Natural resource sustainability and economic growth in Africa

The short- and medium-term options for Sub-Saharan Africa to fight poverty and to grow more sustainably lie in the careful management and utilization of its natural resources. The population is predominantly rural, and about two thirds of all rural households are living below each country's poverty line. Nearly 70 percent of households are engaged in food crop and non-food cash crop production. Firewood and charcoal provide up to 80 percent of local energy needs. Africa is rapidly urbanizing, but the livelihoods of the majority of the population will continue to be dependent on the utilization of natural resources.

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

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

Portfolio

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

Infrastructure development and the environment

Excluding South Africa, less than 10 percent of Sub-Saharan Africans have access to electricity and less than half have access to safe water supplies. Road density stands at 7km/100km^2, compared to 170km/100km^2 in Europe. With a much higher climatic variability and greater intensity of floods and drought, Africa's water security is also far behind that of other regions. For example, water storage per person (natural and artificial) is 42 m^3 per person per year in Ethiopia and 6,150m^3 in the United States. It is estimated that the region will need about $15 billion a year in infrastructure financing to achieve the 7 percent economic growth needed to halve extreme poverty by 2015 and to reach the MDGs. Progress in service provision has been much too slow, access in rural areas remains very low, and infrastructure will need to greatly expand to cope with the urbanization trend in the region—46 percent of Sub-Saharan Africa will be urban by 2020, and 70 cities will have populations of more than 1 million people.

Box 1. Mainstreaming Environment in Poverty Reduction Support Credit in Tanzania

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

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

Box 2. Urban Infrastructure

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

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

Some infrastructure projects can be almost entirely win-win: in addition to direct economic benefits, they also produce social and environmental benefits such as better housing, better environmental conditions, mitigation of vulnerability and risks, and overall improved livelihoods. This is frequently the case with urban infrastructure projects involving water supply and sanitation, urban upgrading, and solid waste. The Bank has maintained a good track record of successful urban infrastructure projects (see *Box* 2). In addition, some projects in the energy sector provide evidence of ample win-win opportunities (see *Box* 3).

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

Box 3. Energy Infrastructure

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

The Uganda West Nile Electricity Project. The project will be the first Clean Development Mechanism project negotiated in Africa, where the World Bank's Prototype Carbon Fund (PCF) will be purchasing CO_2 emission reductions for up to $3.9 million over 15 to 20 years. While public diesel-generated power is only available intermittently for a few hours per day, the people in the region increasingly rely on the use of petroleum to fuel very inefficient generators and engines. The $20 million project will replace emissions from these inefficient generators and engines in the districts of Arua and Nebbi in western Uganda by constructing two small hydropower stations, efficient diesel back-up facilities, and rehabilitating the mini-grid in the region. The project is part of the Government of Uganda's Energy for Rural Transformation Scheme, which is supported by the World Bank and various bilateral partners.

Box 4. Senegal River Basin Management

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

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

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Senegal.

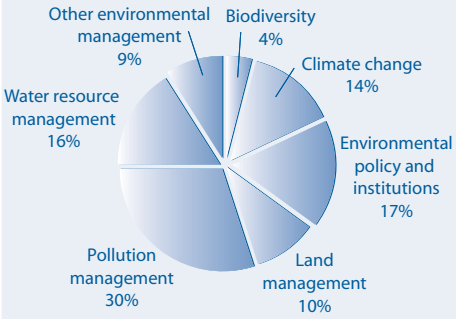
Box 5. Lesotho Highlands Water Project

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

This interbasin transfer project has the capacity to divert and export 27.6 m^3/sec of water and to also generate up to 72 MW of electricity to Lesotho. Environmental and social impacts were addressed by a variety of innovative measures, including (a) the formulation of a first World Bank-supported Instream Flow Requirement Policy, which links and predicts downstream biophysical impacts with socioeconomic impacts; (b) a framework for evaluating the health status of project rivers and for predicting changes in status that would result from a range of scenarios of diversion and downstream releases; and (c) estimation of the social impacts for downstream communities and associated resource losses.

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

The AFR Regional Environment Portfolio



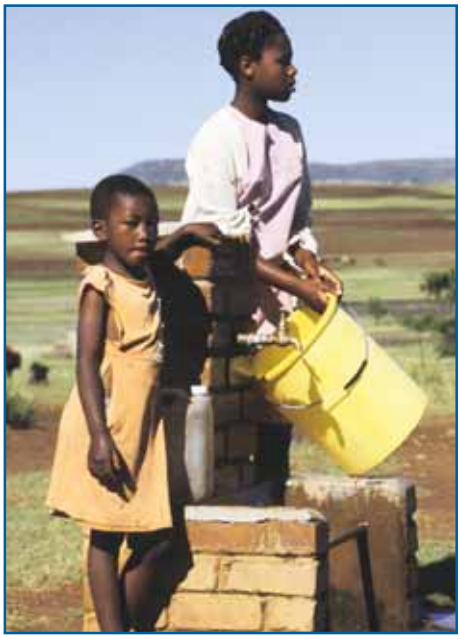
At the end of June 2004 the active portfolio of World Bank environmental lending in the AFR Region was $1.1 billion. In fiscal 2004, new total environmental lending amounted to $195 million.

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

Challenges and opportunities

In order to keep up with the challenge of protecting its natural resources as the basis for short- and medium-term growth, and at the same time to expand infrastructure provision, the countries in the region will have to continue and deepen ongoing efforts on the environment. The region needs to (a) ensure the integration of the environment in broader government planning and advance local capacity and regulatory frameworks; (b) address environmental issues adequately in projects; and (c) directly support activities that reduce vulnerability and improve people's livelihoods, the global commons, and environmental health.

These are the guiding principles of the Bank's work on the environment in Sub-Saharan Africa and part of its strategy. The environment has been increasingly addressed in the Bank's macro and strategic work. Examples include the PRSC of Senegal and Rwanda; the Country Assistance Strategies of Chad, Cameroon, and Ghana; and Mozambique's CEM. The Africa Region will further its efforts through stand-alone environmental projects, partnerships with GEF, integration with sector projects, and more technical assistance and analytical work. The trends toward urbanization, democratization, decentralization, and regional integration may be opportunities to improve environmental outcomes, but careful mitigation measures and integration of environment with sector policies will remain critical challenges.



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Lesotho.

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