

Appendixes



A farmer plants cassava on ground cleared by fire. Photo reproduced by permission of Michael K. Nichols/National Geographic Image Collection.

The World Bank, IFC, and MIGA portions of this evaluation employed different methodological approaches, reflecting their different roles in the World Bank Group and different information constraints. This appendix describes these methodological approaches in further detail.

Assessing World Bank Group Effectiveness

The purpose of this evaluation is to assess the effectiveness of World Bank Group assistance for the environment since 1990. More specifically, its objective is to determine how the Bank Group has attempted to assist its clients in setting and addressing their environmental priorities in both the public and private sectors and how effective those interventions have been. Ideally, effectiveness would be measured in observed improvements in ambient environmental quality resulting directly from Bank Group activities but, as noted in chapter 2, this is not possible at present owing to problems with information, time horizon, countervailing factors, and attribution.

The “information problem” refers to the fact that the information base for environmental results—let alone the impacts on ambient environmental quality—of most International Bank for Reconstruction and Development/International Development Association lending and nonlending activities is extremely poor and, in many cases, is nonexistent. This situation reflects poor monitoring, evaluation, and reporting requirements and practices for Bank operations in relation to the environment. Current Bank guidelines for Implementation Completion Reports (issued in August 2006 and last updated in June 2007) do not require systematic reporting on project environmental outcomes or impacts,

although there is such a requirement for other cross-cutting themes such as poverty, gender aspects, and social development.

While there is a requirement to “summarize key safeguard and fiduciary issues in the operation, compliance with the Bank policy and procedural requirements, and any problems that arose and their resolution, as applicable”—including “any significant deviations or waivers from the Bank safeguard/fiduciary policies”—there is no requirement that the application results of such policies during project implementation be systematically reported. In short, there is no requirement that the implementation results of project environmental management plans—or even the extent of implementation—be reported in completion reports. As a result, information regarding project environmental results and impacts in Implementation Completion Reports, even for the most sensitive Category A projects (see glossary for definitions of categories), is uneven at best. Similarly, there is no systematic way of gauging the influence of Bank environment-related economic and sector work (ESW) and research on client country policies and institutions. These serious shortcomings need to be corrected if the Bank is to have a better sense of the effectiveness of its lending assistance in relation to the environment.

The “time horizon problem” refers to the fact that environmental outcomes and impacts often take considerable time to become apparent. This problem was also cited in the most recent Sector Strategy Implementation Update, discussed by the Executive Board’s Committee on Development Effectiveness in September 2007, which partly focused on the progress to date of the 2001

Environment Strategy. More specifically, the Sector Strategy Implementation Update affirmed: “environmental outcomes are complex and take effect in a much longer timeframe than that of Bank strategies. Air-quality deterioration, for instance, takes 20 years to be reversed even after suitable interventions in energy and transport are implemented. And activities designed to address long-term ecological processes in protected areas take considerable time to have effects” (World Bank 2007f). This is not a valid reason not to monitor and report on project environmental outcomes and impacts, although it does mean that monitoring, evaluation, and reporting of such outcomes and impacts should be carried out over an extended period after such interventions occur. In consideration of this problem, however, the present evaluation has deliberately taken a comparatively long time horizon (from 1990 to the present), which also allows it to capture how Bank Group approaches to environmental and natural resource management have evolved over time, both at the individual country level and more generally.

The “countervailing factors problem” is mainly a constraint in terms of assessing the ultimate impact of Bank-supported interventions in terms of ambient environmental quality. It refers to the fact that, even when Bank-assisted actions have positive environmental outcomes (such as reduced emissions from certain industries or reduced effluents as the result of a wastewater treatment plant), they may be partially or completely offset by other factors (for example, emissions from other sources, including industries that did not benefit under the Bank project, or untreated effluents flowing into the same body of water) that contribute to ambient air or water quality in the same locations. This is especially important where Bank Group-supported interventions only address part of a broader environmental problem or where rapid economic growth or urbanization means that overall pollution loads and other pressures on natural resources are increasing, as is clearly the case in China, India, and the Brazilian Amazon, for instance.

The “attribution problem” is by no means unique to environment-related interventions, but may

complicate efforts to determine cause-and-effect relationships, especially when it comes to influencing policies and institutions. More specifically, in the case of the environment, many other donors and domestic stakeholders—including nongovernmental organizations (NGOs), the media, the court system, different parts of government, as well as the Bank—are involved, making it virtually impossible to separate out the Bank’s influence from that of other actors. This problem is well described in the completion report for the China Country Assistance Strategy for 2003–05, presented as an annex to the new Country Partnership Strategy for 2006–10, which observed that:

Although the China portfolio is one of the Bank’s largest, it is small in relation to China’s economy (less than 0.2 percent of total investment over the [Country Assistance Strategy] period). Hence, the Bank’s impact is felt through the demonstration effects of lending projects, and the influence of analytical work on policy reforms. When the Bank is successful, it contributes to development impacts that reach far beyond the direct outputs of the [analytical and advisory assistance] and projects that it supports, but, given the presence of other change agents in China, it is rarely the case that the Bank is the only contributor at the start of the causal chain that leads to a given result. In most cases, other (domestic and external) agents have also contributed, and these multiple inputs have led to a unique approach that no change agent fully presented as such at the outset of the reform process. Determining the effectiveness of the Bank’s work in China is necessarily an exercise in judgment. [World Bank, IFC, and MIGA 2006, pp. 57–58.

This observation applies to the influence and impact of Bank interventions in other countries as well, especially large ones such as Brazil, India, and Russia, and countries that are assisted by a large number of other donors, such as Egypt, Ghana,

Madagascar, Senegal, and Uganda. In short, especially in view of the problems mentioned above with respect to poor information, the fact that environmental outcomes and impacts frequently take considerable time to fully manifest themselves, and that countervailing factors often override positive impacts of Bank-supported interventions, assessing effectiveness is truly an exercise in judgment. Moreover, performance cannot be readily quantified.

Quantifying performance is particularly problematic in the case of environmental and natural resource management because it is not specifically assessed at the project level. Furthermore, overall Bank project outcome ratings are also of limited usefulness because three-fourths of the projects with environmental and natural resource management-related objectives or content (as identified during the project thematic coding process by their task team leaders), and more than 90 percent of the total commitments in such operations are mapped to sector boards other than that for environment and, therefore, have a broad range of sectoral purposes, against which their overall performance is primarily rated. Even among the minority of environmental and natural resource management projects mapped to the Environment Sector Board, overall performance ratings do not necessarily speak directly to environmental outcomes. Such is the case with many environmental capacity-building projects and the recent set of fast-disbursing Development Policy Loans (nominally for the environment and sustainable development) for which impacts on the environment have not been assessed afterward.

Given these constraints, the World Bank portion of this evaluation has combined a more general literature review with qualitative country case studies in order to: (1) survey the various ways (strategic, nonlending, and lending instruments) the Bank has provided environmental and natural resource management-related assistance to governments and the private sector; and (2) assess how effective this assistance has been across these various instruments and over time. The case study countries were selected to include: (1) the Bank

Group's largest clients—in terms of the volume of lending and nonlending support provided since 1990—which are also among the most important non-OECD (Organisation for Economic Co-operation and Development) countries in their global environmental importance, especially with respect to climate change, biodiversity, and the production and consumption of ozone-depleting substances (that is, China, India, Russia, and Brazil); and (2) one or more countries from each of the Bank's six operational Regions, including Egypt in the Middle East and North Africa Region, and Ghana, Madagascar, Senegal, and Uganda in the Sub-Saharan Africa Region, in addition to the four already mentioned.¹

Egypt was selected both because of its importance for the Nile River and Mediterranean Basins and because it is a major recipient of bilateral development assistance, especially from the United States, which has an impact on the Bank's leverage relative to that of other donors. Sub-Saharan Africa is a Bank Group priority Region and particular attention was given to the selection of case study countries there, to reflect the diversity in geographic and ecological situations and a broad range of development challenges and aid effectiveness experience, as well as to ensure that both Anglophone and Francophone countries were represented. The rich biodiversity of Madagascar, an island, and landlocked Uganda were also a consideration, as were the coastal locations of Ghana and Senegal.

The case study countries in the Sub-Saharan Africa Region and the Middle East and North Africa Region were selected following consultations with Regional managers and staff. Conversations concerning country case studies were also held with Bank managers and staff in the other Regions on the basis of other possible cases (including Colombia, Indonesia, Kazakhstan, Mexico, Romania, Turkey, and Vietnam). Given resource constraints, however, it was decided to select just one country in each of the Bank's operational Regions other than Sub-Saharan Africa, and to focus on countries that were of greatest importance from a global environmental standpoint. In all cases, except

Russia, they were also the Bank's largest borrowers in their respective Regions.

In short, other countries in each of the Bank's Regions could have been selected had the resources permitted, and the experience in each one would have been somewhat different. Therefore, it is important to keep in mind that the findings of this evaluation with respect to the effectiveness of World Bank support are primarily based on experiences in the case study countries, all of which were visited by IEG staff and consultants in the course of this evaluation. It should also be kept in mind, especially in the case of the larger countries, that these field visits were carried out largely to obtain the views of stakeholders in the government, private sector, academia, and other parts of civil society (including both national and international NGOs and the media) regarding the nature and effectiveness of Bank Group assistance for the environment since the early 1990s. However, due to resource constraints, no formal stakeholder surveys were attempted. The field visits allowed IEG staff to conduct new performance assessments of roughly 20 environment-related Bank lending operations (listed in appendix E).

In view of the impossibility of assessing the impact of Bank Group-supported activities on ambient environmental quality, the approach followed was to organize the evaluation partly around the "lenses" provided by the Bank's fourfold environmental agenda of the 1990s—safeguards, stewardship, mainstreaming, and global sustainability. This agenda continues to be highly relevant and was also the approach taken in IEG's earlier assessment of Bank environmental performance, which was also based in part on country case studies (IEG-World Bank 2002).² The thematic "lenses" of the 2001 Environment Strategy were added to the agenda—poverty and livelihoods, health, vulnerability, governance, the private sector (IFC and MIGA), and local aspects of global sustainability.

Finally, the evaluation sought to consider an important aspect of the Bank Group's assistance

for the environment that did not receive attention in the earlier evaluation: the role of partnerships. This was done mainly by meeting with selected key partners, including other United Nations or multilateral agencies such as the Food and Agriculture Organization, International Fund for Agricultural Development, Organisation for Economic Co-operation and Development, United Nations Development Programme, and United Nations Environment Program; regional development banks, including the Asian Development Bank and European Bank for Reconstruction and Development; selected bilateral donors and assistance agencies, including the United Kingdom's Department for International Development, Germany's GTZ and KfW, Japan's JICA, and others at the country level, such as Denmark's DANIDA and the United States' USAID in Egypt, and Sweden's and Finland's bilateral assistance in Russia; and international environmental NGOs and think tanks at their headquarters in North America (Conservation International; Heinz Center for Business, Science, and the Environment; Worldwatch Institute; World Resources Institute; World Wildlife Fund–U.S.) and in Europe (International Institute for Environment and Development, International Union for the Conservation of Nature, and World Wildlife Fund International) or in the field (Conservation International in China and Madagascar, Greenpeace in Russia, International Union for the Conservation of Nature in Russia and Senegal, and World Wildlife Fund in Brazil, Madagascar, and Russia).

IEG, likewise, met with prominent national environmental NGOs such as Friends of the Environment, in Alexandria, and the Egyptian Water Partnership, in Cairo; Advocates Coalition for Development and Environment, and Greenwatch Uganda, in Kampala; the Socio-Ecological Union, and Biodiversity Conservation Center, in Moscow, and the Baltic Fund for Nature, and Public Organization for Ecology and Business, in St. Petersburg; the Centre for Science and Environment, and Confederation of Indian Industries, in New Delhi; and Amigos da Terra, and Instituto Socio-Ambiental, in São

Paulo, and Instituto para Sociedade, Populacao, e Natureza, in Brasilia. These and other organizations provided valuable insights into the effectiveness of World Bank assistance for the environment, as perceived by actual partners and other key local stakeholders. However, the evaluation did not attempt to assess the effectiveness of individual partnerships, in and of themselves.

Assessing IFC Effectiveness

The objectives of the IEG-IFC evaluation were to:

- Evaluate how effectively IFC's projects and environmental investment support and finance have contributed to improving environmental and social sustainability (through enhanced health and safety for workers, efficient resource use and biodiversity conservation, as well as the prevention and reduction of pollution and other adverse environmental, social, health, and safety [ESHS] impacts), and to protecting natural resources and the quality of the regional and global commons. What have been the impacts at the project, regional/country, and industry-sector levels? What have been the cumulative impacts on the upstream/downstream supply chains of IFC's projects, especially with regard to indigenous people and biodiversity issues in agricultural projects, and to labor and working conditions, including child labor, in manufacturing industry projects?
- Evaluate IFC's role and impact in enhancing clients' management of environmental risks and introducing additional environmental improvements, such as carbon trading, energy efficiency, and biodiversity programs.
- Assess the environmental impact and effectiveness, and the extent of coordination with the International Bank for Reconstruction and Development, in IFC's financing of sustainable public and private sector infrastructure projects with significant environmental benefits. Such projects would comprise, for example, renewable energy and sustainable forestry projects, and public-private partnership projects to develop and finance water and wastewater treatment, waste and hazardous waste management,

and recycling enterprises and utilities that would serve households and industrial enterprises on a cost-effective basis in urban areas.

- Assess how IFC could help develop the local environmental consultant capacity that could serve IFC's present and future clients in environmental appraisal, monitoring, and studies. A special part of the assessment is of the local ESHS consultancy service industry, which could assist financial intermediaries that IFC finances.
- Evaluate to what extent and how IFC's Advisory Services and other nonlending services have been strengthened and with what benefits to clients and other stakeholders.
- Evaluate to what extent and how IFC has used its partnerships with other key development stakeholders (multilateral development banks, the Global Environment Facility (GEF), and bilateral donors) and companies to enhance the effectiveness of its assistance to private sector clients, with respect to environmental management and sustainability—for example, in launching industry sector initiatives, such as the Equator Principles for international commerce and the Bank's project finance activities in emerging markets.

IEG-IFC Evaluation Methodology

Each project's environmental, social, health, and safety impacts were assessed using templates (shown at the end of this section) for non-financial intermediary (non-FI) and financial intermediary (FI) operations. Because performance on each of these aspects is considered as part of an aggregate environmental and social effects (ESE) indicator, the results reported in this evaluation cover all dimensions of IFC environmental and social due diligence performance.

The evaluation of IFC-financed investment projects was based on the results of previous IEG evaluations, site visits, a literature review, and structured interviews with project sponsors, governmental and regional environmental authorities, consultants, NGOs, and Bank Group staff in Washington, DC, and in country offices. IFC's environmental and social programs and activities that were not related to IFC investment projects,

and environmental and social Advisory Services that supported investment projects, were both evaluated using literature surveys, interviews, and a meta-evaluation, which synthesized available program evaluations.

The source material for evaluating IFC investment projects comprised 632 project evaluations: IEG visited 28 projects, purposively sampled, in nine case study countries (the case study sample), and used the results of 604 randomly sampled Expanded Project Supervision Reports (XPSRs)³ from 1996 to 2006. Eight projects scheduled for XPSRs were visited and evaluated with the same methodology used for the case study sample, bringing the number of visited projects to 36. Because the case study sample was purposively selected to cover a wide range of industry sectors with varying potential environmental and social impacts, the environmental screening category's distribution (see endnote 6) was somewhat different from the XPSR population for 1996–2006. In proportion, the case study sample included more real sector (non-FI) projects than FI projects and no Category C projects. The case study sample, therefore, cannot be directly compared with the IEG-IFC statistically generalizable sample in XPSR evaluations (table A.1).

The effectiveness of IFC investment projects was assessed with IEG's Environmental and Social Effects Indicator, which covers the project's performance in achieving IFC's requirements and objectives for the environment, and the project's actual environmental impacts. ESE as well as business performance, economic sustainability, and private sector development are evaluated

and rated on a four-point scale (unsatisfactory, partly unsatisfactory, satisfactory, and excellent) in the XPSRs. These ratings are then synthesized as an evaluative (not mathematical) summary into an overall development outcome rating.⁴ The XPSRs are self-evaluations made by operations staff. IEG then reviews the ratings and their justifications. XPSR evaluations are done on about 50 percent of those projects having five years' maturity after IFC commitment. Each year, a randomly selected and representative sample of projects at early operational maturity is made, and the operational staff complete XPSR evaluations. To assess project impacts in the field and, if ESHS information for desk evaluation is not available, IEG-IFC environmental specialists visit the projects. Since 2005, about 10–15 projects have been visited annually. IEG-IFC uses a generic ESHS review template to review the ESE in XPSR projects. For this study, the template was modified to also include ESHS success factors, wider impacts, the use of consultants, as well as key issues for successful Advisory Services and capacity building (see template below). The "ESE success rate" was calculated as a percentage of excellent and satisfactory ratings and presented separately for the XPSR projects and the case study sample.

The International Standards Organization (ISO) defines "environmental impact" as any change to the environment resulting from an organization's environmental aspects (ISO standard 14001). To capture impact, assessment of "environmental performance" (measurable results of an organization's management of its environmental aspects, ISO standard 14001), including environmental condition at appraisal and at the time of evaluation

Table A.1: Distribution of Environmental Category in XPSRs and the Case Study Sample

Sample	Environmental screening category									
	A		B		C		FI		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%
2006 case study	2	7	24	86	0	0	2	7	28	100
1996–2006 XPSRs	32	5	337	56	83	14	152	25	604	100

Source: IEG database on XPSR project reports.

Note: For the environmental screening category, see endnote 6.

is needed. Project baselines are usually well established in environmental impact assessments of Category A projects, but in many Category B projects it was difficult to evaluate the changes and impacts because of missing baseline and performance information.

IFC selects its investment projects based on their potential for high development outcomes. The potential to achieve good ESE is not the only criterion for project selection, of course. Other important criteria are a project's business performance, economic sustainability, and contribution to private sector development. The selection of investment projects based on the potential for positive environmental impacts is not addressed in this evaluation, but projects that met IFC's requirements and achieved high positive environmental impacts are credited with high ESE ratings.

IFC investment projects comprise investments in the form of loans and equity that go directly to private sector clients (known as "real sector" or "non-FI" projects) and indirectly to financial intermediaries ("FI projects"), which are the commercial banks, funds, and leasing or insurance companies providing finance to their clients with IFC proceeds. Of the 604 evaluated XPSR projects *with ESE ratings*, 385 were non-FI (real sector) and 219 were FI projects. The case study sample of 28 projects consisted of 26 real sector and 2 FI projects. The 604 XPSR projects represent 35 percent of 1,738 projects that were appraised during 1990–2002 and required environmental supervision (A, B, and FI categories, see endnote 3).

The methodology applied in investment projects was to evaluate the project against specific requirements described in the Environmental and Social Clearance Memorandum, which clears the project for Board consideration, and in the Environmental Review Summary, which is agreed upon with the sponsors of Category B projects and is published after Board approval. The evaluation also takes into account environmental covenants in the legal documents, as well as IFC's procedures, guidelines, and policies—both current and at the time of appraisal and evalua-

tion. The "at-appraisal" requirements for the case study sample comprise the 1998 Procedure for Environmental and Social Review of Projects, Bank Group industry sector guidelines, the Bank Group's 1998 *Pollution Prevention and Abatement Handbook* (World Bank Group with UNEP and UNIDO 1999), as well as operational policies and directives.

All projects in the case study sample and the XPSR 2006 projects were also evaluated against IFC's 2006 Procedure for Environmental and Social Review of Projects and 2006 Policy and Performance Standards. For FI projects, the requirements depend on whether IFC invested in the FI or provided finance directly for specific FI subprojects.

IEG started to produce ESHS review reports and evaluate ESHS work quality in 2003. Since 2004, all XPSR projects have been evaluated based on their ESHS work quality at appraisal and supervision, and on IFC's role and contribution. IFC's work quality has been evaluated for 148 XPSR projects and the case study sample. The checklists and issues addressed in the project evaluations are described further in the ESHS review template below.

The countries selected for this study covered the most significant IFC client countries in terms of their global environmental importance—Brazil, China, and India. Given both their global and Regional significance, Russia and Egypt were selected from the Europe and Central Asia Region and Middle East and North Africa Region, respectively. In considering the Bank Group's priority attention to Africa, the corresponding case studies focused on three countries—Ghana, Kenya, and Uganda. IEG also visited IFC's South Africa office in Johannesburg to discuss environment-oriented Advisory Services in Africa, which are managed from that office. These nine countries represent a broad range in terms of demographic and territorial size, income levels, recent economic growth rates, political systems, and environmental challenges, and are drawn from all six IFC operational Regions. However, in Africa, the IEG-IFC country selection differed somewhat from the

IEG-World Bank selection (Ethiopia, Ghana, Madagascar, Senegal, and Uganda), because IFC has very limited exposure in Ethiopia, Madagascar, and Senegal. The selected countries are presented below by Region:

- **Africa:** Ghana, Kenya, South Africa (Private Enterprise Partnerships–Africa projects only), Uganda
- **Asia:** China, India
- **Europe and Central Asia:** Russia
- **Latin America and the Caribbean:** Brazil
- **Middle East and North Africa:** Egypt

IEG-IFC Environmental and Social Review Template and Evaluation Questions

Environmental and Social Effects

Ratings: Unsatisfactory, partly unsatisfactory, satisfactory, excellent

Evaluation questions: Environmental screening category, ESHS impacts, risks and mitigation, ESHS opportunities, FI portfolio projects and categorization, environmental management system (EMS), commitment, compliance with ESHS objectives and IFC’s present and at-appraisal policies and standards, ESHS impacts, the “extra mile” (client has achieved beyond compliance performance), community programs, and demonstration effects.

The rating should be based on analysis of the project’s key environmental performance indicators and objectives, including operational performance indicators, for example, pollution loads; management performance indicators; environmental condition indicators; (see ISO standard 14031), and social, health, and safety indicators. In FI projects, the rating is based on (1) the project’s environmental performance in meeting IFC’s requirements; and (2) the project’s actual environmental impacts through its subprojects.

Project Screening and Appraisal, IFC’s Work Quality (ESHS only)

Ratings: Unsatisfactory, partly unsatisfactory, satisfactory, excellent

Evaluation questions: Effectiveness of implementing IFC’s at-approval procedure for environmental appraisal and site visit(s). Identification of the key environmental risks of the project (subproject portfolio in FI projects) in the screening of the environmental category and determining it and the key ESHS requirements. Translation of IFC’s environmental procedures, policies, guidelines, and performance standards to the requirements in the Environmental Review Summary or Environmental and Social Clearance Memorandum and legal documents. Ensuring adequacy of the EMS and eventual Corrective Action Plan and trained staff to implement them. Appropriateness of the baseline study and Environmental Impact Assessment and disclosure according to IFC’s procedures in Category A projects. Addressing cumulative impacts, area of influence, role of third parties and community engagement. Addressing the environmental improvements and costs and integration in process design in feasibility studies. Assessment of the adequacy of policies or supervision standards of the local environmental authority. Training needs and procedural adjustments. Addressing relevant lessons from other operations. Addressing the issues or concerns raised at appraisal—for example, in IFC’s review process, by the Bank, civil society, or other stakeholders.

Supervision, IFC’s Work Quality (ESHS only)

Ratings: Unsatisfactory, partly unsatisfactory, satisfactory, excellent

Evaluation questions: Reappraisal of the project and the environmental category with new, appropriate requirements if the project concept and environmental risks (portfolio risks in FI projects) changed during implementation; adequacy of the Environmental Impact Assessment and Environmental Audit Reports and Corrective Action Plans and submission for IFC’s approval; ESHS site visits and correspondence. Quality of the Annual Monitoring Report or Annual Environmental Performance Report reviews, identification of potential deficiencies, with requests for corrective actions and submission to the investment officer and the company.

Implementation of the corrective actions. Appraisal and monitoring of FI's Category A and B subprojects by IFC or the FI, or by using environmental consultants when appropriate.

Role and Contribution, IFC's Work Quality (ESHS only)

Ratings: Unsatisfactory, partly unsatisfactory, satisfactory, excellent

Evaluation questions: IFC's role and contribution at appraisal and supervision, and in enhancing client's environmental management, identification and mitigation of environmental risks, and introducing training and additional environmental improvements such as carbon trading, energy efficiency, biodiversity programs, and Advisory Services.

ESHS Success Factors and Wider Impacts

- Project's wider impacts to improve environmental management of the client, reduce pollution loads, and enhance livelihoods.
- Impact in the Region and country and in the industry sector (demonstration effect).

- IFC's contribution in reaching wider environmental and social impacts.
- What have been the cumulative impacts on upstream/downstream supply chains of IFC's projects, especially with regard to indigenous people and biodiversity issues in agricultural projects, and to labor and working conditions, including child labor, in manufacturing industry projects?

Cooperation with Consultants and Future Needs for Environmental Appraisal, Monitoring, and Studies

- How many times have environmental consultants been used in the past five years?
- Domestic/international consultants?
- For what purposes (appraisal, monitoring, environmental studies)?
- For what reasons (skills, experience, measuring equipment, lack of staff time)?
- Were the experiences useless or useful?
- Price/quality and output? FI's satisfaction?
- Future needs?
- Overall need in the country/Region (demand/supply situation)?
- Would the client use consultants if costs were partly/fully covered by Advisory Services?

Ratings on Compliance with ESHS Objectives for Non-FI Projects

- **Excellent (E):** The project has either: (1) maintained the company's excellent environmental management or materially improved the company's overall environmental performance (for example, through training and addressing environmental, social, cultural, and community aspects, as well as labor and working conditions, or by introducing an environmental management system (EMS) or corporate program for environmental and social responsibility broader than IFC's requirements); or (2) raised the environmental performance of local companies (for example, by raising industry standards and serving as an example of good practice for regulators). In addition, the project has consistently met IFC's at-approval requirements and its environmental effects are deemed acceptable in view of IFC's current requirements. IFC should be able to use projects rated excellent as a role model for positive environmental effects.
- **Satisfactory (S):** The project is, and was during its lifecycle, in material compliance with either IFC's current or at-approval requirements, including Bank Group environmental, health, and safety policies and guidelines.
- **Partly unsatisfactory (PU):** The project is not in material compliance with either IFC's current or at-approval requirements, but deficiencies are being addressed through ongoing and/or planned actions; or earlier noncompliance (since corrected) resulted in environmental damage.
- **Unsatisfactory (U):** The project is not in material compliance with either IFC's current or at-approval requirements, and mitigation prospects are uncertain or unlikely; or earlier non-compliance (since corrected) resulted in substantial and permanent environmental damage.
- **No opinion possible (NOP):** After best efforts, the relevant information to establish material compliance (or lack thereof) cannot be obtained, for example, because of insufficient or missing Annual Monitoring Reports (AMRs). Use of the NOP rating should be a last resort, after reasonable effort has been made to obtain the necessary information. A sponsor's failure to report should result in a partly unsatisfactory or unsatisfactory rating only if the sponsor has repeatedly refused to cooperate on this issue.
- **Not applicable (NA):** If the project was classified as Category C (no impact) and that categorization has remained valid over the lifecycle of the project so far (and is likely to remain going forward), then the correct rating is not applicable. If, despite its Category C classification, the project has had actual or potential environmental and social impacts, then it should be rated accordingly.

	U	PU	S	E	NOP	NA
Summary on Compliance with At-Appraisal Objectives			•			
1. Objective at appraisal. <i>Add from environmental review.</i>			•			
2. Environmental and social management system						
3. Air emissions						
4. Waste waters						
5. IFC at-appraisal policies						
6. Bank Group at-appraisal environmental guidelines						
7. Annual Monitoring Reports (AMRs)						
	U	PU	S	E	NOP	NA
Summary on Compliance with Current Performance Standards			•			
1. Environmental and social assessment and management system			•			
2. Labor and working conditions						
3. Pollution prevention and abatement						
4. Community health, safety, and security						
5. Land acquisition and involuntary resettlement						
6. Biodiversity conservation and sustainable natural resource management						
7. Indigenous people						
8. Cultural heritage						

Role model and issues beyond compliance

Ratings on Compliance with ESHS Objectives for FI Projects

- **Excellent (E):** The project has maintained the FI’s EMS or materially improved the efficacy of the FI’s overall environmental risk management (for example, through training and introduction of a well-functioning EMS) and the environmental performance of portfolio companies. In addition, the FI has provided transparent and detailed reports on time, verifying that the project (and subprojects, as applicable) has consistently met IFC’s requirements at approval and its environmental effects are deemed acceptable in view of IFC’s current requirements. IFC should be able to use projects rated excellent as role models for positive environmental effects.
 - **Satisfactory (S):** The project meets either IFC’s at-approval requirements or IFC’s current requirements, and its environmental effects are deemed acceptable overall. For all FI project types, trained staff implement an appropriate EMS that has been functioning over the project lifecycle (as also reflected in acceptable environmental standards being applied to projects financed by the FI). The subprojects are and have been in substantial material compliance with IFC’s requirements for the duration of the project.
 - **Partly unsatisfactory (PU):** The project does not meet IFC’s requirements, but the shortfalls are either being corrected or negative impacts are moderate. For example, the FI’s EMS is adequate, but some subprojects have resulted in environmental damage, or the subprojects visited have acceptable environmental standards, but the EMS is materially inadequate; or an FI (type 1) initially had no EMS, but has recently introduced a functioning one.
 - **Unsatisfactory (U):** The project does not meet IFC’s requirements and substantial negative effects are known or likely, for example, the FI’s EMS is completely inadequate and nothing is known about subproject performance; the EMS has material shortcomings and some subprojects have negative environmental effects; while the EMS appears adequate, a significant portion of subprojects have negative environmental effects; or some subprojects have resulted in substantial and irreversible environmental damage.
 - **No opinion possible (NOP):** After best efforts, the relevant information to establish material compliance (or lack thereof) cannot be obtained, for example, because of insufficient or missing Annual Environmental Performance Reports. Use of the NOP rating should be a last resort, after reasonable effort has been made to obtain the necessary information.
 - **Not applicable (NA):** If the project was classified as Category C (no impact) and that categorization has remained valid over the lifecycle of the project so far (and is likely to remain so going forward), then the correct rating is not applicable. If, despite its Category C classification, the project has had actual or potential environmental and social impacts, then it should be rated accordingly.
- Requirements for FI type T1, T2, and T3 projects, according to the 1998 Environmental and Social Review Procedure (ESRP) and 2006 ESRP, are given below. The 2006 ESRP has no requirements for FIs investing in retail operations.**

	U	PU	S	E	NOP	NA
Summary on Compliance with At-Appraisal Objectives			•			
1. Process (policy, procedure, responsible staff)			•			
2. IFC training						
3. General Exclusion List (T2 and T3)/ Microfinance Exclusion List (T1 MF)						
4. Host-country laws						
5. IFC policies (> 0.5 US\$ million)						
6. Category A subprojects meet applicable guidelines						
7. Category B subprojects meet applicable guidelines						
8. IFC clearance, public consultation, and environmental assessment of Category A subprojects						
9. IFC clearance of each subproject						
10. Annual report (AEPR) on process (EMS, appraisal, screening)						
11. Annual report summarizing subprojects’ performance						
	U	PU	S	E	NOP	NA
Summary on Compliance with 2006 ESRP			•			
1. Environmental and social policies and procedures, skills and competence in ESHS			•			
2. Training and awareness of investment, legal, and credit officers						
3. Exclusion list for (i) all FIs and (ii) MF, trade finance, and listed equities						
4. Host-country laws						
5. IFC performance standards						
6. Mobilizing additional resources						
7. Annual report (AEPR)						

Role model and issues beyond compliance

Assessing MIGA Effectiveness

IEG-MIGA assesses the extent to which evaluated projects were (and are) consistent with MIGA's safeguard policies and environmental, health, and safety (EHS) guidelines.⁵ IEG focuses on the consistency with environmental and social safeguards and EHS guidelines (collectively described below as "safeguards") at two phases in the project cycle.

- **At Board approval (and when the contract of guarantee is signed):** To what extent did a guaranteed investment comply with the requirements of MIGA safeguard policies and guidelines at the time of Board approval? (Any significant differences between the guidelines applicable at approval and current guidelines are highlighted in the evaluation of each project.)
- **At evaluation (typically three to four years after the guarantee is issued):** To what extent did a project fulfill or conform to the conditions and requirements of the safeguard policies and guidelines during project implementation (and at evaluation) and adequately implement the safeguard management/action plans that were identified at approval?

IEG evaluation criteria reflect key safeguard policy requirements and the necessary steps involved in meeting them. The criteria differ between approval and evaluation (for example, at approval, IEG assesses the adequacy and appropriateness of an EMS, while at evaluation it assesses the implementation of the EMS). The criteria are based on MIGA's own environmental

assessment and disclosure policies and procedures (1999), as well as on MIGA's interim issue-specific safeguards (2002).⁶ Consistency with host-country environmental, health, and safety standards is also assessed.

IEG used MIGA's policies, in effect between 1999 and 2007, and current guidelines as the basis for evaluation for all projects in the sample (MIGA's 1999 environmental assessment and disclosure policies and procedures, and 2002 interim issue-specific safeguards).

IEG-MIGA Environmental, Social, Health, and Safety Review Checklist

The requirements for each criterion of safeguard policy compliance were rated according to the following scale:

- **Excellent:** The requirements were fully met, or are expected to be fully met, with no shortcomings.
- **Satisfactory:** The requirements generally were met, or are expected to be met, with only minor shortcomings.
- **Partially satisfactory:** The requirements were met, or are expected to be met, but with significant shortcomings.
- **Unsatisfactory:** The requirements were not met, or are expected not to be met, due to major shortcomings.

(For a list of requirements assessed by IEG at approval and at evaluation, see tables A.2 and A.3)

Table A.2: MIGA Safeguard Policies—Criteria for Consistency at Approval

Criterion	Ratings			
	Excellent	Satisfactory	Partially satisfactory	Unsatisfactory
Comprehensive environmental assessment				
Adequate analysis of feasible alternatives				
EHS guidelines or host country's regulations adequately addressed				
Comprehensive environmental and social baseline survey				
Adequate Environmental Action Plan or Environmental Management Plan proposed				
Project sponsor's EMS adequate				
Public disclosure/consultation addressed				
Comprehensive and implementable resettlement plan/ community development plan prepared				
Comprehensive and implementable indigenous peoples plan prepared				
Natural habitats protected or offsets provided				
Comprehensive dam safety measures proposed				
Cultural property protection proposed				

Note: EHS = environmental health and safety; EMS = environmental management system.

Table A.3: MIGA Safeguard Policies—Criteria for Consistency at Evaluation

Criterion	Ratings			
	Excellent	Satisfactory	Partially satisfactory	Unsatisfactory
Environmental Action Plan or Environmental Management Plan fully implemented				
Environmental and social monitoring implemented				
Sponsor's project implementation EMS effective				
Continuing public disclosure and consultation				
Full compensation of project-affected people				
Resettlement plan/community development plan fully implemented				
Indigenous peoples plan fully implemented				
Natural habitats protected or offsets provided				
Dam safety measures implemented				
Cultural property protected				
Contract of guarantee for implementation of safeguard policies/ guidelines adequate				
Reporting on safeguard policies by sponsor adequate				

Note: EMS = environmental management system.



A gold separation facility in Ghana is an example of a sustainable operation. Photo courtesy of Jouni Martti Eerikainen.

APPENDIX B: RELEVANT FINDINGS FROM PREVIOUS IEG EVALUATIONS

In 2001, IEG evaluated the World Bank's effectiveness in relation to the environment during the 1990s, specifically considering its performance on environmental safeguards, stewardship, mainstreaming, and global sustainability. A more recent IEG assessment examined Bank experience regarding natural hazards, and there have also been previous evaluations of MIGA's environmental and social due diligence processes. The main findings of each of these evaluations, many of which continue to be relevant, are summarized below.

Previous IEG Findings Regarding Environmental Assessment

- Environmental assessment (EA) policies and objectives are generally sound, but environmental assessments are often not completed soon enough in the project cycle to have much impact on project design. The criteria for application of environmental assessment standards have not been consistently applied across Regions and countries. Delays in making environmental assessments available to the public have contributed to external criticism. Heavy reliance on external consultants has undercut environmental assessment effectiveness and has not contributed to the building of local capacity.
- Compliance shortfalls in highly visible operations have cast doubt on the integrity of the quality assurance process. Guidelines for the application of policies have not been fully internalized by many task managers and staff, partly because the provisions are not always clear.
- Supervision of environmental aspects of Category A and particularly Category B projects (see glossary for definitions of categories) has been weak, and monitoring of action plan im-

plementation has been spotty. Hence, it is nearly impossible to verify the effectiveness of mitigation measures and, once the Bank's involvement ceases, there is no regular program for monitoring the implementation and sustainability of environmental measures during the lifecycle of the project.

- Adjustment (now called development policy) lending was largely excluded from the environmental assessment process, even though several NGOs and internal studies had clearly identified the impacts that such lending can have on the environment, and recommended methods to assess such effects.

Previous IEG Findings Regarding Stewardship

- The Bank's program to support national environmental action plans and environmental ESW put the environment on the policy agenda, but the documents themselves were of mixed quality and follow-up has not been consistent.
- Integration of the environment into country assistance strategies was limited, even when International Development Association (IDA) deputies stressed such inclusion.
- Environmental ESW was declining compared with the early 1990s, in both numbers of studies and budgetary allocations.
- Bank projects included many successful examples both of direct environmental lending and of operations that had mainstreamed the environment into other operations.
- Bank treatment of the environment as a sector, rather than a cross-cutting priority, was reflected in the difficulty in getting environmental projects into country programs and environmental components into sectoral projects; the

current structure pitched environmental units against other sector units in a competition for funds and slots in country lending programs.

- The Bank's long-term engagement with client countries needs to ensure continued focus on permanent vulnerability reduction.

Previous IEG Findings Regarding Mainstreaming

- Despite indications of progress, many difficulties were faced in introducing mainstreaming activities. Sector reviews were completed but their recommendations were not followed up, and environmental capacity developed but was then lost when environmental specialists moved elsewhere. Real commitment from borrowers, demonstrated by adequate budgets and the accountability of managers, was often lacking.
- Bank staff often faced the reluctance of countries to borrow for environmental projects, especially when bilateral grant resources were available, and/or used relatively scarce International Bank for Reconstruction and Development/International Development Association funds for other priorities. This led to environmental concerns being deemphasized in some Bank country strategies.
- Performance on mainstreaming the environment into other sectors and what is now called development policy lending was harder to measure. Although it was widely agreed by both management and staff that an integrated approach was desirable, lack of clear objectives, insufficient means of monitoring, and lack of internal incentives pushed in the opposite direction.
- After having identified the pervasive aspects of environmental issues, recorded their importance to poverty alleviation, and confirmed that mainstreaming is essential to achieving environmental objectives and commitments, in practice the Bank had done little institutionally to promote, monitor, or otherwise make mainstreaming happen.

Previous IEG Findings Regarding Global Sustainability

- The Bank prepared GEF projects to address biodiversity, ozone depletion, and international

waters issues, but these were sometimes isolated operations in response to the global mandate, and were not integrated into coherent national strategies. In other cases, they failed to contribute to larger environmental objectives or to help Bank efforts to mainstream.

- The Bank's emphasis on global issues should not detract from addressing regional environmental issues, which are very important to member countries. Many environmental issues involve watersheds or ecosystems that span national borders. Cooperation among countries is needed and the Bank has the potential to facilitate greater cooperation than has been the case so far. Although the Bank has encouraged members to take these issues into account, it has not undertaken projects to address multicountry environmental issues because its strong country and sectoral orientation has impeded such activities.
- Considering resource constraints, the Bank's efforts to address global issues in its own research and analysis have been satisfactory. It has also begun working with international agencies and NGOs on global issues. This approach has proven partially effective in bringing attention to global issues in country dialogues, but it has not made much progress in gaining borrower support. Bank efforts have been satisfactory neither in mitigating the local impacts of climate change nor in addressing regional issues, but the Bank is beginning to expand its work in the former.

Previous IEG Findings Regarding Bank Assistance for Natural Disasters

(This section draws on IEG-World Bank 2006c)

- The development community needs to engage with disaster-stricken borrowers earlier and stay engaged longer.
- Bank lending in response to natural disasters has been increasing over time because the incidence of weather-related events, such as flooding and severe tropical storms, appears to be increasing.
- Economic and social impacts of natural disasters are very large in developing countries.

- Human actions that contribute to the destructiveness associated with natural disasters need to be addressed.
- Emergency preparedness studies are typically completed too late and are used too little. While attention to mitigation measures is improving, it too often lacks borrower ownership.
- In general, disaster responses have tended toward the reactive and tactical, when instead a proactive and strategic approach would have had longer-term benefits.
- Natural-hazard risks are highly concentrated. Ten countries, including Brazil, China, India, and Madagascar, account for close to 40 percent of the Bank's portfolio of projects fully or partly focused on natural disasters. Special attention therefore needs to be given to planning ahead for disaster and reducing long-term vulnerability in these countries.

Previous IEG Findings Regarding Implementation of IEG-MIGA Recommendations on Environmental and Social Aspects

IEG has made several recommendations related to the social and environmental compliance of MIGA projects in its annual reports and in its report on extractive industries. The performance standards adopted in 2007 are expected to address many of these recommendations. Because these standards have been in place for only a short time, the following summary is a progress report based on findings (from the 2007 IEG quality-at-entry [QAE] review)^{1,2} of MIGA guarantees, issued during fiscal 2005 and 2006, which predate the recent policy.

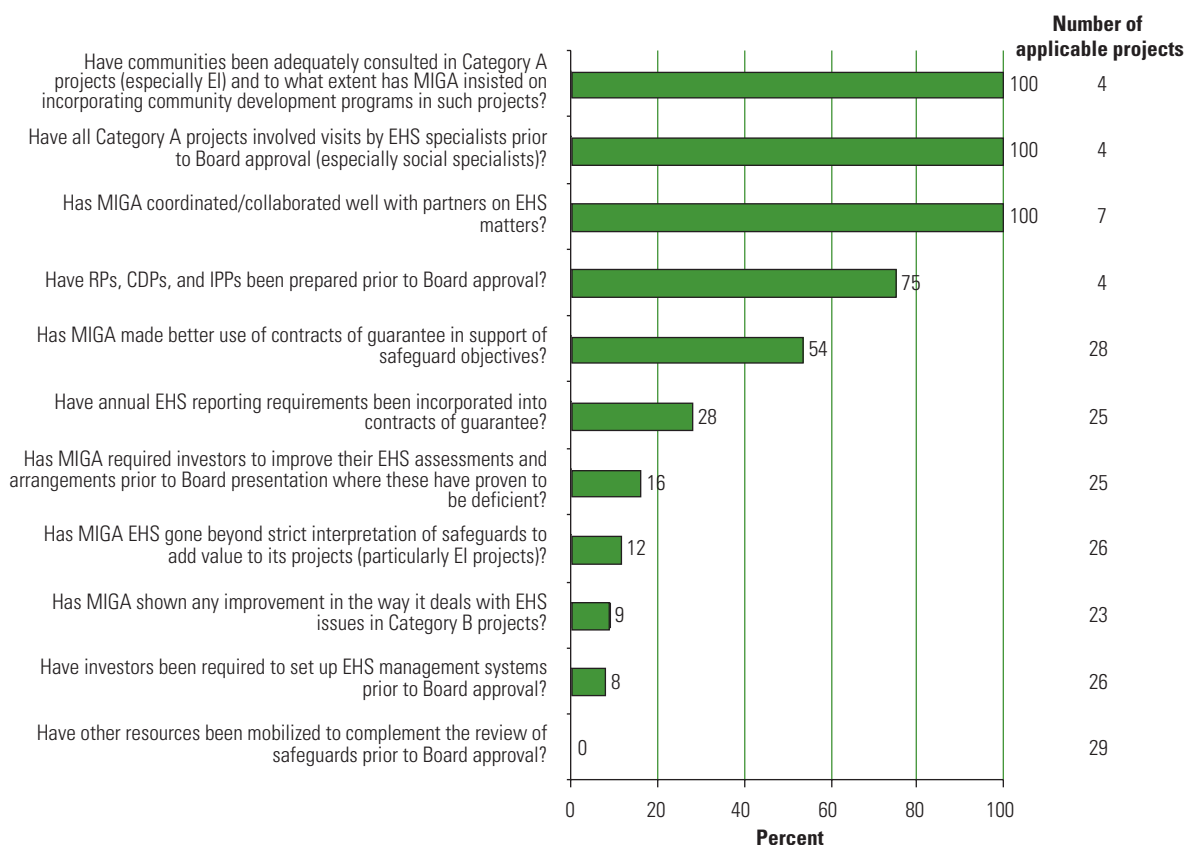
- **Adequacy of security arrangements.** The 2007 QAE review found that one extractive industry's project investor had taken this concern seriously and was planning to implement best international practice in managing its security arrangements to protect the rights of individuals who may come into contact with its security personnel.
- **Preparation of resettlement plans, community development plans, and indigenous peoples plans prior to Board approval.** Seventy-five percent of

MIGA's projects involving resettlement or community development have had plans prepared and agreed to with communities prior to Board approval or contract signing.

- **Support to investors to improve environmental, health, and safety (EHS) issues prior to Board approval.** The QAE review found that MIGA had not provided financial or external technical assistance to improve EHS issues in any of the 25 reviewed projects.
- **Setting up of an EMS prior to Board approval.** The QAE review found that only 8 percent (2 projects) had set up an EMS prior to Board approval, and that in only 32 percent (8 projects) had investors provided adequate documentation in support of their proposed EMS. Therefore, in almost 70 percent of its projects, MIGA cannot be certain that its EHS standards are adequately addressed by its guarantee holders.
- **Adequacy of community consultation on Category A projects.** All of the Category A projects reviewed for QAE were found to have followed adequate community consultation arrangements, indicating a substantial improvement in this area of MIGA's due diligence.
- **Reporting requirements included in contracts of guarantee.** In 28 percent of the Category A and B projects underwritten between January 2005 and June 2006 and reviewed for QAE, MIGA required annual or key milestone reporting in meeting its EHS requirements in the contract of guarantee, a significant improvement over the past.
- **Field visits by MIGA's environmental, health, and safety staff for Category A projects.** Each of the Category A projects in the QAE review was visited by an environmental or social specialist. Two of the Category B projects were visited by an environmental specialist and one Category B project was visited by both environmental and social specialists. One each of the Category A and B projects would have benefited from the involvement of a social specialist in addition to the environmental specialist. Two of the Category B projects should have been visited by both environmental and social specialists.

- Improvements in EHS assessments of Category B projects.** The QAE review found that in 2 projects (9 percent), MIGA improved the EHS performance through its due diligence. One involved a site visit by both an environmental and a social specialist, in which MIGA was able to assist the investor with a resettlement issue and to reduce the environmental impact of an urban development project. In the other case, MIGA identified a potential site contamination issue that was not resolved, but it at least alerted the investor to the potential risk.
- Better use of contracts of guarantee.** Fifty-four percent of projects reviewed for QAE showed better use of contracts of guarantee to refer to appropriate MIGA safeguards and guidelines. The expectation is that with this improved trend, it will become routine to fully incorporate substantive EHS provisions in contracts of guarantee.
- Beyond safeguard compliance to “doing good.”** In 3 of the 26 projects reviewed for QAE, the project sponsors went beyond the strict requirements of safeguard policies and guidelines to “doing good.” However, only in one case was MIGA directly responsible for encouraging this initiative. The other projects that went beyond MIGA safeguards and guidelines were encouraged to do so by the European Bank for Reconstruction and Development, United States Agency for International Development, and the Bank.
- Coordination with other development partners.** The 2007 QAE review noted that MIGA cooperated effectively with development partners on all of the projects in which such partners were involved. The quality of the EHS work carried out by such partners is often far better than on projects where MIGA is the sole development agency involved in the project.

Figure B.1: Implementation of IEG-MIGA Environmental and Social Recommendations



Note: Not all categories are shown in this figure. RP = resettlement plan, CDP = community development plan, IPP = indigenous peoples plan.

The countries selected as cases for this evaluation include some of the Bank Group's oldest (Brazil and India) and largest clients in terms of both territory and support levels (Russia and China), as well as five smaller borrowers (Egypt, Ghana, Madagascar, Senegal, and Uganda). Each country is distinct in many ways, not only ecologically, historically, and culturally, but also in some of their basic demographic and economic characteristics. Most of the countries are of regional and/or global environmental significance. The effectiveness of Bank Group support for the environment within their boundaries is of great relevance nationally as well as at the regional and global levels.¹

Basic Demographic and Economic Characteristics

The nine case study countries, taken together, account for 41 percent of the total land area of all lower- and middle-income countries,² and accounted for 53 percent of the combined population and 45 percent of the combined gross domestic product (GDP) in this category in 2004.³ On average, this sample is slightly less urbanized than the set of lower- and middle-income countries as a whole (38 percent urban in the former, as compared with 43 percent urban in the latter) and somewhat poorer in per capita GDP (\$1,320 in the sample, compared with \$1,566 in this category as a whole). In both cases, this reflects the important weight of India (29 percent urban, \$640 per capita GDP) among the sample countries, together with those in Sub-Saharan Africa, where urbanization levels ranged from a very low 12 percent (Madagascar) to just over 50 percent (Senegal), and where per capita GDP ranged from only \$243 to \$684 (respectively, in the same two countries). The basic physical, demographic, and economic characteristics of the case study countries are summarized in table C.1.

The averages presented in table C.1 mask significant variations in case study country characteristics. Three of the countries—Brazil, China, and Russia—are among the five largest in the world in terms of territory, and China and India alone account for 37 percent of the world's total population. China is also rapidly becoming one of the world's largest economies, although Brazil and Russia still have per capita GDP figures more than two times that of China, roughly three times that of Egypt, five times that of Senegal and India, eight times that of Ghana, and nearly 12 times that of Uganda and Madagascar. The four Sub-Saharan African countries are much smaller than the other countries in the sample in terms of geography, population, and economic size.

Other important differences exist among these countries as well. Rural population densities in relation to arable land vary significantly from just 32 and 52 persons per square kilometer in Russia and Brazil, respectively, at one extreme, to 1,409 persons per square kilometer in Egypt, at the other extreme (reflecting the very limited amounts of arable land in a country constituted largely of desert). China (554 persons per square kilometer), India (475), Uganda (453), and Madagascar (438) fall in the middle, followed by Ghana (277) and Senegal (228).

Urbanization levels also vary widely and are roughly correlated with per capita GDP, with Brazil (84 percent) and Russia (73 percent) at one end, and Uganda (12 percent), Madagascar (27 percent), and India (29 percent) at the other. China, Egypt, Ghana, and Senegal fall in the 40 to 50 percent range. Finally, there are notable differences in population growth rates in the sample, with the four Sub-Saharan African countries

Table C.1: Physical, Demographic, and Economic Characteristics of the Case Study Countries, 1990–2003

Country	Area (thousand km ²)	Population (million)	Annual population growth, 1990–2003	Urban population (%)	Rural population density (per km ²)	GDP (US\$ billion)	GDP per capita (US\$)
Brazil	8,459	183.9	1.4	83.6	52	604.0	3,284.4
China	9,327	1,296.2	1.4	40.6	554	1,931.7	1,490.3
Egypt	995	72.6	1.9	42.2	1409	78.8	1,085.4
Ghana	228	21.7	2.3	45.8	277	8.9	410.1
India	2,973	1,079.7	1.7	28.5	475	691.2	640.2
Madagascar	582	18.1	2.9	26.8	438	4.4	243.1
Russia	16,889	143.4	−0.3	73.3	32	432.9	3,018.8
Senegal	193	11.4	2.6	50.3	228	7.8	684.2
Uganda	197	25.3	2.9	12.4	453	6.3	249.0
Subtotal (case study countries)	39,843	2,852.3		38.2		3,766.0	1,320.3
Total (developing countries)	96,6450	5,360.8	1.5	43.3	503	8,395.2	1,566.0
Subtotal (case study countries as a share of developing countries, in percent)	41.2	53.2				44.9	84.3
World	129,663	6,365.0	1.4	48.4	492	41,290.4	6,487.1

(especially Madagascar and Uganda) having rates exceeding 2 percent a year. Population in India is growing at an annual rate of about 1.7 percent, and in Brazil and China at 1.4 percent, while the Russian population is declining in absolute terms, registering a −0.3 annual growth rate between 1990 and 2003.

Recent economic growth rates, productive structures, and rural land use, likewise, vary tremendously. Between 1990 and 2003, for example, GDP in China grew at a rate of 9.6 percent a year, following an average annual growth of 10.3 percent in the 1980s. GDP in India expanded at an average rate of 5.9 percent per year during the most recent period and at 5.7 percent between 1980 and 1990. Rapid growth in both countries continued in 2003–04, at 9.4 percent a year in China and 7.8 percent in India. In contrast, GDP growth in Brazil was only 2.6 percent a year between 1990 and 2003, down slightly from 2.7 percent in the 1980s, and continued at 2.5 percent in 2003–04. Economic growth in Russia was negative (−1.8 percent a year) between 1990 and 2003, but accelerated sharply in 2003–04 (to 7.2

percent a year), owing in good measure to rising international oil and gas prices. The experience among the African countries was mixed, with GDP in Uganda growing at a comparatively high average rate of 6.8 percent annually between 1990 and 2003, while Egypt and Ghana expanded at 4.5 percent and 4.3 percent a year, respectively, and Madagascar and Senegal grew at an annual average of just 2.1 percent. All of these countries, except Madagascar and Uganda, grew more rapidly during the 1980s than in the years after.

Important structural differences likewise characterize the economies of the various sample countries, with industry accounting for 52 percent of GDP in China in 2003, but only 15 percent in Madagascar. Industry also accounted for comparatively low shares of total GDP in Brazil (19 percent), Senegal, and Uganda (21 percent each) in 2003, and relatively higher shares in Russia and Egypt (34 percent each), with India (27 percent) and Ghana (25 percent) falling in between. Agriculture accounted for a high of 36 percent of GDP in Ghana, followed by 32 percent in Uganda, and 29 percent in

Madagascar in 2003, compared with just 5 percent in Russia and 6 percent in Brazil, two countries where the service sector clearly predominates (accounting for 61 percent and 75 percent of GDP, respectively).

Similarly, there were sharp differences in rural land use, with agricultural land prevailing in Ghana (65 percent), Uganda (63 percent), India (61 percent), and China (59 percent)—which, together with Egypt, were also the sample countries that had the highest rural population densities—and forest land representing the largest shares in Brazil (57 percent, mainly due to Amazonia), Russia (48 percent), and Senegal (45 percent). Egypt was at the other extreme in this respect, with nearly 97 percent of its land area being desert and only 3 percent in agricultural use. Reflecting severe climate constraints as well, just 13 percent of Russia’s land area was in agriculture, compared with 47 percent in Madagascar, 42 percent in Senegal, and 31 percent in Brazil. Significant climate differences—particularly water availability—also help to explain the much larger relative shares of cropland under irrigation in Egypt (almost 100 percent), China (35 percent), India (33 percent), and Madagascar (31 percent) as compared with Uganda (0.1 percent), Ghana (0.5 percent), Russia (3.7 percent), Brazil (4.4 percent, mostly in the semiarid northeast), and Senegal (4.8 percent).

National Wealth and Genuine Savings

The recent Bank publication, *Where Is the Wealth of Nations?* (World Bank 2006f), provides useful information on the case study countries. The publication compares countries on two basic variables, “genuine savings” and national wealth, which refer more specifically to the impact of natural resource and environmental degradation on national incomes and natural capital asset stocks, respectively. In relation to national wealth estimates, for example, per capita wealth in 2000 was highest in Brazil (\$86,992), followed by Russia (\$38,709), and Egypt (\$21,879), and lowest in Madagascar (\$5,020), followed by India (\$6,820), China (\$9,387), Senegal (\$10,167), and Ghana (\$10,365).⁴ In terms of the relative importance of natural capital to total wealth, the

case study countries ranked as follows: Russia (44.5 percent of total wealth, primarily in the form of subsoil resources, such as oil, gas, coal, and minerals), Madagascar (33.5 percent), India (28.3 percent), China (23.7 percent, mainly cropland, followed by subsoil assets), Egypt (14.8 percent), Ghana (12.9 percent), Senegal (12.5 percent), and Brazil (7.8 percent).⁵

Rates of “genuine savings” ranged from a high of 25.5 percent in China to a low of –13.4 percent in Russia, with India (12.9 percent), Brazil (7.2 percent), and Ghana (5.6 percent) at the higher end and Madagascar (2.9 percent), Uganda (3.4 percent), and Egypt (3.6 percent) at the lower end.⁶ Finally, with regard to changes in wealth per capita, four countries recorded positive figures (China with a per capita wealth increase of \$200, followed by Brazil at \$64, India at \$16, and Russia at \$4), and four have negative changes in wealth (Madagascar at –\$56, Egypt at –\$45, Senegal at –\$27, and Ghana at –\$18). This clearly suggests that countries on the African continent are not becoming wealthier in per capita terms when natural resource depletion is taken into account. Also, Russia’s barely positive change in per capita wealth may reflect its absolute loss of population, at least as much as its real accumulation of wealth, which, based on a negative genuine savings rate, may not have grown at all in real terms in 2000.

Regional and Global Environmental Significance

Most of the countries are very significant from a global environmental perspective, especially China and India with respect to climate change;⁷ China, India, and Russia with regard to ozone-depleting substances; and Brazil, China, India, Madagascar, and Russia with respect to biodiversity.⁸ Several of these countries participate in major Bank-supported regional or other special environmental programs, such as Egypt in the Mediterranean Technical Assistance Program for the Environment,⁹ the Red Sea and Gulf of Aden Program,¹⁰ and the Nile Basin Initiative; Uganda in the Nile Basin Initiative¹¹ and the Lake Victoria Environmental Management Program;¹² Senegal in the Senegal River Basin Project;¹³ Brazil in the

Guarani Aquifer Project¹⁴ and the G-7 Pilot Program to Conserve the Rainforests; and Russia in the Baltic,¹⁵ Black,¹⁶ and Caspian Seas¹⁷ Environmental Programs.

Country Environmental Indicators

A suggestive cross-country comparison is also provided by the pilot 2006 Environmental Performance Index, compiled by the Yale Center for Environmental Law and Policy and the Center for International Earth Science Information Network at Columbia University. While this index is not universally regarded as a true measure of environmental performance,¹⁸ it nevertheless gives an idea as to how different countries presently rank according to one set of aggregate criteria. The index centers on two broad environmental protection objectives: reducing environmental stresses on human health and promoting ecosystem vitality and sound natural resource management. These two dimensions are gauged using 16 indicators tracked in six policy categories: environmental health,¹⁹ air quality, water resources, productive natural resources, biodiversity and habitat, and sustainable energy. The overall Environmental Performance Index values for all 133 countries surveyed range from a high of 88.0 (New Zealand) to a low of 25.7 (Niger). The IEG case study countries cover a wide range of index scores, with Russia (77.5) and Brazil (77.0) ranked fairly high (32nd and 34th,

respectively)—achieving scores not too different from that for the United States (78.5, ranked 28th)—and India (47.4, ranked 118th), Madagascar (48.5, 116th), Senegal (52.1, 107th), and China (56.2, 94th) at the lower end of the spectrum. Ghana (63.1, 72nd), Uganda (60.8, 78th), and Egypt (57.9, 85th) fall in between. More specific figures also exist for each case study country; they indicate considerable variation across the various dimensions considered (see table C.2).

World Bank Lending Commitments and IFC Exposure

Finally, most of the countries selected have been long-time and significant Bank Group clients. India is, by far, the Bank Group's largest client (although MIGA does not operate there), with 525 World Bank lending and grant operations, involving total commitments of \$66.1 billion through June 2006. China (which only began borrowing in the early 1980s) and Brazil are the second and third largest clients, with 382 Bank operations involving \$42.4 billion in commitments in China, and 395 Bank operations with commitments of \$38.3 billion in Brazil.²⁰ While Russia has only been a member of the Bank Group since 1992, it received Bank commitments totaling \$13.9 billion in 84 operations (many of which were for adjustment) through June 2006. As the data in table C.3 show, Brazil, China, India, and Russia are all countries where

Table C.2: Environmental Performance Index Values for Selected Variables, by Country

Country	Air quality	Water resources	Productive natural resources	Sustainable energy	Biodiversity and habitats	Environmental health
Brazil	64.0	97.7	80.9	80.6	50.5	79.3
China	22.3	49.6	66.2	50.8	68.1	61.0
Egypt	14.8	71.5	38.9	57.2	23.9	74.6
Ghana	87.3	99.4	76.5	83.3	50.1	48.8
India	28.4	67.6	62.1	59.7	39.8	43.8
Madagascar	74.7	88.8	83.3	82.7	39.5	23.3
Russia	55.6	98.0	83.3	15.5	61.0	92.3
Senegal	52.9	52.0	72.1	77.6	67.6	39.9
Uganda	98.0	92.7	93.0	92.4	73.6	31.7

Source: Pilot 2006 Environmental Performance Index.

IFC presently has significant exposure; Egypt is also in the top 15.

Total Bank commitments to date (mostly in the form of IDA credits) have been considerably lower in the African countries, ranging from \$2.7 billion for Senegal and \$3.1 billion for Madagascar, at one end, to \$7.8 billion for Egypt at the other, with Ghana (\$5.3 billion) and Uganda (\$4.7 billion) in between. However, all five of these

countries have had more than 100 total Bank operations, ranging from 102 in Madagascar to 147 in Ghana. Uganda (127), Egypt (135), and Senegal (137) fall in between. The Bank Group therefore has had substantial experience in all of the case study countries over the past four decades. A more detailed breakdown of Bank loans, IDA credits (in all countries except Brazil), and grant funding to the countries in the sample is presented in table C.3.

Table C.3: Total IBRD/IDA Commitments and IFC Exposure, in Selected Countries

Total IBRD/IDA commitments, 1947–2006			Total IFC commitments, current exposure		
Country	Number of loans/credits	Number of grants	Total commitments (US\$ million)	Country	Total commitments (US\$ million)
India	496	30	65,988.8	Brazil	3,714.7
China	328	54	42,398.6	Mexico	2,810.4
Brazil	356	42	38,236.0	India	2,786.4
Mexico	239	35	38,074.5	Argentina	2,704.8
Indonesia	349	32	31,617.1	Russian Federation	2,672.4
Turkey	173	9	25,372.4	Turkey	2,669.9
Argentina	149	19	23,008.4	China	2,198.0
Pakistan	242	18	16,930.3	Indonesia	1,674.9
Korea	121	1	15,697.8	Pakistan	1,271.4
Russian Federation	73	11	13,880.7	Colombia	1,051.7
Colombia	207	19	13,672.3	Thailand	1,040.8
Philippines	206	31	12,296.1	Philippines	1,036.7
Nigeria	135	15	9,154.3	Egypt	922.3
Egypt	124	11	7,814.0	Nigeria	745.8
Peru	120	13	6,684.4		
Ethiopia	112	12	5,573.4		
Ghana	136	11	5,297.3		
Uganda	111	16	4,720.9		
Chile	87	17	4,054.6		
Madagascar	99	3	3,039.3		
Senegal	124	13	2,681.3		

Source: World Bank database.



Brazilian factory. Photo by Jim Pickerell, courtesy of the World Bank Photo Library.

APPENDIX D: SUMMARY OF COUNTRY CASE STUDY FINDINGS: ENVIRONMENTAL PRIORITIES AND BANK SUPPORT

The following matrixes, one for each of the nine case study countries, are intended to provide a summary overview of country environmental priorities¹ and the extent to which the Bank has attempted to address these priorities in its country strategies, analytical and advisory activities (AAA), and other nonlending activities and lending and grant operations since 1990 in each country. The environmental problems considered are: urban air quality, indoor air pollution, water quality, water scarcity/resource management, land degradation/soil erosion, deforestation/forest resource management, biodiversity loss, energy efficiency/alternative energy, greenhouse gas emissions/climate change, ozone depletion, and institutional capacity.

Three types of Bank instruments are considered: Country Assistance Strategies and Country Partnership Strategies (CAS/CPS), ESW and other AAA, and lending (including IDA credits) and grant operations. In the Sub-Saharan African cases, country-prepared (but often Bank-assisted) Poverty Reduction Strategy Papers (PRSPs) are also rated in terms of the relative intensity of Bank attention to each issue in the CAS/CPS and PRSPs, and the relative use of ESW/AAA and loans/grants to help countries address each issue.

Problem severity is ranked as high, medium, low, or nonexistent. In some cases a change is indicated over time, divided into two periods—before and after 2000. These ratings are based on several sources including borrower National Environmental Action Plans (NEAPs) and Bank

Country Environmental Strategy Papers, Bank costs of environmental degradation studies, and Country Environmental Analyses (CEAs)—where they exist—and other relevant Bank ESW, together with the Yale/Columbia country environmental indicators presented in appendix C, and the judgments of the respective IEG country case study team leaders. In one case (India), these have been slightly modified, based on specific comments on the preliminary draft of this report received from Bank management.

The fact that a particular priority for any given country is listed as high, medium, or low, while the relative ratings for the attention it has received in Bank strategies, nonlending activities, and/or lending and grant operations over time differ from the same, should not be interpreted to mean, in any sense, that IEG is indicating that Bank performance was inadequate in this regard. Neither does it reflect an assumption on the part of IEG that the Bank should (or could) have been engaged in all environmental priority areas; the extent of Bank involvement ultimately depends on the countries and national governments themselves.

The intention of the matrixes is to indicate, in a more systematic way for each of the country case studies, where the relative emphasis of Bank strategies, nonlending activities, and financial support has been over time, both across the various themes and in relation to one another. In short, it is intended as a way of “mapping” some of the case study findings more clearly in a country-specific way.

Brazil: Country Matrix

The ratings in the matrix below are shown for (before 2000) / (after 2000). Where a single rating is given, attention at the level indicated was relatively uniform both before and after 2000.

Theme/ instrument	Problem severity	CAS/CPS
Urban air quality	Medium A serious problem in the São Paulo Metro region, Baixada Fluminense, Goiania, Cubatão, and other locations, but average in most other large cities.	Medium Air pollution issues discussed consistently throughout the evaluation period.
Indoor air pollution	Medium A problem in some rural areas, although the extent of the problem is unknown.	Low Not prioritized in the face of other brown issues.
Water quality	Medium A problem in urban areas due to industrial and domestic pollution.	Medium Water pollution figures regularly in CAS documents as an ongoing problem.
Water scarcity/ resource management	Medium Water supplies are highly variable regionally and for urban versus rural areas.	Medium Water resource management emphasized since 2000 in the northeast especially.
Land degradation/ soil erosion	High A serious problem in the Paraguay-Pananá basin; is on the increase in Amazonia.	Medium Discussed in connection with environmental management in Amazonia.
Deforestation/ forest resource management	High Deforestation is an increasingly serious problem in the Amazon.	Medium/high Conservation and sustainable development have been heavily prioritized since 1990.
Biodiversity loss	Medium Not yet a serious problem, but of growing concern as rates of deforestation rise in Amazonia. A serious issue in the Atlantic Rainforest, cerrado, and semiarid interior of the northeast.	Medium/high A growing problem in Amazonia.
Energy efficiency/ alternative energy	Medium Some concern over energy consumption rates in Brazil despite high tariffs.	Low Barely mentioned in view of the seriousness of other issues.
Greenhouse gas emissions/ climate change	High The importance of greenhouse gas emissions from Amazonian deforestation is now recognized.	Low/medium Climate change and carbon-trading are now acknowledged.
Ozone depletion	Low Not treated as a major issue. Many companies have phased out chlorofluorocarbons voluntarily, with no assistance from government or Montreal Protocol.	Absent Not discussed.
Institutional capacity	High A major challenge across all sectors at federal, state, and municipal levels, although this varies by state.	Medium Discussed regularly as a major bottleneck to effective implementation.

Source: IEG.

ESW/AAA	Lending/grants
Medium/low Some analysis of pollution (brown) issues in mid-1990s, but these were not followed up.	Low Analysis in this area was not matched by project lending.
Low Other urban pollution issues were prioritized.	Absent Other urban pollution issues were prioritized.
Medium A few Bank studies address this issue.	Medium Water quality and pollution control projects have been limited.
Medium Bank AAA work has had a formative policy influence on the water resources management (blue) agenda.	High Significant institutional support and water resource management projects have been implemented.
High A major theme in analysis and policy advice around rainforest conservation.	High Closely associated with renewable natural resource (green) agenda's prioritization of forest conservation; and in southern Brazil.
High Several landmark studies have been produced on Amazonia, deforestation, and rainforest policy.	High Green issues have enjoyed a high profile in lending and grant-making since the 1990s.
Medium/high A fundamental issue in connection with analyses of the impacts of deforestation and loss of environmental services.	Medium/high Conservation of biodiversity figures in a host of forest policy-related projects.
Low Relatively little emphasis given.	Low Little weight given in funding.
Low/high Importance of Brazil in climate change and environmental service provision is now firmly on the research and policy agenda.	Low/medium A growing number of projects are addressing carbon trading, climate change, and global implications.
Absent Not discussed.	Absent There was a Montreal Protocol Project during the 1990s and early 2000s, but it closed after a frustrating implementation experience.
High Discussed regularly as a major bottleneck to effective implementation.	Medium Many Bank-funded projects contain important institutional strengthening components.

China Country Matrix

The ratings in the matrix below are shown for (before 2000) / (after 2000). Where a single rating is given, attention at the level indicated was relatively uniform both before and after 2000.

Theme/ instrument	Problem severity	CAS/CPS
Urban air quality	Medium/high Fueled by strong economic growth, urbanization, and industrialization, gradually increased in importance throughout the evaluation period.	High/high Addressed consistently in NEAP (1994), CASs (1995, 1997, 2003), and CPS 2006, with increasing emphasis in later years.
Indoor air pollution	High/high Problem has been consistently high, though not studied as much as outdoor air pollution.	Low/low Indoor air pollution issues receive significantly less attention compared with wider air pollution issues.
Water quality	High/high Fueled by strong economic growth, urbanization, and industrialization, gradually increased in importance throughout the evaluation period.	Medium/high Addressed consistently, especially for urban areas and, to a lesser extent, for coastal zones in NEAP (1994), CASs (1995, 1997, 2003), and CPS (2006).
Water scarcity/ resource management	High/high High-priority issue in most parts of China.	Medium/high Holistic approach to water scarcity improved in CAS 2003 and CPS 2006.
Land degradation/ soil erosion	High/high High-priority issue in most parts of China.	High/high Addressed consistently in CASs 1997, 2003 and CPS 2006, though NEAP (1994) accorded relatively less priority.
Deforestation/ forest resource management	High/high High-priority issue in most parts of China.	High/high Addressed prominently in CASs 1997 and 2003, though NEAP (1994) accorded relatively less priority.
Biodiversity loss	High/high Recognized as high-priority issue in most parts of China, though it has not been studied to the same extent as blue or brown issues.	High/high Addressed prominently in CASs 1997 and 2003.
Energy efficiency/ alternative energy	High/high Recognized as a high-priority issue, especially due to large share of coal use as well as continuing need to adopt clean production technologies.	Medium/high Addressed prominently in CAS 1995 as well as in CPS 2006, with the latter emphasizing policy options. Emphasis on alternative energy increased after 2000.
Greenhouse gas emissions/ climate change	Medium/high Recognized as an issue of growing importance due to increasing energy, and need to adopt clean production mechanisms.	Medium/high Essentially similar to the pattern for energy efficiency.
Ozone depletion	High/high High priority as recognized by the Montreal Protocol.	Medium/high Addressed consistently since CAS 1997.
Institutional capacity	High/high Mismatch between capacity at the national level and adequate decentralization and capacity at state and lower levels.	High/high Strong emphasis since CAS 1995, beginning with the countrywide institutional framework and moving on to the sectoral level, especially water and energy.

Source: IEG.

Note: ALW = China: Air, Land, Water—Environmental Priorities; CES = China Environment Strategy; CUESM = China Urban Environmental Service Management; CWBS = Clear Water Blue Skies; GEF = Global Environment Facility; WRAS = Water Resources Assistance Strategy.

ESW/AAA	Lending/grants
High/high Covered well by CES (1992) and raised to high priority by CWBS (1997).	High/high Together with water pollution, the most frequently occurring objective in projects before and after 2000.
Low/medium Not as prominent as wider air pollution issues. Recent work by Energy Sector Management Assistance Program (2006) puts specific focus on this issue.	Low/low Not prominent throughout the period covered by the evaluation.
Medium/high Addressed increasingly by CES (1992), CUESM (1994), CWBS (1997), with greater emphasis on institutional issues in ALW (2001).	High/high Together with air pollution, the most frequently occurring objective in projects before and after 2000.
Medium/medium Holistic emphasis grew from CES (1992) to CWBS (1997) and addressed more directly by WRAS (2002).	High/medium Strong emphasis before year 2000, but relatively lower project activity after 2000.
Medium/medium Received relatively less attention in ESW before and after 2000.	Medium/medium Together with deforestation, project activity has been very significant throughout, but lower relative to the brown agenda.
Medium/medium Received relatively less attention in ESW before and after 2000.	Medium/medium Together with land degradation/soil erosion, project activity has been very significant throughout, but lower relative to the brown agenda.
Medium/medium Received relatively less attention in ESW before and after 2000.	Low/low The number of projects directly addressing biodiversity issues was low.
High/high Received strong coverage in ESW throughout the evaluation period.	Medium/high Energy efficiency was indirectly covered in several energy projects, and directly by GEF projects promoting boiler efficiency. There were two dedicated renewable energy projects during the evaluation period.
High/high Received strong coverage in ESW throughout the evaluation period.	Medium/high Greenhouse gas emissions were indirectly covered in several energy projects and GEF projects targeting boiler efficiency.
High/high Received significant coverage in ESW throughout the evaluation period.	High/high A series of four ozone phase-out projects provided consistent attention to this area.
High/high Received strong coverage throughout the evaluation period. ALW (2001) put strong emphasis on institutional issues at all levels.	High/high There was one major project dedicated to the national institutional framework for environment, and the vast majority of projects have significant institutional components.

Egypt: Country Matrix

The ratings in the matrix below are shown for (before 2000) / (after 2000). Where a single rating is given, attention at the level indicated was relatively uniform both before and after 2000.

Theme/ instrument	Problem severity	CAS/CPS
Urban air quality	High Serious problem in Cairo, limited data for other cities.	High Mentioned in all CASs.
Indoor air pollution	Low Limited data, not likely to be a severe problem due to limited use of solid fuels.	Absent
Water quality	High A major health threat in both rural and urban areas.	High Mentioned as a priority environmental issue in most CASs.
Water scarcity/ resource management	High Major vulnerability factor for the country, fueled by unsustainable subsidies.	High Mentioned as a priority environmental issue in most CASs.
Land degradation/ soil erosion	High Mainly associated with poor irrigation practices.	Medium Reference in the 2001 CAS as a main problem.
Deforestation/ forest resource management	Not available	Absent
Biodiversity loss	Low Limited mainly to coral reefs and associated tourism pressure.	Absent
Energy efficiency/ alternative energy	Medium Mostly associated with distorted policy incentives.	Medium Some reference to pricing policies, subsidies.
Greenhouse gas emissions/ climate change	High Extreme vulnerability to sea-level rise in the Nile Delta. Emissions not globally significant.	Absent
Ozone depletion	Low Limited data, not major contributor.	Absent
Institutional capacity	High Major legislative gaps, very weak enforcement, weak local capacity, poor coordination.	High All CASs make reference to the need to strengthen capacity.

Source: IEG.

ESW/AAA	Lending/grants
Medium One study associated with pollution abatement project.	High Major focus of both pollution abatement projects.
Absent Very brief reference in above study.	Absent
Medium Limited monitoring and addressed mainly as part of water resource management studies.	Medium Mostly as part of water resource management projects, but not main focus.
High In association with other donors and as part of project preparation.	High Main area of assistance, mostly infrastructure-oriented; regional projects.
Medium In support to rural and agricultural projects; mostly agricultural perspective.	Medium Two rural/regional development projects; mostly agricultural perspective.
Absent	Absent
Low Essentially limited to coastal zone management.	Low Limited to one coastal zone management operation.
High Focus of Bank-funded studies, attention to subsidies.	Medium Part of various infrastructure projects and small GEF grants.
Medium Mostly as part of clean development mechanism and energy-related studies. Nothing on adaptation to climate change.	Low Small portfolio, mostly GEF projects and regional projects.
Absent	Absent
Medium In support to Pollution Abatement Project and ongoing policy dialogue.	Medium Mainly as a component of pollution projects. Absent from sector projects.

Ghana: Country Matrix

The ratings in the matrix below are shown for (before 2000) / (after 2000). Where a single rating is given, attention at the level indicated was relatively uniform both before and after 2000.

Theme/ instrument	Problem severity	CAS/CPS
Urban air quality	Low	Absent
Indoor air pollution	Low	Absent
Water quality	Medium Chronic around Accra and within and downstream of opencast gold mining.	Modest/modest Reduced with the increased focus on governance, private sector development, and budget support instruments.
Water scarcity/ resource management	Medium Mostly in the north as a result of desert encroachment and poor watershed management.	Modest/modest Sidelined with the increased focus on governance, private sector development, and budget support instruments.
Land degradation/ soil erosion	High Primarily the result of the insecurity of traditional land tenure arrangements and rural poverty, which leads to soil resource mining and agricultural extension in forested areas.	High/modest Reduced focus with the increased emphasis on governance, private sector development, and budget-support instruments.
Deforestation/ forest resource management	High Of the 8 million hectares of forest cover at the start of the twentieth century, only about 1.4 million hectares remained by 2000. By the early 1990s, between 50 and 70 percent of the total area of reserve forests in western Ghana had been illegally encroached, primarily for timber extraction, cocoa plantation, or mining activities.	High/high From being a direct concern through lending, it now has reduced attention because direct attempts at sector reform and improved governance have proved elusive. Institutional issues are now being addressed through a greater focus on governance and international trade agreements.
Biodiversity loss	High The result of deforestation and human pressure and the breakdown of traditional authority to regulate access.	Medium/low From direct to indirect: better governance may safeguard forests while measures to reduce rural poverty will reduce need for predation.
Energy efficiency/ alternative energy	High Wood fuel is the major source of energy for domestic use and demand for charcoal is growing fast.	Medium/high Critical priorities include completing the power sector expansion of generating capacity to meet demand growth.
Greenhouse gas emissions/ climate change	Modest As a result of forest conversion to charcoal and its combustion.	Absent/absent
Ozone depletion	Low Not seen as an issue by most stakeholders.	Absent/absent
Institutional capacity	High The major challenge, particularly for environment and forest management. Poor forest governance is a major source of environmental degradation.	High/high This remains the largest challenge.

Source: IEG.

ESW/AAA	Lending/grants
Low/modest Included in the recent CEA.	Absent
Low/modest Included in the recent CEA.	Absent
Modest/modest Included in the recent CEA.	Modest/modest Primarily through extension and upgrading of water supply and sanitation, and components for better mining governance and efficiency.
Modest/high	Low/low
Modest/high Links to poverty alleviation have been highlighted in recent ESW.	Modest/modest Earlier modest lending is now being replaced by budget support. It is expected that the direct involvement of partners and GEF will be facilitated through partnership agreements.
High/high Given increasing prominence in the latest ESW and its impact on longer-term gross domestic product.	High/modest The earlier direct lending has now ceased with the change to budget support. It is expected that the direct involvement of partners and GEF will be facilitated through partnership agreements.
Not available	Modest/low No direct lending, but GEF support facilitated.
Modest/high This is now receiving greater attention both in terms of improving rural access and exploring linkages to regional power grids.	Modest/high Increased emphasis on private sector provision.
Low/low	Absent
Low/low	Absent
High/high	High/high Increased lending in partnership to redress.

India: Country Matrix

The ratings in the matrix below are shown for (before 2000) / (after 2000). Where a single rating is given, attention at the level indicated was relatively uniform both before and after 2000.

Theme/ instrument	Problem severity	CAS/CPS
Urban air quality	High The third most serious problem according to Bank ESW.	Low/medium Increasing attention over time, but not identified as a high priority.
Indoor air pollution	High At least as serious as urban air pollution from a public health standpoint in rural areas.	Absent/medium Similar story to outdoor air pollution.
Water quality	High The most serious problem in terms of (health-related) degradation costs, according to Bank ESW.	Low/medium Not a significant priority, despite findings of Bank ESW.
Water scarcity/ resource management	High Increasingly serious as drawdown increases, but politically very sensitive.	Medium Given some attention, particularly safeguard aspects, especially with Narmada.
Land degradation/ soil erosion	High The second most serious problem, according to Bank ESW.	Low Not identified as a priority, despite Bank ESW.
Deforestation/ forest resource management	Medium	Medium Present more as social than environmental concern.
Biodiversity loss	High	Medium GEF identified as a partner.
Energy efficiency/ alternative energy	Medium	Low Not identified as a priority, but again GEF identified as a partner.
Greenhouse gas emissions/ climate change	High Especially due to heavy coal use.	Low/medium But likely to increase in the future.
Ozone depletion	Medium	Medium Montreal Protocol identified as a partner.
Institutional capacity	Medium Good legal/regulatory frameworks; capacity and political will vary by state.	Medium Some attention following the NEAP.

Source: IEG.

Note: Based on Yale/Columbia index values, NEAP, CEAs, and Bank costs of environmental degradation estimates and other ESW.

ESW/AAA	Lending/grants
Low/high Mainly with a focus on health impacts and what others have done.	Absent Although a concern in selected industries (not necessarily in urban areas) in 1990s.
Absent/high With a focus on both health and poverty impacts—several Energy Sector Management Assistance Program studies.	Absent
Low/medium Somewhat more attention in recent years because of health impacts.	Low Except in Mumbai and selected industries in 1990s, but had been a greater focus of lending in the 1970s and 1980s.
Medium/high Strong focus of Bank ESW, especially in recent years.	Medium But only within states, whereas most serious problems are interstate (e.g., Narmada, Ganges) and also in multiple states through watershed management programs.
Absent	Medium In watershed/sodic lands projects.
Medium Forest management is a consistent ESW focus.	Medium Community forestry projects.
Absent	Medium Both through IDA and GEF projects.
Absent	Low Small GEF renewable energy projects were largely unsuccessful.
Low Some workshop activity related to clean coal technologies. AAA in process addressing low carbon growth, vulnerability, and adaptation.	Medium Some lending in hydropower and transmission; modest portfolio in carbon finance; little attention to adaptation.
Absent	High Through a series of Montreal Protocol projects.
Medium Focus declined in early 2000s but renewed attention in most recent ESW and CEAs.	Medium/low One specific, not very successful, project; no new lending after the late 1990s. Two lending projects under preparation for industrial pollution and coastal zone management.

Madagascar: Country Matrix

The ratings in the matrix below are shown for (before 2000) / (after 2000). Where a single rating is given, attention at the level indicated was relatively uniform both before and after 2000.

Theme/ instrument	Problem severity	CAS/CPS
Urban air quality	Low	Not available
Indoor air pollution	Low	Not available
Water quality	Not available	Not available
Water scarcity/ resource management	Medium	Medium Lack of irrigation.
Land degradation/ soil erosion	Medium	Medium Lack of irrigation.
Deforestation/ forest resource management	High	High Maintenance of the level of forest and reforestation is a strategic goal of the CAS.
Biodiversity loss	High	Not available
Energy efficiency/ alternative energy	Low/medium	Not available
Greenhouse gas emissions/ climate change	Low	Not available
Ozone depletion	Not available	Not available
Institutional capacity	High	High Low capacity of the Ministry of Environment.

Source: IEG.

Note: CAS/CPS: from the 2007–11 CAS; PRSP: from the 2005 PRSP progress report.

PRSP	ESW/AAA	Lending/grants
Not available	Low One urban sector review (1991).	Not available
Not available	Not available	Low Pollution was one component of Tana Plain Development project in 1990.
Not available	Not available	Not available
Medium See subprogram environment, water, and forest.	Medium/high Rural and environment sector review.	Medium Small-Scale Rural Water Supply and Sanitation Project in 1998 and Irrigation II in 1995.
Not available	Low ESW done on land titling and land property rights but nothing on degradation or soil erosion.	Low/medium
High See priority (ii) on protected areas and conservation sites and subprogram on environment, water, and forest.	Medium Rural and environment sector review.	Medium Forest management has been neglected, more attention to reducing rates of deforestation through assistance to protected area systems.
High Priority for protected areas and conservation sites.	Medium Rural and environment sector review (2003)	High Addressed through Environmental Projects 1, 2, and 3.
Medium Energy subprogram.	Medium Issues and options in the energy sector ESW done in 1987 and Energy Sector Management Assistance Program study on wood fuels.	Low One energy sector development project in 1996 and an oil supplemental credit in 2000.
Not available	Not available	Low Environmental Project 3 is the only project with a climate change component.
Not available	Not available	Not available
High See priority (i) on good governance and accountability.	Not available	High Ten projects, out of 28, have institutional components.

Russia: Country Matrix

The ratings in the matrix below are shown for (before 2000) / (after 2000). Where a single rating is given, attention at the level indicated was relatively uniform both before and after 2000.

Theme/ instrument	Problem severity	CAS
Urban air quality	Very high Particularly in industrial areas, near mines, smelters, steam generators, and power plants.	Medium CAS 1992 foresees environmental improvements from the closing of inefficient industries. CAS 1999 and 2002 target issue.
Indoor air pollution	Low This is apparently not a serious issue in Russia, except perhaps for the question of secondary smoke from cigarettes.	Absent Not discussed.
Water quality	High Many rivers, lakes, and estuaries in Russia are polluted by fertilizer and pesticide runoff, industrial effluents, and oil spills.	Medium CAS 1999–2001 discusses water-quality data, mentions flood risks. CASs 1999, 2002, and 2006 target issue.
Water scarcity/ resource management	Medium Water is not generally scarce in Russia, but good-quality water is. Many watersheds lack comprehensive management plans.	Low Mentioned in several CASs but not a major focus.
Land degradation/ soil erosion	Medium Studies indicate that erosion is an extensive problem in Russian agriculture. Industrial waste disposal, oil spills, and radiation from nuclear facilities have degraded many large areas.	Low CAS 1999–2001 presented detailed soil data, but no lending is recommended.
Deforestation/ forest resource management	Medium Enforcement of forestry regulations and effective management of forest resources have declined since 1991. Siberian forests are being logged to supply East Asian markets.	Low CAS 1993 targets unsustainable logging, especially in Taiga forest. CAS 1999 mentions issue, and CAS 2001 reinforces the issue.
Biodiversity loss	Medium Many of Russia's biomes are threatened by logging, mining, oil spills, and the like. Effective protected area management has declined since 1991. Less than 3 percent of national territory is protected.	Low The issue is mentioned in some CASs.
Energy efficiency/ alternative energy	High Russia has high energy loss from oil and gas fields, pipelines, and industrial plants.	Medium CAS 1993 identifies need for rehab of oil/gas production and pipelines. CAS 1993 identifies need for regulatory reform.
Greenhouse gas emissions/ climate change	High	Medium While not targeting greenhouse gases, CAS 1993 targets measures that would result in lower emissions. CAS 2003 focuses on Kyoto as an opportunity to upgrade industrial infrastructure.
Ozone depletion	Low The Russian ozone program is regarded as a model of success. Most ozone-depleting substances have been phased out in industry and consumption.	Low
Institutional capacity	Medium	Medium CAS 1995 identifies need for institution building.

Source: IEG.

Note: The Russia Ozone Abatement Program is regarded as one of the most successful. It succeeded in virtually eliminating ozone-depleting substances in production and consumption.

ESW/AAA	Lending/grants
High The problem has received attention in sector work related to energy efficiency, but has not merited specific attention.	Low Bank lending contributed indirectly to improving air quality in selected areas by increasing the efficiency of district heating plants, closing inefficient coal mines, and reducing losses in oil and gas pipelines.
Absent Not discussed.	Absent Not discussed.
Low Discussed in environmental management ESW 2004.	Medium Several Bank loans were aimed at improving water supply and the quality of water in supply systems.
High	Low Relatively little investment in watershed management, storage, flood control, and the like.
Absent Not mentioned in ESW other than general references.	Absent No lending in this area.
Medium ESW (1996 and 1997) diagnosed the ills of Russian forestry and recommended strengthening policy and regulatory frameworks.	Medium The Bank made one substantial forestry loan that is still under implementation.
Medium A study in 1997 laid out the basis for the GEF Biodiversity Project.	Medium GEF Biodiversity Project had mixed success, mainly in the area of protected-area conservation. A multicountry study (1996) recommended decentralization, local participation, and better incentive structure.
High A 1993 study on structural reform emphasized the need for allowing mining and other industries to reduce inefficient or environmentally damaging practices. Regional ESW (2000) focused on inefficiencies in district heating schemes.	Medium Several large loans for reducing losses in oil and gas fields, rehabilitating parts of the pipeline network, and increasing efficiency in district heating plants. The Bank also contributed to the rationalization of the coal industry and the privatization of coal mining.
Medium ESW (2004) concludes that meeting Kyoto targets will not necessarily reduce growth.	Medium Russia has only recently acceded to Kyoto Protocol. No grants from Bank Group yet.
Absent No specific ESW.	High The Bank was the key donor among several that contributed over US\$200 million to the phase-out of the production and consumption of ozone-depleting substances.
Medium Several studies identified weaknesses in the regulatory system.	Medium The Bank's main thrust in this area was the Environmental Management Project, which has been very slow in disbursing, with mixed success.

Senegal: Country Matrix

The ratings in the matrix below are shown for (before 2000) / (after 2000). Where a single rating is given, attention at the level indicated was relatively uniform both before and after 2000.

Theme/ instrument	Problem severity	CAS
Urban air quality	Medium/high	Medium CAS refers to the Urban Mobility Project, which deals directly with urban air quality by having established an air-quality monitoring center.
Indoor air pollution	Not available	Not available
Water quality	High Dams and the development of irrigated agriculture in Senegal River valley threaten the lagoon water quality.	Low
Water scarcity/ resource management	High Construction of the Diama Dam, changes in the lake's water quality and ecosystem, together with increased use, triggered a need for improved management.	Medium
Land degradation/ soil erosion	High	Low
Deforestation/ forest resource management	High There is a high correlation between the need for enhanced sustainable forest management and poverty in Senegal.	Low
Biodiversity loss	High	Medium Coastal and riverine environment are both only rated as "moderate" priorities, but the Integrated Marine and Coastal Resources Management Project supports a framework for protected areas and biodiversity management.
Energy efficiency/ alternative energy	High	Low
Greenhouse gas emissions/ climate change	Not available	Not available
Ozone depletion	Not available	Not available
Institutional capacity	Low	Not available

Source: IEG.

Note: AAA = analytical and advisory activities; CAS = Country Assistance Strategy; CESP = Country Environmental Strategy Paper; ESW = economic and sector work; PRSC = Poverty Reduction Strategy Credit; PRSP = Poverty Reduction Strategy Paper.

PRSP/PRSC	ESW/AAA	Lending/grants
High PRSC II recognizes pollution of poorly regulated industries, mainly around Dakar, as one of Senegal's main environmental threats.	Low A World Bank study found that motorized transport was responsible for over 90 percent of particulate matter and petroleum fuel emissions in Dakar.	Medium The Clean Air Initiative in Sub-Saharan African Cities has improved air quality management in Senegal, mainly through the phase-out of leaded gasoline. Also, IFC funds will install a new state-of-the-art environment-friendly cement production line.
Not available	Not available	Not available
Low	Not available	Not available
Medium	Low See ESW associated with the Long-Term Water Sector Project, and the discussion of managed floods and other water resource management issues in the 1994 CESP.	Medium Senegal River Basin Water and Environmental Management Project (GEF 2003); the Long-Term Water Sector Project.
High PRSC II identifies soil degradation as the first environmental challenge in Senegal.	Not available	Not available
Low	High	High The Sustainable and Participatory Energy Management Project was highly relevant but too small in scope and not scaled up in a second phase.
High One of PRSC II main environmental threats.	Low	Low Integrated Marine and Coastal Resources Management Project only.
Low	Medium See World Bank 2006a.	Medium Sustainable Participatory Energy Management Project; Electricity Services for Rural Areas Project.
Not available	Not available	Not available
Not available	Not available	Not available
Not available	Not available	Low One Institutional Development Fund grant: a US\$200,000 grant for the Superior Council for the Environment, charged with overseeing the National Environmental Action Plan process, which has since been disbanded.

Uganda: Country Matrix

The ratings in the matrix below are shown for (before 2000) / (after 2000). Where a single rating is given, attention at the level indicated was relatively uniform both before and after 2000.

Theme/ instrument	Problem severity	CAS/CPS
Urban air quality	Medium Moderate automobile and industrial pollution in Kampala but not nationwide.	Low Air pollution mentioned but not high priority.
Indoor air pollution	Medium A problem in poorer rural areas, but not well documented.	Low Not priority for 1990-2002 CAS.
Water quality	Medium Problem in urban areas due to industrial and domestic pollution. Some agricultural runoff issues in rural areas and lakeside.	Low Urban water quality issues not highlighted in strategies up to 2000. Water supply is primary focus.
Water scarcity/ resource management	Medium Problem is high in northern Uganda, but less so in other parts of the country.	Medium CAS 1995–2004 priority to rural water supply.
Land degradation/ soil erosion	High Serious issue in the north. Poor agricultural practices elsewhere.	High CAS prior to 2002 focused on natural resource management and land degradation.
Deforestation/ forest resource management	High Rates are high in unprotected areas and management of forests not fully effective.	High Focus of CAS support for NEAP and Uganda Wildlife Authority based on priority improving natural resource management and arresting deforestation.
Biodiversity loss	High Persistent loss in protected areas slowing but still high.	High Biodiversity loss emphasis in NEAP cited consistently in CAS 1995–2005.
Energy efficiency/ alternative energy	Medium Increasingly important as country continues to grow faster than hydropower investments.	Low Bank strategies of 1990–2002 mention but do not highlight.
Greenhouse gas emissions/ climate change	Medium Deforestation is the driver, more than industrial or automobile emissions.	Low Passing mention in early 1995–2002 CAS as part of natural resource management/deforestation discussion.
Ozone depletion	Low Not regarded as notable problem at country level.	Absent Not identified as an issue.
Institutional capacity	High Environment and resources management institutions face financial and staffing constraints at national and local levels.	High Focus of environment in CAS 1995–2004 on building capacity for natural resource/environment management.

Source: IEG.

Note: EMCB = Economic Managing Capacity Building; LVEMP = Lake Victoria Environmental Management Projects; PAMSU = Protected Area Management and Sustainable Use.

PRSP	ESW/AAA	Lending/grants
Low Issue of air pollution mentioned, but is not focus of Poverty Reduction Strategies in 2002–07.	Low Not specific subject of analysis.	Low No specific lending. PRSC focus primarily rural, but would allow for expenditures for public health.
Low Issue mentioned as poverty related, but not highlighted as serious.	Absent No specific analysis carried out on urban or rural issue.	Low Addressed indirectly through PRSC funding for rural development, but not specific focus of lending.
Low PRSP approach: water quality in context of rural/urban water supply. PRSP approach: primarily rural focus.	Low Discussed in water supply ESW, but coverage is primary focus.	Low Early rural pre-2000 water supply lending and included and eligible PRSC.
Medium PRSP 2002 onward: focus on rural including water supply and resource management.	Medium ESW underlying water supply projects.	Medium Lending for water supply; natural resources management through PRSC.
High PRSP underscores importance of reversing land degradation and erosion to promote rural development and increasing agricultural incomes.	Medium Not extensive, but some analysis of relationship of soil nutrient depletion and crop productivity in 2005. Planning land management support.	Medium Primarily indirect support through PRSC.
High PRSP link to deforestation and natural resources management related to rural development, not conservation priority.	Low Little direct analytical work on natural resources management/forestry; carried out through other research centers.	Low Lending 1995–2006 for National Environment Management Authority, PAMSU/GEF/Bwindi grant primary source; no major forestry initiative.
Low Loss of biodiversity barely mentioned in PRSP as central to increasing rural incomes.	Low Limited to preparatory work for PAMSU/GEF/Bwindi pending land management initiatives.	Medium Early 1995–2004 support for GEF/Bwindi; PAMSU; Lake Victoria; not highlighted in PRSC.
Low Little emphasis in context of poverty reduction.	Medium Treated in context of power sector reform and analysis of options for rural sector grid.	Low No lending specifically for this; GEF/United Nations Development Programme rural solar project.
Low Environmental challenge linked to soil erosion and desertification in the north; not prioritized.	Absent No direct analytical work.	Absent No direct lending.
Absent Not identified as issue.	Absent No analytical work on theme.	Absent No direct or indirect lending/grants.
Medium PRSP identifies as central issue across-the-board, including agriculture/rural development/environment sector.	Medium Preparatory work for EMCB/PAMSU/Lake Victoria in pending sector environmental assessment and local natural resources management	High Centerpiece of Bank support for environment in Uganda: EMCB/ PAMSU/LVEMP until in 2006, mentioned in PRSC as direct Bank lending, new initiatives programmed for sectorwide approaches.



Power plant in Egypt. Photo courtesy of Jouni Martti Eerikainen.

APPENDIX E: WORLD BANK ENVIRONMENTAL PROJECTS ASSESSED FOR THIS EVALUATION

In addition to the country case studies, this evaluation included performance assessments for completed environment projects in Brazil, China, Ghana, India, Madagascar, Russia, and Uganda. Earlier IEG Project Performance Assessment Reports (PPARs) and Implementation Completion Report reviews for environmental and natural resource management (ENRM) projects in these countries, together with Egypt and Senegal, were also used as important inputs for the case studies and the overall evaluation. The new Project Performance Assessment Reports undertaken during this evaluation were:

- Brazil—Water Quality and Pollution Control Project (São Paulo and Paraná)
- Brazil—Espírito Santo Water Coastal Pollution Management Project
- China—Environmental Technical Assistance Project
- China—Second Loess Plateau Watershed Rehabilitation Project
- China—Nature Reserves Management Project (GEF)
- China—Tarim Basin II Project
- China—Xiaolangdi Multipurpose Project
- China—Second Xiaolangdi Multipurpose Project
- Ghana—Coastal Wetlands Management Project (GEF)
- Ghana—Environmental Resources Management Project
- Ghana—Natural Resource Management Project
- India—Ecodevelopment Project (International Development Association/GEF)
- India—Environmental Management Capacity Building Technical Assistance Project
- India—Industrial Pollution Control Project
- India—Industrial Pollution Prevention Project
- Madagascar—Environment Support Program, Phase II (International Development Association/GEF)
- Russia—Biodiversity Conservation Project (GEF)
- Uganda—Bwindi Impenetrable National Park and Mgahinga Gorilla National Park Conservation Project (GEF)
- Uganda—Environmental Management and Capacity Building Project.



Coal mines outside Samaca, Colombia. Photo by Scott Wallace, courtesy of the World Bank Photo Library.

APPENDIX F: ENVIRONMENTAL PORTFOLIO REVIEW

The World Bank's ENRM portfolio is composed of all projects approved between fiscal 1990 and 2007, in which the task team leaders indicated that the project at least partially contained one or more of the following subthemes:

- (1) Biodiversity
- (2) Climate change
- (3) Environmental policies and institutions
- (4) Land administration¹ and management
- (5) Pollution management and environmental health
- (6) Water resources management
- (7) Other environment and natural resources management.

As a cross-cutting theme (and not a sector like education, health, and transport), ENRM projects are “mapped” to many different sector boards, including one specifically for environment. This review considers both the broader ENRM and much smaller environment portfolios. It should be noted at the outset that different Regions map projects to sector boards in different ways. As a result, similar projects can be mapped to different sector boards, depending on the originating Region.

ENRM Portfolio Characteristics

From fiscal 1990 through 2007, a Bank database recorded 6,792 projects with various sources of funding (loans, credits, grants, and the like). Of this number, 2,401 are included in the ENRM portfolio, representing 35.4 percent of the total; 563 were in the environment portfolio,² representing 8.3 percent of the total and 23.4 percent of the ENRM subtotal. Therefore, less than one-quarter of all ENRM projects were mapped to the Environment Sector Board.

Both the environment and ENRM portfolios are comparatively younger—that is, they had higher shares of all projects still under implementation (46 percent and 41 percent, respectively) at the end of fiscal 2007—than that for the Bank as a whole (36 percent). This reflects the fact that Bank financial support for ENRM purposes is comparatively more recent than that for many other themes or sectors. This is especially the case for grant operations for global environmental purposes and carbon finance projects.

Commitments for projects in the ENRM portfolio approved from fiscal 1990 through 2007 were \$140.1 billion, representing 34.9 percent of the total in all Bank projects during this period. The vast majority of ENRM commitments were in the form of International Bank for Reconstruction and Development (IBRD) loans and International Development Association (IDA) credits (95.3 percent), followed by regular GEF grants (1.8 percent), with Bank guarantees, carbon finance projects, Montreal Protocol operations, and other small grant projects accounting for the rest. Commitments in Bank-administered GEF projects between the early 1990s and the end of fiscal 2007 were estimated to be \$4 billion, while those for carbon-offset operations were about \$1.1 billion—dominated by a single \$931 million operation in China, approved in fiscal 2006—and those for Montreal Protocol projects were \$500 million.

The share of ENRM commitments was greatest, by far, in East Asia and Pacific at 28.3 percent, followed by Latin America and the Caribbean at 19.8 percent, and South Asia at 16.9 percent. Shares were lowest in the Middle East and North Africa at 6.7 percent of the total, followed by Europe and Central Asia at 13.3 percent, and Sub-Saharan Africa at 15 percent.

The East Asia and Pacific Region (mainly China) accounted for 88.5 percent of all commitments for carbon offsets through fiscal 2007, while Latin America and the Caribbean had just 7.4 percent and Europe and Central Asia had the remainder. In contrast, Latin America and the Caribbean (with 25.4 percent) had a slightly larger share of total commitments in regular GEF projects than East Asia and Pacific (24.7 percent), followed by Africa (20.6 percent), Europe and Central Asia (18.8 percent), and, at a considerable distance, the Middle East and North Africa (5.7 percent) and South Asia (3.7 percent). More than half of all Montreal Protocol commitments, in turn, were in East Asia and Pacific (53.4 percent)—again, most notably in China—followed by South Asia (34.8 percent)—mainly in India—and Latin America and the Caribbean (9.6 percent).

ENRM operations were mapped to 16 different sector boards, but were mainly concentrated in 6 (see table F.1 below), which collectively accounted for 86.7 percent of all such projects and 87.5 percent of total commitments in these operations. This wide distribution of ENRM projects across a number of sector boards suggests that considerable mainstreaming of environment-related investments—a major objective of both the 2001 Environment Strategy and the earlier fourfold agenda of the 1990s—has,

in fact, occurred over the past two decades. ENRM projects mapped to the Environment Sector Board, however, are much smaller in terms of commitments (\$20.3 million), on average, than those mapped to other sector boards (\$70 million).

ENRM operations were both investment and policy-based (including Adjustment Loans and Poverty Reduction Support Credits), with investments accounting for roughly 90 percent of total commitments. Altogether, 132 policy-based operations were coded by their task team leaders as being at least in part ENRM in nature. The bulk of these were in Africa (43.9 percent), followed by Latin America and the Caribbean (22 percent) and Europe and Central Asia (14.4 percent),³ and included a number of Poverty Reduction Support Credits—more specifically, 15 in Africa, 3 each in East Asia and Pacific and Latin America and the Caribbean, 2 in Europe and Central Asia, and 1 in South Asia (Sri Lanka).⁴

Only a small number of all Development Policy Loans that reportedly had some ENRM content were primarily for environmental purposes. These were mainly in Latin America and the Caribbean (one for Brazil and two each for Colombia and Mexico). Only eight such operations (6.1 percent) were mapped to the Environment Sector Board,

Table F.1: Distribution of ENRM Projects by Sector Board, Fiscal 1990–2007

Sector Board	ENRM projects	Share of total projects (percent)	Share of total commitments (percent)
Environment	563	23.4	8.2
Agriculture & Rural Development	531	22.1	21.9
Energy and Mining	362	15.1	20.1
Water Supply & Sanitation	351	14.6	12.5
Urban Development	225	9.4	12.1
Transport	150	6.2	12.7
Others ^a	219	9.1	12.5
Total	2,401	100.0	100.0

Source: World Bank.

a. Among the remaining 339 ENRM operations (13.3 percent), the largest number were mapped to the Social Protection Board (85), followed by the Private Sector Development (51), Economic Policy (46), Public Sector (42), Social Development (24), and Health (21) Sector Boards. The remainder was mapped to the Financial Sector (17), Education (16), Poverty Reduction (15), and Global Information/Communications Technology (1) Sector Boards.

indicating that relatively little use has been made to date of policy-based loans and credits for the purpose of advancing ENRM objectives. Most of the operations that have attempted to do so have been quite recent, with six of the operations mapped to the Environment Sector Board being approved between fiscal 2005 and 2007, and all of them since fiscal 2000.

Environment Portfolio Characteristics

ENRM projects mapped to the Environment sector board differed from those mapped to other sector boards in that IBRD/IDA operations accounted for just 28.4 percent of the total. Regular and mid-size GEF grants represented a much larger share, 39.8 percent, while very small Institutional Development Fund (IDF) grants constituted 14.9 percent and Montreal Protocol, carbon offset, and Brazil Rainforest Trust Fund operations accounted for 5.5 percent, 5.2 percent, and 1.4 percent, respectively. Taken together, GEF, Montreal Protocol, carbon finance, and Rainforest projects represent more than half of all operations mapped to the Environment Sector Board, a share that rises to nearly two-thirds when IDF grants are excluded. The preponderance of grant-funded projects also explains why average commitments are much lower for ENRM operations mapped to environment than those mapped to other sector boards.⁵

The Regional share of total (including IDF and GEF mid-size) operations mapped to the Environment Sector Board was highest in Latin America and the Caribbean (35.7 percent) and lowest in South Asia (5 percent), with Europe and Central Asia (21 percent), Africa (20.4 percent), East Asia and Pacific (12.1 percent), and the Middle East and North Africa (5.7 percent) falling in between. Latin America and the Caribbean's relative shares of carbon-offset projects (62.1 percent) and GEF mid-size grants (45.3 percent) were particularly striking, but Latin America and the Caribbean also led the Bank both in IBRD/IDA operations mapped to the Environment Sector Board (35 percent, followed by Africa with 25 percent) and regular GEF projects (30 percent, again followed by Africa with 28.8 percent, then Europe and Central Asia with 26.3 percent). It should be recalled, however, that many

of the same types of IBRD/IDA operations mapped to the Environment Sector Board by the Latin America and the Caribbean Region were mapped to different sector boards by other Regions, especially East Asia and Pacific and South Asia.⁶

Latin America and the Caribbean's predominance in the environment portfolio is even higher in terms of commitments, where it accounted for 41 percent of the total from fiscal 1990 through 2007. East Asia and Pacific was second, with 23.4 percent.⁷ These two Regions were followed at a distance by South Asia (12.4 percent of total commitments), Africa (10.7 percent), Europe and Central Asia (8.9 percent), and the Middle East and North Africa (3.3 percent). Latin America and the Caribbean and East Asia and Pacific alone accounted for nearly two-thirds of total commitments in projects mapped to the Environment Sector Board.

ENRM Portfolio Performance

Outcome ratings for all closed (and evaluated) ENRM and environment projects approved between fiscal 1990 and 2007 can likewise be compared. They can also be broken down by lending/grant source (IBRD/IDA, GEF, Montreal Protocol, and so on), Sector board mapping,⁸ Region, and subtheme (see the final section of this appendix). Altogether, there were 1,014 such projects, of which 89.3 percent were financed with IBRD and/or IDA funds, 7.5 percent with GEF resources, and the rest with funds from other sources.⁹ In Regional terms, Africa, Latin America and the Caribbean, and East Asia and Pacific together accounted for more than three-fifths of the total.¹⁰

Overall, 75.6 percent of all evaluated ENRM projects were rated satisfactory on completion. The average for all IBRD/IDA-financed ENRM projects (74.9 percent satisfactory) was slightly below that for all ENRM operations, compared with 100 percent satisfactory for the handful of Montreal Protocol and Brazil Rainforest Pilot Projects that were rated.¹¹ Closed full-sized GEF projects also had an above-average success rate (82.9 percent). Therefore, operations devoted to global environmental improvement have performed better in

terms of overall outcome ratings, on average, than the ENRM portfolio as a whole.

The same percentage of satisfactory projects (75.6 percent) was found for the much larger universe of all completed and evaluated Bank operations approved from fiscal 1990 through 2007 (2,815). However, there were some fairly minor differences among these projects when considered according to their environmental assessment classification, with Category A projects performing slightly less well, on average (74.5 percent satisfactory), than Category B (75.5 percent) and Category C operations (75.8 percent).¹²

In terms of sector board mapping, the highest share of satisfactory ENRM projects was recorded by the Transport Sector Board (89.9 percent), followed by those mapped to the Rural Development (76.1 percent), Energy (74.2 percent), Environment (74 percent), other (74.1 percent), and the Urban Development and Water Sector Boards (73 percent each). With the sole exception of operations mapped to the Transport Sector Board, performance of ENRM projects mapped to various sector boards was close to the average for the portfolio as a whole (and to one another).

There is considerably greater variation across Regions, however, with the highest share of satisfactory projects in Europe and Central Asia (84.6 percent) and the lowest in Africa (66.8 percent). Two other Regions—Latin America and the Caribbean (with 79.8 percent) and East Asia and Pacific (78.1 percent)—were also above the average, while the Middle East and North Africa (72 percent) and South Asia (70.8 percent) were not.¹³ These figures are consistent with project performance differences across Regions more generally.

Finally, even though relatively few operations approved after fiscal 1998 had been evaluated by the end of fiscal 2007, and there are some notable year-to-year variations, there appears to be a clearly improving trend in ENRM project performance over time, which is consistent with the trend for Bank operations as a whole. The

lowest average outcome ratings were recorded for projects approved in fiscal 1990 (56.3 percent satisfactory), 1991 (69.6 percent), and 1994 (71.3 percent). ENRM project performance was much better, on average, for those approved in the latter part of the 1990s and first half of the 2000s than in the early to mid-1990s.

Environment Portfolio Performance

The above ratings do not necessarily convey much about project environmental performance, especially for infrastructure and many rural development operations. Unfortunately, as noted in appendix A, project environmental performance is not systematically evaluated at the time of completion. However, there is more likely to be a close association between overall project performance and the environment for the approximately 15 percent of all completed ENRM operations mapped to the Environment Sector Board. But even here there may be exceptions, because actual project environmental impacts are frequently not assessed in Bank Implementation Completion Reports.

Overall performance of completed environment projects differs both by funding source and Region. By funding source, 100 percent of the small numbers of Montreal Protocol (9), Rainforest Pilot Program (1), and special financing (1) projects were rated satisfactory, as were 81.3 percent of all regular GEF projects (48). However, just 68.4 percent of those financed with IBRD/IDA resources (95) were rated satisfactory, compared with 74.9 percent for all IBRD/IDA-funded projects in the ENRM portfolio as a whole.

Regional performance differences are also noteworthy, with Europe and Central Asia having the highest percentage of satisfactory projects (88.9 percent) and Africa the lowest (60.7 percent), thereby mirroring the situation with the ENRM portfolio overall. However, there were differences in this regard for the other Regions, with South Asia (86.7 percent satisfactory) and the Middle East and North Africa (81.8 percent) performing comparatively better when environment and ENRM project outcomes are compared, and Latin America and the Caribbean

(69.4 percent) and East Asia and Pacific (66.7 percent) doing less well.¹⁴ There were also performance differences among the case study countries.¹⁵

The vast majority (80 percent) of unsatisfactory projects mapped to the Environment Sector Board were approved between fiscal 1992 and 1997, with the largest number (7) approved in fiscal 1994.¹⁶ Among all unsatisfactory environment projects, the highest shares were in Latin America and the Caribbean (38.5 percent) and Africa (28.2 percent), followed by East Asia and Pacific (12.8 percent) and Europe and Central Asia (10.3 percent). More than three-quarters (31) were IBRD or IDA operations and the remainder (9), including three of the five unsatisfactory projects approved after fiscal 1997, were GEF-financed. Many of the unsatisfactory projects, especially in Latin America and the Caribbean and Africa, were institutional development operations for environmental management, although some involved natural resource management and biodiversity conservation. Country political and economic factors affected performance in a number of these operations.¹⁷

Finally, as with the ENRM portfolio as a whole, environment project performance was better among those approved in the late 1990s and (thus far) in the first half of the present decade, than those approved in the first half of the 1990s; the worst years were fiscal 1992 (when just 45.5 percent of the total were rated satisfactory) and

1994 (61.1 percent). As was the case for the larger ENRM portfolio, GEF and Montreal Protocol projects performed better than IBRD/IDA operations throughout the period.¹⁸ The improving trend over time suggests that the Bank has learned from its ENRM and environment project experience, which is reflected in the discontinuation (for the most part) of design approaches that have proven less successful.

Performance by ENRM Subtheme

In accordance with the Bank's current coding system, each project can have from one to five subthemes, which, in turn, fall under broader single or multiple themes. Altogether, there are 11 themes¹⁹ and 70 subthemes, including the 7 for ENRM identified at the beginning of this appendix. Among all projects approved by the Bank between fiscal 1990 and 2007, ENRM subthemes were indicated 3,051 times in a total of 2,281 projects (excluding IDF grants). Many projects, therefore, had two or more ENRM subthemes.

Table F.2 shows the relative importance of the various ENRM subthemes, with the first subtheme generally receiving the highest weight, followed by the second subtheme, the third, and so on. In some cases, however, more than one subtheme was given the same weight, in which case the relative ranking is somewhat arbitrary. This information nonetheless gives a fairly good picture of the relative importance of the various subthemes within the ENRM portfolio.

**Table F.2: Thematic Composition of Bank ENRM Projects, Fiscal 1990–2007
(number of projects)**

Subtheme	First	Second	Third	Fourth	Fifth	Total
Biodiversity conservation	220	73	36	19	21	369
Climate change	144	50	40	46	30	310
Environmental policy and institutions	125	255	129	104	50	663
Land administration and management	101	87	62	70	50	370
Pollution management/environmental health	179	203	156	83	54	675
Water resource management	122	129	106	72	30	459
Other ENRM	59	51	44	37	14	205
Total	950	848	573	431	249	3,051

Source: World Bank database.

In terms of total mentions, the most significant subthemes were pollution management/ environmental health (22.1 percent) and environmental policy and institutions (21.7 percent), followed by water resource management (15 percent), land administration and management, and biodiversity conservation (12.1 percent each), climate change (10.2 percent), and other ENRM (6.7 percent). However, among projects whose highest-ranking subtheme was ENRM-related, the largest shares were in projects involving biodiversity conservation (23.2 percent), pollution management/ environmental health (18.8 percent), and climate change (15.2 percent).²⁰

Examined another way, nearly three-fifths (59.6 percent) of all ENRM projects having biodiversity conservation as a subtheme identified it as the primary one, the same being true for 46.5 percent of all projects with climate change as a subtheme. These subsets largely consisted of GEF and carbon-offset operations, respectively, while those under the other five ENRM subthemes (that is, projects not focused primarily on global environmental concerns) were largely funded by IBRD loans or IDA credits.²¹ In contrast with the biodiversity and climate change subsets, many of those involving environmental policy and institutions, pollution management/environmental health, and water resource management

indicated that these were more important as secondary than as primary subthemes.²²

The shares of commitment amounts, by ENRM theme, for all projects for which one of these subthemes is identified as the primary one can also be determined, together with total commitments for all ENRM-related purposes in these projects. Doing so highlights the numerous cases in which multiple ENRM subthemes were identified for the same operation. These figures (see table F.3) reveal that, among the 950 projects in which ENRM subthemes were the highest ranking, the largest aggregate commitments were for pollution management/environmental health (\$3 billion) and water resource management (\$2.7 billion), followed by climate change (\$2.2 billion) and environmental policy and institutions (\$1.9 billion). As previously noted, however, the climate change subset contains one very large carbon finance project in China that accounts for a substantial share of this total. Similarly, the environmental policy and institutions category includes seven Development Policy Loans²³ (which, if excluded from the calculations, would reduce the overall commitment amount for this subtheme from \$1.9 to \$1.4 billion, and the total ENRM commitments among this subset of projects from close to \$4.2 to just under \$3 billion).²⁴

Table F.3: Commitment Amounts and Averages, by ENRM Subtheme, Fiscal 1990–2007

Subtheme	Subtheme amount (\$ millions)	ENRM amount (\$ millions)	Total commitments (\$ millions)	Average subtheme commitments (\$ millions)	Average total project commitments (\$ millions)
Biodiversity conservation	775.0	1,823.9	2,583.7	3.5	11.7
Climate change	2,224.8	3,594.7	4,995.7	15.5	34.7
Environmental policy and institutions	1,885.8	4,175.5	5,908.9	15.1	47.3
Land administration and management	1,467.9	2,135.8	4,179.2	14.5	41.4
Pollution management/environmental health	3,019.0	5,865.8	7,892.0	16.9	44.1
Water resource management	2,697.8	5,036.1	8,314.4	22.1	68.2
Other ENRM	560.8	1,024.1	1,604.0	9.5	27.2
Total	12,640.1	23,655.8	35,477.9	13.3	37.3

Source: World Bank database.

When including the seven Development Policy Loans, however, projects in which environment policy and institutions was the first-ranking ENRM subtheme accounted for 17.7 percent of all ENRM-related commitments among the 950 projects considered. This is exceeded only by the subsets for pollution management/ environmental health (24.8 percent of the total) and water resource management (21.3 percent). The smallest shares of such commitments were for “other ENRM” projects (4.3 percent), followed by those focusing on biodiversity conservation (7.7 percent); land (including watershed) management–related (9 percent) and climate change (15.6 percent) projects fell in between.

The overall outcome ratings of the 355 completed and evaluated projects of which the highest-ranking subthemes were ENRM ones can also be compared.²⁵ Table F.4 indicates that project subsets that had pollution management/environmental health, land administration and management, and water resource management as their first ENRM subthemes had above-average overall satisfactory outcome ratings. In contrast, projects focusing on environment policy and institutions had, by far, the lowest such rating, followed by those focusing on biodiversity.²⁶ Projects concentrating on climate change and “other ENRM” activities performed slightly below the average for all evaluated ENRM operations.

Several observations should be made in relation to these patterns, however. Some thematic portfolios are comparatively much less evaluated than others, reflecting the fact that these subsets are still relatively new (that is, a relatively larger share of their total operations was approved in more recent years and, therefore, is still under implementation). This is particularly evident with respect to the climate change subset, in which less than 14 percent of all projects approved since fiscal 1990 (in recent years most have been operations under the Prototype Carbon Fund) have been completed and evaluated. But it is also the case to a lesser extent for the biodiversity subset.

Each subtheme may contain projects with quite different objectives, designs, and/or emphases, many of which also have different outcomes. A case in point is the pollution management/ environmental health subset, which includes 21 Montreal Protocol and 5 GEF operations designed to help countries phase out ozone-depleting substances. Thirteen (or 50 percent) of these projects have been evaluated, all with satisfactory outcome ratings. Separating out these projects from the total for this subtheme would reduce its share of satisfactory projects from 80.2 percent to 76.7 percent. In short, the non-ozone-related pollution management/environmental health projects performed less well, on average. Six industrial pollution control projects (two in

Table F.4: Overall Outcome Ratings, by ENRM Subtheme

Subtheme	Percent satisfactory	Percent unsatisfactory	Number of projects evaluated	Percent of projects evaluated
Biodiversity conservation	71.2	28.8	66	30.0
Climate change	75.0	25.0	20	13.9
Environmental policy and institutions	64.8	35.2	54	43.2
Land administration and management	80.0	20.0	45	44.6
Pollution management/environmental health	80.2	19.8	86	48.0
Water resource management	79.7	20.3	64	52.5
Other ENRM	75.0	25.0	20	33.9
Total	75.5	24.5	355	37.4

Source: World Bank database.

Note: Ratings shown are for evaluated projects approved since fiscal 1990.