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**Environmental and climate finance in a new world**

How past environmental aid allocation impacts future climate aid

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**Abstract**

In this paper we update previous work that categorizes foreign aid projects in terms of their likely impact on the natural environment. We then document trends in the global distribution of environmental aid over time and show that environmental aid has increasingly focussed on global environmental issues (especially climate change), rather than local issues in recipient countries. Somewhat surprisingly, we also find that environmental aid is increasingly allocated through bilateral aid agencies rather than through the increasing number of multilateral channels created for this purpose. After providing these descriptive statistics and demonstrating trends, we offer a tentative explanation for this puzzling pattern. We argue .../

Keywords: development finance, environmental aid, climate policy

JEL classification: F35, F64, Q54, Q56

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... that each individual aid project represents a negotiation between donor and recipient. This additional level of bargaining significantly conditions the costs and benefits of multilateralism for donors, especially as recipients have multiple outside options for obtaining development finance. Reflecting the growing political salience of global environmental threats, donors are providing increasing levels of environmental aid, and especially climate finance. However, at the same time, donors are increasingly failing to coordinate their allocation of climate finance (and other environmental aid) within multilateral institutions. At a practical level, this raises the question whether the effect of increasing levels of funding will be undercut by decreasing co-ordination and efficiency.

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## 1 Introduction

Keeping the planet habitable is a global public good which has proven exceedingly difficult to provide. The problem is wickedly complex; in part because the actors most responsible for climate change have economies and societies that are well buffered from climate impacts. Having already replaced vast portions of their own forests with agriculture, cities and suburbs, developed country governments—and those international organizations that are responsive to their preferences—are now pressuring poorer countries to set aside large parts of their tropical forests to serve as carbon sinks and to protect some of the world's richest stocks of biodiversity.

Since the onset of global negotiations over the environment in Stockholm in 1972 and continuing now 40 years on at Rio+20, a consistent demand of developing countries has been that any requirement to pursue economic development in a way that is less damaging to the global environment will need to be paid for, in part, by developed countries. Both sides recognize the costs of adjustment will be substantial and that any international co-operation will be premised upon a substantial resource transfer from north to south. Environmental activists and non-governmental organizations in Northern states pushed for United Nations action to protect the climate and other global commons, and have supported the provision of foreign assistance ('aid') for this purpose. At Rio de Janeiro in 1992, conventions were drafted on biodiversity and climate change, and studies of financial need were generated to estimate how much international funding would be needed to adequately address these emerging challenges. Our previous analysis (Hicks et al. 2008) sought to examine whether those promises were kept. We found that as of 1999 none of the environmental issue areas were fully funded at levels prescribed at Rio, but the size of the gaps varied depending on the issue. Some sectors were grossly underfunded (desertification, biodiversity, and climate change), while others, water supply and management, received more than half of the Rio commitments.

One of the few positive outcomes of the contentious Copenhagen climate change negotiations in late 2009 were promises of 'new and additional' funding to help developing countries, on the order of US\$30 billion over the short term and scaling up to US\$100 billion a year by 2020. The promises were made because the funding was seen as a good faith effort to address climate change in the face of the failure of Kyoto-style binding limits on greenhouse gas emissions. Thus, what counts as climate aid (and more broadly environmental aid) has become an increasingly contentious issue as the size of the financial commitments have grown and as other claimants on these resources worry that environmental aid will crowd out development assistance. These recent promises at Copenhagen to provide massive new funding to address climate change need to be assessed empirically. In order to do such empirical work, analysts (and governments) need a clear baseline of environmental and development funding up to 2009, and also need a clear assessment of whether and why promises made at Rio were kept or not.

One key point of debate is whether these new aid flows should travel through the bilateral channels of national development agencies (e.g. USAID, DfID, DANIDA, CIDA) or through multilateral channels (United Nations-controlled channels, the World Bank, the Global Environment Facility, and/or the various regional development banks). The former bilateral channel keeps control in the hands of donor governments. Multilateral institutions, especially

UN funds, generally provide greater control to recipient countries.<sup>1</sup> This remains the case with the Green Climate Fund, which was supposed to handle a major portion of the climate change funds, but which may end up being another ‘placebo fund’ or empty shell (Ciplet et al. 2013; Müller 2011). While we can provide theoretical reasons about the likely impact of this ‘channel of delivery’ debate, this policy question would also benefit from systematic evidence on the trajectory of environmental aid over the past 20 years.

This paper is broken into three main sections. The first section discusses the strategic context within which donors allocate aid through bilateral and multilateral channels. While the existing literature has much to say about the choice of whether to act through bilateral or multilateral channels, we argue that it pays insufficient attention to the bargaining aspect of development and environmental assistance. Unlike other political contexts (e.g. security alliances), donor countries do not simply co-operate and bargain among themselves, but also bargain with recipient countries. This bargaining significantly alters donor governments’ incentives to provide environmental aid, and helps to explain otherwise puzzling trends that we observe regarding the provision of environmental aid since 1990.

In section 2, we document several such trends in the allocation of environmental aid. Are aid agencies and multilateral development banks continuing to ‘green’ their grant and loan portfolios in response to pressure from environmentalists and donor governments as they did in the 1980s and 1990s? Are they adding environmental funding while continuing to fund dirty projects, like coal mines and highways that are in high demand by recipient governments? To answer these questions we briefly describe the process of collecting, standardizing and categorizing the universe of foreign assistance information curated within the AidData project-level database, which now contains US\$5.4 trillion in development resource flows and more than one million project/transaction-level records. We describe the big trends in development finance and environmental aid. Among the sub-set of projects designed to address environmental issues, we analyse the geographic distribution of these flows. Specifically, we identify whether environmental projects are designed primarily to generate local environmental benefits within recipient countries (e.g. water sanitation, desalination, solid waste treatment ...), or whether projects are designed to generate benefits that are substantially external to the recipient country (e.g. climate change mitigation, biodiversity preservation, ozone preservation ...). Following convention, we classify the former category as ‘brown’ environmental aid, and the latter as ‘green’ environmental aid. In drawing these distinctions, we acknowledge that there is no absolute divide separating brown and green projects. Climate mitigation projects, for instance, may involve transfer of new technology to recipient countries, which provides national economic benefits in addition to global environmental benefits. Conversely, brown projects designed to produce local benefits, such as erosion control efforts designed to preserve soil quality, may have indirect benefits to regional or even global environmental outcomes (e.g. preventing desertification). Nevertheless, we argue that it is possible to identify the primary purpose and impact of environmental benefits in terms of their scope, and this information plays a significant role in political decisions over the allocation of environmental aid.

Two major trends emerge from our preliminary analysis: first, environmental aid is being ‘bilateralized’, and, second, funding is increasingly shifting from a variety of other, primarily

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<sup>1</sup> There exists substantial variation among multilateral agencies, however, with UN agencies (e.g. UNDP) generally offering recipients greater voice than do major development banks (e.g. IBRD). For an extended analysis of voting rules and control over allocation decisions see Marcoux et al. (2013).

local, environmental issues to global environmental issues, such as climate change. Many civil society groups and recipient governments advocate that aid should be channelled through multilateral institutions, and many academic experts argue that aid funnelled through such multilateral channels is more effective because it minimizes fragmentation, overlap, and major gaps. Despite these claims, what we observe is the increased allocation of environmental and climate finance through bilateral channels. What explains this outcome? Do multilateral funds such as the UN directed Green Climate Fund (GCF) or the now decades old Global Environment Facility (GEF) have a future? Only 4 per cent of the US\$33 billion in ‘fast start finance’ (that is, contributions to the GCF from 2010-12) flowed through the set of four UN-managed climate change funds. How and why do donors decide to channel environmental aid through multilateral or bilateral agencies?

We conclude by looking forward from these contradictory findings of environmental aid simultaneously ‘greening’ but also fragmenting and ‘bilateralizing’. Multilateral organizations and the stockholders of special multilateral funds face stark choices. One option is to redesign their institutional architecture so that it is more palatable to donor governments. Rolling back more ‘balanced’ systems of governance and giving donors a stronger influence in the project selection process or streamlining the project cycle might accomplish this goal. Yet there are downsides and political risks to both of these reforms. Notably, they risk alienating the very countries that donors seek to engage. Second, multilateral agencies (including UN programmes) could attempt to pressure donors to channel funds through GCF or other multilateral green funds or persuade them of the efficacy of these multilateral channels. These strategies have a different set of downsides and risks, including the low probability of success and the decreasing salience of the UN itself.

## **2 Selecting delivery channels: the logic of global collective action**

Why do donors choose to allocate development and environmental assistance through multilateral institutions? Power-based theories of international relations suggest that foreign aid should be understood as an extension of a country’s pursuit of its national interest. Aid is statecraft (Morgenthau 1962; Baldwin 1985). Therefore, if the primary purpose of aid provision is to obtain political leverage vis-à-vis recipients, it makes little sense for a state to work through multilateral organizations. By obscuring links between donors and recipients, multilateral organizations limit the ability of donors to use aid for political influence.

Though Morgenthau’s political theory of foreign aid may seem intuitively plausible, there can be little doubt that it is descriptively inaccurate. The World Bank group alone employs more than 9,000 people in 100 offices throughout the world. In 2011, the Bank funded projects totalling nearly US\$47 billion (USD) in value. And the World Bank is hardly unique. Donors have provided billions of additional financing through regional development banks, and through UN-sponsored organizations such as UNDP, UNHCR, and UNAIDS. The AidData database identifies and provide project-level information on development finance flows from 46 different multilateral agencies (Tierney et al. 2011). Evidently, multilateralism matters. But why?<sup>2</sup>

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<sup>2</sup> The seminal work on the topic is actually titled ‘Multilateralism Matters’ (Ruggie 1993). For applications at the nexus of development and environment see Keohane and Levy (1996); Connolly (1996); Lewis (2003); Gutner (2005); and Anand (2004).

Social scientists have no shortage of answers to the question: why multilateralism? Typically, provision and maintenance of public goods is conceived as a collective action problem. The fact that no parties can be easily excluded from enjoying goods such as stable climate or stratospheric ozone generates mixed motives among countries, inhibiting co-operation. All have a preference for the creation of such goods but many, if not all, also have a preference for ‘free riding’—contributing as little as possible to the creation of such goods.

According to this conventional wisdom, multilateral institutions provide a solution to such obstacles to international co-operation. Institutions reduce transaction costs, reduce political uncertainty, provide information, and, by amplifying the effects of reputation and reciprocity, facilitate non-simultaneous exchange (Keohane 1984). Countries are thus more willing to co-operate when they have means of assessing others’ behaviour, the credibility of commitments, and the capacity to punish cheating. In the environmental realm, these benefits of multilateralism can be seen in the negotiation and adoption of thousands of environmental treaties since the 1972 UN Convention on the Human Environment (UNCHE) in Stockholm (Mitchell 2003).

Environmental treaties are not self-executing. Frequently they require parties to make substantial behavioural changes, either directly or indirectly, by requiring the adoption of domestic regulation. The success of such treaties, then, depends not only on the adequacy of treaty rules but, critically, on the capacity and willingness of parties to implement those rules. Thus, the success of global environmental policy frequently depends on the availability and adequacy of financing, and this can be heard again and again in reviews of their efficacy. Since states have found multilateralism useful in setting and co-ordinating environmental policy, it is little surprise that they have increasingly turned to multilateralism to finance the implementation of such policy—a practice pioneered by the Montreal Protocol on Substances that Deplete the Ozone Layer (as amended in 1990). Rather than create numerous ad hoc multilateral funds, states have found it increasingly useful to co-ordinate their provision of environmental finance within a single multilateral institution. Today, the Global Environment Facility (GEF) is the primary financing mechanism for four major global treaties (CBD, UNCCD, UNFCCC, and the Stockholm Treaty on Persistent Organic Pollutants).

Yet, environmental aid is much broader in scope than the simple financing of treaty commitments. In fact, the great majority of environmental aid is *not* directly related to international treaties. Even if countries find multilateralism useful for policy co-ordination, we may still ask why they find multilateralism useful for delivery of the sort of project aid that constitutes the vast majority of environmental (and development) assistance. Here, again, the social science literature provides a number of answers. First, states may choose to work through multilateral institutions because they value the issue-specific expertise that such institutions can provide. Indeed, given sufficiently high levels of uncertainty, states may find it impossible to calculate rational foreign policies without the provision of expert information (Haas 1992). This dynamic helps to explain the creation of institutions such as the Intergovernmental Panel on Climate Change (IPCC).

Information provision and learning factor strongly in both constructivist and institutionalist theories of multilateralism.<sup>3</sup> However, even under ordinary circumstances, states may find it advantageous to delegate allocation authority to multilateral organizations. Hawkins et al.

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<sup>3</sup> Ruggie (1993) and Barnett and Finnemore (2004) are exemplars in the constructivist tradition. For examples on the role of information in institutionalist theories see Keohane (1984); Martin (1992); and (Milner 2006).

(2006) point to several benefits of delegation to multilateral organizations. Drawing from Keohane (1984), they argue that delegation can help solve co-ordination problems, mitigate free riding, enhance credibility, and harness specialization. Each of these concerns is relevant in the context of environmental aid, suggesting that the case for multilateral delivery is a strong one.

Finally, researchers and practitioners alike have pointed to specific benefits of multilateralism in the provision of environmental aid. In addition to the benefits outlined above, genuine multilateralism may help mitigate the climate of mistrust that has grown between countries of the global North (e.g. OECD members) and South (e.g. the G77 and China). According to Roberts and Parks (2006), developing countries' experiences with the World Bank and IMF combined with lingering frustrations over the failures of the New International Economic Order agenda of the 1970s underlie the persistence of zero-sum, structuralist worldviews in some parts of the developing world. Under such conditions, developing countries are especially wary of donor-dominated multilateralism. The remedy to this is not to turn toward unilateralism or bilateralism but, rather, to develop more participatory multilateral institutions, increasing developing countries' voice (or voting shares) in multilateral institutions. The internal reforms following the pilot phase of the GEF represent one such attempt (though we must note the lack of scholarly consensus regarding the effectiveness of GEF reforms). In addition to legitimacy, multilateral delivery of aid presents a number of practical benefits. The increased communication and co-operation among donors acting in a multilateral forum offers the potential to reduce fragmentation, overlap, gaps, and volatility in aid provision.

Based on the above review of the literature on global environmental policy, collective action, and international co-operation, the choice to emphasize multilateral delivery of environmental aid seems over-determined. If anything, the case is even stronger for environmental aid to finance global environmental goods. Moreover, the complexity of many global environmental goods amplifies the potential benefits of specialization by multilateral institutions. Yet, in analysing the provision of environmental aid, we observe shifts in precisely the opposite direction. Increasingly, donors are allocating environmental aid through bilateral channels, and this trend is particularly strong among aid projects designed to finance global environmental benefits. How can we account for the increasing 'bilateralization' of environmental aid? Why is the literature on international co-operation (apparently) so wrong in this case?

The problem lies not with the logic of international co-operation theory but, rather, with its application to environmental aid. In other forms of international co-operation, such as alliance-building or arms control, bargaining occurs at two levels: internationally, between the contracting parties, and nationally, between negotiators and domestic governments (Evans et al. 1993). However, in environmental and development assistance, donors do not simply bargain among themselves. Each individual project represents a negotiation between donor and recipient. This additional level of bargaining significantly conditions the costs and benefits of multilateralism for donors.

One of the core features of multilateralism that makes it attractive for global environmental policy is that it allows for the internalization of negative externalities. Failure to internalize such externalities hinders efforts to promote environmental sustainability because major actors (countries, in this case) are motivated to mitigate the pollution that they generate only

to the extent that they benefit directly from such mitigation. Perhaps ironically, it is this very feature of multilateralism that has led donors to focus increasingly on bilateral aid provision.

The key to understanding this dynamic is to appreciate the sources of leverage in international environmental bargaining. We argue that when donors and recipients bargain over the design, allocation, and implementation of environmental aid projects, the key source of bargaining leverage for both parties is the strength of their outside options (Bayer et al. 2012). Essentially, this involves asking the question: ‘How much worse off would each party be should negotiations over a specific project fail?’. The stronger a party’s outside options, the better able it will be to achieve its goals in project negotiations. To pick a simple example, an extremely poor recipient that has experienced little success in attracting outside capital may be less likely to risk losing an aid project by driving a hard bargain with donors. For example, recipients with few outside options may be forced to increase its share of a co-financing for a project or may be forced to accept various policy conditions as a prerequisite for the grant or loan. Alternatively, recipients with access to multiple sources of finance will be able to drive a harder bargain and will receive more of the types of projects that it prefers and will get better terms in the process. Likewise, if a recipient country attaches low value to a given project, it will be better able to achieve a favourable bargain over project design, particularly if that recipient is bargaining with a donor that attaches high value to the project, and whose outside options are correspondingly weak.

With respect to multilateral provision of environmental aid, we can summarize this argument as follows:

*H1: As recipients’ outside options weaken, donor participation increases. Conversely, as recipients’ outside options strengthen, donor participation decreases.*

With respect to donors’ outside options, the picture is less clear. On one hand, if donors’ outside options weaken, donors can expect to be relatively less successful in bargaining with recipients over aid projects. This effect tends to reduce donor participation in multilateral aid provision. At the same time, however, if donors’ outside options are weakening, this means that donors are becoming more dependent on co-operation with recipients. This result appears to be counterintuitive: as donors become more dependent on co-operation with recipients, their participation in multilateral efforts decreases.

This apparent contradiction disappears, however, when one allows for the possibility of donors acting outside multilateral institutions. For a variety of reasons, the attractiveness of bilateral aid provision for donors increases as their outside options weaken. The first reason for this is that donors no longer pay costs associated with acting as a collective principal (Nielson and Tierney 2003). Delegation to a multilateral institution offers several benefits for donors, but these benefits come at a price. Specifically, in delegating to multilateral organizations, donors pay costs associated with agency slack—which occurs when agent behaviour departs from donor preferences—as well as costs related to monitoring their agent’s performance. These costs are rarely steep enough to allow agents (i.e. staff within multilateral organizations) to flout donor preferences with impunity, but they do pose an obstacle for donors. By reducing these costs, shifting to bilateral aid provision allows donors to maintain a degree of bargaining leverage, even in the face of weakening outside options.

It is important to bear in mind that outside options are almost always contextual. Donors rarely face strengthening or weakening outside options with respect to participation in



multilateral aid provision, *per se*. Rather, the relative strength or weakness of donors' outside options is a function of donors' interests in specific issues. For example, if the Kyoto regime appears to be stalling, then donors' outside options weaken with respect to climate change, specifically. Assuming that donors' interest in addressing climate change remains constant (or is increasing), decreasing confidence in regulatory policy (e.g. the Kyoto Protocol) increases the urgency of addressing climate change using other policy instruments, such as provision of environmental aid for climate mitigation. Since this is precisely what is occurring with the global climate regime at present, we argue that donors are especially likely to emphasize bilateral provision of climate aid. We can summarize this expectation as follows:

*H2: If donor outside options weaken, donor participation in multilateral organizations is likely to decrease. However, donors' direct activity (e.g. provision of bilateral aid) may remain constant or even increase.*

There is yet a further consequence of shifting from multilateral to bilateral aid provision. As discussed earlier, multilateral environmental policy offers the significant benefit of internalizing environmental externalities. However, this tends to weaken donors' outside options with respect to multilateral co-operation, specifically. The reason for this is that multilateral institutions internalize the entire benefit of projects designed to promote global environmental goods, such as climate projects. To be sure, there are some donors whose commitment to addressing climate is so strong that, even acting bilaterally, those individual donors internalize the entire benefit (or very nearly so) of climate projects. However, many donors have a more moderate commitment to addressing global environmental issues such as climate change. In those cases, donors can strengthen their outside options with respect to climate projects specifically by choosing to bargain bilaterally, rather than through a multilateral organization whose interest in climate policy exceeds the donor's. We can summarize this argument as:

*H3: If donors do not internalize the entire benefit of global public goods (e.g. mitigating climate change), donors may strengthen their outside options by shifting from multilateral to bilateral aid provision.*

In short, the conventional wisdom regarding collective action suggests that donors should find multilateral provision of environmental aid to be increasingly attractive. However, environmental sustainability is significantly different than traditional areas of international co-operation. Donors do not directly generate environmental benefits; rather, they bargain with recipients over the provision of environmental benefits. This additional level of bargaining, combined with differing valuation of environmental benefits, both among donors and between donors and recipients, can outweigh the traditional motivations for multilateralism. If recipients' outside options strengthen,<sup>4</sup> or donors' outside options weaken, we would expect to see increasing bilateralization of environmental aid generally, and climate aid particularly.

In the following section, we describe the current state of environmental aid, with a specific focus on the climate regime. We follow this by reviewing general trends in the provision of

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<sup>4</sup> While we do not discuss it in this paper, the emergence of non-traditional aid donors (e.g. China, Brazil, and India), especially those not as strongly committed to climate change mitigation as the OECD donors, is one of many factors that might increase the number of outside options for recipient country governments in search of external finance (Manning 2006; Fuchs et al. 2013).

environmental aid since 1990. We find that evidence on both fronts broadly supports the theory sketched above.

### **3 The new climate regime**

The Copenhagen Accord (2009) and Cancun Agreements (2010) promised ‘new and additional’ funds to address climate change. US\$30 billion was promised under ‘Fast Start Finance’ between 2010 and 2012.<sup>5</sup> These funds are to scale up to US\$100 billion a year by 2020. These pledges are in line with estimates that more than US\$100 billion a year is needed to help individuals and communities adapt to the effects of global climate change (World Bank 2009). Monique Barbut, CEO of the Global Environmental Facility (GEF), called the US\$100 billion estimate a ‘joke’ (UNEP 2012). Barbut notes that no single organization working in a single issue-area will succeed in mobilizing a preponderance of funding. Rather, she expects climate aid to become increasingly fragmented among various donor agencies (Barbut 2012). What insight, then, can the trends in environmental aid allocation shed on the growing demand for climate finance and its newest lending mechanism, the Green Climate Fund (GCF)?

### **4 An overview of environmental aid**

As documented in *Greening Aid*, aggregate levels of environmental aid provision rose sharply from the 1980s through the 1990s (though never reaching the level of aid promised at UNCED in 1992). In the wake of the 1987 World Commission on Environment and Development (WCED) and the Rio Earth Summit, bilateral and multilateral agencies, alike, began to provide increasing levels of environmental aid generally, and ‘green’ aid, specifically. For further details, we refer readers to Hicks et al. (2008). Our purpose here is not to examine the question whether multilateral institutions have been ‘greened’, following the well-publicized environmental critiques of the 1980s (Wade 1997; Nielson and Tierney 2003). Rather, in this paper, we leverage the additional decade of information contained in the most recent release of AidData’s dataset of environmentally-coded development finance activities to explore the ongoing trajectory of environmental aid, particularly in the wake of recent developments in the global climate regime.<sup>6</sup>

### **5 Data and methodology**

There have been numerous previous attempts to analyse the allocation of environmental aid. They have focused largely on environmental aid as a public good (Kapur 2002), the normative evolution of environmental aid lending practices among donors (Roberts and Parks 2007), and the use of principal-agent theory to explain environmental aid allocation (Bernheim and Whinston 1986; Kaul et al. 2003; Congleton n/d).

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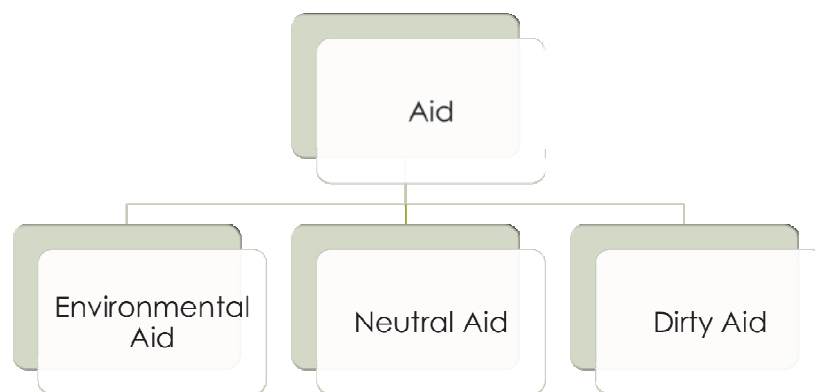
<sup>5</sup> A study by Oxfam (2012) claims that on the surface, fast start money appears to be flowing as promised. But a closer examination reveals serious accounting problems. Much fast start finance reflects dubious classifications of ‘climate’ finance (United States) or re-classification of older commitments (Japan), and many donors (EU) are refusing to deliver fast start money multilaterally, preferring bilateral delivery.

<sup>6</sup> This dataset is called *PLAID 1.9 with Environmental Impact Codes* and is available at <http://www.aiddata.org/content/index/Research/research-datasets>.

In practice, donors self-identify environmental projects in their aid portfolios. This has led to grossly overestimated accounts of environmental aid allocation, as well as incomparable data due to lack of a standardized identification process. Instead, this analysis draws upon the work set forth by Hicks et al. (2008) in *Greening Aid*, which serves as the most comprehensive analysis on international environmental aid allocation to date. While we do not assess all the theoretical claims made in that book, we do build upon that study to independently assess all aid at the project-level for its expected environmental impact.<sup>7,8</sup>

Building upon the data and methods outlined in *Greening Aid*, this analysis looks past the self-reporting conducted by donors, and instead analyses all projects in the AidData.org web portal for their environmental type and impact. Based on the project descriptions found in the database, a combination of automated and manual case matching was conducted. In instances where manual case matching was conducted, all projects were coded using a double-blind coding system, and arbitrated by a senior researcher where discrepancies existed between the first two coders. Each project was categorized as environmental aid, neutral aid, or dirty aid (Figure 1).

Figure 1: Environmental aid categorizations



Source: [www.aiddata.org](http://www.aiddata.org).

Researchers coded projects as ‘environmental’ if the project was intended to increase the wellbeing of the ecosystem, whereas ‘dirty’ projects, such as electricity transmission or logging, decrease the wellbeing of a recipient country’s environment. The neutral category includes all projects that one might expect to have no immediate positive or negative environmental impact or where the environmental impacts could be expected to balance out over time. There are many individual projects that might not fit this categorization scheme neatly; however, the average project of its type in each category should be consistent with its designated category.<sup>9</sup> As we described above, environmental aid projects were further sub-categorized as ‘brown’ (projects designed to have a positive local environmental impact) or

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<sup>7</sup> *Greening Aid* only analysed aid through the year 1999. Aid projects between 2000 and 2008 have since been analysed as well, though they do not appear in the analysis conducted by Hicks et al. (2008). Projects committed between 2000 and 2008 were later added to the database, but until now, have not yet been described or analysed.

<sup>8</sup> For *Greening Aid* and the subsequent efforts to update its analysis, researchers analysed all aid projects in AidData (roughly 1 million project records). All projects were independently coded by two different researchers. If the codes did not match, then a senior researcher arbitrated discrepancies.

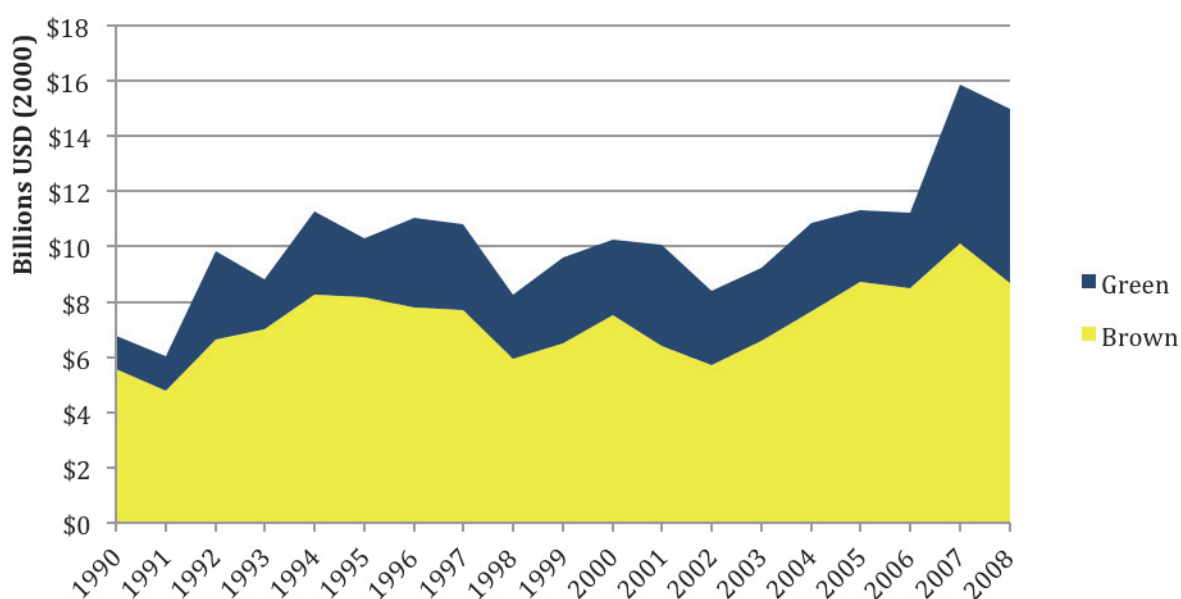
<sup>9</sup> For a full list of environmental coding criteria by descriptive keywords, see Appendix I.

‘green’ (projects designed to have a positive supranational environmental impact). For a detailed description of the method and the coding rules see *Greening Aid* Chapter 2.

## 6 Global trends in environmental aid provision

As Figure 2 shows, global levels of aggregate environmental aid remained relatively constant from the 1990s until the mid-2000s. Subsequently, we observe an increase in overall levels of environmental aid, from roughly US\$10 billion<sup>10</sup> per year in the early 2000s to roughly US\$15 billion per year in the late 2000s. The trend in provision of ‘green’ aid largely mirrors the trend in environmental aid more broadly. Levels of green aid provision increased only slowly during the 1990s, into the 2000s. However, the level of green aid doubled during the 2000s, increasing from roughly US\$3 billion per year to roughly US\$6 billion. As a proportion of all environmental aid, green aid grew from 20 per cent in the early 1990s to 40 per cent in the late 2000s. While we have not coded the dataset beyond 2008 anecdotal evidence suggests that both these trends have continued during the last two years of the decade.

Figure 2: Trends in brown and green environmental aid, 1990-2008



Source: [www.aiddata.org](http://www.aiddata.org); authors' calculations.

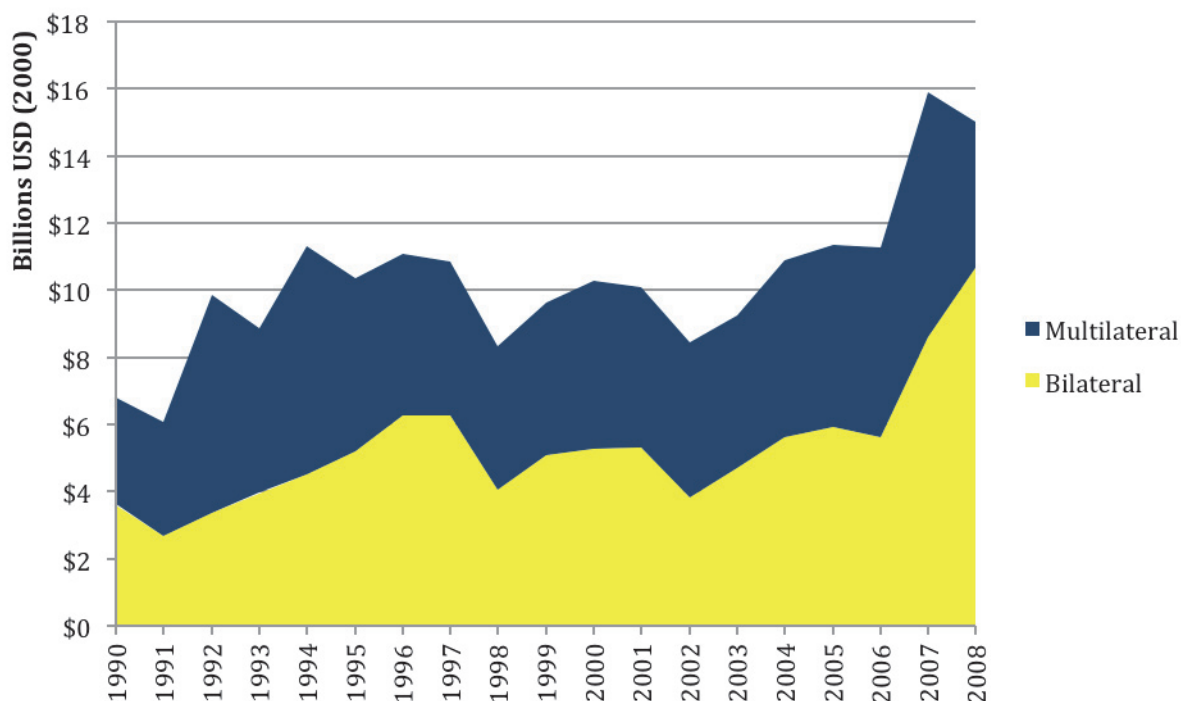
While green aid includes all global environmental goods (e.g. stratospheric ozone and biological diversity), the timing of this increase is suggestive, occurring just prior to the start of the first compliance period—and negotiations for future compliance periods.

What accounts for this increase in environmental aid, and green aid in particular? Earlier, we hypothesized that weakening outside options on the part of donors would be associated both with increased aid provision, but also increased aid fragmentation, as donors increasingly turn toward bilateral aid provision. In fact, our new data is entirely consistent with this dynamic.

<sup>10</sup> Throughout this section, all figures are in constant (2000) US\$.

As Figure 3 shows, increases in overall provision of environmental aid have coincided with increases in the provision of bilateral environmental aid.

Figure 3: Trends in multilateral and bilateral environmental aid, 1990-2008



Source: [www.aiddata.org](http://www.aiddata.org); authors' calculations.

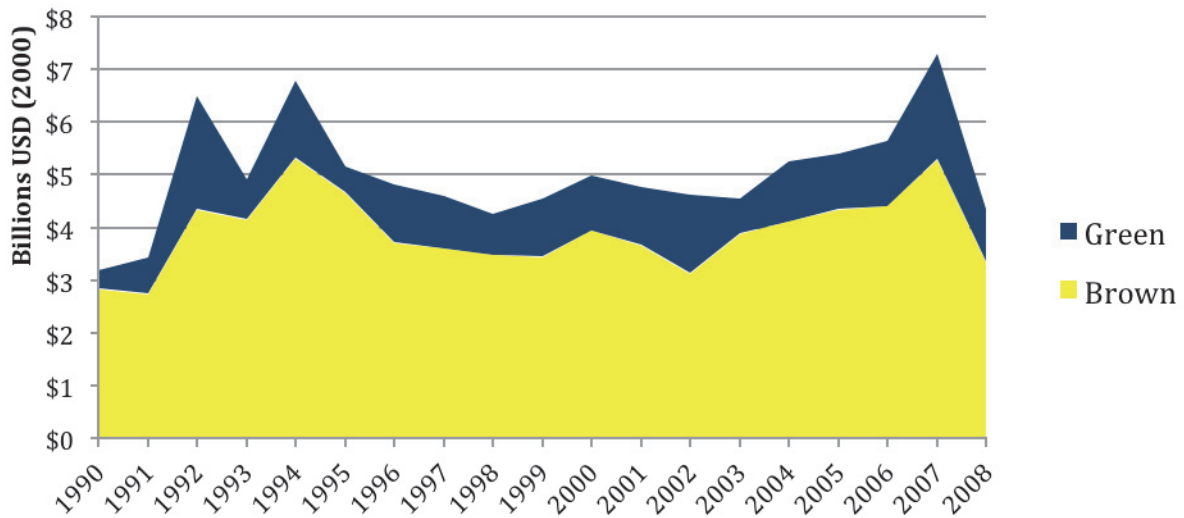
From 1990-94, multilateral environmental aid levels averaged US\$4.9 billion per year. By 2005-2008, this figure had grown modestly, to US\$5.7 billion—an increase of roughly 16 per cent. In contrast, from 1990-94, bilateral environmental aid levels averaged only US\$3.6 billion. By 2005-08, however, bilateral environmental aid levels averaged US\$6.5 billion per year, surpassing multilateral environmental aid by nearly US\$1 billion. In relative terms, 58 per cent of environmental aid was allocated through multilateral agencies from 1990-94. By 2005-08, this figure had dropped to 42 per cent.

While these data are consistent with the hypotheses described earlier, they cannot tell us the extent to which increases in green aid and increases in bilateral aid are related. Accordingly, Figures 4 and 5 depict the brown-green composition of multilateral and bilateral environmental aid, respectively.

As Figure 4 demonstrates, there has been relatively little change in the composition of multilateral environmental aid since 1990. From 1990-94, brown aid comprised 78 per cent of all multilateral environmental aid. From 1995-99, this proportion grew slightly, to 80 per cent. From 2000-04, brown aid returned to 78 per cent of all multilateral environmental aid. From 2005-08, this figure dipped to 77 per cent. This represents remarkable consistency over time.

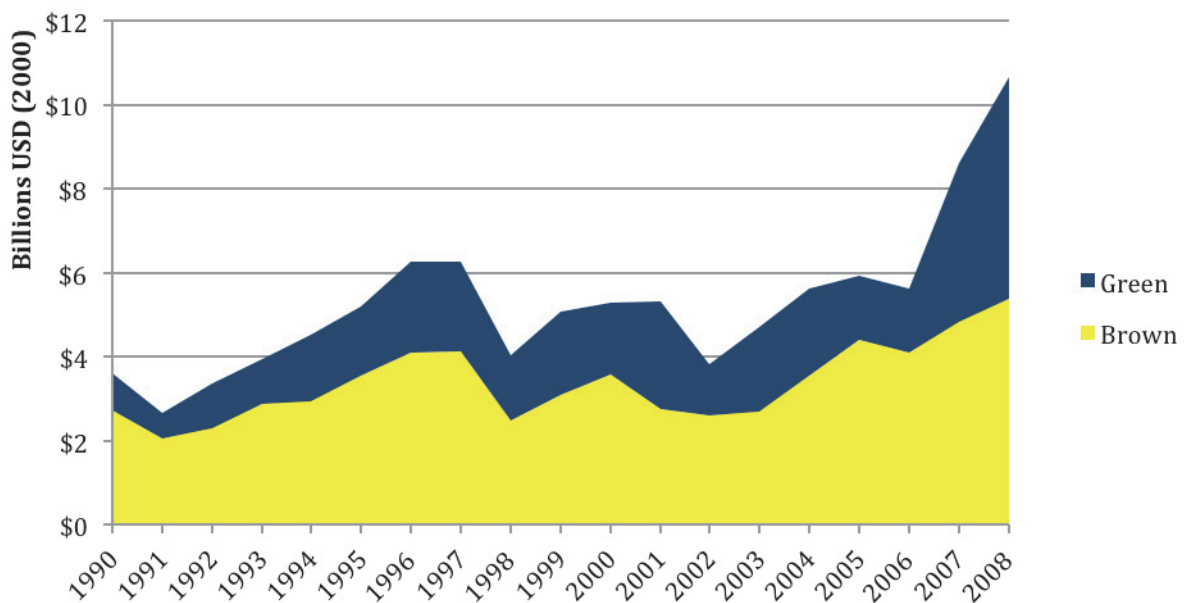
As Figure 5 shows, the same cannot be said for bilateral environmental aid. Here, the proportion of green aid has grown slowly but steadily over the past twenty years, and this trend appears to be accelerating. From 1990-94, green aid comprised 29 per cent of all bilateral environmental aid. By 2005-08, this share had grown to 39 per cent.

Figure 4: Trends in the composition of multilateral environmental aid, 1990-2008



Source: [www.aiddata.org](http://www.aiddata.org); authors' calculations.

Figure 5: Trends in the composition of bilateral environmental aid, 1990-2008



Source: [www.aiddata.org](http://www.aiddata.org); authors' calculations.

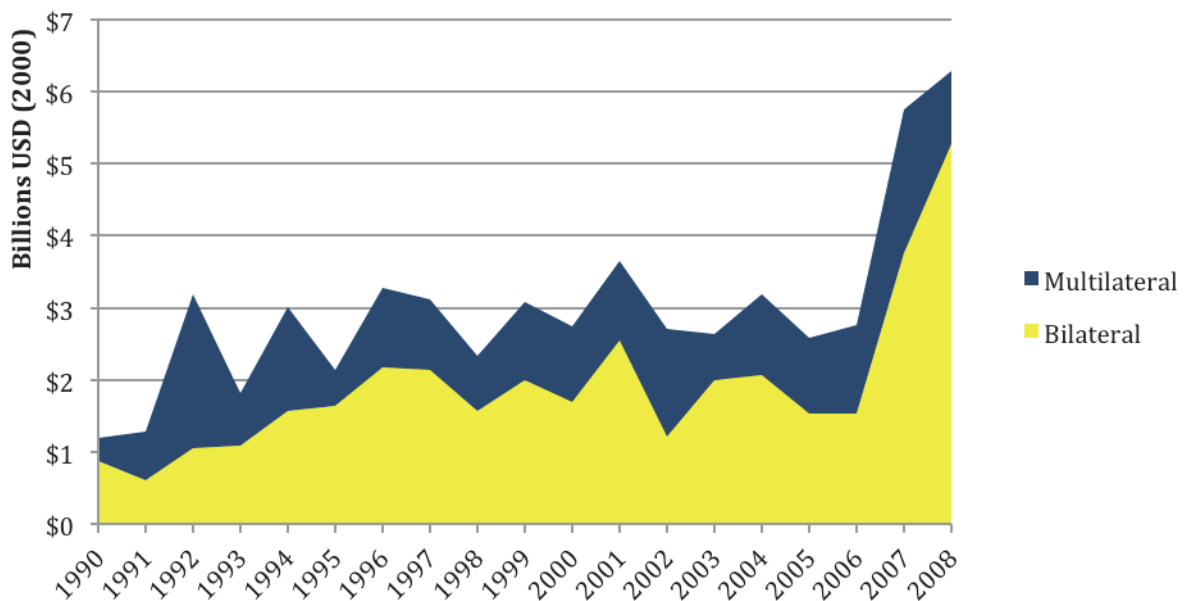
Again, these trends are broadly consistent with our hypotheses. What we really need to know, however, is the extent to which (all) green aid has been 'bilateralized'. Our scientific understanding of climate change—as reflected in IPCC assessment reports—has grown steadily in both certainty and urgency since 1990. We believe, therefore, that the political

salience of international co-operation on climate has grown correspondingly (at least within the traditional OECD donor countries, if not within the emerging donors of China, India, and Brazil). This suggests that the strength of donors' outside options regarding climate has weakened since 1990. If our argument in the previous section is correct, we should see donors contributing increasing sums for climate projects, and these projects will be allocated increasingly through bilateral channels.

Figure 6 shows explicitly the extent to which green aid has become 'bilateralized'. From 1990-94, donors split their allocation of green aid roughly evenly between multilateral and bilateral channels. By 2005-08, 70 per cent of green aid was being allocated through bilateral agencies. If anything, however, these figures understate the trend, which appears strongly to be accelerating later in the time series. These results stand in stark contrast to first cut theoretical expectations and public discussions within policy circles that increasingly call for climate finance to be co-ordinated through existing and new multilateral channels.

Figure 6 provides the clearest evidence yet, in support of our hypotheses. The bilateralization of environmental aid that we observe is substantially a function of the bilateralization of green aid.

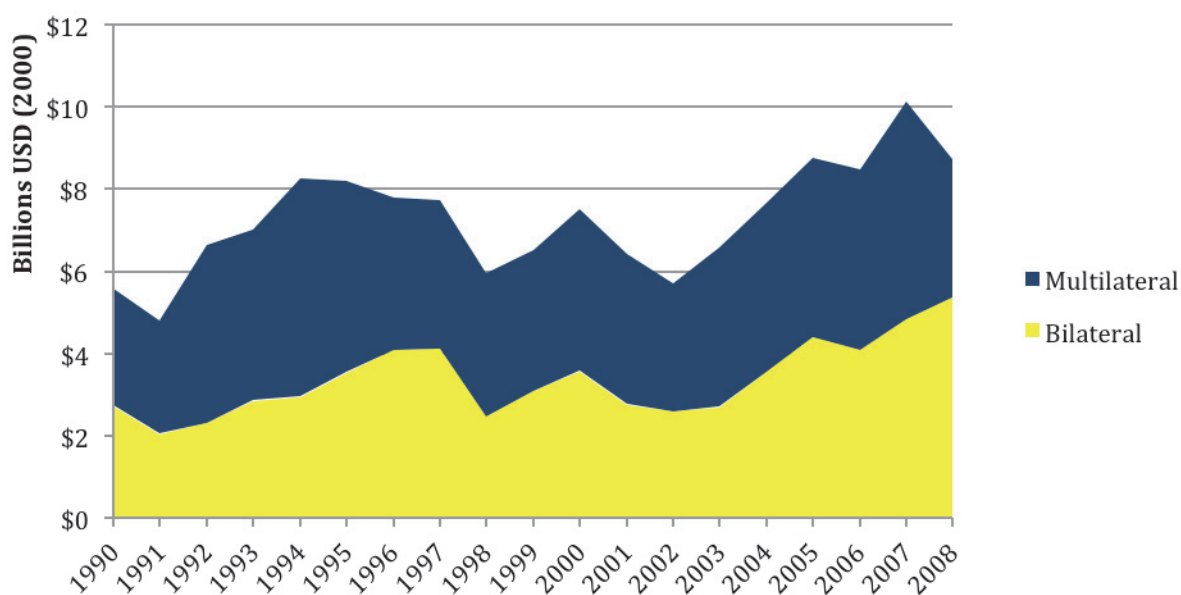
Figure 6: Trends in the delivery of green aid, 1990-2008



Source: [www.aiddata.org](http://www.aiddata.org); authors' calculations.

In contrast, there is little reason to believe that the strength of either donors' or recipients' outside options has changed considerably with respect to brown aid. To the extent that donors are increasingly allocating all environmental aid through bilateral agencies, we might expect to see a residual effect on brown aid. However, we would expect this to be much less pronounced than the bilateralization of green aid.

Figure 7: Trends in the delivery of brown aid, 1990-2008



Source: [www.aiddata.org](http://www.aiddata.org); authors' calculations.

Once again, this is precisely what we observe. The proportion of brown aid allocated through bilateral agencies has grown slightly over time, from 44 per cent throughout the 1990s to 48 per cent in the 2000s (Figure 7).

In summary, the major trends in environmental finance outlined above are largely consistent with our 'outside options' explanation of donor allocation practices. Reflecting the growing political salience of global environmental threats, donors are providing increasing levels of environmental aid, and green aid especially. However, at the same time, donors are often choosing not to co-ordinate their allocation of green aid within a single multilateral framework or multilateral institutions in general. At a practical level, this raises the question of whether the effect of increasing levels of funding will be undercut by decreasing co-ordination and efficiency.

More importantly for present purposes, these trends give us pause regarding the establishment of major new multilateral funds for climate mitigation and adaptation. It is simply not plausible to argue that donors currently lack multilateral vehicles through which to channel climate finance or environmental aid more broadly. The obvious risk of creating new multilateral institutions for this purpose is that if donors are uncomfortable allocating taxpayer dollars through a multilateral organization, levels of donor participation may suffer and environmental goods will, again, be under-supplied. However, as we noted earlier, any solution that lessens the already-weak voice of recipient countries within multilateral institutions risks exacerbating long-standing mistrust between the Global South and North. We turn to this problem in the final section of this paper. Individuals, non-governmental organizations, and sovereign states that are genuinely interested in addressing the issue of global climate change and are willing to put resources behind this effort currently find themselves on the horns of a difficult dilemma without a simple solution.



## 7 A future for multilateral green funds?

During the second decade of the UN Framework Convention on Climate Change (UNFCCC), the approach of larger developing countries such as Brazil, India, China and South Africa (BASIC) remained focused more on reducing emissions (mitigation) than adaptation to climate impacts. After failing to achieve meaningful concessions in the negotiations, the Least Developed Countries (LDCs) created their own caucus in 2001. And their organizing paid off: in Marrakesh in 2001 three Funds were established—the Least Developed Countries Fund (LDCF) and the Special Climate Change Fund (SCCF) under the Convention, and the Adaptation Fund (AF) under the Kyoto Protocol.

There were major struggles over who should oversee these funds and how they should be structured. Developing countries pushed for the Conference of Parties (COP) to oversee the Funds, consistent with Article 11, which creates a ‘financial mechanism’ for implementation of the Convention under the guidance of and accountable to the COP. In contrast, developed countries preferred the GEF, an institution established in 1991 by the World Bank and administered together with the United Nations Development Programme (UNDP) and United Nations Environment Programme (UNEP), to oversee the Funds to be delivered from the Rio conference pledges. Since major donors have near veto power at the World Bank, developing countries objected to the GEF having administrative power over UN funds. The politics intensified and the stakes were raised even higher by the GEF’s System for Transparent Allocation of Resources (STAR), which is based on two criteria—a recipient country’s capacity to deliver global environmental benefits and its track record of policy, institutional, and project performance.<sup>11</sup> Despite developing country opposition, the LDCF and SCCF continue to be administered by the GEF, though in an effort of reform, GEF’s 32 member-Council now functions based on a double weighted majority voting system (60 per cent of votes cast and 60 per cent of total contributions), which provides recipient countries with more formal authority in the GEF process than they had in the pilot phase. However, the changes in voting power did not fully placate developing country members of the GEF. Major delays in project funding approval have driven many recipient countries to further resent the GEF, and multilateral funding channels in general.

The rancorous UN climate negotiations in Copenhagen in late 2009 ended with a non-binding voluntary agreement on reducing emissions, and not even full consensus on that (see Ciplet et al. 2013). However after great pressure from the G77 and threats from the Africa group to walk out, the talks did result in a major pledge from wealthy countries on climate finance. The Copenhagen Accord promised US\$30 billion in ‘fast start’ climate finance to be delivered in 2010-2012, ‘scaling up’ to a total of US\$100 billion a year, ‘jointly mobilized’ by states but including private and public funding coming in the form of loans and grants. Both were promised to be ‘balanced’ between funding for emissions reductions (mitigation) and for coping with climate impacts (adaptation).

Developing countries have been united in their demands for adaptation and mitigation funds to be administered by the UNFCCC and parties to the Kyoto Protocol. Chief among these demands has been for ‘direct access’ to funds, in which national governments in recipient countries assume the role of administrator of funds through National Implementing Entities

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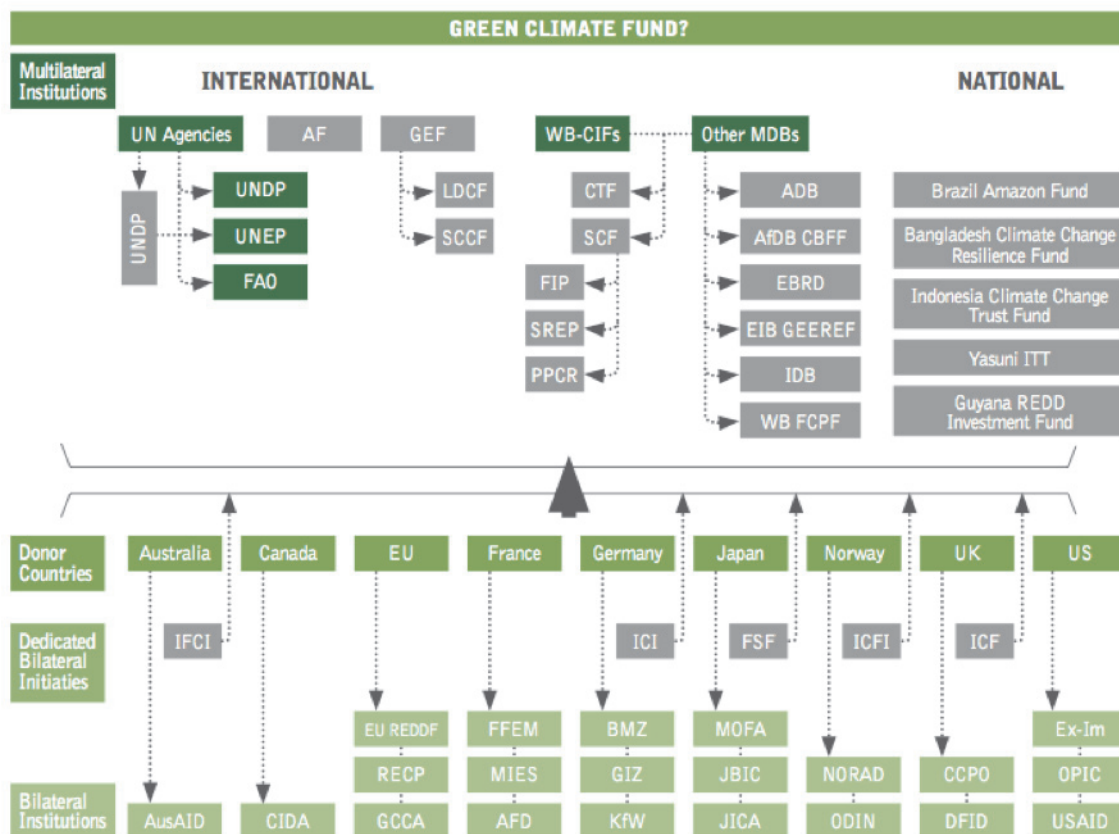
<sup>11</sup> <http://www.thegef.org/gef/STAR>

(NIEs). Similarly, there has been a strong push to have majority representation from developing countries on the boards that oversee funding decisions. These two measures are part of a larger platform to shift donor assistance, from the micromanagement of funds at the point of disbursement, to establishing more democratic global funding mechanisms and greater national ownership and autonomy in making decisions about funding priorities in recipient countries. There is a tension, however, because funding has been so slow to travel through UN funds that many recipient country governments quietly prefer bilateral climate funding.

Now the newly-established Green Climate Fund is being stood up, with the Republic of Korea hosting the GCF Secretariat. Its new 24-member Board has equal representation from the developed and developing countries. Parties agreed that the Fund will be overseen by a body under the United Nations, as advocated by developing countries, rather than the GEF, which was advocated by the US and EU, and direct access to funds will be allowed under the planned GCF governance structure.

Developing country delegates and civil society campaigners from both the North and South have essentially pursued a strategy of ‘if you build it, funds will come’. However, despite the effort in establishing and refining these funds, only about 2 per cent of Fast Start climate funds have been channelled through COP and Kyoto Protocol (KP) Funds, with limited consistent or predictable sources of revenue (Ciplet et al. 2013). To date, most Northern donors have simply dodged these funds, preferring to allocate their climate resources through other channels in which they have more confidence—bilateral development organizations, the World Bank, and the GEF.

Figure 8: The fragmented (non-)architecture of climate finance



Source: climatefundsupdate.org (2012).

History demonstrates that many such funds have been created in multilateral processes, only to be abandoned by Northern donors. While the steps toward the establishment of the GCF have been widely celebrated as a victory, important questions remain unanswered about how much funding it will govern. If indeed only one/two per cent of climate funds continue to be channeled through UNFCCC and KP funds, the creation of funding structures that reflect principles of adaptation finance justice may be largely hollow victories. In such cases, efforts to establish more just institutional funding frameworks may come at the cost of diverting attention from other goals such as addressing the overall gap in adaptation funding.

## References

- Anand, P.B. (2004). 'Financing the Provision of Global Public Goods'. *The World Economy*, 27(2): 215-37.
- Baldwin, D. (1985). *Economic Statecraft*. Princeton: Princeton University Press.
- Barbut, M. (2012). Personal Interview with the former Chair of the Global Environment Facility. Paris, August.
- Barnett, M. and M. Finnemore (2004). *Rules for the World: International Organizations in Global Politics*. Ithaca, NY: Cornell University Press.
- Bayer, P., C. Marcoux, and J. Urpelainen (2012). 'Participation, Bargaining, and International Public Goods: Understanding North-South Collective Action'. Unpublished manuscript.
- Bernheim, B.D. and M.D. Whinston (1986). 'Common Agency'. *Econometrica*, 54(4) (July): 923-42.
- Birdsall, N. and H. Kharas (2010). 'Quality of Official Development Assistance Assessment' (report): *Center for Global Development (CGD)*. 2010. <<http://www.cgdev.org/content/publications/detail/1424481/>>.
- Ciplet, D., J.T. Roberts, and M. Khan (2013). 'The Politics of International Climate Adaptation Funding: Justice and Divisions in the Greenhouse'. *Global Environmental Politics*, 13(1): 49-68.
- Congleton, R.D. (forthcoming). 'Agency Problems and the Allocation of International Environmental Grants: the Return to Rio'. *Economia Delle Scelte Pubbliche*.
- Connolly, B. (1996). 'Increments for the Earth: The Politics of Environmental Aid'. In R.O. Keohane and M.A. Levy (eds), *Institutions for Environmental Aid*. Cambridge: MIT Press.
- Darst, R.G. (2003). 'Samaritan's Dilemma in International Environmental Politics: Lessons for the Climate Change Regime'. Paper prepared for presentation at the Annual Meeting of the International Studies Association. Portland, Oregon, 25 February-1 March.
- Evans, P.B., H.K. Jacobson, and R.D. Putnam (eds) (1993). *Double-Edged Diplomacy*. Berkeley: University of California Press.
- Friedman, L. (2012). 'Environmental Funding Chief Calls \$100B Climate Change Fund a "Joke"'. *Environment and Energy News*, 12 April.
- Fuchs, A., A. Strange, B. Parks, M. Tierney, A. Dreher, and V. Ramachandran (2013). 'China's Development Finance to Africa: A Media-Based Approach to Data Collection'. Center for Global Development Working Paper, 29 April.

- GEF (2005). 'The Role of Local Benefits in Global Environmental Programs'. Washington, DC: Global Environment Facility.
- Gutner, T. (2005). 'World Bank Environmental Reform: Revisiting Lessons from Agency Theory'. *International Organization*, 59(3): 773-83.
- Haas, P.M. (1992). 'Introduction: Epistemic Communities and International Policy Coordination'. *International Organization*, 46(1): 1-35.
- Hawkins, D.G., D.A. Lake, D.L. Nielson, and M.J. Tierney (eds) (2006). *Delegation and Agency in International Organizations*. Cambridge: Cambridge University Press.
- Hicks, R.L., B.C. Parks, J.T. Roberts, and M.J. Tierney (2008). *Greening Aid?: Understanding the Environmental Impact of Development Assistance*. Oxford: Oxford University Press.
- Kapur, D. (2002). 'The Common Pool Dilemma of Global Public Goods: Lessons from the World Bank's Net Income and Reserves'. *World Development*, 30(3): 337-54.
- Kaul, I., P. Conceicao, K. Le Goulven, and R.U. Mendoza (2003). *Providing Global Public Goods: Managing Globalization*. New York: Oxford University Press.
- Keohane, R.O. (1984). *After Hegemony*. Princeton: Princeton University Press.
- Keohane, R.O. and M.A. Levy (1996). *Institutions for Environmental Aid: Pitfalls and Promise*. Cambridge: MIT Press.
- Lewis, T.L. (2003). 'Environmental Aid: Driven by or Recipient Need or Donor Interests?'. *Social Science Quarterly*, 84(1): 144-61.
- Marcoux, C., C. Peeters, and M.J. Tierney (2013). 'Agency Choice and Aid Allocation: The Politics and Consequences of Institutional Reform at the Global Environmental Facility'. Working Paper. College of William and Mary.
- Manning, R. (2006). 'Will "Emerging Donors" Change the Face of International Cooperation?'. *Development Policy Review*, 24(4): 371-85.
- Martin, L. (1992). *Coercive Cooperation*. Princeton: Princeton University Press.
- Milner, H. (2006). 'Why Multilateralism? Foreign Aid and Domestic Principal-Agent Problems'. In D.G. Hawkins, D.A. Lake, D.L. Nielson et al. (eds), *Delegation and Agency in International Organizations*. Cambridge: Cambridge University Press.
- Mitchell, R. (2003). 'International Environmental Agreements: A Survey of their Features, Formation, and Effects'. *Annual Review of Environment and Resources*, 28: 429-46.
- Morgenthau, H. (1962). 'A Political Theory of Foreign Aid'. *The American Political Science Review*, 56(2): 301-09.
- Müller, B. (2011). 'Time to Roll up the Sleeves – even higher! Longer-term Climate Finance after Cancun'. *Environmental Liability: Law, Policy, and Practice*, 19(1): 3-7.
- Nielson, D.L. and M.J. Tierney (2003). 'Delegation to International Organizations: Agency Theory and World Bank Environmental Reform'. *International Organization*, 57(2): 241-76.
- Oxfam International (2012). 'The Climate "Fiscal Cliff": An Evaluation of Fast Start Finance and Lessons for the Future'. <http://www.oxfam.org/sites/www.oxfam.org/files/oxfam-media-advisory-climate-fiscal-cliff-doha-25nov2012.pdf>. Accessed 29 May 2013.
- Roberts, J.T. and B.C. Parks (2006). *A Climate of Injustice*. Cambridge, MA: MIT Press.

- Roberts, J.T. and C.M. Peratsakis (2009). 'What Counts as Adaptation? A Study in Support of Adaptation to Climate Change in DFID's Current Projects'. Internal report for UK's Department for International Development.
- Ruggie, J.G. (ed.) (1993). *Multilateralism Matters: The Theory and Praxis of an Institutional Form*. New York: Columbia University Press.
- Tierney, M.J., R. Powers, D. Hawkins, M. Findley, J.T. Roberts, D. Nielson, B. Parks, R. Hicks, and S. Wilson (2011). 'More Dollars than Sense: Refining our Knowledge of Development Finance Using AidData'. *World Development*, 39(11).
- United Nations Conference on Environment and Development (UNCED) (1992). The Rio Declaration on Environment and Development, Rio de Janeiro, 3-14 June 1992, Section 4, Chapter 33, <http://www.unep.org/Documents.Multilingual/Default.asp?DocumentID=78&ArticleID=1163>
- Wade, R. (1997). 'Greening the Bank: The Struggle Over the Environment, 1970-1995'. *The World Bank: Its First Half Century*, 2, 611-734.
- World Bank (2009). 'Development and Climate Change'. *World Development Report 2010*. World Bank.

Annex I: Environmental coding criteria

**Environmental projects**

Access to water (not wells)  
 Acid Rain Prevention  
 Air Pollution  
 Biodiversity  
 Carbon Dioxide Reduction  
 CFC Reduction  
 Debt for Env./Nature  
 Drainage (for sanitation)  
 Ecosystems  
 Eco-tourism  
 Energy Conservation  
 Forest Fire Control  
 Forestation  
 Forestation/Reforestation  
 General Environmental

Multi-sector Env  
 National Park Protection  
 Ocean/Int'l Waterways  
 Protection  
 Rainwater Harvesting  
 Recycling  
 Reducing Desertification  
 Renewable Energy  
 Site Preservation  
 Soil Conservation  
 Solid Waste Treatment,  
 including commercial  
 Wastewater/sewage treat.  
 Water Conservation/  
 Supply/Infrastructure  
 Watershed Protection

Agenda 21  
 Desalination  
 Drought Control  
 Energy Efficiency  
 Env. Health Hazards  
 Env. Improvements  
 Erosion Control  
 Genetic Diversity (non-ag)  
 Industrial Reforestation  
 Natural Resource Mgmt  
 Nuclear Safety  
 Population/Family Planning  
 Safe Handling of Toxics  
 Soil Fertility  
 Sustainable Development  
 Tree Health

**Neutral projects**

AIDS/STDs  
 Archeological site  
 preservation  
 Banking/Finance  
 Business Services  
 Cottage Industries  
 Debt for Development  
 Disaster Relief/Prevention  
 Export Promotion  
 Food Safety/Quality

Food Security/Food Aid  
 Govt Reform  
 Governance/Civil Society  
 Health/Education  
 Hotel Construction  
 Housing  
 Humanitarian Aid  
 Illegal Drug Policy  
 Infectious Disease Control  
 Media (Radio/Newspaper)  
 Multisector unspecified

Privatization  
 Remote Sensing  
 Research (Unspecified)  
 Rural Development  
 SMEs (unspecified)  
 Social Welfare Programmes  
 Storage (general)  
 Telecomm (general)  
 Tourism  
 Trade Policy  
 Urban Devel (general)

**Dirty projects**

Agricultural credits/financing  
 Agricultural Inputs  
 Agricultural Research  
 Agriculture (general)  
 Agro-industries  
 Aqueducts  
 Automotive parts  
 Biotechnology  
 Cold Storage/refrigeration  
 Construction/Commercial  
 Development (general)  
 Electricity Transmission  
 Engineering  
 Farmer Cooperatives  
 Fisheries  
 Flood Control/Prevention  
 Food Crops  
 Food processing  
 Forest Development

Forestry (general)  
 Halieutics (fishing) and  
 Halieutics Research  
 Hydroelectric Power  
 Industrial Credit/Exports  
 Industrial Crops/  
 Industry (general)  
 Irrigation  
 Livestock  
 Manufacturing Electronics  
 Mass Transport  
 Methanol  
 Nuclear Power  
 Pest Control  
 Pharmaceuticals  
 Rail Transport  
 Rural Electrification  
 Textiles/Weaving  
 Transport  
 Unspecified Energy

Water Transport  
 Air Transport  
 All metals  
 Chemicals  
 Dams  
 Dredging  
 Industries  
 Logging  
 Minerals  
 Natural Gas  
 Oil and Coal  
 Power Generation  
 unspecified)  
 Raw Material Extraction  
 Road Transport  
 Thermal Power  
 Wells and Groundwater  
 Removal

