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## Financing the Response to Climate Change

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**Financing the Response to Climate Change**

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## EXECUTIVE SUMMARY

*This note outlines a scheme for mobilizing financing to help developing countries confront the challenges posed by climate change. The idea is to create a “Green Fund” with the capacity to raise resources on a scale commensurate with the Copenhagen Accord (\$100 billion a year by 2020).*

*By providing a unified resource mobilization framework, with up-front agreement on burden-sharing and the capacity to meet the financing needs identified at Copenhagen, the Green Fund could facilitate progress toward a binding global agreement on reducing greenhouse gas emissions and allow developing countries to begin scaling up their climate change responses without delay.*

*To achieve the necessary scale, the Green Fund would use an initial capital injection by developed countries in the form of reserve assets, which could include SDRs, to leverage resources from private and official investors by issuing low-cost “green bonds” in global capital markets. Contributors could agree to scale their equity stakes in proportion to their IMF quota shares, making these the “key” for burden sharing among the contributing countries.*

*Since much of the financing would need to be provided ultimately as grants or highly concessional loans, the fund would also need to mobilize subsidy resources from contributors. Governments would likely require new sources of fiscal revenue for this purpose, including from carbon taxes and expanded carbon-trading schemes, which may take time to put in place.*

*In the interim, the Green Fund could cover its subsidy needs from bond proceeds, interest income on its reserve asset capital base, and/or revenues from other innovative international tax schemes.*

*Resources mobilized by the Green Fund could be channeled through existing climate funds, or via newly created special-purpose disbursement facilities.*

*We are not proposing that the IMF itself would create, finance, or manage the Green Fund. The ideas set out in this note are being offered purely for consideration by the international community, and as a contribution to the broader public debate.*

## I. INTRODUCTION

At the 2009 United Nations Climate Change Conference in Copenhagen, there was broad agreement that an effective response to climate change will require new investments and other expenditures on a massive scale for decades to come. It was also agreed that developing countries will require substantial additional assistance to meet the challenges they face. The Copenhagen Accord included broad commitments on the scale of financial support that developed countries would provide, and a number of donors made specific pledges (at or before the conference) for the near term.

Welcome though these steps are, it is still far from clear how the needed resources will be mobilized—especially over the long term—in what form, and by whom (that is, how the burden will be shared among developed countries).

The traditional approach to raising new development finance—a succession of donor conferences and pledging sessions—has a checkered history. Concrete pledges tend to have short horizons, while delivery on longer-term commitments tends to fall well short of what was promised.

A number of commentators have suggested various multilateral schemes to help meet the financing needs associated with climate change, including proposals for the on-lending of developed countries' SDRs, and for the use of IMF gold holdings.<sup>2</sup> None of these proposals generates more than a fraction of the total financing that is called for, however. Nor do they address the critical question of how to mobilize new grant resources on a large scale, without which the financing will not be affordable for low-income countries.<sup>3</sup>

The risk is that, without a credible framework for delivering financing on the scale necessary, soon enough, and on the right terms, developing countries' responses to climate change will be either insufficient or delayed, thereby endangering sustainable growth and increasing ultimate costs, or financed in ways that are inconsistent with maintaining fiscal and broader macroeconomic stability.

The intention of this note is to offer an idea that we hope can make a contribution to the global debate. This is an opportune time to put new ideas on the table, as the recently formed United Nations High Level Advisory Group on Climate Change Financing is about to begin its work. Whether, and how, to take such ideas forward will of course be a matter for the international community to decide.

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<sup>2</sup> For example: Soros, 2009; European Climate Foundation, 2009.

<sup>3</sup> Proposals that involve use of the IMF's gold holdings also suffer from the drawback that they would decapitalize the IMF, precisely at a time when the international community is looking to strengthen the institution's financial capacity.

## II. COORDINATING AND COMMITTING RESOURCE TRANSFERS TO DEVELOPING COUNTRIES

In the medium term, new and expanded carbon taxation and carbon-trading schemes have a central role to play in addressing climate change.<sup>4</sup> These instruments will help directly to reduce the emission of greenhouse gases. In addition, they have the potential to trigger large-scale cross-border flows of private financing for developing countries, and to provide substantial new sources of revenue for governments in developed countries that can be used, in part, to finance climate-related expenditures.

However, the prospects for scaling up carbon taxation and carbon-trading mechanisms are uncertain, and implementation could take several years. The political obstacles to appropriating new aid funds in the current fiscal environment—even if additional revenues are available to cover them—are considerable, and may take time to overcome. By contrast, measures to address climate change, and hence credible long-term financing commitments, are needed now.

Reaching early agreement on an operational financing framework requires settlement of this coordination and commitment problem. In addition, developed countries face a burden-sharing problem, that is, *among* the contributor countries, how should the cost of the resource transfers involved (i.e., the subsidy element) be distributed?

In the remainder of this note, we outline a scheme—a “Green Fund”—that could help address, though not entirely resolve, both these problems. It could provide a vehicle to mobilize new financing quickly and in a way that, once it is established, coordinates and commits individual countries’ long-term participation. Furthermore, while negotiation would still be needed to determine which countries contribute and which benefit, the scheme would provide a possible “key” for burden-sharing among the contributors. While we assume here that contributors would be developed countries, in practice the list could evolve over time, and could extend beyond developed countries.

We are *not* proposing that the IMF itself either create, finance or manage the Green Fund. Nor would we argue that, to be effective, the scheme would have to be exactly as we describe it—many variants are possible, and indeed various adaptations may well be required in practice in order to meet the needs of all the contributing countries. The description is also highly stylized—many technical details would need to be further developed.

## III. SCALE OF THE FINANCING NEEDS

The Copenhagen Accord envisages annual financing for developing countries (from both official and private sources) rising to around \$100 billion per year by 2020, in support of strong policy actions by developing countries to mitigate and adapt to climate change.

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<sup>4</sup> See, for example, World Bank (2010); IMF (2008).

In what follows, we take the \$100 billion-a-year figure as indicative of the scale of new financing that the Green Fund would need to mobilize when it is at full capacity. In practice, contributing countries may choose to channel at least some of their support directly through bilateral programs or multilateral agencies. To the extent that such support is truly additional to existing aid flows, and there are strong assurances that it will be delivered, the scale of the Green Fund could be correspondingly smaller.

It was accepted at Copenhagen that financing flows would build up progressively to the 2020 target level. In this spirit, we assume that new financing flows of around \$17 billion a year might be called for during the Green Fund’s “start up phase” (2011–13), increasing quickly thereafter.<sup>5</sup>

For illustrative purposes, we assume that the ultimate uses of the Green Fund’s resources would be split evenly between spending on adaptation (i.e., coping with the effects of climate change) and mitigation (i.e., reducing emissions or increasing carbon capture, including through combating deforestation). Resources for adaptation would go primarily to low-income countries and, since they may not generate returns to service additional debt, would likely be disbursed almost entirely as grants. Resources for mitigation, by contrast, can be expected to yield some positive return, and hence the related financing could take the form of loans. The terms on which such financing would be provided would need to be highly concessional for low-income countries, however, to ensure long-term debt sustainability.

Assuming that all adaptation financing is in grant form, and that mitigation financing is a mix of concessional and nonconcessional loans, we estimate that for every dollar of overall financing provided, about 60 cents in subsidies would be needed.<sup>6</sup> Accordingly, required subsidy resources could be on the order of \$10 billion a year during 2011–13, rising to \$60 billion a year by 2020.

#### IV. DESIGN OF THE GREEN FUND

The objectives of the Green Fund would be:

- to create a coordinating, commitment, and burden-sharing mechanism for developed countries to contribute to financing developing countries’ climate change needs;
- to mobilize resources on a large scale, commensurate with the Copenhagen Accord, by using official funds to leverage private financing; and

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<sup>5</sup> The Copenhagen Accord committed total financing “approaching” \$30 billion by 2012, and we assume a further \$20 billion would be provided in 2013 (consistent with an illustrative rising path toward the 2020 target).

<sup>6</sup> Low-income countries are assumed to receive 40 percent of all mitigation-related loans, with an average grant element of 50 percent.

- to begin channeling loans and grants to developing countries from day one, while long-term revenue sources are being developed.

The concept of the Green Fund described here is focused purely on resource mobilization. How the resources would be disbursed to developing countries is a separate and important issue which we do not address: they could be channeled through existing climate funds or through some newly created entity. This could include special climate funds managed by multilateral development banks or, as envisaged in the Copenhagen Accord, the Copenhagen Green Climate Fund. Whatever disbursement modalities are chosen, an appropriate governance structure and careful resource management by the climate funds would be essential to preserve the financial soundness of the Green Fund.

### *Capitalization*

In order to tap private funds via the global capital markets (see below), the Green Fund would need to provide credible security to its creditors. One way to achieve this would be for developed countries to capitalize the fund through an injection of reserve assets, in exchange for which contributors would receive equity stakes in the fund.

While, in principle, any form of reserve asset could be used for this purpose, one option would be for contributors to use the new SDRs allocated to them in 2009. (Developed countries received a total of \$176 billion in new SDRs as a result of these allocations.<sup>7</sup>) If this option were pursued, contributors could agree to scale their equity stakes in the Green Fund in proportion to their IMF quota shares, reflecting the fact that this was the basis for allocating the new SDRs. IMF quota shares could thus become the “key” for burden-sharing among the contributing (i.e., developed) countries.

Many contributors may find it easier to participate in this scheme if their Green Fund equity stakes could be structured to have the character of reserve assets, so that the transaction is purely an exchange of reserve assets. Such a transaction would not typically have an upfront budgetary cost for the contributors. Since the equity in the Green Fund must be liquid and unencumbered to qualify as reserves, this would require an arrangement among contributors that would allow a Green Fund shareholder encountering liquidity needs to encash its equity stake in the fund.

In countries where, under domestic institutional arrangements, the central bank rather than the treasury is the holder of SDRs, there may be a need to structure the Green Fund investment in such a way that the central bank’s independence and focus on its core mandate are preserved. This could be achieved, for example, through a purchase of the central bank’s SDR holdings by the government, which would then contribute such SDRs against shares in

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<sup>7</sup> The group of “developed countries” was not defined explicitly in the Copenhagen Accord. In this paper, we use the IMF *World Economic Outlook* grouping of “advanced economies” as a proxy. For a description of how SDRs work, see <http://www.imf.org/external/np/exr/facts/sdr.htm>.



the Green Fund (as would be the case in countries where the treasury itself is the holder of SDRs).

*Operations and the size of the fund*

Once its capital base is established, the fund could begin issuing highly-rated (and hence, low-cost) “green bonds” that could be sold to private investors as well as official holders—including, for instance, sovereign wealth funds. As a result, the Green Fund would be able to mobilize a multiple of its paid-in capital. This is a key difference between the Green Fund and other proposals for SDR-based schemes. The latter typically envisage using the SDRs directly for on-lending to developing countries, rather than as capital to leverage investor funds, which means that the amount of financing they can provide is more limited.

In the steady state, the Green Fund would combine the proceeds from bond issuance with subsidy resources that would be provided through budgetary transfers from contributing countries. The fund would use these combined resources to provide grants for adaptation and loans for mitigation to developing countries, via specialized climate funds (as noted above).

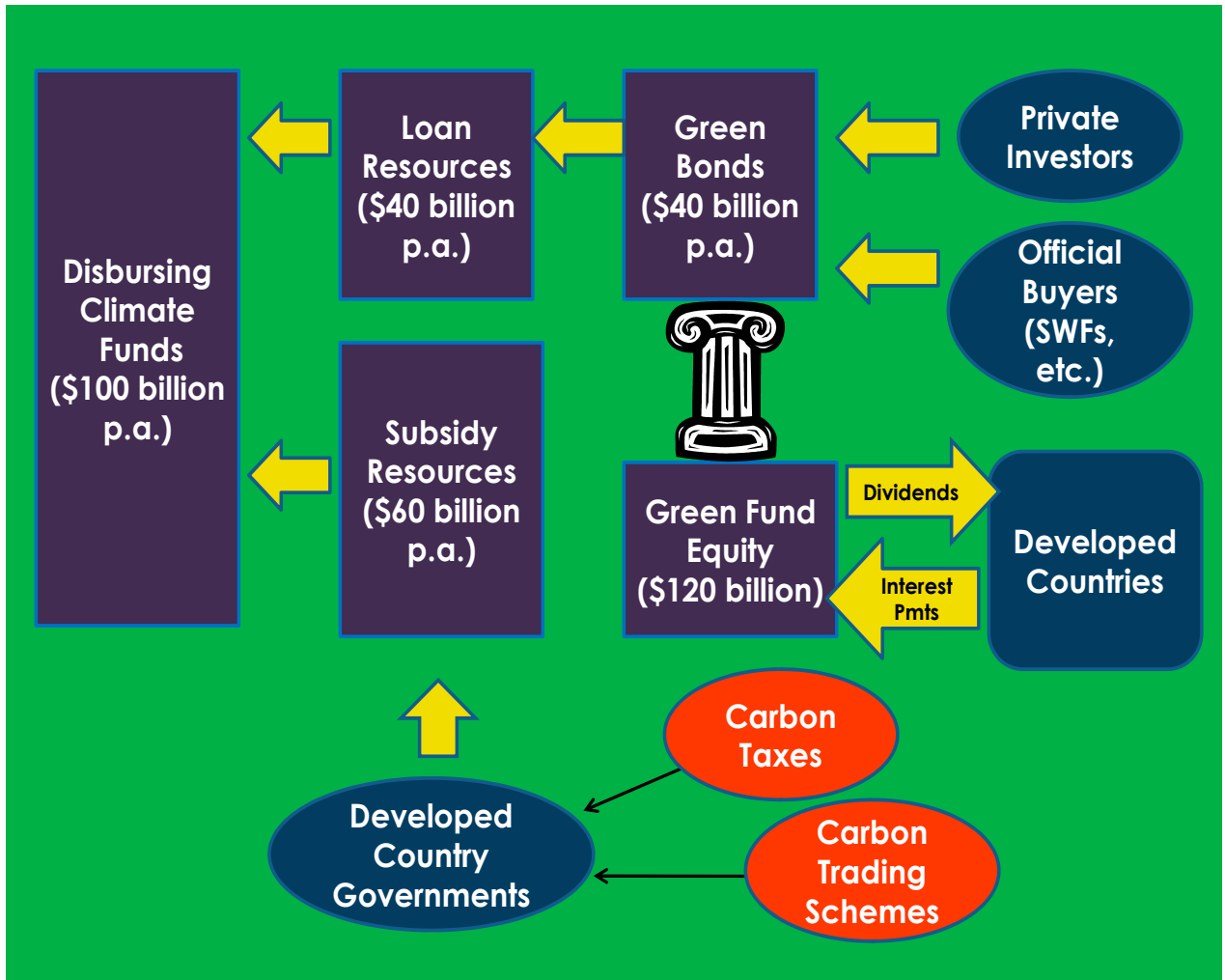
To generate financing on the scale envisaged in the Copenhagen Accord (and given the phase-in assumptions outlined above), the fund would need to issue about \$1 trillion in bonds over 30 years of operation. The fund’s equity endowment would need to be commensurate with this, to assure green bond holders that their claims are secure. While further technical work would be required to determine the minimum capital needs for this purpose, our rough calculations suggest that an equity endowment of around \$100 billion could be sufficient.<sup>8</sup>

To ensure that equity in the fund is not eroded in the event of default by borrowers from the Green Fund, this buffer could be supplemented over time through income generated by a small lending rate surcharge on borrowers from the fund and (if needed) additional budgetary transfers from contributing countries. It would also likely be necessary to add a margin up front to allow for potential encashment needs by contributors, so that their equity stakes are liquid and can count as reserve assets. We assume that this might imply raising the initial endowment by about 20 percent, to \$120 billion.

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<sup>8</sup> This assumes that default rates are normally distributed around a mean rate of 5 percent, with a standard deviation of 1.5 percentage points. On these assumptions, the probability that a capital base of \$100 billion would be sufficient to cover prospective losses would be 99.9 percent.

**Figure 1. Green Fund Resource Flows in the Steady State**



*Financing subsidies during the start-up phase*

A key attribute of the Green Fund would be its ability to begin mobilizing resources quickly, providing a bridge to longer-term sources of funds. In the near future—notwithstanding the welcome pledges made at or before Copenhagen—it is likely that at least some contributing countries might find it difficult to make budgetary transfers to provide the necessary subsidy resources, for the reasons we have outlined. How might the Green Fund fill the gap? There are several possible options.

One option would be for the fund to run “deficits” during the start-up phase, financed by additional green bond issuance. The fund would, in effect, be borrowing against future budgetary transfers from its shareholders. A downside risk from deficit financing is that it might call into question the fund’s long-term financial soundness (it would raise the fund’s debt-equity ratio) and could increase its cost of borrowing from the market. This risk would

be mitigated, however, to the extent that the green bonds are perceived as implicitly underwritten by the developed country governments, in addition to the security provided by the fund's capital base.<sup>9</sup> In any event, if the deficit financing option were pursued, it would be essential for the contributing nations to make a strong political commitment that budget transfers will indeed come on stream at the end of the start-up phase.

A second option would be for the Green Fund to use the interest earned on its capital base (i.e., the reserve assets it would receive from the contributors, which could include SDR holdings).<sup>10</sup> In the steady state, when the Green Fund is receiving budgetary transfers to cover all its subsidy needs, we assume that the fund would return its interest income to shareholders as dividends on their equity. During the start-up phase, however, shareholders could agree to forego their dividends, and thereby provide a temporary source of net income for the Green Fund, which could help cover the fund's subsidy needs. While some countries may find this a convenient way to contribute to the fund's costs, ultimately there would be a budgetary impact—there is no “free lunch.” Moreover, given the size of the expected equity endowment, this avenue could cover only about one fifth of the subsidy resources needed during the start-up phase. Assuming an equity endowment of \$120 billion and an average interest rate of 2 percent over 2011–13, interest income would be a little over \$2 billion per year during the start-up phase.<sup>11</sup>

A third option would be for the international community—drawing on the work of the newly formed United Nations High-Level Advisory Panel on Climate Change Financing—to seek early agreement on one of the more straightforward carbon pricing proposals currently under debate, and to dedicate at least a portion of the proceeds to the Green Fund. Ideas for global taxes on aviation and shipping, for instance, are being actively debated, and estimates of their potential yield start at around \$10 billion a year.

In practice, a combination of these options could be used, as needed to ensure that the fund is able to meet its financing targets during the start-up phase.

## V. POSSIBLE CRITIQUES

The Green Fund concept, as we have outlined it, is subject to a number of possible criticisms. Here we highlight and comment on just a few:

- *The scheme is too centralized: why should contributors not provide support through whatever channels they find most convenient?* As we have acknowledged,

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<sup>9</sup> If necessary, the bonds could come with a formal guarantee from participating governments. In this context, it is important to put the size of the potential Green Fund borrowing in perspective. Even if the fund's entire subsidy needs were covered by borrowing during the start-up phase, the total Green Fund borrowing would amount to only 0.04 percent of the contributing countries' combined GDP per year.

<sup>10</sup> In the case where contributors provide SDRs to the fund, they would incur interest charges on their debit position in the IMF's SDR Department. The SDR Department would, in turn, pay interest to the Green Fund. If assets other than SDRs were used, the cost to contributors would be the foregone earnings on those assets.

<sup>11</sup> The interest rate assumption broadly reflects current projections of the SDR interest rate over this period.

contributing countries may well want to provide at least some financing through bilateral programs or existing multilateral agencies even if a mechanism like the Green Fund were created. There would be no reason to discourage such support. However, the Green Fund would have several advantages over a wholly disaggregated approach. The creation of the fund and its capitalization by shareholders would, in itself, create a degree of precommitment that is vital if developing countries are to embark on long-term climate-related programs. It would also force an early resolution of the burden-sharing issue, which would otherwise be a continuing impediment to resource mobilization. And its capacity to tap private funds directly and in a coordinated way (through green bond issuance) delivers “more bang for the public sector buck” and could speed up the delivery of support to developing countries.

- *The scale is too ambitious: \$100 billion a year is close to total current aid (ODA) flows from developed countries.* The amounts of new financing are indeed large. But these were committed at the Copenhagen Conference, and some expert estimates of total financing needs associated with climate change range even higher.<sup>12</sup> Also, the costs of falling short of the financing needs and failing to adequately address climate change are likely to be substantial.<sup>13</sup> As regards the size of the Green Fund capital base, if it were set at \$120 billion, this would represent only around 4 percent of developed countries’ total international reserves (excluding gold).
- *It is not appropriate to use SDRs or other reserve assets for “development.”* Unlike some other schemes that have been suggested, the Green Fund would not on-lend the reserve assets provided by contributors. These assets would, instead, sit in the balance sheet of the fund, as capital.<sup>14</sup> Nor would the scheme deplete the reserve holdings of contributing countries if, as we suggest, the equity stakes in the Green Fund can be structured as reserve assets. It is true that the reserves would, in principle, be put at risk in the event of borrower default, or if needed subsidy resources are ultimately not secured. However, contributing country governments could (and arguably should) stand ready to absorb any residual losses incurred by the fund through their budgets, in which case any reserve losses would ultimately be reconstituted.

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<sup>12</sup> See, for instance, World Bank (2010).

<sup>13</sup> Stern (2006) finds that ignoring climate change “could create risks of major disruption to economic and social activity [...] on a scale similar to those associated with the great wars and the economic depression of the first half of the 20<sup>th</sup> century.”

<sup>14</sup> Consequently, if SDRs were used for this purpose, there would be no need for them to be converted into useable currencies, as would be the case if they were on-lent. Only the SDR interest flows might need to be converted, to the extent that these are not returned to contributors as dividends.

- *Green bonds could crowd out sovereign issues:* There is little risk that bonds issued by the Green Fund could crowd out, or significantly increase the cost of, bonds issued by national governments. On the assumptions we have outlined, bond issuance by the Green Fund would remain below 2 percent of total projected bond issuance by G20 governments over the life of the fund.
- *Accumulating “deficits” during the start-up phase could undermine the fund’s financial soundness and increase its borrowing costs.* This is unlikely. The start-up phase is short (three years), and the volume of bonds issued for deficit financing would be limited, reflecting the limited size of Green Fund operations in the early years. In contrast, the size of Green Fund equity is determined in relation to provisioning needs over 30 years of operations. Thus, equity would comfortably exceed cumulative bond issuance during the start up phase even if there were no budgetary transfers to the fund during this period at all. Subsequently, developed countries would have several years to replenish the fund’s equity.
- *The scheme is not transparent: it creates contingent “off balance sheet” liabilities for contributing governments.* There is no reason why the liabilities created by the Green Fund should be nontransparent. On the contrary, it would be important to ensure a full accounting of the funds’ assets and liabilities, as required of other international financial institutions, as well as clear governance and ownership structures, and appropriate safeguards for the use of its resources.

## VI. CONCLUSION

Launching a scheme along the lines described here would require a major political effort upfront by all participating countries. The potential payoff, however, is enormous. Once created, the Green Fund could provide a unified resource mobilization framework capable of meeting the financing needs identified at Copenhagen for decades to come. This seems far preferable to the alternative—a succession of difficult international negotiations every few years, with uncertain outcomes. The creation of a Green Fund could also help move the world closer to a binding global agreement on reducing greenhouse gas emissions. Finally, the scheme could allow developing countries to begin scaling up their adaptation and mitigation efforts sooner (perhaps years sooner) than might otherwise be possible, to the benefit of the entire world.

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