



CARBON
FINANCE
at the
WORLD
BANK

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Dealing with the Threat of Climate Change

Committed to Reduce Carbon

The World Bank's carbon finance initiatives described in this pamphlet are part of a larger global effort to combat climate change. Many countries, states, cities, local governments and responsible companies have taken action to reduce carbon emissions.

At the international level, the Kyoto Protocol, which entered into force in February 2005, commits industrialized country signatories to reduce their carbon emissions by an average of 5.2 percent below their 1990 levels in the period 2008-2012. Two of the flexible mechanisms incorporated into the Protocol—the Clean Development Mechanism (CDM) and Joint Implementation (JI)—enable industrialized countries to meet some of their obligations through projects generating emission reductions in developing countries and economies in transition.

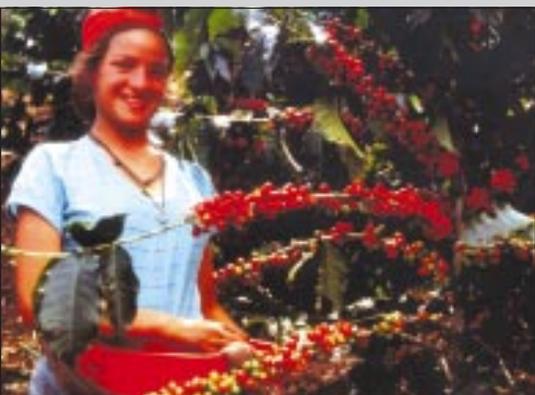
Public/Private Partnerships

The World Bank's carbon finance operations leverage new public and private investment into such projects, significantly contributing to other World Bank Group efforts to mainstream climate mitigation and adaptation concerns in developing countries and economies in transition. As part of its carbon finance initiatives, the World Bank

has also established a number of technical assistance facilities for capacity building and project preparation.

Carbon Emission Reductions as a Tool for Development

The private market for project-based emission reductions, still in an early stage, does not yet have significant volume, and the potential benefits have not reached many developing countries. The World Bank's carbon finance products help grow the market by extending and expanding carbon finance to both developing countries and economies in transition—linking private sector buyers of carbon emission reductions with climate-friendly projects seeking financing. These carbon finance products are helping to create an environment in which the private sector can more easily use their resources in support of climate-friendly and environmentally and socially responsible projects.



Umbrella Carbon Facility

Umbrella Carbon Facility

The World Bank's Umbrella Carbon Facility (UCF) was established in December 2005 as an aggregating facility to pool funds for the purchase of emission reductions from large projects. The Facility will aggregate multiple sources of funding, including from some of the Bank's existing seven carbon funds, to purchase large volumes of carbon emission reductions from CDM and JI projects. The purchases will be made on behalf of governments and private companies that have contributed to the Facility as they strive to meet their commitments under the Kyoto Protocol or other international regulatory systems such as the European Union's Emissions Trading Scheme. More than 75 percent of the money in the UCF's first tranche represents private capital.

Two Chinese private companies in Jiangsu Province in The People's Republic of China, *Jiangsu Meilan Chemical Co. Ltd.* and *Changshu 3F Zhonghao New Chemicals Material Co. Ltd.*, have signed emission reductions purchase agreements



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with the UCF for the largest emission reductions transaction on record. These are two HFC-23 (Trifluoromethane) destruction projects to be located at the HCFC22 (Chlorodifluoromethane) manufacturing facilities in these companies.

HFC-23, a byproduct in the manufacturing process of HCFC22, is one of the most potent greenhouse gases with a global warming potential that is 11,700 times that of carbon dioxide. Through the 799 million euro (US\$1billion) contract to purchase emission reductions from these projects, the two companies jointly are expected to reduce emissions of about 19 million tons of carbon dioxide equivalent annually.

Working for Sustainable Development

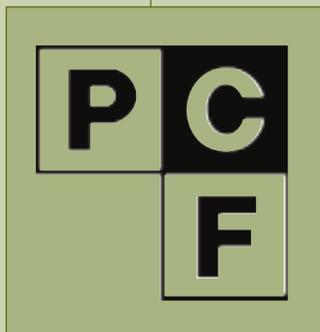
China has created a Clean Development Mechanism Fund (CDMF), through which revenues accruing to the government as a result of the sale of emission reductions will be used to support sustainable development activities. The government will retain 65 percent of all HFC-23 revenues for investing in projects and activities related to climate change. China's CDM Fund is expected to finance climate mitigation projects in priority sectors such as energy efficiency, renewable energy, coal mine methane recovery and use.

Prototype Carbon Fund

The Prototype Carbon Fund (PCF)

The mission of the Prototype Carbon Fund was to pioneer the market for project-based greenhouse gas emission reductions within the framework of the Kyoto Protocol and to contribute to sustainable development. Operational since April 2000 as the first public/private partnership aimed at mitigating climate change to be established globally, the PCF has achieved these goals. Thanks to the innovative lead of the PCF, project-based mechanisms used to generate potential credits for reductions in emissions of greenhouse gases (the Clean Development Mechanism and Joint Implementation) have now been solidly established.

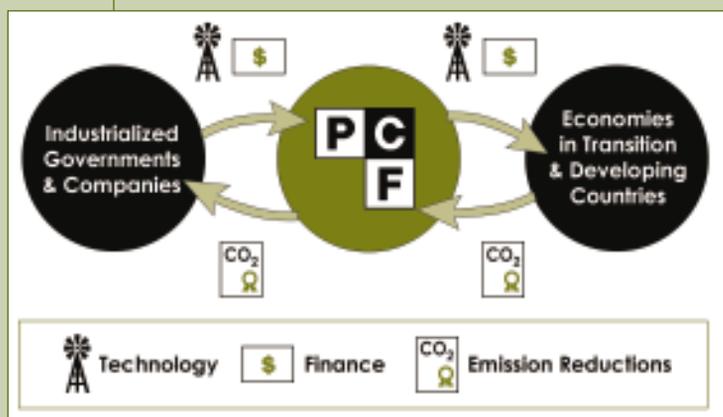
The PCF provides funds to projects designed to produce high quality greenhouse gas emission reductions, which PCF participants may be able to use in compliance with their expected greenhouse gas reduction obligations. Six governments and 17 companies, all from industrialized countries, have contributed US\$180 million in funds to the PCF, which currently has a portfolio of 25 transactions covering a variety of technologies including renewable energy, energy efficiency, solid waste management and industrial gas emissions abatement.



Fulfilling its Mandate

To date, 22 emission reductions purchase agreements have been signed. These projects, which total \$131 million, represent most of the PCF portfolio.

By the end of 2006, the PCF is expected to have all purchase agreements signed and is expected to close its portfolio. Several of the PCF transactions have started to generate emission reductions for the PCF participants and revenues for the project sponsors. Brazil Alta Mogiana Bagasse Cogeneration project was the first PCF project to be registered by the CDM Executive Board and issued the first certified emission reductions (CERs) in August 2006. Most of the CDM projects in the PCF portfolio are scheduled to be registered by the Executive Board by the end of December 2006.



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Netherlands CDM Facility

Netherlands Clean Development Mechanism Facility

The Netherlands Clean Development Mechanism Facility (NCDMF) was established in May 2002 in an agreement between the World Bank and the Netherlands, as a facility to purchase greenhouse gas emission reductions. The agreement, signed with the Ministry of Housing, Spatial Planning and the Environment of the Netherlands (VROM), supports projects in developing countries in exchange for emission reductions under the Clean Development Mechanism (CDM) established by the Kyoto Protocol to the United Nations Framework Convention on Climate Change (UNFCCC).

The NCDMF is on target to deliver 38 million tons of carbon dioxide equivalent (tCO₂e). The NCDMF purchases greenhouse gas emission reductions from renewable energy, energy efficiency and fuel switching activities, but not for afforestation and reforestation.



Opportunities for Both Developed and Developing Countries

For developed countries, such as the Netherlands, the establishment of a Clean Development Mechanism facility increases the range of options for complying with their Kyoto Protocol emission reduction requirements, while at the same time promoting sustainable development, capacity building, fostering of knowledge and carbon market creation.



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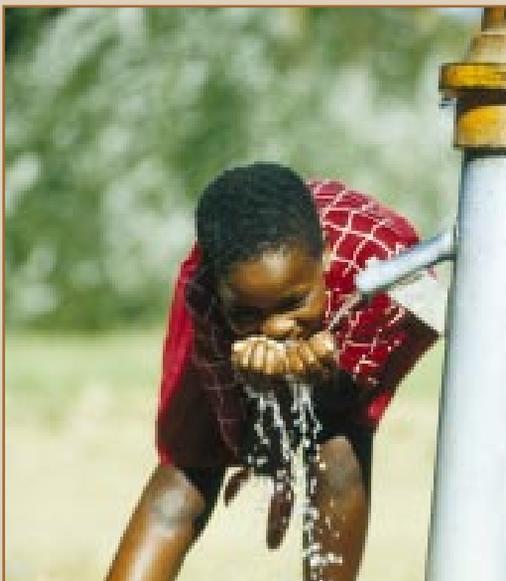
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Community Development Carbon Fund

The Community Development Carbon Fund (CDCF)

The CDCF was created in March 2003 to extend the benefits of carbon finance to the poorest countries and poor communities in all developing countries, which would otherwise find it difficult to attract carbon finance because of country and financial risk.

With a capitalization of US\$128.6 million, the CDCF is a public/private partnership of nine governments and 16 private firms: the Government of Austria, Regional Government of Brussels (Belgium), Regional Government of Walloon (Belgium), Government of Canada, Government of Denmark, Government of Italy, Government of Luxembourg, Government of the Netherlands, Government of Spain; Companies and organizations: BASF, Daiwa Securities SMBC Principal Investments, EdP,



Endesa, FujiFilm Co., Gas Natural SDG, Göteborg Energi AB, HC Energia, Idemitsu Kosan Co., Ltd., KfW Forderbank, Nippon Oil Corporation, Okinawa Electric Power Co., Inc., Rautaruukki OYJ, Statkraft Carbon Invest AS, Statoil ASA and Swiss Re.

Community Benefits and Community Dialogue

The unique feature of all CDCF projects is that they provide significant and measurable development benefits to vulnerable communities living in the immediate project vicinity or with a historical, cultural or economic affiliation to the project. As much as CDCF projects are an investment in clean technologies that help reduce greenhouse gas emissions and mitigate climate change, they provide an opportunity for small communities in poor countries to obtain clean water, improve health conditions, and create jobs for women.

The CDCF emphasizes community dialogue and consensus building, to ensure that individuals, community leaders, existing community organizations and local government officials agree on the benefits to be provided. Project implementers work with the communities to identify priority needs, and organize and implement projects that address these needs.

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BioCarbon Fund

BioCarbon Fund

Combating rural poverty and stabilizing rural economies are among the biggest challenges facing developing countries. By expanding markets for emission reductions in agriculture, forestry, and other land uses, there will be an unprecedented opportunity for poor small-holder farmers all over the developing world—they can earn carbon credits by sequestering or conserving carbon in a way that increases rural incomes and puts their natural resource use on a sustainable footing.

Unfortunately, the share of such projects in the carbon market is very limited by the rules and regulations under the Kyoto Protocol.



Without the BioCarbon Fund (BioCF), the poorest countries and the poorest people would have little opportunity to contribute to, and benefit from, the global imperative to reduce greenhouse gases in the atmosphere.

Windows of Opportunity

The BioCarbon Fund has been operational since May 2004. Like the PCF, it is a public/private initiative established as a trust fund administered by the World Bank. The size of the BioCF is US\$53.8 million.

The BioCF operates through two separate windows. The larger window targets projects that generate Kyoto-compatible emission reductions in both developing countries and in countries with economies in transition. A smaller window in developing countries supports land management projects with great development and adaptation potential that are currently excluded from the Kyoto Protocol. Such projects include improved forest and agricultural management, restoration of dryland areas and the conservation of threatened forest remnants. All projects will meet strict standards of quality control.



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Italian Carbon Fund

Italian Carbon Fund

The Italian Carbon Fund (ICF) was created in 2004 to purchase greenhouse gas emission reductions from projects in developing countries and countries with economies in transition that may be recognized under such mechanisms as the Kyoto Protocol's CDM and JI.

The ICF has a current capitalization from the Government of Italy and six private entities of more than US\$155 million.



A Diversified Approach

The ICF project portfolio will include support for various regions, including Africa, the Balkans, Central and South America, the Mediterranean and the Middle East. Examples of technologies which may be eligible under the ICF project portfolio criteria include energy services, electricity from agricultural waste, urban landfill gas, coalbed methane capture and gas flaring.



Italy has a large obligation to reduce its greenhouse gas emissions. The ICF provides one alternative for obtaining emission reductions while at the same time helping developing countries achieve sustainable development by leveraging substantial investments—including investment from the private sector in modern energy services and technologies.

As with other carbon funds facilitated by the World Bank, the income from payments by the participants in the fund will be used for project identification and preparation activities such as capacity-building, outreach and research—leading to the creation of supportive project approval systems in host countries.

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Netherlands European Carbon Facility

Netherlands European Carbon Facility

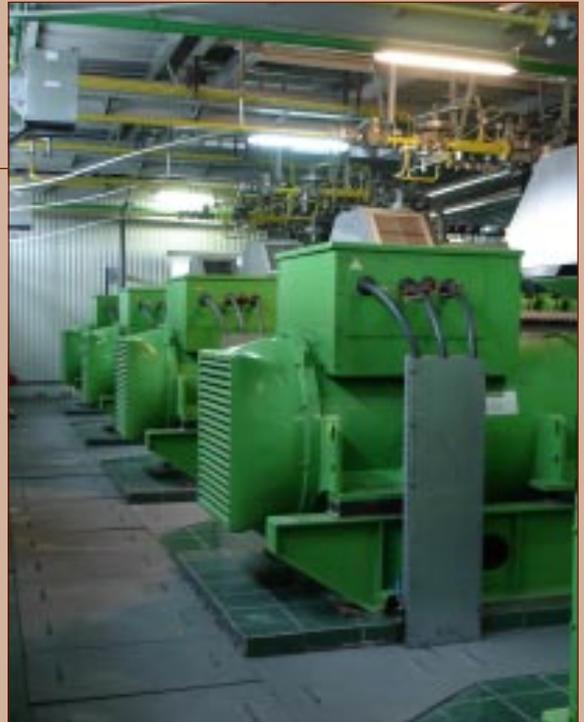
The Netherlands, acting through its Ministry of Economic Affairs, the World Bank and The International Finance Corporation (IFC) in August 2004, signed an agreement appointing the World Bank and the IFC as Trustees of the Netherlands European Carbon Facility (NECF), in order to purchase greenhouse gas emission reductions for the benefit of the Netherlands. The NECF purchases emission reductions from JI projects only, that is from projects located in countries with economies in transition.



Working for Joint Implementation

The NECF plans to purchase 10 million tons of greenhouse gas emission reductions. The Facility will stimulate private capital flows for sustainable development and enhance participants' knowledge of Joint Implementation and carbon finance as a tool to reduce the costs of implementing Kyoto obligations. The Facility is related to the World Bank's work in the areas of environment (markets for global public goods, mitigation of climate change, sustainable livelihoods), energy (renewable energy, energy efficiency, modernization) and urban infrastructure (waste management, district heating systems).

The NECF will also support action undertaken by the World Bank in a number of Central and Eastern



European countries as part of the Bank's Country Assistance Strategies (CAS), including development and dissemination of clean energy technologies, innovative financing mechanisms, internalization of environmental costs, use of environmental impact assessment procedures, and dissemination of best practice on environmentally sound technologies.

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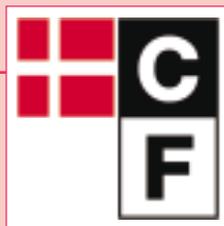
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Danish Carbon Fund

Danish Carbon Fund

The Danish Carbon Fund (DCF) was established in January 2005. It is comprised of two public sector participants—the Danish Ministry of Foreign Affairs and the Danish Ministry of Environment—and four private sector participants including DONG Energy, Aalborg Portland A/S, Nordjysk Elhandel A/S, and Maersk Olie og Gas A/S.

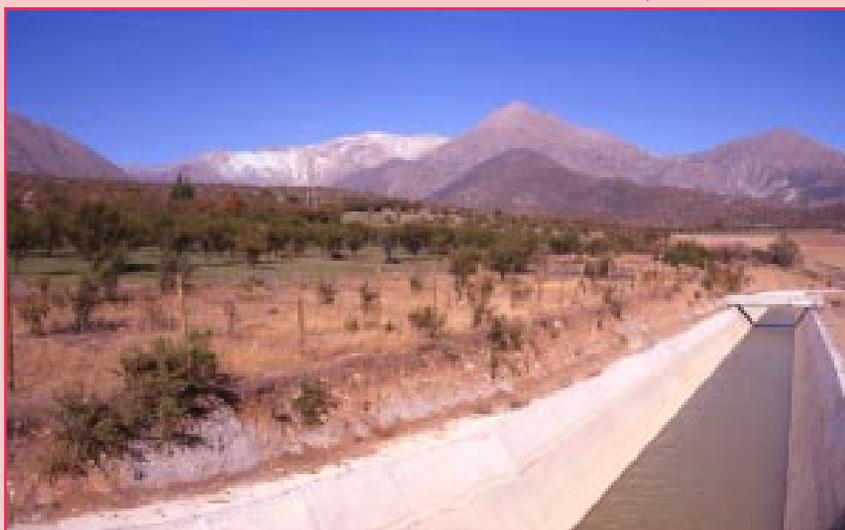
The DCF's capitalization amounts to 58 million euros (approximately US\$75.5 million). A portion of the capital has been committed to the World Bank's Community Development Carbon Fund (see the description of the CDCF in this booklet). The DCF's final portfolio is expected to include about 10 projects.



The DCF will purchase emission reductions from wind power, combined heat and power, hydropower, biomass-use-for-energy purposes, and landfill projects that are implemented in economies in transition and developing countries. Selected projects should contribute to sustainable development in the host countries and should deliver cost-effective emission reductions which the participants can use to fulfill national climate protection obligations.

Building Knowledge and Capacity

The DCF will build knowledge and understanding of the flexible mechanisms of the Kyoto Protocol and implementation of projects among the participants through their engagement in the activities of the fund. The DCF will also help build Danish private and public sector capacity to meet Danish climate obligations arising from the Kyoto Protocol.



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Spanish Carbon Fund

Spanish Carbon Fund

The Spanish Carbon Fund (SCF) was created in 2005 in an agreement between the Ministries of Environment and Economy of Spain and the World Bank. This fund was established to purchase greenhouse gas emission reductions from projects developed under the Kyoto Protocol to mitigate climate change while promoting the use of cleaner technologies and sustainable development in developing countries and countries with economies in transition.

The SCF—a public/private partnership administered by the World Bank—will purchase at least 34 million tons of carbon dioxide equivalent. The emission reductions generated by the projects included in the portfolio would be eligible to be considered for registration under the Kyoto Protocol's Clean Development Mechanism (CDM) and Joint Implementation (JI), as well as the Emissions Trading Scheme (ETS) of the European Union.

The capitalization of the SCF stands at US\$275 million.

The SCF's Objectives

Spain has decided to achieve its greenhouse gas emission reduction target through a combination of implementation of domestic reduction measures, and the use of the flexible mechanisms defined by the Kyoto Protocol. The SCF is one of the initiatives implemented by the Spanish Government to achieve this goal.

The main objectives of the Spanish Carbon Fund are:

- To purchase greenhouse gas emission reductions to contribute to Spain's emission reduction target at a competitive cost.
- To promote renewable energy and energy efficiency projects in developing countries and countries with economies in transition.
- To acquire knowledge and experience on carbon finance and to share that experience with the fund participants and stakeholders.

Through the projects included in its portfolio, the Spanish Carbon Fund will contribute to improving the knowledge and the governance schemes of the projects' host countries, complementing other development programs and projects managed and coordinated by the World Bank.

The SCF's Portfolio

The SCF is designed to include projects from many regions, including Latin America, North Africa, East Asia, South Asia, and Eastern Europe.

The projects include renewable energy, energy efficiency, solid waste management, HFC-23 destruction, transportation and the oil and gas sector.



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Capacity Building

Technical Assistance Facilities

Consistent with its mission to catalyze the emergence and growth of market mechanisms for climate change mitigation and sustainable development, the World Bank, in parallel with its carbon funds, has established a number of technical assistance facilities for capacity building and project preparation.

CF-Assist

The Carbon Finance Assist (CF-Assist) program, established by the World Bank in fiscal year 2004, became fully operational during 2005. CF-Assist is aimed at assisting developing countries and economies in transition to strengthen their institutions, and build local expertise to enable them to develop projects for the carbon markets. The key activities under the program are: building capacity through developing carbon finance projects in priority sectors, enhancing institutional strength of government institutions and other stakeholders in terms of approval and monitoring capabilities, providing targeted analysis to overcome market and information barriers and facilitating market development through global and regional events.

In order to build better linkages to the Bank's knowledge management activities and bring improved focus on capacity building for overall carbon market development, the management of CF-Assist was transferred to the World Bank Institute (WBI) from the beginning of fiscal year 2007.

CDCF*plus*

CDCF*plus* provides project-specific support to projects in least developed countries and poorer communities of the developing world. Projects that are first-of-a-kind and have a high potential for replication are typical candidates for support. The focus of CDCF*plus* activities is on defraying some of the upstream project identification and early project preparation costs for the poorest countries and regions, and on committing resources to create deal flow in CDCF priority countries, particularly through capacity building of project intermediaries. CDCF*plus* financial resources accrue from the investment income of upfront contributions of CDCF participants.

BioCF*plus*

The BioCF*plus* program is modeled on CDCF*plus* to provide project-specific support to carbon sequestration projects in developing countries and economies in transition. The focus of this facility is on defraying project preparation costs. BioCF*plus* resources will also be used to disseminate lessons learned and reach out to various constituents regarding the pioneering role of the BioCarbon Fund and to highlight the development benefits of carbon sequestration projects.

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Carbon Emission Reductions Begin at Home

Reducing Our Carbon Footprint

The World Bank is seeking to reduce its own carbon footprint. The Bank's goals are to expand its energy efficiency initiatives, track its carbon footprint and invest in solutions to reduce greenhouse gas emissions. The Bank will also promote consistency and transparency in its corporate greenhouse gas emissions accounting, offset purchases and reporting practices.

Through the purchase of renewable energy certificates, the World Bank's green power purchases now cover 100 percent of its electricity consumption in Bank-owned buildings in Washington, DC, and in three international offices. The Bank performed an inventory of its carbon emissions from Bank facilities and identified energy conservation opportunities. The Bank also developed an emissions inventory system for yearly tracking based on the World Resources Institute/World Business Council for Sustainable Development's Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard, Revised Edition (2004).

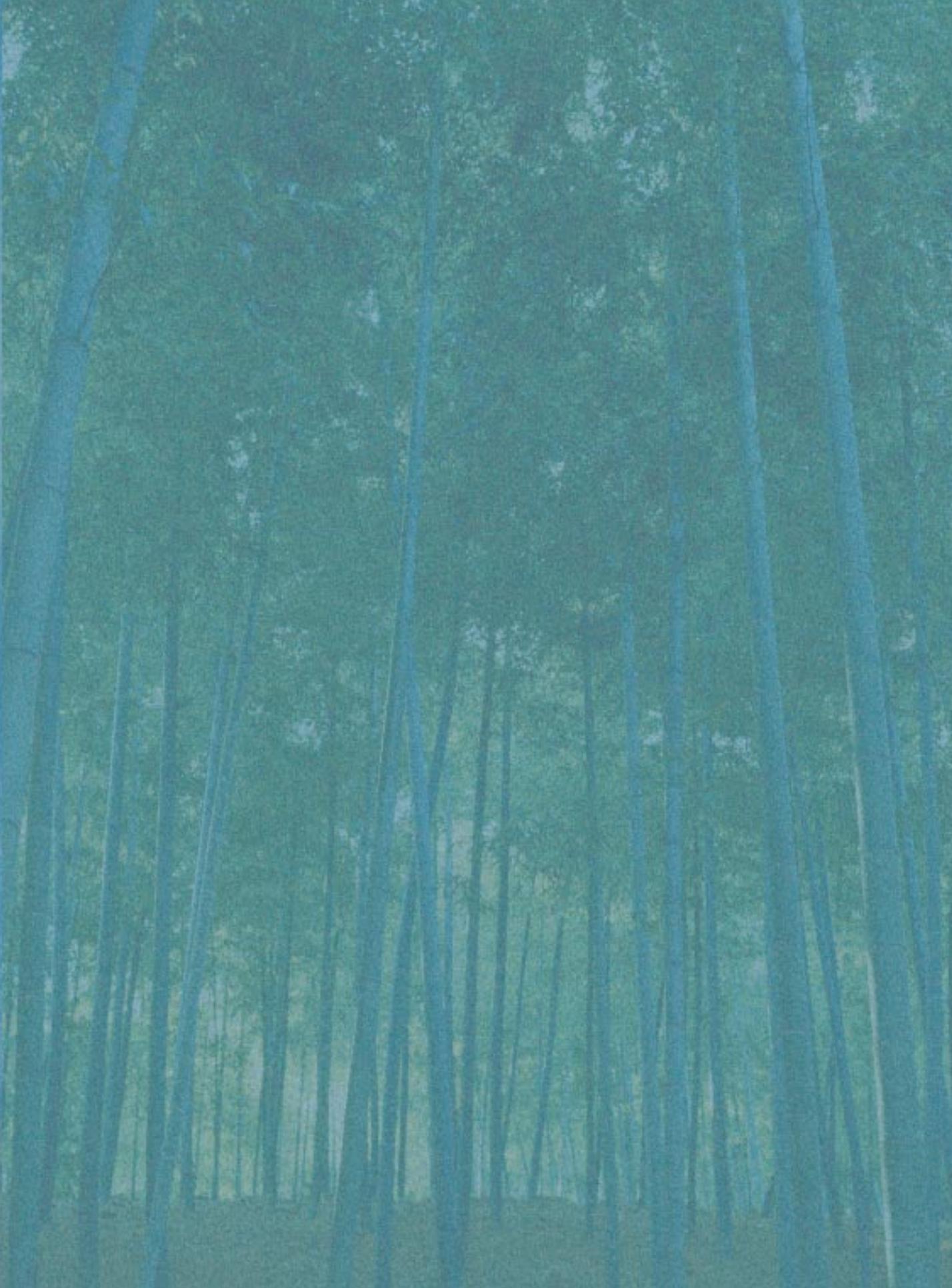
"It will take effort at every level to combat climate change. Like many others, the World Bank is working at both an individual and corporate level through voluntary action to reduce its carbon footprint."

Warren Evans, Director,
Environment Department, The World Bank

Count Me In!

The World Bank Staff Climate Protection Program

World Bank staff have also responded to the climate change threat at an individual level. Through the World Bank Staff Climate Protection Program, staff can measure their personal carbon footprint, through a computer test created to determine their 'lifestyle' carbon emissions. This included everything from the carbon dioxide that comes out of the tailpipe of their car to their personal air travel over the course of the year. In its first phase, more than 250 people registered for the World Bank Staff Climate Protection Program, pledging to reduce their carbon footprint to a sustainable level by reducing their own carbon output and by paying to offset their remaining surplus emissions.



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