseeability by no means eliminate the wrongful character of many acts. As a general point, this is uncontroversial; it is simply worth noticing.

Second, if the first point were not true, it would not affect present and future emissions. Once we know that we are exceeding our share, we are certainly not any longer doing so either unintentionally or without foresight. On the contrary, we are continuing to exceed our share in full knowledge that this is what we are doing and only because we do not choose to stop.

Hence, future emissions become the key to reducing GHG levels. Although I do not think that lack of intention or foresight carry much weight, they are simply irrelevant to future emissions. Now we know: future harms are foreseen.

Third, and by far most important, the seriousness of this wrong derives from the fact that anyone's excess comes out of other peoples' shares. It is one thing simply "to make a pig of oneself" in a context in which one's own gluttony has no effects on others. While simple gluttony is at least a minor vice, in isolation from bad effects on others it might not be a major one. The point is that in GHG emissions there is no surplus from which gluttons can indulge themselves. The supply of emissions-absorbing capacity is too small relative to the demand, but cannot be increased, and therefore is zero-sum. Because the total is, for all practical purposes, fixed, anyone's *excess encroaches* upon someone else's share. It deprives them of something they badly need. Excess consumption of emissions-absorption capacity is wrong because it makes others seriously worse off by being unfair to them.

VI. BY WHAT STANDARD UNFAIR?

Noticing that there is, in general, such a thing as pre-agreement fairness, which most would readily acknowledge, is different from discovering what in particular is fair and unfair in specific contexts. One could grant all that has just been said about how wrong it would be to exceed one's share of emissions, where the capacity to absorb them was scarce and valuable, and still not know what counts as one's share or on what grounds that is decided. What is a fair share? What is the decision that it is fair based upon? Our case is, I believe, one of those not uncommon ones in which specifying the precise location of a boundary--in this case, between fair and unfair shares of a limited total of emissions--is theoretically challenging and fascinating, but judging in actual practice whether some parties have crossed the line is as easy as can be. When a ball lands near the line, it is challenging and interesting to discuss what counts as the edge of the line. When the ball lands among the spectators, the ball is out. In the case of GHG emissions by the rich industrialized countries, we know that the ball is out of bounds even though we can imagine closer calls that might arise in future and might leave us then to scratch our heads. For now, we know all that we need to know in order to judge and to act.

Sources vary on the precise details, but the general shape of things could not possibly be clearer. CO₂ is both the most important GHG produced by human activity and the only GHG for which there are anything like accurate estimates. Thomas E. Drennen has calculated that the industrialized countries, with 15.7% of the global population, emit 48.5% of the carbon, while the developing countries (not including China), with 51.9% of the population, emit 14.9% of the carbon. China accounts for 23.5% of the people and 10.3% of the carbon, while the Commonwealth of Independent States and Eastern Europe have 8.8% of the people and 26.2% of the carbon.²⁸ Thus, "citizens of the industrialized world are responsible for emitting 11.9 tons of CO₂ per capita per year, ten times more than their counterparts in developing countries (1.1 tons)."²⁹ Thomas Drennen implicitly makes what I take to be the absolutely correct judgment that it is individual persons who are our ultimate concern. In addition to per capita measures, there are measures of emissions per square mile, per unit of GNP, and various other variables, but these other measures seem to me to be less central. It is the needs of individual human lives that finally matter.

When one adds in the facts, first, that the total emissions must be held constant and, second, that many of those whose emissions are only one-tenth the emissions of others are living in extreme poverty which they can exit only via economic development that would sharply increase their emissions per capita, it becomes clear that some very powerful justification would be needed to show that the status quo is acceptable. One need not be an egalitarian to conclude that it is unacceptable that a small minority should live in economic conditions 900% better than the conditions in which the majority of humans (51.9%) live. Of course much of the industrialized emissions are the result of sheer waste of energy, not superior quality of life, so perhaps real quality of life is only 800% or 700% of the quality of life of the world's majority. Would it be morally tolerable for a minority to live 100% better than the global majority? That is, at least, worth discussing. Is it morally tolerable for a minority to live 900% better than the global majority when the shares in economic welfare are zero-sum? I cannot imagine any plausible reasons for continuing to maintain arrangements that produce such radical inequalities in the prospects for different human lives.

28. Thomas E. Drennen, *Economic Development and Climate Change: Analyzing the International Response 142* (1993) (unpublished Ph.D. dissertation, Cornell University).

29. *Id.*, at 8.

Only after we have reduced the inequalities to levels at which we are living only, say, five or six times as well as the majority of our fellows need we seriously worry whether we are overdoing it and earnestly search for the precise line between unacceptable and acceptable inequalities.

VII. THREE ALTERNATIVES

In sum, I see only three choices. First, reduce GHG emissions at the expense of the industrialized peoples through investment in research and development to produce economically feasible non-carbon-based energy, which might improve the quality of life and might not reduce the standard of living. Second, reduce the GHG emissions at the expense of the industrialized peoples through reduction in their energy-consuming economic activity, which will certainly reduce the standard of living and may or may not reduce the quality of life. Or third, continue the annual increases in GHGs pumped into the upper atmosphere as the rich get richer and the poor become more numerous and/or possibly slightly less poor.

Either of the first two choices would require considerable initiative and imagination. Since the third requires only business as usual, I sadly expect the third, which I have argued here is grossly unfair and which a consensus of scientists is arguing is possibly catastrophic. "Too sophisticated to burn books, we burn the planet."³⁰ And only a few of us briefly warm ourselves even from that.

30. BILL MCKIBBEN, *THE AGE OF MISSING INFORMATION* 85 (1992).