Financing Protection of the Global Commons

The Case for a Green Planet Contribution

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Dedicated to Nico, Elena, and Natasha

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Executive Summary

Developing countries hold the key to the conservation of much of the earth's biodiversity. They are quickly becoming the largest emitters of greenhouse gases, which are suspected of contributing to climate change. Yet their capacity to pursue global environmental policy measures is limited as long as such measures do not address their immediate short-term development needs. Rich industrialized countries have recognized this, as well as their own historic responsibility for global environmental problems. Accordingly, they cooperated in establishing the Global Environment Facility (GEF) to provide financial support to developing countries for global environmental measures. But resources made available by the international community for such measures in developing countries are small compared to estimated needs. Multilateral resource flows for the GEF, furthermore, have not kept pace aspressure on the global environment has continued to increase.

This paper argues that new, more automatic fund-raising approaches promise to be more effective than the traditional approach in raising adequate and predictable resources to help developing countries respond to global environmental challenges. The traditional approach depends on securing allocations in national budgets and on the outcome of periodic burden-sharing negotiations among countries. But both national and international-level efforts are impeded by structural factors, particularly institutional and political constraints that favor cost-avoidance rather than problem-solving, and work against increasing international financial transfers for global environmental protection.

An annual "green planet contribution" of US$2 levied on some polluting activity and paid by applicable individual citizens of developed countries would raise about twice the amount of resources currently available from both multilateral and bilateral sources for global environmental measures in developing countries. The following analysis discusses why such a fund-raising approach for protecting global commons in developing countries would be superior to the existing mechanism and why it holds the promise of securing adequate and predictable resource flows in the coming decades.

The present analysis builds on recent experience with new market-based approaches to domestic environmental policy-making in OECD countries. Many countries now use an array of environmentally motivated charges and taxes, which are based on the polluter-pays principle. Ecotaxes have in many countries become valuable fiscal instruments for generating resources to fund domestic environmental clean-up, pollution prevention, and nature conservation efforts.

A direct polluter or consumer-pays principle has yet to be implemented on the international level. Linking fund-raising for global environmental protection measures directly to individual-level activities contributing to global environmental problems has several advantages. A main advantage would be increased transparency (i.e., payers of the fee would know the specific purpose of their contribution). Recent opinion surveys show that a significant majority of citizens in developed countries are concerned about global environmental problems and believe that

too little is being done to fight them. There may be considerable public support for some “green planet contribution” at the low levels discussed here. A second advantage of the proposed approach is that it might help de-politicize international burden-sharing negotiations. More cooperative, solution-oriented outcomes might result from negotiations that focused on coordination of small per capita contributions, rather than on burden-sharing based on aggregate economic indicators and contributions expressed in nominal million-dollar figures. Finally, alternative mechanisms discussed here could provide predictable and significantly larger resource flows than are currently available, while requiring from individuals a very small annual contribution.

The paper discusses various options for levying a global environmental charge or user fee with respect to such factors as ease of implementation, political acceptability, and fund-raising potential. It concludes that a personal “green planet contribution” levied annually with car registration renewal may be the most promising, albeit not the only, option worth considering. The contribution further considers the factors that impede serious consideration of alternative fund-raising approaches, and suggests steps for overcoming these.

Scope and Objective

This paper focuses exclusively on fund-raising mechanisms. It is therefore built on a number of assumptions which are paramount to the argument presented here but which are beyond the scope of the current paper:

1. The key assumption is that global environmental problems are a serious threat to the world's ecosystem and have the potential of undermining the livelihood of present and future generations and also of destabilizing countries and the international system.[1] Great uncertainties exist about the exact global consequences of ecosystem destruction, biodiversity loss, and global climate change. But precautionary measures could prevent significant consequences for a fraction of costs arising out of having to cope with and adapt to negative consequences.

2. Many global environmental measures also have significant local economic and environmental benefits. Developing countries therefore have many reasons to leverage funds for this type of activities regardless of their global benefits. But global environmental protection requires many measures that do not provide immediate economic and developmental benefits to particular countries. Significant international funding will be critical for financing such efforts in developing countries.[2]

3. Existing multilateral mechanisms for disbursing funds for global environmental benefits can point to a respectable track record with regard to using resources effectively.[3] The Global Environment Facility has gathered comprehensive experience with a wide spectrum of conceptual and project implementation issues related to global environmental protection. To various extents, bilateral donors and non-governmental organizations (NGOs) have also developed capacities to manage and disburse, and recipient countries to absorb such funds for global environmental protection. Institutional structures and implementation support networks are thus in place. If strengthened, they could effectively ab-

1 Although the extent of the threat remains subject to debate due to scientific uncertainties and lack of systematic data, by negotiating a number of international environmental agreements, the international community has acknowledged that urgent action is needed to halt global environmental degradation. For information on the state of the global environment, see WRI (1995, forthcoming), UNEP (1997). On biodiversity, see in particular IUCN/World Conservation Monitoring Center (1996, 1997). For information on climate change, see various reports by the Intergovernmental Panel on Climate Change, IPCC, and on cost estimates, see OECD (1995a).

2 The GEF experience indicates that private sector mobilization for global environmental protection is quite challenging. Equally, "mainstreaming the global environment" into both GEF Implementing Agency operations and into economic policies of developing countries has not progressed to the extent envisaged by GEF donors and may pose intractable methodological and practical problems. See GEF Performance Study (1998).

3 GEF Performance Study (1998) and annual GEF Project Implementation Reviews.

sorb larger financial flows than are currently available.

The Global Environment Facility is the existing institutional entity obviously well positioned to manage increased resource flows from alternative fund-raising mechanisms discussed here. However, for the purpose of the present discussion, it is ultimately irrelevant through which multilateral or bilateral channels or through which implementing agencies global environmental benefits in developing countries are realized. Institutional structures as well as conceptual and practical issues relating to program development and project implementation in developing countries are not the subject of this contribution.

Historical Background

At the 1992 United Nations Conference for Environment and Development in Rio de Janeiro global environmental issues were for the first time given international attention at the highest political level. By adopting the Rio Declaration and Agenda 21, heads of state recognized that the quest for economic development and prosperity for all nations may be threatened by environmental problems of increasingly global significance, and that all countries need to take steps towards sustainable development. Two groundbreaking international environmental agreements were furthermore put up for signature in Rio, the United Nations Framework Convention on Climate Change and the Convention on Biological Diversity. A cornerstone of both these conventions was the understanding that developed countries would provide financial assistance to developing countries for measures they undertake that primarily benefit the global environment.[4] The rationale for this commitment was that developed countries historically bear the brunt of responsibility for global environmental problems and that their per capita consumption of natural resources continues to be well above that of developing countries. The international community also recognized the great development needs of developing countries and the different abilities of countries to pay for measures benefiting global commons.[5]

As early as 1990, the acknowledgement of these common but differentiated responsibilities for addressing global environmental problems led a number of donor countries, at the initiative of the French and German governments, to establish the pilot phase of the Global Environment Facility with voluntary contributions. The motivation for establishing the GEF grew out of a desire to respond with a single financing mechanism to the demand for additional funds for global environmental protection, and to support the negotiations that led to the signing of the Convention on Biological Diversity and the United Nations Framework Convention on Climate Change.[6]

4 The GEF funds incremental costs for global environmental benefits (i.e., the additional costs that result from making a regular development project realize global environmental benefits). See the Instrument for the Establishment of the Restructured GEF (1994).

5 The Preamble of the Convention on Biological Diversity recognizes that "economic and social development and poverty eradication are the first and overriding priorities of developing countries." UNEP/CBD (1994). The Preamble of the Framework Convention on Climate Change among other things notes that "the largest share of historical and current global emissions of greenhouse gases has originated in developed countries, that per capita emissions in developing countries are still relatively low and that the share of global emissions originating in developing countries will grow to meet their social and development needs." UNEP/WMO (1994), p. 2.

6 Personal experience. For a history of the GEF, see Helen Sjöberg (1994, 1999).

Resource Flows and Funding Needs

It is important to recognize the inherently political nature of defining funding needs for global environmental protection. There is substantial literature on environmental cost valuation and the problems associated with assigning monetary values to environmental benefits.[7] Methodological problems for arriving at meaningful figures are compounded when global environmental objectives are the target. How can we measure the value of keeping a particular species from becoming extinct or a pristine ecosystem from being destroyed? How much biodiversity should the world conserve and how much of the remaining primary forest stands are worth protecting, and at what costs? How shall we account for intergenerational trade-offs between today's national development interests and long-term global concerns? Costs and benefits of protecting international waters are equally difficult to estimate. Many studies have attempted to quantify impacts of climate change and costs of greenhouse gas emission reductions, but modeling exercises have produced wide-ranging results depending on the baseline assumptions adopted, for example regarding GDP growth rates, rates of technological change, pricing regimes, discount rates, and reduction targets.[8]

Environmental evaluation is an essential tool for increasing understanding of problems' magnitudes, but it can ultimately only inform, not replace, political decisions as to how much should be invested into prevention and conservation efforts. It is, accordingly, not possible to exactly define the funding needs for "adequate" protection of global commons. The pragmatic approach is to estimate funding needs for reasonably well defined intervention opportunities and to attempt to match this with the citizens' willingness to pay for global environmental protection.

Existing best estimates suggest that available resources for global environmental efforts are very small compared to today's investment needs. For example, the cost of conserving critical biodiversity has been estimated at around $20 billion per year, while total national expenditures in 1992 only covered ap-

7 For a policy-oriented overview of environmental valuation methods, see, for example, OECD (1998a), for a recent collection of review articles related to the subject, see Terry Barker and Jonathan Köhler, eds. (1998). Ståle Navrud and Gerald Pruckner (1997) find that environmental valuation methods influence policy decisions much more in the United States than in Europe. This probably relates to culturally different approaches to environmental policy making. In many European countries, the precautionary principle allows more easily for environmental policy measures that do not have specific quantitatively defined targets, while in the United States environmental regulations generally target a specific quantified environmental or health policy objective, such as avoidance of a certain number of cancer death per 100,000 people.

8 The OECD has done considerable work on the overall economic effects of carbon taxes or emission quota allocations to different OECD countries. OECD (1995). For a discussion of different modeling approaches, see, for example, Florentin Krause et al. (1995).

proximately $6 billion.[9] With regard to climate change, estimates of the costs of carbon emissions abatement have varied widely. What is clear is that there is a great potential for measures that would result in short-term cost savings as well as in carbon emission reductions. But it is also evident that implementation of such win-win opportunities alone will not realize enough carbon-emission abatement to significantly slow emissions growth in emerging economies.[10] Furthermore, even though win-win opportunities could theoretically produce considerable savings down the road, and could sometimes offset costs, various political and institutional barriers prevent large-scale investment in such activities.

The 1994 replenishment of the Global Environment Facility (GEF1) with two billion dollars—after the completion of a GEF pilot phase—was in itself an important accomplishment by the international community, particularly in view of the serious budget crisis in many countries. But it fell short of expectations. Funds made available to the GEF amount to, on the average, only about 60 cents annually for every OECD citizen. The most recent GEF replenishment, concluded in Spring 1998, amounts at best to a freeze of donor-country commitments to the level of GEF1.

Bilateral resource flows for global environmental measures in developing countries appear to have increased since the Rio conference, albeit from very low levels. Figures compiled by the OECD Development Assistance Committee (DAC) are very unreliable in this regard, due to considerable differences in reporting among OECD countries. Some countries include in their totals resource flows for projects that have mainly development benefits. On the other hand, some European countries have until recently not consistently reported allocations for global environmental purposes to the DAC, adhering to the original idea that such resources would not be counted towards countries' development cooperation expenditures. An interpretation of DAC figures in light of some more detailed data reported by individual states to the GEF Performance Study Team suggests that financial resources dedicated to global environmental protection by sources other than the GEF have probably amounted to little more than those available through the GEF.[11]

The difficulties involved in providing resources for global environmental measures contrasts with the importance that countries purportedly assign global environmental protection and sustainable development. It is important to look at the factors that explain this discrepancy.

Funding levels for global environmental protection measures in developing countries are affected by national and international factors. On the national level, funding depends on political decisions to allocate budgetary resources in a context of scarce budget resources and great domestic competition. On the international level, major donors negotiate burden-sharing arrangements based on countries' overall capacity to pay in relation to other donors. The GEF was funded in much the same way as other multilateral funds after World War II. Although this helps ensure that all donor countries support the multilateral cooperation objective, it also ties the overall size of the multilateral fund to the smallest contribution of key donor countries, which is ultimately determined by the smallest common political denominator on the national level.[12]

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9 Figures are based on a study funded by the European Commission and conducted by the World Conservation Monitoring Centre (WCMC), which extrapolated from estimates provided in country studies commissioned by UNEP. Cited from BirdLife International (1996). For political and methodological reasons, the CBD has so far made no effort to estimate funding needs for biodiversity conservation. But the provision of financial resources remains high on the agenda of every Conference of Parties to the CBD. See note by CBD secretariat, UNEP/CBD/COP/5/14, 15 November 1999. See also national reports to the CBD, some of which contain estimates of funding needs for national measures.

10 For example, investment needs in India for an emissions mitigation option that would not hurt the economy have been estimated to be $135 billion for all economic sectors, Asian Development Bank (1994), p. 119.

11 Personal estimate based on experience with the GEF Performance Study (1998). The GEF Performance Study, however, concluded that the quality of available statistical data was insufficient to draw conclusions concerning the amount of resources made available through bilateral channels for exclusively global environmental purposes.

12 It appears that major European donor countries would have carried a GEF1 replenishment at three billion instead of two billion dollars. The two billion dollar level fell in place, once it was clear what the United States was willing to contribute (personal observation, first replenishment of GEF, December 1993).

The current fund-raising mechanism has the advantage that it has been tested in many contexts and has up to recently produced predictable results in terms of funding levels. But strains are becoming clearly visible, as replenishment negotiations for multilateral funds such as the IDA (International Development Association) and the GEF take place in a setting defined by a general aid fatigue, increased expectations for private sector activism, and the fact that some important donors are in arrears even on payments to cover commitments made for previous financing periods.

Weaknesses of the Current Fund-Raising Mechanism

The current system of raising funds for global environmental protection has characteristics that must be considered weaknesses in terms of facilitating the provision of adequate resources. A key weakness is the GEF's close association with traditional development cooperation. In practice, the perception is often that the GEF is simply another multilateral fund for development cooperation. In the case of many donors, funding for global environmental protection measures in developing countries comes out of a budget line for multilateral and bilateral development cooperation.[13] In some countries, the provision of GEF funds therefore has to compete with funding for traditional development cooperation programs, even though international environmental agreements define GEF funds as compensatory funding for global environmental benefits and not as funding for the national development benefits of the recipient country.

Development assistance flows have declined significantly in recent years. Overall ODA disbursements to developing countries and multilateral organizations were $48 billion in 1997, a significant decline of 12.8 percent from the 1996 level, which was in turn down 4 percent from 1995 (at constant prices and exchange rates). Current levels are well below the $61 billion reached in 1992, the year of the UN Conference on Environment and Development. The picture among DAC countries, however, is very uneven (See Annex 1). Fourteen countries in fact show increases in their ODA budgets. But this is offset by steep declines in some large DAC countries, notably the United States, where the ODA figure for 1997 dropped by 28 percent (but has increased slightly again in 1998).

To the extent that allocation of funds for global environmental protection measures is linked institutionally and politically to the provision of funds for development cooperation, the allocation of such resources faces similar constraints. And although there is evidence that in most countries GEF contributions have been better protected from budget cuts than those for development cooperation, they have not been unaffected.

The close association of fund-raising for global environmental protection measures with fund-raising for development cooperation is likely to work against increases in funding for the former. The role of development cooperation in the new world economy is changing quickly. Many developing countries are emerging as future economic powers and foreign direct investment flows are the main source of foreign financing for them.[14] Donor countries have increasingly reduced or phased out aid programs to higher income developing countries. Lumping resource allo-

13 Personal communication with Frederik Van Bolhuis, GEF Secretariat.

14 Private flows at market terms from OECD countries to developing countries had dropped to $22 billion in 1986-87, but increased to $128 billion by 1997. OECD (1999c). A World Bank study put total net private capital flows into developing countries at $240 billion in 1996. However, only 12 developing countries accounted for 80 percent of these flows. World Bank (1997).

cation for global environmental protection with development cooperation will automatically lock resource allocation for this particular purpose into the overall budgetary framework for development cooperation.

Even where political support for global environmental protection appears to be stronger than for general development cooperation, existing institutional structures may prevent commensurate attention to this issue. Development aid or treasury ministries are responsible for many multilateral funds and bilateral programs and work within a given budget framework. There is little incentive to push for larger allocations for global environmental protection measures if this must reduce resources allocated to other ministry objectives. Similarly, across-the-board budget cuts mandated by the legislature will affect all budget lines of the ministry, and make increases in a single budget line difficult.[15]

National priorities also work against resource allocation for addressing global environmental concerns. Budgetary appropriations are biased towards domestic programs, and a great many domestic programs compete for limited resources. Experience over the last few years shows how vulnerable to shifts in domestic political agendas the budgets of some multilateral funding mechanisms can be. Furthermore, long-term programs with global objectives typically lack strong political constituencies.

One can respond to the above observation with the argument that governments will find adequate resources if they consider these to be necessary. Or in other words, once the political system has processed available information and developed a consensus on the scale of the problem, governments will allocate sufficient funds to solve it. This, however, assumes that objective decisions concerning allocation of public resources are made, based on absolute, not relative, priority rankings among policy concerns. It also assumes that policy makers are fully informed and unaffected by reelection desires and related local policy priorities, which color legislative agendas and budget battles in practically all countries. The above argument also neglects the difficulties associated with developing long-term public policy in situations where short-term considerations and commercial interests interfere with such objectives.[16]

An obvious conceptual weakness of the current fund-raising system for global environmental protection is that no direct link exists between fund-raising and the economic activities that cause global environmental problems. This is at odds with the polluter-pays principle, which OECD countries adopted in 1972 and which has provided the basis for increased use of environmental charges and taxes on the national level.

15 Personal knowledge about budgetary processes in some important GEF donor countries during the period 1990 to 1994.

16 For more in-depth discussion of this, see, e.g., Clémençon (1995, 1997).

Why a New Approach Could Help

The transparency of policy making would be greatly increased if fund-raising for addressing global environmental issues were to be directly linked to consumption patterns on the individual level. In OECD countries, general public support for activities to safeguard the global environment tends to be broad-based, albeit poorly organized and easily crowded out by national policy priorities (discussed further down). A basic premise is that the best fund-raising mechanisms would be able to capitalize on latent public support for environmental protection. A small individual contribution, perhaps identified as "green planet contribution"—to avoid such ugly words as "tax" or "charge"—would provide such a linkage. Such an approach could reduce the need for repeated burden-sharing negotiations among nation states, and help reduce competition with domestic policy priorities. Over time, this would help secure larger and sustainable financial flows for global environmental protection activities around the world, particularly because very small user fees on the individual level could raise revenues well above what is made available today for the GEF.

On the international level, the polluter-pays principle is arguably already recognized under the current system because OECD donor countries jointly accept their responsibility as main polluters, and recognize the right of developing countries to be compensated for measures to reduce pressure on the global environment. But this approach essentially divides the world into a Northern industrialized and Southern developing hemisphere. It ignores great differences within these very heterogeneous groups of countries. A consistent recognition of such differences for burden-sharing purposes would require linking countries' contributions to environmental impact indicators, such as per capita CO_2 emissions or consumption of non-renewable resources.

But experience shows that the politics of negotiating burden-sharing arrangements among nation-states are very complex, particularly if negotiations focus on distributing blame or responsibility for greenhouse gas emissions. Negatively framed negotiations tend to generate uncooperative negotiating behavior. Game theoretical models illustrate that cost avoidance rather than real problem solving becomes the rational strategic choice for countries participating in such negotiations.[17] Countries that emerge with the smallest relative concessions tend to be regarded as winners and those agreeing to larger relative concessions are viewed as losers. Incentive structures in governments subsequently tend to award hard-line negotiators. Realistically, this cannot be avoided as long as the focus is on a systemic level that looks at aggregate data for nation states rather than at individual sources of pollution.

Fund-raising for global environmental protection may be more effective if the emphasis is shifted away from general national responsibilities and toward the

17 Game theory is a mainstay of the political science literature. It focuses primarily on nations' negotiating incentives on security issues. For a basic introduction to modeling rational actor behavior, see, for example, Kenneth A. Oye (1992).

responsibilities of polluters and consumers of environmental resources. Negotiations on some type of global environment fee would focus on defining a "green planet contribution" that would be paid by the main consumers of environmental services regardless of where they live, yet would ultimately be negligible in terms of its per capita level. This would shift attention away from the aggregate figures that tend to lock countries into strategies of cost avoidance in relation to what other nation states end up contributing. As will be discussed further down, a global environment fee would not need to be harmonized internationally—at least in its initial phase. It could be introduced at different levels in different countries, thus preserving considerable flexibility. Such fees might eventually also be levied in developing countries, where the urban elite is increasingly emulating the unsustainable consumption patterns of their counterparts in rich industrialized countries. For the time being, this however would prove contrary to existing provisions of environmental conventions that guarantee financial compensation simply from developed to developing countries.

The idea that international cooperation efforts would best be funded through individual-level taxes is not new and dates back at least to the Report of the North-South Commission of 1980 (Brandt Report) and the report by the Commission for Sustainable Development of 1987 (Brundtland Report).[18] But there is also a long history of arguments against such taxes, which are seen as undermining the sovereignty of nation states. Nation states have so far had little incentive to accept any dilution of their taxing authority. Even where regional supranational organizations with considerable rule-making power have emerged (e.g., the European Union), taxation rights have remained solely in the hands of member states.[19] But the globalization process, accelerated by the end of the Cold War and the emergence of democracy as the dominant political system in the world, is changing the rules for international cooperation. The meaning of state sovereignty in an increasingly interdependent world has been debated at least since the '70s.[20] In recent years, countries have given up significant sovereign regulatory and fiscal policy prerogatives in return for greater integration into global markets. Some see an ideological shift taking place from sovereign nation states to sovereign consumers.[21]

The context for considering some international tax for funding international cooperation efforts appears more favorable today than ever. Global environmental programs are, furthermore, especially well-suited for multilateral fund-raising efforts because achieving environmental objectives is dependent on the cooperation of all major countries, developed and developing. International cooperation on other critical global issues tends to depend either on arguably more altruistic motives of donor countries because measures most directly benefit specific recipient countries (development aid) or on leadership of just a few key military powers who act primarily out of their own security interest (e.g., nuclear arms proliferation, United Nations peace-keeping missions).

18 Willy Brandt, ed. (1983); World Commission on Environment and Development (1987). A recently resurfaced proposal for financing development cooperation is the Tobin tax, which was proposed for the first time in 1978. A tax rate of .01 percent on foreign-currency transactions could raise about US$25 billion annually. IMF internal document, May 8, 1995. See also Selrod (1995).

19 However, the European Commission does have its own revenue base of 1.6 percent added to the national Value Added Tax. Personal communication with Stephen Bill, European Commission, DG XXI, Customs and Indirect Taxation, November 7, 1995.

20 Joseph S. Nye and Robert O. Keohane (1977).

21 Ronnie Lipschutz (1998).

Lessons from National Environmental Policy Experience

What works well on the national level should at least be considered as a possible problem solving approach on the international level. The use of economic instruments for internalizing environmental costs and for creating revenues for pollution prevention and clean-up has evolved rapidly in OECD countries over the last decade. Environmental charges and taxes help correct market failure that results from the fact that environmental costs of economic activities are often externalized while their benefits are privatized. Pollution charges or environmental user fees can help level the economic playing field for less polluting technologies and production methods.[22]

Theoretically, such environmentally motivated charges and taxes can work in two ways: as incentive instruments, or as revenue-raising mechanisms. If levied at sufficiently high levels, environmental taxes or pollution charges affect price differentials and can directly influence the consumption behavior of citizens or industries. At lower levels, pollution charges may simply generate revenues that can be used to finance various pollution clean-up, pollution prevention, and nature conservation activities, or subsidies for environmental technology research and development.

Most environmental legislative frameworks that emerged in the late '60s in OECD countries envisage that polluters should pay—as far as economically reasonable—for the damage that their actions cause to the environment. Largely with industrial water and air pollution in mind, OECD countries in 1972 adopted the polluter-pays principle as a guideline for allocating the costs of pollution control.[23] Over the last decade, OECD countries have greatly expanded the use of environmental taxes and charges.[24] Many countries encourage recycling of beverage bottles with deposit-refund systems and have introduced waste disposal charges dependent on the volume of waste generated. A number of countries now have environmentally motivated energy taxes or road charges in place, as well as levies on pesticide use in agriculture and on VOC (volatile organic compounds) in paints and solvents. The importance of environmental taxes in OECD countries has grown further in the late 1990s.

For present purposes, the key point is that environmental charges can generate considerable revenues at taxation levels that are so low that price distortion is not an issue. Legislators have found it very difficult to introduce environmental incentive taxes at levels that

22 Because this discussion focuses on revenue-generating effects, no distinction is made between environmental charges, fees, levies, and taxes.

23 For an introduction to the polluter-pays principle (PPP) and how the understanding of the principle developed, see OECD (1992).

24 OECD (1994, 1995b, 1995c).

lead to significant behavioral changes. This is particularly true for the energy sector, where individuals tend to be willing to absorb considerable price increases without changing consumption behavior. Strong opposition to increasing energy taxes to incentive levels has formed in the segments of the economy that would be most strongly affected but also among the general public. So far, the European Union has not succeeded in introducing a harmonized CO_2/energy tax system in its member states, even though such proposals foresee that revenues from the new tax would be revenue-neutral, i.e., fully offset by reductions in other distortionary taxes on capital and labor income. Where CO_2 taxes have been introduced (e.g., in some Scandinavian countries), the tax levels have generally been low, and key energy-intensive industries have been exempt.

In OECD countries, pollution charges and user fees have become widespread revenue-raising instruments. In 1995, such taxes amounted to on average seven percent of total tax revenues.[25] The use of such taxes as fiscal instruments, often for very narrowly defined purposes, is increasing. Such policies appear to enjoy support among the general public, because they are based on the polluter-pays principle and therefore transparent. Since the charges tend to be rather small, opposition from the affected sectors of the economy is usually not very strong.

The tendency among national environmental policy makers to earmark specific pollution taxes and charges for environmental policy measures may be deemed undesirable because it limits the resource allocation flexibility of governments and legislatures. But earmarking of revenues is consistent with new thinking in a service-oriented economy. Users of specific public services are increasingly being charged for usage while non-users are not. Revenues are used to maintain these services.[26] The basic conclusion from the preceding discussion is that raising funds for global environmental protection by levying small user fees earmarked for global environmental protection efforts would be in line with recent fiscal policy trends in OECD countries.

25 OECD (1999b).

26 A joint examination undertaken by fiscal affairs and environmental economics experts from OECD countries on implementation strategies for environmental taxes concludes: "There is no *a priori* correct use of the revenues, although if it is considered that other taxes should be reduced to avoid an increase in the aggregate tax burden, then it would be most appropriate to reduce more distortionary taxes." OECD (1995c), p. 114.

Some Examples for a New Fund-Raising Mechanism

There are a number of options for linking environmental taxes, charges or user fees with fund-raising for global environmental measures. For the purpose of discussion, it is assumed that the revenues would be used to satisfy the financial commitments made by industrialized countries to developing countries in the context of global environment conventions.Of course, such revenues could also provide financing for domestic measures. It may, in fact, be politically advantageous to allow revenues to be used for both national and international measures. Fund allocation for specified international measures should, however, be automatic.

In the following, alternative fund-raising options are assessed in terms of their revenue-generating potential, their administrative ease, their suitability for international coordination, and finally their chances of eventually clearing domestic political and institutional hurdles. The tax rates used in the examples are simply for illustrative purposes.

Using CO_2/Energy Tax Revenues for Global Environmental Protection

A CO_2/energy tax is often suggested as a means of generating revenues for global environmental purposes. The fund-raising potential of energy and carbon taxes is large. As an example, a global environment charge of 15 cents per barrel crude oil ($1 per metric ton) would result in annual revenues of some $1.9 billion from industrialized GEF donor countries (see Table 1). This is more than three times the annual amount currently available to the GEF. The price per barrel oil equivalent has recently fluctuated widely, but stood at around $25 in January 2000. A 15-cent charge per barrel thus amounts to less than one percent of the total spot market price and lies well within the daily price fluctuation range.

Table 1
Oil and Gasoline Consumption in 1995 and Expected Revenues from Hypothetical Taxes[27]

1995 figures	**Total** (in 000 metric tons, 1 metric ton = 6.5 barrels	**Expected Revenues** in millions of US$ from a $1 tax per metric ton (15 cents per barrel)	**Motor Gasoline** (road transport) (in 000 metric tons, 1 metric ton=273 gallons)	**Expected Revenues** in millions of US$ from a 1-cent tax per US gallon of gasoline	**Average Annual GEF contribution** 1994–1997, in millions of dollars
Australia	34,790	35	12,957	35	7.3
Austria	11,044	11	2,398	7	5
Belgium	20,205	20	2,833	8	
Canada	80,175	80	25,764	70	21.6
Czech Republic	6,804	7	1,637	4	
Denmark	9,305	9	1,905	5	8.8
Finland	9,632	10	1,886	5	5.4
France	89,724	90	15,621	43	35.7
Germany	136,491	136	29,894	82	60
Greece	13,994	14	2,724	7	
Hungary	7,589	8	1,427	4	
Iceland	707	1	136	0	
Ireland	5807	6	1,038	3	
Italy	96,681	97	17,080	47	28.6
Japan	264,245	264	37,584	103	103.6
Luxembourg	1,741	2	515	1	
Mexico	80,559	81	21,917	60	
Netherlands	25,894	26	4,063	11	17.9
New Zealand	6,662	7	2,004	5	1.4
Norway	8,549	9	1,653	5	7.7
Portugal	13,380	13	1,890	5	1.4
Spain	54,494	54	8,534	23	4.3
Sweden	16,997	17	4,251	12	14.6
Switzerland	12,469	12	3,551	10	11.2
Turkey	28,587	29	4,330	12	
United Kingdom	81,977	82	21,972	60	33.6
United States	773,875	774	331,684	905	107.5
	1,892,377	**$1,894**	**561,248**	**$1,532**	**$475.6**

27 All figures are based on approximate calculations using IEA consumption figures in metric tons. International Energy Agency (1997).

Transparency would be increased if a global environment charge could be levied at the demand rather then the supply side, i.e., if it could be added to gasoline taxes. Again, an increase of just 1 cent per gallon could raise revenues of some $1.5 billion annually.

Countries tax fuel at very different rates, but a global environment contribution of the above hypothetical amount would in general represent a very small relative increase.[28] For example, Sweden has introduced a CO_2 tax of about 11 cents (U.S.) per liter of gasoline, or 42 cents per gallon. This environmentally motivated charge comes in addition to a $1.72 petrol tax per gallon. But Sweden's current GEF contribution amounts to about 3 percent of total revenues generated by the current CO_2 tax, which now goes into the general state budget, and less than .5 percent of the total gasoline tax. In comparison, in the case of the United States, the current federal gasoline tax amounts to only 18 cents per gallon. A 1-cent contribution per gallon would increase the fuel-tax burden by 5.5 percent but it would generate roughly five times the financial resources that the United States has so far committed to the GEF.

The hypothetical tax rate of 15 cents per barrel oil or 1 cent per gallon gasoline would not produce the necessary revenues to cover current GEF contributions in the case of the three small European countries: Denmark, Sweden, and Switzerland. On the other hand, the same tax rate would generate nearly twice the committed amounts for France, Germany, the United Kingdom, Japan, and, as noted above, about five times the committed amount for the United States. This highlights the significant discrepancies between the key donor countries with regard to their energy consumption and GEF contributions. It suggests that any international fund-raising mechanism based directly on a global environmental contribution on oil or gasoline consumption would, for political reasons, need to allow countries to set very different tax rates.

To judge political acceptability of adding a global environment charge to energy taxes, it is necessary to look at recent trends concerning energy and CO_2 taxation in different GEF donor countries.

To date, Denmark, Finland, the Netherlands, Norway, and Sweden have introduced some form of environmentally motivated carbon tax. In all cases, the CO_2-based tax rates are relatively low or have replaced other taxes on energy. But the importance of such taxes in relation to other excise taxes on energy products is growing.

In other OECD countries, efforts to introduce CO_2/energy taxes have so far failed, but new initiatives are emerging in some.[29] The European Commission has worked on a proposal for a mandatory EU-wide CO_2/energy tax since early 1990 with no success to date. In the aftermath of the December 1997 Kyoto Conference of Parties to the climate change convention, , the European Commission has renewed its efforts to push for an EU-wide CO_2/energy tax. The last three countries holding the EU presidency up to December 1999 (Germany, Austria, and Finland) have all declared introduction of such a harmonized energy tax to be one of their highest priorities.

This new momentum coincides with developments in major European countries. The current German government—a coalition of the Social Democratic and the Green parties—decided in June 1999 to raise levies on gasoline and electricity incrementally as part of a broad eco-tax reform. The gasoline tax will be increased annually over four years by DM 0.06 per liter and the electricity tax by DM 0.005 per kilowatt hour. The introduction of small but steady increases in such levies constitutes a significant breakthrough for eco-tax reform proponents. Serious debate on eco-tax reform also has emerged in France and Great Britain. The French Environment, Economy and Industry ministries jointly issued a white paper in July 1999 in which they concluded that a new tax on carbon emissions from industrial sources is needed if France is to meet its international commitments and reduce overall carbon emissions. A new energy tax, levied via an existing eco-tax (General Tax on Polluting Activities) is to go into effect in 2001. A major

28 The following examples are based on calculations using data from OECD (1995d), *Environmental Taxes in OECD Countries*, OECD Paris, p. 54, 55. The estimates presented here may not reflect actual figures because they were calculated using the IEA figure for overall oil input to road transport, and not actual gasoline consumption by cars.

29 See the International Environmental Reporter for detailed historical information on this.

environmental tax reform is also under way in Great Britain, where the government introduced a proposal for a climate change levy in March 1999.

On the other hand, CO_2 or environmentally motivated energy taxes have not been seriously considered in the United States after a proposal by the Clinton administration for introduction of a Btu (British thermal unit) tax failed in 1993. But the United States government recognizes climate change as an "overriding environmental challenge" and several bipartisan initiatives designed to encourage voluntary emission reductions by the private sector have been tabled.[30]

Japan has no environmentally motivated energy taxes in place. But a Research Panel on Economic Instruments and Environmental Policy was established in 1994 and produced a report on the issue after broad national consultations. The Japanese Environment Agency called for the introduction of economic instruments in 1996 and has recently proposed a differentiated tax on autos based on fuel consumption.[31]

Many questions still need to be addressed before it is possible to determine the practicality of a linkage between a CO_2/energy tax and fund-raising for global environmental purposes in individual countries. In many countries, initiatives on energy and CO_2 taxes have yet to be implemented, but the political debate has been reinvigorated recently. Political support in principle for such charges has clearly broadened, and these ideas are influencing the political mainstream on both sides of the conservative/liberal divide. The fact that most countries have yet to introduce energy and CO_2 incentive taxes may present some opportunity for earmarking a small part of any future tax for global environmental measures in developing countries.

Given the difficulties with introducing environmental taxes at incentive levels, however, it is possible that environmentally motivated energy taxation could be designed mainly to serve the explicit purpose of raising funds for global environmental measures. In this context, it should be noted that strong views regarding the use of marginal CO_2/energy taxes for global environmental purposes have not yet been formed within most governments. However, discussions with various government agency representatives in some OECD countries suggest another factor that may work against such a fund-raising option. Institutional and political factors favor narrowly focused policy initiatives. Environment ministries are most concerned with advancing cost-effective environmental policies that create the behavioral incentives to reduce environmental pressures domestically. These ministries are often not well linked with development cooperation or foreign affairs ministries, which pursue their own objectives based on their own overall policy concerns and budget constraints. As a result, institutional structures and procedures favor business as usual, whereby discussions relating to environmental taxation are carried on separately from those relating to compensation of developing countries for measures realizing global environmental benefits.

Surcharge on Car Registration

Because of the great discrepancies in energy consumption of individual countries, any attempt to link fund-raising for global environmental measures in developing countries with CO_2/energy taxation in OECD countries may prove to be politically unworkable. It may be less controversial to levy a "Green Planet Contribution" on activities that only indirectly relate to energy consumption. This would reduce the discrepancies among countries but still allow some preservation of the polluter-pays principle.

An annual surcharge on automobile registration renewal would be one possible entry point. In 1995, 521 million motor vehicles were in use in OECD countries, including 197 million in the United States, 65 million in Japan, 43 million in Germany, 30 million in France, and 28 million in the United Kingdom.[32] In California, car registration renewal in 1995 for a new, mid-priced sedan cost approximately $300; larger, more expensive vehicles cost more, and older cars generally cost less. A one percent surcharge, clearly identified, for example, as a " Green Planet Contribution" would amount in this case to $3 per car per year, but applied internationally, would add up to around $1.5 billion annually. To achieve the current GEF funding level, a one dollar contribution equaling approximately a 0.3-percent surcharge per car would suffice.

31 Preliminary draft courtesy of Japanese Environment Ministry, December 1995.

32 OECD (1998b), p. 88.

As with a tax on CO_2 or energy, a surcharge on car registration would amount to burden-sharing among countries that roughly reflects the transport sector's contribution to global warming. However, the polluter-pays principle would not be translated as directly as with the CO_2 tax, because the registration surcharge would be the same regardless of how many kilometers a car is driven. Because this mechanism would be much less punitive to individuals who drive their cars frequently than a gasoline tax, it provides a psychologically important built-in compromise that could decisively reduce resistance to such taxes by heavy users. And given that distances driven per car and person vary greatly among OECD countries, this fund-raising model might lend itself better to multilateral cooperation than would a CO_2 or energy tax. Furthermore, it appears to be simple to implement nationally because transaction costs for fee collection should be minimal. The existing collection channel also can be used for disseminating information about the purpose of the contribution, a potentially critical side benefit.

Taxing International Air Transportation

An idea that has gained attention in recent years is to tax kerosene for international aviation and bunker fuels for marine transportation and to use parts of the proceeds to finance measures of global environmental benefit. These international transportation modes have been exempt from taxation and many governments support, in principle, a revocation of the exemption, particularly for international aviation.[33] Some countries already tax domestic kerosene consumption, but fully adjusting the tax on kerosene to the tax for road transportation fuel would create additional revenues in the billions of dollars. When countries start negotiating the fate of this international tax exemption, they could consider earmarking a small percentage of the revenues for funding global environmental activities. This may be possible, even if current proposals foresee revenue-neutrality (i.e., that revenues be used to reduce other distortionary taxes).

The exemption for international aviation is based on article 24 of the Chicago Convention on International Civil Aviation from 1944. As interpreted over subsequent years, the article essentially forbids countries from taxing fuels used in international transportation. This rule was reaffirmed internationally as recently as 1993. Originally designed to subsidize international air transportation (with the objective of encouraging world economic growth), this exemption is outdated for more than environmental reasons. It is difficult to justify an exemption for international air transportation when fuels for domestic transportation in most countries are subject to substantial fiscal taxes.

Air travel is a mode of transportation still used by only a small percentage of the world's population (some 5 percent in 1995).[34] Even in a highly industrialized country like Germany, only 25 percent of the population is believed to fly at least once annually. The tax exemption on international air traffic therefore disproportionately benefits affluent people. The growing volume of air transportation is also a concern from an environmental perspective, even though the contribution of air travel to global greenhouse gas emissions is currently estimated to be 2 to 3 percent.[35]

On closer scrutiny, however, a tax on international air travel may not be the most suitable target for raising funds for global environmental activities. One problem is that it is far from clear when such a tax exemption can be revoked. There are some equity issues that may be difficult to resolve. Taxing air travel at road-transportation rates would increase the cost for air travel considerably. This would affect low-cost tourism disproportionately, because fuel costs represent a significant part of total low-budget vacation prices. This would in turn reduce attractiveness of tourist destinations in developing countries. Other issues to be resolved relate to which countries should have taxing authority for international flights.

For the purpose of the present discussion, there are two additional drawbacks. First, a visible link to the individual consumer cannot easily be established, since the global environment contribution would be a largely hidden part of the overall tax revenues. Sec-

33 A. Bleijenberg et al. (1996) and Volker Leifert et al. (1997). See also statement from the International Civil Aviation Organization (ICAO) to the Eleventh Session of the UNFCCC Subsidiary Body for Scientific and Technological Advise (SBTSTA), Bonn, October 25, 1999 (www.icao.org/icao/).

34 Karl Otto Schallaböck and Andreas Pastowski (1995).

35 Mark Barrett (1994) andIPCC (1999). A special report by IPCC estimates aircraft carbon dioxide emissions to have been 2.4 percent of total emissions from fossil fuel and 2 percent of total anthropogenic carbon dioxide emissions in 1992.

ond, it may seem inappropriate to levy a global environment charge solely on a sector that consumes only 6 percent of the world's total energy. Nevertheless, this approach might still be worth pursuing, if momentum grows to revoke the tax exemption on international aviation.

Apart from revoking the tax exemption on international travel, there are other theoretical possibilities for tapping into international air travel to finance global environment activities. A flat global environment contribution could, for example, be added to airport charges, where they exist. Charges could also be levied commensurate to distance flown.[36] However, such models would certainly be more complicated to implement than a direct kerosene tax.

Charges on International Tourism

International tourism is another economic activity that may lend itself to taxation for global environmental benefit. Taxing international tourism could be an attractive way of applying the polluter-pays principle, because it would target a non-essential activity, and would thus primarily affect the more affluent segments of society.

World tourist arrivals numbered 567 million in 1995, and receipts amounted to $372 billion. International fare receipts are estimated at $60 billion.[37] To raise the currently available funds for the GEF, an average $1.50 fee on each international arrival would suffice. Contributions could be collected as a proportion of the overall vacation package price or simply as a flat fee. But, the tourism industry might object to being singled out for such a charge, while the more important economic sectors are exempt from a global environment fee. Transaction costs for fee collection might also be unacceptably high for this option, since the charges would need to be collected and accounted for by individual retailers of travel packages or tourist services.

Tourism could provide an attractive target for voluntary or national fund-raising for narrowly defined nature conservation purposes. Entry fees for national parks and other user fees for eco-tourism have been introduced around the world. Proceeds are used for financing park maintenance, but also for broader biodiversity conservation efforts. The potential for increasing reliance on such user fees is considerable, particularly in developing countries, and the GEF is financing various projects that aim to develop these revenue sources.

Per Capita Flat Global Environment Contribution

A small per capita global environment fee must also be considered as a fund-raising option for global environmental protection. In 1994, the population in OECD countries was 972 million.[38] A per capita global environment fee of $1 annually (for example, added to the tax bill) would double the resources available today through the GEF. A well-designed public-relations campaign may well prepare the ground for broad public acceptance of such a small "green planet contribution."

There is a conceptual problem with such a uniform per capita fee in that it undermines the polluter-pays principle. Higher income groups tend to live in larger houses, drive larger cars, and consume more resources. If the same global environment fee were to be levied on individuals from all income brackets, such a model would thus be less equitable than if resources came from general taxation. This argument, however, may be of little relevance at a tax rate of only $1 or $2 a year.

Fund-Raising Linked to Carbon Emission Trading, Joint Implementation, and the Clean Development Mechanism

Some of the policy instruments discussed in the framework of the United Nations Convention on Cli-

36 Total air distance traveled in 1994 was 270 billion kilometers. A per unit-tax of $0.004 per kilometer would raise some $1 billion per annum. Example from a document by the Commission on Sustainable Development to the Fourth Session: *Financial Resources and Mechanisms for Sustainable Development: Overview of Current Issues and Developments.* Report to the Secretary-General. E/CN.17/1996/4/A.

37 WTO News (World Tourism Organization), No. 1, February/March 1996, p. 2.

38 OECD (1995d), p. 283.

mate Change (UNFCCC) may also carry extra fund-raising potential, should they be adopted on a mandatory basis.[39] Obviously, any consideration of such an approach would fall within the responsibility of the Parties to the UNFCCC. The present discussion will only briefly outline the basic idea of such a fund-raising option.

Countries will be able to fulfill their obligations by selling or "exporting" emission units, which could be acquired in various ways. Implementation modalities for three off-shore mechanisms are currently under discussion: emission trading, joint implementation (JI), and Clean Development Mechanism (CDM).[40] Emission trading involves trading of emission rights (under Kyoto Protocol Articles 3.11 and 17) and emission reduction units (under Articles 3.11 and 6 of the Kyoto-Protocol) among countries who have committed themselves to specific emission ceilings and timetables (Annex B). Joint implementation is project-based cooperation between two countries that have committed to specific emission ceilings and timetables (Article 6). The CDM would allow Annex B countries to acquire certified emissions reduction units by financing greenhouse gas mitigation projects in developing countries (Article 12).

Depending on the emission reduction commitments that developed countries might eventually be willing to accept, financial transfers from developed to developing countries in return for emission reduction credits could be very large. What is of interest is the possibility that any emission trading transaction or crediting of emission rights resulting from CDM or JI projects could involve a small surcharge for funding general global environment measures. Under this model, it is assumed that climate change activities in developing countries would already be fully financed through emission trading, and the CDM and JI projects.[41]

However, although countries aim to resolve many of these issues by the 6th Conference of Parties to the UNFCCC in November 2000, an emission trading system is not likely to be implemented for perhaps another decade. The Kyoto Protocol timetable gives countries until between 2008 and 2012 to reach their emission targets. Although the volume of JI and CDM projects is already increasing due to voluntary programs of some countries, no emission reduction credits can be claimed for these at present.

Before any surcharge on JI and CDM projects can be introduced, a functioning emission trading system has to be in place. This depends on solving complex political issues among countries. But apart from the uncertainty as to when this might occur, adding a charge to the cost of projects that are already designed to realize global environmental benefits is not very appealing conceptually. In conclusion, other approaches to raise funds for general global environmental objectives may be better suited than surcharges on emission trading, JI and CDM. On the other hand, the idea should not be entirely dismissed quite yet.

Trust Fund for Global Environmental Protection

A general trust fund could secure predictable resource flows for global environmental protection, and would be relatively detached from political processes in and among donor countries. Using a conservative estimate of 5 percent return on capital investment, a fund capitalized at $10 billion would secure annual returns of approximately $500 million, which is the annual amount currently available to the GEF for programming projects. Some countries, such as the United States, may find it easier to come up with a one-time contribution charged against some special budget account than to continuously negotiate and

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39 This was pointed out to me by a number of individuals involved in the climate negotiations and GEF affairs.

40 During the June 1999 meeting of the Subsidiary Body for Scientific and Technological Advice of the Conference of Parties to the Climate Convention, some 400 entries of ideas by Kyoto signatories were compiled to be worked into a draft for an accord on the mechanisms to be further discussed. For some ideas, see IISD, *Linkages Journal*, October 1998 and May 1999.

41 For a discussion of the legal and institutional issues involved, see Richard Stewart et al. (1996). For up-to-date information on the negotiation process, see, for example, the Internet publication by IISD: *Linkages* and *Earth Negotiation Bulletins*; for official documents, see the FCCC website.

42 To cover approximately its current contribution to the GEF, the United States would require a one-time $2 billion allocation to a general trust fund. This would be less then 1 percent of the annual budget and could come out of a special appropriation fund, or even an emergency fund.

allocate funds in annual budgets. The general public might also be inclined to consider such a model if governments could sell the idea of a one-time contribution as the key towards permanently addressing global environmental issues around the world.[42]

Obviously, this option is not consistent with the polluter-pays principle. Furthermore, one can argue the merit of establishing trust funds for financing a wide range of important public sector objectives. Also, in the case of the GEF, such an approach would require upfront payments in today's currency of about 20 times the amount of countries' annual contributions. If the fund capitalization adds to an existing budget deficit, countries would forego a discount that results from paying in annual installments. However, many countries are suddenly finding themselves with budget surpluses, and the establishment of a trust fund through a one-time contribution to indefinitely fund global environmental protection could be politically attractive.

The trust fund approach should not be dismissed without further scrutiny. The GEF has collected valuable experience establishing and operating specialized trust funds for biodiversity conservation projects in a number of countries. In most cases, the GEF has only provided parts of the funding, with additional contributions from recipient governments, NGOs and the private sector. There are many different ways of incorporating the trust fund idea into an overall strategy for securing adequate and long-term funding for global environmental projects. Conceivably, a trust fund could be capitalized by government, the private sector, NGOs and/or voluntary contributions from wealthy individuals. It could also be built up over time in combination with some of the other fund-raising options considered here.

Voluntary Contributions

It would be easier to introduce a "green planet contribution" on a voluntary than on a mandatory basis. Many of the above-mentioned ideas could be implemented, at least initially, on a voluntary basis, either on the domestic or international level. Other models, such as surcharges on tourism or air travel, could be part of voluntary efforts by the private sector.

But some important drawbacks need to be recognized. First, voluntary mechanisms may not produce the desired resources. But more importantly for this discussion, they are not consistent with the polluter/consumer-pays principle, because they depend largely upon the goodwill of individuals who are already sensitive to environmental problems and are often not the main polluters. The free-rider problem is therefore not addressed and this psychologically affects people's willingness –to pay.[43] Public opinion polls indicate that people are not inclined to contribute voluntarily when they feel that others are not doing the same (see below). Finally, in using voluntary contributions to finance their policy objectives, governments are likely to cut into the funding base of NGOs, which also depend on motivated individuals for their resources.

Voluntary mechanisms should therefore only be considered as exploratory steps towards mandatory systems. A surcharge on annual car registration, for example, could be introduced as a voluntary contribution in conjunction with efforts to educate the general public about the objectives of such a charge and to gauge willingness to pay.

Other Options

A number of other fund-raising strategies are conceivable. But because their fund-raising potential is not very large and because they would appear to be relatively complicated and expensive to administer, they are unlikely candidates for providing a revenue base for general global environmental protection measures. But such models may prove to be valuable fund-raising tools for specific purposes, for example, as voluntary private sector initiatives.

A surcharge could, for example, be levied on pharmaceutical products that contain genetic resources from tropical forest areas. Revenues could be specifically targeted towards biodiversity protection. This would respond to the Convention on Biological Diversity,

43 The collective action problem in providing public goods has been the subject of a vast body of theoretical literature in economics and political science. The basic problem is how to arrive at cooperative arrangements when there are strong, well-organized private interests opposed, and actual benefits accrue to the public at large in incremental portions. There are disincentives to cooperation if "free riders" (who do not share in the costs of providing common goods) cannot be sufficiently excluded from the benefits.

which asks Contracting Parties to take measures to promote sharing of benefits from biotechnologies based on genetic resources provided by developing countries.[44] But the practicality and feasibility of developing such a fund-raising option on a large scale must be questioned. Similarly, proposals for small global environment contributions levied at the point of consumption on wood products from primary forests do not seem very practical.

Many other ideas for raising funds for global purposes have been mentioned in various contexts. The following have not been discussed here because they do not appear to be very practical and they do not provide a good link to the polluter-pays principle: surcharges on port fees for large commercial ships, "parking fees" for communication satellites, taxes on airwave frequencies currently assigned at no charge to commercial media, charges on sea-bed mining and activities in Antarctica, and taxes on foreign currency transactions.

Reference Table:
Key Characteristics of Fund-Raising Alternatives

	Revenue-raising potential	Transaction cost of implementation	Consistency polluter-pays principle (PPP)	Potential for political opposition	Advantages
CO_2/energy taxes	High (but oil-price sensitive)	Low	High	High, because heavy polluters pay most and will oppose	
Car registration	High	Low	More symbolic: heavy polluters get a break but charge could vary by size of car	Low, because no particular group is strongly penalized	Existing channels can easily be used for dissemination of information
Revoking international aviation tax exemption	Variable	Medium	Low	Depends on resolution of largely unrelated political issues	
International Tourism	Medium	Probably high	Some, because a non-essential service is affected	High, because of high transaction costs	
Flat Global Fee	High	Low	None. Highly regressive.	May be high, because of equity issues	Existing channels can easily be used for dissemination of information
Surcharge on carbon emission trading, Joint Implementation and CDM projects	Variable	Medium	Increases transaction costs for JI and CDM	Low, if surcharge is small	
General trust fund	Variable	Medium	Some on nation state level, depending on burden-sharing	Uncertain, high capitalization costs	Media campaign could help build political support
Voluntary contributions	Probably low	Medium	None	May cut into funding bases of NGOs without achieving fund-raising objectives	
Surcharge on pharmaceuticals with biogenetic components	Low	High	Weak	Pharmaceutical industry likely to oppose	
Surcharge on trade in primary forestry products	Low	High	Some	Forestry industry/ exporting countries likely to oppose	

Conclusion: Identifying the Most Promising Option

The fund-raising options discussed in this paper are far from exhaustive. There are many conceivable points of production and consumption at which a designated "green planet contribution" could be levied. But there are considerable trade-offs between equity and revenue maximization to be considered. These will determine which options are politically more or less palatable (see Reference Table on previous page).

For revenue-generating purposes, it is administratively desirable to raise funds through one simple mechanism, rather then through a system that combines various charges and fees. The paper has therefore singled out energy consumption as the one general area where levying some individual global environment contribution would make most sense. As the examples show, this is the single sector that can guarantee large revenues at very low tax rates. Energy consumption is arguably one of the most important direct and indirect contributors to global environmental degradation. Also, there is no real conceptual problem with using revenues from energy taxes to finance biodiversity conservation and protection of international waters, since destructive activities in these areas are often closely tied to energy consumption.

A number of environmental charges unrelated to energy use were also mentioned, for example, those related to eco-tourism or the production of pharmaceutical products based on biogenetic components from developing countries. But such options, apart from their assumed high transaction costs, would require higher tax rates to result in overall revenues comparable to those generated by a small energy charge. Such options therefore appear less well-suited as fund-raising mechanisms for general purposes. That is not to say that they may not be important instruments for more narrowly defined environmental objectives.

The preceding discussion highlights the political and technical strengths and weaknesses of various strategies for levying a global environment fee. All things considered, a personal "green planet contribution" raised in conjunction with the annual automobile registration combines administrative ease with significant fund-raising potential and with relatively low political cost. The individual annual contribution would be almost negligible. A surcharge on car registrations is still an option that would allow for a weak but psychologically important link between personalized contribution to a global common and environmental consumption. Because such a charge would not punish heavy energy consumers severely, it might be more politically acceptable on the national and international level than taxes on energy consumption.

A small CO_2 or energy charge levied on overall oil or gasoline consumption would be the most "environmentally correct" translation of the polluter-pays principle and could raise very large sums at low tax rates. It would also be fairly straightforward to administer. What may work in favor of such an approach is that CO_2 or energy taxes have been or may soon be introduced in a number of countries. Although the stated intention of such policies is to introduce charges that are revenue neutral (i.e., such taxes must be offset by lowering other taxes), public support might be high for using a small fraction of these revenues for global environmental activities. Nevertheless, the debate about additional taxes on energy, particularly on gasoline, is highly politicized. In many OECD countries, well-established opposition exists to increasing gasoline taxes, particularly at a time when oil prices have climbed substantially. On the other hand, the debate on global warming has now entered mainstream politics, and public perceptions about what needs to be done are changing.

For various reasons already discussed, other options are considered less ideal solutions for achieving automatic fund-raising for global environmental objectives. There may, however, be good reasons not considered here for adopting one or more of these options, for example, an aviation tax, as a departure point for developing an alternative fund-raising mechanism.

Chances for Emergence of a New Fund-Raising Mechanism

Even under optimal conditions, it will take years to change from the current burden-sharing approach based on nation states to a new mechanism for raising funds for safeguarding the global environment. The willingness of governments to even consider new approaches outlined here hinges upon consensus on three key points:

1. global environmental problems are a serious problem;

2. substantial funding needs for protecting global resources in developing countries exist beyond what governments and the private sector in recipient countries could possibly cover; and

3. institutional structures and project identification, development, and implementation networks now in place can be expanded and strengthened to effectively use considerably larger amounts than are currently available for investing in long-term global environmental benefits.

This analysis has set out to demonstrate that the introduction of some global environmental user fee—or "green planet contribution"—would make good economic and political sense, given that one agrees with the stated assumptions. However, such alternative ways of raising funds cannot be expected to gain political support easily and it is important to consider why.

As previously discussed, prevailing institutional structures in donor countries affect current fund-raising strategies and levels. National environmental policy making is conducted largely in isolation from resource allocation for environmental measures in developing countries. There is often little interaction or coordination between the ministries that usually promote and develop national environmental policy instruments (typically environment ministries) and the ministries that manage funds for cooperation with developing countries (typically development cooperation ministries). Government officials, given to political pragmatism, understandably focus on securing their national contributions to the GEF within the context of current institutional structures and political limitations. They usually have little capacity and therefore few incentives for exploring alternative fund-raising approaches. Many consider international taxation a lofty pie-in-the-sky idea, and this perception can turn into a self-fulfilling prophecy. But on the positive side, there is usually no fundamental objection against the basic idea of raising funds for global environmental activities through some international user fee.

Clues from Public Opinion Polls

An analysis of polls that attempt to measure popular environmental attitudes, and the public's willingness to pay for environmental protection measures suggests that the idea of a "green planet contribution"

could find considerable public support. Polls conducted in the 1990s generally show that a majority of the population in traditional donor countries has become increasingly concerned about environmental problems and would be willing to pay higher prices to protect the environment.[45] Opinion polls conducted in the European Union in 1995 show, for example, that a strong majority of 73 percent of European citizens favor taxing products and techniques that harm the environment.[46] One 1998 survey conducted in the United States on climate change found that people believed that considerably more should be done to combat global warming while earlier U.S. surveys had already found, under certain conditions, a willingness to pay higher energy prices if it benefits the environment.[47]

The most recent survey, which was carried out in April 1999 by the European Commission, generally confirms findings of earlier surveys.[48] Environment ranks sixth among the concerns of Europeans, after violence, health, unemployment, poverty and drugs. Global environmental problems rank high. Given a chance to assess if they were more or less worried now than five years ago, 65 percent of citizens expressed more concern over climate change and 64 percent more concern about disappearance of tropical forests. The survey also found that a majority of Europeans is prepared to accept paying more for products that are less harmful to the environment, while only one-third rejects this idea.[49] Furthermore, given a choice between different policy instruments for improving the environment, stricter regulations and heavy fines (48 percent) and implementation of the polluter-pays principle (28 percent) rank highest, while less than one in ten Europeans is willing to rely on either voluntary initiatives by industry or on scientific progress.

The strength of concern for the environment, however, clearly varies across cultural, political and economic divides and reflects the broader context in which a survey was conducted.[50] Polls that focus exclusively on environmental policy preferences also tend to find more positive attitudes to environmental measures than do those that force respondents to first set priorities among several important policy areas (e.g., health care, education, crime, social security, and military security).[51]

Furthermore, polling data cannot be taken at face valuebecause surveys may capture lip service rather than actual potential for behavioral changes. Some studies, however, suggest that people tend to act the way they talk, provided legislative or regulatory action ensures that everyone else does the same.[52] Consistency between expressed willingness and actual behavior decreases if behavioral changes depend on voluntary actions and if initial investment costs are high. A majority of U.S. residents, for example, hold car-pooling and public transportation to be too cumbersome, and consider the initial costs of making homes more energy efficient too high, even if substantial savings could result down the road.[53] On the other hand, a bipartisan poll on national energy policy preferences found high support for political mea-

45 For overview surveys, see European Commission (1996), Barbara C. Farhar (1993, 1994), R.E. Dunlap et al. (1993), and International Social Survey Program, ISSP (1993).

46 European Commission (1996).

47 Jon Krosnick and Penny Visser (1998).

48 European Commission (1999). Of course, the data presented here masks considerable differences between individual EU member countries.

49 European Commission (1999), p. 28. The survey only provides percentage figures for preparedness to pay more for specific products or services.

50 For example, 52 percent of West Germans, but only 43 percent of East Germans, would be at least inclined to consider paying higher taxes and charges for improved environmental protection, given the money would directly benefit the environment (Bundesministerium fuer Umwelt, Naturschutz und Reaktorsicherheit, 1996, p. 82). Considerable differences can also be found between the German and French-speaking parts of Switzerland, with 73 percent of Swiss Germans but only 60 percent of Swiss Romands expressing concern for environmental problems (Andreas Diekman andAxel Franzen, 1995). Political affiliation is also a factor. In early 1998, 77 percent of U.S. Democrats but only 55 percent of Republicans believed global warming will happen in the future (Krosnick and Visser, 1998).

51 See Gardner Brown (1994).

52 Peter Preisendoerfer and Axel Franzen (1996) and Greenberg/Lake (1990).

53 Barbara C. Farhar (1994), p. 219. Farhar (1993) reviews a great deal of polling data on environmental preferences.

sures, such as reestablishing the solar tax credits (86 percent), increasing corporate average fuel economy (CAFE) standards to 40 mpg by 2000, increasing federal spending on mass transit, and instituting tax rebates on fuel-efficient cars.

No survey was found that directly addresses the public's willingness to compensate developing countries for globally beneficial environmental measures. Polling results examined for this analysis, however, give some reason to believe that the willingness –to pay for GEF-type activities may be high and would considerably exceed current per-capita spending for global environmental protection. This should not be surprising given that annual contributions to the GEF range from 11 cents per person, in the case of Spain, to $1.82 per person in the case of Norway.[54]

However, surveys also suggest important caveats. Public distrust in the ability of international organizations and foreign governments to use financial resources effectively could easily outweigh support in principle for higher spending. A recent survey has shown that a large majority of U.S. citizens believe that too much aid resources are wasted because of inefficiency and corruption in recipient countries.[55] But the same survey also shows that people grossly overestimate the actual level of such aid. The median estimate was that 15 percent of the total U.S. federal budget goes towards foreign aid while the actual figure is about one percent. Trust in international organizations may be somewhat greater in European countries, particularly in smaller countries more inclined to work through multilateral mechanisms.

All things considered, it would appear that in most donor countries the public is rather supportive of expanding government measures to protect the global environment. The fact that the public seems to considerably overestimate the actual expenditures of governments for development cooperation—as the U.S. example shows—also supports such a conclusion. The public's willingness to pay for global environmental measures, expressed in per capita terms, may considerably exceed that which governments actually make available.

The discrepancy between latent public preference and actual policy may reflect the high transaction costs involved in turning diffuse political support for public goods into legislative action. Transaction costs are especially high when measures impact strongly motivated and politically well-established economic interests but lack supporters with strong economic motivation. Even in the absence of strong opposition, soft policy preferences are easily crowded out in established institutional and bureaucratic processes that are more geared towards dealing with traditional policy issues (for which well-formed constituencies exist).

Support for fund-raising alternatives discussed here must crystallize around environmental NGOs and relevant government institutions and spread to key private sector actors. Attention from NGOs can be expected to increase as these organizations become increasingly integrated into development and project implementation of government-funded programs. Being politically savvy and pragmatic, NGOs will recognize that any implementation of a mandatory fund-raising mechanism for global environmental activities will likely reduce the public's willingness to make voluntary contributions to NGOs.

Steps Towards a New Mechanism

If some global environmental user fee system does emerge, it will most likely do so gradually, after individual-level taxation mechanisms for global environmental efforts are introduced in single countries or perhaps in a small group of like-minded countries. Some countries have already introduced CO_2 taxes. They could, as a first step, express expenditures for global environmental efforts (bilateral programs and their contribution to the GEF) as a percentage of revenues from existing environmentally motivated taxes. As a next step, they might adjust the percentage of the revenues going to global environmental efforts according to some specific funding objective, for example, allowing for a gradual increase. The European Union may decide to encourage such policies on a voluntary basis in its member countries.

54 The per capita contribution to the GEF is about 40 cents for the United States and about 70 cents in the case of other major donor countries.

55 Steven Krull (1995).

The United States is the country that is perhaps least likely to introduce environmentally motivated charges for funding global environmental activities in the near future. This may be due not only to political factors, but also to an environmental policy approach that favors regulation and standards based on rigorous cost-benefit analysis, rather than broadly applied market-based incentives. Of course, it is difficult to predict how American policy preferences may change in coming years, particularly since opinion polls do suggest that the public favors increased efforts to protect the global environment.

It would obviously be most desirable to pursue the introduction of a global "green planet contribution" with the support of all major traditional donors and even with key developing countries. However, making this a prerequisite for initiating work in this direction would likely postpone any serious discussion indefinitely. Realistically, unilateral national mechanisms that build fund-raising for global environmental purposes on the polluter-pays principle could provide a starting point around which support for a more multilateral mechanism could crystallize.

The starting point for a multilateral system would have to be a differentiated tax rate for each country, calculated to raise approximately those revenues required to cover current national GEF commitments. As a next step, multilateral negotiations could focus on agreeing to small, incremental increases in contribution rates, in order to secure predictable resource growth. Negotiations on funding increases should be based on needs communicated by the parties to the conventions, as well as on developments in the disbursement and absorption capacity of implementing agencies and recipient countries. Negotiations would also leave room for eventually bringing tax rates of countries closer together.

Burden-sharing negotiations would still be necessary. Their character, however, would change significantly. Negotiations concerning relative increases in marginal environmental tax rates may ultimately be less politically contentious than negotiating overall contributions from state budgets amounting in the hundreds of million dollars. Perhaps the most significant advantage would be that fund-raising would be completely removed from the context of development cooperation, and would in fact meet the criteria of being "new and additional" financing, as originally called for in a number of international environmental agreements.

Innovative fund-raising ideas for global environmental protection could in principle be explored within many institutional frameworks. But finding a framework that can generate attention from all relevant government agencies will be critical. The GEF, as the designated funding mechanism for both the U.N. Framework Convention on Climate Change and the Convention on Biological Diversity, is the existing institutional entity with the strongest self-interest in improving its funding base. But the GEF may not be the best forum for bringing together experts on environmental taxation, fiscal policy, and global environmental protection. The OECD with its specialized sub-committees might be in a better position to explore ideas relating to a "green planet contribution," in collaboration with the GEF secretariat.

Implications of a New Fund-Raising Mechanism

Obviously, the question of how to make effective use of substantially increased funding levels for global environmental protection must be addressed very carefully. It is self-evident that existing mechanisms, thus far mainly the GEF, must evolve further. They may need to be restructured and complemented by other, perhaps more decentralized, mechanisms, if they are to effectively absorb increased funds for global environmental benefits. In this context, it should also be noted that the automatic nature of fund-raising mechanisms suggested here does not by itself imply any change in the oversight structure of a future GEF (or a similar institution). Governments will remain the key gatekeepers for determining strategic and programmatic approaches and for guaranteeing the necessary quality of programs and projects. Ultimately, governments would still be able to block transfer of funds collected nationally to the multilateral fund, should they find this necessary.

Neither would implementing a more automatic fund-raising mechanism mean that the executing organization must spend all the funds raised annually, which could lead to a decline in project quality. There are easy ways to avoid such disbursement pressure. When fund-raising exceeds what can be disbursed effectively, surplus could be used to capitalize a multilateral trust fund. One could in any case envisage a

mechanism designed to fund, simultaneously, current program implementation and capitalization of a trust fund. Governments may even consider capitalization of one general trust fund for future revenue-generating purposes or several issue-specific or regional trust funds as an explicit policy objective. In this case, the annual per capita "green planet contribution" could be phased out eventually as revenues generated by the trust fund take over funding for global environmental purposes.[56]

Much work is needed to sort through the implications for international cooperation of such a trust fund or specialized trust funds. It is clear that once a general trust fund were fully capitalized, it would represent a truly global revenue-generating mechanism with far-reaching implications for international cooperation.

56 Eventually the distinction between developed and developing countries would fade, and eligibility for financing from the trust fund would be determined based on the global environmental benefits that a project or program could be expected to realize.

Conclusion

This paper has discussed some alternative fund-raising strategies for financing global environmental protection measures in developing countries. It argues that funds could be raised more effectively and in a more transparent manner by introducing some small, personalized "green planet contribution." A very small tax rate levied at the individual level could raise resources far exceeding amounts currently made available through multilateral channels for global environmental protection. Building the fund-raising mechanism around the polluter- or consumer-pays principle, which is already widely accepted in domestic environmental policy circles, would increase transparency, build public awareness for global environmental objectives, and generally help advance the policy debate on global environmental issues and commitments relating to environmental conventions.

On the international level, discussions regarding some sort of global environment fee could help depoliticize negotiations on the distribution of costs for globally beneficial measures in developing countries. Technically, negotiations would focus on individual, per capita tax rates, rather than on collective national characteristics. Since contributions would be very small in per capita terms, they would not affect individuals' economic welfare, and strong and widespread opposition therefore appears unlikely. International environmental negotiations currently emphasize overall differences among countries, for example, in terms of greenhouse gas emissions, extent of forest cover and biodiversity, and economic indicators. The structure of the "game" encourages cost avoidance, rather then joint problem solving. Moving from a negotiating approach centered on nation states towards an approach that considers individualized contributions aimed at achieving a common goal may be less contentious and may eventually lead to more productive outcomes in terms of collectively responding to global environmental problems.

By the same token, it may be very effective to emphasize financial support for services that render global environmental benefits (carrots) as a pragmatic alternative to domestically controversial and largely inflexible policy commitments negotiated in relation to what other countries commit to (sticks). A more automatic fund-raising approach linked to small personal contributions by citizens in developed countries would be a promising way to secure predictable and increasing funds into the future for such "carrot" measures.

Reduced pressure on state budgets would constitute a political advantage for governments on the national level. The repeated political and institutional struggle to secure budget resources for global environmental measures could be avoided. Recent polling data suggests that public support for new market-based approaches to securing funds for global environmental protection measures in developing countries may be considerable.

But as attractive as new fund-raising mechanisms may look, powerful perceptions and institutional factors continue to work against their introduction. First is the belief that nation states should retain the exclu-

sive right to tax and to set contribution levels for multilateral cooperation efforts. In line with this thinking, it is often argued that governments will find adequate resources for measures deemed necessary, and that therefore the way such funds are raised is irrelevant. The present analysis has demonstrated that such perceptions do not adequately acknowledge structural characteristics and institutional and political constraints. Institutional structures generally constrain efforts to secure higher allocations for a budget item, such as the global environment, particularly if providing such funds is linked to increasing funds for development cooperation. Legislators are necessarily most concerned about safeguarding budgetary funds for domestic programs closest to the heart of their domestic constituencies. Environmental policy makers also must focus on domestic issues, such as building support for domestic CO_2/energy tax or pollution and conservation efforts, if they are to achieve some of their policy goals in the context of a crowded legislative agenda. Similarly, environmental NGOs have their own fund-raising priorities, and tend to focus their lobbying efforts on concrete, high-profile issues that help mobilize the public.

The political acceptability of new approaches to raising revenues for global environmental protection must ultimately be assessed in light of the relatively high levels of environmental awareness that characterizes the public in industrialized countries. Majorities in most industrialized countries support expanded efforts to address global environmental problems. This coincides with a general preference by parties on both ends of the political spectrum to reform the tax system by reducing the burden on capital and labor and by increasing taxes on consumption. In most OECD countries, reliance on value added taxes (VAT) has increased in recent years. Some alternative funding mechanisms for global environmental protection suggested here would be consistent with this general national trend.

An international tax, finally, should not be dismissed as a pie-in-the-sky idea. The world has changed significantly over the last decade. Countries have relinquished sweeping legislative and regulatory powers in return for greater economic and monetary integration. The Internet is providing the infrastructure for the emergence of a global knowledge culture that has far-reaching implications for global governance. The Cold War, which fundamentally determined foreign policy outlooks until 10 years ago, is over, and many countries have recently made the transition to democracy. In today's world, an internationally coordinated "green planet contribution" would be a reasonable instrument for addressing key international cooperation issues.

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Annex:
ODA Net Flows, 1990 – 1997 and Average Annual GEF Contributions
(in millions US$)

	1990	1992	1993	1994	1995	1996	1997	Average annual GEF contribution 1994-1997
Australia	955	1,011	954	1,091	1,194	1,074	1,061	7.3
Austria	394	531	544	655	767	557	527	5
Belgium	889	840	810	726	1,034	913	764	
Canada	2,470	2,515	2,400	2,250	2,067	1,795	2045	21.6
Denmark	1,171	1,392	1,340	1,446	1,623	1,772	1637	8.8
Finland	846	644	355	290	388	408	379	5.4
France	6,870	8,162	7,915	8,466	8,443	7,451	6307	35.7
Germany	6,320	6,963	6,954	6,818	7,524	7,601	5857	60
Ireland	57	70	81	109	153	179	187	
Italy	3,395	4,122	3,043	2,705	1,623	2,416	1266	28.6
Japan	9,054	11,119	11,259	13,239	14,489	9,439	9358	103.6
Luxembourg	25	38	50	60	66	82	95	
Netherlands	2,526	2,741	2,525	2,517	3,226	3,246	2947	17.9
New Zealand	95	97	98	110	123	122	154	1.4
Norway	1,205	1,226	1,014	1,137	1,244	1,311	1306	7.7
Portugal	148	302	248	308	271	218	250	1.4
Spain	965	1,518	1,304	1,305	1,348	1,251	1234	4.3
Sweden	2,002	2,452	1,769	1,819	1,704	1,999	1731	14.6
Switzerland	750	1,139	793	982	1,084	1,026	911	11.2
United Kingdom	2,630	3,153	2,920	3,197	3,157	3,199	3433	33.6
United States	10,194	10,815	10,123	9,927	7,367	9,377	6878	107.5
Total	**52,961**	**60,850**	**56,498**	**59,156**	**58,894**	**55,438**	**48,324**	