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Country Assistance Strategies and the Environment

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Executive Summary

Introduction

Developing countries face immense challenges in attempting to achieve economic growth and poverty reduction. It is also clear that these long-term goals cannot be attained by systematically depleting environmental resources. In fact, careful management of natural resources and environmental quality is often necessary to sustain improvements in economic development and to ensure that economic policies result in welfare gains. Current trends insinuate that development policies have largely ignored the impacts of environmental degradation on peoples' wellbeing.

- Every year about 5 to 6 million people in developing countries die due to environment related diseases stemming from water and air pollution. Furthermore, the lives of over 1 billion people are at risk from desertification and dryland degradation.

- Natural resources are an important source of income and security to many poor people—for example, nearly 3 billion people depend on fuelwood as their main source of energy for cooking and home heating. However, countries with large populations such as China, India, Vietnam, Thailand and Sri Lanka face increasingly critical shortages in fuelwood supplies.

- Environmental degradation has negative micro and macroeconomic impacts. A recent study that considers data from 110 countries shows that at least 10 countries have negative genuine savings, that is net savings in these countries become negative when natural resource depletion, pollution, and educational, health, and R and D investments are taken into consideration. Another 40 countries have declining wealth per capita even with positive genuine savings. Thus population growth in combination with environmental degradation places many countries squarely on an unsustainable development path.

Given the evidence linking environmental degradation with serious negative welfare impacts, it becomes important to understand how the World Bank's policies, particularly its Country Assistance Strategies (CASs), can be made more response to environmental concerns. Country Assistance Strategies are a central part of the policy process that determines World Bank support to client countries. Each CAS presents a comprehensive picture of a country's economic development, identifies the government's principal concerns and makes a case for new World Bank services. Because of this important role, it becomes necessary to ensure that environmental considerations feature in CASs and that their role in promoting development outcomes is fully exploited.

This report is the outcome of a CAS and Environment program that was started in the World Bank's Environment Department in 1998. The aim of the program was to identify practical

constraints to incorporating environmental concerns into CASs and to develop a logical framework for doing so. The report draws lessons based on research and review of Bank activities, identifies best practices, and makes recommendations that can be applied to Bank operational work.

Methods

The analysis presented in this paper is based on two key efforts: a review of CASs undertaken in fiscal year 1999, and five participatory case studies of on-going CASs. The CAS and Environment program also included a retrospective study of how environmental management influences development outcomes.

A number of broad conceptual frameworks were developed during the CASE program that can be used to incorporate environmental concerns into the CAS. The first is an analytical matrix that provides a summary snapshot of the links between economic development and the environment. This matrix is useful to understand the "big picture" about a country and its environmental challenges. Another important conceptual tool, which builds on the analytical matrix, is the CAS and Environment decision tree. The decision tree uses information in the analytical matrix and identifies a strategic process for prioritizing among different environmental interventions. Chapter 1 discusses these and other analytical tools used in the CAS and Environment Program.

The Environmental Review

An environmental review was undertaken of thirty-seven CASs developed in 1999. The main objective of the review was to obtain a baseline understanding of how CASs treated environmental concerns. Nine CASs from Africa, one from the Middle East, eleven from the Eastern Europe and Central Asia region, nine from South and East, and six from the Latin America and Caribbean region were reviewed.

The review attempts to answer three broad questions: i) Do CASs identify environmental concerns and use Bank instruments to address these concerns? ii) Are natural resource and environmental issues mainstreamed by linking them to policy concerns in general and macro and sectoral (environmental and non-environmental) initiatives in particular? How and to what extent are environmental outcomes linked to changes in incentive mechanism such as pricing and property rights? iii) To what extent are environmental strategies linked to poverty reduction efforts?

In order to address these questions, CASs were ranked on the basis of key criteria such as identification and treatment of environmental issues, whether or not environmental issues were mainstreamed, whether the CAS included a discussion of incentive mechanisms and whether connections between poverty reduction efforts and environmental concerns were identified. Each CAS received a grade from 1 to 4 in each category. Chapter 2 in this report presents details about the review methodology and findings.

Country Case Studies

The main aim of the country case studies was to identify a framework for ensuring that CASs incorporated environmental issues. The case study countries were Azerbaijan, the Dominican Republic, Pakistan, Tunisia and Zambia. These countries were selected to reflect different stages of economic development and different continents.

Each country study involved a series of practical steps to identify the country's environmental challenges, outline their underlying causes, and highlight the economic outcomes that were most likely be influenced by

these environmental issues. This information was discussed with Bank and non-Bank stakeholders. At the end of each case study, a CAS paper was presented to Bank country teams. The paper included a description and diagnosis of environmental problems, a "CAS analytical matrix" that allowed the reader to draw logical conclusions about the links between environment and development outcomes, and a set of environmental indicators that compared the country's environmental status with other similar countries and identified changes over time. Chapter 3 discusses the case studies in detail and draws lessons based experiences in each country.

Findings from the Environmental Reveiw

The review of FY 1999 CASs indicates that environmental considerations feature in almost all CASs. Most CASs identify environmental concerns in the CAS analytical matrix and in many cases in the CAS text as well. A majority of the CASs have a lending or non-lending project related to environmental or natural resource issues.

A second important lesson from the review is that there exist significant regional differences in the treatment of environmental issues. The East Asia CASs do well while the Eastern European and Central Asian CASs do relatively poorly in their consideration of environmental issues. The high score received by East Asian CASs results from consistent efforts to mainstream environmental issues and the use of innovative economic tools in doing so. The low score received by Eastern European and Central Asia partly reflects a major focus on transition related issues in these countries. In general, there is a need to strengthen the environmental quality of CASs in low-scoring countries. There are ample opportunities for these countries to learn from best practices across the Bank.

Environmental and resource considerations are currently mainstreamed into CASs in several ways. Policy issues are generally addressed through lending for environmental policy reforms and integration into sectoral strategies. Incentive mechanisms such as tariff reform and property rights issues feature in several CAS, but not as frequently as other policy concerns. There is, however, very little integration of environmental considerations into macroeconomic analysis or reforms.

Perhaps the most significant result from the environmental review is that insufficient attention is paid to the links between poverty reduction and environmental change. More than half the reviewed CASs failed to connect poverty and environmental concerns. Where these links are addressed, they are mostly within the context of natural resource management.

Toward Better Practice

The last chapter in this report presents a set of practical actions to improve the environmental quality of CASs based on the learning that emerged from the case studies and the environmental review.

Integrating Environmental Considerations into Country Activities

One of the best ways to influence the CAS is to mainstream environmental issues into different country activities. The Country Assistance Strategy is the final product of a series of actions that include negotiations and discussions among country team members and government agencies, project outcomes, and country priorities. Any efforts to integrate environmental concerns into country activities will trickle down into the CAS.

The country studies show that environmental issues can be integrated into CASs by identifying linkages between economic development and environmental change. For example, in the Dominican Republic, Tunisia and Zambia, a strong connection was identified between tourism, a major driver or

potential driver of economic growth, and environmental degradation. This analyses is reflected in final versions of all three CASs. Thus, where either environmental conservation offers a means for economic development or degradation is beginning to have negative impacts on growth, countries are likely to be more open to environmental interventions.

The country studies also suggest that in situations where the link between economic development and environmental change is dynamic and longer-term in nature, discussions on mainstreaming needs to be rooted in lengthy negotiations among task-managers. Often, this makes the difference between a CAS that reads well and a CAS that produces high-quality environmental outcomes.

In general, environmental issues can be mainstreamed into CASs by:

- Reforming sectoral policies that impact environmental issues. Particular attention needs to be paid to energy and infrastructure policies.
- Ensuring that countries with a huge foreign exchange dependence on natural resources develop sustainability criteria for managing both their natural resources and the revenue streams from resource depletion.
- Identifying prices, property rights, fiscal and other incentive mechanisms that influence environmental considerations. These mechanisms can be used to correct environmental externalities or improve efficiency of resource allocation.

Linking Environmental Efforts to Poverty Reduction

CASs need to examine the links between i) the health of the poor and the environmental determinants of bad health, including poor water quality and quantity, and air pollution; and, ii) poor rural households and natural resource determinants of income and security. These are two key mechanisms by which environmental interventions can support poverty reduction efforts.

Poverty-environment interactions need to be better understood through careful analytical work. This can be done through sector work, which will help establish priorities and identify mechanisms for Bank intervention. Better analysis of on-going environmental projects and their poverty impacts would also help improve knowledge and highlight best practices. For example, while access to clean water has a significant impact on the health of the poor, very few 1999 CASs identify the poverty dimensions of water and sanitation projects. Environmental outcomes of poverty-reduction activities also need to be better understood. The World Bank routinely supports projects that give poor people secure tenure over their land, help improve water-use efficiency, and increase investments in natural resources. Scrutinizing such projects to identify how natural resource management and poverty reduction complement each other would help mainstream environmental concerns.

Integrating environmental components into poverty related studies would help improve knowledge about poverty-environment interactions. A particularly important opportunity presents itself in the Poverty Reduction Strategy Papers (PRSPs) and Poverty Assessment (PA) work routinely undertaken in Bank client countries. If PRSPs and PAs are broadened to include questions on environmental health and the resource dependence of the poor, the Bank and partner countries would be in a better position to develop environmental strategies that help the poor.

Finally, *CASs may need to identify the trade-offs between environmental sustainability and poverty reduction.* Clearly there are some interventions that can reduce poverty and stem environmental degradation. However, any medium to long term strategy will need to

assess trade-offs and a sound CAS cannot loose sight of the long run.

Four strategic actions would help in better linking environmental efforts to poverty reductions strategies. These include:

- Sending a consistent message about the links between poverty and the environment. CAS efforts need to examine the links between the health of the poor and the poor water quality and quantity and air pollution; and, poor rural households and the natural resource determinants of income and security;
- Knowledge development. This can be done through careful sector work and by integrating environmental components into poverty studies;
- Monitoring Impacts. New environmental projects need to be designed to identify poverty outcomes. On going poverty and environmental projects need to be reviewed to understand poverty-environment links and to highlight best practices.
- Understanding Trade-Offs. To the extent that CASs are integrated into longer-term strategies such as the Comprehensive Development Framework, they will need to identify wins and losses.

Strengthening the Information Base

The environmental review and country studies indicate that better use of indicators and analysis of changes in environmental trends is merited. Comparative environmental indicators that either show trends over time or indicate differences among countries are useful for drawing attention to problems and for prioritizing among environmental issues. Furthermore, monitoring and evaluation of long term changes is practically impossible without use of indicators. Yet, very few environmental indicators are used in CASs. This information is routinely collected as part of the World Development Indicators. Thus, the costs of including a set of environmental indicators would be low relative to their likely benefits.

Another obvious knowledge gap is that limited amount of environment related analytical and sector work is available to inform lending. Environmental ESWs in the 1999 CASs were almost exclusively focussed on National Environmental Action Plans (NEAPs). Notwithstanding the importance of NEAPs, the analytical work on the environment seems insufficient to address the complex set of specific challenges faced by client countries. In general, Economic and Sector work that is finished during the CAS fiscal year is critical both for informing country teams and because it catches the attention of non-environmental country team members and the government.

Organizing and presenting information in a structured fashion can result in an improved CAS. A CAS analytical matrix was used as a key organizing mechanism for identifying links between environmental problems and economic development in the case studies. The matrix arrays information about country-specific environmental sectors and issues in columns against rows representing i) a summary of issues; ii) identification of driving forces; iii) delineation of links between the environmental issue and macro, sectoral and project-level actions; and iv) policy and institutional issues. This matrix was extremely useful in presenting information to country teams.

The CAS is only as strong as the information base that supports it. Consequently, the following recommendations are made:

- A set of standard environmental indicators need to be incorporated into CAS appendices.
- More analytical and Economic and Sector work would help make the case for environmental issues and identify intervention strategies. In reality,

competition for ESW resources is immense; it would therefore be useful to consider the creation of alternate funding mechanisms, such as ESMAP, for supporting analytical work.

- Organizing environmental information in CAS analytical matrix (see Appendix 1) would help country teams identify driving forces and prioritize among different problems.

Improving the CAS process

Resource and time constraints severely constrain the ability of regional staff to focus on the CAS. Environmental issues need a CAS champion. In most of the case study countries, regional environment department staff did not have sufficient time to work on a CAS strategy. It is recommended that CAS support be included in work program agreements for regional environment department task managers. There may also be a case for dedicating additional resources within these departments for a CAS strategist.

Finally, *stakeholder support for environmental issues is likely to become increasingly important for the CAS.* As the CAS becomes a participatory process, support for environmental concerns will be required from governments as well as civil society. In the long-term, strong southern environmental NGOs will be important for the CAS process. A positive externality from any Bank-support to NGOs is that it is likely to have an influence on internal processes such as the CAS.

1 Introduction

Developing countries face immense challenges in attempting to achieve economic growth and poverty reduction. It is now increasingly obvious that these long-term goals cannot be reached by systematically depleting environmental resources. In fact, careful management of natural resources and environmental quality is often necessary to sustain improvements in economic development. Nonetheless, current trends indicate that development policies have largely ignored the impacts of environmental degradation on peoples' wellbeing.

- Every year about 5 to 6 million people in developing countries die due to environment related diseases stemming from water and air pollution (World Bank 2001a).

- Natural resources are an important source of income and security to many poor people—for example, more than 1.6 billion people depend on forests for their livelihood. Yet, more than one-fifth of the world's tropical rainforests have been cleared since 1960 (World Bank 2001b).

- Environmental degradation has negative micro and macroeconomic impacts. A recent study that considers data from 110 countries shows that at least 10 countries have negative genuine savings, i.e. net savings in these countries become negative when natural resource depletion, pollution, and educational, health and R and D investments are taken into consideration (Hamilton 2000). Another 40 countries have declining wealth per capita even with positive genuine savings. Thus population growth in combination with environmental degradation places many countries squarely on an unsustainable development path.

This paper explores mechanisms by which the World Bank's policies can be made more responsive to the links between environment and development.[1] In particular, it focuses on the Bank's Country Assistance Strategies (CASs) and identifies mechanisms by which the environmental quality of CASs can be improved.

Country Assistance Strategies are a central part of the policy process that determines World Bank support to client countries. Each CAS presents a comprehensive picture of a country's economic development, identifies the government's principal concerns and makes a case for new World Bank services. Because of this important role, it becomes necessary to ensure that environmental considerations feature in CASs and that their role in promoting development outcomes is fully exploited.

In general, CASs represent an important opportunity for the World Bank and client countries to jointly assess progress and gain a multi-sectoral perspective on their actions. As specified by BP 2.11[2], the CAS "indicates how the Bank's objective of helping countries to reduce poverty and its sectoral objectives—such as human resource development (including

gender issues), environmentally sustainable development, and private sector development—are incorporated into [a] strategy and reflected in the policy dialogue." Usually, CASs are undertaken every 2–3 years.

The CAS represents a key point of intervention for integrating environmental concerns into Bank operations for better development outcomes. In general, environment and natural resource issues are unevenly treated in CASs. Analysis of environment and natural resource challenges and their linkage to the development process is often weak; data and indicators relating to the environment and natural resources are lacking; and environment rarely features in the section for the Board agenda. Typically, the environmental component is isolated from core issues, i.e. environment is treated as a sector, and not as a cross-sectoral concern.

In seeking to improve the treatment of environment in the CAS, the goal is not to insist on every CAS including an environmental component. Rather, there is a need for a strategic approach to the CAS itself. For instance, facing certain circumstances, a country may decide to focus all of its efforts during the CAS period on one or two key issues, such as, governance or macro economic stability. In other cases, because of the heavy involvement of bilateral donors in environmental areas, the Bank may decide not to work in this field. Under these conditions, it may not make sense for the CAS to be "greened" in a conventional manner, i.e. there will be no need to highlight environmental problems and identify solutions in the CAS. However, it will still make sense for country teams to try to mainstream environmental concerns into other non-environment sector strategies. Thus, a key element of a more strategic approach to the CAS is the linkage of environmental management to development outcomes and, more specifically, to poverty outcomes. Greater alignment between environmental objectives and the mission of the World Bank Group is the clear advantage of such an approach.

Box 1
PRSPs, the CDF, and CASs

The CAS will be influenced by new processes such as the CDF and the PRSPs.

Recent innovations at the World Bank, such as the Comprehensive Development Framework (CDF) and Poverty Reduction Strategy Papers (PRSPs), are likely to have an impact on the CAS. The CDF is being piloted as an approach to increasing development effectiveness in a number of countries; key aspects of the CDF include an emphasis on longer term issues, a more holistic approach to development, country ownership, and collaboration with other partners in development. PRSPs have been mandated by the Boards of the World Bank and IMF as a condition for access to debt relief under the Highly Indebted Poor County (HIPC) initiative. The PRSP is intended to be a comprehensive strategy for poverty reduction written by candidate countries, spanning poverty diagnosis, design of policy interventions, and monitoring and evaluation. In CDF and PRSP countries, the CAS document is likely to become less a comprehensive strategy document and more a business plan resulting from CDF and PRSP processes. Nevertheless, the sorts of lessons concerning CAS and the environment documented in what follows will be useful both in CAS preparation and in directing the upstream processes that feed into the CAS.

This report presents an overview and draws lessons from a series of tasks undertaken to analyze Country Assistance Strategies.[3] The objectives of this study were to develop a framework for incorporating environmental issues into CASs and to identify the practical constraints that lead to environmental issues being ignored. This report is based on two key activities: a Review of thirty seven CASs and five in-depth Country Studies.

Concepts and Methods

The interactions between economic and environmental systems are complex, dynamic

and often not obvious. However, these interactions are real and have serious short and medium-term effects on the welfare of people, particularly the poor. They also critically affect the quality of development pathways and whether development will be sustained over time. Policy processes such as the CAS need to recognize these serious implications and act on them on the basis of available information. In this section we present some ideas and techniques that can be used to understand the linkages between economic changes and the environment and to design interventions.

A number of broad conceptual frameworks were developed during the CASE program that can be used to incorporate environmental concerns into the CAS. The first is an analytical matrix that provides a summary snapshot of the links between economic development and the environment. This matrix is useful to understand the 'big picture' about a country and its environmental challenges. Another important conceptual tool, which builds on the analytical matrix, is the CAS and Environment decision tree. The decision tree uses information in the analytical matrix and identifies a strategic process for prioritizing among different environmental interventions.

Table 1 presents the CAS analytical matrix. The matrix shows how environmental changes influence and are influenced by development strategies and outcomes. In order to understand the connections between environment and development in a specific county, the following questions are asked:

- What key environmental challenges does the country face?
- What factors drive change in these environmental variables?
- How are the poor affected by these environmental problems?
- How do these environmental factors either influence or are influenced by macro and sectoral strategies and existing institutions?

Table 1. CAS analytical matrix

	Natural resources management		*Pollution control*		*Global issues*	
Key environmental and resource problems	*Irrigation*	*Forests*	*Water pollution*	*Urban air pollution*	*Biodiversity conservation*	*Climate change*
Current issues - local, regional, global						
Driving force, e.g.: - population growth; - poverty; - inequality						
Macro policies - impacts						
Sector policies - impacts						
Poverty Links - health - income - security						
Projects / Programs Impacts						
Environment / Resource Institutional issues						

The CAS analytical matrix forces us to seek answers to these questions and to summarize them succinctly. As shown in the Table 1, the matrix arrays key environmental issues in columns and includes rows that raise the above questions. These rows and columns can be filled with secondary information available in World Bank and other publications. The issues specified in the columns will, of course, be different in different countries.

Within the context of the analytical matrix, we would like to draw attention to the row on poverty links. The World Bank is currently attempting to sharpen its poverty mandate by tying most of its lending and policy advice more strategically to poverty reduction. It is therefore essential and timely to highlight the impact of environmental changes on the poor.

In a recent paper, Bucknall and others (2000) show that different types of environmental changes influence different dimensions of poverty. They outline the dimensions of poverty, as grouped in the World Development Report (WDR) 2000/01, and draw attention to their environmental determinants. The same conceptual framework is useful in filling in the poverty row of the analytical matrix and is reproduced in Figure 1.

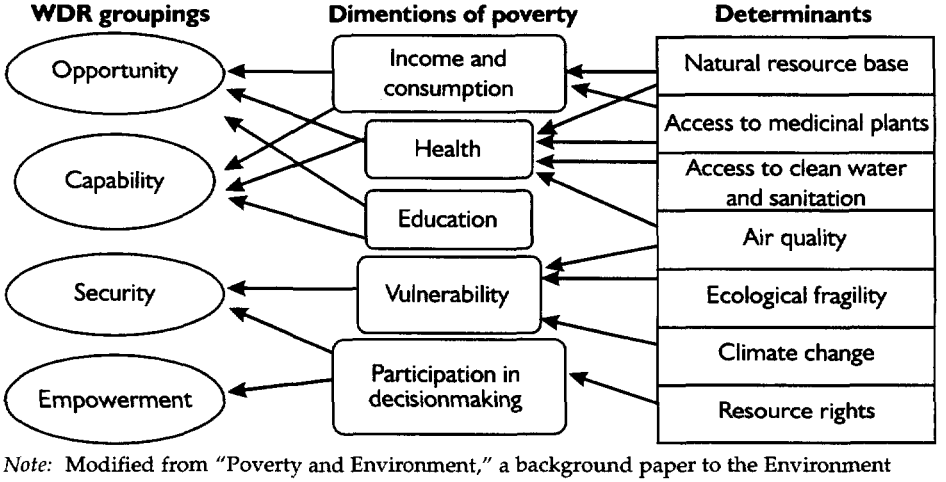
As Figure 1 shows, there is clearly an environmental facet to poverty. Arguably, the most important ways in which negative environment changes hurt the poor are by affecting their income and their health. As Figure 1 suggests, poor households are dependent on local natural resources for their livelihood. Factors that affect the quality, quantity, and productivity of these resources have considerable impact on their income and security. Secondly, environment-linked diseases impinge severely on poor people and this in turn has an impact on their ability to be productive.

While the analytical matrix and Figure 1 provide background information on how environmental considerations can affect development outcomes, they do not necessarily set priorities. Given the number and magnitude of development problems facing Bank client countries, it is extremely important to be able to prioritize among different competing needs. It is therefore useful to have a strategic process for making decisions about CAS interventions. Figure 2 presents a CAS and Environment decision tree that identifies one such strategic process.

As shown in the CAS and Environment decision tree, there are four key questions that need to be addressed for resource/environmental issues to be considered a priority for the CAS:

- Is the environmental problem under consideration a reversible or irreversible

Figure 1. Dimensions of poverty and links to the environment



Note: Modified from "Poverty and Environment," a background paper to the Environment Strategy 2000.

problem, that is, can the environmental change in progress be reversed in the short or medium term (for example, air and water pollution) or can it be reversed only in the very long run (such as climate change, aquifer depletion, biodiversity loss)?

- Does it affect poverty reduction outcomes? If so, is this because it affects the health of the poor or because it has a more direct impact on their incomes and the natural resources on which they depend?

- Is the problem closely tied to economic growth concerns? Will deterioration in the environment have a direct effect on growth in the short to medium term or in the long term?[4]

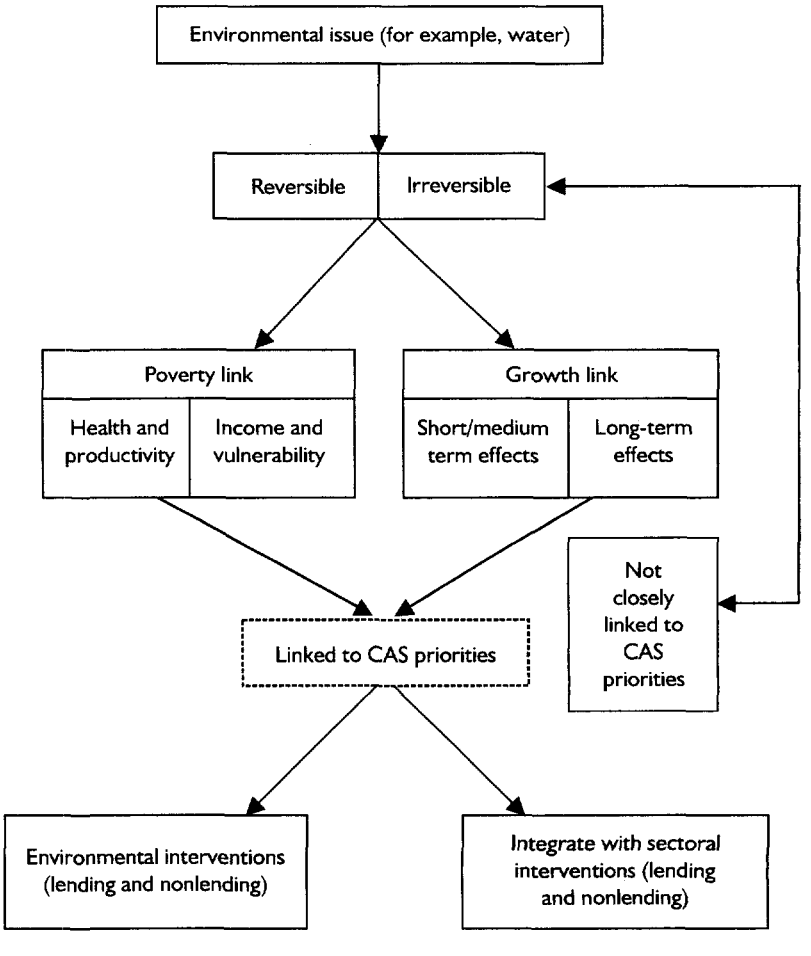
- Given its poverty and/or growth links, should this environmental problem be a CAS priority, i.e. does it help address the over arching goals set for the Bank by the current CAS?

If the answer to the last question is a yes, then the environmental issue under consideration should be addressed within the CAS. As suggested in Figure 2, a final step is to then identify environment and non-environment sector strategies (presented in the analytical matrix) to address the problem. These strategies could be implemented through a variety of lending, AAA and grant instruments. This conceptual process can be repeated for all the key environmental issues presented in the analytical matrix.

Figure 2 presents a set of rules for making decisions during the CAS process. There are, however, caveats that apply. For example, in the case of irreversible problems, Bank actions may be necessary even if the issue does not fall directly within the objectives set by the CAS. A safe minimum safeguards approach may have to be taken in dealing with irreversible problems such as climate change or biodiversity loss and such problems may have to be addressed through GEF grants and technical assistance even if they do not lend themselves directly to CAS related interventions.

This Chapter outlined the broad analytical framework used in the CAS and Environment Program. The rest of this report is divided into three chapters. Chapter 2 presents a Review of fiscal year 1999 CASs and ranks them according

Figure 2. CAS and environment decision tree



to their treatment of environmental issues. Regional differences are discussed, best practices examined, and recommendations made for future CASs. The methodology used for the review is described in Chapter 2 and is tailored to suit the specific needs of an evaluation. Chapter 3 discusses the CAS process in five countries. The countries presented are Azerbaijan, Dominican Republic, Pakistan, Tunisia and Zambia. Key environmental concerns in each country are analyzed and CAS strategies presented. The chapter then examines practical challenges to mainstreaming environmental issues. The last chapter, Chapter 4, identifies lessons learned and presents recommendations.

2 An Environmental Review of Country Assistance Strategies

In order to understand the environmental performance of Country Assistance Strategies, thirty seven CASs undertaken in fiscal year 1999 were reviewed. [5] CASs have been periodically reviewed from different perspectives (Ekbom and Bojo 1997, MDOPS 1998, ESD 1995). The main purpose of this review was to assess the quality of the treatment of environment and natural resource issues in CASs. A secondary objective was to test a simple approach for reviewing CASs that future reviews could use to monitor changes. Finally, the review served as a mechanism for identifying best practices within the Bank.

In this review, CASs are assessed and ranked according to key criteria, regional variations assessed, and lessons drawn based on the rankings and regional differences. Several overlapping themes were used to analyze CASs. These themes reflect Bank priorities as well as practical mechanisms through which environmental issues can be incorporated into CASs.

CASs were assessed to answer three broad questions:

i) Do CASs identify environmental concerns and use Bank instruments to address these concerns?

ii) Are natural resource and environmental issues mainstreamed by linking them to policy concerns in general and macro and sectoral initiatives in particular? [6] How and to what extent are environmental outcomes linked to changes in incentive mechanism such as pricing and property rights?

iii) To what extent are environmental strategies linked to poverty reduction efforts?

CASs were also evaluated on a number of more narrow categories such as whether or not environmental indicators were identified and whether stakeholders were consulted. A more complete explanation of the review methodology is presented in Box 2.

Of the CASs reviewed, nine CASs are from Africa (AFR), one from the Middle East, 11 from the Eastern Europe and Central Asia (ECA) region, nine from South and East Asia (SAS and EAS), and six from the Latin America and Caribbean (LAC) region. In general, the review shows that given the range of development problems faced by Bank client countries, FY 1999 CASs give environmental issues their fair share of attention. Resources are targeted toward environmental concerns and environmental issues are mainstreamed through sectoral policies and incentive mechanisms. However, there is significant variation in the quality of treatment given to environmental matters. Thus, there is considerable scope for learning from examples of best practice.

Problem Identification and Treatment

This section assesses the extent to which CASs identify and respond to environmental

Box 2
Review Methodology

A set of 37 FY1999 CASs were reviewed by region. The indicators or criteria used to review the CASs that are presented here are :

- Problem identification—were the key environmental problems in the country identified? Was there an attempt to identify underlying factors that lead to environmental problems?
- Treatment—were the problems addressed with specific interventions?
- Mainstreaming—were environmental concerns mainstreamed into other sector and macro activities (at the project, institutional or policy level)? Was there reference to environmental policy reforms in the CAS?
- Incentives—Is there any analysis of economic incentives such as property rights and pricing issues, and their implications for natural resources/environment?
- Poverty—was there a link made between poverty and the environment?

There is inherently some overlap between these categories. For example, poverty-environment linkages often leads to a focus on property rights – this is an issue that is picked up in the category on Incentives as well.

Each category received a grade from 1 to 4 (1= issue not mentioned / not addressed; 2= marginally satisfactorily addressed; 3= satisfactorily addressed; 4= best practice). The scale used is a relative scale rather than an absolute one. For example, a grade 4 simply means that it is the best practice among the set of CASs reviewed and should be adopted, but does not mean that it is the absolute best that can be done.

The categories are given equal weight in the analysis. This is simply a practical solution to difficulties that would arise in identifying weights. Ranking is also inherently a combination of objective categorization and subjective judgement; thus, small variations between countries may not be significant.

CASs were assessed on a few other categories, but there was no ranking assigned. These categories were:

- Indicators—is a table of environmental indicators included?
- Is there an IDA/IBRD environmental loan or GEF project? If so, what is its main focus?
- Does the CAS include a strong link between environmental change and economic development? Does it include an environmental project? Was there stakeholder participation in CAS preparation? Was ESW or other knowledge based activities undertaken prior to the CAS?

Note: This was a checklist to see if any strong statements could be made about the CAS if the above indicators did exist. Further details are provided in Shyamsundar and Hamilton (2000).

concerns. A key result is that environmental issues feature in almost all CASs.

Figure 3 shows that the majority of CASs did a satisfactory job of identifying and diagnosing environmental concerns. Most CASs include a brief description of environmental problems faced. In cases where the text does not refer to environmental concerns, some diagnosis of problems and strategy analysis is found in the CAS program matrix.[7] In general, most CASs use information from National Environmental Action Plans to outline the country's chief environmental concerns.

Figure 4 summarizes the extent to which environmental concerns are addressed through lending, non-lending and grant instruments. There are very few countries that do not have some form of on-going or proposed Bank

Figure 3. Problem identification and diagnosis

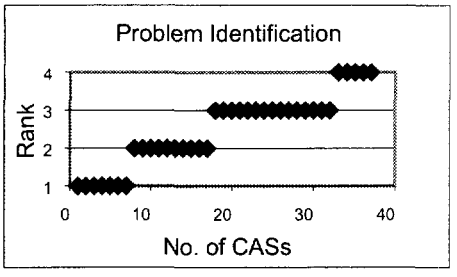
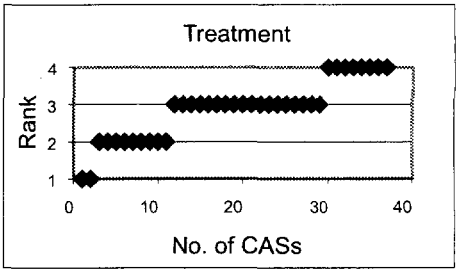


Figure 4. Treatment of environment



Rankings: 1= issue not mentioned/not addressed, 2 = marginally satisfactorily addressed; 3 = satisfactorily addressed; 4 = best practice.

support for environmental activities. Also, as the Figures show, problem identification and diagnosis in the CAS documents do not necessarily reflect the actual amount of environmental work done in the country by the World Bank. In several countries, environmental interventions were included CAS matrices and tables, but there was little diagnosis of environmental problems or discussion of solutions.

In approximately half a dozen cases, environment featured among the objectives of the CAS. The Vietnam CAS stands out in its discussion of sustainable development. It is the only CAS that has as its objective the promotion of "quality and sustainability" of development and "protection" of nature. The Panama CAS is another excellent example where environmentally sustainable development is one of three main objectives of the development agenda. The Panama CAS includes a fairly detailed diagnosis of environmental concerns, analysis of driving forces, and description of Bank support.

In several of the African CASs, a text box was used to provide a general up-front description of the country. This is an good tool for quickly summarizing environmental concerns and treating them as part of the overall development challenge. An example of such a text box is reproduced below.

Box 3
Rwanda — Country Profile

In Rwanda and several other African CASs, a text box was used in the introductory pages to provide a quick description of the country. Incorporating environment into these boxes is a good way to treat environmental concerns as part of the overall development problem. The Rwanda country profile included separate paragraphs on several different issues including the environment. The paragraph on environment is fully reproduced below:

Population:

Economic base:

Economic Development:

Environment: The large scale movements of population and livestock since 1990 have put severe pressure on the environment, increasing deforestation and encroachment of protected park lands. Population encroachment is threatening the fragile ecological zone in the northwest, including the mountain gorilla habitat in the DRC/Uganda/Rwanda triangle. The massive destruction of livestock in some parts of the country during the genocide is starving the soil of nutrients previously provide by animal manure.

Political Outlook:

Mainstreaming Environmental Concerns

Environmental issues are mainstreamed into core CAS agendas in a variety of ways. Mainstreaming refers to actions taken in macro and non-environmental sectors to understand the environmental implications of their

strategies and to incorporate environmental concerns into their activities. This can be either at the policy or project level. Policy changes within the environmental sector were also treated as a mainstreaming activity.

As Figure 5 indicates, over half the reviewed CASs did a satisfactory or more than satisfactory attempt at mainstreaming. This was usually through incorporating environmental concerns into agricultural and rural sector activities, water sector strategies or in some cases energy reforms. In some cases, mainstreaming happened through environmental policy changes. Mainstreaming of environmental issues can also be assessed by considering how and to what extent incentive mechanisms that are linked to environmental change are addressed in the CAS. Figure 6 shows to what extent pricing and property rights issues feature in the CAS. In general, there was a greater focus on policy reform in general relative to fixing tariffs, prices and property rights (which form a subset of policy reforms).

Policy issues featured in the CASs in different ways. In Latin America, there was support for strengthening environmental policies and regulations; in Eastern Europe accession to EU was a major driver of environmental regulations (especially in Hungary, Lithuania and Bulgaria); and the Asian CASs incorporated environment into sectoral and macro strategies (water reforms in Vietnam and India, budget reforms in Mongolia, energy policies in the Philippines).

Environmental links to macro and trade issues were rarely found in the CASs reviewed. However, Mongolia is a good example of a country that does identify links between macro GDP growth and natural resource depletion. Natural resource depletion issues are mainstreamed through a technical assistance program on national accounts and by moving towards a long-term strategy for fiscal management of copper revenues. The Mongolia CAS's treatment of risks from ignoring resource depletion should be replicated by other resource dependent countries. Box 4 provides further details.

Poverty-Environment Linkages

Perhaps the most significant result from the CAS Review is that insufficient attention is paid to the links between poverty reduction and environmental change. As depicted in Figure 7, more than half the reviewed CASs failed to connect poverty and environmental concerns (this large number is partly driven by the disconnect between poverty and environmental issues in the ECA countries). Those CASs that did identify the impacts of environmental degradation on the poor, did not pursue this issue further in terms of specific interventions.[8]

Figure 5. Mainstreaming environmental issues

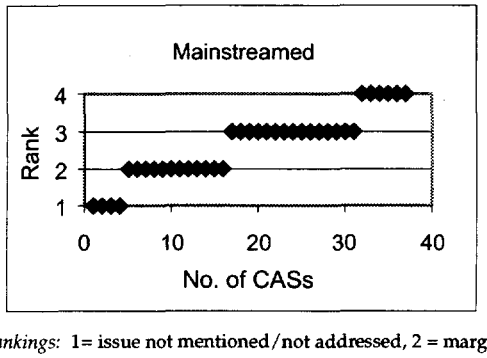
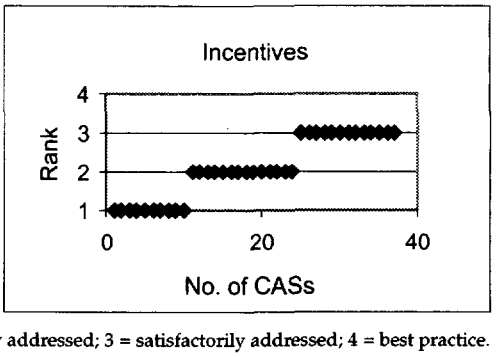
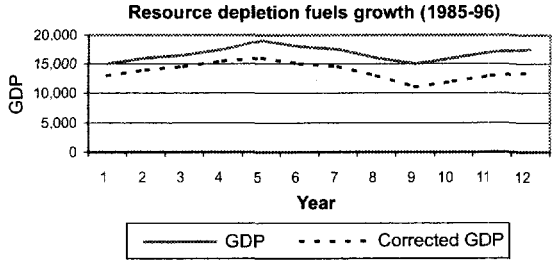


Figure 6. Treatment of incentives



Rankings: 1= issue not mentioned/not addressed, 2 = marginally satisfactorily addressed; 3 = satisfactorily addressed; 4 = best practice.

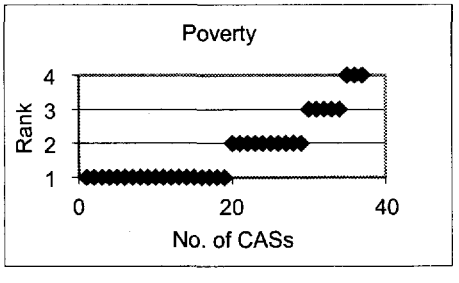
Box 4
Mainstreaming Natural Resource Depletion in Mongolia



Note: Based on Ministry and Nature and Environment, Mongolia. Mongolia CAS, 1998.

Resource depletion is calculated as the value of extracted copper and gold in the ground, plus the environmental damage to forest and pastureland from agricultural/livestock production. Because mineral resources and pastureland are such important economic assets, traditional national accounts (which ignore these resources) do not adequately measure growth and savings. While this may be reasonable in the short run..., it is not sustainable and ...depresses future incomes. Further analyses will highlight the need to boost savings through macroeconomic and sectoral reforms (Mongolia CAS 1998).

Figure 7. The poverty-environment nexus



Rankings: 1= issue not mentioned/not addressed, 2 = marginally satisfactorily addressed; 3 = satisfactorily addressed; 4 = best practice.

Lesotho is a good example of CAS that does focus on the interactions between poverty and the environment. The CAS identifies the existence of feedback mechanisms between rural poverty, population pressure, environmental degradation and economic slowdown. Box 5 describes how the Lesotho CAS addresses these issues.

Box 5
Managing Poverty-Related Environmental Degradation in Lesotho

The Lesotho CAS builds on the premise that "rural poverty is a cause and consequence of the serious environmental problems confronting Lesotho." The CAS goes on to make a clear distinction between the impact of environmental degradation on the urban and rural poor. Urban problems are linked to health problems, while rural environmental degradation is linked to a decline in income levels. Urban environmental degradation is managed through the government's programs that upgrade the basic infrastructure of the poor—potable water, sewerage and solid waste disposal. Rural environmental degradation is viewed as "a formidable challenge to poverty reduction in Lesotho," and "is manifested in severe soil erosion, resulting in diminished soil fertility and crop yields, deforestation and rangeland overgrazing." The government, with the support of the Bank, EU, and other donors is developing a comprehensive agricultural sector investment program (ASIP) to address these issues.

Nicaragua and Panama are two other countries that also focus on poverty-environment linkages. The Nicaragua CAS clearly spells out the link between poverty alleviation and rational exploitation of natural resources. In the Panama case, the link is operationalized through a project, the Rural Poverty and Natural Resources Project that is piloting community-based and production-oriented activities. In general, poverty concerns are more often linked to natural resource degradation and less frequently linked to the health impacts of water and air pollution.

Discussion

Table 2 summarizes how the thirty seven CASs for FY99 scored on five broad categories and gives regional summaries. Scoring is on a 4-point scale with 1 being the minimum score and 4 indicating best practice. As the table indicates, the overall score was 2.35. Thus, on average

CASs rate roughly one third of the way between "marginally satisfactory" and "satisfactory." There is clearly room for improvement.

In conclusion, **environmental considerations feature in almost all CASs**. Most CASs have a lending or non-lending project related to environmental or natural resource issues. **However, there is considerable variation in the identification and analysis of underlying driving forces.** A good analysis of environmental problems in the CAS is usually related to the availability of economic and sector work on the environmental issues.

Several CASs attempt to mainstream environmental and resource considerations. Policy issues are generally addressed through lending for environmental policy reforms and integration into sectoral strategies. Incentive mechanisms such as tariff reform and property rights issues feature in several CAS, but not as frequently as other policy concerns. In general, environmental issues can be mainstreamed into CASs by: i) reforming sectoral policies that impact environmental issues; ii) ensuring that countries with a huge foreign exchange dependence on natural resources develop sustainability criteria for managing both their natural resources and the revenue streams from resource depletion; and iii) identifying prices, property rights, fiscal and other incentive mechanisms that influence environmental considerations and using these mechanisms to correct environmental externalities or improve efficiency of resource allocation.

There exist significant regional differences in the treatment of environmental issues . The regional CAS rankings for environmental performance range from 2.97 in East Asia to 1.81 in Eastern Europe and Central Asia. The high scores East Asia CASs receive result from consistent efforts to mainstream environmental issues and the use of innovative economic tools in doing so. The low score of ECA countries received partly reflects a major focus on transition related issues. These differences also likely reflect differences in regional strategies and efforts put into the CAS by regional environment departments. In general, there is a need to strengthen the environmental quality of CASs in low-scoring countries.

The CAS review clearly indicates that **consideration of poverty-environment linkages is very poor.** As Table 2 shows, the mean score on 'poverty links' (1.78) is the lowest among the different variables considered.[9] Poverty-environment links are addressed mostly within the context of natural resource management. A comparison of regional differences shows that the average CAS in the Asia performed better than the others. Countries in the Eastern Europe and Central Asia region paid scant attention to poverty issues and scored a minimum rank of 1.

Emphasis on "selectivity" may lead to a decline in emphasis on environmental considerations. Selectivity and prioritizing are important to the CAS process and outcomes. Nonetheless, a focus on selectivity can side-line environment activities — which are often not "perceived" to be as central to development. Mainstreaming environmental considerations will only partially mitigate this effect of selectivity.

Better use of environmental indicators and analysis of changes in environmental trends is required. Monitoring and evaluation of long term changes is practically impossible without use of indicators. Except in the case of South Africa, none of the other countries presented a table of environmental indicators. This information is routinely collected as part of the World Development Indicators. Thus, the costs of including a set of environmental indicators along with the social and economic tables in the CAS would be low, while the long term benefits are likely to be high. A strong recommendation

Table 2. FY99 CAS ratings

		Identify issues	*Treat issues*	*Mainstream*	*Poverty links*	*Incentives applied*	*Avg.*
Gabon	AFR	3	3	3	1	2	2.50
Gambia		2	2	3	1	1	1.67
Kenya		1	1	1	1	1	1.00
Lesotho		4	3	4	4	3	3.33
Malawi		3	3	2	2	2	2.50
Mali		2	2	2	1	1	1.50
Rwanda		3	3	3	2	2	2.50
S. Africa		4	3	4	2	2	3.00
Senegal		3	3	3	2	1	2.17
Yemen		3	4	4	3	3	3.33
Albania	ECA	3	3	1	1	2	1.83
Belarus		1	2	1	1	1	1.17
Bulgaria		1	3	2	1	1	1.67
Croatia		2	3	2	1	1	1.67
Hungary		1	3	3	1	1	1.83
Kyrgyz Rep		3	3	3	1	3	2.67
Latvia		2	3	2	1	2	2.00
Lithuania		1	2	1	1	2	1.50
Macedonia		1	1	2	1	1	1.17
Moldova		1	2	2	1	2	1.67
Tajikistan		2	2	2	1	1	1.67
Uzbekistan		3	3	4	1	3	2.83
Bangladesh	SAS	3	4	3	3	2	2.83
India		2	4	4	3	3	3.33
Nepal		2	3	3	2	2	2.33
Lao PDR	EAS	3	3	3	2	3	2.67
Malaysia		3	2	2	1	3	2.50
Mongolia		4	4	4	4	3	3.83
Philippines		2	4	3	2	2	2.67
Thailand		4	4	3	2	2	3.00
Vietnam		3	4	3	3	3	3.17
Bolivia	LAC	2	2	2	1	2	1.67
Guatemala		2	2	2	2	3	2.17
Mexico		3	3	3	2	3	2.83
Nicaragua		3	3	3	3	3	3.00
Panama		4	4	3	4	3	3.50
Trinidad & Tobago		3	3	2	1	2	2.17
Averages							
Total		2.49	2.86	2.62	1.78	2.08	2.35
AFR		2.80	2.70	2.90	1.90	1.80	2.35
ECA		1.75	2.50	2.08	1.00	1.67	1.81
SAS		2.33	3.67	3.33	2.67	2.33	2.83
EAS		3.17	3.50	3.00	2.33	2.67	2.97
LAC		2.83	2.83	2.50	2.17	2.67	2.56

Rating scale:
1 = issue not mentioned/not addressed
2 = marginally satisfactorily addressed
3 = satisfactorily addressed
4 = best practice

Region codes:
AFR = Africa
ECA = Eastern Europe and Central Asia
SAR = South Asia
EAP = East Asia and Pacific
LAC = Latin America and the Caribbean

Note: *Yemen, as the only MENA country, is classified with AFR.

is that a set of standard environmental indicators be incorporated into CAS appendices.

Another obvious gap revealed in this review is the limited amount of environment related analytical and sector work available to inform lending. Environmental ESWs in the 1999 CASs were almost exclusively focussed on National Environmental Action Plans (NEAPs). Notwithstanding the importance of NEAPs, the analytical work on the environment seems insufficient to address the complex set of specific challenges faced by client countries. More ESW, particularly on cross-sectoral issues, seems merited.

3 Testing a Practical Approach through Country Studies

Environmental changes can have significant impacts on the welfare of people in developing countries. Policies that result in negative environmental impacts can, over-time, or indirectly, have serious negative development outcomes. On the opposite spectrum, environmental interventions can result in positive development outcomes. Because of the importance of Country Assistance Strategies reforming policies, it becomes important to ensure that they do not ignore environmental impacts.

This chapter focuses on five CAS country studies. These case studies were undertaken as part of a CAS and Environment program started in 1998. The aim of the country studies was to identify a framework for ensuring that CASs considered and incorporated environmental issues. The case study countries included Azerbaijan, the Dominican Republic, Pakistan, Tunisia and Zambia. These countries were selected to reflect different stages of economic development and different continents. There was also a practical element involved in choosing the case study countries. The choice partly depended on the timing of the CAS and whether country teams were interested in obtaining additional environmental input for the CAS.

Each case study involved a series of practical steps to identify the environmental challenges facing the country under consideration, outline their underlying causes, and highlight the economic outcomes that were most likely be influenced by these environmental issues. This information was discussed with Bank and non-Bank stakeholders and final recommendations were made to Bank staff who worked on CASs. In general, the premise underlying this approach was that the CAS could be influenced by a) providing structured information to country teams, government officials and other stakeholders; b) engaging Bank staff and other stakeholders in discussions about environmental issues; and, c) drawing their attention to the importance of linkages between development outcomes and environmental change. The participatory methodology used in the case studies is more fully described in Box 6.

At the end of each case study, environmental information and their links to development outcomes were presented to Bank country teams in a CAS paper that included a "CAS analytical matrix," written text, and environmental indicators. The "CAS analytical matrix" is a key organizing mechanism for identifying the connections between environmental problems and economic development. This matrix arrays information about country-specific environmental sectors and issues in columns against rows representing i) a summary of issues; ii) identification of driving forces; iii) delineation of links between the environmental issue and macro, sectoral and project-level actions; and iv) policy and institutional issues. An example of such a matrix for Argentina is presented in Table 3.

While Argentina has several important environmental challenges, Table 3 highlights

Box 6
Case Study Methodology

The first phase of each case study included:

- The development of a partnership between the case study team and the country team embarking on a CAS
- Stocktaking of available documents on environment and economic development issues from the Bank, governments, global organizations, NGOs, and academia
- Identification of key environmental concerns and underlying causes and institutional constraints to sound environmental management
- Identification of environmental indicators for the case study country.

Once the basic information about the country had been collected, this information was presented in an organized manner to the CAS country team. The information was presented in a 'CAS analytical matrix.' An example of such a matrix is presented in Table 3.

Following the development of the analytic matrix was a process for setting priorities and recommending interventions. This process included:

- Travel to the countries to discuss priorities with government, NGO and academic groups and fill data gaps
- Discussions with regional Environment Department team members and the country team
- Linking information within the CAS analytic matrix to specific economic activities that were a priority for the government and the Bank.

Based on these discussions, a CAS and Environment note was prepared for the country team. This note included a discussion of priorities, a set of indicators, the analytical matrix and a matrix of country environmental and non-environmental programs and their environmental impacts. This note was the final input into the CAS process and document.

only three of these—forest resource management, water pollution management and solid waste issues. The factors that influence these three environmental concerns are represented in the 'rows' of this matrix.

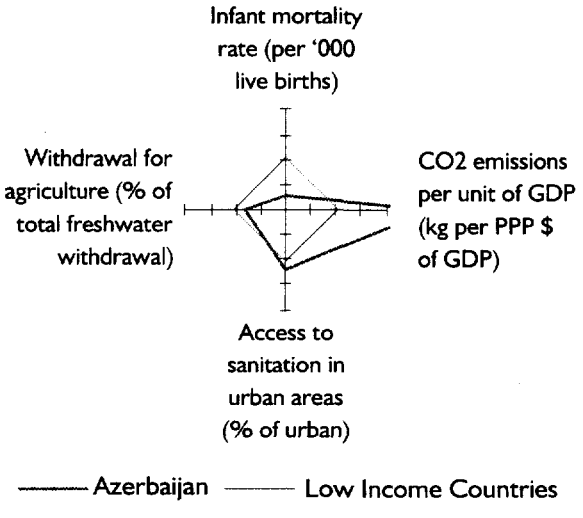
The next section in this chapter presents a summary of the environmental input that was used to inform the CAS in each case study country. Each CAS input includes a brief analysis of key environmental issues and recommends a CAS environmental strategy. Appendix 1 and 2 present CAS analytical matrices and environmental indicators associated with each CAS environmental strategy. The chapter concludes by identifying the characteristics of an environmentally sound CAS. It draws lessons from the analysis undertaken and the effort to influence the CAS in each country. Recommendations are made based on these lessons.

Table 3. Environmental analysis matrix — Argentina

Key issues	*Forests management*	*Water pollution management*	*Solid and hazardous waste*
Current issues - local - regional - global	Between 90,000 and 120,000 ha of natural forests and woodlands are lost each year. Almost 1% of GDP was spent on damage repair after the 1992 and 1982 floods, which are partly attributable to deforestation of watersheds; 3.1 million ha were inundated in 1992 causing the evacuation of more than 121,000 persons. An estimated 1.5 million head of cattle and 30% of soybean plantings in Formosa and Misiones, and Chaco's cotton crop were affected	*Groundwater pollution* (arsenic pollution and salinization). One of the most important pollution problems because of associated health-risks and the irreversibility of contamination. *Surface water contamination* (from industrial effluents & untreated sewage) Major cause of property damage (in combination with flooding), amenity loss and ecological damage in and around major urban areas and several inland lakes; In several inland locations the water bodies are polluted enough to affect water treatment plants. Health impacts are therefore more likely there than in metropolitan Buenos Aires.	About 47,000 tons/yr. of hazardous wastes are produced in the Province of Buenos Aires alone; Hazardous waste is illegally unloaded in open air dumps, septic tanks, and leaching pits; Some open air dumps raise concerns due to inadequate location, design and operation; Burning of solid waste in open air dumps contributes to particulate pollution in the air; Garbage piles up in empty lots and local streams -problems arise from inadequate buffering from inhabited areas, accessibility to scavengers and children, location in low areas subject to flooding and contamination of groundwater.
Driving force, e.g.: - population growth - poverty - inequality	The native forests are under pressure from expanding/shifting agriculture and overgrazing. Floods are expected to become more severe as deforestation increases.	All urban pollution problems are expected to increase as more people move to urban areas. This may be especially true for poorer areas since increases in rural poverty have resulted in migration to urban areas.	All of the urban pollution problems are expected to increase as more and more people move to urban areas. This may be especially true for poorer areas since the detected increase in rural poverty has resulted in increased migration to urban areas.
Impacts of macro policies	Macroeconomic instability has contributed to loss of native forests through / by: i) limiting job opportunities for the poor, who turn to subsistence agriculture in and around forests; ii) inflation, which boosted the demand for land as a long-term illiquid hedge and cattle as a short-term liquid hedge. This has lead to expansion of the frontier at the cost of native forests; iii) making Government funds scarcer, depriving protected areas of effective protection.		
Impacts of sectoral policies	Tariffs on the import of pulp and paper products, grants for tree planting, and regulations requiring replanting, have resulted in natural forest conversion to plantations; Lack of an inventory of native forests and a solid knowledge base has hampered development.	Little monitoring of ambient water quality and virtually no analysis of health effects and other economic costs. *Surface water contamination*. None of the provinces have adopted environmental quality objectives for surface waters; The pollution discharge fee stipulated by Decree 2125/80 was never implemented.	No specialized facilities for offsite treatment or safe disposal of hazardous wastes; Control over quality of wastes deposited in landfills leads to hazardous wastes being dumped illegally under uncontrolled condition; Low tariffs and the same tariffs for all waste generators; No discharge fee reflecting cost of removal, treatment and safe disposal of each type of waste.
Impacts of projects and programs		Existing pollution management projects are expected to improve the current situation in some of areas.	Existing pollution management projects are expected to improve the current situation in some of areas.
Poverty impacts	Approximately 28% of Argentina's poor are located in areas at high risk from flooding; Native forests are the basis for the production of many forest products, benefiting mostly rural poor populations; A complete lack of support for small farmers has made it difficult to undertake tree planting; Sedimentation from soil erosion is more likely to affect poor people's health due to dirty water.	*Groundwater pollution* Health-risk exposure for large share of households, including a major share of the poor; Only 24% of the rural population have access to safe water, 17% have access to piped water, and only 3% have connections to sanitary sewers; The rates of incidence of diarrhea reached 27% in Misiones and 39% in Salta among children aged 0-4.	Open air dumps are adjacent to irregular settlements where most households depend on groundwater; Poorly buffered dumps result in children and other from nearby settlements having easy access.
Environment / Resource Institutional issues	No national laws re watershed management exist; instead it is the responsibility of the provinces.	Fragmented activities among agencies leading to overlapping jurisdictions, weak monitoring and enforcement of standards; The coordination and management of water resource data is weak due to the privatization of 'Agua y Energía' system.	Absence of facilities for the treatment and disposal of hazardous wastes; Practical responsibility of municipalities, but legal responsibility of provinces results in problems.

Azerbaijan

The Azerbaijan CAS was approved in August 1999. The data diamond below shows Azerbaijan's environmental position relative to comparable low income countries. This case study was undertaken by Samuel Fankhauser.



Azerbaijan is a country that is rich in oil and other natural resources. Careful management of these resources, particularly its oil wealth, will be critical for Azerbaijan's economic development. Azerbaijan also suffers from severe environmental degradation, a legacy from industrial activity prior to independence. Its main environmental problems include high levels of air and water pollution in certain hot spots, inefficient water use, low energy efficiency, and high carbon emissions per capita.

While Azerbaijan faces many environmental challenges, there is also considerable potential for environmental improvements through win-win measures. With small adjustments, priority development projects can result in environmental benefits. Some of these opportunities are outlined below. The following section summarizes the environmental input provided to the CAS country team. It includes an assessment of Azerbaijan's key environmental challenges and their links to economic development. This is followed with a proposal for a CAS environmental strategy. Further details about the underlying forces that drive environmental change in Azerbaijan and their sectoral and macro links are presented in a matrix in Appendix 1.

Key Environmental Issues

Water Use and Pollution. Compared to other countries with similar per capita income, Azerbaijan has a relatively advanced system of urban infrastructure that was inherited from the Soviet Union. Nonetheless, piped drinking water is provided to less than 50 percent of the population, and those who do receive water obtain it at a subsidized rate. Generally, water is of low quality and not potable. Hot spots for water pollution are the Apsheron Peninsula (including Baku and Sumgait) and the Caspian Sea. The two main sources of pollution are industry and oil exploration, with insufficient waste water treatment also contributing to the problem. Azerbaijan also has a high rate of annual water withdrawals. About 74 percent of the water is used for irrigation with water losses being as high as 50 percent. Key actions to improve water supply efficiency and quality are: improvements in irrigation efficiency, improved water utility management (including loss reduction and cost-based pricing), and, improved solid waste and waste water management.

Air Pollution and Greenhouse Gas Emissions. Air pollution problems in Azerbaijan are concentrated in a small number of 'hot spots': 96 percent of measured emissions occur in 5 cities. The major sources of air pollutants are power plants, industry and vehicular traffic. Industrial decline has lead to a temporary improvement in air quality, although this trend has been partially offset by an increase in pollution-per-unit-output, the virtual absence of pollution prevention and abatement measures, and an increase in the vehicle fleet. Particulate matter

emissions appear to be especially harmful with estimated health costs amounting to about 3–4 percent of GDP (NEAP 1998). Azerbaijan also has relatively high per capita emissions of greenhouse gases—5 to10 times higher than countries with similar per capita incomes. One main source of emissions is oil exploration, and the fact that a significant amount of associated gas is vented, rather than captured and put to productive use. Another reason appears to be the very low energy efficiency of the country. This latter issue would be most appropriately addressed in the context of overall reform of the power sector.

Oil Resources Exploitation. Oil extraction in Azerbaijan has a direct and negative effect on water and air quality. The extent of future pollution will be largely determined by the quality of in-built mitigation measures and overall environmental regulation and enforcement. The indirect effects of the oil boom are less clear. The income effect from oil wealth is likely to lead to more demand for environmental resources, but may also lead to a switch from low-quality domestic goods to imports (further helped by the expected appreciated of the exchange rate). Examples would be resurgence of timber imports (easing pressure on domestic forests) and perhaps natural gas, which was replaced by cheaper domestic mazut for balance of payment reasons. In the long-run mechanisms have to be put in place to make the exploitation of oil resources compatible with sustainable development .

Natural Resources and Ecosystems. While forest statistics do not show noticeable deforestation, there is evidence of rapid deforestation around refugee camps and areas affected by the 1992–94 war with Armenia over Nagorno Karabakh. Without other sources of energy, internally displaced people have had to rely on fuelwood. This problem is partially, but not fully addressed by the Bank's Pilot Reconstruction Project. Another resource of national and international importance is sturgeon. Since 1991 the stock of sturgeons has declined from 140 million animals to 35 million animals or less. The main reasons for the decline are over-fishing, management problems, and pollution. The first two problems are addressed under Bank projects.

CAS Strategy

Given the urgency of the problems faced in Azerbaijan, environmental issues have been a priority for many donors. The focus so far has been on environmental clean up, the Caspian sea, capacity building, and activities related to global conventions. While invested sums have been significant, they are small relative to needs and many projects have been pilot activities. In the short term, Azerbaijan needs to tackle pollution hotspots, which can lead to significant improvements in welfare and economic performance. It is recommended that the CAS exploit win-win opportunities that are complementary to other transition and reform priorities and support environmental standards that reflect pollution risks and budget constraints.

A long-term environmental strategy in Azerbaijan would center around a framework for sustainable development and growth. This strategy would focus on management of resource rents related to oil wealth; better environmental management capacity at all levels of government; and deepening and consolidation of environmental improvements with measures beyond the immediate priorities, for example, solid waste and waste water management and lead phaseout.

The Azerbaijan country team recognizes the need for environmental improvements, and the envisaged lending program includes several components that should enhance the quality of the environment in Azerbaijan. The main environmental recommendations that were proposed for the CAS are outlined below.

Lending and On-going Activities. Azerbaijan has an on-going Environmental Support Program. Also proposed is a new project, the *Azerbaijan Environmental Investment and Management Project,* which focuses on privatization and environmental education. The environmentally sound privatization component of the new project would help (i) achieve environmental improvements and support the privatization of highly polluting enterprises, (ii) establish a consistent framework for integrating environmental issues into the privatization, (iii) introduce management tools and liability standards for assessing environmental damage from privatization and for managing environmental liabilities, (v) finance pilot environmental assessment studies for highly sensitive enterprises, and (vi) provide related training and assistance for environmental assessment.

The environmental education component would support the development of a comprehensive environmental education system through (i) developing of curricula for environmental education at primary, secondary, and college education levels and teacher training materials, (ii) conducting teacher training in selected schools,(iii) educational campaigns targeting affected populations in environmental sensitive or polluted areas, and (iv) improving linkages among the State Committee for Environment, Ministry of Education, Teachers Associations, environmental NGO's and community groups.

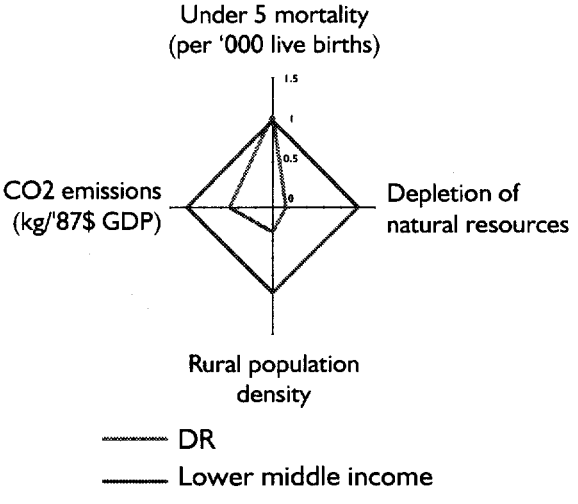
Integration of Environment in Sectoral Lending. There are several opportunities in Azerbaijan where small changes in non-environmental sector lending can result in environmental improvements. Examples of such opportunities include: pollution reduction through energy efficiency measures, for example, reduced transmission and distribution losses in the power sector as part of a program for commercialization of the power sector, improved water quality and efficient use through the proposed agriculture / irrigation project, and public sector reform at municipal levels. Improved licensing and control measures for sturgeon fishing in the context of restructuring the relevant state enterprise (Azerbalygh), capturing currently vented natural gas as part of the restructuring of the oil sector, and strengthening environmental management as part of public sector reform are other examples.

Economic and Sector Work. Azerbaijan's urgent pollution problems and associated health risks need to be addressed. It is proposed that economic and sector work be undertaken to define and identify options for establishing environmental standards that reflect pollution risks and budget constraints.

Technical Assistance. Azerbaijan would benefit from technical assistance to ensure that its management of oil wealth is consistent with sustainable development. Support for developing a green accounting program and systems for managing resource rents are recommended.

Dominican Republic

This CAS was finalized in June 1999. The data diamond below shows Dominican Republic's environmental position relative to comparable lower middle income countries. This case study was undertaken by Lisa Segnestam and Kirk Hamilton.



The Dominican Republic (DR) is dependent on natural resources for a number of significant economic activities. Priority areas where environment and development are clearly linked are tourism, water supply, and sewage and solid waste management. Medium and longer term issues that are also need attention include land tenure and land use planing, mining, environmental information and education, and watershed management. In general, the close ties between natural resources and economic growth in the DR ensure that sound environmental management is an important development objective.

Key Issues

Sustainable Tourism. Tourism is the DR's largest source of income. In 1998, despite a strong hurricane, 4 percent of GDP came from tourism. The tourist sector also has strong horizontal and vertical linkages, i.e., any decline tourism will contribute to a decline in other sectors since tourism is a key consumer of domestically produced goods. For example, 30 percent of the demand in the agricultural sector comes from the tourism sector. In general, sustainable development of this sector will be crucial for a continued positive social and economic development in the country. Unfortunately, the current type of inexpensive mass-tourism and its exponential growth have not been very beneficial for the environment or visitors. It is important that emerging problems associated with the structure of this sector be analyzed and addressed.

Water, sewage and solid waste. Water supply, sewage and solid waste influence health and economic activities in the DR, particularly because of their impact on the tourism sector. In comparative terms, access to potable water in the DR is well below average access among comparable income groups. Tourists are affected by water pollution, sewage in the ocean, and solid waste in natural areas. For instance, British tourists decreased by almost 20 percent between 1997 and 1998 as a result of illness from unsanitary water supply. Furthermore, solid waste spillage acts as a disincentive for investors, decreasing foreign capital inflows to the country. Tourism also increases production of solid waste and sewage both through increases in the number of visitors and in informal dwellings that arise around tourist areas. Despite private sector interest and the importance of clean water and waste management for economic development, the government's efforts in this area have been hampered by lack of resources, management, and land-fills. A related major issue that needs to be addressed is the lack of waste regulations in informal communities that grow around tourist areas.

Lack of environmental awareness and understanding of the links to health have contributed to current problems associated with solid waste and sewage management. Enhanced

education in general, and environmental information and education in particular, would be very important to stem degradation. There is also a need for efficient transfer of information to stakeholders, especially between provincial and municipal governments.

Mining. The mining sector in DR is small but has considerable potential. Unfortunately, it faces several institutional problems. Uncertainties concerning environmental regulations, lack of enforcement of mining policies, insecurity of tenure, and inadequate information systems all contribute to the challenges faced by the sector. These problems have contributed to a decline in mining revenues. Mineral exports were about $250 million in 1996/97 and declined to $150 million in 1998. In 2004, mineral exports are expected to be $10 million if no action is taken. However, in a scenario with mining reforms, these figure could be in the range of $400–500 million per year. From an environmental perspective, mining reforms would need to address gaps in environmental norms and regulations and control mining related pollution. An important pollution problem that needs to be addressed is ground and surface water contamination as a result of acid water generated from sulfide rock exposure to the atmosphere.

Watershed management. Upstream deforestation has had severe economic and environmental consequences for watersheds in DR. Several are affected by sedimentation (up to 50 percent in some cases) increasing the costs of managing hydropower reservoirs. In response, the Ministry of Agriculture has recently initiated a reforestation program. So far, approximately 10,000 hectares have been planted with trees. The project contributes both to reforestation and increased employment opportunities in upland areas. However, this program is in effect a tree-growing subsidy to private landowners. It is likely that these funds would be better used in a broader program of community-based natural resource management.

Land tenure and land-use planning. The land tenure system in the DR is characterized by large government holdings and few private owners. Distribution of productive low lands is skewed, pushing many landless rural workers to either marginal lands or to the country's urban areas. Those that move to the marginal lands often overexploit the land due to unclear property rights. Parts of publicly owned land are used for sugarcane plantations, cattle ranching or other types of production that are both environmentally harmful and economically sub-optimal.

Almost 40 percent of the land in the Santo Domingo area is illegally possessed at this moment due to the lack of a well functioning land tenure system. This system is from the beginning of the century and is not designed to handle the 32,000 transactions per year that are currently carried out. The resulting problems are noticeable in the tourist sector – illegal use of protected areas for tourism is rampant. In general, the DR needs a better system of land tenure and land-use planning in order to efficiently use its land resources.

CAS Strategy

DR's environmental strategy for the CAS needs to focus on issues that are most important from a development perspective and for poverty reduction. This implies ensuring that DR's tourism sector continues to be a leader in economic development, mitigating problems such as water pollution, and reforming existing land tenure and land-use planning systems. It is recommended that this be carried out through lending, enhancement of on-going projects, economic and sector work and technical assistance.

Lending and enhancement of on-going projects

Water and Waste Sector. The World Bank supports several projects related to water, sewer and waste management. However, some of these projects could be enhanced by adding on new components. For example, it would be desirable to add an information component to existing solid waste management and wastewater disposal projects in tourist areas. In particular, it would be appropriate to add an education component on health effects to the new Learning and Innovation loan on waste-management. Another option would be to provide funding to education-focussed NGOs to work on health and waste-management issues. Lastly, it would be useful to address the role of the informal sector in recycling waste and identify mechanisms to evaluate and support on-going waste-management activities at the community level.

Watershed Protection and Land-Use Planning. Watershed degradation is a serious problem with major cost implications for managing hydropower reservoirs. Projects focussed on stemming degradation in watersheds need to give careful attention to issues of poverty reduction and stakeholder participation. An expansion of the existing watershed project to include poverty alleviation, rural development, and community-based natural resource management is recommended.

Another area where additional work is required is in land-use planning and land tenure reform. Currently, there are several initiatives being undertaken in this area by the Inter-American Development Bank. These efforts may be complemented through activities under the existing judicial reform program.

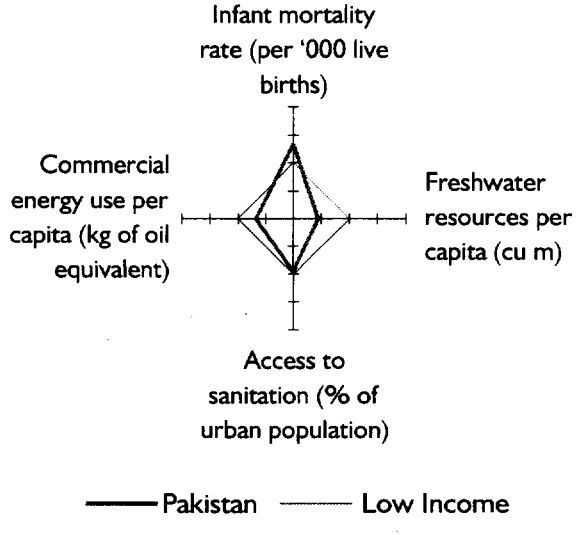
Economic and Sector Work and Technical Assistance. Two pieces of analytical work were recommended for inclusion into the CAS.

Tourism. It is important that economic and sector work be undertaken on constraints to and opportunities for low volume high-return tourism. Tourism related questions that need to be addressed include: what kinds of regulatory systems need to be in place? What are some opportunities for eco-tourism and health-tourism? How can bigger hotel-chains with their stringent environmental standards can be promoted? The existing satellite accounts for tourism, developed by the DR could be a source of information and/or a point of departure for this study. If and when the country decides to arrange seminars with experts, the Bank may be able to play a catalytic role, helping the process to get started.

Mining. A technical study is recommended on a mining strategy for the Dominican Republic. This study would need to identify mechanisms for reforms in four areas: institutional, legal, environmental, and enterprise and privatization. It would be desirable to use an incremental approach to move this forward.

Pakistan

The CAS was postponed because of political changes in Pakistan. However, the information presented below was used for preparing an environment strategy, which in turn will act as input to the CAS. This case study was undertaken by Priya Shyamsundar.



Pakistan's economy has seen impressive growth in the eighties and early nineties. However, this growth has not been accompanied by environmental and social improvements. The general decline in Pakistan's environmental health is supported by several facts: water availability has declined from 5,300 cubic meters per capita in 1951 to a borderline 1,200 m^3/cap today; roughly 38 percent of Pakistan's irrigated land is water logged and 14 percent saline; and, forests were deforested at a rate 3 percent per year in the eighties (Banuri and Khan 2000, World Bank 1997a, WDI 1999). Finally, water pollution is a major concern with an estimated 60 percent of infant mortality attributed to it (World Bank 1997b). It is also estimated that environmental degradation costs Pakistan approximately 3.2 percent to 5.5 percent of GDP.

Pakistan's key environmental problems, their driving forces and cross-sectoral determinants are presented in detail in Appendix 1. What follows is a brief description of these problems and recommendations for the CAS.

Key Issues

Agricultural Sustainability and Water Use. The International Water Management Institute estimates that Pakistan is among 17 countries in the world that are likely to face the most severe water scarcity in the future (Seckler 1998). Part of the underlying driver of this looming problem is Pakistan's irrigation system. The Indus Basin Irrigation system (IBIS), which provides the bulk of the water for irrigated agriculture, is plagued by inadequate drainage, low delivery efficiency, distribution inequities, and wasteful water-use. This has resulted in large-scale water-logging and salinity problems, which are further aggravated by emerging groundwater scarcity. Groundwater use has been critical for agricultural growth in Pakistan, but rapid increases in use have lead to over-exploitation and intrusion of saline water into freshwater aquifers.

Natural Resource Degradation. Deforestation is perceived to be a major problem in Pakistan, partly because of its implications for biodiversity loss and partly because of poor people's dependence on forests. Official statistics suggest that there has been a 27 percent increase in forest area between 1980–81 and 1996–97. However, various other sources suggest that Pakistan has been deforesting its small area of forests by about 3 percent per year and that woody biomass may be decreasing between 4 percent to 6 percent per year (Banuri and Khan 2000, Biodiversity Action Plan 1998). Furthermore, 80 percent of Pakistan's rangelands are estimated to be degraded (NCS 1992).

Water Pollution. Water pollution is perhaps the most serious environmental problem facing Pakistan. An estimated forty percent of hospital beds are occupied by people with water related

diseases; 60 percent of infant mortality is associated with water-related infections and parasitic diseases (World Bank 1997b). Data also indicate that Pakistan and Bhutan rank second among 31 Asian countries in annual diarrheal episodes among young children (WHO 1995).

Water pollution in Pakistan has three main sources: domestic and municipal waste, industrial pollution and agricultural run-off. Domestic and municipal waste seems to be the most important source, though the evidence on this is limited (PNCS 1994). While there have been improvements in municipal water supply services, increasing piped water supply without addressing hygiene and sanitation problems will not sufficiently improve water quality. Currently, only 39 percent percent of Pakistan's population has access to sanitation services (WDI 1999). This suggests that an important priority for Pakistan is to develop strategies for wastewater disposal in order to decrease contamination of drinking and cooking water.

Energy Use and Air Pollution. Pakistan is dependent on natural gas, oil, and hydroelectricity for its commercial energy needs. The share of petroleum products in energy supply is forecasted to steadily increase and reach 40 percent by 2010 (Aziz 1999). As the share of petroleum products in energy supply increases, energy demand and prices will drive economic development both directly and through their impact on foreign exchange reserves. This will also have a marked impact on air pollution and the economy's greenhouse gas intensity.

Indoor and outdoor air pollution are both major issues in Pakistan. Indoor air pollution problems stem from dependence on traditional fuels, which make up 85 percent of total fuels consumed by Pakistani households (GOP 1998). In the early 90s, about 46 percent of biomass dependent households cooked indoors, at least during some parts of the year. More importantly, only about 17 percent of these households used stoves with chimneys (Hosier 1993). This is a significant problem, particularly because it affects poor women and children the most.

Transport and industrial pollution are the principal contributors to dirty outdoor air. Diesel dominates the transport sector (almost 69 percent of total transport fuel demand in 1997 was met with diesel), increasing human exposure to small particulates. Another problem is gasoline lead content—average lead content is .39 grams per liter (which is similar to levels in India and China). The government has sought to introduce higher standards for clean fuel, but this program has yet to be implemented (Aziz 1999).

CAS Strategy[10]

Pakistan faces some very serious economic and environmental problems. At this juncture in Pakistan's development, it is critical that environmental strategies are closely tied to key economic objectives and to the Government's poverty reduction efforts. The following strategy emerges from this basic premise.

Lending and on-going projects

Capacity Strengthening and Implementation of Environmental Regulations. The Bank recently closed the Environmental Protection and Resource Conservation Project. The goals of the project were to strengthen environmental laws and protection agencies and help rehabilitate selected watershed and rangeland areas. While this project has been successful in initiating regulations and strengthening the environmental capacity of the government, there is clear need for additional support that builds on past achievements and failures.

The World Bank is currently considering developing the next phase of its support for environmental activities in Pakistan. The

following actions will be a key priorities: i) implementation of EIA regulations; ii) enforcement of National Environmental Quality Standards; and, iii) continued efforts to strengthen the Ministry of Environment and improve coordination between different environmental agencies. Pakistan has a vibrant environmental policy community that has identified increased transparency, inclusion of NGOs, mainstreaming of environmental issues, and improved monitoring as important goals. Thus, any new lending would also need to ensure that these issues are given due recognition.

Rural Poverty and the Environment. Any new Bank supported environmental activities need to have a poverty focus. This suggests that lending related to rural water and indoor air pollution and natural resource management should receive priority. An urgent need is lending for waste water disposal systems that can complement water supply projects in rural areas. Further details about poverty-environment concerns in Pakistan are presented in the next chapter.

Integration with Macro and Sectoral Lending. In the last year, the Government of Pakistan has agreed to several economic reforms (PFP 1999). Reforms related to public finance, energy use and agricultural development are likely to have positive environmental impacts. Other reforms that are growth-inducing may simply exacerbate certain environmental problems that are a result of production externalities. In negotiating a new structural adjustment loan with the World Bank, the Government of Pakistan is proposing to undertake a series of reforms in order to promote good governance. These reforms, which hope to improve transparency, decrease corruption and increase bureaucratic efficiency, will help the environmental sector.

Energy Sector Reforms. Recent energy sector reforms include reform of the Water and Power Development Authority, privatization and growth of independent power producers, privatization of gas distribution companies, implementation of theft and loss reduction programs, and increases in electricity tariffs. Policy reform has resulted in a 21 percent increase in electricity tariffs, including reductions in cross-subsidies to households and agricultural tube wells owners. This will likely motivate conservation and a stemming of local pollution and climate change impacts. Increased cost of energy use will also motivate water conservation. The new structural adjustment loan also requires the creation of new petroleum and gas regulatory authorities that will provide a regulatory framework to encourage private sector development in this area. Gas sector reforms are required to encourage development of Pakistan's indigenous gas resources. While there are clearly foreign exchange benefits from this action, natural gas is also a cleaner energy source relative to fuel oil in terms of SO2 and CO2 emissions.

Many opportunities to link economic and environmental reforms remain. For example, further reforms are needed in the petroleum sector. Distortions include direct subsidies to inefficient refineries and high tariffs on petroleum imports, making it less attractive for new entrants into the refining industry. Another policy issue that needs to be addressed is the price differential between diesel and gasoline. Low administered prices of diesel and kerosene relative to petroleum increase demand for these fuels and also lead to gasoline adulteration. The tax element in gasoline/HOBC price is about 55-60 percent and for diesel about 15-20 percent (Aziz 1999). This results in the price of gasoline being almost twice that of high speed diesel, which is a highly polluting fuel.

Agricultural Sector Reforms. Proposed reforms in the agricultural sector will also have beneficial environmental effects. Reduction in fertilizer subsidies will increase incentives for integrated

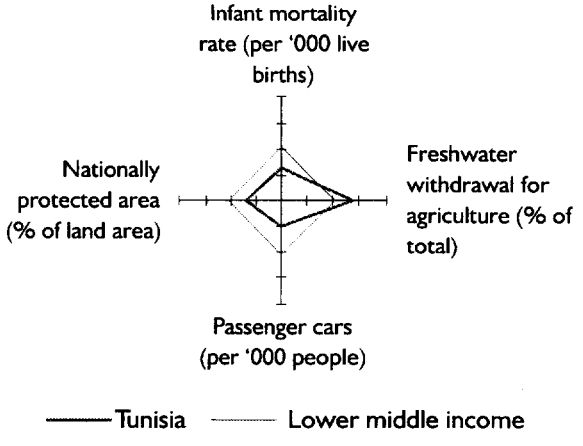
nutrient management techniques. The full realization of these benefits will depend on the availability of extension services to good practice. Other new reforms include strengthening of land titling and registration, which should decrease uncertainty over ownership and encourage investments in land. There also seems to be new government commitment to decrease public sector interventions in factor and output markets, which should help remove price distortions that lead to unsustainable cropping patterns.

Economic and Sector Work. Anecdotal evidence and data on household energy use suggests that indoor air pollution may be a very important problem in Pakistan. Because of its impact on poor women and children, it is critical that the health effects of indoor air be carefully and urgently understood. It is proposed that a study of the health effects of indoor air pollution be undertaken. This study would also need to analyze options for mitigating negative health impacts through education, new technology, subsidies for alternate energy sources, and policy reforms.

Technical Assistance and Dialogue. As economic reforms lead to industrial growth, complementary policies to stem pollution are needed. Pakistan has already made progress in trying to institute pollution charges on industries that do not comply with National Environmental Quality Standards. There is now agreement between industry and NGOs to a proposed charge of Rs 50 per pollution unit to be achieved by charging 10 percent in year one and escalating to 80 percent in year five (Khan 1998). Unfortunately, this effort is currently stymied by disagreements over how revenues obtained from these charges will be managed. This is an area where the Bank may be able to help negotiate an agreement or inform Pakistan about experiences in other parts of the world. Continued dialogue with the government on implementation of environmental regulations, integration of environmental concerns into sector strategies, transparency and increased open-ness to NGO involvement is also recommended.

Tunisia

The CAS was finalized in March 2000. This case study was undertaken by Maria Sarraf and Kirk Hamilton. The data diamond presented below shows Tunisia's environmental position relative to comparable countries.



Tunisia leads the Middle East North Africa (MENA) region with regard to environmental protection. The strong institutional setup and legislative framework have both contributed to this success. The Government's commitment for environmental protection is also reflected through the budget allocated in the most recent five year development plan. Planned investments in activities related to ecology and environmental protection were increased by 67 percent in the Ninth Plan in comparison with the Eight Plan to represent 1.6 percent of GDP. Despite Tunisia's progress in environmental awareness, many challenges still need to be addressed. On the basis of a CAS environment mission to Tunis in June of 1999, the following key environmental issues, with strong links to economic outcomes, were identified.

Key Issues

Trade and environment. Tunisia was the first country in the MENA region to sign a free trade agreement (FTA) with the European Union. This treaty involves a full trade liberalization over 12 years starting in 1997. The agreement is expected to play an important role in Tunisia's economic growth and to open wide potential for trade. However, it will also pose some challenges for the environment. The relation between trade and environment has caught the attention of Tunisian officials, who expressed interest in understanding the various links between trade and the environment.

Opening the trade regime gives greater access to new technologies, and these are often less polluting and resource intensive than their older counterparts. The effects of liberalization on output entail both composition and scale effects. The composition of output in Tunisia will shift to reflect changes in trade protection, while growth overall should rise as a result of liberalization—the net effects of composition and scale on pollution emissions and resource demand can only be estimated through detailed studies. Finally, while the FTA will increase access to European markets for Tunisian producers, these producers will face an array of product and packaging standards, and informal requirements for cleaner production technologies, all of which are related to environmental standards and policies in the EU.

Tourism and Coastal Zone Management. Tourism is an important economic activity in Tunisia. Between 1992–96, income from tourism amounted to US$ 1.4 billions. For the period 1997–01, income is expected to be as high as US$ 2.1 billions. More than nine tenths of tourism activities are located along the coast. As a result, intense tourism development has taken place along the coast and within close proximity to the beach. Tunisians are aware that preserving their coast's natural beauty is crucial for their economy and the GOT is committed to improve the management and planning of tourism developments

The strategy of the National Bureau for Tourism is to strike a sensible balance between the

promotion of tourism and the preservation of the environment. It's objective is to diversify tourism's activities away from the "sun, sand and water" habits in order to reduce pressure on coastal resources. The following issues were highlighted by the Government as requiring particular attention: improve the management of fragile areas; improve the capacity of the Coastal Observatory; fight beach erosion; and improve environmental impact evaluations.

Urban Environment. About 63 percent of Tunisia's population live in urban areas with more than 40 percent in agglomerations of more than one million inhabitant. Both industrial pollution and urban waste pose a constraint for the quality of urban life.

Annual industrial solid waste generated in main industrial centers and hospitals include about 7,000 tons of heavy metals, 3,000 tons of infectious waste and 8.7 million tons of non-hazardous waste.[11] Municipal solid waste is estimated at 2 million tons per year. The collection and transport of municipal waste is well developed in Tunisia, however, waste transfer and disposal still require major improvement. Because of the urgency of the situation, 18 landfills and a composting plant are under preparation.

Wastewater services are very well developed in Tunisia. In urban areas, 100 percent of the population has access to sanitation. Tunisia is, however, poorly equipped with storm water sewers drainage systems. As a result, rain often causes flooding in certain areas, is slow to drain in urban centers, and can generate pollution through infiltration. Resolving the issue of rainwater has been highlighted in the IX Plan. In addition to the rainwater problem, a large quantity of sludge is generated in treatment plants. In the past, part of the sludge was sold to farmers and the rest was dumped in landfills. Farms are currently reluctant to buy the sludge because of the potential presence of heavy metals and bacteria and certain landfills are starting to refuse the sludge because of lack of space.

Transport and Energy. In the transport and energy sector, three issues with environmental linkages require particular attention: fuel pricing, the adoption of less polluting fuels, and the promotion of renewable energy. Fuel prices have important incentive effects with regard to pollution emissions because they help determine the efficiency with which fuels are burned. Relative prices, particularly the price for diesel relative to gasoline, are also important because fuels vary widely in their environmental impact. Economic efficiency would therefore argue for diesel prices to be higher than gasoline prices. In 1996, the price of gasoline in Tunisia was $0.65/l compared to $1.08/l in Europe while the price of diesel was $0.32/l compared to $0.75/l in Europe.[12] It is clear that price levels are substantially below European levels, and the relative price of diesel vs. gasoline is low in Tunisia compared with Europe

Unleaded gasoline has been introduced in Tunisia, but still only represents a small fraction of the market (about 4 percent of gasoline use in 1997). Lead and sulfur emissions from the transport sector are particularly high in the region of Tunis and Sfax. With increasing urbanization, air pollution from the transport sector could become a serious threat to health. Total energy use in Tunisia was estimated at 7.6 million ton of oil equivalent in 1996. About 13 percent was traditional fuel (fuelwood, charcoal, and so forth) and 87 percent commercial energy (crude oil, natural gas, and solid fuels, among others) In order to reconcile an increase in energy demand with protection of the environment, reliance on energy efficiency and renewable energies will become increasingly important in the years ahead.

Natural Resource Pricing. Water pricing has a critical impact on the efficient use of water

resources, and this in turn can affect the quality of natural resources. Under-pricing irrigation water, for instance, can lead to water-logging and salinization of soils. Evidence from the early 1990's presents a mixed picture of irrigation prices compared to O&M costs in different regions of Tunisia, with some regions recovering costs while others fall short. Moving towards an economic price for water is a government priority, and this issue is being tackled in the Agriculture Sector Investment Loan and the Water Sector Investment Loan.

CAS Strategy

Tunisia has access to concessional financing for environmental projects from the European Union and bilateral donors. Therefore, the comparative advantage of the World Bank lies in the non-lending services, which take advantage of the Bank's technical expertise and wide experience, or in providing soft finance in the form of GEF funds.

Lending and on-going projects

Tourism and Coastal Zone Management. The Bank is currently preparing a project on the "Management and Promotion of Cultural Heritage" and an agreement has recently been reached for a GEF project on the "Protection of Marine Resources in the Gulf of Gabès." To assist the implementing agency setting up the Coastal observatory, METAP[13] is considering a feasibility study on the "Creation of a Surveillance System for the Coastal Zone."

Urban Environment. Through the METAP program, a study on the "Control of Industrial Pollution in Tunisia" has been completed and the Bank is providing technical assistance for solid waste management in Tunisia through the "Plastic Packaging Waste Collection and Recycling Project for Greater Tunis" and the "Regional Solid Waste Management Project". The Bank has also been involved in the wastewater sector in Tunisia over many years and presently the "Greater Tunis Sewerage and Reuse Project" is under implementation.

Transport and Energy. The World Bank's ongoing "Transport Reform and Investment Program" addresses the issue of clean fuels. One of the program's objective is to increase the use of less polluting fuels. The targets of the Program are a) to increase the market share of unleaded gasoline from 4 percent in 1997, to 20 percent in 2002 and 33 percent in 2005; b) to decrease the sulfur content of diesel from 0.4 percent (as percent of weight) in 1997, to below 0.05 percent in 2002; and c) to decrease the lead content of leaded gasoline from 0.4g/l in 1997 to below 0.15g/l in 2002. The program also aims at creating monitoring capacities for air pollution in large cities. The question of diesel pricing should be raised in this program.

The climatic and economic conditions in Tunisia are very favorable for the application of solar water heating systems. The Global Environmental Facility has been financing a project on "Solar Water Heating Systems in Tunisia" that aims at installing about 50,000 m^2 of solar collector areas by the year 2003. This will allow a saving in energy use of about 6,000 toe, and will reduce an estimated 18,000 tons of CO_2 emissions per year.

Economic and Sector Work

Trade and the Environment. Since 1998 the "MEDPOLICIES"[14] initiative has been conducting multiple studies to analyze the impact of environmental regulations (such as an increase in water and energy price) on the export competitiveness of various countries in the MENA region (including Tunisia). Given the level of Tunisian interest in trade and environment in the context of the EU FTA, it is suggested that the World Bank offer substantial Economic and Sector Work on trade, environment and EU free trade. The ESW would focus on the impacts of the FTA on the Tunisia's environment. It would address issues

such as (i) the quality, packaging and recyclability of export products, and more broadly any effects that EU product standards reflecting EU environmental regulations may have on production decisions in Tunisia; (ii) the imposition of informal or voluntary requirements for cleaner production technology (through ISO 14000 and/or eco-labeling schemes); and (iii) which sectors are likely to grow as a result of the FTA and what impact might this have on natural resources (especially water resource use) and on potential pollution emissions.

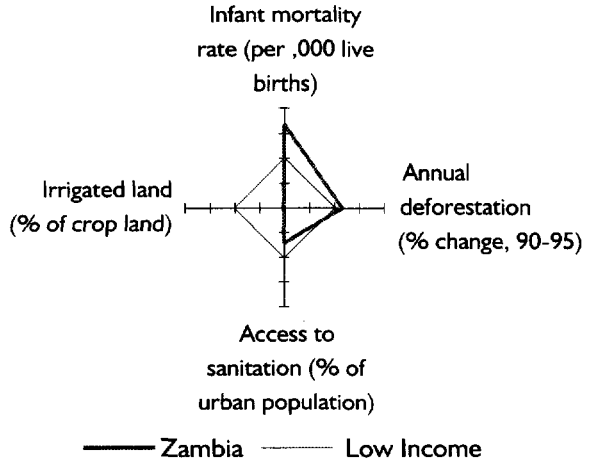
Technical Assistance on Tourism and Coastal Zone Management. The GOT is undertaking many studies to identify the fragile zones located along the coastal area. The Bank could provide technical assistance to the Agency for the Protection and the Planning of Coastal Areas (APAL) to help them identify best practices for rehabilitation, management and protection of those fragile zones.

A major task facing APAL is to find better ways to fight erosion. Many anti-erosion structures have been tested on the Tunisian coast, but in addition to being eyesores most have ended up creating negative environmental impacts (such as, the accumulation of seaweed and the spreading of rats along the structures). A new system, successful on the Canadian coast, is currently being tested in Tunisia. The Bank, could assist the GOT in finding appropriate systems to fight erosion. This technical assistance could take the form of a study that will identify the reasons why previous erosion measures have failed, and recommend a more appropriate system for Tunisia. The study could be followed by a pilot project to test the suitability of the recommended measure.

Activities such as tourism, aquaculture, and other maritime exploitation have caused negative impacts on the marine environment. APAL lacks the technical expertise required to assess the damage caused by these activities. In order to enhance APAL's capacity in managing and preserving the coastal environment, the Bank could provide training to APAL's staff to develop local expertise in a) assessing damages caused by various economic activities on the coastal zone and on marine resources; and b) developing adequate measures and policies to help mitigate those impacts and prevent further degradation.

Zambia

The Zambia CAS was finalized in August 1999. The data diamond below depicts Zambia's environmental position relative to countries with similar incomes. This case study was undertaken by Priya Shyamsundar.



Historically, Zambia's mineral resources have been a critical source of income. Yet, resource rents have not lead to sustained wealth creation. A simple indicator of this is its genuine saving rate, a measure that reflects the true rate of savings in a country after accounting for natural resource depletion, physical capital depreciation, pollution and human capital investments. While gross domestic saving in Zambia was 9.8 percent of GDP in 1997, genuine saving was 1.9 percent. One obvious suggestion that emerges is that future depletion of natural and physical assets need to be more carefully re-invested.

With the exception of its long-term problems of mineral resource management, most other environment and natural resource challenges in Zambia are relatively modest. In fact, Zambia has a unique opportunity to get things right before they go wrong. Any environmental safe guards instituted now would reflect a least cost strategy that could help avoid more serious environmental challenges in the future. More importantly, investments that add value to its natural resources would strengthen the Government's plan to lead Zambia out of poverty by diversifying its sources of economic growth.

Three main concerns dominate the natural resource and environmental sector in Zambia: i) historic problems with mineral resource management and their macroeconomic impacts; ii) the need for safe water, sanitation and solid waste management; and iii) deforestation and its links to poverty. In addition, Zambia needs to, in general, make sure that its economic development path builds on its vast natural assets.

Key issues

Unsustainable Depletion of Mineral Resources. In Zambia, economic development is closely and unavoidably tied to the health of the copper mining sector. In the last four decades, Zambia has gone from a middle-income African country to one of the poorest and much of this change can be directly linked to the decline in mining income. Excessive economic and foreign exchange dependence on mining, decline in international copper prices, and mining sector mismanagement have all taken a significant toll on Zambia's growth.

However, there have been several major promising reforms in the mining sector in the recent past. Privatization of mines and new mining policies will likely result in re-investment in the sector and fuel exploration. Nonetheless, a key macro-economic issue in the long term will be prudent management of mining revenues. In the short and medium terms, monitoring of mining related water and air pollution (from large and small scale mining), environmental impact assessments of new mines, and the environmental impacts of displaced workers from mining and related sectors will need careful attention.

Access to Safe Water and Sanitation and Solid Waste Management. Access to safe water and sanitation is perhaps the single most important environmental issue facing Zambians. An informal indicator of this problem is the recent increase in annual episodes of Cholera. Other indicators are equally compelling. Between 1985 and 1994, the number of Zambians with access to sanitation decreased by 17 percent and those with access to safe water decreased by 5 percent. Co-incidentally, the infant mortality rate in Zambia increased by 24 percent between 1980 and 1996 (WDI 1999).

As of 1994, 64 percent of urban and 27 percent of rural Zambians had access to safe water (WDI 1999). Some emerging solutions to this urgent problem focus on community based water supply. The World Bank funded Urban Restructuring and Water Supply Program supports some of this work. In addition to such support, there is a need for strong and consistent emphasis on implementing institutional and legislative reforms that encourage private sector and community involvement in managing water and sanitation projects. Reforms that focus on integrated water assessment and use are a longer term priority.

Deforestation and Poverty. With limited access to credit and markets, bush fallow forms of agriculture continue to be important in rural Zambia. Along with a 3 percent growth in rural population, this has resulted in a deforestation rate of 0.8 percent per year, a rate that is slightly higher than that for Sub-Saharan Africa (WDI 1999). 90 percent of deforestation in Zambia is attributed to agricultural conversion (Mupimpila et al. 1995). A different form of deforestation is seen in urban fringe areas which supply Zambia with charcoal and fuelwood. Charcoal and woodfuel consumption have increased over time and currently meet 71 percent of Zambia's energy needs.

The costs of deforestation are particularly heavy on the poor. For example, with declining forest cover, rural women are expected to spend 2 extra days each month on fuelwood and water collection – this has a significant additional toll on the poorest households through impacts on labor use in agriculture (World Bank 1994). Furthermore, deforestation related soil erosion and watershed degradation diminish the productivity of subsistence farmers. Unsustainable harvesting of charcoal also has an impact on poverty – this is because it is both an important source of income and a key consumption good for the poor. Deforestation and its implications for poverty reduction will be an important long term priority for Zambia.

CAS Strategy

Zambia's short to medium term strategy for addressing its environmental concerns needs to focus on implementing on-going environmental reforms, building capacity among Zambians in sustainable development, and ensuring that environmental strategies lead to economic growth and poverty reduction and that economic policies result in sustainable changes. Over the long term, Zambia's key environmental strategy is to develop a good governance framework. To this end, the following recommendations are made.

Lending and On-going Projects

Environmental Support Program I. The Environment Support Program (ESP) 1 is the current Bank funded program that tries to establish the basic rules for sustainable growth. The ESP's current focus on harmonizing the differences between various laws will be critical for ensuring that Zambia's growth is sustainable. Institutional capacity building in environmental management, implementing community based pilot projects, and strengthening the Environmental Council of Zambia and relevant sector ministries to undertake environmental impact assessments will be important issues for continued support.

Biodiversity Conservation. A biodiversity initiative is proposed for inclusion in the upcoming CAS. Key objectives here will be to integrate unique use and non-use values associated with biodiversity into the development process and to provide alternatives to deforestation. This activity is likely to be co-financed by GEF and will assist the government in meeting the goals of the Biodiversity Convention.

Integration of Environment in Sectoral Lending. A very important strategy to ensure sustainable growth in Zambia is to incorporate environmental considerations into different economic and social sectors. An existing model for this type of activity is the Bank funded RoadSIP in Zambia, which has built environmental management capacity within the Roads Department. The new agriculture sector investment project will need to pay close attention to issues of soil degradation, agro-biodiversity, integrated pest management etc. to ensure sustainability of agricultural growth. There is also a need to integrate activities of the Water and Urban group with those of the Environment group to address Zambia's critical water and sanitation problems.

Economic and Sector Work

Two important issues for Zambia's growth that will have significant environmental impacts are: i) privatization policies and private sector development, and ii) agricultural development.

Tourism. An area where environmental and privatization policies are closely linked and which requires additional exploration is tourism. Tourism is seen by Zambians as an important source of economic diversification and it can also contribute to forest conservation. Tourism in Zambia has potential, but will face competition from well established tourist destinations such as South Africa and emerging markets in Mozambique. It will also depend on the creation of diverse recreational experiences for tourists and whether these are substitutes or complements to tourist opportunities in neighboring countries. Therefore, a regional approach to tourism is merited. A preliminary market study on the potential for tourism in Zambia relative to other countries in Southern Africa is recommended. The study would need to involve different stakeholders such as the Zambia Investment Center, the Environmental Council of Zambia and the Ministry of Tourism and Wildlife.

Agriculture and Environment. Concerns about deforestation are currently mainly the domain of the Environment Ministry. Yet, solutions to deforestation and decisions about sustainable land use will be driven by changes in agriculture. There needs to be greater co-ordination between the Ministries of Environment and Agriculture. Specifically, co-ordination is required on issues such as agro-biodiversity conservation, deforestation linked soil erosion, land zoning and planning, tree and forest tenure outside gazetted forest areas and the provision of extension services. The Bank-funded Agricultural Sector Investment Project included in its activities agro-forestry and soil conservation issues, but the links between agriculture and the environment need to be more systematically explored and addressed. We propose that this be done through Economic and Sector Work on rural strategy for Zambia.

Technical Assistance and Country Dialogue. Zambia has already undertaken major reforms to liberalize its economy, increase private sector and community involvement, and ensure that its land, water, wildlife, forest and mineral resources are factors that motivate sustainable growth. These new laws nudge the government to share ownership and control in many areas with other stakeholders. Implementing the new laws will not be easy. It will require education, training and capacity building of communities, the private sector and the government. In

support of good governance, continued education and dialogue with government officials on policy implementation is recommended, emphasizing pilot projects that encourage community and private sector participation. More technical assistance and dialogue is needed on instruments available for environmental and socially sustainable development. Finally, environmental indicators need to become part of all future CAS documents in order to document and monitor environmental change in Zambia.

Discussion

The Country Assistance Strategy and Environment program aimed at understanding constraints and opportunities for 'greening' CASs. In order to achieve these objectives, a participatory approach was used whereby team members attempted to improve the environmental quality of CASs in selected countries. In order to assess whether or not this program was successful in "greening" CASs in the selected countries, it is important to outline the characteristics of an environmentally sound CAS. In general, an environmentally sound CAS:

- Provides diagnosis of underlying forces that result in environmental degradation. This diagnosis may appear in the test or in the matrix.
- Attempts to link environmental change to key economic and sectoral policies and to poverty reduction, that is, environmental concerns are mainstreamed.
- Provides tangible evidence of how mainstreaming is planned to be achieved through loans and policy reforms—this is likely to be reflected in the text if task managers have taken tangible steps to act on mainstreaming opportunities.
- Responds to environmental concerns through either a loan , ESW, or technical assistance (unless the Bank has no comparative advantage relative to other donors).
- Reflects a motivation to learn and ensure that the government is updating its own information set about environmental concerns—thus, there is a focus on analytical information and knowledge development.
- Attempts to monitor environmental change and includes monitorable indicators.
- Takes environmental issues seriously by referring to them in the text, in the proposed lending and AAA table, and not just in the matrix.
- Sets reasonable standards for performance indicators in the country program matrix.

CASs in which the CASE team participated were assessed to examine whether there were indeed environmental CASs based on the above benchmarks. The following lessons are drawn from this analysis and from the knowledge that emerged from participating in the CAS process.

Environmental issues can be mainstreamed by identifying linkages between economic development and environmental change. For example, in the Dominican Republic, Tunisia and Zambia, a strong connection was identified between tourism, a major driver or potential driver of economic growth, and environmental degradation. This analyses is reflected in final versions of all three CASs. Thus, where either environmental conservation offers a means for economic development or degradation is beginning to have negative impacts on growth, country teams are likely to be more open to environmental interventions.

Organizing and presenting information in a structured fashion can result in an improved CAS. Most of the CASs in the case study countries reflect a useful diagnosis and analysis of environmental problems. The Tunisia CAS even included the CAS analytical matrix as an Appendix. Except in the case of Azerbaijan and

Pakistan (where the CAS has been delayed), the diagnosis and analysis of environmental concerns is found in the text of the CAS and in the country program matrix. This suggests that a brief 5–10 page note and an environmental analytical matrix identifying environmental priorities for the CAS team are useful for strengthening the environmental quality of CASs.

Comparative environmental indicators that either show trends over time or indicate differences among countries are also extremely useful for drawing attention to environmental concerns and for prioritizing among environmental problems. Indicators are available for all major countries and should be made a part of the CAS Appendix - the Zambia CAS now includes a set of environmental indicators. This would provide also be a simple way for comparing changes between two consequent CASs .

Another important lesson is that building blocks are crucial. Economic and Sector work that is finished during the CAS fiscal year is critical both for informing country teams and because it catches the attention of non-environmental country team members and the government. Thus, ESW acts both as a knowledge device and as a mechanism to increase over-all support. However, in reality, competition for ESW resources is heavy and it is unlikely that there will be an increase in environmental ESW. It would therefore be useful to consider the creation of alternate funding mechanisms for supporting analytical work. A model for such mechanisms is ESMAP which supports energy-environment studies.

Resource and time constraints severely constrain the ability of regional staff to focus on the CAS. Environmental issues need a CAS champion. In most of the studied countries, regional environment department staff were simply unable to put the time into working on a CAS strategy. Without changing the incentives and time constraints staff face and including CAS support in work program agreements, the CAS is unlikely to get the attention it deserves. However, on a positive note, **because of the energy and effort it takes to mainstream environmental issues, any such efforts by regional environment department staff are likely to have a trickle-down effect on the CAS.**

Finally, stakeholder support for environmental issues is likely to become increasingly important for the CAS. As the CAS becomes a participatory process, support for environmental concerns is required from governments as well as civil society. In general, in the long-term, strong southern environmental NGOs will be important for the CAS process. A positive externality from any Bank-support to NGOs is that it is likely to have an influence on internal processes such as the CAS.

4 Toward Better Practice

There are several lessons that can be drawn from the review and analysis of country assistance strategies. These lessons and recommendations made can be broadly grouped into five areas.

Tying Environmental and Resource Concerns to Economic Outcomes

The greatest successes in getting environment and resource issues into the CAS have been where there is a clear link to growth and economic development. For example, in the Dominican Republic, Tunisia and Zambia case studies, a strong connection was identified between tourism, a major driver or potential driver of economic growth, and environmental degradation. This analyses is reflected in final versions of all three CASs.

In general, CAS country teams are likely to be more open to environmental interventions when a) environmental management offers a means for economic development; b) degradation is beginning to have negative impacts on growth; or, c) there are political, social or financial risks associated with degradation. Some examples of how environmental issues can be and have been tied to economic outcomes in CASs in these three different ways are presented below:

- *Resource depletion as a growth risk in Mongolia.* Given Mongolia's resource dependence, the Mongolia CAS presents an analyses of economic growth after taking into account resource and environmental depletion. It argues that depletion of mineral and pasture resources are potential growth risks for Mongolia. The CAS suggests that Mongolia will need to change its strategy of resource consumption and wealth dissipation over the long run, and will need to invest in other types of productive assets such as financial and human capital.

- *Eco-Tourism as a source of economic diversification in Zambia.* In the last three decades, Zambia has gone from a middle-income African country to one of the poorest—much of this change can be linked to excessive dependence on declining mineral income. Tourism is currently seen by Zambians as an important source for economic diversification. It provided approximately 5 percent of export revenues in 1995, but is expected to grow with strategic investments. The Zambia CAS includes a budget for a preliminary study on the potential for tourism in Zambia and a tourism related project in the years to come. This study and project could result in important opportunities to conserve Zambia's forests and wildlife, while at the same time meeting economic demands.

- *Upgrading infrastructure and environmental management to meet European Union accession standards in Lithuania.* Helping Lithuania meet the goals required for EU accession is a major focus of the World Bank's assistance strategy. In this context, the Lithuania CAS proposes support for a number of projects

with strong environmental externalities. Most of these projects are related to upgrading infrastructure and strengthening the water and wastewater sectors.

- *Integrated Water Management in Yemen to prevent social disorder and huge financial costs*: The Yemen CAS recognizes the water scarcity problems are a critical constraint to economic development and social cohesion. The CAS also recognizes that these problems cannot be solved within a single sector and proposes a multi-pronged strategy that includes infrastructure rehabilitation, and adoption of new technologies, and urban and rural management of ground water.

Integrating Environmental Issues into Sector and Macro Strategies

The Country Assistance Strategy is the final product of a series of actions that include discussions among country team members and government agencies, project outcomes, and country priorities. Thus, an important means for improving the environmental quality of CASs is by mainstreaming environmental concerns into sector strategies and country dialogue.

A good example of "operationalizing" the idea of mainstreaming is presented by the India CAS. The Indian CAS has a three-pronged approach to mainstreaming the environment: "i) 'do no harm' policies to avoid and mitigate the potential negative impacts of infrastructure, power and other development activities, with a focus on strengthening enforcement of environmental laws and responding to project clearance procedures; ii) integration of environmental issues into sectoral policies, with attention to priority setting, cost-effectiveness, and implications for poverty; iii) global issues addressed by assisting India comply with Kyoto conference agreements."

In general, mainstreaming environmental concerns can be done by:

- Reforming sectoral policies that impact environmental issues. Of particular importance are efforts in the energy and infrastructure sectors.

- Identifying prices, property rights, fiscal and other incentive mechanisms that influence environmental considerations. These mechanisms can be used to correct environmental externalities, improve efficiency of resource allocation, or remove environmentally harmful market distortions.

- Ensuring that countries with a huge foreign exchange dependence on natural resources develop sustainability criteria for managing both their natural resources and the benefit streams from resource depletion. Macro tools such as green accounting and revenue management for sustainable development can be used in this effort.

Box 7 summarizes a study (Sarraf 2000) that shows how Botswana has been successful in managing its macro-policies to sustain income from natural resources.

In cases where the link between economic development and environmental change is dynamic and longer-term in nature, mainstreaming of environmental issues into CASs needs to be rooted in lengthy negotiations among task-managers. Often, this makes the difference between a CAS that reads well and a CAS that produces high-quality environmental outcomes. The CAS team's experiences in Azerbaijan and Pakistan are illustrative of the above point. For example, in Azerbaijan, genuine saving was presented to the CAS task manager as an indicator of sustainable development and was initially included in the CAS. However, genuine saving is not found in

Box 7

Macroeconomic Management of Natural Resource Revenues in Botswana

Botswana is a real success stories among developing countries. Between 1966–89, Botswana was the world's fastest growing economy. It's GDP grew, on average, at 13.9 percent per annum between 1965–80, 11.3 percent between 1980–89, and continued to grow at an average rate of 4.1 percent between 1990–96. The country moved from being the 25th poorest country in the world in 1966, to become an upper middle economy thirty years later.

Botswana's rapid economic growth is not entirely surprising given the discovery of important natural resources, mainly diamonds. What is remarkable about Botswana is the way in which this mineral boom was managed. While many developing countries have experienced important export booms through the discovery of natural resources or through a sudden increase in the price of an export commodity, many have been unable to properly manage associated windfall gains. At the end of the boom, countries have found themselves in a worse economic situation, suffering from balance of payment problems and debt crisis. The Government of Botswana has, on the other hand, succeeded in adopting economic policies that have sustained economic growth over a long period of time.

Botswana's economic policies are guided by two main objectives: to avoid external debt and stabilize growth, and to encourage economic diversification (Sarraf 2000). Botswana has avoided excessive increases in expenditure during boom periods. Instead, the government has accumulated international reserves during booms, and run budget surpluses (earmarked for stability spending) at the end of the boom. This policy has avoided drastic expenditure cuts during bad years and prevented inflationary pressures. The second main policy instrument is management of the nominal exchange rate to avoid real appreciation of the local currency. This has been mainly achieved through the accumulation of international reserves. Preventing the local currency from appreciating has allowed other tradable goods to compete successfully on the world market, and hence encouraged economic diversification.

Thus, careful management of foreign exchange reserves, judicious use of budget surpluses, and economic diversification are critical for a successful management of natural resources revenues. This is an important lesson that other natural resource dependent countries can learn.

the final version of the CAS. This happened at least partly because genuine saving was a relatively new concept that had not been internalized by the country team prior to the CAS. On the other hand, in Pakistan, the equally challenging problem of energy-environment interactions is likely to find a place in the CAS. This is again partly because this is a well-discussed long-term issue within the country team. Thus, *perhaps the best way to influence the CAS is to mainstream environmental issues into different country activities.* These efforts will trickle down into the CAS.

Making Connections between Poverty Reduction and Environmental Efforts

The World Bank is currently attempting to sharpen its poverty mandate by tying most of its lending and policy advice more strategically to poverty reduction. Thus, the Bank's new Environment Strategy makes a major effort to prioritize its environmental actions based on their impact on the poor. Given this strategic shift in focus, it is now vital to link environment to poverty efforts within the CAS.

The review of 1999 CASs shows that the link between poverty and environment is generally not made. Where it is made, it is usually in terms of natural resource degradation and its impacts with very little attention paid to environmental health issues. There are, however, several best practice examples that can be identified – the Panama CAS is among them. Box 8 shows how the Panama CAS uses a

variety of strategies for dealing with poverty and environmental issues jointly.

The CAS case studies work suggests that poverty impacts of environmental change are difficult but not impossible to assess. In Box 9, a qualitative assessment and ranking of poverty-environment links in Pakistan is presented. As the Box suggests, viewing environmental considerations through a poverty lens would lead Bank staff to focus on indoor air pollution in rural areas—a problem that affects poor women and children.

Several strategic actions would help in better linking environmental efforts to poverty reductions strategies. These include sending a consistent message to Country Teams about the links between poverty and the environment. CAS efforts need to examine the links between i) the health of the poor and the environmental determinants of bad health, including poor water quality and quantity and air pollution; and, ii) poor rural households and natural resource determinants of income and security. These are two key mechanisms by which environmental interventions can support poverty reduction efforts.

There is considerable need for knowledge development on poverty-environment linkages. This can be done through careful sector work, which will help identify problems and solutions and garner support of country team members. Another important task is to integrate environmental components into poverty studies. For example, poverty assessments are routinely undertaken in the Bank and it may not be too expensive to analyze the environmental data that is already being collected or to add small environmental components to new data collection efforts. Efforts to integrate environment to poverty reduction strategy papers would be very important in the long-run.

Box 8
A Joint Poverty-Environment Program in Panama

Almost 40 percent of the Panamanian population is poor, 22 percent are extremely poor, and 95 percent of indigenous peoples live in poverty. New data also indicates that inequality has markedly increased in the past 14 years. Given these conditions, the 1999 CAS for Panama makes poverty and inequality reduction its main focus. This overall goal is supported with a number on-going and new environmental efforts including:

- The Rural Poverty and Natural Resources Project, which is channeling investment and technical assistance to increase rural incomes and curtail degradation.
- The Meso-American Atlantic Biological Corridor GEF grant which includes biodiversity conservation in indigenous areas
- The Land Administration and Titling Project which hopes to provide poor people with better security over land assets and stem deforestation and soil erosion
- The Utilities Restructuring Technical Assistance, which will strengthen compliance with environmental standards and help stem water pollution that threatens the health of the poor as well as rural ecosystems
- The Canal Watershed Project that will help conserve the Panama canal watershed through rehabilitation of degraded areas and promotion of sustainable farming practices
- The Roads Rehabilitation Project, which will strengthen environmental assessment capacity and help mitigate environmental impacts of roads.

Monitoring impacts of on-going and new projects is another area where the link between poverty and environment can be enhanced. New environmental projects need to be designed to view their impacts through a poverty-lens. Several on-going environmental projects have poverty impacts; reviewing these projects for poverty outcomes would help highlight best practices. Similarly, careful assessment of environmental outcomes of

Box 9

Poverty and the Environment in Pakistan: Strengthening the Information Base

Poverty numbers in Pakistan are high and indications are that they may be rising again. Since the mid-1990s, Pakistan has grown at an average rate of 4 percent per year—a rate lower than previous decades and insufficient to significantly raise living standards for a population growing at of 3 percent p.a. (World Bank 1999c). In addition, a recent study (Mahbub-ul-Haq Center 1999) indicates that between 1990 and 1994 the absolute poor have increased from 24 million to 42 million, that is, the number of poor has almost doubled. These numbers become even more stark when viewed from a gendered perspective. Thus, poverty reduction is a serious concern for Pakistan.

The 1990s have also seen major efforts in Pakistan to stem environmental degradation. Yet, available indicators suggest increasing degradation of environmental resources. This impacts Pakistan's most vulnerable households by affecting their health, decreasing their income, and making them less resilient to natural and other shocks. Some of the links between poverty and the environment are qualitatively assessed in the matrix below. This assessment is based on a reading of secondary information and the analytical matrix on Pakistan presented in Appendix 1.

Environmental problems and their implications in Pakistan

	Sustainability concerns	*Poverty concerns*	
Environmental problem	R = Reversible MR = Reversible in medium term IR = Irreversible	P = Primarily faced by the poor NP = Primarily faced by non- poor PNP = Faced by both ? = not known	*Population/Areas most affected*
Water logging and salinity	MR	?PNP	Sindh and Punjab because of importance of agriculture
Ground water depletion	IR	?PNP	Balochistan
Soil degradation	MR	?PNP	Rain-fed areas
Pesticide use	R	PNP	Cotton growing farmers and economy because of importance of cotton
Rangeland degradation	MR	P	Balochistan
Deforestation and biodiversity loss	IR	PNP	Sindh, Balochistan, and mountainous areas
Water pollution	R	?P	Rural and urban areas
Indoor air pollution	R	P	Rural Pakistan, children and women
Outdoor air pollution	R	?NP	Urban Pakistan

A poverty-environmental focus would lead us to rural Pakistan because the bulk of the poor live in rural areas. If emphasis was placed in the CAS on addressing problems that hurt the most vulnerable sections of society, then indoor air pollution becomes a priority. This is because it has very serious implications for the health and survival of young children and women. If on the other hand, the CAS priority was to address poverty environment linkages where changes in the environment are irreversible, this would suggest a focus on ground water depletion and deforestation. Finally, if supporting economic growth was the main goal of the Pakistan CAS, this would lead to a consideration of water logging and salinity problems which have a tremendous negative impact on agricultural development.

poverty-reduction activities would also be useful. It would also be extremely useful to understand the impacts of joint poverty-environment projects.

There are necessarily some trade-offs between poverty reduction efforts and concerns about sustainability and irreversibility. To the extent that CASs are integrated into longer-term strategies such as the Comprehensive Development Framework, they will need to identify wins and losses.

Strengthening the Information Base

The quality of CAS inputs will be more or less directly related to the breadth and quality of the information supporting them. A range of information enhancements can be used to improve the CAS.

One possible way to keep the Bank abreast of environmental conditions in client countries is by undertaking a regular program of environmental assessments. This would be similar to poverty assessments or public expenditure reviews and could be tied to the CAS cycle. These assessments could cover data, indicators, trends, policies, institutions and analytical material.

Existing environmental indicators from the *World Development Indicators* could be easily incorporated into CASs. Ideally these would be supplemented by local data and indicators, whose collection would be built into work programs. Table 4 presents an example of a set of indicators for Tunisia, and identifies where Tunisia stands relative to other countries in the region and in its own income group. Such comparative figures are particularly useful in discussions with clients and CAS teams.

Certain strategic efforts to organize information during the CAS process would also help. The CAS knowledge base could be improved by organizing knowledge management resources—for example, by creating "one-stop shopping" for country-specific environmental information and analysis. It would also be is useful to present information about environmental issues in an ordered fashion such that links to sectors, macro strategies, prices, etc are obvious. Table 3 presents an example of such a CAS matrix for Argentina. Other examples can be found in Appendix 1.

Finally, grant resources need to be used to complement Economic and Sector work. This can be done through the development of global overlays, and energy and environment reviews and so on.

Improving the CAS Process

There are several CAS process issues that help or hinder options for "greening" CASs.

Regional environmental departments face resource and time constraints, which constrain their ability to focus on the CAS. This affects the CAS in two ways: i) during the CAS discussions, environment staff are unable to build their case based on indicators, analytical studies or discussions with stakeholders; and ii) resource constraints that inhibit longer-term mainstreaming efforts also have an impact on the CAS. Thus, an important consideration is to change the incentives facing regional environment department staff to enable them to take the time to work on the CAS in particular, and mainstreaming in general.

Roughly 40 CASs go to the Board each year, so there is an argument for dedicating effort to CAS preparation. Options for dedicated resources include: i) a senior CAS strategist position in the regional environment departments, with duties including managing environmental assessments, organizing KM material, and working with country teams on CAS preparation; and ii) a CAS "SWAT" team—

Table 4. Environmental indicators for Tunisia

Indicator	*Tunisia*	*Region*	*Income Group*
Population (millions)	9	286	886
Urban population (% of total)	64.1	57.4	57.7
GNP per capita, Atlas method ($)	2,060	2,030	1,740
Environmental strategy or action plan (year prepared)	1994		
Agriculture			
Land use, permanent cropland (% of land area)	12.9	0.7	0.8
Irrigated land (% of crop land)	7.8	35.5	15.0
Fertilizer consumption (100 grams/ ha of arable land)	329	675	405
Population density, rural (people per sq km)	116	522	449
Forests			
Forest area ('000 sq. km)	6	89	11,083
Forest area (% of total land area)	3.6	0.8	30.8
Annual deforestation (% change, 1990-95)	0.5	0.9	0.2
Biodiversity			
Mammal species, threatened	11		
Bird species, threatened	6		
Nationally protected area (% of land area)	0.3	2.2	4.3
Energy			
GDP per unit of energy use (PPP $ per kg of oil equivalent)	7.2	3.3	..
Commercial energy use per capita (kg of oil equivalent)	738	1,353	1,765
Electric power consumption per capita (kWh)	709	1,158	1,737
Share of electricity generated by oil (%)	15.7	47.6	12.3
Emissions and pollution			
CO_2 emissions per unit of GDP (kg per PPP $ of GDP)	0.3	0.8	0.9
Total CO_2 emissions, industrial (,000 kt)	16.2	987.2	3,940.6
CO_2 emissions per capita (mt)	1.8	3.9	4.6
Passenger cars (per ,000 people)	30	45	55
Water and sanitation			
Access to safe water (% of total population)	..	..	..
Freshwater resources per capita (cubic meters)	439	1,044	11,805
Total freshwater withdrawal (% of total water resources)	69.0		
Withdrawal for agriculture (% of total freshwater withdrawal)	86	89	75
Access to sanitation (% of population)	..	..	..
Infant mortality rate (per ,000 live births)	28	45	35
National accounting aggregates (% of GDP)			
Gross domestic savings	24.3	18.2	19.1
Consumption of fixed capital	9.5	9.5	9.3
Net domestic savings	14.9	8.8	9.8
Education expenditure	5.5	4.4	4.1
Energy depletion	0.9	14.6	6.0
Mineral depletion	0.5	0.1	0.2
Net forest depletion	0.4	0.0	0.2
CO_2 damage	0.5	1.0	1.5
Genuine domestic savings	18.0	-2.2	5.9

this has obvious disadvantages in terms of building relationships with country departments, depth of country knowledge, and so on; and iii) more resources for regional environment department staff to participate fully in the CAS.

It will be easier to influence the CAS if a consistent message is presented. This should obviously not be at the cost of country-specific issues, and would require building the intellectual underpinnings to support the message. Candidate messages include: i) poverty and environment; ii) economic outcomes and the environment; and, iii) sustainable development, especially in non-renewable resource rich countries.

Finally, stakeholder support for environmental issues is likely to become increasingly important for the CAS. As the CAS becomes a participatory process, support for environmental concerns is required from governments as well as civil society. For example, in the Zambia case study, the country team's support for environmental issues decreased when stakeholder meetings did not identify these issues as a key priority. In general, strong southern environmental NGOs will be important for the CAS process in the long-term. A positive externality from any Bank-support to NGOs is that it is likely to have an influence on internal processes such as the CAS.

Conclusion

The economic development challenges faced by World Bank's client countries are immense and environmental issues are often a low priority. The CAS and Environment Program was an attempt to understand how environmental issues can be integrated into the World Bank's Country Assistance Strategies and to identify some of the constraints faced by Bank staff in trying to do so.

As this study has shown, there are number ways in which environmental considerations can be addressed in CASs – this primarily requires understanding and acting on the connections between environment and economic development and poverty reduction. To the extent that there are trade-offs between economic growth and conservation of natural resources or environmental quality, it is important to make these explicit so that compensating action can be undertaken. In general, knowledge development, capacity strengthening, and knowledge dissemination will be key in any effort to integrate environmental issues into World Bank and client country activities.

Appendix A —

Analytical Matrices

Azerbaijan

	Natural resources management			*Pollution Control*			*Global*	
	Agriculture	*Oil*	*Caspian sea*	*Freshwater*	*Air*	*Soil*	*Climate change*	*Biodiversity*
Current issues	Quality of agricultural land Salinity of soils	Risk of Dutch disease, Unsustainable investment of oil wealth	Dwindling sturgeon stock Pollution 'hot spots' around Apsheron	High water use, relative to resources Low connection rate, bad water quality	Pollution 'hot spots' in Apsheron penninsula Respiratory illnesses ; Lead	Pollution 'hot spots' in Apsheron penninsula	Very low energy efficiency and venting of gas; hence very high GHG/cap	Threat to Caucasian mountain forests, but badly understood issue Localized deforestation
Driving force, e.g.: - population growth; - poverty; - inequality	Mono-cultures Use of pesticides like DDT, toxic defoylants No preservation incentive from property rights Water losses, unlined water canals	Lack of public sector capacity Inappropriate accounting framework	Open access fishing and demise of hatcheries; Pollution; Soviet legacy and obsolete industrial processes Lack of independent regulation	High irrigation demand and high losses; Subsidies affect viability of utilities, prevent investments	Soviet legacy and obsolete technology Absence of regulation & delay in restructuring of refining sector Small scale particles' emitters	Soviet legacy Obsolete industrial processes Lack of independent regulation	Obsolete industrial processes Delayed industrial restructuring Energy prices??	Not party to CBD, hence no access to GEF funds IDPs
Macro policies - impacts	- trade liberalization may lead to more intensive practices							
Sector policies - impacts	+ well defined property rights from privatization provide better incentives - re-intensification of agriculture after reform increases pressure	+ Public sector reform increases capacity to deal with oil wealth	+ public sector reform may lead to stronger regulation +privatization should close down old polluters - privatization w/o environmental regulation may increase pollution - oil exploration w/o controls increases pollution + Reintegration of IDPs may reduce pressure on fishstock	+ corporatization of utilities should lead to reduced losses + phase out of water subsidies increases efficiency	+privatization should close down old polluters - privatization without environmental regulation increases pollution from new firms	+privatization should close down old polluters - privatization without environmental regulation increases pollution from new firms	+ sector restructuring should increase energy efficiency - increased oil exploration likely to increase GHG emissions	+ Reintegration of IDPs will reduce pressure on ecosystems
Projects / Programs - impacts	+ reduced water loss from irrigation project	Petroleum TA		+ Baku water supply project				- Highway project?
Environment / Resource Institutional issues			+UEIP to increase hatching capacity +cooperation on Caspian sea (GEF)			+ UEIP to demonstrate clean-up		+ Ratification of CBD to provide access to GEF funds

Dominican Republic

	Natural Resource Management				*Pollution management*	
	Watersheds and deforestation	*Land use and tenure*	*Mining*	*Water*	*Waste water and sewerage*	*Solid waste*
Current issues - local - regional - global	Several areas, best suited for forest, are being used for agriculture and cattle ranching resulting in severe soil erosion and sedimentation (up to 50% in some cases); Soil erosion has many environmental and economic effects: i) the life spans of the reservoirs are reduced ii) investments are needed in order to get the same amount of projected when constructing the reservoirs iii) pumping of sedimentation is costly iv) sedimentation will result in a reduced production v) the water from the reservoirs needs to be treated vi) the demand for groundwater will increase as the availability of surface water decreases, increasing the costs further;	Conflicting interests (urban, tourism, industrial, power plants, and agriculture) result in loss of productivity and environmental problems; Potentially productive land is lying fallow, despite its scarcity; Subsistence farmers are pushed to marginal lands; Urbanization is increasing due to the scarcity of productive land for the population; 40% of the land in the Santo Domingo area is illegally possessed due to the inadequate land tenure system;	Considerable volumes of acid water is generated by the exposure of sulfide rock to the atmosphere; Considerable contamination of underground and surface waters; Mineral exports were about US$ 250 million/year in 96/97 and about US$ 150 million in 1998; In 2004 mineral exports could be at US$ 10 million, if not zero, if no action is taken on reform. In a reformed scenario the figure could be US$ 400-500 million per year; According to the Ministry of Mines, mining's share of GDP could be 2-6% of GDP and 25-48% of foreign capital if the reforms are carried through in a correct way; There is a need for a legal, environmental, institutional, and enterprise and privatization reform	Access to potable water is well below averages for the corresponding income group (74%for the DR in 1993, compare to 83 for the inc. group); Squatters are using a lot of "free" water;	The water becomes polluted during distribution Unregulated disposal of sanitary and industrial wastes is contaminating the aquifers Most sewage is discharged untreated and spills directly into the ocean and indirectly through the lower reaches of the Isabel and Ozama rivers Human excreta is contaminating potable water and drawing vectors (rats, flies, etc) with increased potential diseases; Lack of environmental awareness and understanding of the links to health, have contributed to the current problems;	Waste is left to rot in the streets and dumped in the rivers and the sea; Uncollected waste causes serious drainage problems; There are only 1-2 sanitary landfills in the country; Lack of environmental awareness and understanding of the links to health, have contributed to the current problems;
Driving force, e.g.: - population growth - poverty - inequality	An intensive use of marginal lands have resulted in excess deforestation;	Deteriorating international market conditions have caused producer prices for agricultural to fall, thus depressing output; Settlements in fragile areas;		Power outages; Increased urbanization; Population growth;	Power outages reduce pressure in the distribution system permitting infiltration and contamination; Increased urbanization; Population growth	Increased urbanization; Population growth

Dominican Republic *(continued)*

	Natural Resource Management				*Pollution management*	
	Watersheds and deforestation	*Land use and tenure*	*Mining*	*Water*	*Waste water and sewerage*	*Solid waste*
Linkages to tourism		The inadequate cadastral plan has resulted in an explosive development of the tourism sector outside the regulated areas; Examples of protected areas or national parks exploited by the tourism sector can be found throughout the country;		The incomes from tourism will decline if the water problem is not solved due to a decrease in visitors; The no. of British tourism went down from 217,000 in '97 to 180,000 in '98 (almost 20%) due to an incident where many people were sickened by drinking unsanitary water;	The increasing number of tourism exacerbates the sewage problem; The incomes from tourism will decline if the sewage problem is not solved due to a decrease in visitors; Informal dwellings that arise outside the tourism areas, result in more, untreated, sewage;	Growing tourism exacerbates the solid waste problem; The incomes from tourism will decline if the waste problem is not solved due to a decrease in visitors; The solid waste works as a disincentive for new investors; Informal dwellings that arise outside the tourism areas, result in more, unmanaged, waste;
Impacts of macro policies						
Impacts of sectoral policies	The Ministry of Agriculture in the DR has started a reforestation program. So far 9-10,000 hectares of land are planted and managed; The program mentioned above can be seen as a tree-growing subsidy for private landowners;	Large government holdings have kept large areas of land out of production; Large public holdings of land and few private owners have lead to increased urbanization and rural landless workers being pushed to marginal lands; Inconsistent policies; Lack of planning, information and satellite images;	Lack of governmental support results in problems for the current management to deal with the problems in the sector; Uncertainties concerning environmental regulations act as a disincentive to mining investors; The country is not currently competitive internationally due to the existing mining taxation scheme;	Inadequate system maintenance;	Emphasis on expensive sewerage systems in Santo Domingo has aggravated the sanitation problem;	Lack of sanitary landfills and transportation; Poor cost recovery (7% of operational costs were recovered in 1992) Inadequate maintenance of infrastructure;
Impacts of projects and programs					Two LILs and a forthcoming SIL exist or are planned for both these areas.	
Poverty impacts	Increased deforestation makes the poor communities more vulnerable to floods and other natural disasters;	Links to: Settlements and other land use issues; Deforestation (charcoal and firewood are major sources of energy for poor households);		The poor lack potable water to a greater extent than other groups; Poor groups lack resources to seek our medical expertise in case of sickness;	The problems are worse in those areas where a lot of poor people are gathering (e.g. in squatter areas); The poor lack sanitation services to a greater extent than other groups; Poor groups lack resources to seek our medical expertise in case of sickness;	The poor lack disposal services to a greater extent than other groups;
Environment / Resource Institutional issues[15]	Agencies in charge of national parks and protected areas have been ineffective and weak; Unclear property rights and inadequate land use planning has led to excessive deforestation;	Inadequate land tenure system; The existing system is from the beginning of the century and is not designed to handle the 32,000 transactions per year currently being carried out;	Lack of environmental norms and controls; Lack of transparency; Non-existing mining rights; Lack of an institution to enforce mining policies and regulations; Inadequate information system for mineral resources; Lack of law that provides security of tenure to the mining rights;		The treatment of sewage outside the tourism areas is unregulated	Weak and overly centralized institutions which have made unwise decisions on investment priorities and choice of technology; The disposal of waste outside the tourism areas is unregulated; The municipalities, which are responsible for the solid waste disposal, do not have resources or well-functioning management;

Pakistan

	Natural resource management		*Pollution management*		*Long-term energy management*
	Sustainable agriculture	*Forests, rangelands and biodiversity*	*Water pollution*	*Air pollution*	
Key Issue	Productivity losses from mis-management of water resources	Local and Global effects, with implications for the poor	Arguably the most important environmental problem in Pakistan	Indoor air pollution likely to be more important than outdoor air pollution	Energy efficiency improvements and fuel mix have significant long term implications
Current issues - local - regional - global	Water logging, salinization and groundwater reductions are a major source of concern in irrigated areas. Land degradation costs estimated at 1% of GDP 38% of gross command area water logged and 6% severely saline As of 1997, on-going drainage schemes covered 11%of area requiring drainage. Pakistan among 17 countries in the world expected to face most severe water shortages in 2025. Soil degradation a concern in rainfed areas (20% of cultivated area). Pesticide use per ha has doubled in 90s --over-use makes cotton crop vulnerable (70% of all pesticides used on cotton) . Pesticide use increases with farm size, indicating that pesticide pollution is linked to large farms.	80% of rangeland degraded Deforestation rate of 3.2% p.a. – 6% of original forests remain. Biodiversity loss a key concern --ten fragile ecosystems critically need protection	Pakistan (& Bhutan) rank second among 31 Asian countries in annual diarrheal episodes among children under 5. Currently 77% of rural and 52% of rural households have access to clean water. Lack of access to sanitation is a major problem leading to contamination of clean water – 40% of population has access Solid waste collection is viewed a necessary complement to water and san services. SW collection by GoP at 50% of waste generated. Approximately 50% of collected waste is disposed. Industrial pollution from cotton textiles, chemicals, leather and electroplating a concern.	Traditional fuels make up 85% of fuels consumed by HHs, 35% of total energy supply and 92% of PM emissions. 46% of fuelwood using HHs cook indoors; 83% of HHs use stoves without chimneys. Indoor air pollution a major health risk for poor women and children. Exposed children's ARI risk increases by 2-3 times. Outdoor air pollution an emerging concern – health costs of outdoor air pollution estimated at $301 million pa. Type of fuel use key contributor to outdoor air quality. 69% of fuel demand is met by diesel, with health impacts. Lead and sulfur content of gas high at .39 gms/l and 3.5 wt%.	Continued increase in use of petroleum products -share of petroleum products in energy supply to rise to 40% by 2010. Of 20 new IPPs, 13 (65%) dependent on fuel oil. Currently 41% of energy supply imported - major implications for foreign exchange reserves. GDP per unit of energy use has declined by 16% in real terms between 1980-97. Inefficiencies in power sector a concern –T&D losses at 23% (higher than average in S. Asia) CO2 emissions increased at 10% p.a. in 80s and early 90s. – energy sector biggest contributor to CO2 emissions.
Driving forces: - population - poverty - inequality	Feudal system with unequal access to land and water makes reforms to increase decentralized and more accountable water use vulnerable. Inequality of irrigated land greater than inequality of all land; irrigation policies seem to drive environmental problems as well as greater inequality.	Livestock population has grown at 2% p.a, contributing to rangeland over-use. Causes of deforestation a key knowledge gap – attributed to timber exploitation and fuelwood use – evidence ambiguous Poverty does not appear to be a major contributing factor (in case of fuelwood deforestation).	Subsidized water and inadequate O&M key. Urban poor are particularly vulnerable to water pollution because of lack of facilities and maintenance. However, data on diarrheal episodes does not confirm increased vulnerability among rural poor.	Growth of vehicles an underlying factor of outdoor air pollution– growth rate at 6-8% pa.; use of public transportation is limited. Fuel wood inexpensive; cost of supplying alternative indoor fuels to households high.	Economic growth Domestic vested interests blocking development of indigenous natural gas

Pakistan *(continued)*

	Natural resource management		*Pollution management*		*Long-term energy management*
Macro policies - impacts	Minimal taxation of agriculture relative to other sectors results in fallow lands, contributing to water logging. New structural adjustment lending focuses on bringing agriculture into tax base. Cotton most important commercial and export crop. Over-dependence on cotton a serious concern, further aggravated by excessive use of pesticides.	Banking reforms and liberalization of financial sector will impact natural resource use through interest rates—if real rates decrease, deforestation less likely.	Current macro environment tepid for private sector participation in water and waste water sectors Pollution charges stalled on disbursement of tax revenues. Increased trade can have +/- impact on industrial water pollution – will improve efficiency and possibly use of clean technology; could also increase scale of pollution . Removal of ban on textile imports could lead to cleaner technology	Increased trade can have +/- impact on industrial pollution – will improve efficiency and possibly use of clean technology; could also increase scale of pollution if NEQs not enforced.	Fuel switching from fuel oil to natural gas has huge foreign exchange benefits. Energy sector reforms one of the most important "problem issues" at the macro level in Pakistan Pollution charges stalled because of disagreement over disbursement of tax revenues
Sector policies - impacts	Government interventions in agriculture huge. Water subsidies and electricity subsidies contribute to water logging State user rates do not cover O&M and drainage (a more than doubling of user charges required). Sugarcane support prices lead to excessive cultivation increasing waterlogging. Subsidized tractors and history of fertilizer subsidies have lead to increased soil compaction and degradation.	Transit taxes on timber cumbersome and can deter timber production. However, with lax monitoring of smuggled timber, taxes may act as a deterrent to smuggling. Seedling subsidies may be un-necessary given strong private plantation of trees.	Water pollution is dependent on water quantity & quality – focus on integrated water management needed. Water use for domestic purposes severely constrained by dominant irrigation use. $4 billion investments required over next 15 years in water and wastewater Possibilities to increase private sector participation in solid waste management high. Need to support increased NGO participation.	LPG and natural gas are potential alternatives for fuelwood use – however, substitution likely to be un-economical. ESW required to understand health effects and identify market demand Petroleum sector reforms required to remove subsidies to inefficient refineries - recently initiated under new SAL. Diesel lightly taxed relative to gasoline. Tax element in gasoline is 55-60% and for diesel is 15-20%. SAL attempting to reduce relative price distortions in petroleum sector. New SAL introduces norms for cleaner petroleum products.	Distortions in petroleum sectors not conducive to growth of natural gas. New SAL agreements include petroleum price adjustments in line with international prices, natural gas sector reforms to increase efficiency, and initiatives to reduce relative price distortions in petroleum sector.
Projects / Programs - impacts	Several Bank supported drainage and on farm water management programs over the last 40 years. Several SCARP or saline reclamation programs -- projects Severely constrained by lack of O&M and accountability. Current National Drainage program seeks major reforms in irrigation and drainage institutions. Agriculture Sector Investment Program proposes sectoral reforms and support for land registration and titling.	Three natural resource management in place in recent years – Punjab Forestry, Balochistan Natural Resource Management and the Environmental Protection and Conservation Project (EPRC). Community participation in EPRC has contributed to success.	Several Bank projects including support for Karachi water supply. ESW on options for increasing private sector participation identifies opportunities.	Market analyses of LPG distribution in rural areas proposed as part of ESMAP study. IFC-GoP Clean Fuels Study focusing on fuel specification and petroleum sector distortions on-going	Energy sector reforms key to conditionalities in ESAF, SALs and SECALs. ESMAP study proposed to identify opportunities and markets for indigenous natural gas

Environment / Resource Institutional issues	Water schedules do not respond to crop patterns because of lack of co-ordination between agriculture and irrigation ministries. Weak legislation and monitoring of open-access ground water . Weak extension services result in low priority for IPM and INM.	Market demand for beef with slow deterioration of traditional institutions responsible for rangeland degradation Mechanisms required to increase local participation in forest management.	Implementation and monitoring of National Environmental Quality Standards important. Privatization and increased use of NGO sector is solid waste management possible.	Implementation and monitoring of National Environmental Quality Standards important.	Vested interests in oil and gas sector may make indigenous gas development difficult. Major on-going effort to bring about institutional changes in WAPDA Strengthening of DG for Renewable Energy required.

Tunisia

	Natural Resource Management		Coastal Zone Management	Pollution Management	
	Energy	Water Resources		Pollution	Solid Waste
Current issues - local - regional - global	Total energy use estimated at 7.6 million tons of oil equivalent (13% traditional fuel and 87% commercial energy). CO_2 emissions estimated at 16 million metric tons per year. An indicator of energy efficiency is the dollar amount of GDP generated per kg of energy used. This indicator is equal to $2.9/kg of oil equivalent (compared to an average of $6.3/kg in the EU). Fuel prices are low relative to EU averages, and the relative price of diesel fuel is particularly low. To reconcile an increase in energy use and quality of life, Tunisia needs to use its energy more efficiently and to encourage the use of renewable energies.	GOT has made a huge effort to provide water to the population. 97% of the urban population is connected to the water supply. In rural areas access to safe water is to reach 78% by 2001. Limited water supply is a major issue. GOT is improving water use efficiency. 80% of water resources are used in agriculture (wastage is at 30%-40%). Effort required to move to most productive uses of water . Water quality is at risk from industrial pollution; over-exploitation of water also leads to saltwater intrusion. Free access to private wells increases risks of contamination.	Tourism is an important economic activity, with the coast being the major tourist attraction. More than 9/10 of tourism activities are located along the coast. The coast suffered from important degradation and beach erosion. Beach erosion problems are especially acute in the Jerba Island and the Gulf of Tunis.	Industrial pollution is an important issue. Industrial solid waste include about 7,000t/y of heavy metals, 3,000t/y of infectious waste (mainly from hospitals), and 8.7 million t/y of non-hazardous waste (mainly phospho-gypsum and sludge). Air pollution problems could be acute in certain regions. The region of Greater Tunis suffers from high concentration of lead from the transport sector. Dust PM10 emissions are particularly high in Gabes. And Sulfur emissions are very high in Sfax.	Municipal solid waste generated in Tunisia is estimated at 2 million t/y, i.e. ½ kg of waste per day per inhabitant. The collection and transport of municipal waste are well developed with a substantial participation by the private sector (in 1997 more than 43 communities had their waste collected by private contractors). Treatment and proper disposal of hazardous waste is lacking. Waste transfer and disposal still require major improvement. There is a growing need for sanitary landfills.
Driving force, e.g.: - population growth - poverty - inequality	Energy demand expected to rise driven by population growth and increased economic activities	Low endowment of water resources. 80% of water used in agriculture.	Rapid and intense industrial, residential and tourism development along the coast. Building infrastructures too close to the seashore.	Lack of strict industrial waste management programs in the past. Important industrial activity. Old vehicle fleet and consumption of polluting fuels.	Population growth and rapid urbanization.
Impacts of sectoral policies	Increasing energy prices has provided an incentive for more efficient energy use.	Free access to private wells for irrigation pauses high risk of contamination (problem especially acute in coastal areas). High water subsidy in the past contributed to a lack of efficient water use (water subsidy estimated at $94 million in 1994). The GOT is committed to gradually decrease subsidies and revise water tariffs.	Policies to limit and control development used to be lacking in Tunisia. Since the creation of APAL in 1995 development along the coast is becoming very strict and tightly controlled.		

Impacts of projects and programs	GEF project on Solar Water Heating System will install 50,000 m^2 of solar collector areas, reduce energy use by 6,000 toe, and reduce CO^2 emissions by 18,000 tons by 2003. ANER undertakes awareness campaign with regard to energy efficiency. It has also initiated multiple studies and pilot project to test renewable energy systems in Tunisia.	"Program d'economie d'eau" whereby the government subsidizes 60% of investment in irrigation systems that minimize water use. The results of the "Water Sector Study" were presented in a Round Table in April 99, and should be finalized in May 99. This will set the basis for a long term strategy for water management.	"Blue Hand" Program for the protection of the sea and coastal resources. APAL is putting in place a Coastal Observatory to collect and analyze information on the status of the coast. This will facilitate the surveillance, control and planning of coastal areas. WB project "Management and Promotion of Cultural Heritage". GEF project "Protection of marine Resources in the Gulf of Gabes"	A WB "Transport Reform and Investment Program" is being prepared. The targets of the program are to increase the market share of unleaded gasoline, decrease the sulfur content of diesel, and decrease the lead content of gasoline. The project also includes the creation of air pollution monitoring capacities in large cities.	PRONAGDES program deals with all issues related to waste management. 18 landfills and a composting plants are under preparation.
Environment / Resource Institutional issues					Better regulation and coordination of landfills is required.

Zambia

	Natural Resource Management			Pollution Management	Global Concerns
	Rural land Use	*Wood fuel Availability*	*Mining*	*Pollution*	*Wildlife and Biodiversity Loss*
Current issues - local - regional - global	Fourth most land abundant country in Africa; 8.6% of land under protected areas; almost 90% of land under customary tenure; about 45% of land is covered by dry ever green forests . Deforestation (0.8% per year in 80s) mainly from shifting agriculture as population pressure increases. Common lands are disappearing in certain provinces. Predominant soils have low nutrient reserves and retention capacity; are acid to strongly acid; fertile soils are in the Southern Province. Soil degradation from over grazing, monoculture cropping, fertilizer use (10-11% pa increase between 1961-95 but substantial decline in the last decade).	Largest source of energy (71%); provides employment for rural poor (50,000); cheap fuel for urban poor; charcoal industry was worth 5 billion kwacha or 2.3% of GDP in 1991. Deforestation in urban fringe areas is increasing. Problem particularly in the Copper Belt, Central and Lusaka provinces. Between 1961-96, fuelwood and charcoal production grew at 8% p.a.; Sustainable with proper management.	Copper contributes 90% of foreign exchange; about 10% of GDP. ZCCM has been running major losses (recently $1 million/day) and production has declined over time. Privatization is close to complete. Diversification will expand non-traditional mining	64% of urban population and 27% of rural population has access to safe water and sanitation. Industrial urban pollution (water, air and solid waste) is increasing Food, textiles and paper and pulp are major contributors to water pollution. Mining pollutants have decreased (along with production). In urban areas, domestic waste has increased and is affecting ground water sources in some cases. Very little data is available on industrial air, water and solid waste pollution and even less on hazardous waste.	Wildlife and big game species have declined dramatically over the last 20 years; elephant populations declined by 9% per year between 1985 and 93. Tourism is steadily growing and contributed 5% of all export receipts in 1996.
Driving force, e.g.: - population growth; - poverty; - inequality	Bush fallow form of agriculture; population pressure in certain areas is decreasing fallow periods. 90% of deforestation is attributed to agricultural conversion. Limited access to credit and other non-labor inputs.	Urbanization. Under priced resource (stumpage and removal fee were <5% of sale price in 1990).	Economic and foreign exchange dependence on mining. Government control has lead to major losses and little investment. International copper prices have declined over time.	Urbanization and industrialization. Difficulty in cost recovery of municipal services. Water is not treated as an economic good.	Trophy hunting main cause of wildlife loss; Agricultural extensification will impact forests and so will wood fuel demand , but to a much lesser extent; Some illegal timber logging (Sawn wood production has increased on average by 90% pa between 1991-96) – however, impact on forests not clear.
Macro policies - impacts	Trade policies promoting agricultural exports with possible extensification. Devaluation/ removal of input subsidies will result in extensification??	Foreign exchange too scarce to use for other energy imports. Structural adjustment policies that fuel growth will increase demand for energy, electricity may substitute charcoal in the long run. Not expected in the short-term.	Structural adjustment and exchange rate policies will encourage resource exploration.		Removal of foreign exchange restrictions has decreased ivory smuggling to obtain foreign exchange

Sector Policies - impacts	Removal of input subsidies should reduce use of fertilizers. Improvement in training and extension (T & E) will increase use of fertilizers. New forestry policy focuses on broader environmental issues.	Hydroelectricity available but exported to Zimbabwe. Where electricity is available, woodfuel is still predominantly used for cooking. New forestry policy should encourage community management of woodfuel.	Privatization policies will result in re-investment in the mining sector, increase in exploration and will fuel growth in the long run. Privatization will free up aid monies and other sources of income for development activities.	Mining increases can deteriorate air/water quality because of increased activity; but growth may improve air/water quality if technology improves. Government bears liability for previous pollution; Pollution from non-traditional mining may increase. Privatization will increase burden on government to provide municipal services; 31% of charcoal users have carbon monoxide exposure at levels higher than recommended by WHO.	Any extensification of agriculture will negatively affect biodiversity
Proj/Program Impacts	ASIP; ESP		ERIPC	URWSP	ESP. ADMADE program has cut down poaching
Poverty Impacts	NTFPs act as a safety net for rural poor – especially during drought; Free source of fuel; Deforestation increases time spent by women on fuelwood and water collection (estimated 2 days/month); Insecure tenure may affect women disproportionately.	Only affordable fuel for urban poor (spend 1/5th of income on charcoal). Deforestation will increase time spent on collection activities.	Privatization will increase short-term unemployment (about 7000 people) but will fuel long term growth. Government subsidies to the mining sector will decrease, freeing up income for other uses.	40% of urban population that is poor bears disproportionate costs of water and sanitation and pollution problems.	Rural population rely heavily on bush meat for protein consumption.

Appendix B —

Environmental Indicators[16]

AZERBAIJAN

Europe and Central Asia			*Low income*
		Region	*Income group*
Population (millions)	8	475	3,536
Urban population (% of total)	56.7	66.2	30.5
GDP ($ billions)	4	1,003	1,881
GNP per capita, Atlas method ($)	480	2,200	520
Environmental strategy or action plan (year prepared)	..		
Agriculture			
Land area (,000 sq. km)	87	23,844	41,383
Land use, permanent cropland (% of land area)	3.0	0.4	1.4
Irrigated land (% of crop land)	75.2	10.3	30.3
Fertilizer consumption (100 grams/ ha of arable land)	136	349	1,210
Food production index (1989-91 = 100)	59.0	..	140.8
Population density, rural (people per sq km)	205	123	573
Forests			
Forest area (,000 sq. km)	10	8,561	7,379
Forest area (% of total land area)	11.4	36.1	17.8
Annual deforestation (% change, 1990-95)	0.0	-0.1	0.7
Biodiversity			
Mammal species, threatened	11		
Bird species, total known	0		
Bird species, threatened	8		
Nationally protected area (% of land area)	5.5	3.2	5.9
Energy			
GDP per unit of energy use (PPP $ per kg of oil equivalent)	1.3	2.2	..
Commercial energy use per capita (kg of oil equivalent)	1,529	2,689	646
Energy imports, net (% of commercial energy use)	-17	..	..
Electric power consumption per capita (kWh)	1,631	2,692	448
Share of electricity generated by coal (%)	..	29.6	63.8
Share of electricity generated by oil (%)	72.8	6.2	8.8
Emissions and pollution			
CO_2 emissions per unit of GDP (kg per PPP $ of GDP)	2.0	1.3	0.7
Total CO_2 emissions, industrial (,000 kt)	30.0	3,412.7	5,306.2
CO_2 emissions per capita (mt)	3.9	7.4	1.6
Passenger cars (per ,000 people)	36	138	5
Water & Sanitation			
Access to safe water (% of total population)	..	..	..
Freshwater resources per capita (cubic meters)	3,831	14,339	4,330
Total freshwater withdrawal (% of total water resources)	54.6		
Withdrawal for agriculture (% of total freshwater withdrawal)	70	63	87
Access to sanitation in urban areas (% of urban population)	67	..	56
Access to sanitation in rural areas (% of rural population)	..	..	10
Infant mortality rate (per ,000 live births)	17	22	68
National accounting aggregates (% of GDP)			
Gross domestic Savings	4.8	20.3	31.1
Consumption of fixed capital	14.1	9.0	8.1
Net domestic savings	-9.2	11.3	23.0
Education expenditure	3.0	4.3	2.3
Energy depletion	17.8	5.5	2.2
Mineral depletion	0.0	0.1	0.4
Net forest depletion	0.0	..	1.1
CO_2 Damage	5.5	1.9	1.8
Genuine domestic savings	-29.5	8.3	20.0

DOMINICAN REPUBLIC

Latin America and Caribbean			*Lower middle income*
		Region	*Income group*
Population (millions)	8	502	886
Urban population (% of total)	63.7	74.5	57.7
GDP ($ billions)	16	2,028	1,477
GNP per capita, Atlas method ($)	1,770	3,860	1,740
Environmental strategy or action plan (year prepared)	..		
Agriculture			
Land area (,000 sq. km)	48	20,064	36,096
Land use, permanent cropland (% of land area)	9.9	1.3	0.8
Irrigated land (% of crop land)	17.3	13.7	15.0
Fertilizer consumption (100 grams/ ha of arable land)	956	812	405
Food production index (1989-91 = 100)	104.3	126.6	128.7
Population density, rural (people per sq km)	293	253	449
Forests			
Forest area (,000 sq. km)	16	9,064	11,083
Forest area (% of total land area)	32.7	45.2	30.8
Annual deforestation (% change, 1990-95)	1.6	0.6	0.2
Biodiversity			
Mammal species, total known	20		
Mammal species, threatened	4		
Bird species, total known	136		
Bird species, threatened	11		
Nationally protected area (% of land area)	25.2	7.3	4.3
Energy			
GDP per unit of energy use (PPP $ per kg of oil equivalent)	6.6	..	..
Commercial energy use per capita (kg of oil equivalent)	673	1,181	1,765
Energy imports, net (% of commercial energy use)	74	..	..
Electric power consumption per capita (kWh)	620	1,402	1,737
Share of electricity generated by coal (%)	4.4	4.6	24.3
Share of electricity generated by oil (%)	77.0	17.5	12.3
Emissions and pollution			
CO_2 emissions per unit of GDP (kg per PPP $ of GDP)	0.4	0.4	0.9
Total CO_2 emissions, industrial (,000 kt)	12.9	1,209.1	3,940.6
CO_2 emissions per capita (mt)	1.6	2.5	4.6
Suspended particulate in capital city (microgr/m3)	..	..	..
Passenger cars (per ,000 people)	27	67	55
Water & Sanitation			
Access to safe water (% of total population)	71	..	..
Access to safe water in rural areas (% of rural population)	67	..	..
Access to safe water in urban areas (% of urban population)	74	..	..
Freshwater resources per capita (cubic meters)	2,467	27,393	11,805
Total freshwater withdrawal (% of total water resources)	14.9		
Withdrawal for agriculture (% of total freshwater withdrawal)	89	74	75
Access to sanitation in urban areas (% of urban population)	76	..	..
Access to sanitation in rural areas (% of rural population)	83	..	..
Infant mortality rate (per ,000 live births)	40	31	35
National accounting aggregates (% of GDP)			
Gross domestic savings	16.9	19.0	19.1
Consumption of fixed capital	5.9	10.1	9.3
Net domestic savings	11.0	8.9	9.8
Education expenditure	1.7	4.2	4.1
Energy depletion	0.0	2.4	6.0
CO_2 Damage	0.5	0.4	1.5
Genuine domestic savings	11.9	9.8	5.9

PAKISTAN

South Asia			*Low income*
		Region	*Income group*
Population (millions)	132	1,305	3,536
Urban population (% of total)	35.9	27.7	30.5
GDP ($ billions)	63	565	1,881
GNP per capita, Atlas method ($)	470	430	520
Environmental strategy or action plan (year prepared)	1994		
Agriculture			
Land area (,000 sq. km)	771	4,781	41,383
Land use, permanent cropland (% of land area)	0.7	2.1	1.4
Irrigated land (% of crop land)	81.4	40.9	30.3
Fertilizer consumption (100 grams/ ha of arable land)	1,264	999	1,210
Food production index (1989-91=100)	141.9	122.7	140.8
Population density, rural (people per sq km)	395	531	573
Forests			
Forest area (,000 sq. km)	17	744	7,379
Forest area (% of total land area)	2.3	15.6	17.8
Annual deforestation (% change, 1990-95)	2.9	0.2	0.7
Biodiversity			
Mammal species, total known	151		
Mammal species, threatened	13		
Bird species, total known	375		
Bird species, threatened	25		
Nationally protected area (% of land area)	4.8	4.5	5.9
Energy			
GDP per unit of energy use (PPP $ per kg of oil equivalent)	3.9	..	..
Commercial energy use per capita (kg of oil equivalent)	442	443	646
Energy imports, net (% of commercial energy use)	26	..	..
Electric power consumption per capita (kWh)	333	324	448
Share of electricity generated by coal (%)	0.6	62.7	63.8
Share of electricity generated by oil (%)	38.5	7.0	8.8
Emissions and pollution			
CO_2 emissions per unit of GDP (kg per PPP $ of GDP)	0.4	0.5	0.7
Total CO_2 emissions, industrial (,000 kt)	94.3	1,125.1	5,306.2
CO_2 emissions per capita (mt)	0.8	0.9	1.6
Suspended particulate in capital city (microgr/m3)	..	..	..
Passenger cars (per ,000 people)	5	4	5
Water & Sanitation			
Access to safe water (% of total population)	60	77	..
Access to safe water in rural areas (% of rural population)	52	75	..
Access to safe water in urban areas (% of urban population)	77	83	..
Freshwater resources per capita (cubic meters)	1,938	4,088	4,330
Total freshwater withdrawal (% of total water resources)	61.0		
Withdrawal for agriculture (% of total freshwater withdrawal)	97	93	87
Access to sanitation in urban areas (% of urban population)	53	46	56
Access to sanitation in rural areas (% of rural population)	19	2	10
Infant mortality rate (per ,000 live births)	91	75	68
National accounting aggregates (% of GDP)			
Gross domestic savings	12.7	19.5	31.1
Consumption of fixed capital	7.4	8.5	8.1
Net domestic savings	5.3	11.0	23.0
Education expenditure	2.3	3.1	2.3
Energy depletion	1.5	1.3	2.2
Mineral depletion	0.0	0.3	0.4
Net forest depletion	1.3	1.7	1.1
CO_2 Damage	0.8	1.2	1.8
Genuine domestic savings	4.0	9.6	20.0

ZAMBIA

Sub-Saharan Africa			*Low income*
		Region	*Income group*
Population (millions)	10	627	3,536
Urban population (% of total)	39.4	33.3	30.5
GDP ($ billions)	3	334	1,881
GNP per capita, Atlas method ($)	330	510	520
Environmental strategy or action plan (year prepared)	1994		
Agriculture			
Land area (,000 sq. km)	743	23,605	41,383
Land use, permanent cropland (% of land area)	0.0	0.9	1.4
Irrigated land (% of crop land)	0.9	4.2	30.3
Fertilizer consumption (100 grams/ ha of arable land)	111	136	1,210
Food production index (1989-91=100)	94.4	126.7	140.8
Population density, rural (people per sq km)	109	378	573
Forests			
Forest area (,000 sq. km)	314	3,969	7,379
Forest area (% of total land area)	42.2	16.8	17.8
Annual deforestation (% change, 1990-95)	0.8	0.7	0.7
Biodiversity			
Mammal species, total known	229		
Mammal species, threatened	11		
Bird species, total known	605		
Bird species, threatened	10		
Nationally protected area (% of land area)	8.6	6.2	5.9
Energy			
GDP per unit of energy use (PPP $ per kg of oil equivalent)	1.2	..	..
Commercial energy use per capita (kg of oil equivalent)	634	695	646
Energy imports, net (% of commercial energy use)	7	..	..
Electric power consumption per capita (kWh)	563	446	448
Share of electricity generated by coal (%)	0.5	73.3	63.8
Share of electricity generated by oil (%)	0.0	3.3	8.8
Emissions and pollution			
CO_2 emissions per unit of GDP (kg per PPP $ of GDP)	0.3	0.5	0.7
Total CO_2 emissions, industrial (,000 kt)	2.4	471.7	5,306.2
CO_2 emissions per capita (mt)	0.3	0.8	1.6
Suspended particulate in capital city (microgr/m3)	..	..	..
Passenger cars (per ,000 people)	15	13	5
Water & Sanitation			
Access to safe water (% of total population)	43	..	..
Access to safe water in rural areas (% of rural population)	27	..	..
Access to safe water in urban areas (% of urban population)	64	..	..
Freshwater resources per capita (cubic meters)	12,001	8,441	4,330
Total freshwater withdrawal (% of total water resources)	1.5		
Withdrawal for agriculture (% of total freshwater withdrawal)	77	87	87
Access to sanitation in urban areas (% of urban population)	40	..	56
Access to sanitation in rural areas (% of rural population)	10	..	10
Infant mortality rate (per ,000 live births)	114	92	68
National accounting aggregates (% of GDP)			
Gross domestic savings	5.3	14.9	31.1
Consumption of fixed capital	7.3	9.5	8.1
Net domestic savings	-2.0	5.3	23.0
Education expenditure	1.9	4.5	2.3
Energy depletion	0.0	3.1	2.2
Mineral depletion	3.0	0.6	0.4
Net forest depletion	0.0	1.3	1.1
CO_2 damage	0.4	0.9	1.8
Genuine domestic savings	-3.6	3.7	20.0

Notes

1. We would like to thank the Governments of Switzerland and Norway for their generous support for this work. We would also like to acknowledge the excellent comments given by reviewers Zoubida Allaoua, Jan Bojo, Anders Ekbom and Konrad Von Ritter. Any mistakes found are the responsibility of the authors alone. The conclusions and results of this report do not necessarily reflect the views of the World Bank.
2. BP 2.11 refers to a Bank Procedure on Country Assistance Strategies in the World Bank's Operational Manual. These procedures are meant to inform and guide World Bank staff on a variety of policy issues.
3. The project team included S. Fankhauser, K. Hamilton, M. Sarraf, L.Segnestam, and P. Shyamsundar.
4. To keep the decision tree simple, the direct links between growth and poverty are not shown.
5. This chapter is based on a more detailed report by Shyamsundar and Hamilton (2000).
6. Mainstreaming refers to actions taken in macro and non-environmental sectors to understand the environmental implications of their strategies and to incorporate environmental concerns into their activities. This can be either at the policy or project level.
7. The CAS program matrix is an important Appendix in the CAS document and outlines items such as key issues, Bank interventions, programs, and outcome indicators.
8. It is possible that while there were interventions that helped the poor and tried to stem environmental degradation, the CAS document did not identify the nature of these links adequately – this is likely to be true of several of the African CASs.
9. A direct comparison of 'poverty links' with the other variables is not absolutely accurate since different issues are being compared. However, it clearly tells us that the poverty-environment message has not been adequately addressed in the CAS relative to other ways in which environment is linked to economic outcomes.
10. Political upheaval in Pakistan has resulted in major delays in launching a new CAS. The recommendations presented here will become part of an Environment Strategy being prepared for Pakistan, and will eventually be used for the CAS.
11. Source: "Controle de la Pollution Industrielle en Tunisie" Tebodin Consultants for the World Bank, June 1998
12. IEA; World Bank estimates. Avg. Europe is for France, Germany and Italy.
13. METAP (Mediterranean Environmental Technical Assistance Program)is a program, sponsored by the World Bank, the UNDP, the EIB, and the EU, designed to provide technical assistance for the developing countries of the Mediterranean region.
14. The MEDPOLICIES initiative was launched by METAP and is being implemented by the Harvard Institute for International Development.

15. A LIL for an environmental policy reform exists already.
16. For uniformity purposes, data presented here is from the World Development Indicators (World Bank 2000). The actual CAS input indicators included local data as well as data from the World Development Indicators.

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