

# FINANCING GLOBAL PUBLIC GOODS: TRENDS AND CHALLENGES

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## Introduction

The world's agenda of international cooperation has changed in recent decades. The conventional concerns of foreign affairs, international trade and development assistance are increasingly sharing the political center stage with a new set of issues: global public goods. They concern transborder challenges such as: international financial stability and market efficiency; the risk of global climate change; biodiversity conservation; control of resurgent and new communicable diseases; food safety; cyber crime and e-commerce; or the control of drug trafficking, international terrorism and the proliferation of weapons of mass destruction.

However, it is not only that new and different issues are now occupying top places on national agendas, and hence, on the agendas of international negotiating fora. The policy approaches chosen to address these issues, including related financing arrangements, are also changing. For example, national public finance policies are, in growing measure, designed with global expectations and exigencies in mind, such as the various international norms and standards of sound fiscal policy. And at the same time, public finance tools (such as subsidy schemes), which have in the past been primarily used at the national level, are pulled more and more to the international level to support cross-border cooperation. In fact, recent years have witnessed a rapid proliferation and diversification of international financing mechanisms: the creation of global-issue funds, such as the Global Environment Facility (GEF) or the Global Fund to Fight Aids, Tuberculosis, and Malaria (GFATM); the emergence of new markets such as those for pollution or fishing permits; and new user fees, such as the surcharges levied by airlines, airport authorities and other agents to meet the costs of enhanced world-wide civil aviation safety.

Even today, however, international cooperation finance is, in the minds of many, still equated with "foreign aid", i.e. official development assistance (ODA). This signals that, so far, global-public-goods financing has, for the most part, happened in an ad hoc fashion, often in response to urgent challenges, such as the outbreak of a potentially global health epidemic or an international financial crisis. Yet global-public-goods

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financing is a reality, as well as a phenomenon of growing proportions. Therefore, it is important to analyze it so that it can be addressed explicitly--in an effective, efficient and equitable way.

This paper intends to contribute to a more systematic understanding of global public goods financing. Section I introduces the concepts of public goods and global public goods. Section II presents an overview of the different types of national and international-level financing arrangements that exist at present. Against this backdrop, section III then identifies the differences between global-public-goods financing and other cross-border financing arrangements. Finally, section IV explores various policy options of achieving a more systematic approach to global public goods financing.

The main policy messages emerging from the discussion are:

- The bulk of global public goods financing has to occur at the national level based on public finance policies that discourage negative cross-border spillovers and encourage positive ones.
- Adequate financing of global public goods, however, requires also an international component of the allocation branch of public finance.
- Improved international democracy—and political competition—is key to making the complementary international dimension of global public goods financing work.

## **I Introducing Public Goods and Global Public Goods**

Economic growth, development, and ultimately, people's wellbeing depend on two main types of goods: private goods and public goods.<sup>1</sup> As box 1 explains private goods are goods with excludable benefits. Therefore, individual actors can appropriate them and prevent others from enjoying the good. Public goods, by contrast, are in the public domain, available for all to consume or affecting all.

### **Box 1 close to here**

The benefits--and costs--of public goods can be different in reach. Some may just have a local span, e.g. a street sign. Others, such as judiciary systems, can be of national reach. And yet others may be of transnational--regional or global--scope. An example of a regional public good could be the control of river blindness, since this disease is endemic only in certain parts of Africa; and an example of a global public good would be the moonlight. Yet, whether local or global in reach, public goods matter to people primarily as components of their consumption basket, or put differently, as ingredients of their wellbeing. And just as people have varying preferences for private goods, their preferences for public goods, including global public goods, vary. For example, fostering

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<sup>1</sup> The term "good" is being used here to denote things (such as bread), services (such as the control of communicable diseases) or conditions (such as international financial stability). Thus, the term "good" is value-neutral.

international financial stability would have higher priority for those participating in capital markets than for those eking out an existence on one dollar a day.

This fact of varying preferences for public goods is particularly important when considering the fact that public goods are often not only public in consumption but also public in production, i.e. dependent on cooperative efforts. In fact, four different types of production paths can be distinguished:

- *Summation process*--All actors--countries, firms, households and individuals--would have to follow a certain behavior in order for a particular good, e.g. global climate stability, to emerge. Often, all actors have to make the same contribution, e.g. reduce greenhouse gas emissions.
- *Weak-link situation*--In this case, it would also be necessary for all to contribute to the good, with two differences from the previous case. First, each actor would have to make a location-specific contribution, e.g. each government would have to strengthen its national public health system. And, secondly, the overall availability of the good depends on the contribution of the weakest link or the weaker links. An example is the control of communicable diseases, such as SARS, which will succeed only to the extent that the “weak” actor undertakes requisite efforts.
- *Best-shot provision*--This production scenario exists where a public good, e.g. a new scientific insight, only needs to be produced once in order to exist and enter the global stock of scientific knowledge.
- *Common-facility approach*--Economic reasons, such as economies of scale and scope, or political considerations of legitimacy and neutrality, sometimes make it desirable for individual actors to create a common facility, such as the United Nations or infrastructure, such as a satellite system. The actual production or maintenance of the good is, in this, case often delegated to a particular handling agent, e.g. the United Nations Secretariat.

Thus, *when seen from the consumption side*, global public goods can be defined as public goods whose benefits and costs span across national borders and regions, and sometimes, even generations. And *when seen from the production side*, global public goods--with the exception of some rare best-shot goods--can be described as public goods that cannot be adequately produced through domestic policy action alone but require international cooperation, even if this cooperation only consists of national-level policy adjustments to discourage or encourage cross-border spillovers in response to outside pressures or international commitments into which the country might have entered.

Put more simply, global public goods tend to be composed of national public goods plus an element of international cooperation.

As the following discussion shows, both the consumption and the production characteristics of global public goods have important implications for their financing.

## **II Different Global Public Goods--Different Financing Purposes and Tools**

From the foregoing section, it is clear that the financing of global public goods may require action at the national as well as the international level. The objective would be to ensure through financial policy tools (e.g. taxes, subsidies and other fiscal measures), as well as nonfinancial instruments (such as regulation) that all concerned actors allocate appropriate resources to these goods. In other words, the financing of global public goods is seen here not just as a question of "paying for a good"; and it is certainly not seen just as a matter of allocating public revenue. Rather, the term "financing," as it is used here means ensuring a desired level of public and/or private spending on a particular good as a means of influencing its provision.

In some instances, achieving an appropriate allocation may perhaps entail increasing the level of both public and private spending on the good. And in other instances it may mean decreasing current resource allocations. In yet other cases, the most desirable policy option may be to increase (or decrease) the costs of certain actions so that actors, at a given expenditure level, consume or produce less (or more) of a particular good.

Clearly, given the differing nature of public goods (global and otherwise), notably the differences in their production paths, there exists no single, ideal formula for financing them. Financing arrangements have to be good-specific.

Nevertheless, when examining some of the financing measures for global public goods that exist at present, the following main sets of measures can be distinguished:

- 1. National-level financing arrangements to discourage negative cross-border spillovers and encouraging positive cross-border spillovers**

The measures within this category tend to serve two main purposes: 1) reducing negative cross-border spillovers and 2) promoting positive externalities. As such, they pertain primarily--but not exclusively--to global public goods whose production path follows a summation process. Yet some best-shot global public goods also figure in this category.

For example, a number of countries have--based on national policy choices or in response to international agreements--adopted a variety of policy instruments that contribute to preventing *negative externalities* from spilling across national borders and adversely affecting actors in other countries. Examples are national carbon or energy taxes. In addition, mention can also be made of improvements in human rights conditions that contribute to easing international flows of asylum seekers or of public investments in adequate banking supervision that may help prevent financial crises and potential international contagion effects.

In some instances, the primary reason for introducing these measures may not have been to contribute to the provision of a global public good. Rather, the primary concern may have been to improve the national public domain. Thus, as pointed out

before, national public goods are important ingredients of global public goods. Where national public goods are adequately provided, there is often no need for special corrective international-level interventions.

Similarly, national-level policy measures can foster the production of *positive cross-border spillovers*. For example, national support for scientific research may benefit researchers worldwide. Similarly, many technological innovations have, at least in the longer run, positive global spillover effects. The rapid progress that developing countries achieved in such areas as the reduction of infant mortality is no doubt attributable to medical and pharmaceutical advances in industrial countries, notably the diffusion of knowledge and information on the mechanisms of disease spreading. Likewise, the national defense forces of a country or group of countries can deter nations from attacking other nations. Yet while negative cross-border spillovers often receive considerable policy attention, positive spillovers are many times just quietly--and free of charge--enjoyed by the global public. But other times, the unilateral provision of a global public good, such as pharmaceutical knowledge, is not necessarily appreciated. It may entail technological dependence; and therefore, countries may prefer to create multiple production centers rather than to be dependent on best-shot providers, however benevolent their intentions may be.

Today, there is a shortage of data on national and international-level spending on global public goods. Yet, it seems that national level spending--expenditure on reducing negative spillovers or encouraging positive ones--constitutes the bulk of global public goods financing. Even when only considering public financing, the ratio of national-level financing to international-level financing, according to some estimates, ranges between 200:1 and 400:1. Of course, private financing also happens nationally. Moreover, as states are withdrawing from the direct provision of public goods, focusing their role on creating incentives for private actors and employing such methods as marketization (e.g. user fees for state-provided services), private spending is likely to be a growing part of the total spending on these goods.

## **2. Sharing the operating costs of common international-level facilities**

International venues for state and nonstate actors to come together and negotiate international cooperation issues, in a way, constitute core global public goods: without such facilities international cooperation and the provision of global public goods would suffer. It is perhaps also for this reason that the few firm binding financial commitments, on which the international community has so far agreed, concern primarily nation states' contributions to the regular budget of international organizations, such as the United Nations and the specialized agencies of the United Nations system. Contributions to the Bretton Woods institutions are also of an obligatory nature.

In most instances, the cost-sharing formula applied follows the ability to pay principle, sometimes modified by other criteria, such as the countries volume of civil aviation traffic, postal mail, or telecommunication.

### **3. Resourcing international-level financial intermediaries**

International-level financial intermediaries are created for several purposes. Some of the most important ones include the following:

#### **3.1 Supporting weak-link providers**

As noted, such support can be desirable where the provision of a global public good follows a summation process but providers sharply differ in terms of their ability to pay or in terms of their technical capacities. In such a situation, it may benefit all for the financially and/or technically stronger providers to assist the weakest link, or if there are several, the weaker providers.

For example, civil aviation safety calls for vigilance and proper screening processes at all airports. Yet some countries may simply be too poor to make necessary investments. So for other countries to enjoy a particular level of protection it would thus be necessary to extend support for this purpose to the poorer countries.

#### **3.2 Providing compensation to select countries or nonstate actors for the provision of global public services**

The incremental cost payments effected within the context of the GEF are a case in point. In this case, particular actors--mostly, but not necessarily countries--undertake efforts, e.g. aimed at carbon sequestration or biodiversity conservation, beyond those that they would make if they were solely guided by national self-interest. Since these efforts benefit the world as a whole, the GEF pays, in the form of incremental cost reimbursement, compensation to the providing actors.

#### **3.3 Offering pooled incentives to best-shot providers**

Where national incentives are sufficiently strong, governments may provide national incentives for actors to contribute to a particular global public good, e.g. the fight against a global communicable disease such as tuberculosis. Often, however, it would be more efficient for countries to join forces and to pool resources internationally in order to encourage a best-shot actor to provide the good. Such encouragement could, for example, take the form of purchase commitments: guarantees to buy a certain quantity of the good so as to allow the provider to recoup related research and development costs.

#### **3.4 Facilitating risk management and the financing of development**

In effect, these are the main purposes of some of the most powerful international financial intermediaries, such as the International Monetary Fund, the World Bank and

others. In addition, internationally agreed-upon insurance schemes such as those required for international oil shipments can be mentioned.

#### **4. Managing global scarcities**

An important group of global public goods are the natural commons that are nonexcludable, i.e. in the global public domain, but have rival consumption properties, and are, therefore, at risk of being overused and becoming depleted. Some of the aforementioned national measures, e.g. national carbon taxes, as well as some of the international-level financing arrangements, such as the incremental cost payments of the GEF, could help avert such risks. Yet additional measures to support such purposes include the assignment of new property rights, such as tradable fishing quotas or pollution permits. This makes the scarcity, which is “hidden” behind nonexcludability, visible and explicit.

These measures combine a "control and command" (CAC) approach with the advantages of markets by making the defined allowances tradable. They are preferable where the exploitation of a particular global common resource has reached a critical threshold.

#### **5. Levying user fees for the services of international organizations**

Organizations such as the World Intellectual Property Organization (WIPO) help in the provision of a global public good, viz. that of patent protection and global knowledge management. However, at the same time, the services of WIPO generate important private benefits for the patent holders, who are, therefore, also quite willing to pay a patent registration fee. The revenue generated from these fees constitutes a major part of WIPO's income.

For similar reasons it is possible for the International Treaty on Plant Genetic Resources for Food and Agriculture (which constitutes and regulates a sort of global gene pool) to charge the users of the gene pool and to use these charges to pay for the preservation and to the providers of the genetic resources, many of whom are farmers in developing countries.

#### **6. Levying user fees for global services provided nationally or privately**

The global systems of civil aviation or postal services would not be possible without all countries contributing--through state or private provision--components of harmonized national infrastructure. Given that, in these cases, individual actors such as airlines or private individuals find it convenient and in their interest to use these systems, a variety of user charges exist in these fields. For example, air travelers pay airport fees and thus, help finance airport facilities; and aircraft pay over-flying charges that help countries recoup some of their civil-aviation infrastructure costs. In the case of

international mail, the postage is not only paid for by the mail user but being shared based on intergovernmental agreements, between the sending and receiving country.

Table 1 presents the above list of financing arrangements for global public goods in summary form. It clearly shows that different goods and financing purposes call for different financing tools.

**Table 1 close to here**

### **III Differentiating between Global Public Good Financing and other International Cooperation Financing Modalities**

An intriguing aspect of international policy debates today is that the financing issue is often narrowed down to just one modality: direct money flows between governments; and in addition, it is often couched in terms of foreign aid. It would as yet be rare in international venues to find that the financing of global issues is being discussed in public finance terms, along the lines of section II above. And since in the minds of many the issue at stake is one of aid, the international cooperation part of global public goods financing today is often paid out of ODA resources. It has been estimated that at present some 30 percent of ODA resources flow into global purposes.

However, as table 2 shows, there exist important differences between the aid modality and the financing of global public goods. Most important is the difference between the rationale for each of the activities.

**Table 2 close to here**

The basic motivation for foreign aid--as set forth in many official policy statements--is to assist poorer countries in their development endeavors. Thus, aid is a financial transfer from richer to poorer countries. In a way, it constitutes the international component of the distribution branch of public finance. The national components of this branch would include such transfers as support for the unemployed or for vulnerable population groups. The motivation for the transfers is primarily equity; and equity has conventionally also been the stated motivating concern for development assistance.<sup>2</sup>

Global public goods financing, by contrast, can be viewed as the international component of the allocation branch of public finance. The primary motivation in this case is to enhance efficiency, i.e. to improve the provision level of a public good because this would make economic sense. The question, however, is: "Economic sense from whose

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<sup>2</sup> Of course, it is a well-known fact that some foreign aid has also been siphoned off for non-aid purposes, such as promoting the donor country's export products or fostering political alliances. This diversion of aid also continues today. However, since ODA is limited, amounting to between 0.2 to 0.3% of the donor countries' income, further diversions, such as those for global public good purposes, make themselves all the more felt.

perspective?" And the answer to this question today often is: "From the richer, industrial countries' perspective." The reason is that as noted in section I, preferences for public goods, including global public goods, vary--e.g. across income groups and regions. And the richer countries are the ones who have the financial means to back their policy preferences with money and to finance policy reforms in developing countries. Yet, judging from some of the current global policy controversies on such issues as climate stability, the multilateral trade regime or financial-architecture issues such as debt management, these reforms, at times, are not yet based on a firm global consensus.

Moreover, as also shown in table 2, global public goods financing has, at its focus, particular goods or issues. Countries come into the picture only to the extent that they can play a pivotal role in helping enhance the provision of a desired good. Using ODA resources to finance such global public goods as financial crisis prevention and management or climate stability may thus divert resources from poor countries and from poverty reduction. Or, if ODA funds are channeled to poor countries for these purposes, they may be inefficiently used, and may shift an undue burden of correcting global public "bads" to the poorer countries.<sup>3</sup>

However, the development of developing countries also requires certain priority global public goods, e.g. a system of global knowledge management that would complement current policies for intellectual property rights with measures to facilitate more pro-actively the application of knowledge to development. For global purposes that reflect developing country priorities, it would, of course, be appropriate to use ODA. However, it should preferably be a decision of the developing countries themselves to determine which type of knowledge production to encourage and at what price.

Where a global public good, let us say, international peace and security, would be of mutual interest to industrial and developing countries, one could perhaps use a 50:50 formula: meeting financing needs partly out of ODA and partly out of non-ODA resources.

#### **IV Towards a Systematic Approach to the Financing of Global Public Goods**

The financing of global public goods faces a number of important challenges. Yet given that it already exists, as a "hidden reality", the required change appears to be quite doable. It would primarily consist of approaching the issue of global public goods financing in a more explicit, as well as more coherent and integrated manner. Some of the reform steps that would lead to this direction include, for example:

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<sup>3</sup> ODA resources are also sometimes used for so-called offsetting arrangements: a donor country in this case provides financial support to a developing country for implementing for example, a project aimed at carbon sequestration. The purpose is to lower for the donor country the cost of achieving a certain pollution-reduction target. The financing of such schemes is neither foreign aid nor does it constitute the financing of global public goods. Rather, it would perhaps best be classified as an international trade activity.

- *Recognizing the dual agenda of international cooperation financing, viz. the “aid + global public goods” agenda*—to avoid the current confusion between the two modalities which appears to be detrimental to both.
- *Formulating a theory of global public goods financing*—to help refurbish the toolkit of policymakers with tested and reliable instruments;
- *Tapping new financing sources for global public good purposes*—to replace, as necessary, the current ODA resources. An obvious source for this purpose would be the budget of the concerned national government agency. Thus, environment ministries could, for example, support not only the national building blocks of “their” global public goods but also the international cooperation components that might be required.
- *Reducing information problems*--notably on such issues as whether taking action to reduce a global public “bad” is a good investment compared to financing the provision of private goods or other public goods. Without enhanced information on this point, many global public goods are likely to continue their fate of being addressed only when their underprovision has assumed crisis proportions. Table 3 presents such a preliminary assessment showing for select global public goods the costs of current underprovision and the costs of possible corrective action. The message is clear: corrective action—rather than inaction—appears in most instances to be the less costly option.
- *Improving participation in international negotiations*--in line with the nationally well-established principle of fiscal equivalence.<sup>4</sup> This may require enhanced participation by various national constituencies that may at present not feel fully represented by their country's international negotiating team. And it would require giving full voice to all governmental teams, notably those from developing countries. Lack of participation tends to translate into lack of policy ownership, and consequently, a decrease in the willingness to contribute and cooperate, financially or otherwise. Especially if supported by the foregoing measures, more participatory decision-making on global public goods issues could lead not only to more balanced agenda setting but also to the identification of more opportunities for designing the production path and the financing schemes so that all could be better off from cooperation.

### **Table 3 close to here**

Nationally, it often is the state that based on its special coercive powers, including its taxation authority, nudges or compels actors to bend together and help provide public goods. Yet the institution of the state lacks an international equivalent. Thus, international cooperation has to mostly happen voluntarily. And voluntary cooperation requires that the cooperative effort make sense for all. Hence, financing global public goods is not just a technocratic issue; it is also—and perhaps most importantly—a

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<sup>4</sup> This principle calls for matching the jurisdiction, i.e. the circle of those taking decisions on the provision of a public good, with the circle of stakeholders. This means that local public goods would be decided locally, national public goods nationally, and by implication, global public goods in venues where all concerned parts of the global public can be heard and fairly represented.

political one. But clarifying the technical aspects and making matters more transparent can help in revealing the distribution of net-benefits—and thus help with the politics.

### **Further Reading**

The interested reader might want to consult the following publications for a more in-depth treatment of the issues discussed in this paper:

Conceicao, Pedro. 2003. "Assessing the Provision Status of Global Public Goods." In: Kaul *et al.* 2003. *Providing Global Public Goods; Managing Globalization*. New York: Oxford University Press, p. 152-179.

Cornes, Richard, and Todd Sandler. 1996. *The Theory of Externalities, Public Goods and Club Goods*. Cambridge: Cambridge University Press.

Ferroni, Marco, and Ashoka Mody, eds. 2002. *International Public Goods: Incentives, Measurement, and Financing*. Dordrecht: Kluwer.

Kaul, Inge, Isabelle Grunberg, and Marc A. Stern, eds. 1999. *Global Public Goods; International Cooperation in the 21<sup>st</sup> Century*. New York: Oxford University Press.

Kaul, Inge, Pedro Conceicao, Katell Le Goulven, and Ronald U. Mendoza, eds. 2003. *Providing Global Public Goods; Managing Globalization*. New York: Oxford University Press. (See, in particular, the chapter by Kaul, Inge, and Katell Le Goulven entitled "Financing Global Public Goods", p. 329-370.)

Sandler, Todd. 1998. "Global and Regional Public Goods: A Prognosis for Collective Action." *Fiscal Studies* 19 (3): 221--47.

Sweden Ministry for Foreign Affairs. 2001. *Financing and Providing Global Public Goods: Expectations and Prospects*. Report prepared by Francisco Sagasti and Keith Bezanson on behalf of the Institute of Development Studies. Stockholm.

## Box 1

### Defining private goods and public goods

People's consumption basket is composed of two basic types of goods: private goods and public goods.

*Private goods* have excludable benefits, meaning that the owner of the good can restrict its use. Goods that display this characteristic can be exchanged and traded in markets. Often they are also viewed as things that individual actors ought to obtain on their own. Examples are basic food items (such as milk and bread), means of information (e.g. a radio) or shelter. Many private goods also tend to be rival in consumption, meaning that one person's consumption limits the availability of the good's benefits for others. In fact, such rivalness not only implies a certain excludability of benefits but also encourages seeking ownership protection.

*Public goods* are in the public domain, available for all to consume and or affecting all. Examples are the natural commons, such as the moonlight or the high seas. It would be virtually impossible, or at least, very difficult and costly in economic and political terms, to seek to prevent others from enjoying these goods. More or less the same, however, also applies to human-made public goods, such as a judiciary system. Public goods that have nonrival properties, such as scientific knowledge, especially lend themselves to being public in consumption, because one person's consumption of the good does not reduce its availability for others.

*Transnational—global or regional—public goods* are those goods whose benefits are public (as opposed to private) and cut across several countries (in the case of regional public goods) or countries in several regions as well as several generations (in the case of global public goods).

**Table 1**

**Purposes and tools for financing global public goods**

Purpose	Tools					
	National (dis)incentive measures	National incentive measures	Cost-sharing common internat. facilities	Resourcing joint internat. financial intermediaries	Assignment of property rights/ new markets	User fees for global services
To reduce negative cross-border spillovers	X					
To encourage positive spillovers		X				
To exploit economies of scale			X			
To pool incentives				X		
To manage global scarcity					X	
To build/maintain national components of global networks						X
To recoup costs of services provided by international organizations						X

Source: Kaul and Le Goulven (2003).

**Table 2**

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**Differences between aid and financing global public goods**

<b>Issue</b>	<b>Aid</b>	<b>Financing for gl obal public goods</b>
Rationale	Equity	Efficiency
Branch	Distribution	Allocation
Policy tool	Transfer of resources	Panoply of instruments
Policy focus	Country	Issue
Main net beneficiary	Developing countries	Potentially all countries and all generations

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Source: Kaul and Le Goulven (2003).

**Table 3****Annual costs of inaction and corrective actions for provision problems of selected global public goods***(billions of U.S. dollars)*

Type of costs	International financial stability	Multilateral trade regime	Reducing the excessive disease burden	Climate stability	Peace and security <sup>a</sup>
Inaction	50 <sup>b</sup>	260 <sup>c</sup>	1,138 <sup>d</sup>	780 <sup>e</sup>	358
Corrective actions	0.3 <sup>f</sup>	20 <sup>g</sup>	93 <sup>h</sup>	125 <sup>i</sup>	71

a. The costs for peace and security refer to just nine conflicts in the 1990s. These estimates are not annual costs—they are the costs incurred over the duration of the conflicts.

b. Includes only banking crises in developing and transition countries; excludes currency and twin crises.

c. Net benefits from removing distortions in goods markets of industrial and developing countries.

d. Refers only to Africa's excessive burden of communicable disease (relative to the burdens in Europe and North and South America) in 2000 in PPP exchange rates.

e. Indicates the midrange potential reduction in global GDP if the atmospheric concentration of carbon dioxide reaches twice the level of the pre-industrial era.

f. This is a partial estimate; it includes only technical assistance spending by the International Monetary Fund (IMF).

g. The estimated costs of corrective actions for the multilateral trade regime are not annual and involve mostly one-time costs associated with capacity building.

h. Estimated funding required by 2007 for the interventions proposed in CMH (2001), including commitments by both industrial and developing countries, to scale up existing interventions. Annual commitments would have to increase to \$119 billion by 2015. The interventions would significantly reduce the excessive disease burden in developing countries. There are no estimates of how long this level of commitment would have to be maintained.

i. Annual costs to industrial countries, over 10 years, of meeting Kyoto Protocol targets for carbon dioxide emissions. (Estimate assumes full emissions trading and a 0.1 percent annual loss in GDP from meeting the targets.)

Source: Conceicao (2003).