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Environment matters

Annual Review

AT THE WORLD BANK



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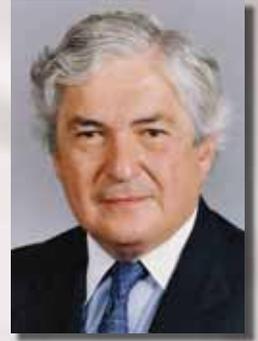
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toward environmentally and socially sustainable development • 2004

Making Growth Green



When the world's leaders met at the Millennium Summit four years ago, they agreed on a set of goals aimed at cutting global poverty in half by 2015. They also set targets for the environment, because they understood its centrality to long-term economic growth, human development, and the stability of the planet. The problem is that today, ten years shy of when the 2015 goals are to be met, progress on the environment is alarmingly slow. So much more is possible.

The phaseout of ozone-depleting substances through the Montreal Protocol, for instance, shows what can be done when the international community works together. Thanks to the protocol, it is estimated that up to 20 million cases of skin cancer and 130 million eye cataracts will be avoided.

This kind of success should encourage us. But now we need to match our action with the scale of the challenge. Our world is not only unbalanced, but endangered.

The environmental challenge is stark in developing countries, where five billion of the earth's six billion people live. In these nations, the environment is linked directly to human development—and to poverty. More than a billion people in developing countries lack access to clean water; more than two billion have no access to basic sanitation. Five to six million people, mostly children, die every year due to air pollution and waterborne diseases such as diarrhea.

Rich countries' larger contribution to environmental damage means they must shoulder greater responsibility for fixing the problem. That means changing the way they produce and consume energy—reducing subsidies, ensuring appropriate pricing, and adequately taxing environmentally damaging products.

It also means providing more resources to developing countries for environmental conservation. Between 1990 and 2000, financing for environmental concerns followed roughly the same path as overall development assistance flows: it stagnated. Aid for the environment averaged about \$2 billion per year—far short of what the international community, first at the Rio Summit in 1992 and then at the Johannesburg Summit ten years later, said was needed. In terms of global priorities, this figure compares with the \$900 billion that the world currently commits to military expenditures each year.

If the war on environmental degradation is to be won, we need a major turnaround. Three areas can help speed progress:

- Developed countries must set the example by moving toward environmentally friendly production and consumption patterns, including more control of greenhouse gas emissions and use of innovative mechanisms such as Carbon Funds to buy offsets (reductions in greenhouse gases) from developing countries. Richer countries must also increase bilateral and multilateral aid commitments. Reversing the declining trend in contributions to the Global Environment Facility would be a good start. Since its inception in 1991, GEF funding has declined by almost 10 percent as a share of the combined GDP of the 38 contributing nations.
- Developing countries must improve their policies governing the critical sectors of water, energy, transport, and trade, including pricing policies. This would help reduce consumption of scarce natural resources. Beyond this, environmental concerns must be integrated more fully into development policymaking.
- The international community must make a much more serious commitment to renewable energy, efficiency, and other environmentally friendly energy sources. A business-as-usual approach would mean that by 2030 carbon dioxide emissions would be 70 percent higher than today, and renewable energy would account for a mere 4 percent of total energy usage, up from 2 percent now. We need the kind of common effort launched a generation ago in agriculture that led to the Green Revolution.

Another two billion people will be added to global population over the next 25 years, the vast majority in poorer nations, which will add huge demands for energy and economic growth. If that growth is not achieved in an environmentally sustainable way, its effects on poverty and human well-being will be disastrous. It will be too late 25 years from now to make the right choices. For the sake of our children and our children's children, we must act now.


James D. Wolfensohn

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Welcome to *Environment* matters...

This issue, which serves as our annual review on the environment, has as its theme long-term sustainable growth. Within this topic, we present the latest thinking and practice on enhancing the quality of policies and institutions as fundamental conditions to improve the quality of growth, as well as on environmental mainstreaming in infrastructure. We also look back on the World Bank's environmental work from July 2003 through this past June (our fiscal year 2004) and highlight upcoming challenges and opportunities.

The overview article, by recently appointed Environment Department Director J. Warren Evans, reviews progress in the implementation of the Environment Strategy over the last year, and emphasizes the need to put environment firmly back on the broader development agenda.

This year we are delighted to include viewpoints from the highest environment officials from three countries facing the challenges of economic growth and the environment head-on, as well as viewpoints from the academic world, the NGO sector, and civil society directly through the results of public opinion surveys. Our contributors include Alberto Cardenas Jimenez, the Mexican Secretary of Environment and Natural Resources; Prodipto Ghosh, the Indian Secretary of Environment and Forests; Xie Zhenhua, the Minister of China's State Environment Protection Administration; David Pearce, Professor of Environmental Economics at University College, London; Frances Seymour, Director of Institutions and Governance Program at World Resources Institute; and Doug Miller, President of GlobeScan Inc.

Each of the Bank's operational Regions has written a review of the Region's work for the past fiscal year, taking a look at accomplishments, lessons learned, and future challenges. IFC and WBI have done the same. For operational purposes, the Bank defines the world's regions as: Africa (AFR), East Asia and Pacific (EAP), Europe and Central Asia (ECA), Latin America and Caribbean (LCR), Middle East and North Africa (MNA), and South Asia (SAR).

We hope you will find this year's edition thought-provoking.



Kulsum Ahmed
Lead Environmental Specialist
Environment Department

THE WORLD BANK GROUP				
The World Bank		IFC	MIGA	ICSID
IBRD	IDA			
International Bank for Reconstruction and Development	International Development Association	International Finance Corporation	Multilateral Investment Guarantee Agency	International Centre for Settlement of Investment Disputes
Established in 1945 184 countries own, subscribe to its capital	Established in 1960 165 members	Established in 1956 176 members	Established in 1988 164 members	Established in 1966 140 members
Lends to creditworthy borrowing countries	Provides interest-free credits to poorer countries that have a per capita income in 2002 of less than \$875 and lack the financial ability to borrow from IBRD	Assists economic development by promoting growth in the private sector	Assists economic development through loan guarantees to foreign investors	Provides facilities for the conciliation and arbitration of disputes between member countries and foreign investors



Cover: Cote d'Ivoire, 2002. World Bank.
Photographer: Ami Vitale.

Envisioning RESPONSIBLE Growth



Ian Johnson
Vice President, Environmentally and
Socially Sustainable Development



Francois J. Bourguignon
Senior Vice President
and Chief Economist

It is widely recognized that faster economic growth is the key to meeting the Millennium Development Goals by 2015, and that continuing growth through 2050 could bring us close to a world that is safe, secure, and prosperous for all. Indeed, a recent Bank publication, *Responsible Growth*, suggests that using optimistic but reasonable assumptions—per capita GDP growth of 2 percent in rich countries, 3.3 percent in low- and middle-income countries—world income would be a staggering \$135 trillion by 2050, up from \$35 trillion today. Average per capita income in the developing world would be \$6,300 by 2050—more than enough to meet basic human needs for shelter, food, and clothing. So there is a realistic promise of a world largely free of poverty by the middle of this century.

Even if this growth materializes, however, it may not guarantee prosperity for all. In order to realize the full impact of economic growth on poverty reduction, a recent Bank study in the Latin America region found that reducing inequality is essential. Next year's World Development Report on Equity and Development promises to delve further into these issues. Meanwhile, it is important to note that potential inequality across generations—in terms of the quality of the environment and access to environmental resources—has been emphasized from the days of the Brundtland Commission's Report in 1987.

Environmental dimensions of inequality include the poverty-growth-environment triangle. Lacking access to other forms of capital, the poor may be forced to over-exploit natural capital, thus reducing its future availability and often imposing external costs on others. Other examples are key environment-health indicators, which are directly linked to human capital and affect future productivity. Every year in developing countries, an estimated three million people die prematurely from water-related diseases, and two million people die from exposure to stove smoke inside their homes. Most of these deaths occur among infants and young children—followed by women—from poor rural families who lack access to safe water, sanitation, and modern household fuels.

So **how** we grow matters. Depending on the options and priorities we choose, there is an all-too-real danger of worsening social conflicts and environmental degradation fueled by deepening inequality. This is a particular risk if today's distribution of income between rich and poor countries is not made more equal. Clearly the prudent way forward must be based on promoting a development path that integrates economic growth with environmental responsibility and social equity.

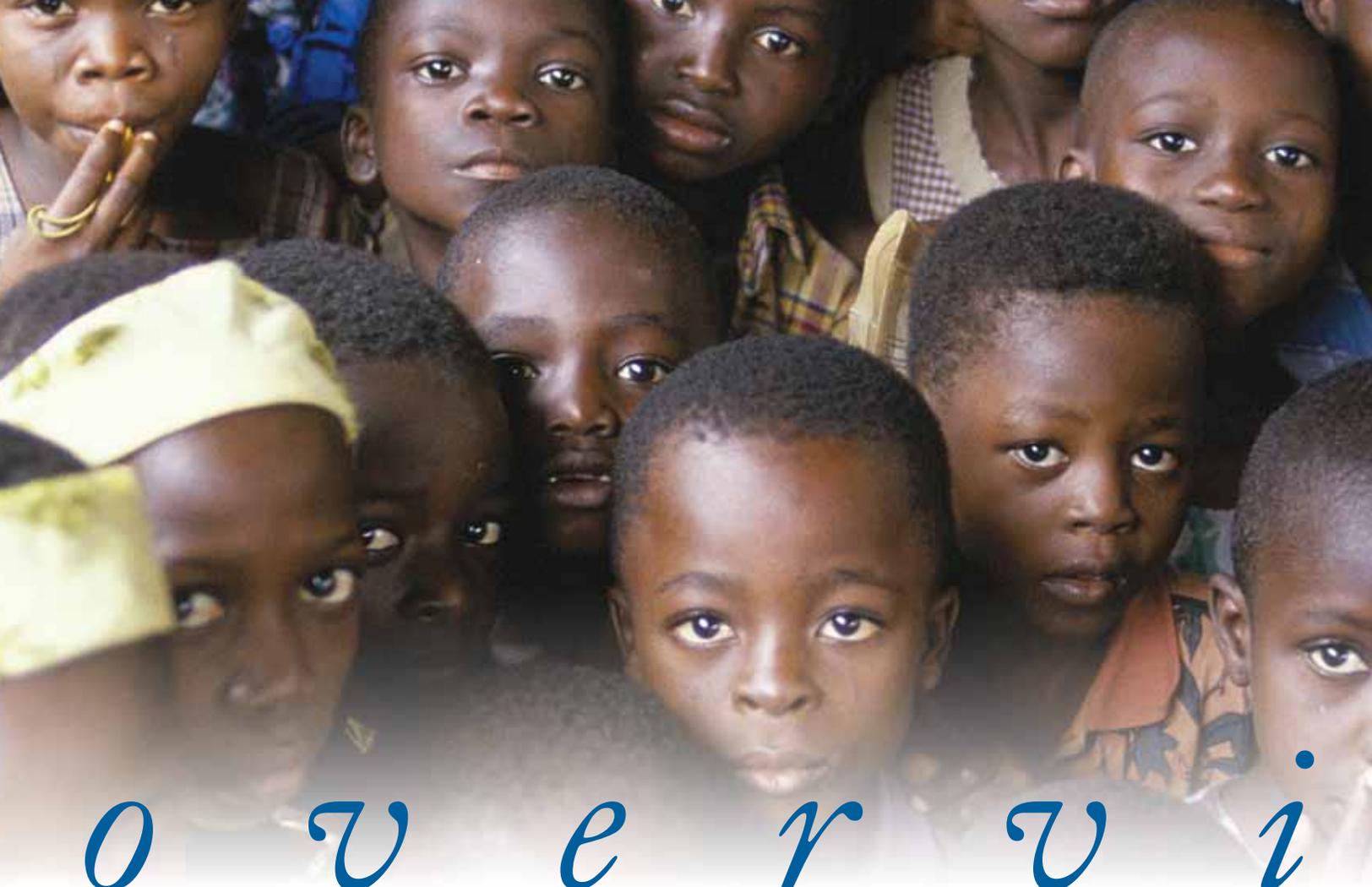
Good governance is a key entry point to improving the quality of growth. Strengthening policies and institutions to ensure greater transparency, accountability, and equal opportunity, together with environmentally and socially responsible investment, is essential for attaining sustainable economic growth, and thus poverty reduction.

This year's edition of *Environment Matters*, dedicated to Economic Growth and the Environment, brings together a wide variety of external and internal viewpoints on the challenges ahead and the progress that is taking place. In this issue, three major partner countries—China, India and Mexico—present their perspectives. Among other topics, this edition features the World Bank's recent research on what happens to environment during growth and the different tools available to promote environmentally and socially sustainable economic growth. It also includes reviews of the World Bank's environmental programs in developing countries and its global engagement.

Integrating environmentally and socially sustainable development with economic growth is not straightforward, but it is crucial to making our dream of a world free of poverty into a reality. Every day, every decision, every investment leads the world in one direction or another. We can see a way forward that leads to a world free of poverty in 2050; the question is whether we will choose to follow that path.

A handwritten signature in dark ink that reads "Ian Johnson".
Ian Johnson

A handwritten signature in dark ink that reads "Francois J. Bourguignon".
Francois J. Bourguignon



Overview

Another year has passed, and it has now been two years since the World Summit on Sustainable Development in Johannesburg. Meanwhile, what has happened to the state of the environment? Unfortunately, the picture is a worrisome one. While there have been some strides forward in certain countries, we are still a long way away from meeting the Millennium Development Goals (MDGs). The MDGs are the world community's collective commitment to eliminate poverty through environmentally sound and socially responsible economic development. "Ensuring environmental sustainability" is one of the eight MDGs, acknowledging the environment's centrality—especially for poor and vulnerable people—to long-term economic growth, human development, and the stability of the planet.

The eight goals and their targets are to be achieved by 2015. A UN Task Force is currently reviewing progress and is expected to submit its findings in January 2005. As we await this report,

Box 1. MDGs and Environment

In addition to MDG 7 on Ensuring Environmental Sustainability, environment plays a central role in several Millennium Development Goals. It is an important component of MDG 4—Reducing Child Mortality—since about 40 percent of under-5 deaths are caused by diseases associated with environmental factors, such as air pollution or unsafe water. It is also a significant factor in MDG 6—Combating HIV/AIDS, malaria, and other diseases—since water-related infrastructure and waste management affect mosquito breeding areas. (For more information on the MDGs and environment, see <<http://lnweb18.worldbank.org/ESSD/envext.nsf/44BYDocName/MillenniumDevelopmentGoalsandEnvironment>>.)

with a little more than 10 years left until 2015, we notice that overall progress is alarmingly slow. For example:

- Air and water pollution take a tremendous death toll—estimated at five to six million people every year—especially on children and the elderly in developing countries.



e W

by James Warren Evans
Director, Environment Department

- Access to sufficient, safe, and nutritious food is the primary problem for nearly 800 million chronically undernourished people, the vast majority of whom depend on natural resources and non-cultivated resources—for example, food, fodder, and firewood from forests—for their living. It is unclear how well and at what cost agricultural production can adapt and keep up with growing demand and the changing dietary preferences of a growing world population.
- Freshwater resources and ocean fisheries are under stress. According to the most recent FAO report, 28 percent of global fish stocks are significantly depleted or overexploited, and 47 percent are either fully ex-

ploited or meet the target maximum sustainable yield.

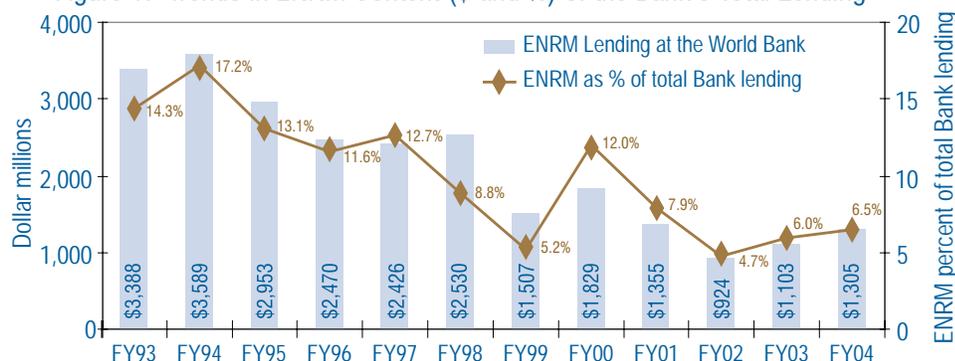
- CO₂ emissions are on the rise, and global warming and shifts in weather patterns can already be observed around the world (see page 28, Energy, Climate Change, and Development).

If current trends continue, the millennium targets for the environment will not be met. Meanwhile, opinion polls show that the environmental constituency is changing globally (see Doug Miller's Viewpoint, page 18), with urban populations in developing countries more preoccupied about the environment than people in industrialized countries. A surprising result from one perspective, but not an unexpected one, since the health impacts, quality of life, and corresponding decrease in productivity firmly link the environmental agenda with the growth agenda for people in developing countries. Many governments in developing countries increasingly understand the need to look at environment as part of the larger development agenda—linked to both clarifying the rules for environmentally and socially sustainable growth and the poverty reduction agenda (see *Viewpoints*, pages 8–13). But this is not an easy agenda. Significant political, governance, and institutional constraints must be overcome to move ahead in a decisive way.

Funds are also required: Aid for the environment averaged about \$2 billion per year over the last decade—far less than the international community said was needed at the Rio Summit and confirmed at the Johannesburg Summit ten years later. Funds for global environmental protection in developing countries—from both bilateral and philanthropic sources and from the Global Environment Facility—amount to about \$2.50 per person per year in industrialized countries, less than the current price for one gallon of gasoline in most OECD countries. And unfortunately the trend is not getting any better. Clearly, more can and must be done.

What is the World Bank doing to reverse negative environmental trends and to help overcome the political and institutional constraints that hinder environmentally and socially sustainable development? Protecting the environment is one of six main principles in the World Bank's mission to alleviate poverty and sustain the quality of development. About 250 professionals, spread across the six operational regions and in a number of sector units and departments, work on environment-related activities. These activities include lending operations to improve environmental and living conditions in client countries. Environmental lending has been declining for several years, but the trend has

Figure 1. Trends in ENRM Content (\$ and %) of the Bank's Total Lending



been reversed (see article on the environment and natural resources management portfolio, page 32). After a low of \$924 million in fiscal year 2002, lending for environment and natural resources went up to \$1.1 billion in 2003 and is now reaching \$1.3 billion—an increase of 18 percent last year and 41 percent over two years (see *Figure*, page 5).

At the end of fiscal 2004, the total active environment and natural resources management (ENRM) portfolio amounted to \$11.2 billion. About 80 percent of this lending is mainstreamed in other sectors—an increase since approval of the Bank's Environment Strategy in 2001. Infrastructure—the transport, energy, urban, and water sectors—is the most important sector, accounting for 40 percent of ENRM lending, and this is projected to increase considerably over the next few years with implementation of the Infrastructure Action Plan that was presented to the Board of Directors in April 2004.

Policy-based lending linked to the environment, which helps clarify the rules of the game to encourage sustainable eco-

economic growth, has also increased over the last three years. Recent examples include policy-based loans to Mexico and Brazil to support governmental efforts to meet MDG number 7, Target 9 (see *Feature Article* on page 22), and an increase in the environmental content of Poverty Reduction Support Credits (PRSCs) (see *Box 2*). This is an encouraging trend that directly links environmental issues to the economic growth and poverty reduction agendas. We expect it to continue.

In the light of the MDGs and the WSSD commitments, and lessons learned over the last decade, the World Bank is building on synergies between local and global benefits in its lending and non-lending operations. It is increasingly blending GEF grant funds with IBRD/IDA activities, including policy-based lending. An example is the Cameroon Forestry and Environment Program, which supports institutional reforms, enhanced community participation, improved control and accountability of the forest industry, and rehabilitation of degraded national parks and biodiversity conservation sites.

We have also seen an increase in non-lending operations. In support of the integration of environment into the strategies and programs of client countries and the World Bank itself, 190 formal and informal analytical and advisory products were completed in fiscal year 2004. They cover a wide variety of types and topics, with an emphasis on environmental policies and institutions. Examples include assessments of pollution and health in Africa; the environmental and social impacts of utility privatization in Europe and Central Asia; analysis of foreign direct investment and pollution in China; and preparation of Country Environmental Analyses (CEAs) in a number of countries. Such analytical and advisory activities are crucial for providing a solid base for mainstreaming environment in the dialogue between client countries and the World Bank. We are now seeing increased mainstreaming of environment in strategic documents such as Country Assistance Strategies (CASs) and Poverty Reduction Strategy Papers (PRSPs).

Challenges ahead

The recently approved changes to the Bank's operational policy OP8.60 on development policy lending (see *Update* on OP8.60), as well as the anticipated increase in infrastructure and agriculture lending, offer enormous opportunities to continue to integrate environmental issues into the broader growth agenda. The Bank continues to emphasize the use of key tools to facilitate this mainstreaming and to assist countries to improve their institutional capacity, including the upstream preparation of Country Environmental Analyses and Strategic Environmental Assessments (SEAs) to inform policy and programmatic lending, together with the application of our safeguard policies for investment lending.

Box 2. Linking Poverty and Environment in PRSPs, CASs, and PRSCs

The latest assessment of environmental issues in 50 Poverty Reduction Strategy Papers (PRSPs) found a wide variation in the average score from 0.3 to 2.4 (on a scale of 0–3) and an average score for all countries of 1.3. The Ghana PRSP notes that high incidence of diarrhea is due to the lack of safe drinking water and sanitation. The Zambia PRSP recognizes that environmental problems impose the greatest social costs on the poor.

Most Country Assistance Strategies (CASs) identify MDG7 with water supply and sanitation issues. CASs—for example, Honduras and Nicaragua—are starting to pay attention to environmental indicators.

Among Poverty Reduction Support Credits (PRSCs) in Africa, good practice examples include the third Uganda PRSC (2004), which supported the reform program, including activities that improve access to and quality of education, health, water and sanitation, and rural services. The third Burkina Faso PRSC (2004) supported the implementation of key reforms to strengthen basic service delivery, such as health, water, and sanitation.

The new approach to development policy lending provides a uniform framework for all World Bank lending that supports policy reforms (as opposed to investment projects). For the first time, the same treatment is required for poverty, social, and environmental issues in such operations. First, development policy operations are expected to draw upon relevant analytical work when the operation is in the design stage. Second, at the operational level the Bank should assess the likelihood of significant effects on poverty, social, and environmental issues (including forests and other natural resources); the capacity of the borrowing government to manage these effects; and the steps that will be taken to bolster the government's capacity where it is insufficient.

In the coming year, we anticipate that environment and health will be an important theme. Our goal is to improve our understanding of environment-health linkages and to more effectively address environment-health issues in regional work. Environmental health issues are an important part of the Bank's Environment Strategy and the MDGs. According to the World Health Organization, rates of respiratory infections, diarrhea, and malaria account for almost 20 percent of deaths in developing countries with high mortality rates. In addition to environmental health being raised increasingly as an important issue by developing countries in public opinion surveys, the issue is also consistently raised in internal Bank quality reviews (QAG) and in discussions with other sectors, particularly infrastructure.

The agenda is a large one. It is crucial that we continue to work together in partnership to assist developing countries achieve these challenges. In a world of shrinking aid, there is a greater need to ensure that our efforts are targeted and

Box 3. Examples of Partnerships, Outreach, and Funding

- The Global Water Partnership (GWP) (www.gwpforum.org): Its objective is to support countries in the sustainable management of their water resources.
- World Bank/WWF Alliance for Forest Conservation and Sustainable Use (www.forest-alliance.org): The goal of the alliance is to significantly reduce the rate of loss and degradation of all forest types.
- International Coral Reef Initiative (ICRI) (www.icriforum.org): Established in 1995 to reverse the growing worldwide degradation of coral reefs, ICRI involves some 80 countries.
- Clean Air Initiative (www.worldbank.org/cleanair): Urban air pollution is linked to the premature death of over 50,000 people each year in developing countries. In partnership with city and regional governments in Africa, Asia, and Latin America, the Clean Air Initiative helps build capacity for better urban air quality management through technical and policy advice, knowledge transfer, and web-based and distance learning programs.
- Trust Fund for Environmentally and Socially Sustainable Development (TFESSD) (www.worldbank.org/ffessd): TFESSD is a multi-donor trust fund supported by the governments of Norway and Finland. It provides grant resources for World Bank activities that mainstream environmental, social, and poverty-reducing dimensions of sustainable development. TFESSD currently funds more than 130 activities in 80 countries, with 50 percent of the funding going to Africa.
- The Prototype Carbon Fund (PCF) (www.prototypecarbonfund.org): The PCF is a global public-private partnership to demonstrate how project-based emissions transactions can contribute to mitigating climate change.

coordinated. The Bank has been an early promoter of partnerships aimed at maximizing effective use of resources and organizational strengths, as stipulated in MDG 8, and will continue to be engaged in a number of alliances and joint programs with a diverse range of development partners (see *Box 3*).

There are many challenges ahead, yet many opportunities to put the environ-

mental agenda firmly back on the development agenda, linked directly with growth and poverty reduction. Environment is not an issue of interest only to a well-off society, but is crucial to improving the quality of life—through better health and increased productivity, as well as improved livelihoods and greater opportunity—for the 3 billion people living on less than \$2 a day in developing countries.



C. Carnemark

Bhutan



Environment and Competitiveness

Ing. Alberto Cárdenas Jiménez
*Secretary
Environment and Natural Resources
Mexico*

To be advantageously integrated into the global economy, Mexico urgently needs to improve its competitiveness—in which it is currently ranked 47th in the world, according to the World Economic Forum (WEF).

In the drive to strengthen global competitiveness, environmental concerns have sometimes been considered an obstacle. In recent years, however, many studies—for example, by the Organisation for Economic Co-operation and Development (OECD)—have found that increasing competitiveness and accelerating the transition toward sustainable development are mutually compatible objectives. Adequate attention to environmental concerns can actually help to improve the competitiveness of a company, a city, or an entire country. In an increasingly interconnected world with open economies, environmental regulation and public policies to induce sustainable development are not simply additional transaction costs. In both developed and developing countries, clear rules on property rights and access to natural resources, as well as strong environmental institutions, give institutional certainty to decision-

making on investment and development, thus supporting the competitiveness of both companies and countries.

Over the past decade, Mexico's experience with the North American Free Trade Agreement (NAFTA)—in which the environmental disasters that some predicted have not occurred—is quite significant with regard to the compatibility of the objectives of commercial integration and progress toward sustainable development.

Improving competitiveness requires a variety of systemic transformations, including the introduction of infrastructure and services, technological changes, new organizational processes, adoption of good practices, training, mobilization of underutilized resources, creation and segmentation of markets, certification of products, and efficiency in the utilization of inputs. Some of these factors are related to the effectiveness of environmental management. Saving water and energy, efficiently managing the disposal of wastes, and reducing air and water emissions are all measures that contribute both to competitiveness—by reducing costs—and to sustainable development. Even without undertaking radical technological changes, most industries can achieve energy savings of 20 percent.

The deterioration of natural capital implies the destruction or underutilization of resources that could have been used to promote development and place goods and services in the national and international markets. Environmental degradation, which threatens human health and ecosystems, also contributes to production inefficiencies. Deterioration and pollution are not the unavoidable price of development, but obstacles to development. Today all the developed countries have managed, in some measure, to uncouple economic growth from environmental degradation.

Environmental management does of course imply taking action and facing extra costs. But the costs of environmental passivity or insufficient action are, without doubt, much higher. The National Institute of Statistics, Geography and Informatics (INEGI) has systematically estimated the national cost of resource depletion and environmental degradation. Based on this analysis, the domestic Ecological Net Internal Product has been determined, and we know that environmental degradation represents an annual liability that ranges between 10 and 11 percent of GDP. In monetary terms, that means that environmental degradation costs Mexico at least \$64 billion per year: Around one tenth of this amount is due to resource depletion

and the rest is due to environmental degradation (see *Table below*).

COSTS OF RESOURCE DEPLETION AND ENVIRONMENTAL DEGRADATION (Percentage of GDP)

<i>Issue</i>	<i>1996</i>	<i>1997</i>	<i>1998</i>	<i>1999</i>	<i>2000</i>	<i>2001</i>	<i>2002</i>
<i>Total Cost</i>	<i>10.3</i>	<i>10.8</i>	<i>10.9</i>	<i>10.9</i>	<i>10.4</i>	<i>10.2</i>	<i>10</i>
<i>Cost of resource depletion</i>	<i>0.9</i>	<i>1.2</i>	<i>0.9</i>	<i>1</i>	<i>1</i>	<i>0.9</i>	<i>0.9</i>
<i>Cost of environmental degradation</i>	<i>9.4</i>	<i>9.6</i>	<i>9.9</i>	<i>9.9</i>	<i>9.5</i>	<i>9.3</i>	<i>9.1</i>

Source: INEGI. Sistema de Cuentas Nacionales de México.

One way to limit the deterioration is to construct environmental infrastructure. Public and private investment in infrastructure for pollution control and abatement barely represents 0.8 percent of Mexico's GDP. This investment is insufficient and should be increased in the near future. Investing in infrastructure does not seem to decrease competitiveness; on the contrary, the three countries recognized by the WEF as the most competitive (Finland, the United States, and Sweden) all devote larger shares of GDP (1.1, 1.6, and 1.2 percent, respectively) to the construction of environmental infrastructure.

The coordinated action of the government, through its multiple environmental programs, helps to slow ecological deterioration and the depletion of natural resources. At the federal level, the budget of the Ministry of Environment and Natural Resources (SEMARNAT), which includes the National Water Commission (CNA), was increased in 2004 to nearly \$1.5 billion, which represents 2.3 percent of the cost of environmental deterioration. This budget, expressed as a percentage of GDP, has been falling continuously since 1998. The implications of this process have not been evaluated in terms of potential loss of economic competitiveness. On the other hand, there are no reliable estimates of the budgets that states and municipalities spend on environmental management.

Other examples support the idea that spending on environmental protection makes both economic and environmental sense. For example, establishing national parks seems expensive, but thanks to having more of them Costa Rica has in-

creased the number of international visitors from 65,000 in 1982 to more than 400,000 at the end of the 1990s.

The lack of a developed and competitive forest industry costs Mexico nearly \$6.4 billion in imports of forest products. Commercial plantations will help to improve the trade balance of this sector. With a government subsidy of nearly \$150 million, 1,700 plantation projects are in development in Mexico covering 264,000 hectares and generating 13,000 permanent jobs. Through this and other initiatives, degraded and abandoned forest land is recovering its tree cover. Between 2001 and 2003, the government has also invested nearly 80 million pesos to promote sustainable forestry in native forests.

Based on the principles and criteria of the Forest Stewardship Council, sustainability certificates have been granted to some 656,000 hectares of community forest in Mexico, although this has yet to be translated into a solid economic advantage for these communities. Certification, both in the forest sector and in many other areas, could open international markets and greatly add to the value—and hence the price—of such products. Many companies are obtaining independent certifications, including ISO 14000 related to environmental management capacity.

Through SEMARNAT, the Federal Government is promoting mainstreaming agendas on sustainable development. For example, the Ministry of Tourism and SEMARNAT collaborate to ensure the environmental quality of tourist destinations and promote certification. When the positive environmental attributes of tourist destinations are protected, so too are the interests of investors and users. Other Ministries collaborating with SEMARNAT include the Ministry of

Agriculture, Livestock, Rural Development, Fishing and Food, which is in the process of removing environmentally perverse subsidies, which in the past promoted the conversion of forest land to agricultural uses. Jointly with the Ministries of Health and Energy, we have also coordinated measures to improve fuel quality.

In all, the facts indicate that caring for the environment, in addition to constituting an ethical requirement to protect public health and guarantee future generations an adequate resource base, is also an excellent economic investment for Mexico, even in the short term.



Harmonizing Environmental Concerns and Economic Growth

The Indian Perspective

Prodipto Ghosh, Ph.D.
*Secretary
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All countries face a number of tragic choices during their transition from agricultural, natural resource-based primary production economies to industrialized and service-based economies. They face choices because accelerated growth rates necessary for generating resources for the transition may be based on more intensive extraction of natural resources for exports, or, alternatively, may await the development of skills, capabilities, and institutions that would enable higher growth with lower rates of damage to pristine environmental resources. Such choices may be tragic because, while the latter path would inevitably mean that initial growth rates would be slower, the former would ensure that excessive, permanent loss of environmental resources, which may adversely affect prospects for future well-being, would necessarily occur.

The typical path followed by currently developed countries is captured in empirical estimates of the “Environmental Kuznets Curve.” In most countries, increased per-capita income is

accompanied by a sharp decline in environmental quality, as indicated by various key parameters. At per-capita GDP reckoned in PPP terms of \$6,000 to \$7,000—long after the time when primary production dominates the economy—the trend reverses.

In India, there is now sufficient accumulated evidence that the reversal has actually happened when per-capita GDP is about PPP \$2,000—that is, much earlier than the international historical norm. The evidence ranges across a diversity of environmental parameters, including pollution levels in major rivers; census data on wildlife species such as tiger, elephant, and leopard; area under forest cover; and ambient air quality levels in major cities. How do we account for this departure from the experience of other countries?

Part of the explanation is India’s pluralistic democracy, which is based on universal adult suffrage and includes strong, independent judicial institutions and a free press. Pluralistic democracy has made it all but impossible for any group whose pecuniary interests may lie in degradation of natural resources—for example, forest or mining contractors—to dominate policymaking or regulatory actions over the interests of others with livelihood stakes in conservation, such as tribal forest dwellers. The press has ensured that attempts to do so would be exposed to full public view. The judiciary has further ensured that the weaker players are not placed in serious disadvantage in situations of potential conflict.

Another important explanation is the prior existence of legislative frameworks and a regulatory apparatus that have been gradually strengthened over time. The laws relating to factories, forests, mining, water resources, and even criminal laws, together with the necessary enforcement machinery, have ensured that—right from the start of the growth process—environmentally irresponsible actions could be prevented or penalized. These have been enhanced in the past three decades by specific laws in areas such as environmental conservation, prevention of air and water pollution, and wildlife protection. In addition, India has set up monitoring networks, enforcement agencies at the state and central levels, and issued policy statements on key natural resources.

Further, India has carefully eschewed a growth path based largely on primary production for export markets, and instead opted for the development of scientific, technical, entrepreneurial, and institutional capabilities to enable growth based on secondary and tertiary sectors. No doubt this path has not been entirely smooth, and various challenges have had to be addressed, including the imperative of food security, population growth, perturbations in global energy markets, and reducing dependence on fickle monsoons. In addition, India's economic system until the 1980s—based on discretionary interventions in investment, pricing, and marketing decisions, and erection of formidable trade barriers—over the long term proved to be not viable. Nevertheless, the current rates of growth of the economy overall, in comparison to the earlier rates, as well as that of skills-intensive services and manufacturing sectors, are clear testimony to the wisdom of the broad growth strategy that was adopted.

Part of the explanation is India's pluralistic democracy, which is based on universal adult suffrage and includes strong, independent judicial institutions and a free press.

Finally, the strengthening of environmental legislation and institutions, and gradual improvement in monitoring and enforcement actions, owe much to civil society. Environmental awareness has significantly increased, in particular among students and the youth. Community-based and voluntary organizations have been active in drawing public, regulatory, and sometimes judicial attention to environmental violations and issues. In a series of landmark judgments, the Supreme Court has filled in gaps in the legislative framework and enforcement machinery through jurisprudence.

As we seek to ensure environmental conservation while further speeding up our economic growth, what are our challenges in the immediate future? I believe they are primarily the following:

First, a paradigm shift in our regulatory philosophy needs to occur—from placing environmental and growth concerns in separate policy compartments, to that of ensuring that economic, and in particular, livelihood opportunities for the poor, de-

rive directly from the fact of environmental conservation. A large suite of specific policy and programmatic measures may be devised to embody this shift. For example, this would require that forest-dwelling tribals are given legal rights to harvest non-timber forest produce; that multistakeholder partnerships involving public landowning agencies, local communities, and investors are established to promote reforestation of degraded forest land and reclamation of wasteland; that legally enforceable multilateral and domestic regimes are put in place to enable local communities to derive benefits from their ethnobiology knowledge and to provide access to genetic biodiversity; that public-private partnerships are adopted for waste management, environmental monitoring, and environmental infrastructure; and numerous others.

Second, we need governance reform of environmental regulatory institutions and processes. At present, the major regulatory processes of EIA appraisal, permission for non-forest activities in notified forests, regulation of economic activities in coastal areas, and several others, comprise significant project risks to investors owing to uncertainties in duration, required information, and decision rules. There is a need to ensure that each of these regulatory processes is based on established principles of good governance, including transparency, accountability at all levels, and minimal transaction costs.

Finally, we need to strengthen the systems of monitoring and enforcement of environmental infringements. These would require the greater involvement of the affected communities in monitoring of adherence to environmental standards and covenants; public-private partnerships in enhancement of the monitoring infrastructure and dissemination of environmental information; and building capacity in public regulatory institutions. Strengthening enforcement may require, in addition, a shift in doctrine, from the present focus on extremely hard-to-prove criminal malfeasance, to one of greater reliance on civil penalties and liability.



Integrating Rapid Growth and Environmental Protection A Challenge for China

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Minister

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One of the major challenges facing China is how to integrate environmental protection and social development into its fast-paced economic development. This challenge occurs in a difficult context, including a huge population, insufficient per capita resources, and relatively backward technologies and management skills.

Over the past 20 years, China's economy has averaged a remarkable 9 percent annual growth, i.e., grown 5–6 fold. This was preceded, however, by a long period characterized by the traditional development pattern of high input, high consumption, serious pollution, and low output. In some regions, China's focus on increased GDP has been at the expense of the environment. Environmental pollution and degradation is a significant limiting factor on China's future economic development.

In recent years, with the benefit of our own circumstances and other international experience, China has tried to shift to an approach that balances economic, environmental, and social development. Environmental protection has undergone a series of important changes, including efforts to create win-win

situations for both the economy and the environment. This is most obvious in the following major areas:

First, previously uncoordinated macroeconomic decisionmaking on the economy and environment is becoming coordinated. For example:

- Since 1966, when China's market changed from a situation of prevailing shortages to overall surplus, about 100,000 small enterprises that characteristically wasted resources, polluted the environment, and were unable to improve their management have been closed down. As a result, the burden of pollution was significantly reduced.
- In the aftermath of the Asian financial crisis of 1997, when there was concern that the nation might be heading from inflation to deflation, we made environmental protection—particularly urban infrastructure development for environmental protection—a major focus of our public investments. As a result, the urban sewage treatment rate has increased to 42 percent, and fostered further economic growth.
- *The Environmental Impact Assessment Law of the People's Republic of China* not only requires environmental impact assessments for construction projects, but also requires strategic environmental assessments for development plans. The law thus creates an institutional obligation to coordinate environment and developmental decisionmaking.

Second, pollution control is in the process of a transition from end-of-pipe controls to lifecycle monitoring. To date, China has implemented cleaner production auditing in over 400 enterprises in more than 20 industries. Within 20 provinces, over 20 cleaner production centers have been set up. More than 5,000 enterprises have passed the ISO14000 Environmental Management System Certification, and hundreds of products have been awarded Eco-Labels. In 2002, China enacted the *Cleaner Production Promotion Law*, so cleaner production is now governed by the rule of law.

Third, the scope of pollution remediation has been expanded from pollution point sources to regional and watershed levels. In addition, the Chinese Government has focused on addressing pollutants that are the most harmful to people's health. We have made progress in implementing pollution controls in key watersheds, as well as in urban coastal areas.

Fourth, we have shifted from a primary focus on pollution control to a more balanced emphasis on both pollution control and ecosystem protection. China is implementing a series of ecosystem protection and restoration projects, such as protecting natural forests; restoring farmland to forests or grassland; re-

verting reclaimed land to lakes; establishing nature reserves; and protecting key eco-function zones. Nature reserves now account for 14.4 percent of the total area of the country. In the management of major river basins and watersheds, efforts have been made to harmonize pollution control with ecosystem restoration; to integrate environmental management activities in upstream, midstream, and downstream areas; to harmonize the use of water for living, production, and for ecosystems; and to conduct ecosystem management that coordinates land and sea pollution control.

Fifth, we are making a conceptual shift in the role of environmental management in economic growth. Previously, environmental management was thought to be merely for public welfare, requiring input without any output. The new understanding is that environmental management has a positive market value. In 2003, total investment in pollution remediation accounted for 1.39 percent of GDP, which represented a historic breakthrough. This has spurred the development of environmental-protection-related industries.

Significant changes in environmental protection effectively promoted a harmonious relationship between economic growth and environmental protection. While the national economy is rapidly growing and its general efficiency continues to improve, the trend toward increases in the total discharge of major pollutants nationwide has been contained, and there have been improvements in environmental quality in some cities and regions.

In the coming 16 years, China will develop into a mid-income society. It is estimated that, by 2020, China's GDP will quadruple compared to that of 2000. If the traditional pattern of development were to continue, natural resources would not be able to sustain this growth, the environment would be unable to bear the heavy burden of pollution and waste, and as a result, the goal of building a more affluent society would not be achievable. The old development model of "pollution first and remediation second; destroy first and restore second" should be abandoned to achieve the goals of a growth rate of 7 percent or higher, improved environmental quality, and enhanced sustainable development capacity.

To fulfill these goals, the Chinese Government intends to implement a balanced and sustainable development strategy. The government expects to transfer to a pathway of "neo-industrialization"—development with advanced technology, efficien-

cy in economy, low resource consumption, little environmental pollution, and fully empowered human resources. The commitment of the Chinese Government provides China with a rare opportunity to coordinate economic, social, and environmental development.

The traditional economic growth model leads to a pathway from resources to products and eventually to wastes. The more advanced the economy, the greater is the consumption of resources and the more serious is the environmental pollution and ecological degradation. A scientific development model based on the "circular" economy, however, envisions a cycle where resources become products, and the products are designed in such a way that they can be fully recycled. The circular economy focuses on the most efficient use of resources and environmental protection.

We are implementing circular economy demonstration projects at three levels. At the first level, we encourage enterprises to practice cleaner production and adopt the "reuse and recycle by the producer" principle, which is aimed at reducing usage in all the production procedures—from materials, technology and process selection, to production—and increasing recycling, thus minimizing pollution discharge. At the second level, we promote ecological industrial parks in concentrated industrial clusters. So far, 10 ecological industrial parks have been established. At the third level, we advocate regional (particularly urban) sustainable production and consumption.

Through honoring ecological provinces, ecological cities, environmental protection demonstration cities, ecological demonstration districts, counties with a pleasant environment, green communities, green schools, and environmental friendly enterprises, we are building a sustainable society. Currently, seven provinces have been recognized as ecological provinces; 39 cities are environmental protection demonstration cities, and 82 counties are ecological demonstration districts. China also is establishing new systems that require green GDP accounting, environmental performance appraisal for administrative officials, and public participation.

The coming 16 years are a crucial period for China to harmonize its economic development and environmental protection. Despite the arduous road ahead, we have full confidence in the future, convinced that China's peaceful development will make an active contribution to the course of global environmental protection and sustainable development.

China's peaceful development will make an active contribution to the course of global environmental protection and sustainable development.



David Pearce
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Growth and the Environment: Can We Have Both?

Despite hostile and sustained reaction, mainly from economists, the “big issue” of the early 1970s environmental debate refuses to go away. There are still hosts of articles and books telling us we cannot have economic growth and environmental quality. Whichever one we want involves a sacrifice of the other. Societies have to choose. In this view, opting for growth will eventually become unsustainable, either because natural resources will run out, or the waste assimilative capacity of environments will be exhausted, or both.

For the critics of growth, sustainable development is still about abandoning the goal of growth. The underlying rationale for this view is simple. If the ratios of materials and energy use are fixed proportions of gross national product (GNP), growth in GNP must entail the use of more materials and more energy. The First Law of Thermodynamics dictates that these energy and materials flows cannot be destroyed. Ultimately, they must reappear as waste emissions and solids. If the capacity of receiving environments to assimilate these flows is itself, broadly speaking, fixed, environments must degrade. Much the same argument holds for fixed stocks of natural resources. This is the logic of the “materials balance” or “spaceship Earth” model with which environmental economists of my age were raised. But how valid is it?

The obvious weaknesses in this view are several. First, there is no reason to assume fixed proportions for materials and energy to GNP. Second, not all waste has to enter the environment. Third, while most economic development in the last five hundred years or so has been based on exhaustible resources, the capacity exists to substitute renewable sources.

Take the fixed proportions argument first. The history of advanced nations is one of lowering the ratio of materials and energy use to GNP. Global energy efficiency, for example, has been improving at a little over 1 percent per annum. Much of this is due to technological change. Resources are extracted more efficiently and used more efficiently. The result is an “Environmental Kuznets Curve” (EKC) over time, with the energy/GDP ratio rising in the early stages of development and declining thereafter. By and large, developing countries are on the rising part of the EKC and rich nations on the declining part. Importantly, few of these changes have been induced by explicit energy and materials conservation policies. Yet we know from the experience of changing oil prices since the 1970s that nations can be induced to be far more energy efficient as real energy prices rise. The combination of “autonomous” and policy-induced technological change thus raises the prospect of efficiency improvements outweighing the combined effects of population change and economic growth. Of course, even if this turns out to be true, the *flow* of energy and materials use remain positive quantities. If the *stock* is fixed, then exhaustion is postponed, not eliminated. Optimists point to the fact that world reserves of many materials and fossil fuels are now higher than they were thirty years ago. Ultimately, it is self-evident that relying on a fixed stock must be unsustainable. But “ultimately” could be hundreds if not thousands of years hence, raising the issue of how far into the future we should all be looking.

The second reason for optimism is that recycling and re-use of materials can prevent their disposal to receiving environments. Nations such as Germany recycle 70 percent of paper and board consumption and 83 percent of glass. Much of this recycling is policy-induced, and rates can be expected to rise further in Europe because of strict packaging disposal regulations. Moreover, the time-trend for most nations is upwards. Again, the good news has caveats. Only materials can be recycled. Energy cannot.

The third offsetting factor to the gloomy view of growth and environment is the capacity of the world to switch to renewable resources. As far as energy is concerned, renewable sources already contribute some 15-20 percent of world energy demand, but this fraction is dominated by (a) traditional energy sources such as woodfuels, and (b) hydropower. Most would see the development process as one in which woodfuels decline—on health and environmental grounds—while large hydropower remains controversial. The so-called “benign” renewable sources—wind, modern biomass, geothermal and small hydro-

power—contribute perhaps just 2 percent of world energy demand. Nonetheless, this contribution is set to rise as more and more economic incentives are provided for the introduction of renewable energy sources.

There are caveats once again. The world has long relied on renewable resources such as fish and forests. The record on the former is dramatically bad, with global fishing effort continuing apace despite several major stock collapses and with the majority of fisheries now being exploited at, or beyond, their ecological limits. Many would argue that all the rhetoric about forests and their importance has done little to slow deforestation rates.

The simplistic notion that economic growth must inevitably degenerate natural environments clearly needs revision, but it is not logical to go to the other extreme and declare that growth and environment are necessarily compatible. That is certainly a message that some derived from the early EKC literature—eventually growth would generate both the resources and the attitudinal changes that would lead to environmental improvement. This is a politically deceptive message and was the weakness of the Brundtland Commission's own vision of sustainable development in which the world could have growth, environmental quality and social equity. It is easy to see why such a message is attractive, since it avoids facing the political reality. There are and will be trade-offs.

The previous arguments are all familiar. Curiously, far less attention has been paid to what a “no-growth” policy would look like if only it was adopted. Yet the likely features of such a policy must be part of the trade-off equation: it may be that a no-growth world would itself be undesirable.

First, many economies already experience zero or even negative growth in GNP. Of the 148 countries listed in *World Development Indicators*, 28 actually experienced negative growth in GDP in the 1990s. Few would argue that these economies have levels of well-being higher than the remainder. Nor, on inspection, would one want to argue that their environmental profile is improving.

Second, long-term growth may not be conducive to policy measures that are rational in themselves. The problem is that growth is not just the result of human acquisitiveness, the very motive that anti-growth advocates wish to see counteracted. In most respects, growth is determined by “good” things. If growth is largely due to the pace of technological change and

human capital formation, securing no-growth would seem to involve less, not more, of these determinants. Yet technology and education and skills will strike many as being “good” in themselves. Surrendering them in the name of environmental quality seems bizarre. Moreover, slowing technological change would harm resource efficiency, since new technologies are usually more resource efficient. But resource efficiency is conducive to environmental improvement. Hence slowing technological change could harm the environment. Finally, if the focus on no-growth is on reducing consumption, perhaps by stimulating savings and investment, then no-growth policies simply swap current growth for future growth.

Third, not pursuing growth can hardly be a unilateral policy. It would have to embrace concerted international action, the prospects for which would seem fancifully remote. On the other hand, some might argue that by proceeding at such a slow pace with trade liberalization, the world has, in one sense, already voted for slowing the growth process in favour of special interests, such as subsidized industry and agriculture.

Fourth, some of the political compulsion in no-growth arguments understandably emanates from observations about the high level of natural resource consumption per capita in rich countries. In this sense, the rich are consuming more than appears to be a “fair share” of the world's natural assets. Here the argument shifts from no-growth to re-balanced growth, away from the rich toward the poor. The motivation is sound but the analysis is faulty. If the rich reduce consumption of resources, they do not magically become available to the poor. Moreover, the rich are consuming more precisely because they are richer, and being richer is what right-minded people want for the poor. Finally, the rich are more efficient at using resources per dollar of GNP. The goal has to be one of making the poor richer and securing global improvements in environmental and resource efficiency. That will not come about by some sacrifice of growth by the rich.

If the surrender of growth is neither inevitable because of limits to growth, nor politically feasible, the conclusion appears to be that we need to continue the pursuit of growth while having as much regard as possible for conserving what is left of the world's natural environments and resources. No one should believe this is any easier a development path than one in which we try to pretend there are no trade-offs. The growth and environment debate will run and run. Properly understood, it can still be productive.



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Mainstreaming and Infrastructure

The World Bank Group is getting back into the infrastructure business. From the perspective of environmental and social sustainability, the renewed emphasis of the World Bank and other international financial institutions on lending for infrastructure poses a challenge and an opportunity. The challenge is to ensure full compliance with environmental and social safeguard policies. The opportunity is to use the Bank's financial and other resources to "mainstream" sustainability into infrastructure development.

As significant new public and private financing is mobilized to meet needs for electricity, transportation, and water and sanitation services, the character of the development paths in these environmentally and socially significant sectors will be determined either by default or by design. Will investment in new power generation capacity accelerate a shift to less emissions-intensive fuels and technologies? Will investment in new transport infrastructure encourage settlement patterns more conducive to mass transit? Will strategies to finance water and sanitation infrastructure include investment in the natural "infrastructure" that provides hydrological ecosystem services?

Such questions cannot be adequately addressed by application of environmental and social safeguards on a project-by-project basis. Instead, they require "mainstreaming" of sustainability concerns into sectoral and cross-sector planning, and consideration "upstream" of individual infrastructure investments.

The World Bank's commitment to mainstreaming is long-standing; indeed, the title of the Bank's 1995 annual environment report was *Mainstreaming the Environment*, and the commitment to mainstreaming was reaffirmed in the World Bank's Environment Strategy. In those documents, the Bank made clear that its attention to the environment would not be limited to the financing of projects in the narrowly defined "environment sector" and the application of safeguard policies. Instead, concern for sustainability would be integrated into the design of operations across all sectors, and into country and sector strategies.

Despite a number of encouraging examples of "best practice," a variety of internal and external assessments have documented that the World Bank, other international financial institutions, and client governments have made far too little progress in mainstreaming. For example, the most recent update on implementation of the Bank's Environment Strategy reports that progress in mainstreaming has lagged behind progress in other areas.

Why has mainstreaming proven so difficult? A variety of factors are at play.

First, there is a natural tendency to think of "environment" only in terms of safeguard policies designed to avoid doing harm at the level of individual projects. Safeguard policies are important, but once a specific intervention has been selected—especially in the case of infrastructure development—many of the opportunities to promote environmental sustainability have already been lost. In addition, the design of regulatory and financing regimes—such as the degree of privatization of service delivery and expectations of cost recovery—can have profound environmental implications, yet because they are not "projects," they are often formulated without attention to environmental considerations.

Second, mainstreaming is hampered by divisions of labor within financial institutions and governments. Transport engineers, agricultural economists, and finance ministry officials assume that concern for the environment is "not my job." They may design road networks, irrigation schemes, and water pricing systems assuming that officials in environmental units will

take care of applying appropriate safeguards. Maintenance of independent environment units is essential, but relegating environmental functions exclusively to a “clean-up” role within bureaucracies and societies dramatically reduces the scope for mainstreaming.

Third, constituencies for the environment and for the poor—who tend to bear the brunt of environmental harm—continue to be underrepresented in development decisionmaking processes. When they are involved, their participation tends to come too late in the process to promote alternatives consistent with mainstreaming.

As the Bank gets back into the business of financing “bricks and mortar,” it has a special responsibility to ensure that sustainability is addressed not as an afterthought, but integrated into the planning process in a deliberate and meaningful way. The institution is well-positioned to assist client governments to:

- *Identify infrastructure investments through a comprehensive options assessment process, a key recommendation of the World Commission on Dams.* All too often, development challenges are inappropriately framed, and development interventions are prematurely specified. For example, if the problem is defined as “relieving urban traffic congestion,” the solution will likely be to build more roads, which tend to serve neither environmental nor equity interests. However, if the problem is defined as “providing safe, efficient, and affordable transport services,” a wider range of options, including public transit, is opened for consideration.
- *Pay attention to the appropriate sequencing and bundling of various interventions.* The Bank can assist governments to consider sustainability concerns “upstream” through support for country-, sector-, and landscape-level analysis prior to the formulation of specific policies and projects. In addition, the Bank can provide targeted investments in capacity-building—both of the public sector and the general public—to play improved environmental governance roles prior to and in conjunction with project investments.
- *Identify appropriate fiscal regimes that serve economic and environmental efficiency.* More environmentally sustainable

infrastructure options—such as renewable technologies for electricity production—are dismissed as cost-ineffective. Rigorous environmental and economic analysis can often demonstrate the cost-effectiveness of alternatives, once externalities have been internalized. The World Bank can support such analysis, assist in the design of appropriate subsidy regimes, and help mobilize concessional finance.

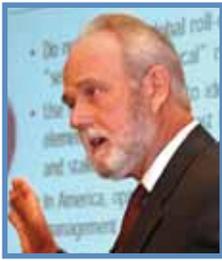
- *Improve national systems of information disclosure, public consultation, and accountability in development decisionmaking.* One of the best ways to ensure that environmental sustainability and equity considerations get a fair hearing is to ensure that constituencies for the environment and the poor are empowered with information and have a seat at the decisionmaking table.

The benefits of mainstreaming are numerous. While improved mainstreaming does not mean that safeguard policies can be relaxed, upstream consideration of environmental and social issues will likely reduce the level of conflict that is typical when these issues are considered later on, reducing the risk of “legacy” issues associated with controversial projects and policies.

In addition, mainstreaming reduces the risk of “locking in” unsustainable development trajectories that will be hard to reverse later on. For example, lumpy, large-scale infrastructure investments—such as expressways, coal-fired power plants, or large dams—can set into motion patterns of settlement and resource use that may cause profound environmental damage over the long term.

Finally, mainstreaming can capture “win-win” opportunities to meet the needs of both the poor and the environment. Less-polluting transport services can decrease the incidence of adverse health impacts suffered by the urban poor; renewable energy technologies can provide rural communities far from the grid with access to electricity services.

The Bank’s Infrastructure Action Plan states that the Bank “will continue to ensure that infrastructure investments are environmentally and socially sustainable.” Consistent attention to safeguards, and a renewed emphasis on mainstreaming, will be essential to meeting that commitment.



Doug Miller
President
GlobeScan Inc.



Health-Driven Environmental Issues a Top Concern in Low-GDP Countries

While environment has historically been a more salient issue in industrialized countries, GlobeScan's latest research reveals that, for the first time in seven years of tracking, health-driven environmental concerns are today more powerfully felt among urban dwellers in low GDP per capita countries than in any other part of the world.

GlobeScan (formerly EnviroNics International) has been conducting annual public opinion surveys on environmental and related topics across 20–30 countries since 1997. This includes surveys of representative samples of 1,000 citizens, mainly in urban areas of 12 developing countries in Asia, Africa and South America (Brazil, China, Thailand, India, Indonesia, Kenya, Tanzania, Zimbabwe, South Africa, Ghana, Nigeria, Cote d'Ivoire). The findings reveal significant differences between the environmental perceptions of citizens of developing countries compared to citizens of industrialized countries (see *Figure* at right).

For people in industrialized nations, environmental concerns appear to be a component of post-modernist values. For people in developing countries, it is one of the elements of real life challenges.

With urgent concerns about water shortages and air pollution and a growing sense of individual efficacy to solve such problems, people in developing countries have also become more likely than those in industrialized nations to be dissatisfied with their country's environmental regulatory system. Fully 75 percent of citizens in developing countries do not feel their environmental laws currently go far enough.

While these findings suggest the potential rise of a new environmental activism in urban areas of developing countries, there are other findings suggesting that long-held developing-country perceptions of the environment's secondary importance may be slow to change.

For example, respondents in African countries (especially Kenya, Tanzania, Zimbabwe, Ghana, Nigeria) rate environmental issues as being of secondary importance when compared with such social problems as HIV, poverty, homelessness, availability of jobs, and hunger.

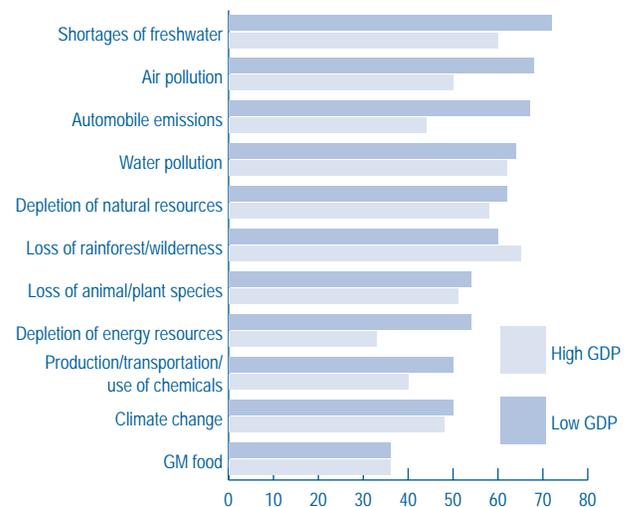
Another important example is whether people believe there are trade-offs between environment and economy. A majority of respondents in 10 of 12 developing countries surveyed accept that there is a trade-off by emphasizing the economy over the environment. Between 50 to 70 percent of respondents in these countries agreed with the statement that "we worry too much about the future of the environment, and not enough about prices and jobs today." Citizens of Indonesia and Cote d'Ivoire are the only developing country respondents more inclined to disagree with this statement (as do strong majorities in industrialized countries).

It is also interesting to examine differences in perceptions related to the environmental impact of increasing globalization. Majorities of respondents in Nigeria and South Africa think that environmental quality improves with greater globalization. Majorities in Asian and South American countries with low GDP per capita exhibit skeptical attitudes toward environmental outcomes of globalization, as do citizens of most industrialized countries surveyed.

GlobeScan's research suggests that there will be increasing calls for environmental action from people in developing countries, amplified by their acute awareness that environmental problems are affecting their personal health. The challenge will be for leaders in business, government, civil society, and multilateral organizations to go beyond their own constituents' decreasing interest in environmental issues to help alleviate potentially destabilizing environmental conditions affecting fast-growing urban populations in developing countries.

Seriousness of Environmental Issues

"Very Serious," High vs. Low GDP per capita, 2003



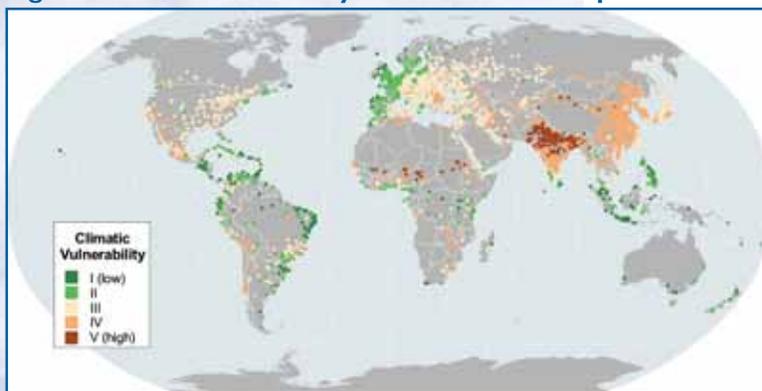


Environment During Growth— Accounting for Governance and Vulnerability

Polluted air is a major health hazard in many parts of the world, but it is particularly troublesome in some developing countries, where regulations governing air quality have been lax or nonexistent. The international health community currently believes suspended particulate matter—commonly known as dust—to be the most damaging among widely measured air pollutants. Ambient concentrations of particulates in many cities of the developing world routinely exceed World Health Organization (WHO) safety standards by a factor of three or more.

suggest that particulates cause 65 million days of illness each year for urban residents in Latin America. A 1994 study indicates that air pollution in Jakarta, Indonesia, is responsible for some 1,400 deaths, 49,000 emergency-room visits, and 600,000 asthma attacks per year. A recent World Bank estimate of mortality and morbidity from urban air pollution in India and China suggests annual losses in the range of 2 to 3 percent of GDP. Health effects of exposure to particulates range in severity from coughing and bronchitis to heart disease and cancer.

Figure 1. Urban vulnerability to emissions of fine particulates

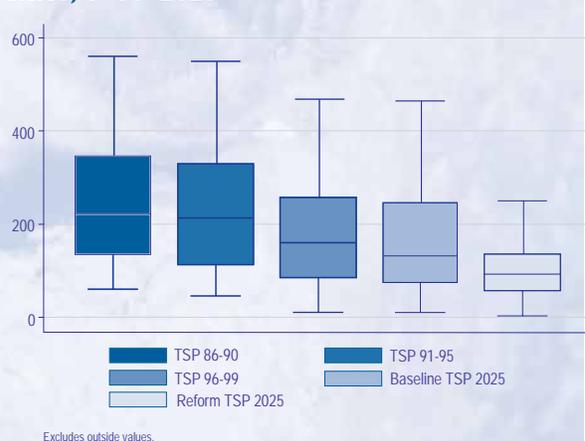


Particulate air pollution is a complex mixture of small and large particles of varying origin and chemical composition. Recent epidemiological studies have reported that exposure

Conventional wisdom

It is commonly believed that in the first stage of industrialization, pollution grows rapidly because people are far more interested in jobs and income than clean air, communities are too poor to pay for abatement, and environmental regulation is correspondingly weak. In this world view, the balance shifts as income rises. Leading industrial sectors become cleaner, people value the environment more highly, and regulatory institutions become more effective. Pollution levels off in the middle-income range and then falls toward pre-industrial levels in wealthy societies.

Figure 2. TSP distributions in non-OECD cities, 1986–2025



to particulates, particularly small particulates, is strongly associated with respiratory illness and death. (Small particles are likely to be more dangerous because they can be inhaled deeply into the lungs, settling in areas where the natural clearance mechanisms of a body, like coughing, cannot remove them.) Empirical research suggests that associated health costs are already quite high in developing countries. For example, some estimates

Although economic development is undoubtedly related to environmental quality, recent research has shown that this conventional reliance on income as the sole determinant

of pollution is misleading because it is too restrictive. However, many empirical researchers have accepted this approach, and have focused on measuring the per capita income at which pollution levels off. Their estimates, from observations across countries or regions, typically suggest that air and water pollution increase with development until per capita income reaches a range of \$5,000 to \$8,000. When income rises beyond that level, they find that pollution starts to decline. In developing countries and donor institutions, some policy-makers have interpreted such results as conveying an important message about priorities: *Grow first, then clean up.*

If such estimates are correct, the prospects for environmental quality are extremely poor for many developing countries. According to World Bank data, average per capita GDP (in constant 1995 U.S. dollars) in 2002 was \$449 in 59 low-income countries and \$1,786 in 52 lower-middle income countries. These countries are nowhere near the maximum pollution point in the conventional story, and hence, they are fated to endure rising pollution for many decades.

New evidence

New monitoring data from developing countries are enabling researchers to provide much more detailed information about the scope and sever-

ity of particulate pollution. A World Bank research team has recently analyzed the latest available data on suspended particulates (TSP) from the World Health Organization (WHO), which include time series from 1986 to 1999 for 340 individual air quality monitors in 170 cities. Of these, 209 monitors and 85 cities are in developing, newly industrialized, or Eastern European countries.

In addition to income per capita, the World Bank study has considered the following potential determinants of the relationship between economic activity and environmental quality:

- *Governance:* Governance quality and the effectiveness of environmental institutions vary widely across countries. Recent assessments of country policies and institutional capacity have revealed that low levels of development do not prevent countries from having effective environmental institutions and policies. Some poor countries have strong policy performance, and some middle-income countries are weak in this dimension.
- *Locational Vulnerability to Pollution:* Environmental quality, in this case, atmospheric concentration of TSP, is very much dependent on geographic fac-

tors. For example, once small particulates are emitted from combustion or other processes, they will stay airborne for shorter periods in areas that are rainy and windy. More subtle factors (temperature, sunshine, air pressure, surrounding terrain) may also affect the airborne suspension of particulates. A recent World Bank-WHO study has provided the first systematic quantification of these factors, and combined their estimated impacts into a vulnerability index for approximately 3,200 world cities whose population exceeds 100,000. The results suggest that vulnerability is highly varied, both within and across regions. All continents have regions of low and high vulnerability (see *Figure 1*).

- *Economic Structure:* Environmental outcomes are significantly affected by the sectoral composition of economic activity. Not all industry sectors are equal sources of environmentally damaging emissions. For example, a shirt factory is far less polluting than a steel mill. Hence, considering the composition of output along with measures of aggregate output is critical for understanding potential environmental impacts.

- *Space-Intensity of Activities:* The geographic features of each locus of activity along with space-intensity of activities are also important determinants of environmental quality.

Using the monitored TSP dataset from WHO for the period 1986–99, the World Bank study has estimated air quality models that control for governance, vulnerability, pollution-intensive economic activity, and population density, as well as income per capita. The results show varied impacts for income, but they are unambiguous in their assignment of importance to governance and geographic vulnerability.

Comparative impacts

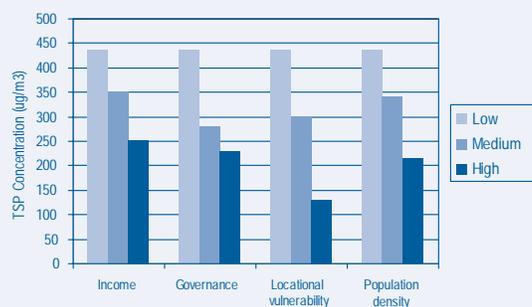
Using their estimated models, the World Bank study team has conducted simulation experiments to assess the relative importance of income, governance, vulnerability, and population density as determinants of air quality. The results strongly suggest that governance and geographic vulnerability alone are enough to account for the crisis levels of air pollution in many cities in the developing world. When their effects are combined with those of income and population density, they find a sufficient explanation for the fact that some cities in developing countries already have air quality comparable to levels in OECD cities (see *Box 1*).

BOX 1. ASSESSING THE DETERMINANTS OF AIR QUALITY

The table at right displays the relevant simulation ranges for the sample dataset of non-OECD countries.

In order to assess the partial effect of each determinant, the baseline TSP concentration was established for a city with “worst-case” conditions (income \$250; governance 1.5; vulnerability 85; population density 40,000/sq. km.). For the period 1996–99, the air quality model predicted an airborne TSP concentration of 437 micrograms per cubic meter ($\mu\text{g}/\text{m}^3$) for this case—approximately nine times the current median TSP concentration for OECD cities.

	Income per capita (\$US)	Governance index	Locational vulnerability index	Population density (/sq. km.)
Low	250	1.5	15	100
Medium	1,000	4.5	50	5,000
High	8,000	7.5	85	40,000



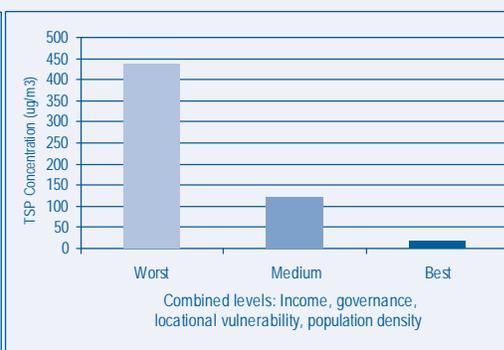
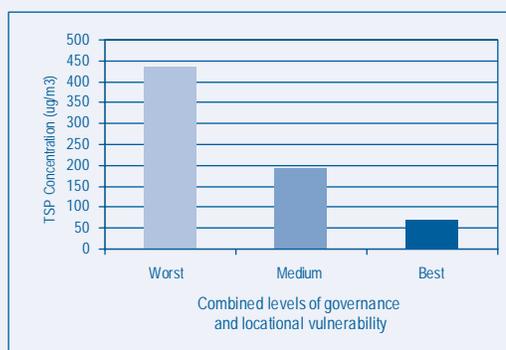
From the baseline, the air quality model was again used to predict the partial effect as the four determinants are increased to medium and high levels. The figure at left presents the results.

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Holding income, governance, and population density constant at “worst-case” levels, changing locational vulnerability from high to low reduced predicted air pollution from 437 to 131 $\mu\text{g}/\text{m}^3$. The other three determinants also had major impacts on the TSP concentration, with similar orders of magnitude in the transition

from low to high values. TSP fell from 467 to 252 for income, to 228 for governance, and to 216 for population density.

The figure below adds another perspective, by measuring the joint impacts of TSP determinants. For jointly worst, medium, and best values, governance and locational vulnerability reduced TSP from 437 to 194 and 69. In combination, all four determinants reduced TSP from 437 to 122 and 20 for medium and high values.



Urban air pollution— Present and future

The World Bank study has projected air pollution in 2025 for many cities using two sets of assumptions. In the baseline projection, current trends are maintained for income, governance, and population densi-

ty. Even this conservative scenario leads to a moderate improvement in air quality. In the second set, policy reforms are assumed to produce real income growth of 5 percent annually, governance improves sufficiently to achieve parity with the current lower quartile of OECD countries, and urban

population growth slows to half the rate observed in 1995–2000. In this reform scenario, the simulations predict sharp improvements in air quality for most cities in developing countries. By 2025, 75 percent have attained air quality within the current range experienced by OECD cities (see Figure 2).

Conclusions

Policymakers should be wary of those who suggest that developing countries must grow first and clean up later. The results of the World Bank study offer no support for the view that air quality universally deteriorates during the first phase of economic growth. On the contrary, the results suggest that, at worst, air quality remains constant during growth, even at very low income levels, and that income growth significantly improves air quality at the margin.

The findings also suggest that citizens of poor countries do not necessarily face a long wait for major improvements in air quality. Significantly improved governance is possible in poor countries, and the World Bank research results suggest that policy reform alone can be sufficient to reduce air pollution by 50 percent, even in overcrowded, geographically vulnerable cities in countries with very low incomes.

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Sustainable Development and Policy Reform— Implementing MDG 7, Target 9

Millennium Development Goal (MDG) 7: “Ensure environmental sustainability”

Target 9: “Integrate the principles of sustainable development into country policies and programs and reverse loss of environmental resources”

The eight MDGs were adopted by 191 nations in 2000 as part of a comprehensive rights-based development agenda.

Economic growth is crucial for poverty reduction, but growth that is not environmentally sustainable can degrade the health of future generations as well as deprive them of their homes and livelihoods. As world economies grow, there is increasing recognition of the importance of an incentive framework for economic development that considers ecological systems’ resilience and also intergenerational equity. Such a framework should be an integral part of national institutions that underpin economic growth. That type of framework is also an inevitable outgrowth of Millennium Development Goal (MDG) Number 7, regarding environmental sustainability. Target 9 of this Goal requires countries to “integrate the principles of sustainable development into country policies and programs.”

While the MDGs have articulated *what* needs to be done, countries are still learning *how* to achieve these goals. In the Latin America Region, the Government of Mexico, followed by the Governments of Brazil and Colombia, have been working since 2002—in partnership with the World Bank—to reach this MDG Target through environmental policy reform. In this article, we describe those efforts and a policy reform framework—a *Sustainable Governance Process (SGP)*—that seek to further integrate sustainability concerns into economic development programs.

The term “sustainable development” refers to growth and expansion carried out in ways to ensure that future generations have (at the least) the same opportunities as current generations. For many, the future is distant and difficult to link to present needs. The future is, however, directly linked to the present through children, who are the future generation. They are also the ones typically most affected in developing countries by environmental degradation, principally through its impacts on their health. On a global scale, (a) lack of access to clean water and sanitation and (b) indoor air pollution are the two principal causes of illness and death, mainly affecting children and women in poor families.

Development depends on economic growth, which is necessary but not sufficient for achieving the Millennium Development Goals. Research on development has found that the state of *institutional* development is the single most important variable in explaining a country’s overall level of development. As pointed out by the World Development Report 2003 on *Sustainable Development in a Dynamic World*, institutions matter. So MDG 7 seems to call for an incentive framework, or institutions, that look out for children while promoting economic growth.

As Douglass North has pointed out in his 1993 Nobel Prize lecture, “Institutions are not

necessarily or even usually created to be socially efficient; rather they, or at least the formal rules, are created to serve the interests of those with the bargaining power to create new rules." This will be a familiar statement to those involved with policy formulation, where technical analysis often plays a small part, with political economy being the far greater influence in the design of policies. These institutions, or rules of the game, are typically comprised of formal rules (for example, policies), informal rules (such as cultures and behaviors), and the application of these rules. While formal rules could be changed relatively quickly, informal rules

only change gradually. Together, these rules form the incentive structure of a society.

Learning, which is a function of imitation, exploration, and experience, seems to be the key to long-term economic growth. But learning takes time. This implies that shaping institutions conducive to sustainable development should be based on incorporating appropriate guiding principles into policies and programs. Those principles must be informed by analytical work that identifies priorities at the local level, as well as local practices, based on analytical and context-specific knowledge to understand variables crucial to the

welfare of the most vulnerable groups. These variables include traditions, cultural patterns, history, weather patterns, and geographic characteristics.

The challenge to attaining economic development with equity is to get institutions to promote *sustainable* economic growth. This requires a combination of near-term changes to formal rules and the longer-term shaping of informal rules through learning. It is also important that someone effectively represents the most vulnerable, particularly children (future generations)—in effect giving them a voice at the table as rules are formulated that

affect their future. Representing future generations' interests ensures that development will be sustainable. To be effective, development approaches need to promote social learning so that formal rules can continue to evolve over time in a direction that is technically sound; overcome the bias of vested interests, and become increasingly more effective at improving the quality of life for our children and their children.

The main instrument in the World Bank for institutional and policy reform is the adjustment loan. This instrument has typically been used in the context of macroeconomic, fiscal,



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and sectoral reforms, rather than as a mainstreamed instrument for environmental policy reform. In some of these loans, environment has been a more integrated component. An example is the Bulgaria Environment and Privatization Support Adjustment Loan (2000), which includes a comprehensive program to deal with en-

vironmental liabilities linked with privatization.

A 2002 Programmatic Environment Structural Adjustment Loan (EnvSAL) in Mexico marked the first time this instrument was used to integrate environmental concerns more broadly into a country's social and economic development

agenda. The Mexico EnvSAL supported part of the Government of Mexico's medium-term, goal-oriented program to implement their policy of economic development with human and environmental quality. The operation was the first in a program intended to (a) integrate principles of sustainable development into key economic sectors, and (b) improve the effectiveness and efficiency of the national environmental management system.

The basic design principles included the provision of a blueprint for mainstreaming environmental variables into key economic sectors; encouraging public disclosure and opening up decisionmaking to the public (measures aimed at strengthening overall governance); and promoting the use of a set of environmental policy instruments, including economic instruments, Strategic Environmental Assessments (SEAs), decentralization, and environmental indicators to influence behavior.

The first EnvSAL operation was completed in December 2003. To date, reforms supported by this operation have yielded several benefits, including improved water resources management, improved management of marine protected areas through the development of fiscal instruments to increase tourism revenue while protecting marine resources, and improved public participation and transparency

in environmental management. The EnvSAL has also provided a wealth of experience on how best to tackle similar situations. This includes the need to set up coordination mechanisms attuned to the particular country context, because existing institutional incentive frameworks make it difficult to mainstream sustainable development approaches. Added to this is the challenge of obtaining commitments from different entities and ensuring adequate budgetary and human resources.

Responding to client country demand following the Mexico EnvSAL, the Latin America and Caribbean Region Office has a growing portfolio and pipeline of such programmatic loans. In fiscal year 2005, the Bank's Board is expected to discuss loans to Brazil and Colombia.

The Bank's role has been (a) providing leverage to the Ministries of Environment in focusing the attention of Ministries of Finance and Infrastructure on the need to mainstream sustainable development considerations into their policies, (b) assisting the governments in evaluating the effectiveness of programs and thus generating knowledge on what works and what does not, and (c) consolidating knowledge about social learning to achieve improvements in the quality of life.

Countries face complex and large-scale issues as they seek

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to move environmental concerns into the mainstream of their economic development activities. To help them with these challenges, we advocate the following approach—a Sustainable Governance Process (SGP)—to design and implement such reform programs.

First, the process is based on a solid analytical foundation to provide decisionmakers with a strong technical basis for designing formal rules and policies by (a) identifying environmental priorities that need to be addressed, and (b) analyzing the effectiveness and efficiency of existing formal rules and their implementation to address identified priorities. Examples of such work include cost-of-degradation studies that place an economic value on health impacts and on loss of productivity associated with environmental degradation. Such studies help establish environmental priorities that directly affect sustainable economic growth. In the case of Colombia, such a study estimated the cost of environmental damage from only four causes was over 3 percent of GDP. In the case of Mexico, the 2001 OECD Environmental Performance Review provided a strong analytical basis for identifying the main environmental issues. The Country Environmental Analysis (CEA) is another important tool identified in the Bank's Environment Strategy for carrying out such an analysis.

Second, the process aims at ensuring that interests are balanced between different stakeholders. The design of such reform programs must assess the political economy and ensure that the views of the most vulnerable, particularly the poor and children—the future generations—are represented. Useful tools in this regard include SEA and the resources in the Poverty and Social Impact Analysis (PSIA) toolkit. Inter-institutional coordination mechanisms that allow for open discussion of different stakeholder perspectives, assessment of trade-offs between competing priorities, and the design of solutions that require multi-sectoral participation are also important. To reduce the impact of major environmental health problems that affect children, such as indoor air pollution, an inter-institutional approach is essential for success.

Reforms create winners and losers. Political economy considerations are therefore crucial. Any reform that does not address the goals, interests, incentives, and behaviors of those groups prone to win or lose is almost certain to fail. To ensure beneficial institutional change, it is essential to put in place measures that promote social learning (that is, the identification and correction of errors on a continuous basis). This includes monitoring and evaluating outcomes through an appropriate choice of indicators, improved accountability with respect to environ-



mental decisionmaking outcomes, and a mechanism to feed lessons back into further changes to the formal and informal rules to ensure institutional change on a continuous basis to improve the quality of life of future generations. Further, the Mexico EnvSAL experience indicates the need for continuous technical work—as formal rules are developed over time and their implementation is evaluated—and sufficient human and financial resources over an adequate time period.

The Bank's experience with comprehensive environmental reforms of this type is still evolving. Target 9 in MDG 7 is a complex challenge and countries are still learning how best to respond. The answer lies in the success with which countries can shift their institutions to a path that is consistent with both economic growth and sustainability.

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Taking Resource Dependence into Account

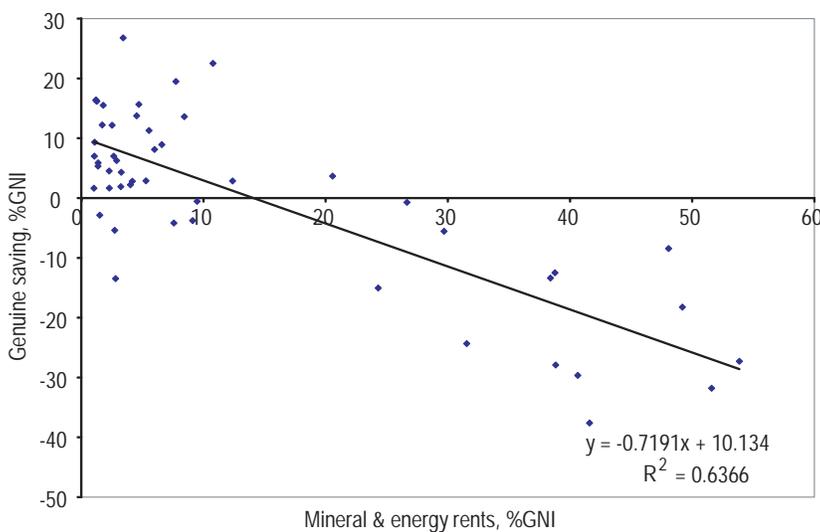
Both theory and intuition suggest that countries with abundant natural resources should have a distinct advantage in achieving economic development. But a large and growing body of evidence suggests that it is precisely these countries that have exhibited the lowest growth rates over the last several decades of the 20th century. Why should this be so, and what tools do we have to guide macroeconomic management in resource-dependent economies?

may impede the development of the non-oil export sector; easy money in the form of resource rents (that is, an excess return to a production factor) may reduce incentives to implement needed economic reforms; and volatile resource prices may complicate macroeconomic management, exacerbating political conflicts concerning the sharing and management of resource revenues. Three key policy questions concern how much resource revenue to save for future generations, how to deal with uncertain revenues and avoid “boom-bust” cycles, and how to ensure that government spending is of high quality.

Saving. Stocks of exhaustible resources such as oil represent a potential source of development finance. A key question for countries with resource endowments is whether to consume the rents as resources are depleted, providing current welfare but at a cost to future generations, or to invest the rents in other assets. The Hartwick rule, a “rule of thumb” for sustainability, states that economies with exhaustible resources will be sustainable if the value of resource depletion is offset by productive investments in other assets. This is a rule designed to preserve total wealth.

Stabilizing. Oil prices have been twice as variable as those of other commodities. If past experience is a guide, price shocks will continue to be

Figure 1. Genuine saving vs. exhaustible resource share, 2000



Note: Only countries with exhaustible resource shares greater than 1% of GNI are shown.

Oil exporting countries present some of the most extreme examples of this “resource curse,” and there are critical issues of natural resource and economic management in these countries. There are many plausible mechanisms by which the resource curse can operate: inflated currencies

poorly foreseen, and producing countries will be vulnerable to boom-bust cycles. Instability is very costly, as economies and budgets adjust asymmetrically. On the up-cycle, growth increases little; on the down-cycle output contracts, often substantially. Rapid growth in public spending, which often follows resource price increases, reduces spending quality and introduces entitlements, which are often not sustainable in the long run. Efficiency can suffer as capital investments sit idle during down-cycles because of shortages of recurrent resources.

Policy simulations suggest that optimal saving during revenue booms like those of the 1970s ought to be 60 to 70 percent of the revenue gains, far higher than the levels achieved by exporters. They also show that the costs of policies formulated on the basis of overoptimistic projections of prices and revenues during a windfall period can amount to several times the potential benefit of the windfall itself. There is therefore a strong case for making cautious revenue projections, for holding larger than normal currency reserves, for minimizing outstanding public debt, and for using hedging techniques in order to cushion shocks (taking insurance, in effect, against future resource price declines).

Using rents well. In most countries, resource rents are the property of the nation. However, large resource revenues

tend to encourage “rent-seeking” behavior, whereby groups or individuals seek to appropriate revenues for themselves. Mechanisms to distribute rent should thus be clear, and be part of a transparent budget process able to link fiscal choices to current and (conservatively) projected resource revenues. For any given level of rents, the mix of channels to distribute rents to citizens—whether through public investment or recurrent spending, subsidies and transfers, or lower non-oil taxes—should reflect the relative returns on public versus private uses of funds.

Beyond these general concerns, two potential pitfalls tend to be particularly important for oil exporters. First, the concentration of fiscal resources tends to encourage excessive and imprudent investment—the state implements large projects without sufficient consideration of risk. Second, some ways of distributing rent, whether through sustained protection of favored activities or firms, or a combination of non-oil taxes and subsidies and public spending, have high costs and encourage corruption.

Tools to support resource management. Expanded asset accounting—measuring the total wealth of a nation as the sum of its produced, natural, and human resources—is a tool for analyzing the effectiveness with which natural resource endowments are being managed. For example, the World

Bank has published estimates of adjusted net or “genuine” saving for roughly 150 countries since 1999 in the *World Development Indicators*. This is an extended measure of saving, calculated as gross national saving (GNI minus consumption), plus education expenditure, minus depreciation, mineral depletion, energy depletion, net forest depletion, and CO₂ damages.

Genuine saving measures the change in the assets—produced capital, human capital, natural resources—on which economic development depends. It is an indicator of the sustainability of growth and development. If the saving rate for a country is negative (implying falling wealth), then future levels of economic welfare will decline. Positive but low rates of net saving indicate small increases in future welfare. Over the 1990s, roughly half the countries under \$1,000 per capita income had negative saving rates.

Figure 1 explores whether countries are consuming or investing natural resource rents by scattering genuine saving rates against the share of mineral and energy rents in GNI (each dot represents a country’s saving rate on the left axis and the share of resource rents in national income on the bottom axis). The fitted line suggests that, looking across countries, for each additional percent of GNI that is derived from exhaustible resource rents, roughly 0.72 of this is being consumed. A very signif-

icant proportion of the natural resource endowment of these countries is apparently not being invested in other assets.

The “resource curse” is an unfortunate reality for a range of the most resource-dependent economies. Many of the roots of the resource curse lie in political economy—if the powerful can appropriate resource rents for themselves, or if political consensus on economic management is lacking, then abundant resource rents may actually inhibit growth and development. But the resource curse is not inevitable. Sound policies can transform resource endowments into economic growth, as countries such as Malaysia and Botswana have shown. To support sound policies, asset accounts can be a crucial guide to policymakers making decisions on taxation, consumption, and investment in resource-dependent economies.

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This article was prepared by Alan Gelb, (202) 473-7667, fax (202) 522-0906, Office of the Senior Vice President for Development Economics; and Kirk Hamilton, (202) 473-2053, fax (202) 522-1735, of the Environment Department. It is based on a 2002 World Bank Policy Research Working Paper (#2899) by Benn Eifert, Alan Gelb, and Nils Borje Tallroth entitled “The Political Economy of Fiscal Policy and Economic Management in Oil Exporting Economies.”



Energy, Climate Change, and Development

The demand for energy services is growing rapidly, particularly in developing countries, where cost-effective energy is critical for poverty alleviation and economic development. A major challenge is to provide modern, cost-effective, and environmentally and socially sustainable energy services to the 1.6 billion people who currently lack access to electricity, and the 2.4 billion who rely on biomass for cooking and heating. While the choice of fuels will vary by region and depend on price, availability, technology, and social and environmental considerations, fossil fuels are expected to remain the dominant source in the coming decades. Unfortunately, the extraction, production, and use of fossil fuels are associated with land degradation and conversion, pollution of water bodies, local and regional air pollution, emissions of heavy metals such as mercury, and climate change.

Climate change is already occurring and is projected to change even more in the coming decades. There is little doubt that the Earth's climate has warmed, on average by about 0.6°C, over the past 100 years. The temporal and spatial patterns of precipitation have changed, sea levels have risen between 10 and 25 cm, most non-polar glaciers are retreating, and the extent and thickness of Arctic sea ice in summer are decreasing. Most of the observed warming of the past 50 years can be attributed

to human activities increasing the atmospheric concentrations of greenhouse gases and aerosols, rather than changes in solar radiation or other natural factors. Changes in sea level, snow cover, ice extent, and precipitation are consistent with a warmer climate. Assuming that there are no coordinated international policies to seriously address the issue of climate change, the Earth's climate is projected to warm an additional 1.4 to 5.8°C between 1990 and 2100. These changes in temperature will be accompanied by changes in the temporal and spatial patterns of precipitation, increases in the incidence of extreme weather events, and a sea level rise of 8–88 cm.

The Intergovernmental Panel on Climate Change concluded that developing countries, and especially poor people within developing countries, are the most vulnerable to climate change. The panel also found that the number of people adversely affected by climate change will be greater than those that benefit, and the greater the rate and magnitude of change the more adverse the consequences. Low-lying Small Island States and deltaic regions of developing countries in South Asia, the South Pacific, and the Indian Ocean could eventually disappear under water, displacing tens of millions of people in the process; peoples' exposure to malaria and dengue fever, already rampant in the tropics and subtropics, could become even

more severe; crop production could significantly decrease in Africa, Latin America, and in other developing countries; and freshwater could become even more scarce in many areas of the world already facing shortages.

Climate change will also exacerbate the loss of biodiversity; increase the risk of extinction for many species, especially those that are already at risk due to factors such as low population numbers, restricted or patchy habitats, and limited climatic ranges; and adversely impact ecosystem services essential for sustainable development. For the 800 million people who go to bed hungry every night, and the 2 billion others exposed to insect-borne diseases and water scarcity, climate change threatens to bring more suffering in its wake. In this way, climate change may undermine long-term development and the ability of many poor people to escape poverty, and will clearly threaten our ability to achieve some of the Millennium Development Goals.

Developing countries are in general more vulnerable to climate variability and climate change because their economies are particularly dependent on climate-sensitive sectors such as agricultural and forest resources, both in terms of national production and in the number of people directly dependent on them for livelihoods. They also lack the technical, institutional, and financial infrastructure to deal

with the impacts of climate change.

Based on our current understanding of the climate system, and the response of different ecological systems, if significant adverse changes are to be avoided, the scientific evidence suggests that the maximum tolerable increase in global mean surface temperature is about 2°C and that the rate of change should not exceed 0.2°C per decade. This will require that the atmospheric concentration of carbon dioxide be limited to about 450 ppm—certainly no more than 550 ppm—and that all countries will need to reduce their projected greenhouse gas emissions. Key issues will include setting intermediate targets and the equitable allocation of emissions rights that recognizes the principle of common but differentiated responsibilities embodied in the United Nations Convention on Climate Change.

The time for action is now. Both mitigation and adaptation activities will be needed to address the threat of climate change. Even with concerted international efforts to reduce greenhouse gas emissions, in both developed and developing countries, the Earth's climate will change, and adaptation measures will be needed. The smaller the magnitude and the lower the rate of climate change, the easier it will be to adapt. Even though there are scientific uncertainties, the knowledge base is sufficient to justify mitigation measures



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and to implement an adaptive management strategy as part of the broader developmental framework to limit the adverse effects of climate change and capture any beneficial effects.

Environmental sustainability in the energy sector cannot be achieved with continued reliance on today's technologies and policies. Significant reductions in the emissions of local and regional pollutants and greenhouse gases are technically feasible due to an extensive array of technologies in the energy supply and demand sectors—many at little or no net cost to society. Reducing projected emissions will require a portfolio of energy production technologies, including fuel switching (coal/oil to gas), increased power plant efficiency, carbon dioxide capture and storage, increased use of renewable energy technologies (modern biomass, solar, wind, run-of-the river and large hydropower and geothermal) and nuclear power, complemented by more efficient use of energy in the transportation, buildings, and industry sectors. Realizing these emissions reductions involves the development and

implementation of supporting policies to overcome barriers to the diffusion of these technologies into the market-place, increased public and private sector funding for research and development, and effective technology transfer.

Policies and programs needed to facilitate the widespread deployment of environmentally friendly energy production and use technologies include energy pricing strategies; carbon and pollution taxes; removing subsidies that increase emissions of local and regional pollutants and greenhouse gases; internalizing externalities; domestic and international tradable emissions permits; voluntary programs; incentives for use of new technologies during market build-up; regulatory programs, including energy-efficiency standards; and education and training. Priority should be afforded to identifying and implementing policies and technologies that can simultaneously address local, regional, and global concerns.

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The Elements of Sustainable Infrastructure

Abstracted from a paper that is part of a wider infrastructure flagship study in the East Asia and Pacific Region. However, the conclusions and recommendations are essentially generic, and equally applicable to other sectors and Regions.

Investment in large-scale infrastructure projects and programs has been constrained by the perception, and often the reality, that their adverse environmental and social impacts make them at odds with the achievement of a sustainable pattern of economic growth. Uncertainties about the costs and causality of environmental and social damage, and thus of the magnitude and type of remedial measures, present an obstacle to efficient and equitable decisionmaking. Externalities, conflicts of interest, and distributional effects mean that value judgments are inescapable, making it difficult to identify precise and universally acceptable solutions to many of the problems encountered, which works to the advantage of the politically powerful and to the detriment of the poor, and invites corruption in the manipulation of data and information.

Widely thought of as being the source of severe environmental and social problems, infrastructure projects can, if properly designed and implemented, be a positive force in addressing environmental and social objectives. Positive outcomes require considerable analytical, political, and institutional efforts at all stages of the policy and project cycle, and involve a wide range of actors in both public and private sectors.

A wide variety of factors can play a role in infrastructure projects and their environmental and social outcomes. A useful distinction can be made between (a) those measures that relate explicitly to the environmental and social aspects

of infrastructure projects and are conventionally under the control of environmental or social agencies; and (b) a host of strategic issues that lie outside of their control, but which play an important role in determining environmental and social outcomes.

Strategic issues

General market reform. Market reforms, in which prices increasingly reflect true costs, provide incentives for efficiency in resource use and access to modern technology, and as such tend to be environmentally beneficial at the sector level. But general findings from Thailand and Indonesia have shown that the very success of such reforms in generating economic growth has placed excessive demands on the environment and often resulted in growing disparities in incomes. The failure of market forces to adequately handle the interrelated issues of environmental impacts and income distribution requires a parallel strengthening of regulatory capacity.

Infrastructure sector policies. The environmental and social impacts of sector-wide policies may often be far greater than the impacts attributable to any one project. In many cases, environmental and social considerations provide further arguments for public intervention and policy reforms that are justified in their own right. It remains the case that opportunities for “win-win” policies and actions abound. These are most clearly evident with regard to the existence of perverse subsidies; energy and water price reform is high on the list of priorities.

Social policies. Inadequate access to information by those adversely affected by infrastructure developments—typically the poor and disadvantaged—combined with an inability to articulate their concerns in an effective way, means that environmental data can be mismanaged by powerful vested interests. Because the requisite social conditions are often not in place, national governments in most developing countries in the region face severe sequencing problems. They have no alternative but to carry out short- and medium-term technical measures to address urgent environmental and social priorities, but at the same time need to lay the foundation of a social framework that is required for such measures to become really effective and sustainable.

Strategic environmental assessment. Effective “mainstreaming” depends to a large degree on the feasibility of Strategic Environmental Assessment (SEA), which includes any environmental impact assessment over and above the individual project level. A number of “best practice” case studies provide sufficient evidence of the value of this approach to warrant increased efforts in the future.

Conventional environmental and social measures

Economic instruments. Much still needs to be done to translate the polluter-pays principle into practical and enforceable economic instruments. A number of major improvements have been made in the East

Asia region in recent years, such as reform of the pollution levy system in China, but environmental taxes and charges typically remain well below damage costs.

Public disclosure and participation in Environmental Impact Assessments. Many countries in the region have adopted the use of environmental impact assessment (EIA) as a tool for examination of potential environmental and social impacts of projects. Although adequate laws and regulations may exist on paper, the willingness and capacity to use these and other methods for assessment, monitoring, and evaluation of environmental and social aspects of infrastructure investments typically leaves much to be desired. There are nevertheless some grounds for optimism. Recent experience in the region indicates that community-driven initiatives and participation at all stages of the project cycle are feasible and likely to lead to satisfactory outcomes.

Private sector role. The private sector is increasingly sensitive to the environmental and social consequences of its activities. This positive trend requires continued encouragement. The role of the banking sector, through adherence to the Equator Principles, is particularly important. Effective government oversight also is important. The Japanese approach, which emphasizes collaboration and consensus, has been highly successful in ensuring compliance with agreed standards.

Sequencing reform

The potential environmental and social impacts of invest-

ment in infrastructure are considerable. Actions to improve the social and environmental performance of infrastructure development programs should therefore be of major concern to national-level economic policymakers. In particular, a wide range of public policies influence the design and implementation of vast numbers of small-scale infrastructure projects that in the aggregate may be of even greater environmental and social significance than large-scale projects.

Due diligence relating to the environmental and social aspects of infrastructure development should increasingly be exercised at a level far earlier in the development process than is typically the case. Achieving this goal essentially depends on governance, but will vary enormously from country to country and may have very different time horizons. For example:

- *Short Term.* (a) Adopt adequate environmental legislation and capacity building related to traditional responsibilities of social and environmental agencies, such as project-level EIA, monitoring, and enforcement of economic incentives, regulations, and standards; (b) improve information and transparency about the magnitude and incidence of damage costs associated with infrastructure projects, their direct and underlying causes, and remedial measures; (c) support environmental education for communities, and training and awareness in infrastructure-related agencies and enterprises about cost-effective technologies; and (d) iden-

tify potential “win-win” strategies.

- *Medium Term.* (a) Systematically use SEA procedures; (b) factor environmental and social objectives and costs into pricing and other policies in key sectors such as energy, water, agriculture, and transportation; and (c) create incentives within government agencies and development institutions so that environmental and social costs associated with infrastructure projects and activities are internalized in their own decisionmaking.

- *Longer Term.* Empower those adversely affected by infrastructure projects to participate effectively in decisionmaking processes by addressing the “building blocks” that are essential if the foregoing improvements are to be sustained independently of the prevailing political fashion, including the basic elements of a democratic system, such as technical education, freedom of expression, decentralization of political authority, and free and transparent electoral systems. These requirements are fundamental to the achievement of virtually all development objectives, but indispensable for environmental and social goals, due to the need to reconcile inherent conflicts of interest that are invariably present.

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The Environment and Natural Resources Management Portfolio

Figure 1. Lending Trends



Figure 2. Total World Bank Project Portfolio by Thematic Distribution

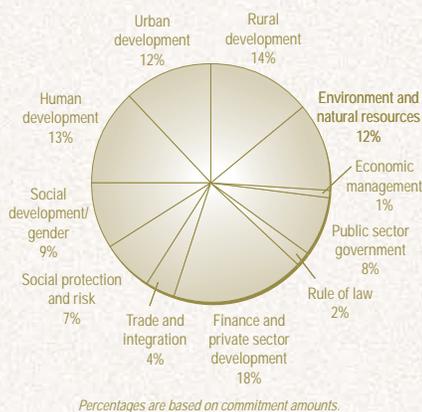
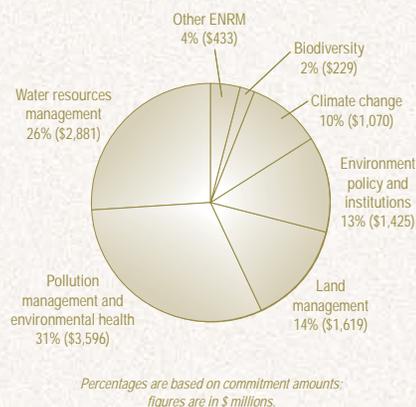


Figure 3. Active ENRM Portfolio — Thematic Distribution, FY04



The World Bank is now in the fourth year of implementing its 2001 Environment Strategy. Over the last few years, we have seen a gradual improvement in our environmental lending, a strengthening of our environmental analytical work, and progress in mainstreaming environmental issues into our sectoral projects and programs.

New ENRM lending

In fiscal 2004, there were 66 new projects in 42 countries with environment and natural resources management (ENRM) content, representing \$1.3 billion in commitments (see Figure 1).

As a percent of total new Bank lending, environment and natural resource management lending is steadily increasing from 4.7 percent in fiscal 2002, to 6.0 percent in fiscal 2003, and now to 6.5 percent in fiscal 2004 (see Figure 1).

Progress in mainstreaming environment continues, with 92 percent of new ENRM lending managed by non-environmental sectors. In fiscal 2004, projects with larger ENRM content were under way in Turkey and Mauritania (in energy and mining projects); China and Brazil (in transport projects); Vietnam (in urban projects); and Bangladesh and Iran (in water supply and sanitation projects).

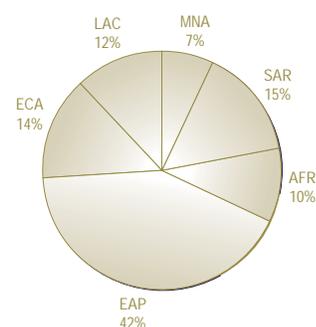
The ENRM portfolio

At the end of fiscal 2004, the total active projects with ENRM content amounted to \$11.2 billion. This constitutes 12.2 percent of the Bank's total active portfolio in the same year (see Figure 2). Of this, the core ENRM portfolio (projects with more than 65 percent ENRM content) consists of 59 projects representing \$ 3.2 billion in ENRM commitments.

In terms of thematic distribution, about a third of the active environmental portfolio is concentrated on pollution management and environmental health activities. Another 26 percent focused on water resource management activities within projects (see Figure 3).

In terms of regional distribution, projects in the East Asia and Pacific Region accounted for 42 percent of the active environmental portfolio. This was followed by projects in the South Asia Region (15 percent), and in the Europe and Central Asia Region (14 percent) (see Figure 4).

Figure 4. Active ENRM Portfolio — Regional Distribution, FY04



Analytical and advisory activities

Through our analytical and advisory activities, we are defining environmental priorities, informing policy dialogue, and influencing decisions about policies, projects, and programs to achieve better development outcomes.

In fiscal 2004, the Bank prepared 51 ESW products with primary ENRM objectives. This includes Country Environmental Analyses (such as in Tunisia); Strategic Environmental Assessments (such as in Mali); Energy-Environment Reviews (such as in Rwanda); and other environmental studies (such as in Bulgaria and Indonesia), among others. In addition, there were 47 non-lending technical assistance products reflecting various environmental issues (see *Figure 5*).

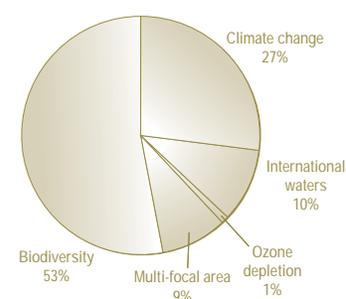
An in-depth qualitative analysis of environmental AAA, undertaken in FY04, highlights

recent analytical work that is aligned with the objectives of the Environment Strategy. The review shows improvement in both the quantity and quality of ENRM AAA.

Global Environment Facility (GEF)

Since the inception of the GEF, the World Bank Group has mobilized nearly \$12 billion in public and private funds for biodiversity conservation, climate change, ozone-depleting substances, and international waters (see *Figure 6*).

Figure 6. Active GEF Portfolio — Thematic Distribution, FY02–04



In fiscal 2004, 41 new GEF projects were approved for \$219 million in GEF financing

and additional Bank financing of \$738 million. The *Third Environment Program Support Project* in Madagascar, approved in fiscal 2004, is the largest single grant for the environment (\$148.8 million) approved by the Bank.

As of June 2004, there were 150 full-size (more than \$1 million each) GEF projects amounting to \$8.8 billion in total project costs, of which \$2.3 billion is Bank financing. In addition, there were 70 medium-sized projects (less than \$1 million each) representing \$38 million in Bank commitments and \$175 million in total commitments.

Montreal Protocol

The Bank's Montreal Protocol program, now active for 12 years, has facilitated the phase-out of over 139,495 tons of ODP at a cost of roughly \$650 million. Over 416 projects have reached completion as of the end of 2004.

In fiscal 2004, there were 28 new subprojects, including 3 pipeline approvals, 18 investment projects, and 7 non-investment technical assistance subprojects. Approved funding associated with these subprojects amounted to \$66.2 million, including \$245,000 for pipeline approvals, \$63.6 million for investment projects, and \$2.4 million for technical assistance.

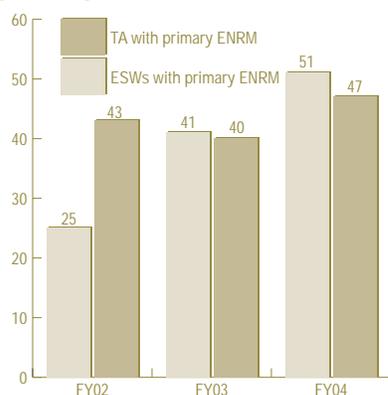
Carbon Finance

The new *State of the Carbon Market 2004* report shows a growing carbon finance market. The Bank's carbon finance business has more than \$410 million under management in six funds (either approved or under operation), which include the Prototype Carbon Fund, the Community Development Carbon Fund, and the BioCarbon Fund (see *Box* below).

CARBON FINANCE AT THE WORLD BANK

- The Prototype Carbon Fund (PCF), a public-private partnership of 17 companies and 6 government entities, is pioneering the market in greenhouse gas emission reductions.
- The Community Development Carbon Fund extends carbon finance to small-scale projects in least-developed countries and poorer areas of all developing countries.
- The BioCarbon Fund applies carbon finance to agroforestry and land use projects.

Figure 5. ESW and nonlending TA with primary ENRM themes, FY02–04



Note: This excludes supplementals.

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Safeguards Policies

Overview of Recent Activities

Table 1. The safeguard policies at the World Bank (IBRD and IDA)

OP/BP 4.01	Environmental Assessment
OP/BP 4.04	Natural Habitats
OP 4.09	Pest Management
OP/BP 4.12	Involuntary Resettlement
OD 4.20	Indigenous Peoples
OP/BP 4.36	Forests
OP/BP 4.37	Safety of Dams
OPN 11.03	Cultural Property
OP/BP 7.50	Projects on International Waterways
OP/BP 7.60	Projects in Disputed Areas

For the full text, please visit our website: <<www.worldbank.org/safeguards>>.

Table 2. EA categories of investment projects in fiscal 2004

Category	Number (%)	Lending \$ (%)
A	10	22
B	54	50
C	28	19
FI	8	9

Ten safeguard policies

The World Bank's "safeguard" policies (see Table 1) require that potentially adverse environmental impacts and selected social impacts of Bank investment projects should be identified, avoided, or minimized where feasible, and mitigated and monitored. The policies provide guidelines for Bank and borrower staff in the identification, preparation, and implementation of programs and projects. The broad objective of the safeguard policy system is to integrate issues that the policies address into the decision-making process in order to support environmentally and socially sustainable development.

During fiscal 2004, the Bank approved 267 new projects, including GEF and other operations. The amount of investment lending increased 8.5 percent over fiscal 2003 (IDA\$9 billion, IBRD \$11 billion). See Table 2 for the environmental screening categories assigned to these projects.

Three themes have dominated in this area over the last fiscal year: (1) application of safeguard policies to an expanded program of infrastructure development; (2) continued support for safeguards training and capacity building with a diversity of parties; and (3) continued interest in the Inspection Panel process, which supports accountability and transparency at the World Bank.

Support for infrastructure

The Bank has prepared an Infrastructure Action Plan (<http://www.worldbank.org/infrastructure>) that provides a framework for expanded support through a variety of approaches at the sector, program, and project level. The Action Plan recognizes that the Bank's safeguards are "a critical asset for ensuring development effectiveness and impact." The Action Plan notes the importance of supporting infrastructure investments that factor environmental and social safeguards into their design and operation. A greater emphasis on infrastructure requires scaling-up of Bank and borrower capacity to integrate safeguards into program and project development and implementation.

The Infrastructure Action Plan complements the Water Resources Strategy issued in fiscal 2003 (<http://lnweb18.worldbank.org/ESSD/ardext.nsf/18ByDocName/WaterResourcesManagement>). The Action Plan, like the Water Resources Strategy, provides an entry point for more systematic use of Strategic Environmental Assessment, Sector Environmental Assessment, and/or Regional Environmental Assessment. Through analysis of alternatives, the Action Plan and Water Resources Strategy also provide opportunities to examine ways that existing infrastructure can more fully contribute to meet-

ing current and future needs through rehabilitation, improvement, and/or changes in operational practices.

Safeguards training and dissemination of experience

The Quality Assurance and Compliance Unit (QACU) and the Regional Safeguard Units have continued to provide training on safeguard policies for staff from the Bank, borrowers, consulting firms, and NGOs. During fiscal 2004, for example, over 600 Bank staff and consultants were trained by QACU on individual safeguard policies and the application of these policies to various sectors and themes. Madagascar and other field offices held training via videoconferences—an approach that will be expanded significantly during the new fiscal year. Individual Bank Regions also developed their own safeguards training courses for headquarters staff, field staff, and clients. Joint QACU/AFR pilots were conducted to train task managers in the new regional safeguards management process. More of these sessions will be conducted with the other Regions in fiscal 2005.

A new joint committee for Knowledge Sharing and Learning (KSL) will foster greater synergies and impacts from a combined approach to training to be shared by the Environment, Social Development, and Rural Development Departments.

The World Bank Group took an active role in the 2004 meeting of the International Association for Impact Assessment in Vancouver, and will continue its engagement at the 2005 meeting in Boston, where it plans to organize an event reviewing recent policy and procedural developments within the Bank, IFC, and MIGA. More information is available at <http://www.iaia.org/>.

Inspection Panel cases

The World Bank's Inspection Panel has become a model for accountability mechanisms established at a number of major international financial institutions as well as the Japan Bank for International Cooperation, a bilateral organization.

In fiscal 2004, the Board of Executive Directors discussed two cases, one in Africa and one in South Asia; in both cases, Panel Investigations and Management Responses and Recommendations had been completed in fiscal 2003. The Board discussion of the case in Cameroon involved two projects associated with the Chad-Cameroon Pipeline—the Cameroon Petroleum Development and Pipeline Project and the Petroleum Environmental Capacity Enhancement Project. In addition, the Board discussed the India Coal Sector Environmental and Social Mitigation Project and Coal Sector Rehabilitation Project.

The Bank submitted Management Responses for five Eligi-

bility Phase Requests for Inspection in fiscal 2004: Philippines—Manila Second Sewerage Project; Mexico—Indigenous and Community Biodiversity Project (COINBIO); Colombia—Cartagena Water Supply, Sewerage, and Environmental Management Project; and India—Mumbai Urban Transport Project (two Requests from different groups).

The Inspection Panel recommended an investigation of the Colombia Request, which was agreed to by the Board. The Inspection Panel did not recommend investigation of the Philippines Request. The Panel concluded that an investigation of the Mexico Request was not the best course of action at this time. The Panel's eligibility report and recommendation regarding investigation of the two India Requests are expected shortly.

The Yacyreta Hydroelectric Project in Paraguay and Argentina was registered in fiscal 2002. Investigation began in fiscal 2003. In May 2004 the Board approved the Management Action Plan and requested that management report back in 90 days on progress made.

Looking forward

The safeguard policy work of the World Bank will continue to evolve during fiscal 2005:

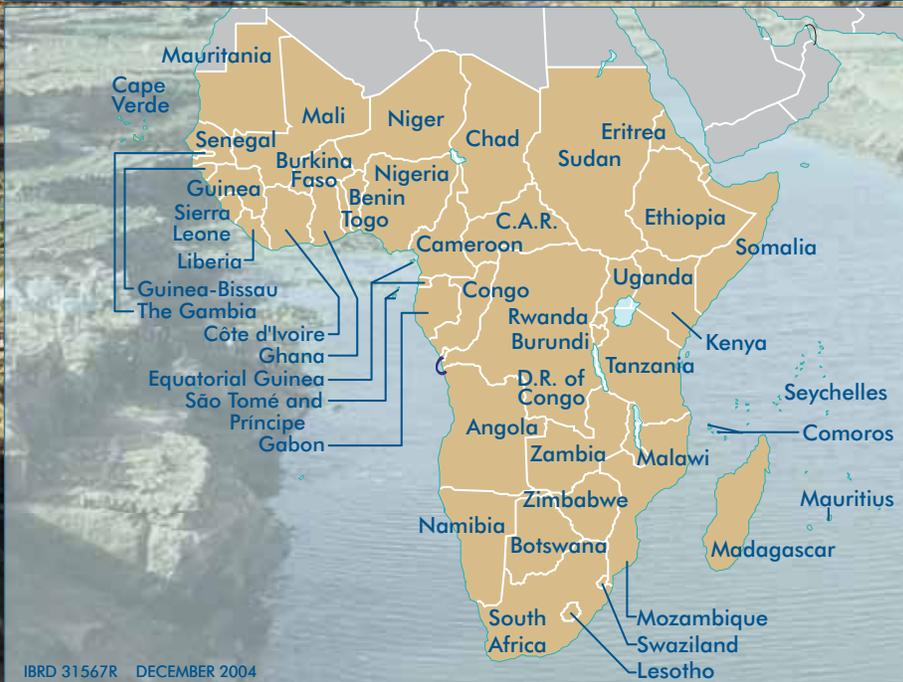
- The revision of the Indigenous Peoples Policy is proposed for discussion by the Board during fiscal 2005 and, subject to Board

approval, will become effective by the beginning of fiscal 2006.

- The World Bank will issue a framework for the pilot use of country systems for safeguard policies, following discussions with the Board and consultations.
- The World Bank will continue to support the harmonization of environmental assessment procedures among development organizations. Progress in this area will be reported on at the "High Level Forum on Harmonization and Development Effectiveness" to be held in Paris in early 2005.
- Application of strategic approaches to environmental assessment at the program, sectoral, and regional level will be expanded.
- Emphasis will continue to be placed on strengthening Bank and borrower supervision of Environmental Management Plans.
- Preliminary guidance will be provided on addressing disability issues in the context of environmental assessment and other related processes as a contribution to the World Bank's Disabilities and Development agenda.

This article was prepared by the Quality Assurance and Compliance Unit. For more information, contact L. Panneer Selvam, phone (202) 458-2728, fax (202) 477-0565; or Jean-Roger Mercier, phone (202) 473-5565, fax (202) 477-0565. Website: <www.worldbank.org/safeguards>.

Sub-Saharan Africa Region



IBRD 31567R DECEMBER 2004

C. Carnemark

Mali

Natural resource sustainability and economic growth in Africa



The short- and medium-term options for Sub-Saharan Africa to fight poverty and to grow more sustainably lie in the careful management and utilization of its natural resources.

The population is predominantly rural, and about two thirds of all rural households are living below each country's poverty line. Nearly 70 percent of households are engaged in food crop and non-food cash crop production. Firewood and charcoal provide up to 80 percent of local energy needs. Africa is rapidly urbanizing, but the livelihoods of the majority of the population will continue to be dependent on the utilization of natural resources.

Good management of natural resources is also crucial in Sub-Saharan Africa due to the region's extreme vulnerability to natural hazards. Localized droughts and floods—leading to famine, death, and destruction of homes, crops, and natural habitats—continue to threaten years of progress. With a natural hydrological variability of up to 35 percent in many of Africa's economies, the ensuing floods and droughts also lead to unpredictable and massive economic shocks, destruction of infrastructure, and to risk aversion by farmers.

The over-exploitation and unsustainable management of natural resources threaten growth and poverty reduction efforts. The economic and social costs are roughly estimated at 3 to 5 percent of the region's GDP. Environmental health costs in Sub-Saharan Africa are also staggering, amounting to 2.9 million deaths and 99.6 million DALYs lost in 2002, according to the 2004 World Health Organization annual report.

Portfolio

The Bank has maintained its efforts on natural resources sustainability through the financing of a combination of (a) projects primarily focused on environmental issues, (b) sector projects with significant environmental components, and (c) other activities such as technical assistance, capacity building, and studies. At the end of June 2004, there were 13 active environmental projects totaling just over \$230 million. Environmental components of 68 sector projects, particularly focused on infrastructure and rural development, added another \$900 million. Many of these projects are in support of initiatives such as those launched by The New Partnership for Africa's Development and by regional and sub-regional organizations. In addition to project financing, the Bank is furthering its efforts to mainstream environmental issues in most areas of its work, including macro adjustments and PRSC (see *Box 1*). The challenge to integrate environmental protection with growth and poverty alleviation is most pronounced in the case of infrastructure.

Box 1. MAINSTREAMING ENVIRONMENT IN POVERTY REDUCTION SUPPORT CREDIT IN TANZANIA

The Government of Tanzania has taken several important steps in recent years to set in place an environmental framework for the country, including the development of a national environmental policy (1997), endorsement of an institutional framework (2002), initiation of strategic environmental assessments (2003), launching of a Public Environmental Expenditure Review (2004), formulation of a National Environmental Act (2004), and mainstreaming poverty/environment indicators within the national Poverty Monitoring System (2003/2004).

The Environment Minister requested Bank support to address key environmental issues in the country, including Tanzania's high resource dependence, the links between poverty and environment, and appropriate institutional frameworks. In response to this request, the Bank team launched a study to assess the links between poverty and environmental degradation. Together with the priorities identified by the government in its recent initiatives, the study formed the basis for the environmental agenda mainstreamed within the Poverty Reduction Support Credit (PRSC). The PRSC supports the government's efforts to address key issues through a three-pronged strategy involving (a) mainstreaming environmental concerns into the PRS, the budget process, and sector policies; (b) better understanding of poverty-environment links and options for reducing vulnerability of the poor; and (c) strengthening institutional capacity to integrate environmental assessment procedures into sector strategies and policies and specific activities at the district and local levels.

Infrastructure development and the environment

Excluding South Africa, less than 10 percent of Sub-Saharan Africans have access to electricity and less than half have access to safe water supplies. Road density stands at 7km/100km², compared to 170km/100km² in Europe. With a much higher climatic variability and greater intensity of floods and drought, Africa's water security is also far behind that of other regions. For example, water storage per person (natural and artificial) is 42 m³ per person per year in Ethiopia and 6,150m³ in the United States. It is estimated that the region will need about \$15 billion a year in infrastructure financing to achieve the 7 percent economic growth needed to halve extreme poverty by 2015 and to reach the MDGs. Progress in service provision has been much too slow, access in rural areas remains very low, and infrastructure will need to greatly expand to cope with the urbanization

trend in the region—46 percent of Sub-Saharan Africa will be urban by 2020, and 70 cities will have populations of more than 1 million people.

Box 2. URBAN INFRASTRUCTURE

Ghana UESP1. The Ghana Urban Environmental Sanitation Project supported the nascent Metropolitan and Municipal Assemblies in the five largest towns to prepare and approve annual waste management budgets, raise revenues, and provide basic services. The project improved the institutional arrangements for waste management, engaged more private operators in refuse collection, created the first three sanitary landfills in the country, improved storm drainage, and constructed latrines in residences, public places, and schools. Solid waste collection increased by 55 percent in four of the five cities. Commerce is thriving again in the central business district of Takoradi, which is now clean and free of serious flooding, and won an award as the cleanest city in the nation in 2002. Community upgrading activities brought about a striking transformation in the lower income neighborhoods. The combination of access roads and street lighting has resulted in a surge of economic activity in the beneficiary communities, and new small-scale businesses (many of them owned and operated by women) have sprung up in the project communities.

Tanzania Urban Sector Rehabilitation Project. The project supports (a) rehabilitation of basic infrastructure and expansion into high priority, under-served urban areas in the nine towns, and (b) improvements in urban local government management and financing capacity. The project achieved rehabilitation of about 30 percent of the tarmac roads; solid waste collection increased from about 25 percent to 60 percent; water supply coverage increased from 66 percent to 82.4 percent; and sewer connections increased by 2.5 times. The improvement in urban services has further stimulated growth of private businesses in small-scale industry.

Some infrastructure projects can be almost entirely win-win: in addition to direct economic benefits, they also produce social and environmental benefits such as better housing, better environmental conditions, mitigation of vulnerability and risks, and overall improved livelihoods. This is frequently the case with urban infrastructure projects involving water supply and sanitation, urban upgrading, and solid waste. The Bank has maintained a

good track record of successful urban infrastructure projects (see *Box 2*). In addition, some projects in the energy sector provide evidence of ample win-win opportunities (see *Box 3*).

In many cases, projects produce significant social and economic gains for urban and peri-urban communities coupled

with longer-term positive environmental outcomes, which have to be balanced with localized impacts that may disrupt ecosystems and affect entire local communities, who are typically poor and have few alternatives. In the case of large productive infrastructure projects such as dams, the region has the capacity to find innovative approaches to mitigate the

Box 3. ENERGY INFRASTRUCTURE

Senegal Sustainable and Participatory Energy Management Project—PROGEDE.

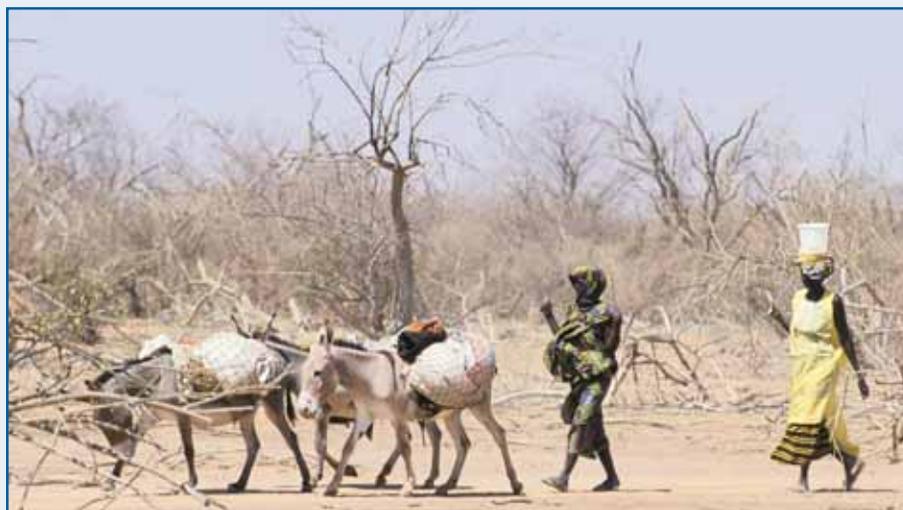
This project will help meet the rapidly growing urban demand for household fuels while preserving forest cover and the ecosystem's carbon sequestration potential. These objectives are being met through (a) the implementation and monitoring of 300,000 hectares of sustainable community-managed forests in 50 percent of the country's woodfuel supply zone; (b) the promotion of private sector-based inter-fuel substitution and improved stoves initiatives; and (c) the strengthening of sector institutions.

The Uganda West Nile Electricity Project. The project will be the first Clean Development Mechanism project negotiated in Africa, where the World Bank's Prototype Carbon Fund (PCF) will be purchasing CO₂ emission reductions for up to \$3.9 million over 15 to 20 years. While public diesel-generated power is only available intermittently for a few hours per day, the people in the region increasingly rely on the use of petroleum to fuel very inefficient generators and engines. The \$20 million project will replace emissions from these inefficient generators and engines in the districts of Arua and Nebbi in western Uganda by constructing two small hydropower stations, efficient diesel backup facilities, and rehabilitating the mini-grid in the region. The project is part of the Government of Uganda's Energy for Rural Transformation Scheme, which is supported by the World Bank and various bilateral partners.

BOX 4. SENEGAL RIVER BASIN MANAGEMENT

The Senegal River connects four West African countries—Guinea, Mali, Mauritania, and Senegal. In response to the severe social and economic shocks from the 1970s droughts, Mali, Mauritania, and Senegal jointly constructed the Manantali and Diama dams. By operating the dams as a single unit, the countries have improved their water availability and electricity supply to the three capital cities. In Mali, total electricity consumption and subscription increased by over 50 percent between 1995 and 2003; the water supply of Dakar's 1.3 million inhabitants has improved; work is under way to triple Nouakchott's water supply by 2020; and the Senegal Basin's irrigated area has increased to 120,000 ha. Success can be largely attributed to the river's joint management through the Organisation pour la Mise en Valeur du fleuve Sénégal (OMVS). OMVS is implementing institutional and operational measures, including principles of effective water resource management, definition of minimum flow releases, and participation of water users' associations in the Permanent Water Commission deliberations on water allocation and artificial flood releases.

The river's regulation altered its ecosystem, leading to environmental and social impacts. Historically, saline levels in the delta fluctuated daily and seasonally, making for a diverse ecosystem that became more uniform with regulation. This resulted in an unforeseen proliferation of aquatic weeds and higher incidence of schistosomiasis and malaria. Furthermore, traditional agriculture downstream was affected by the artificial regime of Manantali Dam. These negative impacts are being addressed by OMVS through health pilot projects in most infected areas, biological and mechanical removal activities in the areas most infested with water weeds, plus a regional sanitary plan that is under preparation to reverse the spread of waterborne diseases. The World Bank did not fund the dams due to environmental concerns, but it did finance the electricity generation and transmission infrastructure and is working with the countries to mitigate the environmental problems.



Senegal.

C. Carne mark

BOX 5. LESOTHO HIGHLANDS WATER PROJECT

The \$8 billion Lesotho Highlands Water Project is the Bank's largest ongoing infrastructure development project. It has suffered from a series of controversies, including two Inspection Panel complaints, a corruption scandal, and the objections of international NGOs. Yet the project has gone ahead to achieve its major objectives of ensuring water security for the heartland of South Africa—an area prone to drought, but generating 60 percent of its GDP with just 8 percent of its water—by increasing water storage capacity and generating substantial financial and economic benefits for Lesotho.

This interbasin transfer project has the capacity to divert and export 27.6 m³/sec of water and to also generate up to 72 MW of electricity to Lesotho. Environmental and social impacts were addressed by a variety of innovative measures, including (a) the formulation of a first World Bank-supported Instream Flow Requirement Policy, which links and predicts downstream biophysical impacts with socioeconomic impacts; (b) a framework for evaluating the health status of project rivers and for predicting changes in status that would result from a range of scenarios of diversion and downstream releases; and (c) estimation of the social impacts for downstream communities and associated resource losses.

After initial downstream release scenarios were agreed for each project diversion structure, detailed procedures were formulated for implementation, including socioeconomic and biophysical monitoring programs, mitigation programs, compensation paid in advance to downstream communities for predicted impacts over the first 10 years, and provisions for an annual review and periodic audit. Public disclosure and community consultations were important aspects of the work.

negative impacts (see *Boxes 4 and 5*). Basic ingredients for the successful mainstreaming of social and environmental issues in infrastructure projects include public disclosure; extensive and timely stakeholder and beneficiary consultation and involvement in project design and implementation; upstream incorporation of environmental concerns; transparency in the design and implementation of projects; sound technical analyses of the benefits and the likely impacts of different alternatives; information dissemination, particularly to more vulnerable or excluded groups; and scrutiny by independent reviewers.

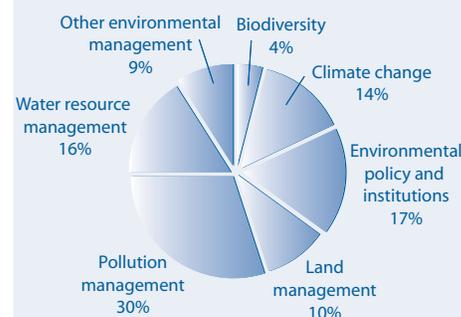
Challenges and opportunities

In order to keep up with the challenge of protecting its natural resources as the basis for short- and medium-term growth, and at the same time to expand infrastructure provision, the countries in the region will have to continue and

deepen ongoing efforts on the environment. The region needs to (a) ensure the integration of the environment in broader government planning and advance local capacity and regulatory frameworks; (b) address environmental issues adequately in projects; and (c) directly support activities that reduce vulnerability and improve people's livelihoods, the global commons, and environmental health.

These are the guiding principles of the Bank's work on the environment in Sub-Saharan Africa and part of its strategy. The environment has been increasingly addressed in the Bank's macro and strategic work. Examples include the PRSC of Senegal and Rwanda; the Country Assistance Strategies of Chad, Cameroon, and Ghana; and Mozambique's CEM. The Africa Region will further its efforts through stand-alone environmental projects, partnerships with GEF, integration with sector projects, and more technical assistance and analytical work. The trends toward urbanization, democrati-

THE AFR REGIONAL ENVIRONMENT PORTFOLIO



At the end of June 2004 the active portfolio of World Bank environmental lending in the AFR Region was \$1.1 billion. In fiscal 2004, new total environmental lending amounted to \$195 million.

zation, decentralization, and regional integration may be opportunities to improve environmental outcomes, but careful mitigation measures and integration of environment with sector policies will remain critical challenges.



Lesotho.

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East Asia and Pacific Region



C. Carnemark

Vietnam



conomic growth in the East Asia and Pacific region has remained strong, with regional GDP growth exceeding 6 percent over the last 12 months, and prospects look promising for the future. Economic growth of this magnitude implies further urbanization, rapid industrial and energy development, and the need for infrastructure services to keep pace with fast-growing needs.

Rapid economic growth and related socioeconomic transformation in the region offer tremendous opportunities for improving the quality of people's lives, but also pose significant challenges for reconciling economic, environmental, and social objectives. Estimates indicate that the region's costs from environmental degradation range from 4 to 8 percent of GDP, with the poor suffering most from the consequences of environmental problems. More than 500,000 infants die each year as a result of waterborne diseases linked to polluted water.

Damages from air pollution are significant in many cities, including Bangkok, Beijing, Jakarta, Manila, and Shanghai. In addition, competition for water is increasing in parts of the region, including growing urban areas. In rural areas, the rapid loss of forests, increased pressures on fisheries, and soil erosion are having negative impacts on the income and welfare of the poor, who have the highest direct dependence on natural resources for both sustenance and livelihoods. If current trends continue, environmental degradation could constrain growth and undermine the region's potential for future economic development.

Refocusing Bank assistance

Over the past year the World Bank has been involved in a wide range of projects and programs to help countries in the region address their environmental challenges, and to strike a balance between economic and environmental objectives and

adopt a more sustainable development path. In order to enhance the effectiveness of Bank assistance, the Environment and Social Development Unit (EASES) has started to prepare an *Environment Strategy for the Bank in the East Asia and Pacific Region*. The Strategy, expected to be completed in fiscal 2005, will adopt the framework of the Bank's corporate environment strategy to the circumstances of the region, build on lessons from its extensive environmental program in the region, and respond to recent developments and challenges. Several activities over the past year have been aligned with the emerging strategy.

Enhancing environmental analysis and assistance

The Bank's analytical services are aimed at assisting policy dialogue and institutional development in client countries, raising awareness of key environmental issues, and influencing the design of sector strategies, plans, and operations. The region has focused on several broad analytical areas. A few are highlighted below:

- **Exploring environment-poverty linkages.** An ambitious multi-year program to explore the linkages between environment and poverty in Cambodia, Lao PDR, and Vietnam has yielded valuable policy-relevant findings, and helped integrate environmental considerations into the completion of Poverty Reduction Strategy Papers and the preparation of Poverty Reduction Credits in Cambodia, Lao PDR, Mongolia, and Vietnam.
- **Monitoring environmental trends.** The Environment Monitor series continued to expand and now includes seven countries, providing informa-

tion on environmental indicators such as air and water pollution, deforestation, and waste management. The series has emerged as a key tool for (a) diagnosis of environmental indicators, trends, and policy issues; (b) awareness raising among policy-makers, academics, researchers, and the general public; and (c) partnerships among public sector, civil society, and development partners. Over the last year, Environment Monitors have been completed in Cambodia, Indonesia, Mongolia, the Philippines, Thailand, and Vietnam.

- **Enhancing environmental governance.** In Indonesia, the Good Environmental Governance program was launched to support innovation in introducing performance measures for environmental management. Public environmental disclosure programs were supported in several countries. For example, in the Philippines, a successful international workshop was organized (EcoWatch for Beaches) to explore water quality information disclosure and links with tourism.

Financing environmental improvements

During the last fiscal year, the Bank approved seven new Bank-financed projects with significant environmental objectives in the EAP region (three with GEF co-financing): two in China and Indonesia, one in Vietnam, and three in the Philippines. Of these projects, two address biodiversity, two are concerned with land management, and four involve climate change initiatives. Several are innovative in nature. The Philippines Laguna de Bay Institutional Strengthening and Community Participation project, for example, takes an integrated watershed management approach to improving the quality

of the Laguna de Bay watershed (see *Box 1*).

The region's GEF program grew strongly in fiscal 2004. The Board approved seven new full-sized GEF co-financed projects. These projects cover a wide array of issues. Two promote renewable energy (Cambodia and Philippines), and another two will reduce land-based pollution and promote efficient water use (China Hai Basin and China Pearl River Delta). Other projects will conserve marine biodiversity (Indonesia Coral Reef Management Phase II), promote sustainable land management (China Gansu/Xinjiang Pastoral Development), and support a power system energy efficiency project (Philippines). In total, the Region's new GEF resource commitments are just below \$70 million.

The Region's GEF program is fully mainstreamed into the Region's country and sector assistance strategies, and also reflects the Region's increased focus on regional issues and on promoting cross-country collaboration on shared or common issues. Examples of the latter include a multi-country GEF industrial livestock waste management project that is under preparation, and a \$75 million EAP/GEF regional land-based pollution reduction program.

Strategic innovation is another defining feature of the Region's GEF program. For example, the GEF China Building Energy Efficiency Project will radically reform residential apartment heating policy and technology in China's colder regions and sharply improve energy efficiency in residential buildings. Agreement was also reached in principle with the Chinese Government on a national EAP/GEF environmentally sustainable urban transport program.

Meeting global challenges

Implementing the Montreal Protocol.

The East Asian program to phase out ozone-depleting substances (ODS) is the largest in the world. The region intends to reduce ODS emissions by 300,000 tons by 2010 (nearly three-quarters of the ODS production in the developing world). China's Mobile Air Conditioning Sector Plan was the first such plan to be completed under the Bank's ODS program. National chlorofluorocarbon phaseout plans (NCPPs) are under implementation in Thailand, Malaysia, and the Philippines, along with a Mobile Air Conditioning Sector Plan and a Foam Sector Plan for Indonesia. A national phaseout plan also is being developed for Vietnam.

Phasing out persistent organic pollutants (POPs). POPs—toxic chemicals that become more concentrated along the food

chain—pose a regional problem because they can spread thousands of miles from the point of emission. In response to a request from the Chinese Government, the Bank has started to prepare two large demonstration projects for the phaseout of POPs in China, focusing on the management and disposal of PCBs and the use of alternative chemicals for termite control. It is also funding studies to support policy-led initiatives to tackle POPs issues; current work includes an evaluation of effects of exposure to POPs and enhancement of management capacity, and the development of a PCB inventory, methodology, and strategy on PCB reduction in China.

Building a carbon finance portfolio. The region's new carbon finance portfolio developed rapidly. Significant efforts were made to build constituencies within and outside the Bank (see *Box 2*). Awareness raising activities were undertaken in China, Indonesia, and the Phil-

ippines, and seven projects were identified and activated over the last year. In Indonesia, the Bank has now signed the first-ever Emissions Reduction Purchase Agreement (ERPA) in the region, and technical negotiations on purchase agreements for two projects in China were also completed. In the future, the focus will be on landfill projects, such as methane capture in solid waste management, and a proposed HFC-23 project in China that will be one of the Bank's largest CF projects.

Managing environmental risks and mainstreaming environment into project design

Managing the environmental and social aspects of the growing need in the region

BOX 1. LAGUNA DE BAY, PHILIPPINES

The Laguna de Bay Lake and watershed in the Philippines is a unique resource that provides a range of life support services for more than 10 million people in the surrounding area. Despite various efforts to sustainably manage it, the system is suffering from severe environmental pressure. The Laguna De Bay Institutional Strengthening and Community Participation Project (LISCOP) has been designed to respond to this decline. It aims to improve environmental quality and support local institutional capacity building. The LISCOP project combines a number of innovative approaches, including:

- The Co-management approach, which requires government agencies and grassroots groups to collaborate on resource management issues. This is increasing public awareness, ownership and support for the environmental agenda.
- Community Driven Development (CDD), which is encouraging grassroots participation through multistakeholder river councils that allow everyone to participate in project design and resource allocation.
- Integrated Watershed Management, which embraces different resource users.

At the administrative level, the project is supporting the Laguna Lake Development Authority with capacity strengthening activities to help it carry out policy, regulatory, and development functions. The project is also helping to build support for an effluent user fee by improving the charge calculation procedure and collection rate.

The Bank is also exploring opportunities to use carbon finance programs for sub-projects to provide extra benefits to local communities while supporting the global commons.



Shore of Laguna de Bay showing fish aquaculture pens and aquatic weeds, resulting from pollution.

J. Morton

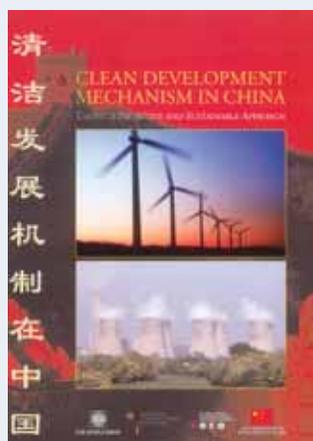
for enhanced infrastructure development requires enhanced analytical tools, processes for stakeholder consultation, and financial resources allocated for enhancing environmental and social outcomes. Well-prepared, large infrastructure projects have the potential to contribute to economic, environmental, and social development objectives in a sustainable manner.

The Region has a well-established environmental review process, which occurs at key stages in project development. This process is used to ensure that environmental and social considerations are integrated into project design, and risks are appropriately managed. The environmental review process has often led to significant design improvements, better environmental outcomes, and more sustainable projects. One recent example is the Barangay Environmental Sanitation Plan in Palawan (Philippines), where environmental support led to improved water supply and sanitation plans, as well as attention to the plan's administrative aspects.

During recent years it has been increasingly recognized that in cases where countries have strong policy and institutional capacity for managing and safeguarding their environmental resources, Bank-supported projects are more sustainable and achieve greater development outcomes. Therefore, supplementing its own efforts to review projects, the Bank has also supported efforts to develop country capacity in areas such as environmental screening, risk assessment, strategic environmental assessment, monitoring, and evaluation. For example, the Institutional Development Fund is supporting capacity building activities for improved environmental management in China, Mongolia, the Philippines, and Vietnam.

BOX 2. SUPPORTING THE CLEAN DEVELOPMENT MECHANISM IN CHINA

The **Clean Development Mechanism (CDM)** presents governments and the private sector with complex challenges to benefit from opportunities provided by the Kyoto Protocol. In response, the World Bank has been working with several client countries and development partners to explore opportunities, build capacity, and provide policy advice. As part of this effort, a major study on the development of CDM in China was prepared and launched in July 2004 in Beijing.



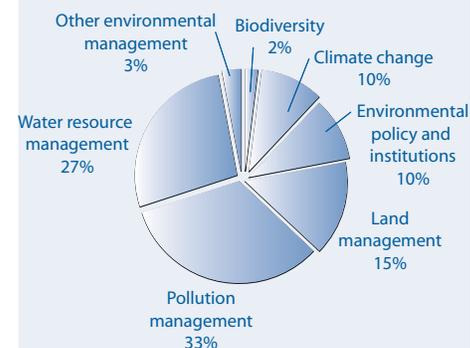
<http://www.worldbank.org.cn/English/Content/cdm-china.pdf>

The study evaluates the main obstacles to CDM initiatives in the power sector in China, and develops six case studies for potential CDM projects. It also assesses China's potential competitiveness in the global carbon market, and looks at strategic options for the first Kyoto commitment period. The CDM workshop was attended by more than 250 participants.

Building environmental partnerships

The Bank's assistance can be most effective if it works with development partners. This is reflected in several country programs. In Thailand, the Country Development Partnership for Environment

THE EAP REGIONAL ENVIRONMENT PORTFOLIO



At the end of June 2004 the active portfolio of World Bank environmental lending in the EAP Region was \$4.8 billion. In fiscal 2004, new total environmental lending amounted to \$432 million.

was launched in July 2004. In China, the Bank launched the Italian Trust Fund for Environment to support an environmental partnership. The Korean Environmental Knowledge Partnership has supported environmental analysis and capacity building in China, the Philippines, and Vietnam.

At the regional level, Better Air Quality 2003, the largest-ever conference on air quality in Asia, was held in Manila in December 2003 by the Clean Air Initiative to promote innovative ways to improve air quality through partnerships. The region's initiative on Faith and Environment engaged several faith-based organizations in Cambodia, Indonesia, Mongolia, Papua New Guinea, and Thailand, to capitalize on the links between religion and environmental stewardship. The Bank has also been actively involved in regional activities of the Forestry Law Enforcement and Governance initiative, the World Bank-WWF Forest Alliance, and others.

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Europe and Central Asia Region



Kyrgyz Republic

A. Kiss

The challenge of environmentally responsible growth

Infrastructure



Following the transitions of the early 1990s, many countries in the Europe and Central Asia region went through a period of economic decline accompanied by a severe deterioration in infrastructure and related services, such as electricity, gas and water supply, wastewater treatment, and solid waste disposal. This decline has reversed in most countries, but unreliable service delivery and pollution from solid waste, sewerage, and industrial effluent threatens economic development—for example, through power and water cuts for industry, and in coastal communities where tourism and fishing are vital to the economy.

A central problem has been inadequate funding for basic maintenance and operation of infrastructure and for replac-

ing outdated technologies. The shortage of funds results partly from political difficulties in raising tariffs, but also from affordability constraints, especially outside capital cities, and in countries where incomes are still below those of 1990.

The World Bank is helping countries improve the quality of infrastructure and environment through several measures. In addition to institutional reforms and cost recovery measures, they include investments in new technologies, contracts with private operators, economies of scale in solid waste disposal, and environmental improvements in port management (see *Box 1*).

Another key ingredient in the region's economic growth is more efficient delivery of environmental services. As part of this effort, community engagement is essential to establish consensus and support for systemic improvements in services.

Vehicle ownership has expanded rapidly in all ECA countries, so the Bank is investing in improved road infrastructure and transport, as well as the enforcement of traffic safety measures. A project to improve road maintenance and traffic safety in Poland was approved this year as part of a broader road improvement program.

Box 1. INNOVATIONS FOR INFRASTRUCTURE AND ENVIRONMENT

Along with rehabilitating existing local landfills, the Bosnia and Herzegovina Solid Waste Management Project is developing larger regional landfills to service multiple municipalities with economies of scale that lower unit costs and make high standards of environmental protection more affordable.

In three coastal cities, the Albania Integrated Water and Ecosystems Management Project is supporting the development of new constructed wetlands as low-cost, close-to-nature treatment solutions, and—in conjunction with the Municipal Water and Waste Water Project—is piloting the use of performance- and incentive-based contracts as a means of increasing private sector participation in the provision of water supply and sanitation services. The project also encompasses improvements in the management and monitoring of areas of globally important biodiversity, such as the Kune Vain protected marshland.

The Croatia Coastal Cities Project forges a link between environmental health and economic development by supporting improved wastewater treatment in 40 pilot cities where tourism represents an important element of the local economy.

The Croatia Rijeka Gateway Project aims to improve road safety and reduce air pollution and noise in the city by introducing traffic management measures, diverting a large part of the traffic to a bypass/connector road, and by routing heavy trucks through an underground tunnel. The investments supported by the Poland Road Maintenance and Rehabilitation Project will lead to savings in fuel and in vehicle operating costs and to improvements in traffic safety.



A. Coric

The River Vrbas, in Banja Luka region, near a Solid Waste Management Project in Bosnia and Herzegovina.

The Bank also actively supports programs to promote energy efficiency, develop renewable energy, and reduce atmospheric carbon emissions, including several projects under the Prototype Carbon Fund (see *Figure 1, Boxes 2 and 3*). Alternative energy can be an element of projects in other sectors as well, such as the Small Grants Program in the Central Asia Transboundary Biodiversity Project (involving Kazakhstan, Uzbekistan, and the Kyrgyz Republic), which includes pilot projects for biogas and mini-hydro-power in the buffer zones of nature reserves as a means of reducing pressure on forest resources.

A special challenge in the ECA Region is assisting countries preparing for accession to the European Union to meet the challenge of complying with the EU environmental *acquis communautaire*. For example, under the Croatia Coastal Cities Project, the government has approved a Coastal Cities Pollution Control Program, which is aligned with EU standards on ambient coastal water quality. A coastal zone management project is under

preparation in Albania, and investments in improved water supply and wastewater treatment in coastal areas are ongoing, including support for wetland ecosystem restoration. An analysis is also under way to identify similarities and gaps between the *acquis* and the Bank's safeguard policies, with the aim of piloting a country system approach (based on the EU provisions and the countries' own criteria) to meeting safeguard requirements for projects in the new EU member states or those in line for EU accession.

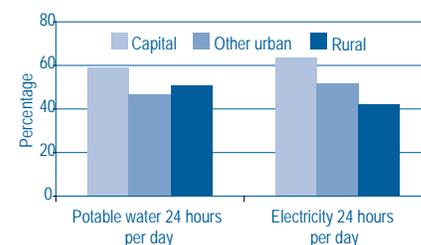
Industrial pollution

Industrial pollution remains a challenge in ECA. This is due largely to a legacy of polluting industries and abandoned industrial plants, but also to weak capacity to enforce environmental standards. New industries, established with modern technologies, generally pose less of an environmental challenge. Improving environmental standards for existing industries usually leads to greater efficiencies in the long run, but may entail substantial short-

term costs, which may impact on profitability and be perceived as threatening jobs. The World Bank is helping countries tackle these challenges by working with both the public and private sectors to strengthen environmental management capacity, clean up existing hazardous industrial sites, and reduce pollution in the future by improving capacity and providing incentives for industries to comply with higher environmental standards.

The Russia Environment Management Project has supported a National

Figure 1. Reliability of infrastructure and energy services in ECA in early 2000s (Of households reporting access, percentage receiving water or electricity 24 hours per day)



Source: Dimensions of Urban and Infrastructure Poverty in ECA, The World Bank, March 2004.

BOX 2. EXAMPLES OF ENVIRONMENTALLY FRIENDLY ENERGY INVESTMENTS

The Turkey Renewable Energy Project builds on the recent Electricity Law and provides a financing facility for private sector investment in renewables, including wind power and small-scale hydroelectric power. The project includes support for developing revised design procedures to ensure accordance with social and environmental protection principles. It also supports the development of water resource and river basin planning.

In Serbia and Montenegro, the consumption of primary energy is ten times higher per \$ of GDP than in France. In Serbia, the Energy Efficiency Project aims to reduce the local and global environmental impact of the use of dirty fuels for heating buildings and to make heating more affordable by improving end-use efficiency. The project would support the conversion of lignite- and mazout-fired boilers in a major clinic center, as well as energy efficiency improvements in schools and hospitals. An associated GEF project would support energy efficiency improvements in residential buildings.

The Prototype Carbon Fund has also supported investments in energy efficiency and conversion to renewable energy resources. Examples include the Hungary Pannonpower Biomass Project, which supports conversion of electricity generation for the city of Pecs from coal to gas and biomass, and the Svilosa Wood Residue-to-Energy Project, where waste biomass will replace coal as a fuel source for a pulp plant.

R. Vitkov



Svilosa, Bulgaria.

Pollution Abatement Fund, which recently provided environmental loans to a number of pulp and paper mills in three regions that will substantially reduce pollution emissions and discharges into water receiving bodies. The Azerbaijan Urgent Environmental Investment Project has assisted the government in reorganizing its environmental management system, including the creation of a Ministry of Environment and Natural Resources and a Waste Management Authority Agency, as well as improvements

to regulatory capacity, including new regulations.

In the mining sector, World Bank assistance is helping to contain and mitigate the urgent threat of leakage of highly toxic heavy metals from poorly managed mines and mine tailings. The recently approved Natural Disaster Mitigation Project in the Kyrgyz Republic will reduce the exposure of people, livestock, and riverine ecosystems to radionuclides by isolating and protecting abandoned uranium mine tailings and waste rock

dumps from disturbance by landslides and floods, and by blocking leaching and dispersal into ground- and surface-water drainages. In Romania, the Hazards Risk Mitigation and Emergency Preparedness Project includes a component to improve the safety of tailings dams and reduce the risk of spills of hazardous materials into the Danube.

Financing industrial pollution abatement raises important policy questions regarding public vs. private sector responsibilities for environmental liabilities, particularly in the process of privatizing state enterprises. When the government elects to take on these liabilities, a conventional Bank loan can support clean-up and other mitigation measures (as in the Bulgaria Environmental Remediation Pilot Project). When the liability is taken over by the new owner, the cost of basic compliance with local laws and regulations should be internalized as part of such transactions. However, there will often also be a public goods element involving wider impacts, longer time frames, and incremental costs above and beyond what the purchaser can be expected to bear. A targeted line of credit such as the National Pollution Abatement

BOX 3. GEOTHERMAL ENERGY DEVELOPMENT IN ECA

The ECA-GEF Geothermal Energy Development Project is helping to identify and remove barriers to exploitation of the region's abundant geothermal potential for electricity generation and for district and other heating. The project provides financial and technical assistance for project preparation and implementation of individual geothermal projects, and will serve as an umbrella for many individual investments in participating countries. It will also support policy reforms for energy markets; development of legal, regulatory, and institutional frameworks; and monitoring trends in geothermal use.

Source: Road Map for Scaling Up Access to Energy Services and Clean Energy, ECA Region.

Fund in Russia represents one approach for mobilizing public support in such cases. Other options include concessionary financing for technical assistance and capacity building, one-time and matching grants, and tax-related and other incentives.

Natural disaster risks and mitigation

Over the past three decades, natural disasters in the ECA region have caused over \$70 billion in economic losses. In 2002 alone, floods across Central Europe resulted in losses of Euro 15 billion. The Bank has prepared a strategic framework—*Preventable Losses: Saving Lives and Property Through Hazard Risk Management*—to promote a pro-active approach for reducing and mitigating the social and economic impacts of earthquakes, floods, and landslides in ECA. The strategy includes an initial quantitative risk assessment and recommends priority actions for each country, based on an approach combining risk assessment, monitoring, early warning, planning and public awareness, mitigation and emergency response measures, and drawing on lessons from Europe and other regions.

Examples of hazard risk mitigation projects financed by the Bank include the Lake Sarez Reconstruction and Mitigation Project in Tajikistan, which emphasizes community participation, including the first all-woman search and rescue team in Central Asia; and the Turkish Earthquake Insurance Pool, which received capital support through a \$100 million Committed Contingent Loan Facility. The first comprehensive risk mitigation project approved in ECA was for Romania this year. This \$150 million loan includes support for investments in flood management and dam safety; earthquake mitigation, including retrofitting of key public buildings; and development of emergency planning, public awareness,

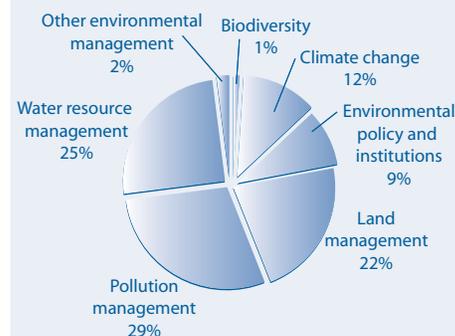
and response systems. In the coming year, the Bank plans to support investments in flood mitigation in Poland and in improved weather forecasting in Russia.

Natural resource management and biodiversity conservation

Renewable natural resources continue to play a large role in the local and national economies of most of the region's countries. In the middle-income countries, landscape conservation is vital to the protection of tourism values. The Bank is helping these countries meet European Union requirements for environmentally responsible agriculture, incorporating environmental values into productive landscapes. In the poorer countries, the sustainable use of natural resources is vital for rural livelihoods.

The Bank is providing assistance across the region for sustainable use and improved management of water resources and watersheds, forests, rangelands, freshwater and coastal fisheries, and agricultural soils, as well as conservation of biodiversity in both natural and agricultural systems. Key elements of these projects include empowerment and organization of local resource users; strengthening the planning, regulatory, and monitoring capacity of public agencies; promoting environmentally sustainable agriculture and forestry; and international cooperation for the management of transboundary resources. The ECA Biodiversity Strategy stresses the need to go beyond traditional protected areas to incorporate landscape conservation into broader management of land, water, and forest resources. It also calls for increased attention to conservation of agro-biodiversity in farming systems, including the preservation of wild relatives and land races of many of the world's major food crops.

THE ECA REGIONAL ENVIRONMENT PORTFOLIO



At the end of June 2004 the active portfolio of World Bank environmental lending in the ECA Region was \$1.6 billion. In fiscal 2004, new total environmental lending amounted to \$309 million.

Recently, for example, the Bank has supported:

- The Moldova Agricultural Pollution Control Project, which promotes adoption of environmentally friendly crop and livestock production practices to reduce nutrient pollution in wetlands
- The Tajikistan Community Watershed Development Project, which mainstreams sustainable land use and biodiversity conservation into agricultural and rural investment decisions
- The Anatolia Watershed Rehabilitation Project in Turkey, which reduces discharge of agricultural pollutants to the Black Sea through participatory integrated river basin management and improved farming practices
- The Romania Forest Development Project, which supports improved forest management, especially for new private forest owners as well as for state forests.

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Latin America and Caribbean Region



IBRD 31564R DECEMBER 2004



P. Brandriss



Latin America and the Caribbean (LAC) is a region that is extremely rich in natural resources, including vast areas of intact tropical forest and extraordinary biodiversity resources. Yet forests are under pressure from settlement, inappropriate agriculture, logging, and mining; soil depletion threatens food and cash crops; and much of the region's remaining biodiversity is found in isolated patches of habitat that may be too small for the long-term survival of the species they contain.

LAC is also the most urbanized region of the world; 75 percent of the region's 500 million people live in urban areas. Air and water pollution, poor sanitary systems, and a lack of access to potable water all represent critical threats to the health and well-being of urban populations. These issues are exacerbated by poverty and inequality; the poor often live in vulnerable areas and lack access to basic services.

The World Bank—working with national governments, local communities, and civil society organizations—focuses on four strategic areas: improving health, enhancing livelihoods, developing frameworks for sound and equitable management, and facilitating equitable solutions to regional and global challenges. The Bank supports activities as diverse as reducing indoor air pollution from fuelwood; working with indigenous communities to increase environmentally sustainable income; and policy lending that targets mainstreaming environmental issues into sectors such as health, defense, justice, transport, forestry, and urban development.

Fighting deforestation in the Brazilian Amazon

Forest clearing in the Brazilian Amazon—a region of astonishing natural wealth and diversity—has been increasing, with

particularly high rates of deforestation in 2002 and 2003. Cattle ranching and soybean production, rapidly expanding as a result of favorable market conditions, are the main driving forces of deforestation.

The Bank and the Government of Brazil have instituted a long-term dialogue to address deforestation. One of the flagship efforts has been the Pilot Program to Conserve the Brazilian Rain Forest. The program has successfully demonstrated alternative uses of the forest, protected large tracts of indigenous lands, strengthened state institutions, and promoted the concept of sustainable development in rain forest regions in Brazil. The program and its projects have served as models of forest conservation for international donors, NGOs, and governments.

The Amazon Region Protected Areas Project (ARPA)—with funding from the GEF, WWF, and the German Government—promotes the objective of land use planning and management through the creation and consolidation of protected areas. Areas facing extreme pressures, such as the “deforestation belt,” receive special attention. Over 6 million hectares of new protected areas have already been created.

One groundbreaking result of the ongoing dialogue between the Bank and the Brazilian Government has been the Permanent Interministerial Working Group on Amazonian Deforestation, which is composed of 11 government bodies. The initiative represents a unique development in the battle against deforestation. For the first time, deforestation is not treated solely as an environmental problem, but is mainstreamed into all sectors of policy. The far-reaching recommendations of the interministerial group have contributed greatly to Brazil’s comprehensive “Sustainable Amazon” plan.

Responding to climate change

Latin America has much to lose as a result of global warming. Key anticipated impacts range from decreased water availability and lower agricultural productivity to changes in ecological systems, population displacement due to rising sea levels and flooding, and increased exposure to diseases such as malaria, dengue, and cholera.

To face these challenges, the Bank has been supporting country efforts to (a) strengthen institutional capacity, so regional governments and civil society can play an influential role in the international climate agenda; (b) assign top priority to adaptation efforts; and (c) promote a quick increase in the use of the Kyoto Protocol’s Clean Development Mechanism (CDM).

Carbon finance resources are being used to promote the goal of sustainable development in the local social and environmental contexts of each project, thus contributing to the objectives of the country assistance strategies. By linking carbon revenues to local social and environmental indicators, these resources respond to the spirit of the CDM.

In Colombia, for example, the Amoya River Environmental Services Project established a linkage between revenues for carbon emission reductions and the protection of the páramo, an important high mountain habitat. Preserving this critical ecosystem is key to maintaining the water cycle in the long term, which in turn makes the generation of clean energy viable. The clean energy component is designed to have a minimum ecological footprint. The generation of clean energy helps displace greenhouse gas emissions that are sold on the international market, making the project financially viable.

Policy-based lending

Many of the region’s environmental problems result in adverse health consequences, mortality, damage and loss of property, and loss of livelihoods. These costs are significant. In Colombia alone, it is estimated that urban air pollution is associated with approximately 6,000 premature deaths each year. Urban air pollution, natural disasters, waterborne diseases, and indoor air pollution may impose costs equivalent to over 3 percent of Colombia’s GDP.

These problems call for an interdisciplinary and cross-sectoral approach. Such an approach integrates environmental concerns into different sectors through reform processes. In the LAC Region, environmental structural adjustment programs provide such a vehicle, balancing social and economic development with environmental protection and improvement.

LAC has adopted a programmatic approach to structural adjustment loans (SALs). Typically, SALs integrate principles of sustainable development into key sectoral agendas in the client country, and improve the effectiveness and efficiency of national environmental management systems. Furthermore, they provide significant opportunities for social and institutional learning and promote sustainability of reforms and accountability. The Region’s pipeline of future environment adjustment lending is valued at about \$2 billion, distributed among programs in Brazil, Colombia, and Mexico.

In Mexico, initial reforms have resulted in improved management of water resources and marine protected areas, as well as improved public participation and transparency in environmental management. Experience shows that continual coordination among institutions and ex-

tensive dialogue among sectors are necessary to achieve environmental mainstreaming. These issues will be further addressed in the programs currently under preparation in Mexico, Colombia, and Brazil.

The urban environment

While often not as visible as “green” issues, “brown” urban environmental issues have the largest impact on health and vulnerable populations. The World Bank’s Brown Environmental Agenda (BEA), which targets pollution-related issues, is a primary focus of the urban environment portfolio.

LAC has put particular emphasis on solid waste (SWM), hazardous waste, and air quality management, critical issues related to urban pollution control. The region faces serious difficulties in managing urban refuse and solid waste. The main impediments to good practices in SWM are the lack of (a) proper final disposal facilities, (b) proper financial management, and (c) a regional strategic approach.

In order to address these issues, the Bank is preparing a SWM regional strategy, which has preliminarily identified Argentina, Brazil, and Mexico as priority countries for assistance. A main objective is to provide technical and financial assistance to small and medium cities in building final disposal facilities. In Brazil, the strategy has been twofold: mainstreaming SWM into broader urban projects, and raising awareness for future investment operations through focused regional technical capacity workshops.

Additional funding for SWM comes from the Clean Development Mechanism, which supports the reduction of CO₂-equivalent emissions from landfills by

combusting the methane portion of landfill gas. CDM support has taken the form of a revenue stream based on the value of the Carbon Emission Reductions achieved. To date, projects have been developed in Mexico, Uruguay, Brazil, and Argentina. A newly launched regional strategy to develop landfill gas-to-energy projects is expected to pave the way for eight additional projects.

Air pollution is becoming the largest environmental problem in the region’s urban areas. The poor normally are most impacted, since their exposure to pollutants is greater, adding to their relatively higher burden of health problems. Many of the greenhouse gases emitted are also precursors for ground-level ozone formation, which has serious local social costs while contributing to global warming. These emissions are mostly due to the use of gasoline and diesel in transportation, which is spurred by urbanization and GDP growth in the cities.

The Clean Air Initiative (CAI) for Latin America and the Caribbean is aimed at promoting best practice dissemination and capacity building. The CAI brings together the efforts of multiple organizations and sectors to improve the capacity of city leaders to address air quality management. As part of the CAI effort, Air Quality and Sustainable Transport Projects improve the efficiency of transport flows; promote shifts to non-motorized or less energy-intensive modes of transport; coordinate land-use and transport policies; promote transport demand management; and adopt cleaner fuels and vehicles.

Unsafe handling of hazardous chemicals has also become a priority. The LAC Re-



Argentina.

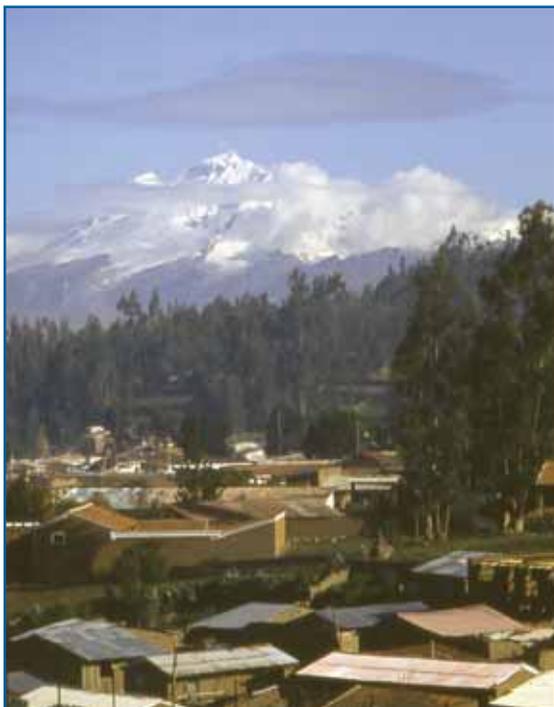
F. Dobbs

gion has been involved in the preparation of enabling activities (EA) for the Stockholm Convention on Persistent Organic Pollutants. The EAs will assist client countries in the preparation of National Implementation Plans to comply with convention commitments. Proposals have been approved for Mexico and Colombia, and contaminated soil remediation projects are under preparation in Brazil, Colombia, and Chile.

Another example of the Bank’s BEA is that of slum upgrading projects with a focus on water pollution control. These multisector projects, with significant municipal development components, are important precedents for addressing the challenges of the BEA in developing countries.

A partnership for protection

The Latin America and Caribbean Global Environment Facility (GEF) portfolio is one of the largest and most innovative in the Bank. There are currently 55 projects



P. Brandt

The town of Huaraz, in the Callejón de Huaylas of Peru. In the background is the Cordillera Blanca and Huascarán National Park.

totaling \$338 million. Heavily focused on the biodiversity agenda, it supports 39 biodiversity projects such as the regional Mesoamerican Biodiversity Corridor, and other initiatives such as the sustainable management of indigenous lands. Twelve projects work with climate change, while two jointly address climate change and biodiversity, and two involve international waterways. The new Protected Areas and Sustainable Livelihoods Project, which includes countries within the Organization of Eastern Caribbean States, and the Inter-American Biodiversity Information Network (covering the entire region) illustrate the Bank's focus on multi-country projects addressing trans-boundary issues.

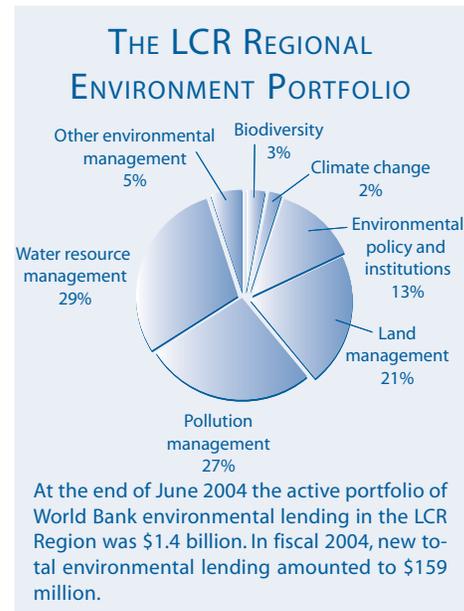
LAC's large and diverse portfolio of medium-size projects (MSPs) reflects the technical strength and competence of the nongovernmental organizations (NGOs) that usually receive these grants. MSPs have allowed NGOs and the Bank to test innovative approaches to biodiversity conservation and sustainable economic

development. Highlights from several MSPs illustrate their innovative nature. The Albarradas in Coastal Ecuador Project combines historical, anthropological, and ecological approaches to rescue traditional knowledge of the sustainable use of biodiversity. Under the Costa Rica Biodiversity Conservation and Sustainable Production Project, cocoa producers, professionals and academics learned improved agroforestry practices, production and marketing of organic artisanal chocolate, and organization of commercially viable micro cacao projects.

Ongoing MSPs such as the Santiago (Chile) Foothills Mountain Ecosystem Conservation Project promise lessons in cutting-edge work on the rural-urban interface. The project works closely with municipal governments to guide urban growth, thereby helping to ensure the conservation of the Santiago Foothills. Innovative projects like these are serving as models for work throughout the region, both for the Bank and for other development institutions.

Challenges ahead

As the projects mentioned here show, it is quite possible to combine the protection of critical ecosystems and species and the sustainable use of natural resources with social, economic, and institutional development. Bank experience indicates that certain lessons are key to this success. Mainstreaming environmental concerns into other sectors, and at all levels of society, is both highly effective and cost-efficient. Cooperation among ministries, donors, and other institutions is crucial to developing and implementing complete, cohesive strategies and producing long-term results. Participation is also critical. Initiatives that are designed, im-

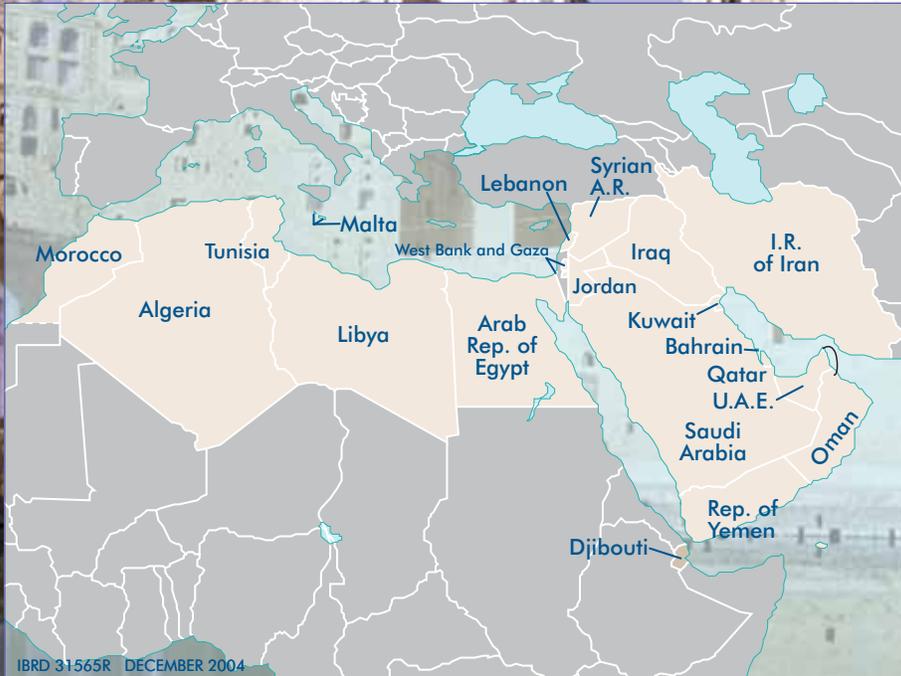


plemented, monitored, and evaluated with the participation of local stakeholders are often the most successful. Finally, new prospects for promoting both conservation and socioeconomic development are emerging every day.

Many challenges remain. Rapid urbanization, continued deforestation, and limited public sector budgets continue to frustrate environmental efforts, while poverty places an enormous burden on scarce natural resources. The specter of global warming presents future uncertainties and highlights the need for multi-country cooperation. Yet lessons learned through experience, the growing recognition of environmental issues, and the wealth of human and natural resources in the region create a strong basis for confronting these challenges.

This article was prepared by Christine Dragisic, (202) 522-1463, fax (202) 522-3540, and George Ledec (202) 473-9267, fax (202) 676-9373, of the Latin America and Caribbean Region, with contributions from Jocelyne Albert, Yewande Awe, Keiko Ashida, Abel Mejia, Adriana Moreira, Paula Pini, Juan Quintero, Horacio Terraza, Ernesto Sanchez-Triana, Walter Vergara, and Gregor Wolf. LCR website: <www.worldbank.org/lac>.

Middle East and North Africa Region



IBRD 31565R DECEMBER 2004

B. Lyons

Republic of Yemen



The Middle East and North Africa (MNA) countries continue to make steady progress toward meeting the objectives set out in the Bank's MNA Environment Strategy, which was adopted in 1995 and updated in 2001.

The economic situation across MNA remains stagnant. A low—but growing—number of people are living on less than \$2 per day. The major environmental issues—water scarcity and land degradation—persist and, in some cases, are worsening. Major urban centers add increasing amounts of pollution-related illnesses and growing solid waste management problems to the mix. Most MNA countries are making significant progress in developing the legal frameworks necessary to address these issues; however, providing enforcement mechanisms through functioning regulatory bodies remains several years away.

The MNA Environment Strategy aims to improve both the quality of life and sustainability of economic growth by mainstreaming environment into policies, programs, and

projects through three main intermediate outcomes over the medium term.

Outcomes — Efficiency and governance

The first intended outcome is better public sector efficiency and environmental governance. In this area, the Bank has focused on strengthening environment-related institutions and promoting greater participation by civil society. The Bank helps countries through developing and sharing knowledge on (a) the use of economic criteria and valuation of externalities, and (b) understanding the linkages between environment and other key factors such as poverty, trade, health, and energy. In the past year, MNA has supported:

- Yemen's Groundwater and Soil Conservation Project, which is testing innovative solutions to the country's critical groundwater problem. This \$40 million project will

install PVC and galvanized iron pipes to improve water conveyance and distribution efficiency and upgrade selected small- and medium-sized traditional irrigation schemes that use flood waters within identified river beds.

- Urban upgrading in Iran through an \$80 million project that will improve living conditions in under-served neighborhoods, as well as prepare the systems, capacity, and regulatory foundation and initiate market-based housing sector reforms. Municipalities are expected to undertake a strategic planning process with significant community participation.
- Tunisia's marine environment through a \$6 million dollar GEF grant for the Gulf of Gabès Marine and Coastal Resources Protection Project. With the involvement of the concerned communities, the project will develop mechanisms for the integrated biodiversity management of the Gulf of Gabès.
- A policy note on health-care waste management with Iran that addressed the overlapping roles of public agencies and the burden placed on municipal governments in shouldering the bulk of the operational and financial responsibilities for health-care wastes.
- The development of water strategies and/or policy notes in Iran, Yemen, and Morocco. These initiatives take a cross-disciplinary approach to address several aspects of water resource management.
- Water resource management for urban water supply and sanitation in the Gulf Countries through a partnership with AGFUND and the MNA Regional Water Initiative (RWI). The study aims to formulate policy recommendations for sustainable and efficient water resource management in terms of water demand management, institutional and legal reforms,

public-private partnerships, and development of new non-conventional water supplies.

- Regional solid waste planning through the development of regional guidelines and training manuals. These guidelines address (a) policy, institutional, and legal issues; (b) finance and cost recovery; (c) private sector participation; and (d) public awareness and community participation. This initiative is being financed in partnership with the European Commission through the Mediterranean Environmental Technical Assistance Program (METAP).
- A regional program on banking and the environment, in association with the International Finance Corporation (IFC) and METAP, in order to assist regional private sector financiers in developing their capacity to manage environmental risks and to help their clients develop environmental investments.
- A focus on costing environmental degradation—including studies in Jordan, Morocco, and Syria—and on costing the effects of poor water quality in Algeria and Egypt. In addition, regional training was provided on these studies in both Lebanon and Morocco. The reports allow policymakers to quantify and monetize the cost of degradation across a wide range of environmental issues, such as indoor and outdoor air pollution;



Young woman fetching well water. Taroudant Province, Morocco.

lack of access to water supply and sanitation services; land degradation; coastal zone degradation; and waste management. This program provides a useful ranking mechanism for various forms of environmental degradation, as well as an instrument for policymakers to integrate the environment into economic development decisions and a tool for the Ministry of the Environment to discuss the importance of environmental protection in economic terms.

Safeguards

The second intended outcome is a more efficient safeguard system based on upstream considerations in the planning of policies, programs, and projects and on predictable environmental guidelines for private sector development. This will require enhancement of the enabling environment through the development of environmental protection laws based on incentives and economic instruments, a workable system of environmental assessment (EA), a well-structured learning program, and the use of strategic environmental assessment (SEA) as a tool for decisionmaking. Accomplishments in the last year have focused on the development of strategic environmental assessments (SEAs) in Egypt and Iran and on capacity building. In fiscal 2004, MNA supported:

- The Policy Note on the Energy-Environment Review of the Islamic Republic of Iran, which showed that environmental damage from air pollution was equivalent to 1.6 percent of GDP in PPP terms (or 5.7 percent of nominal GDP equivalent). To reach the objectives of improving energy performance and the environment, important measures include the elimination of subsidies in a suitable time frame, taking into consideration the political feasibility and social suitability of energy reform. Price reform

is not sufficient if is not accompanied by sector reforms in the electricity and transport sectors. A new Energy-Environment Strategic Framework is proposed.

- A Country Environmental Analysis (CEA) for Egypt, which indicated that Egypt’s economic growth was not accompanied by an improvement in environmental sustainability. The analysis confirmed that the country faces high costs from environmental degradation (see *Table* at right) and needs to address air quality, water quality, and waste management issues. Despite considerable government effort and investment—estimated at 1 percent annually of its GDP—water and air quality, solid waste, and coastal zone management remain the most pressing environmental inter-sectoral problems in Egypt. Solutions to these problems should be anchored in the economic, institutional, and social reforms proposed by Egypt within the scope of its free market economy. These solutions must respond to the following two inter-related goals: (a) reduction in the prevalence of respiratory and waterborne diseases due to poor air and water quality and inadequate collection and disposal of municipal waste; and (b) improving the quality of growth of Egypt’s coastal areas.
- Promoting best practice for environmental screening through the Tunisia Education Project and Yemen Social Fund for Development. These projects have developed environmental screening criteria for building new and upgrading existing small-scale infrastructure that are considered best practice and are being replicated throughout the region.
- Supporting Yemen’s Environmental Protection Authority (EPA) by training EPA staff on best practices of environmental impact assessment

Annual cost of environmental degradation in Egypt (mean estimate)

	Million EGP per year	Percent of GDP
Air	6,400	2.1
Soil	3,600	1.2
Water	2,900	1.0
Coastal zones and cultural heritage	1,000	0.3
Waste	600	0.2
Sub-Total	14,500	4.8
Global environment	1,900	0.6
Total	16,400	5.4

(EIA), with a particular focus on water supply and sanitation issues, including the review and supervision of environmental management plans (EMP); assessing the institutional needs of the EPA for carrying out its regulatory mandate under Yemeni Law; working with the EPA staff to begin building the capacity of both public and private sector stakeholders responsible for preparing and implementing EIAs and EMPs; and introducing recent developments in World Bank environment and social safeguards policies to EIA and line ministry staff.

Environmental health risks

The third intended outcome concerns lowering environmental health risks through the development of health- and poverty-related prevention and mitigation measures in MNA’s selected portfolio of projects, for example by including an environmental health component in water supply and sanitation, or by providing information to local communities concerning the negative impacts of poor water and waste management practices. During fiscal 2004, MNA supported:

- The Iran Water Supply and Sanitation Project. This \$279 million project is designed to a) enhance the quality of life in two cities, Ahwaz and

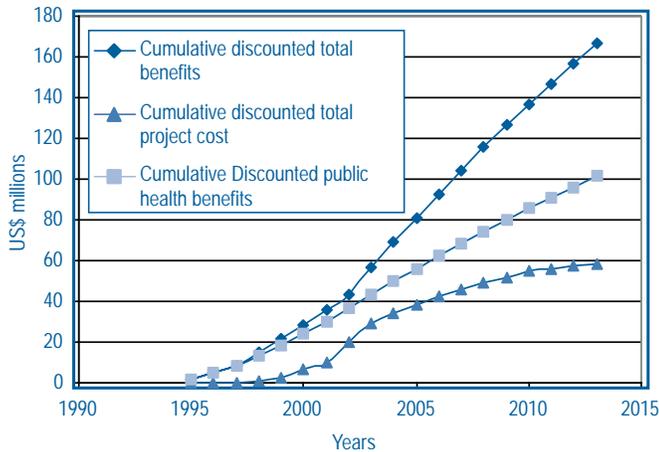
Shiraz, particularly in poor areas, by improving access to satisfactory water supply and significantly increasing coverage of sanitation services; (b) improve environmental, hygiene, and health conditions, as well as promote reuse of treated effluents; (c) strengthen and develop the capacity of municipal water and wastewater companies; and (d) initiate sector reforms, particularly with respect to institutional arrangements, the regulatory framework, and demand management, as well as prepare a sanitation strategy.

- Piloting Interventions to Reduce Environmental Health Risks in Djibouti and Yemen. These projects are aimed at reducing the critical environmental health risks affecting women and children under five through coordinated environmental, infrastructure, and behavior change interventions and by promoting stakeholder involvement in the formulation and implementation of a multisectoral action plan to reduce environmental health hazards at the household and neighborhood levels.

Regional partnerships

A number of regional programs support the goals of the Strategy by promoting partnerships with and among the MNA countries and fostering the mainstreaming of environmental issues on a regional level. These partnerships include the Mediterranean Environmental Technical Assistance Program (METAP—www.metap.org), the MNA Regional Water Initiative (RWI—www.worldbank.org/mna-water), The Nile Basin Initiative (NBI—www.nilebasin.org), the Regional Dry Lands Management Project, and the Red Sea and Gulf of Aden Environmental Strategic Action Program (SAP—www.persga.org). More information on these partnerships is available through

Cumulative benefits and costs Annaba CPI Project (discount rate 6%)



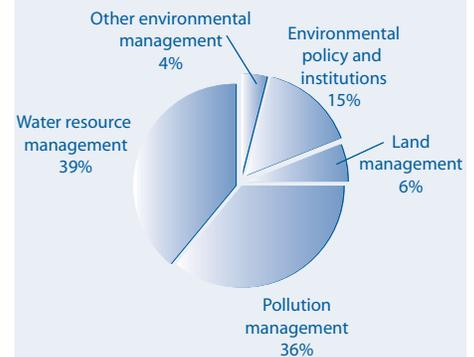
the above listed links or at www.worldbank.org/mna.

As part of its partnership agreement with the Swiss Agency for Development and Cooperation (SDC), the MNA Regional Water Initiative organized a two-day session on Integrated Water Resources Management during the International Water Demand Management

Conference, held in Jordan in mid-2004. Attended by more than 20 country participants, the sessions presented and discussed lessons learned and best practices from implementation of water policy reforms in an attempt to achieve integrated water resources management and sustainable urban water supply services. The session also offered a review of recent World

Bank involvement in the water sector in the entire MNA region, highlighting the preparation of country water assistance strategies in Yemen and Iran and support toward sector reforms in Saudi Arabia. Proceedings will be available in September 2004 and will be distributed at future RWI consultations.

THE MNA REGIONAL ENVIRONMENT PORTFOLIO



At the end of June 2004 the active portfolio of World Bank environmental lending in the MNA Region was \$0.7 billion. In fiscal 2004, new total environmental lending amounted to \$114 million.

Long-term success

As the MNA countries continue to work toward implementing the MNA Environment Strategy and reaching their MDGs, the coming years will likely see an increasing policy dialogue on managing water, where competing claims from multiple stakeholders vie for an increasingly scarce resource. The Bank remains an active partner and will continue to support the region in meeting its goals. Planned investments include water and urban infrastructure in Iraq, fisheries in Yemen, solid waste in Iran, energy efficiency in Tunisia, and power and water supply in Djibouti.

BOX 1. ALGERIA INDUSTRIAL POLLUTION CONTROL PROJECT

After the introduction of the 1995 Strategy, one of the region's first environment-related projects was the Algeria Industrial Pollution Control Project. This project, which was prepared during the early 1990s with the assistance of two METAP Grants, aims at improving public health in Annaba (on Algeria's northeast coast) by reducing levels of local industrial pollution. Through this project, the Government of Algeria was able to take necessary measures that were both environmentally and economically sound. The project financed environmental investments in two major industrial complexes, one producing fertilizer and the other iron and steel. Early on, the project financed the closing of two of the most polluting units. Recent analysis confirms earlier reported anecdotal evidence that the project has significantly improved the local environment around Anaba.

Air quality in Anaba has improved dramatically since 1994, with PM10 dropping 29.2 percent and both SO₂ and NO_x dropping to undetectable levels. Improvements for nearby areas are equally dramatic. As a direct consequence, the incidence of respiratory illness in Anaba fell almost 25 percent, from 42.5 to 32 cases per thousand, while the resulting morbidity fell over 45 percent, from 3.8 to 2.6. Asthma and chronic bronchitis, once common in Anaba's schools and factories, are becoming rarer and easier to treat.

By closing the heavily polluting units, the project has also improved the quality of water in the Gulf of Anaba by reducing the annual flow of phosphogypsum into Annaba Bay by nearly 300,000 tons. Fish catches have risen significantly and new areas of the coast are now open to sustainable development.

During the period covered by the analysis, for each dollar invested in the project by all stakeholders, nearly \$3 were generated as direct benefits or as avoided costs.

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South Asia Region



C. Carnemark

Bhutan



With new commitments for infrastructure and development policy lending forming an increasing share of Bank support for poverty-reducing growth in South Asia, it is increasingly important to build capacity to manage associated environmental and social risks.

Building sustainable development into infrastructure investment

Bank support for the new generation of infrastructure investment in South Asia focuses on (a) the application of good practice as standard procedure; (b) the creation of capacity and systems for environmental management that extend beyond the lives of individual projects; and (c) the integration of sustainability considerations, such as adaptation to climate change, into infrastructure planning.

For example, as an integral element of major highway development programs in India (see *Box 1*) and Pakistan, the

Bank is helping to build the capacity of highway authorities for Environmental Impact Assessment and the implementation of environmental management plans. To transfer best practice into standard procedure, training extends from the national to the local setting, and reaches contractors, supervision consultants, and the staff of environment agencies, in addition to highway authorities. To sustain this capacity, the long-term challenge is to establish environmental management as an option in the career path of highway staff.

The Powergrid Corporation of India is addressing the challenge of sustainable development through its commitment to continual improvement, a goal in its implementation of the ISO 14001 standard for environmental management (see *Box 2*). The Bank has been working closely with Powergrid and other public sector corporations across South Asia to help them deal more effectively with environmental and social issues through stakeholder consultation and participatory planning.

The potential for mitigating risks through a well-designed program of consultation was demonstrated in the design of

BOX 1. TRANSFERRING BEST PRACTICE INTO STANDARD PROCEDURE — INDIA ROADS

The highways sector in India is a prime generator of economic activity. Between 2002 and 2007, investment in highways development will be about \$20 billion. As part of this massive expansion, the road agencies in India, with the Bank's assistance, have taken significant strides to understand and manage the environmental and social implications of such a program.

A recent stocktaking study revealed a wide acceptance of the consultative Environmental Assessment (EA) approach to promote sustainable development in infrastructure projects. Project activities include the enhancement of roadside attributes such as ponds, temples, roadside amenities, and community resources. Environmental Management Plans (EMPs) are part of contract documents, and are specifically detailed for implementation by contractors. Low-emission equipment is being widely used, excavation sites are rehabilitated for productive use, and emissions control measures are being used on stone crushers, hot mix, and batching plants. The study identified a series of best practices related to EAs, EMPs and supervision that are being applied to the next generation of highway projects in India.

the Gazi-Barotha Hydropower Project in Pakistan (see Box 3), while long-term assistance to Coal India Limited (CIL) has served to underscore the value of making resettlement a development opportunity. The active participation of communities in local projects supported by CIL, including income generation on unused and reclaimed land, has enhanced investments in settlements around mines and strengthened local support for the company's activities. The formation of a separate environmental cadre within CIL helps attract employees to this role. Working with the Privatization Commission in Bangladesh, the Bank has helped devel-

op policy that incorporates goals for environmental remediation and rehabilitation into the sale of assets, enhancing the sustainability of industrial production.

At the other end of the scale of infrastructure investment, the Bank is supporting many community-driven development initiatives in South Asia. These initiatives provide opportunities for the poor to develop their own subprojects to strengthen and secure their asset base, and to improve their livelihoods and quality of life. To help manage potential local or cumulative impacts and to take advantage of opportunities that promote sustainable resource use and reduce environmental health risks, Environmental Management Frameworks have been developed for each of these projects. These

BOX 2. COMMITMENT TO CONTINUAL IMPROVEMENT — POWERGRID CORPORATION

Powergrid Corporation, India's central transmission utility and one of the largest of its type in the world, is working in partnership with the Bank to implement its corporate commitment to sustainable development. Through a national process of consultation supported by a committee of experts, the corporation has developed a comprehensive set of Environmental and Social Policies and Procedures (ESPP) based on the principles of avoidance, minimization, and mitigation. Implementation of the ESPP in Powergrid's projects, and the mainstreaming of environmental and social sustainability in operations, has resulted in significant outcomes, including reduced deforestation, the safe elimination of PCBs, greening of Powergrid substations, and the protection of wildlife through design modifications such as very tall (85 meter) towers, which help protect habitat in ecologically sensitive areas. Powergrid is committed to continual improvement of its ESPP in line with international best practice, and is establishing an environmental management system based on ISO 14001.

BOX 3. INFLUENCING DESIGN THROUGH PARTICIPATION — PAKISTAN GHAZI-BAROTHA HYDROPOWER PROJECT

Ghazi-Barotha, a major 1,450 MW hydropower project in northern Pakistan, pioneered a number of innovative approaches to integrate environmental and social considerations into project design. The evaluation of design alternatives and the adoption of modifications took place in close consultation with affected communities. As a result, the power channel was realigned away from the most direct route to one that was sited on higher, more difficult terrain. Although more costly, the channel alignment significantly minimized resettlement, bypassing many villages and minimizing damage to shrines, graveyards, and archaeological sites.

The participatory process was facilitated by an independent panel. The panel consulted extensively with local stakeholders and developed credibility as an independent channel for voicing concerns. Other innovative mechanisms included community participation in the valuation of assets, and a program to address compensation claims related to a much earlier project, which helped establish international best practice in addressing "legacy" issues. The participatory mechanisms used in this project are now being reflected in the development of a national resettlement policy.

include environmental guidelines, well-defined roles and responsibilities for screening and assessment, and the provision of regular training and technical assistance. Recent reviews indicate success in stimulating widespread environmental awareness at the local level (see Box 4) and increasing impact on subproject design, implementation, and operation.

A new area of involvement for the Bank in South Asia is support for sector-wide approaches. Investments in sectoral programs are based on an assessment of

Box 4. ACTING LOCALLY — ANDHRA PRADESH

The Andhra Pradesh rural poverty alleviation program (Velugu) incorporates an Environmental Management Framework (EMF) that is increasingly influencing environmentally responsible design of community investment initiatives. Managed by the Society for Elimination of Rural Poverty (SERP), and led by the Centre for Environmental Education (CEE), training on environmental management establishes the foundation for implementing the EMF, reaching some 130 environmental specialists across the state, and about 300 livelihood associates, community coordinators, and project staff in each district. Communication goes hand-in-hand with training, and includes environmental newsletters, a compilation of best environmental practices, a handbook on renewable energy technologies, campaigns to raise community awareness of local concerns, and a television show covering drought management and organic farming.

policies and procedures, often in partnership with other development partners. The sustainable development challenge of these programs is to build systems and strengthen capacity to ensure that environmental and social risks are consistently addressed, and that they take full advantage of opportunities for environmental and poverty-reducing enhancements. The Indian national program of universal elementary education is an example of this approach; the principles developed as a result cover site selection, sub-project screening, health, hygiene and safety in schools, as well as supervision and independent environmental audits. These principles have been incorporated into the community construction manual and guidelines for building rural primary schools. Water supply, sanitation, and other environmental components will be included in district infrastructure plans, and environmental awareness will be introduced through the school curriculum.

Institutions that promote participation and build consensus

In addition to building environmental capacity for specific programs of infrastructure investment, the Bank is increasingly engaged in helping to strengthen the broader institutional and policy framework in order to achieve the MDG on environmental sustainability. A common theme in all these initiatives has been the promotion of stakeholder participation to help build consensus and increase the transparency of decisionmaking.

Technical assistance for environmental capacity building has focused on strengthening the policymaking process, enhancing inter-ministerial coordination, and improving monitoring, analysis, and enforcement. In Sri Lanka, the scope of assistance has been broadened to include key line ministries, sub-national agencies, the judiciary, and civil society, creating a critical mass of environmental awareness that helps hold the environmental authorities more accountable for their services. The value of establishing a broad base of environmental awareness was reflected in feedback from the Government of Afghanistan, leading to a program of training for representatives of five key ministries that includes visits to good practice examples of environmental management in India. The internet is an increasingly important tool for expanding awareness of environmental issues. For example, it is used to disseminate infor-

mation and extend transparency through the many thematic websites that have grown out of the Environmental Management Capacity Building Project in India (see Box 5).

A particular area of focus in South Asia is the development of policies and institutions for air quality management. This is an objective that calls for close cross-sectoral coordination, in particular among the environment, transport, and petroleum sectors. Such collaboration has led to the phaseout of two-stroke baby taxis in Dhaka, and the early elimination of leaded gasoline in Sri Lanka (see Box 6). Air quality monitoring—such as the daily Air Quality Index under development in Dhaka—forms an important part of the Bank's technical assistance in this field, providing a scientific basis for the development of policies and objectives, enabling the measurement of achievements against targets, and helping build the public consensus necessary for enforcement actions.

Environmental monitoring was also central to a Bank-supported hydrology project in India, which helped strengthen the capacity of central and state water-related agencies to develop reliable and accessible hydrological, hydro-meteorological, and water quality data to support the design and monitoring of infrastructure investments. In Bangladesh, Bank support for water supply has focused on promoting the participation of the private sector and civil society to expand access to safe drinking water.

An important step in building the momentum necessary for cross-sectoral

Box 5. WEBSITES DEVELOPED UNDER THE ENVIRONMENTAL MANAGEMENT CAPACITY-BUILDING PROJECT — INDIA

Environmental Economics:	http://www.igidr.ac.in/~eerc/EERC/DEV/index2.html http://www.mse.ac.in/envis/emcab/brochure.htm
Environmental Law:	http://www.ceeraindia.org/
Environmental Information:	http://envis.nic.in/
Environmental Assessment:	http://www.eicinformation.org/
Zoning Atlas:	http://envfor.nic.in/cpcb/zoning/contents.html

*The Karnataka
Community-Based
Tank Management
Project —
Kolar District in
eastern Karnataka*

*Excavated silt is
being used to
create small
kitchen gardens in
village depressions
that now provide
livelihood
opportunities for
vulnerable families.*



Images by N.R. Harshadep

BOX 6. COLLABORATION FOR URBAN AIR QUALITY MANAGEMENT — SRI LANKA

In response to deteriorating air quality in Colombo, the Bank supported the Government of Sri Lanka through a grant for institutional development that helped to build cross-sectoral capabilities not only in government agencies, but also in the private sector and civil society. A key achievement was to facilitate national consensus to move the target date for eliminating leaded gasoline from 2010 to mid-2002. The grant also supported the establishment of the Air Resource Management Center, which has had considerable success in achieving cross-sectoral coordination, leading to development of a program of measures to improve urban air quality, including the Clean Air 2005 Plan, and the introduction of initiatives to control vehicular pollution through emissions standards, regulation, fuel pricing, import policies, and public awareness.

action is the establishment of consensus in the identification of priorities. To assist in this process, the Bank is supporting the development of Country Environmental Analyses in Bangladesh and Pakistan, and helped prepare environment reports for Uttar Pradesh and Karnataka. Based on extensive consultation, and supported by economic analysis of

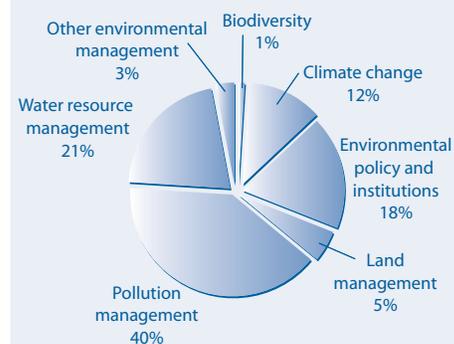
BOX 7. BUILDING REGIONAL COOPERATION TO PROTECT THE BAY OF BENGAL

The Bay of Bengal suffers from a range of environmental problems—particularly pollution, over-fishing, and habitat degradation—that threaten serious consequences for its productivity and biological resources, and consequently the livelihoods of those who depend on this ecosystem. The bay provides direct employment to over 2 million fisherman, and is a source of livelihood and food security for an additional 10 million coastal dwellers.

While action can be taken nationally, the more effective approach to save the bay would be a collaborative effort among the eight littoral countries. With the support of a GEF grant and with FAO participation, the Bank has facilitated a very successful two-year effort at building regional cooperation. Regional and technical in-country meetings have helped governments recognize that they have shared interests. The meetings also led to information sharing and the identification of critical issues of common concern. There is agreement that these will be subject to further collaborative analysis, leading to the identification of actions to be taken both nationally and regionally.

impacts, these are designed to ensure broad-based agreement on priority areas for action.

THE SAR REGIONAL ENVIRONMENT PORTFOLIO



At the end of June 2004 the active portfolio of World Bank environmental lending in the SAR Region was \$1.7 billion. In fiscal 2004, new total environmental lending amounted to \$95 million.

An even greater consensus-building challenge is development of the international collaboration required to deal with regional environmental concerns. Protection of the Bay of Bengal presents a series of challenges that the Bank is helping to address through an ongoing initiative to build shared understanding and commitment among the eight littoral countries (see Box 7).

This article was prepared by Paul Martin, (202) 473-3588, fax (202) 522-1662, of the South Asia Environment and Social Development Unit. SAR website: <www.worldbank.org/sar>.



INTERNATIONAL FINANCE CORPORATION
A Member of the World Bank Group

GROWING BUSINESS WITH SUSTAINABILITY

D. Sansoni



Solar energy lighting, Sri Lanka.

We are in the midst of a new business revolution, one in which businesses are embracing more responsibility toward people and the environment as a way to advance their markets. This means matching profitability and good business with social concerns and care for our environment. While much progress has been made, there is a need to keep pushing the boundaries forward, and nowhere is this more critical than in emerging markets. The International Finance Corporation (IFC) is playing a pivotal role in pushing forward these boundaries through direct investments, capacity building, and setting standards that will ensure change happens and is lasting.

Economic growth is sustainable only if it is environmentally and socially sound and helps improve the quality of life for people in developing countries. Thus, in addition to mainstream projects, IFC is focused on frontier markets with a particular emphasis on small and medium enterprises, innovative financing mechanisms, "south-to-south" investments, long-term partnerships, infrastructure, and health & education.

Sustainability and Good Business

On many fronts, IFC aims to promote sustainable private sector investment. For example:

- Socially responsible investors often use broad,

portfolio-level screens that steer their funds toward ventures that create public goods. IFC takes this concept a step further by evaluating each project to ensure that it meets environmental and social standards, and scoring the potential impact on local communities and developing nations.

- IFC sponsors training and workshops to help banks, funds, leasing companies, venture capital firms, and other financial organizations examine techniques for transforming the increased risks posed by environmental and social issues into commercial opportunity.
- IFC offers sustainability training programs each year that offer a mix of in-depth cases and interaction with clients, industry experts, NGOs, and others. Performance scorecards, on both an individual and departmental level, have been introduced to measure the environmental and social impact of work by IFC staff, along with a long-term performance award.
- IFC is currently updating its Safeguard Policies and associated guidelines, which help clients manage their environment and social risks and form the basis of IFC's leadership on environmental and social sustainability. Over the coming months, IFC will consult with various stake-

holders in order to publish a robust set of performance standards and a disclosure policy that will become the new industry standard.

- To minimize the negative environmental impact of investments, IFC provides technical assistance and financing to help client companies re-engineer their production processes. Cleaner production reduces use of resources, increases efficiency, and minimizes waste.

Under the umbrella of the Sustainable Business Assistance Program, specific environmental and social facilities are in place that make highly selective and strategic interventions in key sectors of the market where demonstrating sustainable business practices offers significant benefits. The program comprises three donor-supported facilities:

- The *Corporate Citizenship Facility* helps clients to improve the environmental and social impacts of their business activities, with a focus on helping clients design and implement effective strategies for engaging stakeholders.
- The *Environmental Opportunities Facility* finances innovative projects that promote local environmental benefits, with a focus on cleaner production and energy-efficiency projects in Asia and Latin America.

- The *Sustainable Financial Markets Facility* enhances the environmental and social impact of financial intermediaries, providing environmental risk management training to staff from some 100 banks, investment funds, and other financial institutions in developing countries.

Focusing on energy efficiency and renewable energy

Since 1990, IFC has provided over \$90 million in commitments to energy-efficient investments. For example, a Chinese fiberboard producer was able to reduce its trimming allowances and increase its salable output by 6 percent. While consumption of raw material and energy remained the same, the change is expected to increase the company's annual profits by 20 percent. IFC also provides financing and leverages donor funds to support renewable energy and other sustainable energy projects, especially those that commercialize new technologies. Total IFC commitments to renewable energy projects have exceeded \$765 million since 1990.

Financing through the Equator Principles

Derived from IFC's Safeguard Policies, the Equator Principles have now been adopted by 24

financial institutions, including one export credit agency, Eksport Kredit Fonden (EKF) of Denmark, and one developing country bank, Unibanco of Brazil. These financial institutions are applying the principles to their project finance activities, both globally and in all industry sectors. Collectively, these banks are estimated to account for more than 80 percent of the worldwide project finance market. In effect, IFC and the Equator Banks created a new set of global business norms for project finance, which is expected to represent more than \$100 billion in investment over the next decade. This momentum indicates that these principles, based on IFC's environmental and social policies, have become the new standard in project finance. Compliance with these standards has become essential to successfully arrange project financing.

The Equator Principles are an important part of IFC's long-standing commitment to forge standards and implement training to meet new challenges. IFC has urged the private equity industry to adopt these standards and the equator model. In the emerging markets, IFC is working for change with local financial participants; for example, Brazil is now both home to the world's first sell-side stock brokerage research service for socially responsible investing (SRI) and the birthplace of the first emerging market SRI fund. Several of the largest pension

funds are studying ways to incorporate environmental and social criteria into their stock selections. There is also a Sustainability Working Group formed as a multi-stakeholder effort to launch Bovespa's new Sustainability Index.

IFC has embarked on a training program for the Equator Principles Banks, and training is also being provided to microcredit banks to assist them in their frontier work, helping the poor to help themselves. Over 400 bankers at 13 banks have been through a licensed training program offered by IFC, an effort supported by ongoing advice and guidance to the banks. The objective is to permeate all levels of the financial industry to make their work socially and environmentally effective, which will help advance the mainstreaming of these concerns in the global economy.

Promoting sustainability, energy efficiency, and change in the finance industry are three of the major ways in which IFC is able to make real, effective, and lasting change in the environmental and social responsibility of private sector investment in the lives of the poor, who are at the heart of IFC's mission.

This article was prepared by David Cowan, (202) 458-8709, fax (202) 974-4384, IFC's Media & Marketing Manager, Environmental & Social Development Department.

DEVELOPING CAPACITY AND INSTITUTIONS

BOX 1. STRATEGIC ENVIRONMENTAL ASSESSMENT (SEA) IN CHINA

Strategic Environmental Assessment (SEA) aims to further develop the capacity of Chinese policymakers and analysts at local and national levels to examine the environmental implications of development policies—particularly in key sectors such as energy, transport, industry and water—and subsequently design policy reforms and corrective measures. The SEA process promotes coordination among different government agencies as well as enable participation by stakeholders in decisionmaking that affects their quality of life. The courses on SEA are the result of a partnership that includes the State Environmental Protection Administration of China (SEPA), WBI, the International Association of Impact Assessment, and the United States Environmental Protection Agency.

This year the World Bank Institute continued to strengthen its focus on work at the country level and forge a closer alignment with World Bank operations. This has meant customizing content to meet specific national needs and priorities and designing programs to complement the work done by the Bank's operational units. As a result, WBI has shifted its emphasis from individual training to the design and delivery of products and services for long-term institutional capacity development.

Our programs also have become more efficient. By working closely with partners and using information technology, mass media, and other knowledge-sharing instruments in innovative ways, we reach larger audiences. One such innovation, for example, was the year-long Global Learning Process and Conference in Shanghai on Scaling Up Poverty Reduction, which was designed and implemented by WBI.

The Shanghai Conference focused on lessons learned by doing—the kind of practical and experiential knowledge that has been so difficult to unlock and share with those who have the most to gain from it. With 100 case studies about how people have scaled up pilot programs to national and even regional scope, Shanghai also gave developing

country practitioners a platform to share useful ideas, tangible solutions, and working proof of how to get results on a larger scale.

Recognizing the critical role of institutions and the need to strengthen their capacity to influence policy for more inclusive and sustainable growth, WBI's Environment and Natural Resources Management learning program helps clients (1) improve their understanding of the linkages among the economy, natural resources, ecosystem services and institutions, and how societies function; and (2) develop the skills necessary to address sustainability, equity, and vulnerability issues of environmental public goods.

Achieving these objectives at the country level has meant deepening the learning programs in Brazil, China, Egypt, and other countries. For example, in China, the number and scope of training activities expanded from providing basic environmental management skills to new local environment directors, to more partnerships with Chinese universities that are teaching environmental economics courses, as well as piloting and fully implementing Strategic Environmental Assessment (SEA) capacity building courses (see Box 1).

As discussed earlier in this issue of *Environment Matters*, institutions are critical for influencing the quality of

growth. Drawing from the framework of the *World Development Report 2003*, WBI prepared a course to highlight how institutions can emerge to promote well-being, broad-based public interest, and address environmental, social, and economic problems (see Box 2).

WBI's country orientation is complemented by support to regional and global programs, such as capacity development

BOX 2. TRANSFORMING INSTITUTIONS FOR SUSTAINABLE DEVELOPMENT

Quality of growth depends on the quality of policies, and most importantly, on the institutions entrusted to formulate and implement those policies. Recognizing the growing demand for learning on institutional change, WBI's course on "Transforming Institutions for a Sustainable Future" helps participants learn about ways to help competent institutions emerge, even in unfavorable circumstances. Participants explore the basic characteristics of competent institutions and the interdependence of social, environmental, and economic concerns. Cases and examples illustrate how people in different contexts and situations have worked their way out of vicious circles of environmental degradation, social conflict, and declining growth. Participants also learn to identify catalysts and assess how innovations could be more broadly applied in their countries. This course has been offered in Southeast Asia and West Africa, and is in preparation for China.

for carbon finance and knowledge exchange on improving urban air quality through the Clean Air Initiative.

This article was prepared by Laura Tlaiye and Bonnie Bradford of the World Bank Institute's Environmentally and Socially Sustainable Development Division (WBIEN). Fax: (202) 676-0978.

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NewsUpdates

Environment 2004

From Adjustment Lending to Development Policy Support Lending

After more than two years of consultations, the World Bank in August 2004 announced a new Development Policy Lending (OP/BP 8.60) framework that will replace its main Adjustment Lending Policy.

The new policy will provide a coherent and comprehensive policy framework for fast-disbursing policy-based lending.

It emphasizes the importance of governments taking ownership of reforms in developing a program that meets their countries' needs, as well as ensuring broader participation in government policymaking by emphasizing advance consultation with stakeholders and a deeper understanding of the social and environmental impacts of proposed policies.

New Environment Health Anchor Program

The Bank in June 2004 announced a new Environment Health Anchor Program. The program is intended to help Regional environment departments improve their understanding of environmental health linkages, identify cost-effective and environmentally beneficial ways to reduce pollutant risks, and develop analytical and lending tools that can be applied by the Regions to meet one of the Bank's Environment Strategy objectives, namely to improve the quality of life, through improving health, livelihoods and reducing vulnerability.

J. Warren Evans Appointed as New Bank Environment Director



J. Warren Evans has been appointed as the new director of the World Bank Environment Department. His appointment is effective October 1, 2004. Evans joined the Bank in July 2003, and since February 2004 has been acting director of the department. Prior to that, he was the director for the Environment and Social Safeguards Division of the Asian Development Bank, where he worked for 15 years. He also served as an advisor to

the Thai National Environment Board from 1978 to 1981, and was managing director of an international environmental consulting firm.

Outgoing Environment Director Kristalina Georgieva has been appointed as the new director of the World Bank's Moscow office and permanent representative in Russia. Georgieva took up her new appointment on May 1, 2004.



The World Bank's Environmental and Social Sustainability Program

The Environmental and Social Sustainability (ESS) program is the World Bank's answer to the private sector's Corporate Social Responsibility (CSR). ESS priority activities for fiscal year 2004 include the publication of the Bank's first Sustainability Report, initiatives to reduce the Bank's corporate environmental footprint, and environmentally and socially responsible procurement.

In an effort to bring together all of the Bank's sustainability-related activities, and in alignment with the global sustainability reporting movement, the Bank published its first Sustainability Report in October. The report includes explanations of the Bank's checks and balances related to sustainability, the Bank's commitment to sustainable development, details of our corporate footprint, and work still to be done. The report can be found on the web under Environmental and Social Sustainability at www.worldbank.org/sustainabledevelopment.

Together with the Bank's Greening Program, the ESS group has been working on a number of initiatives to reduce our "footprint"—the impact our offices have on the environment. A significant step has been the recent purchase of renewable energy credits (RECs) equivalent to 100 percent of the electricity used by the Bank's Washington offices. There have also been additions of new energy efficiency equipment, and a photovoltaic (solar-powered) roof will soon be installed.

Bank staff in Washington have participated in a number of greening projects, including special cell phone and athletic shoe recycling events, as well as activities in observance of International Car-Free Day on September 22. In the cafeterias, staff now have more environmentally friendly choices available: several unsustainable species, such as shark and Chilean sea bass, have been removed from the menu, and all non-specialty coffee is certified fair-trade, organic, and shade-grown.

Environmental efforts in the field have increased through a Country Office Greening Challenge. The Brazil Country Office was given the top award for its involvement with local organizations to collect office recyclables.

One of the biggest impacts the Bank can have is through environmentally and socially responsible procurement practices (ESRP). A pilot program is under way in selected country offices to further understand the risks and opportunities related to procurement, and ESRP training sessions are being held in Washington and the field. We are also collaborating with our development partners, including other bilateral and multilateral development banks and UN agencies, to harmonize our environmental purchasing requirements.

For more information, please contact: eadvisor@worldbank.org.

Green Awards Announced

The World Bank in April 2004 presented Green Awards recognizing staff leadership and personal commitment in mainstreaming environment in the Bank's work.

Three country directors won the award: Judy O'Connor, country director for Tanzania, was recognized for her work in integrating environmental dimensions into major programs in Tanzania; Robert Vance Pulley, former country director for the Philippines, was recognized for being a strong proponent of advancing the Bank's environmental dialogue in the Philippines; and Isabel Guerrero, country director for Colombia and Mexico, was recognized for work in mainstreaming the environment in country policy dialogue and lending/grant operations.

Five task teams—the Cambodia Rural Investment and Local Governance Project, Ghana Urban Environmental Sanitation Project, Gujarat Emergency Earthquake Reconstruction Project, South Asia India Transport Team, and the MNA Legal Team—also were honored.

Also honored were Kristalina Georgieva, outgoing director of the Environment Department, and Luis Descaire, director of the General Services Department, for his leadership in reducing the Bank's environmental footprint.



Luis Descaire, Director of GSD; Kristalina Georgieva, Director of ECCU1; and Ian Johnson, Vice President of ESSD.

A SELECTION OF WORLD BANK GROUP ENVIRONMENTAL PUBLICATIONS

The following publications may be obtained by sending an email to eadvisor@worldbank.org, or by phoning the Environment Department Publications Unit at (202) 473-3641.

Good Dams and Bad Dams — Environmental Criteria for Site Selection of Hydroelectric Projects
Sustainable Development Working Paper No. 16
George Ledec and Juan David Quintero
November 2003

Climate Change

An Adaptation Mosaic — A Sample of the Emerging World Bank Work in Climate Change Adaptation
Ajay Mathur, Ian Burton, and Maarten van Aalst, editors
February 2004

Environment Department Papers

Look Before You Leap — A Risk Management Approach for Incorporating Climate Change Adaptation in World Bank Operations
Environment Department Paper No. 100
Ian Burton and Maarten van Aalst
October 2004

Models for Recognizing Indigenous Land Rights in Latin America
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Cost of Environmental Degradation — The Case of Lebanon and Tunisia
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Participatory Conservation for Protected Areas — An Annotated Bibliography of Selected Sources (1996–2001)
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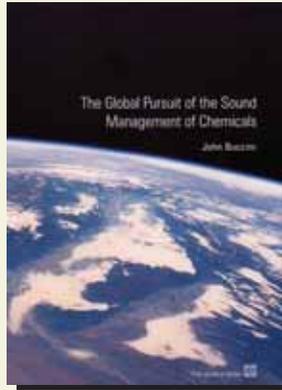
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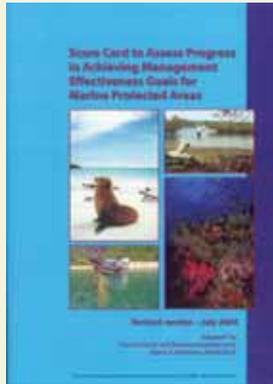
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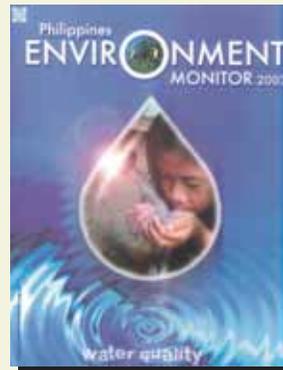
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Program on Forests (PROFOR)
Proceedings of the International
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Reduction, and Sustainable Forest
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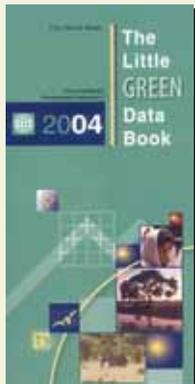
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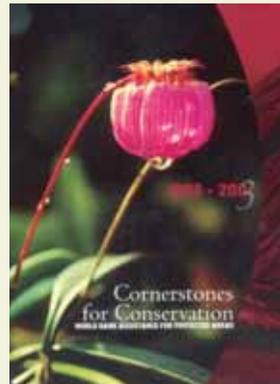
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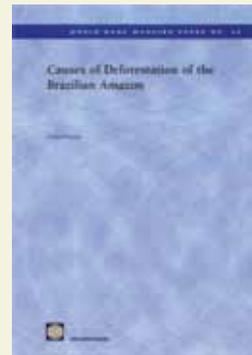
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