

Has Foreign Aid Been **GREENED?**

A large, stylized globe on the right side of the page, composed of numerous overlapping US dollar coins. The coins are shown in a perspective that makes them appear to be stacked and curved around a central point, creating a textured, metallic surface. The colors are primarily shades of blue and green, with the green being more prominent in the lower right portion of the globe.

by J. Timmons Roberts, Bradley C. Parks, Michael J. Tierney, and Robert L. Hicks

Since the first major international conference on environment and development in Stockholm, Sweden, in 1972, environmentalists, voters, and policymakers in the developed world have faced a vexing dilemma: with some of the richest stores of biodiversity, natural resources, and carbon located in developing countries, the greatest potential for damage to the global environment resides in places outside the sovereign control of the countries most able, financially speaking, to prevent it.

Developing countries have consistently taken the position that they cannot afford—and should not be asked—to divert large amounts of their own money to environmental protection. They argue that now-wealthy countries achieved high living standards through a resource-intensive industrialization process that often damaged the natural environment and only began to significantly invest in environmental protection at later stages of economic development.



© LEIGH PRATHER/SHUTTERSTOCK

International negotiators have repeatedly pointed to the transfer of financial resources from developed to developing countries as a possible way forward. Articles 2 and 12 of the Stockholm Declaration stated that “additional international technical and financial assistance” should be made available for environmental protection in developing countries. In the negotiations leading up to the Earth Summit in Rio de Janeiro in 1992, developed and developing nations struck a so-called Grand Bargain whereby wealthy countries agreed to underwrite the participation of less developed countries in global environmental accords. The 1991 Beijing Ministerial Declaration on Environment and Development identified poverty as the primary cause of environmental degradation in the developing world and stated that “a special Green Fund should be established to provide adequate and additional financial assistance” to environmental projects in developing countries.¹

During the Rio Earth Summit, wealthy countries vied in the international media to appear more “environmental” than their peers. The United States promised a 66 percent increase in environmental aid over its 1990 level; 12 members of the European Community promised a \$4.3 billion environmental aid package; and Canada pledged \$115 million. Japan tried to outbid everyone by offering \$7.7 billion in environmental assistance over the next five years.² However, many developing countries feared that this new concern for environmental protection would supplant foreign aid for basic human needs and economic development.

Agenda 21, a 700-page sustainable development plan drawn up jointly by developed and developing countries in the lead-up to the Rio conference, was designed to break this impasse. It sought to bring poor countries into environmental agreements while simultaneously supporting their economic development. Chapter 33 of *Agenda 21* stated that “the implementation of the huge sustainable development programs . . . [would] require the provision to developing countries of substantial new and additional financial resources.” The cost of implementing *Agenda 21* was estimated

at \$561.5 billion a year, with developed countries bankrolling \$141.9 billion (20 percent of the total cost) in low or no-interest concessional assistance and developing countries footing the rest of the bill.³ Of the assistance to developing countries, about \$15 billion a year was supposed to be devoted to global environmental issues, with the rest targeting sustainable development programs like drinking water and sewage treatment in developing countries.⁴

Thirteen years later, in the summer of 2005, the leaders of the G8 countries—the United States, Germany, France, United Kingdom, Italy, Japan, Russia, and Canada—met at the Gleneagles golf resort in Scotland. British Prime Minister Tony Blair, who was serving as G8 president, set two priorities for the meeting: for members to agree to “make poverty history”

U.K. Department for International Development (DFID), or Deutsche Gesellschaft für Technische Zusammenarbeit (German Technical Cooperation). However, with very incomplete datasets and inconsistent categorization of projects, it has been impossible to answer the most basic questions about whether the aid prescribed at Rio is being administered appropriately.

In 2001, the Intergovernmental Panel on Climate Change reported that “data are simply not collected and analyzed in a manner that informs policy makers interested in the issue.”⁵ The European Commission noted in 2006 that their “statistical system does not enable an environmental analysis of aid flows” and “there is no generally accepted definition of an ‘environmental project’ or of the environmental component of an integrated development/

Despite repeated promises of aid to address critical global and local environmental problems, little systematic research exists on whether donors have honored their commitments.

by substantially increasing aid, especially for Africa, and to make more progress on addressing global climate change. Environmental aid was again highlighted to demonstrate developed countries’ commitment to international environmental protection. Under the Gleneagles Plan of Action, the G8 made promises to help poor countries access clean energy technologies more readily. Yet after only three and a half years, it appears Gleneagles may be Rio all over again. Besides being almost an exact repetition of promises made in 1992, the Gleneagles declarations were very similar to those made at the first Earth Summit held in Stockholm 33 years before.

Despite repeated promises of aid to address critical global and local environmental problems, little systematic research exists on whether donors have honored their commitments. Claims of greening are often made by the World Bank and other big multilateral banks and by bilateral aid agencies like the U.S. Agency for International Development (USAID),

environment project.”⁶ A decade earlier, the same point had been made by political scientists Barbara Connolly, Tamar L. Gutner, and Hildegard Berdarff: “Available data are highly distorted by the lack of any common definition of what is or is not ‘environmental assistance.’”⁷

While scholars and policy analysts have produced a number of books and articles on the topic of environmental aid to developing countries, much of this research is based on qualitative case studies or small samples. Our collective knowledge remains limited largely due to the lack of comprehensive and reliable data on aid projects from bilateral and multilateral donors—data that are necessary for researchers to empirically evaluate competing hypotheses. As a result, we lack credible, cross-country evidence that can provide generalizable answers to some of the key questions that concern the academic, environmental, and policy communities:⁸

- Has aid been greened and, if so, by how much?

- Which donor governments spend the most on foreign assistance for the environment and why?

- Why do some donor governments delegate the allocation and implementation of environmental aid to multilateral agencies when they could simply allocate it themselves?

- Which countries receive the most environmental assistance and why?

To answer these questions, in 2003, researchers at the College of William and Mary and Brigham Young University launched the Project-Level Aid (PLAID) data collection initiative.⁹ The first version of the PLAID database covers 1970–2000 and contains approximately 427,000 individual development projects funded by grants and loans from wealthy countries to poor countries.

Previous work on aid allocation has relied on the Organisation for Economic Co-operation and Development's (OECD) Creditor Reporting System database, where the aid categories assigned to each project are determined by the donor country or multilateral agency. However, there are serious problems with using these data to examine such questions. For example, the project coding was inconsistent, and some projects were categorized using criteria developed for other purposes. In addition, important donors were missing from the dataset.

The PLAID initiative filled existing gaps by adding development projects from donor agencies that do not report to the OECD. Each project in the PLAID database was then categorized according to its likely environmental impact by two PLAID researchers. (When there was disagreement between two researchers on the nature of a project, which happened infrequently, the project was referred to senior researchers for a final decision.) As shorthand, projects expected to have damaging environmental effects are referred to as “dirty.”¹⁰ Each project was assigned one of five values, from the most environmentally beneficial to the least: Environmental Strictly Defined, Environmental Broadly Defined, Neutral, Dirty Broadly Defined, and Dirty Strictly Defined.¹¹ (The box on this page

PROJECT-LEVEL AID (PLAID) DATABASE PROJECT CATEGORIES

PLAID categorizes specific projects based on their published project titles and descriptions, rather than assuming entire sectors are homogenous. Many development agencies' sector coding can be highly misleading because very different projects are often lumped under the same sector heading, which offers a skewed picture of donor agencies' actual spending patterns and priorities. For example, in the Organisation for Economic Co-operation and Development's Creditor Reporting System database (to which major bilateral donors report), sustainable forestry and selective logging receive the same sector code as clear-cutting deforestation projects. For scholars interested in the impact of foreign aid on the environment, such distinctions are vital, and PLAID data highlight these differences.

Each project in the PLAID database is classified according to whether it would likely have a positive, negative, or negligible impact on the natural environment. In addition, the environmental projects are divided into two types of projects—“green” (which address global issues like climate change) and “brown” (which address local environmental problems like water pollution). The overall categories are defined as follows:

- *Environmental Strictly Defined* projects have an immediate positive impact on the environment with clear, measurable goals and criteria for success. Examples include biodiversity protection, renewable energy, soil conservation, watershed protection, refor-

estation, access to clean water, and air pollution mitigation.

- *Environmental Broadly Defined* projects include those that have less definable, longer-range environmental effects than the Environmental Strictly Defined projects have or are preventative in nature. Examples include energy efficiency, industrial reforestation, family planning, desalinization, and genetic diversity projects.

- *Neutral* projects include those projects that have no immediate or direct environmental impact and projects with positive and negative effects that roughly balance out or are minimally damaging. Examples include projects designed to fund health, education, telecommunications, disaster relief, free trade promotion, balance of payments support, small and medium enterprise assistance, or export promotion.

- *Dirty Broadly Defined* projects are those that have a moderate or long-term negative impact on the environment, including agriculture (not including erosion control), biotechnology, electricity generation and distribution, engineering, forestry, hydroelectric power, and mass transportation projects.

- *Dirty Strictly Defined* projects may strip the environment of irreplaceable natural resources, as in the case of extractive industries (such as mining or logging), or severely pollute or degrade the environment, with immediate measurable negative impacts; examples include road and air transport as well as heavy industry (such as fertilizer, tire, and brick-making factories).

describes each of these categories.) The projects coded as environmental are further divided into two categories: “green” projects, which are designed to address global environmental problems such as biodiversity loss and transboundary air pollution, and “brown” projects, which address local environmental problems such as land erosion, sewer systems, and water pollution. The coding scheme allowed the initiative to do what has never been done before: consistently evaluate projects across all 61 donors and over

the two decades (the 1980s and 1990s) when the data was the most complete and reliable.¹²

Major Trends

During the first three decades of the post-World War II era, foreign aid played a central role in financing the heavy-duty infrastructure of development—roads, mines, dams, mechanization of agriculture, lumber mills, and colonization schemes.

But in the mid-1980s, the political landscape changed significantly in many industrialized countries: a firestorm of protest exploded when environmentalists discovered the World Bank's role in funding environmental disasters in the Brazilian Amazon and Indonesia's Sarawak rainforest.¹³ Conservation International and a network of nongovernmental organizations (NGOs) brought indigenous people and Brazilian rubber-tappers before the U.S. Congress to explain how the bank's actions were destroying their civilization and livelihoods and the forests that supported them.¹⁴ The U.S. Senate threatened to withhold the bank's funding replenishments, and Congress went on to pass the Pelosi Amendment to the 1989 International Development and Finance Act, which required multilateral development banks to create environmental departments and conduct environmental impact assessments for any project with the potential to cause significant environmental damage.

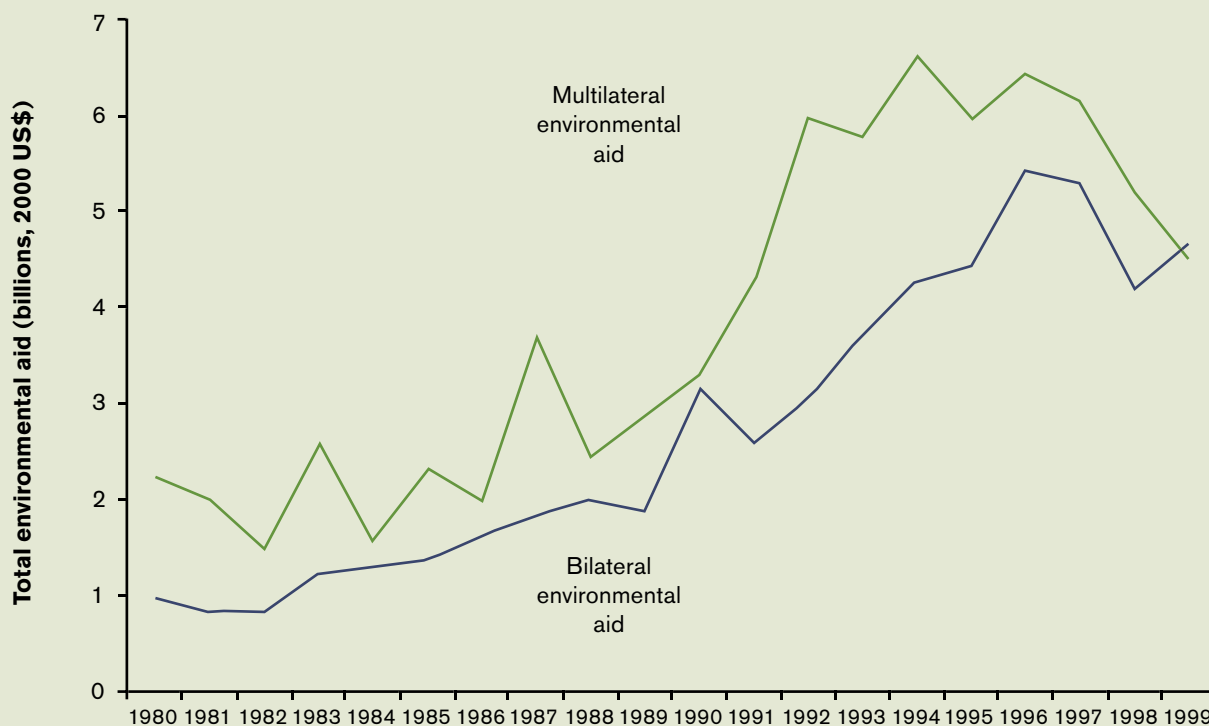
Collecting and categorizing data on 427,000 projects suggests that aid has

greened over these 20 years, but only partially, and certainly not to the level promised by donors at previous summits. The descriptive statistics reported in Figures 1 (on this page) and 2 (on page 13) suggest that most bilateral and multilateral aid agencies have responded to critiques by environmentalists and threats and sanctions from the legislatures that fund them. From 1980 to the end of the twentieth century, environmental aid increased substantially, from roughly \$3 billion a year to about \$10 billion a year (Figure 1). In all, \$61.9 billion in environmental assistance flowed from donor governments to recipient countries during the 1980s and 1990s, out of \$735.2 billion in total bilateral assistance, 8.4 percent of all bilateral aid over the two decades. Bilateral environmental assistance increased from a total of \$5.8 billion for all donors in the first five years of the 1980s to \$27.4 billion in the late 1990s. Multilateral agencies like the World Bank committed approximately \$10 billion in environmental grants and loans in the early

1980s, nearly tripling that to \$28 billion in the late 1990s.

Between 1982 and 1992, bilateral donors also scaled back their support for projects that were likely to damage the environment, from about 45 percent of bilateral aid in most of the 1980s to about 20 percent a year at the end of the 1990s.¹⁵ Creating a ratio of dirty aid to environmental aid lends further support to the argument that there has been a major shift in the environmental composition of aid (see Figure 3 on page 14). It also shows that bilateral aid agencies greened more quickly and thoroughly than multilateral agencies. At the beginning of the 1980s, dirty projects received roughly 10 times as much funding as pro-environment projects. But by the end of the 1990s, the ratio was about three to one. Case studies of USAID, DFID, and the Danish, German, and Japanese aid agencies shed light on the domestic political factors that encourage bilateral funders to green their aid portfolios.¹⁶ The multilateral development banks also have

Figure 1. Total official environmental assistance, 1980–1999



greened substantially over these pivotal decades but continue to give about four times as much funding to dirty projects as environmental projects (Figure 3).¹⁷ The data show that the ratio of dirty to clean projects stopped declining in 1992—the year of the Rio Earth Summit—through the end of the decade.¹⁸

An important, but underappreciated trend has also surfaced: a massive increase in environmentally neutral projects—those that are on average neither environmental nor dirty. While some of these neutral projects have environmentally positive and negative elements, most are not directly related to environmental outcomes. For example, projects that fund judicial reform initiatives or that provide computer software to school children have no obvious impact on the natural environment. Neutral aid doubled from \$20 billion a year in the early 1980s to

about \$40 billion by the early 1990s and increased to more than \$60 billion in the late 1990s.

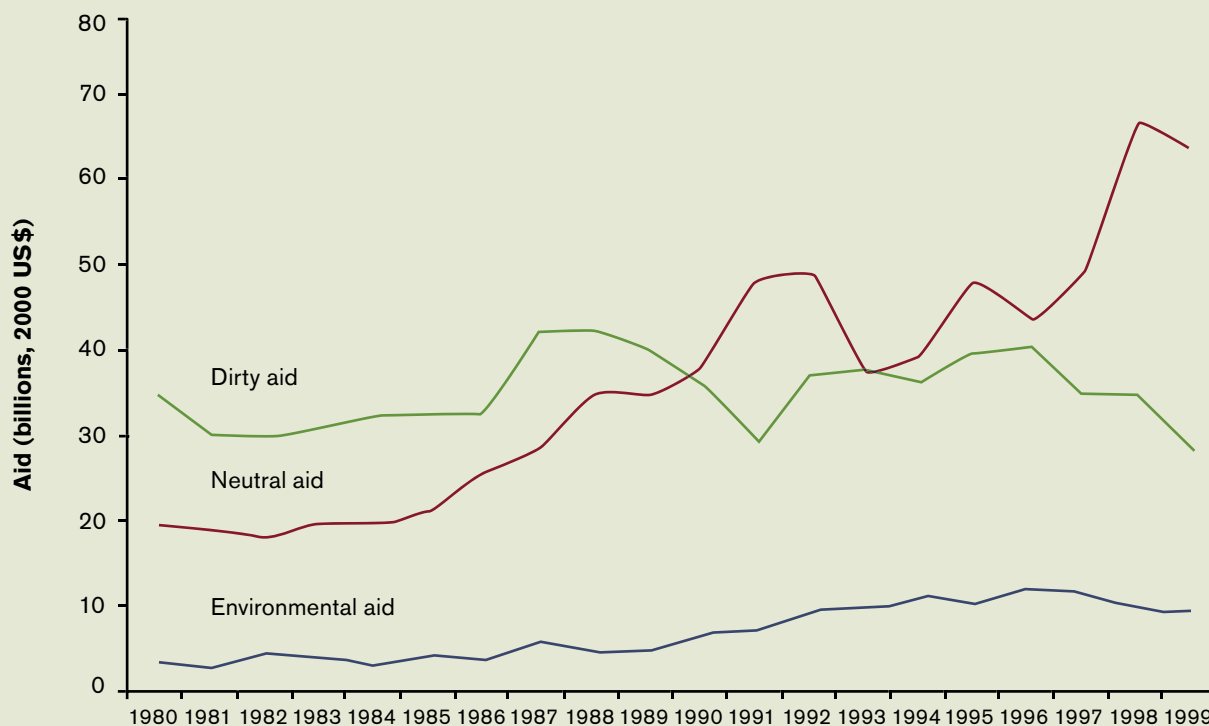
Were Agenda 21 Promises Met?

Agenda 21 included specific recommendations about how much funding would be needed to address the major issues of the planet's health, including water and sanitation (\$6.1 billion a year), desertification and land degradation (\$18.2 billion a year), global climate change (\$20 billion a year), and biodiversity loss (\$1.75 billion a year). Were these prescribed funds delivered? PLAID environmental coding and keyword searching of project descriptions and titles facilitated the first systematic evaluation of this question. Of these four issues, water

and sanitation projects appear to have attracted by far the most environmental funding, with climate change and biodiversity projects increasing substantially (in number and amount) only in the late 1990s (see Figure 4 on page 15). The PLAID data collection effort suggests that the dire problems of desertification and soil erosion have been almost entirely neglected.

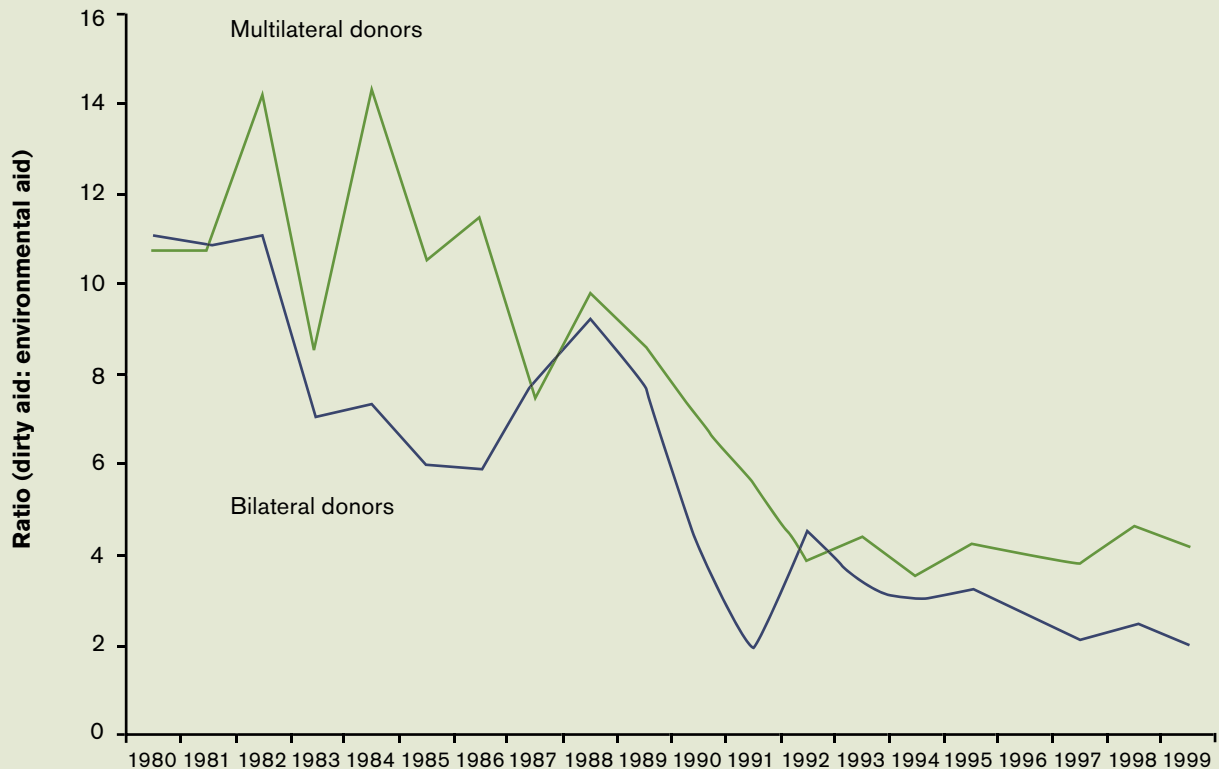
In the years following the publication of *Agenda 21* (1993–1999), the average annual amount of water aid rose to \$5.6 billion—only \$500 million short of the original estimated amount needed. By contrast, climate change received just \$33.6 million—4 percent of the funding scientists prescribed in *Agenda 21* (\$840 million a year)—and biodiversity protection received only \$8.75 million—7 percent of the amount that was prescribed (\$125 million a year). Funding to

Figure 2. Total official environmental, dirty, and environmentally neutral assistance, 1980–1999



NOTE: The Project-Level Aid database from which these data were drawn designates any project expected to have damaging environmental effects as “dirty.”

Figure 3. Ratio of dirty aid to environmental aid, bilateral and multilateral donor agencies, 1980–1999



NOTE: The Project-Level Aid database from which these data were drawn designates any project expected to have damaging environmental effects as “dirty.”

assist poor countries in combating desertification and other types of land degradation was the most neglected category throughout the 1980s and 1990s: despite continued warnings from the scientific community and staggering estimates of need, only \$350 million per year, 2 percent of the funding prescribed at Rio, was delivered in the 1990s.

How Green Are Donors?

Which governments give the most environmental aid? In terms of total dollars sent abroad to protect the environment, the United States was first in the 1980s, giving a total of \$3.8 billion. During the 1990s, that amount doubled, to just below \$7.6 billion. However, the United States fell to third in total environ-

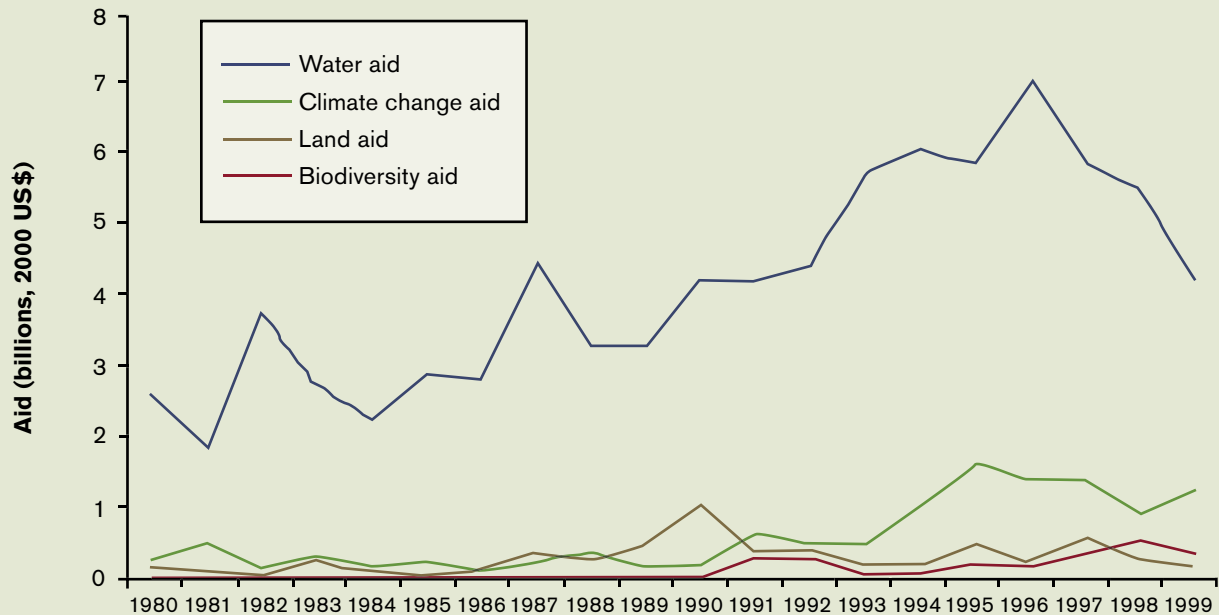
mental aid during the second half of the 1990s, as Japan’s environmental funding increased fivefold from \$3 billion in the 1980s to nearly \$15 billion in the 1990s.

Denmark has the distinction of having the greenest aid portfolio of any donor government, giving 13 percent of all its aid to projects categorized as environmental in the last five years of the 1980s and nearly 22 percent during the 1995–1999 period (see Table 1 on page 16). In per capita terms, Denmark’s environmental aid is unparalleled: in the late 1980s, they gave on average more than \$180 per person (see Table 2 on page 17). This amount was well over twice that of the next four donors, who gave between \$70 and \$85 per person. By 1999, 42 percent of Denmark’s total aid portfolio was earmarked for pro-environment projects, nearly three times that of the next three

countries: Germany, Austria, and Sweden (whose environmental funding ranged from 12 to 15 percent in 1999).

Comparing the period 1985–1989 to the period 1995–1999, Germany nearly tripled its environmental giving, from \$2.3 billion to \$6.7 billion, which meant a doubling of the proportion of its bilateral donations going to the environment, from 7.5 to more than 15 percent. New Zealand, meanwhile, was the only country to reduce the environmental share of its bilateral aid portfolio: channeling 6.6 percent of all bilateral aid to environmental projects in the early 1980s but only 3.7 percent in the late 1990s. Large increases in environmental aid spending over the last 20 years were also documented for the Netherlands, France, Sweden, Italy, the United Kingdom, Canada, and Denmark. Between 1990 and 1999, the top environ-

Figure 4. Funding for environmental projects by subsector



mental donors scaled up from \$2.9 billion to more than \$5 billion a year.¹⁹

Several factors may help explain the greenness of donor portfolios: the level of national wealth; the prevalence of post-materialist values; the strength of domestic and international environmental policy preferences; the power of coalitions of environmental NGOs and environmental technology firms; dirty industry lobbying strength; and domestic political institutions (such as political party strength, corporatist decision-making structures, and the number of veto players and checks and balances). Testing this series of factors using multivariate statistical techniques found that the PLAID models better explain the drop in “dirty” aid than the rise in environmental aid. Wealthier countries and those scoring higher on post-materialist survey items seem to invest less in dirty projects but not necessarily more in environmental projects. Countries where environmental NGOs and environmental technology firms are both strong also appear to give less dirty aid and more aid focused on global environmental

issues like biodiversity. Finally, as one might expect, countries with higher rates of environmental treaty ratification and compliance also tend to have larger environmental aid budgets.

Who Receives Environmental Aid?

On the recipient side, there are several unsurprising entries—Brazil, India, China, and Indonesia—on the top 10 list of countries that received more than \$2 billion in environmental aid during the 1990s (see Figure 5 on page 18). Some of these countries have large stocks of natural capital that the international community would like to protect (Brazil’s Amazon rainforest, for example); others have huge populations and economies that are major contributors to ozone depletion, climate change, and other international environmental threats (such as China and India). But there are also some surprising appearances on the list. For example, it is not immediately obvious why countries like Egypt or Turkey—which have not expe-

rienced well-known environmental crises and do not have globally critical biological resources—would receive more than \$2 billion in environmental assistance.

In addition, there was considerable variation in the *type* of environmental assistance from one recipient country to the next. During the late 1990s, Egypt and Turkey—two countries of significant geostrategic importance—received far more funding for locally focused (brown) aid than they did globally oriented (green) aid. However, the least developed countries in the world received far more green aid than brown aid. These descriptive statistics beg many questions about underlying donor motivations and the relative bargaining power of donors and recipients. For example, are major geopolitical players able to negotiate for a higher ratio of environmental aid that directly benefits their local populations, such as water and sewage projects?

Of particular interest to the PLAID research group was assessing whether environmental assistance is allocated differently than other types of foreign assistance. That is, is environmental aid

Table 1. Environmental aid as a percentage of total bilateral aid portfolio

		Percent of total bilateral aid		
Rank	Country	(1980–1984)	(1995–1999)	Change in percent
1	Denmark	11.2	21.9	10.7
2	Germany	4.7	15.6	10.9
3	Finland	5.7	14.0	8.3
4	Japan	4.9	13.8	8.9
5	Austria	0.0	12.7	12.7
6	Netherlands	6.7	12.3	5.6
7	United States	5.3	11.2	5.9
8	Switzerland	4.3	10.1	5.8
9	France	3.4	10.1	6.7
10	United Kingdom	1.3	9.4	8.1
11	Australia	1.8	9.3	7.5
12	Norway	10.1	8.2	-1.9
13	Sweden	5.7	8.1	2.4
14	Spain	0.0	5.7	5.7
15	Italy	2.7	5.5	2.8
16	Canada	4.1	5.4	1.3
17	Belgium	1.5	3.9	2.4
18	New Zealand	6.6	3.7	-2.9
19	Portugal	0.0	0.4	0.4

channeled to military allies, geostrategic partners, and key trading partners, or are donors concerned with the environmental rate-of-return they receive on their aid investment? Here again, several factors may explain interrecipient environmental aid allocation patterns, including global environmental significance; regional (environmental) significance; the severity of local environmental damage; the level of participation in international environmental agreements; the transparency and availability of environmental information; and the overall level of human need. Other questions arise as to whether donors favor recipient countries with

sound economic policies, strong public institutions, and democratic credentials, and whether a recipient's political loyalty to a donor, existing commercial relationships with a donor, or former colonial ties have any impact on the amount of environmental aid it received.

Multivariate statistical techniques used to evaluate a series of such factors did find some evidence that environmental aid is allocated according to eco-functional criteria. In other words, some donors appear to be targeting countries where they think their environmental aid might have a better chance of actually ameliorating serious environmental problems. But

many of the political, commercial, and historical factors that are identified in the broader literature on foreign aid allocation also appear to influence environmental aid. In fact, the overall impact of most eco-functional variables is small when compared with the more traditional determinants of foreign aid allocation, such as a recipient country's existing bilateral commercial relationship with a donor country and previous colonial ties to the donor country. This finding is important, as a growing body of evidence suggests that the way aid is allocated influences its ultimate effectiveness. Researchers and practitioners generally agree that aid allocated along political lines has a worse chance of leading to better development outcomes than aid allocated according to need and government commitment to good policy.²⁰

Future Directions

With continued warnings of environmental crisis and repeated promises of action, many observers have become cynical about the prospects for significant cooperation on environmental issues among developed and developing countries. However, the evidence seems to show that the international community had it right back in Stockholm in 1972: development assistance, when allocated and implemented properly, can be an important tool for promoting international environmental cooperation and addressing local environmental issues in the world's poorest countries.

The overall picture that emerges from the PLAID database is that aid has partially greened but certainly not to the level promised by donors at previous summits. From 1980 to the end of the twentieth century, environmental aid increased substantially in absolute and relative terms; environmentally neutral aid increased by an even greater margin; and dirty aid declined in relative terms, while remaining virtually unchanged in absolute terms. Breaking down environmental aid into four major sectors revealed that water and sanitation projects attract the most

Table 2. Environmental aid per capita (1995–1999)

Rank	Country	Environmental aid per capita (1995–1999)
1	Denmark	\$181.26
2	Norway	\$84.26
3	Germany	\$81.86
4	Netherlands	\$70.32
5	Japan	\$70.22
6	Sweden	\$50.13
7	Switzerland	\$43.11
8	Finland	\$30.95
9	Austria	\$29.93
10	France	\$24.46
11	Australia	\$22.80
12	United Kingdom	\$19.02
13	United States	\$16.38
14	Canada	\$11.53
15	Belgium	\$9.32
16	Spain	\$5.39
17	Italy	\$3.46
18	New Zealand	\$0.84
19	Portugal	\$0.23

environmental funding, with climate change and biodiversity project commitments increasing substantially (in numbers and amounts) only in the late 1990s. Financing for green projects—that is, those that deal with global public goods by addressing, for example, biodiversity or climate change—increased from just 1 percent of total aid during the whole of the 1980s to around 3 percent in the 1990s. Green aid’s share of total environmental aid has grown; throughout much of the 1980s, it accounted for about 17 percent of environmental aid, and by the mid to late 1990s, this figure had reached about 27 percent.

The research presented here also draws attention to a simple but very important point about accountability: without inde-

pendent categorization and evaluation of donor commitments at the project level, it is extremely difficult to monitor what donors are doing in the environmental sector. Influential political groups in many donor countries exert pressure on their governments to reduce aid for environmentally damaging projects and increase aid for environmental cleanup. Such pressure can create incentives for policymakers to overrepresent the amount of environmental aid they give so as to look and sound as green as possible.

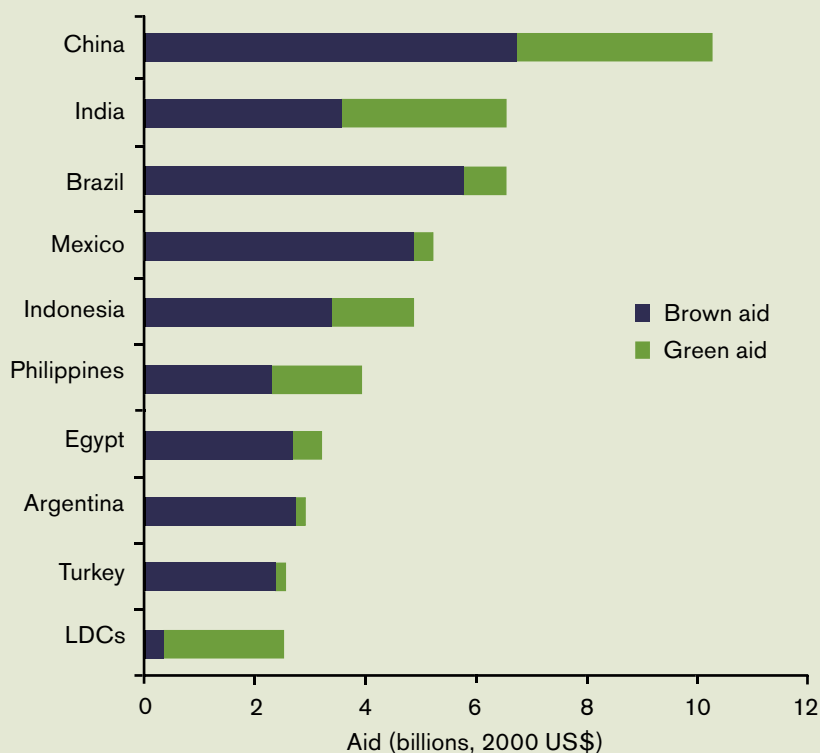
The value of an independent, project-level aid database became evident in an evaluation of the United Kingdom’s development agency. Comparing PLAID coding for what constitutes an environmental project with DFID’s Policy

Information Marker System for the same projects revealed a stark divergence of claims. DFID claimed that environmental projects accounted for 25 percent of its bilateral aid in the 1990s, while PLAID’s analysis suggests the actual number is probably closer to 10 percent.

When these types of accounting differences are viewed within the context of the huge promises that donors have made to ramp up environmental spending at international summits, the need for a credible mechanism that independently monitors whether donors are honoring their commitments becomes obvious. What do these public commitments mean if there is no agreement or mechanism to track them? The PLAID database begins to address that problem.

The future will likely bring a growing focus on global climate change among major bilateral and multilateral donors. There is broad agreement that the key challenge to securing an effective global climate agreement among developed and developing countries will be to enlist the support and active participation of the latter. Many developing countries are highly vulnerable to the effects of global warming but see the need to fuel their economic growth with cheaper—and dirtier—sources of energy. As such, if developing countries are going to actively participate in a global agreement to curb greenhouse gas emissions, they will almost certainly need significant assistance making the transition from high-carbon to low-carbon energy technologies and adapting to the worst effects of climate change.²¹ According to the latest UN Framework Convention on Climate Change estimates, by 2030, \$100 billion a year will be needed to finance mitigation activities and \$28–\$67 billion a year to finance adaptation activities in the developing world. Even with major new sources of funding from the Clean Development Mechanism (CDM), the Adaptation Fund (financed by a 2 percent tax on CDM transactions), and the proposed Reducing Emissions from Deforestation and Degradation mechanism, there will still be a major role for official assistance, as market mechanisms will likely not channel

Figure 5. Top environmental aid recipients, 1995–1999



NOTE: Least developed countries (LDCs) are those countries designated by the United Nations as having the lowest socioeconomic development indicators in the world. In 1999 there were 48, predominately in sub-Saharan Africa (United Nations Conference on Trade and Development, *Least Developed Countries 1999 Report* (New York and Geneva: United Nations, 1999)). Green aid projects address global environmental problems such as biodiversity loss and transboundary air pollution; brown aid projects address local environmental problems such as land erosion, sewer systems, and water pollution.

money to all areas of need, and funding may be too slow or unpredictable.

Finally, in addition to the aid allocation issues dealt with here, the PLAID database provides an extremely valuable resource for those interested in evaluating the effectiveness of aid. The existing literature on aid effectiveness has focused on the relationship between total aid flows—including support for peacekeeping, landmine clearance, free and fair elections, civil society, biodiversity protection, HIV/AIDS, anti-drug trafficking efforts, and refugees—and causally distant or unrelated outcomes, such as economic growth and infant mortality. However, there is

a growing consensus that such research probably obscures more than it reveals.²² Biodiversity aid is not designed to accelerate short-term economic growth, nor is renewable energy assistance intended to reduce infant mortality. Well-designed assessments of aid effectiveness should therefore evaluate the impact that specific types of aid have on more specific social, economic, political, and environmental outcomes. For example, with the PLAID database, researchers can now unbundle environmental aid into its constituent parts and study the relationships between biodiversity aid and species loss, climate adaptation assistance and human vulner-

ability to hydro-meteorological disasters, and land degradation aid and soil fertility.

Although the specific social and economic goals identified in *Agenda 21* (such as combating poverty, changing consumption patterns, and protecting and promoting human health) involve interconnected problems and target very different outcomes, aid's ability to contribute to these outcomes is best measured separately.

We hope that PLAID will inspire a new generation of research on the effectiveness of aid, including the impact of environmental aid on environmental protection. A broad range of stakeholders, including donor agencies, legislative overseers, advocacy groups, and beneficiaries in recipient countries stand to benefit from such research.

J. Timmons Roberts is a professor of sociology and past director of the Environmental Science and Policy Program at the College of William and Mary. In 2006–2007 he was a James Martin 21st Century Professor at Oxford University's Environmental Change Institute. His research interests include globalization, development and social change, environmental sociology, and urban and community sociology. He may be reached at jtrobe@wm.edu.

Bradley C. Parks is an associate director in the Department of Policy and International Relations at the Millennium Challenge Corporation in Washington, DC. He has written and contributed to several books and articles on global environmental politics, international political economy, and development theory and practice. He may be reached at parksbc@mcc.gov.

Michael J. Tierney is an associate professor of government and the director of the International Relations Program at the College of William and Mary. His research and teaching interests focus on international organizations, international relations theory, political economy, and development. He may be reached at mjtier@wm.edu.

Robert L. Hicks is an associate professor of economics at the College of William and Mary. His research interests include environmental and natural resource economics, development economics, and econometrics. He may be reached at rlhick@wm.edu.

An extended version of these arguments and more extensive evidence is presented in *Greening Aid? Understanding the Environmental Impact of Development Assistance* (Oxford University Press, 2008). The views expressed in this article are the authors' own and do not necessarily represent the views of the Millennium Challenge Corporation.

NOTES

1. "Beijing Ministerial Declaration on Environment and Development," adopted by 41 developing countries at the Ministerial Conference of Developing Countries on Environment and Development, Beijing, 19 June 1991. See also H. Sjöberg, *Restructuring the Global Environment Facility*, Global Environment Facility (GEF) Working Paper 13 (Washington, DC: GEF, 1999), http://thegef.org/Outreach/outreach-Publications/WP13-Restructuring_the_GEF.pdf (accessed 6 November 2008).

2. R. Hicks, B. C. Parks, J. T. Roberts, and M. J. Tier-

ney, *Greening Aid? Understanding the Environmental Impact of Development Assistance* (Oxford, UK: Oxford University Press, 2008), 124. Upon closer inspection of the aid increase promised by Japan, it appeared only to include an increase over existing levels of about \$500 million per year. See P. Lewis, "Pact on Environment Near, But Hurdles on Aid Remain," *New York Times*, 12 June 1992.

3. United Nations Conference on Environment and Development (UNCED), *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> (accessed 28 October 2008).

4. According to N. A. Robinson, ed., *Agenda 21 and UNCED Proceedings. Vol. 1 and 2* (New York: Oceana Publications, 1992), concessional financing under *Agenda 21* was more than \$125 billion, of which \$15 billion was to address global issues.

5. Intergovernmental Panel on Climate Change, *Climate Change 2001: A Synthesis Report* (Cambridge, UK: Cambridge University Press, 2001).

6. European Commission, *Environment Directorate-General of the European Commission*, 2006, <http://ec.europa.eu/environment> (accessed 15 June 2007).

7. B. Connolly, T. L. Gutner, and H. Berdarff, "Organizational Inertia and Environmental Assistance in Eastern Europe," in R. O. Keohane and M. A. Levy, *Institutions for Environmental Aid: Pitfalls and Promise*, 281–323 (Cambridge, MA: MIT Press, 1996), 286.

8. Cross-country patterns of environmental aid allocation have significant implications for the alleviation of local, regional, and global environmental problems. For example, if donors target recipient countries with sound policies and institutions and the potential to deliver significant environmental benefits, there is good reason to believe that such assistance will be put to more productive use.

9. The goal of the Project-Level Aid (PLAID) research project is to collect and standardize data on every individual development assistance project committed by official donors since 1970. The forthcoming PLAID 2.0, which updates the time series through 2006, includes more bilateral and multilateral donors and fills in gaps where new data have become available. To do so, the project has recently received generous support from the National Science Foundation (#SES-0454384), the William and Flora Hewlett Foundation, and the Bill and Melinda Gates Foundation. For more information about the PLAID database, see <http://irtheoryandpractice.wm.edu/projects/plaid/> (accessed 10 December 2008).

10. The PLAID coding rules disregard the humanitarian dimensions of projects: a project's potentially positive overall impact on a recipient country's populations is analytically distinct from a project's environmental impact.

11. The environmental coding scheme is designed to capture the expected environmental impact of projects—not the actual environmental impact of projects. It is understood that some "environmental" projects may not deliver significant environmental benefits, and that donors can make course corrections during project implementation and modify "dirty" and "neutral" projects.

12. Because donor organizations have their own criteria for identifying and counting what is environmental aid (and these criteria often change over time within a given organization), it is difficult to make comparisons across donors or over time.

13. In addition to its problems in Brazil and Indonesia, the World Bank was also widely criticized for its involvement in huge dam projects that displaced millions of people and flooded sensitive lands. For example, see S. Schwartzman, *Bankrolling Disasters: International Development Banks and the Global Environment: A Citizen's Guide to the Multilateral Development Banks* (Washington, DC: Sierra Club, 1985).

14. I. A. Bowles and C. F. Kormos, "The American

Campaign for Environmental Reforms at the World Bank," *The Fletcher Forum of World Affairs* 23, no. 1 (1999): 211–25; and D. L. Nielson and M. J. Tierney, "Delegation to International Organizations: Agency Theory and World Bank Environmental Reform," *International Organization* 57, no. 2 (2003): 241–76.

15. In inflation-adjusted, year 2000 dollars, environmentally damaging aid remained relatively unchanged at around \$30 billion a year at the end of the 1990s.

16. Hicks, Parks, Roberts, and Tierney, note 2, chapter 5.

17. Multilateral environmental aid is a highly concentrated sector; 90 percent of such assistance comes from just five agencies: the World Bank, the Asian Development Bank, the Inter-American Development Bank, the European Union, and GEF. The World Bank alone gave \$38 billion in environmental aid over the 1980s and 1990s, in addition to the nearly \$3 billion of GEF funding the bank administered.

18. A limitation of the PLAID study is that it did not address the "marbling," or mainstreaming, of environmental aid into larger projects. Several studies suggest that marbled environmental assistance represents a significant amount of total environmental assistance at the World Bank. For example, see Nielson and Tierney, note 12. However, research has found that that mainstreamed environmental funding at the World Bank has not increased significantly. In fact, between 2000 and 2006, mainstreamed environmental funding actually declined—from about 12 percent to 10 percent of each project. Yet during the same period, environment-themed bank publications have increased from 4 percent of all bank publications to approximately 32 percent of all bank publications. See R. M. Powers and M. J. Tierney, "A New Measure of Environmental Aid: Measuring Environmental Mainstreaming at the World Bank," paper prepared for the International Studies Association Conference, New York, 15–17 March 2009.

19. Beyond the bilateral funding, a similar amount was being pumped through multilateral agencies like the World Bank, the UN Development Programme, and the EU Technical Aid to the Commonwealth of Independent States fund.

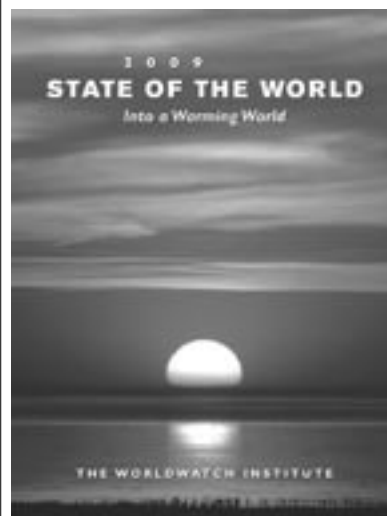
20. P. Collier and D. Dollar, "Development Effectiveness: What Have We Learnt?" *Economic Journal* 114, no. 6 (2004): 244–71.

21. J. T. Roberts and B. C. Parks, *A Climate of Injustice: Global Inequality, North-South Politics, and Climate Policy* (Cambridge, MA: MIT Press, 2007).

22. For example, see M. Clemens, S. Radelet, and R. Bhavnani, "Counting Chickens When They Hatch: The Short-Term Effect of Aid on Growth," Center for Global Development Working Paper 44 (Washington, DC: Center for Global Development, 2004).

"Top-ranked annual book on sustainable development."

—GlobeScan survey of sustainability experts



"This is a research masterpiece, the single most important reference guide to climate change yet published."

—Alex Steffen, Executive Editor, *Worldchanging.com*

STATE OF THE WORLD 2009

Into a Warming World

- Includes a Quick-Reference Climate Change Guide and Glossary of 38 key terms for understanding climate change.

Order Today!

- **Online:** www.worldwatch.org
- **Email:** wwpub@worldwatch.org
- **Phone:** Toll free 1-877-539-9946 within the United States Or 301-747-2340 internationally
- **Fax:** 1-301-567-9553

ISBN: 978-0-393-33418-0
262 pages

\$19.95 plus shipping and handling

ADVERTISE IN

Environment®

Contact
Sally Wright
540.592.3634
or
swright@heldref.org

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.