

**G20 Climate Finance Experts Group:**

**Providing Public Revenue to Address Global Climate Change**

**1. Introduction and background**

MEF Leaders, at their July meeting in L'Aquila, Italy, recognized the scientific view that the increase in global average temperature above pre-industrial levels ought not to exceed 2 degrees Celsius. Thus, financial resources for mitigation and adaptation will need to be scaled up urgently and substantially and should involve mobilizing resources to support developing countries. Moreover, Leaders agreed on a number of elements regarding the financial aspects of future international cooperation on climate change. They agreed broadly that, "Financing to address climate change will derive from multiple sources, including both public and private funds and carbon markets." They also called on G-20 finance ministers to further these efforts by taking-up climate finance issues and reporting back to them at the G-20 Pittsburgh Summit this fall.

This paper seeks to move forward the discussion on issues relating specifically to the raising of public finance. It is thus focused on one aspect of the discussion of climate finance, which is itself embedded in larger questions of achieving global action to address climate change. Adaptation support, particularly for the poorest and most vulnerable, will depend on the effectiveness of global action, with more mitigation action leading to less need for adaptation. Yet, enhanced mitigation action is likely to necessitate greater levels of finance, whether from domestic, international, public, or private sources. For countries contributing funds through carbon market finance as well as other sources, the ambition of that contributing country's emissions target, its balance between domestic emission reduction efforts and offsets through international carbon markets, and its decisions concerning public international support, are likely all inter-related.

Despite these linkages, it is valuable for finance experts to use their expertise to examine key questions surrounding climate finance separately from mitigation and adaptation issues (and, where appropriate, noting important linkages). In order to advance the discussion of issues relating specifically to the raising of public finance, this paper poses four focused questions:

- What is the required scale of international public financing to address climate change?
- How should public sector contributions be structured?
- What are potential sources of public sector funding within contributing countries?
- How should climate finance be "counted?"

The remainder of the paper is organized into four sections, corresponding to the topics identified above. Each section discusses the posed question, presents options for addressing it, and where possible, recommends solutions or taskings that could be discussed by the Finance Ministers at the September ministerial and, in turn, reported to leaders in Pittsburgh.

## **2. Assessing the range of needs to address global climate change**

This section assesses the state of knowledge regarding projections of future needs for international public support for mitigation and adaptation activities in developing countries, and discusses the analytical frameworks used to construct these projections. Many observers have referred to a major financing “gap” between projected needs and current sources of funding. Estimating the need for international public climate finance, however, is complicated by the underlying assumptions necessary to construct estimates, varying definitions of cost, and questions about the role of international public finance alongside other sources.

At the root of any climate financing assessment are assumptions about both baseline and policy trajectories. For mitigation, this includes a description of baseline economic growth, technology development and costs, and the targeted environmental outcome (e.g., 50% reductions in global greenhouse gas emissions by 2050). The clear need for developing countries to continue their economic development while mitigating has implications for even this initial step. Meanwhile, alternative assumptions about any of these three features can dramatically affect mitigation cost estimates. Adaptation estimates require further assumptions concerning the incremental impact of human-induced climate change versus baseline trends, requiring linked economic and earth systems models. The required adaptation to these impacts and their costs must then be estimated.

Even with these assumptions, there are several distinct (and to some extent nested) definitions of costs that may be presented. The broadest definition for mitigation is based on total climate-related investments; for example, the entire capital and O&M cost of a new wind farm. A narrower definition is the additional upfront capital cost of a low-carbon alternative over a more carbon-intensive base technology, such as a new wind farm compared to a coal-fired power plant. The additional cost of the wind farm over the coal plant on a levelized net present value (NPV) basis reflects a yet narrower definition of need. Estimates of upfront capital investment are typically significantly higher than NPV costs because low-carbon alternatives often have much higher capital costs but lower O&M costs.

For adaptation, cost estimates may include addressing both market and non-market impacts, and both public and private sector expenditures in knowledge, planning, and preparation; disaster management; and climate resilient development. Despite the

clear impacts of climate change, the adaptive response is sometimes difficult to distinguish from ordinary development, as investments in health, education, water and sanitation infrastructure may both constitute good development and reduce vulnerability to climatic stress factors. Thus, the concept of incremental cost can be more difficult to operationalize for adaptation than for mitigation, although the World Bank has made estimates of the additional cost of “climate-proofing” its own development projects.

Cost estimates based on any of these definitions might be further adjusted to take account of country-specific market and policy conditions. For example, many developing countries face less efficient capital markets, with higher discount rates and transactions costs. Similarly, cost estimates could be inflated due to an assumption that existing policy or market distortions in some countries will remain in place; if they are instead eliminated, that could significantly reduce financing needs. In particular, fossil energy subsidies in developing countries, estimated by the IEA to be \$300 billion in 2007, create additional financial hurdles for clean energy alternatives. Country-specific conditions also affect the cost of implementing REDD actions due to locally varying opportunity costs associated with maintaining the existing forest cover.

With a cost estimate in hand, it is still unclear what combination of domestic sources, international public sources, and international private investment (carbon markets) will be used to cover these costs. As noted above, domestic sources driven by national actions are limited by the relative need for developing countries to prioritize growth. International carbon market finance could be expected to provide the bulk of mitigation finance as participation in carbon markets grows over time. The primary role of international public finance for mitigation would then be to complement carbon market finance in stimulating low carbon investment. For adaptation, while there will be a role for the private sector, the bulk of international finance is likely to come from the public sector. Importantly, none of these flows diminishes the need for continued international public finance to address core development goals.

Finally, the appropriate amount of international finance also depends on how efficiently it is allocated both among and within recipient countries. The rate at which public funding can be scaled up as a practical matter is limited by the absorptive capacity of the recipient country, the efficacy of delivery channels, and potential constraints in contributing countries. Raising money does not by itself reduce emissions or create climate resiliency, which also requires a coherent plan -- for example, built around NAPAs and NAMAs -- backed by strong national governance and country ownership

In summary, the existing analyses of projected finance costs provide only rough and unsatisfying guidance to policy makers looking to determine levels of international public support. The analyses apply different models and definitions of costs, use different assumptions regarding economic growth and other factors affecting baseline emissions trajectories, and cover overlapping but different sectors and time frames.

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The World Bank's draft 2009 World Development Report (WDR) cites estimates from four sources (UNFCCC, IIASA, IEA, and McKinsey) of overall projected mitigation finance needs covering a factor of three range in the hundreds of billions of dollars per year by 2030. The WDR also cites an order of magnitude range in the tens of billions of dollars per year for adaptation finance needs from six sources (World Bank, Stern Review, UNDP, Oxfam, UNFCCC, and Project Catalyst).

Despite the limitations of current analyses, some broad insights can be drawn from these assessments that could provide a useful foundation for future analytical work that might eventually lead to convergence of cost estimates. The WDR's estimates of mitigation and adaptation needs highlight these lessons.

- First, there is strong agreement that needs increase over time. Studies that look at mitigation finance needs in both the near term (e.g. 2015) and further out (frequently in 2030) typically estimate that long-term needs are between 2 and 10 times higher. Meanwhile, although estimates of adaptation needs are typically subject to even more uncertainty than mitigation estimates, studies generally agree that adaptation finance needs will likely be larger in two decades as the impacts from climate change become more pronounced.
- Second, studies agree that mitigation needs increase as the ambition of global goals increase and conversely adaptation needs increase if targets are looser, with quantitative importance for costs. For example, the IEA estimates that the incremental capital investment needed globally to stabilize atmospheric concentrations of carbon dioxide at 450 ppm is roughly 2.5 times higher than that needed to stabilize at 550 ppm CO<sub>2</sub> (though the latter creates a much higher chance of exceeding 2 degrees Celsius). Finally, despite the wide range of existing estimates, all studies agree that current international financing mechanisms are of inadequate size compared to the requirements to combat climate change. For example, the WDR estimates that total current climate finance – including both public finance and revenues through the CDM – are less than \$10 billion a year, which is well below all of the cited estimates.

### Recommendation

First, we recommend that financial flows increase significantly in the near term beyond existing levels, with an expectation of continued and substantial growth in the future. This near-term effort could effectively target (1) planning, (2) upfront capacity building (i.e. to prepare and update low carbon growth plans), (3) catalyzing commercially viable private sector activity, (4) pilot efforts to understand the pace at which resources can be absorbed, and (5) financing of urgent adaptation needs, particularly in the most vulnerable regions. We recognize that some countries have already begun significantly increasing their near-term climate financing.

Second, given the considerable variability in definitions, methodologies, and ultimate results among existing cost estimates, we believe that more analysis is needed to tease these estimates apart before Ministers or Deputies can usefully discuss this issue. However, given the importance of such estimates to inform the financing component of an overall Copenhagen agreement, we recommend that further analyses of available estimates be undertaken and that the results be provided to Finance Ministers for their consideration at the November ministerial.

### **3. Committing to public sector contributions**

This section addresses who should contribute public sector funds as well as the form and process of making a commitment to contribute. Regardless of the sources from which each contributing country chooses to generate its public funding, countries will likely seek to make multilateral decisions on a regular basis about the levels of their contributions. This decision process may vary among different public finance vehicles. For example, one particular process could be applied to multilateral public finance vehicles, but may or may not be applied to bilateral support. However, each process must answer these questions. Sometimes the issues are for individual donor countries to resolve, while other times the issues are to be resolved multilaterally.

#### **Who Should Contribute?**

Within a system of international financial commitments, the list of participants themselves is a key variable. The primary options are:

- Only developed countries contribute. While this has been the dominant model in the past (although some developing countries have contributed to the GEF), among other things, it ignores the dynamic nature of development and the common feature of the climate change challenge.
- All countries except the least developed countries (LDCs) contribute, but developing countries remain net recipients. By engaging all but the least developed countries, this creates global ownership in the process and further incentives for mitigation. This approach provides for a completely dynamic allocation and smoother transition from recipient to donor (as all recipients except LDCs will necessarily be donors as well). This option has been proposed by Mexico as part of its Green Fund.

#### **Forms and process of making a commitment**

Countries have pursued several models to date as forms of commitment in other venues:

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- In the capitalization model, contributing countries make collective pledges of capital on an intermittent basis. This approach is used for the non-concessional windows of the World Bank and regional development banks as well as the IMF.
- In the replenishment model, contributing countries make pledges on a regular periodic basis through formal multilateral negotiations. This approach is used for the concessional window of the World Bank (IDA) and the GEF.
- In the formula model, participating countries make periodic decisions about an overall global contribution, and then a dynamic or static formula is used to determine each country's share of the total. This approach is used for UN funding and has been proposed by Mexico in its Green Fund, through a formula based on income, population, and emissions.
- A variant of the formula model would continue to use a formula for all countries, but this would only be a starting point for multilateral negotiations rather than a direct assessment.
- A hybrid system has been created for funding UNEP that provides an indicative scale (i.e., notional, not required) and leaves it up to each country as to whether to: 1) use the scale, 2) contribute based on its historic contribution, or 3) contribute based on any other criteria it chooses. These three options are considered equally valid choices. To promote predictability, a country needs to report before that year(s) which basis it will use.

Whether following a formulaic, hybrid, or pledging approach, the issues of credibility, comparability and equity will need to be addressed. Contributing countries will need to agree that relative contributions are fair within an acceptable margin and to have sufficient confidence that pledges will be fulfilled. While these options might be applied to just one fund (such as the Green Fund), to a basket of funds, or to a country's entire portfolio of public finance, they would be easier to apply to discrete financial mechanisms.

### Recommendation

Based on a preference for participation by all but LDCs, the above ideas could be collapsed into the following three options:

- Option 1: Regular pledges are made by all but the LDCs in the context of periodic, multilateral negotiations, on whatever basis they choose.
- Option 2: All countries except LDCs are given the option of making a periodic commitment using indicator-based guidelines that include such factors as GDP, population, and emissions; however, they can instead choose to make a pledge based on their own criteria. This hybrid option is similar to the current UNEP funding system.

- Option 3: Contributions are assessed on all countries but LDCs based on a transparent formula using specific criteria, such as ability to pay, GDP, population, and/or emission levels, and driven by the notion of common responsibility but differentiated capacity. There would be a periodic negotiation of an overall global budget.

For all options, countries could always contribute more than their initial commitment without affecting other countries' obligation.

Given their expertise with multilateral funding and international financial institutions, the G20 Finance Ministers are well-suited to examine this issue in more detail. The experts group, along with Deputies and Ministers, should evaluate the practical advantages and disadvantages of different forms of commitment in order to narrow the choices in advance of Pittsburgh.

#### **4. Sources of public sector funding**

This section evaluates potential sources (e.g., annual national budget appropriations or other means) that a contributing country might tap to fund its public contributions. The potential sources can be compared according to their acceptability from a contributing and recipient country perspectives including control over the use of funds, scale of resources transmitted, and predictability and stability.

To be acceptable to a contributing country's constituents, a potential source needs to be consistent with a country's overall fiscal policy and procedures in terms of how national budgets are established, expenditures made, revenues are raised, and funds are tracked. For recipients, scale, predictability, and stability are important. With respect to scale, each of the potential sources of public funding by themselves do not generate an intrinsic level of financial flows. For example, the level of resources mobilized by a tax is determined by the tax rate and the size of the base, while the level mobilized by an allowance set aside is determined by the number of allowances and the price of carbon. Regular budgeting processes can also yield large or small volumes of funding. That said, actual proposals put forward typically have provisions embedded in them that generate indicative funding levels. These levels will need to be consistent with the significant increase in funding already identified in the discussion of needs.

The predictability (ability to know in advance) and stability (lack of fluctuation) of funding are related concepts. Both are important because mitigation and adaptation activities often require multiple-year support. National planning exercises may span decades. Therefore, both the institutions that provide support and the recipient countries need reasonably secure expectations about the path of future funding.

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The various proposals for funding sources can be compared against these criteria. Some funding source proposals have been associated with adaptation or mitigation; however, in general there is nothing inherent in them that would limit their use to only one of these categories.

- National budget processes

Countries providing international public finance for both climate purposes and development assistance have most commonly done so via their regular budget processes (in the U.S., a two-part process of authorization followed by appropriations). Although these typically annual processes result in funding levels that cannot be predicted several years out, they provide a level of control comparable to other national expenditures and the ability to make mid-course corrections based on how the funds are being used. Finally, while some of the other approaches are limited to countries with emission limits or caps, this approach is open to all countries.

- Set-asides under domestic caps

The earmarking of allowances for international climate finance purposes has been proposed in a number of countries. Although earmarking of allowance revenues is not ideal from a fiscal policy perspective as it creates inefficiency among the uses of public funds, doing so has the offsetting advantages of allowing for predictability that goes beyond the annual appropriations (or multi-year authorization) process. As regards shorter-term predictability/stability, revenue will tend to be pro-cyclical, i.e. dependent on actual demand for emissions and carbon price fluctuations. By putting into place some form of executive governance, this approach can preserve an element of national control as to how the funds are channeled while providing an overall level of predictability.

- Auctioning of international allowances

This Norwegian proposal involves withholding international emission allowances, such as those assigned under the Kyoto Protocol, from participating countries and selling them on the carbon market. In this way, it is an internationalized version of a set-aside under a domestic cap, except it is often proposed in conjunction with direct support for a multilateral fund, circumventing national control. Such circumvention will be an issue for countries concerned about control and the “sovereignty” implications of such an approach.

- Integration of revenues from international bunker or aviation fuels

Integration of revenue from international commercial transport, such as the proposal by the International Maritime Organization to levy a tax on bunker fuels, or the foreseen auctioning of allowances for international aviation under the EU

emissions trading system, have the advantages of greater stability than annual budget processes. In addition, they offer the ability to mobilize resources from sectors that contribute to climate change and might otherwise go unregulated. To the extent that use of these funds is ultimately governed domestically, as under the EU ETS, they are analogous to the set-aside from a domestic cap. If they flow directly to an international multilateral fund, they are likely to face the same control/sovereignty concerns associated with international allowance auctions. Proposals in this arena would also need to carefully navigate existing international treaties or bilateral agreements governing international commerce in these sectors as well as leakage concerns.

- Taxes on offset originations

This is the model adopted for funding the Adaptation Fund (AF) under the Kyoto Protocol and its Clean Development Mechanism (CDM, although in principle, the AF can also receive voluntary contributions), with 2% of offset originations going into the AF. This is again analogous to the auction of international allowances, except that the incidence here is shared between offset providers and purchasers (relative to a system with offsets but no tax). This model offers financial flows that are as predictable and stable as the volume of issued CDM credits and the carbon price. Downsides to this approach are the inefficiency from taxing a subset of emission reduction efforts and continued concerns about control/sovereignty among purchasing countries (who are creating the surplus shared by offset purchasers and providers in the first place).

### Recommendations

Trade-offs between predictability and contributing country acceptability are to some extent unavoidable among the various candidate sources for funding. Most contributing countries will want to retain some level of control over funds that amount to direct or indirect levies on their people or economic resources, while most recipient countries seek stable and predictable funding levels. For this reason, it will likely prove difficult to get consensus on priorities over the different attributes of potential funding sources. Since there is nothing preventing different source options from co-existing, however, it makes sense to allow contributing countries flexibility to determine how they source funds according to their individual circumstances, as long as the predictability of overall international support is promoted, while requesting transparency so all other countries can understand the process each uses to generate funds from the identified sources. Flexibility in how and where funds are channeled also helps strengthen domestic political support for such funding and, ultimately, could lead to increased funds. Moreover, allowing contributions from multiple sources creates a more diversified portfolio of funding and thereby a more stable aggregate flow.

It is also possible to mitigate the trade-offs associated with different funding sources. With respect to predictability concerns associated with annual budget processes, for example, most contributing countries have experience making multiple year funding pledges using annual appropriations, facilitated through identifying the pledges as political priorities, and by not imposing an expiration date on actual disbursements.

Finally, the scale and predictability of past funding flows based on annual budget processes may not be accurate indicators of the degree of future scale and predictability. There is now more experience with climate finance and a clearer vision of how funds will be used. Recipient countries are expected to propose more strategic mitigation and adaptation actions and to create enabling environments that are conducive to effective use of public funds. In addition, the establishment of carbon markets means that public funds for mitigation can be focused on supporting those actions that are in countries or sectors unattractive to carbon markets, including adaptation, capacity building, and new technologies.

## **5. How to “count” funding**

The focus so far has been issues relevant in advance of funding – estimating need, identifying sources, and structuring commitments. This section addresses what types of, and how, financial support should be recognized and reported after funding takes place. While related to the advance-of-funding issues – it is clearly useful to know how actual funding compares to commitments – it is also a separate issue, as some actual funding may or may not be part of the commitment. In any case, for both recipients and contributors alike, a reporting system for finance (including verification where appropriate) provides an important contribution to the mutual accountability of finance and mitigation/adaptation activities.

The initial threshold question is how to link funding to climate-related activities. Given the potential for multiple sources and channels of climate finance, a centralized effort might be needed to track identified activities and associated funding sources. Such tracking could then be the basis for identifying funds moving from appropriate sources to appropriate activities through appropriate channels; this could be part of the “matching” activity described in the separate paper on governance.

A second question is how to address funding sources that might not be included in a contributor’s up front commitment. In particular, carbon markets are likely to provide a large fraction of financing for some contributors yet may be difficult to pledge. Similarly, bilateral support may or may not be part of an initial commitment. It seems reasonable to provide a mechanism for tracking these sources within the financing system to ensure a full accounting for sources of financing, regardless of how such sources are eventually viewed under the broader climate outcome in Copenhagen.

Failing to provide this opportunity would also create a disincentive to go beyond a country's narrower anticipated contributions.

Tracking support provided through carbon markets does create additional challenges. Depending on the degree of integration among national systems, it may or may not be possible to link contributors to recipients directly. Rather, we may only measure net flows in and out of different countries. And it may be hard to establish the price at which allowances or offsets should be valued for recipients and contributors. These issues are discussed in more detail in the separate paper on carbon markets.

A third question is the relationship between official development assistance (ODA) and climate finance. Some future ODA will undoubtedly support developing country efforts to integrate mitigation and adaptation elements into their domestic development strategies, especially as -- for reasons of long-term aid effectiveness -- all future development assistance will have to become 'climate proof'. For ODA that serves both overall development and climate objectives, artificial distinctions between counting ODA as serving development or climate finance needs to be avoided. On the other hand, climate finance needs to be scaled up and additional, suggesting the need to ensure that ODA flows are not diverted or reclassified as support under a Copenhagen agreement, in turn jeopardizing the realization of other development priorities. The OECD-DAC has developed a system for screening bilateral ODA for promoting the objectives of the Rio Conventions, including ODA for GHG mitigation or sequestration purposes. Regardless of classification, however, this will ultimately require an appropriate process to evaluate the additionality of new climate expenditures.

Finally, there is the question of who and how this will be done. Given the OECD-DAC's experience and history tracking ODA, tasking OECD/DAC to do this could be an appealing choice because it would permit comparability between climate-related finance and ODA flows in order to consider additionality. It would also avoid new institutions ; however, other candidate mechanisms might emerge. Whichever system is used will need to inform the UNFCCC.

### Recommendations

While ex ante pledges will by definition be a narrower subset of total funding, contributing countries should receive post-facto recognition for all climate-related sources of international funding through a reporting system (with verification where appropriate). . A country's total contribution would thus be recognized as all financial, technical and other resources that help developing countries with identified mitigation and adaptation needs (including efforts to identify those needs) and that is subject to an appropriate finance reporting system.

The OECD DAC seems an appropriate candidate to consider for developing an accounting system for all climate-related spending, including carbon market support. More work is needed, however, to develop criteria for identifying all climate (especially

adaptation) funding. The OECD-DAC "Rio marker" might be adapted as a model to identify climate-related funding to provide a baseline going forward. Given the above suggestion that all but LDCs make some contribution to climate finance, the DAC-CRS system would have to be adapted to accommodate countries which are not OECD members.

Because of the diverse forms of public and private support, clear and uniform criteria for measuring and reporting them will need to be developed. Similarly, more work is needed to develop protocols for the reporting of carbon finance.

The G20 expert group should discuss options, including working with the OECD DAC or other candidate agencies, to develop an appropriate accounting system and protocols.