

SECTION 5

POLICY OPPORTUNITIES





CHAPTER 14

BACK TO OUR COMMON FUTURE: A RENAISSANCE FOR THE ENVIRONMENT

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*“To live is to choose. But to choose well,
you must know who you are and what you stand for,
where you want to go and why you want to get there.”*

KOFI ANNAN

SECRETARY-GENERAL OF THE UNITED NATIONS

The message of the Brundtland Commission, in its report *Our Common Future* nearly two decades ago in 1987, that people’s “well-being is the ultimate goal of all environment and development policies,” remains as relevant and urgent today as it was then. Since then, significant progress has been made to address the region’s environmental challenges and to enhance human development. However, the expansion of capabilities – the extent to which people have the ability to live the kinds of lives they value – is still limited. Millions live in extreme poverty and hunger, are victims of HIV/AIDS and other diseases such as malaria, are illiterate, are discriminated against, are threatened by violent conflict or denied a political voice. As a result of these ills and other challenges, human development, which in essence is about freedom (UNDP 2005), is compromised. Despite the many achievements, including improved economic growth (OECD Development Centre and AfDB 2005) available evidence indicates that similar achievements have not been made in improving overall well-being. The United Nations’ (UN) Millennium Project notes, Africa “most dramatically, has been in a downward spiral of AIDS, resurgent malaria, falling food output per person, deteriorating shelter conditions, and environmental degradation, so that most countries in Africa are far off track to achieve most or all of the Goals” (UN Millennium Project 2005a). Africa needs to face this challenge head-on.

Poverty in Africa is a product of its history and of ongoing injustices and inequities, such as unfair trade, conditionality in aid which demands among other things the privatization of essential services, structural adjustment, and global patterns of consumption and production which effectively export vulnerability to developing regions. Indeed, as the World Summit on Sustainable Development (WSSD) recognized, eradicating, or even just alleviating, poverty requires global action – and that the developed world has a special responsibility for this. Nevertheless, Africa should act in its own interest, taking responsibility for improving the lives of its peoples.

The previous chapters have highlighted the many environmental changes and challenges that the region faces, as well as the opportunities its remaining assets provide to sustainably advance human development. Africa’s environmental assets offer opportunities for it to attain the objectives of the New Partnership for Africa’s Development (NEPAD) and to achieve the targets of the Millennium Development Goals (MDGs) to which it along with other regions signed up at the turn of the century. As highlighted by the Commission for Africa, “Africa holds 7 per cent of the world oil reserves and generated 11 per cent of global oil exports in 2000. By 2015, West Africa will provide 25 per cent of oil imports into the United States. And its richness in natural resources is not confined to the more traditional

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commodities. It is the primary source of coltan, the essential component of the world's mobile phones. As the world changes and grows it is likely that Africa's rich resources will continue to be vital to the world's prosperity" (Commission for Africa 2005). This wealth sets the basis for:

"...a new era of economic growth...based on policies that sustain and expand the environmental resource base...such growth is absolutely essential to relieve the great poverty that is deepening in much of the developing world" (WCED 1987).

To enable the African environment to contribute to both the MDGs and the NEPAD objectives, it is imperative that Africa curbs ongoing environmental degradation and seizes the development opportunities offered by its wealth of natural resources. Success on these fronts requires that policymakers ensure, in addition to other actions, the following:

- Proper valuation of natural and environmental resources;
- Effective conservation, management and use of environmental resources;
- Effective compliance with, and enforcement of, laws designed to conserve the environment and promote sustainable development (Zaelke and others 2005); and
- Undertake strategic investments that enable the environment to benefit from development. Examples include investments in the development of markets for forest environmental services, such as carbon sequestration, biodiversity conservation, watershed protection and landscape values.

African policymakers can ill afford to ignore environmental degradation, because it impacts on

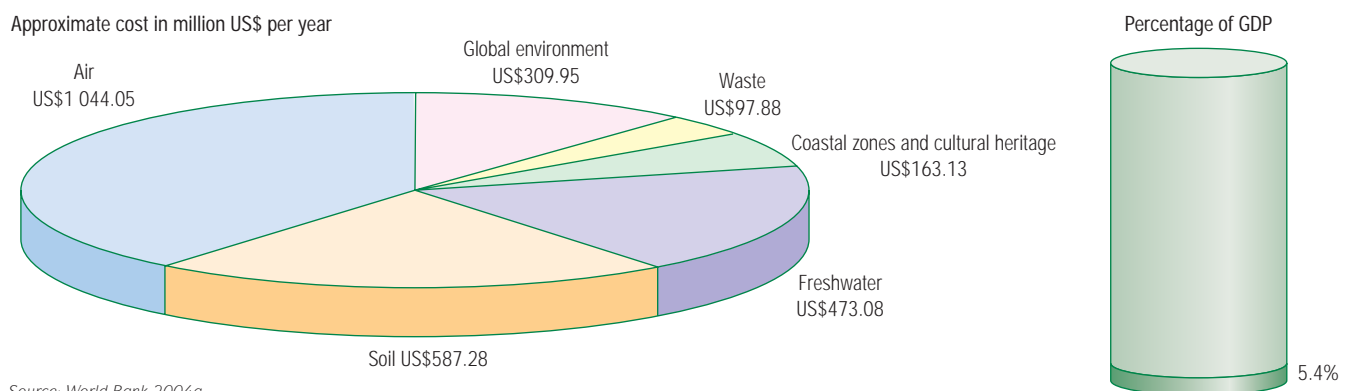
economic performance and ultimately human development. Extreme poverty and environmental degradation "is a waste of opportunities and of resources... it is a waste of human resources" (WCED 1987). For example, research in 1999 concluded that the cost of environmental degradation in Egypt amounted to about EGP14 500 million (or approximately US\$2 365 million) annually or 5.4 per cent of its gross domestic product (World Bank 2004a). That cost has been described as "substantial" and is twice as high as that in industrialized countries. In addition to the public benefits, a growing body of literature suggests that improved pollution prevention and environmental management encourages private sector innovation, leading to increased competitiveness in the market-place (Porter and van der Linde 2005). The main reasons for the substantial cost include a significant disease burden associated with lack of safe water and sanitation, substantial health impacts of severe air pollution and productivity losses associated with soil degradation (World Bank 2002).

To postpone policy actions now in the hope of taking them at a time when greater resources are available may not be wise. Although rehabilitating degraded environments diverts resources away from important development activities, including improving social services such as educational and health delivery, it also impacts on governments' abilities to maximize available opportunities. This close relationship is increasingly recognized. For example, in 2004, Mali was awarded a Global Environment Facility (GEF) grant of US\$5.5 million from the World Bank to stop or reverse biodiversity degradation trends in key conservation areas and other specific sites in the Gourma. The Gourma, which covers three million hectares and is home to Africa's northernmost elephant population (350 strong), is experiencing high degradation, including local extinction of animal and plant

● Well-being is the ultimate goal of all environment and development policies.

● Brundtland Commission (WCED 1987)

Figure 1: Annual costs of environmental degradation in Egypt



populations and overall desertification (World Bank 2004b). The project aims to build local capacity and enhance the development opportunities available to the communities in the area by conserving biodiversity, extending the role of communities in management, and acknowledging them as beneficiaries.

The AEO-2 report, especially in the environmental state-and-trends chapters, shows that Africa has many opportunities to utilize the environment for development, but only if the discerned challenges are dealt with effectively. The analysis also reveals some emerging environmental challenges – such as genetically modified (GM) crops, invasive alien species and chemicals – which require immediate and long-term strategies and interventions by African policymakers. The report also highlights positive lessons from transboundary natural resource management and from regional cooperation for sustainable environmental management that can be replicated or developed further.

Although some AEO-2 findings are not groundbreaking, their continued high profile on the African environmental agenda is a cause for careful retrospection by policymakers on how effectively the existing policy and institutional arrangements have served Africa's sustainable development goals. That retrospection could yield insights on how policymakers can foster a creative and strategic shift from the reactive mode of dealing with the problems of environmental change and human vulnerability, to a

more proactive mode whose impact would include enhancing human well-being. Such a proactive mode would require capacity development at disparate levels to enable, for instance, effective adaptation to and management of socioeconomic and environmental change.

This chapter considers some of these policy actions:

- The issues which have been identified by policymakers in the region are highlighted.
- The medium-term outlooks on the issues are provided as a basis for specifying the actions that could be taken.
- The roles of the various stakeholders in implementing the proposed actions are also highlighted.
- The periods for achieving the targets are identified.

The policy options, adopted by African environment ministers at a meeting in Dakar in 2005, provide a sufficient basis for governments to tailor their policy responses to their national situation. This is an acknowledgement that policy processes have a time and space, and respond to political processes which are bound by other demands and deadlines.

POLICY OPTIONS FOR ACTION

THE HUMAN DIMENSION

Issues

Poverty has many faces. It includes extreme or absolute poverty, relative poverty and social exclusion.

Extreme poverty and underdevelopment continue to plague the region with hundreds of million of people, particularly women and children, affected. Poverty is not just about the lack of access to financial resources but also the lack of other resources required for survival; poverty is the denial of opportunity. Extreme poverty has been described as “poverty that kills,” depriving individuals of the means to stay alive in the face of hunger, disease and environmental hazards (UN Millennium Project 2005a). Relative poverty refers to the level of inequity and inequality – the differences between rich and poor.

The health burden due to HIV/AIDS, malaria and other diseases is a major factor for such underdevelopment. For example, malaria which kills more than 900 000 people in Africa per year (WHO 2001), mostly women and children, has been described as a slow-onset “tsunami” (Sachs 2005) whose impact is shielded from television cameras while its devastating



Policymakers face the challenge of meeting livelihood and settlement needs.

Source: CIFOR

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effect on household security and national development is massive. It is a major threat to human well-being in Africa. As long as extreme poverty and disease continue to ravage the people in Africa, the realization of NEPAD goals, the objectives of Poverty Reduction Strategies and the Millennium Development Goals (MDGs) will continue to be elusive. The MDGs are a “life-and-death issue” (UN Millennium Project 2005a) seeking to address the most extreme aspects of poverty. Achieving them is but one stepping stone on the path to overall African aspirations for development and human well-being. The goals for hunger and disease relate to human capital. The goals for water and sanitation and slum dwellers are part of those for infrastructure. The goal for environmental sustainability is part of protecting natural capital (UN Millennium Project 2005a).

Poverty, poor health and education, poor economic performance and environmental degradation are liabilities; they impede the region’s ability to realize the opportunities provided by the environment for development. With vast natural resources in Africa and the majority of the people directly dependent on agriculture and these natural resources for their livelihoods, it is ironic that the highest percentage, globally, of poor people are found in the region. Poor people cannot invest in the environment nor do they have the power and resources to limit damage to local resources, particularly where ill-conceived policies and greed are factors in, for example, soil nutrient depletion, deforestation, overfishing and other environmental damage (UN Millennium Project 2005a). The vicious circle of poverty exacerbates environmental degradation, which in turn limits opportunities for development.

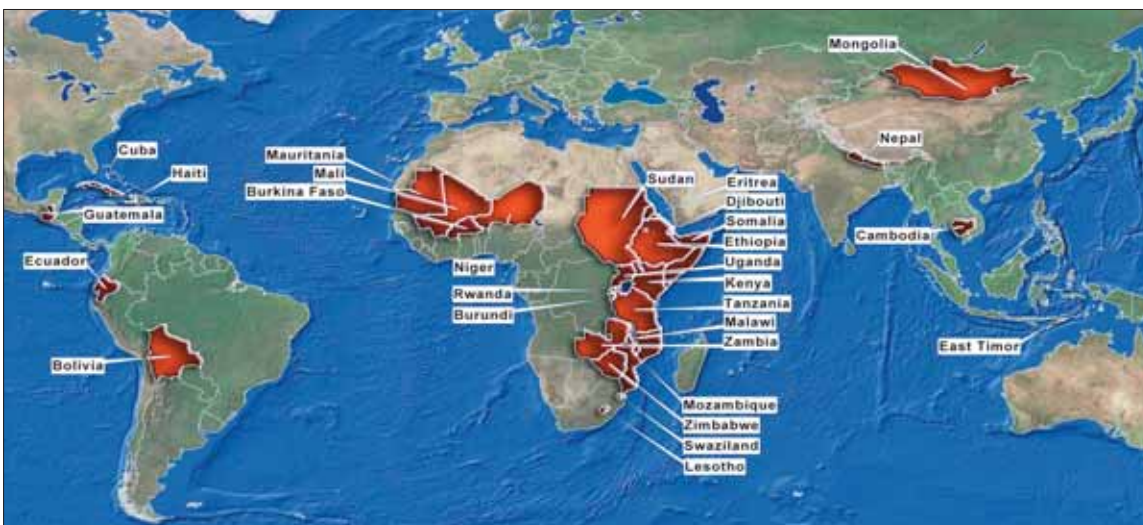
While the formulation and implementation of Poverty Reduction Strategies as a policy response has gained currency in Africa, the weak integration of environment into these strategies has partly contributed to poor performance so far on MDG7. However, countries such as Zambia, Ghana and Mozambique have progressively improved the environmental contents of their strategies, providing useful leads for the other countries. Given the intricate links between environment and other facets of poverty, persistent neglect of environmental issues in the Poverty Reduction Strategies can undermine the prospects for sustainable growth in the medium term and, therefore, of poverty reduction and the attainment of the other MDGs. The Commission for Africa recommendation that African governments include environmental sustainability in their Poverty Reduction Strategies is in recognition of this strong environment-poverty linkage (Commission for Africa 2005).

Africa has the highest rate of urbanization in the world (3.4 per cent) and poverty in these areas is likely to be a growing problem. These slums are home to 72 per cent of Africa’s urban citizens. That percentage represents a total of 187 million people (UN-HABITAT 2003).

Outlook

Without innovative interventions which tackle the root causes of poverty, rather than its symptoms, extreme poverty and hunger will continue to be critical issues in Africa. Although there may still be much that we do not know about poverty and how it is related to environmental degradation, we know enough for this to be an area of urgent activity. It is important to go beyond

Figure 2: Countries affected by food insecurity due to natural hazards during the 2005-06 cropping seasons



Source: WFP 2006

policy discussions and focus on the implementation of policy so as to make a difference to the hundreds of millions of people who live in poverty. Poverty will be a growing problem in both urban and rural areas. In urban areas population growth will continue to outstrip the rate of infrastructure development, leading to an ever-increasing problem of shanty towns and slums. Reducing the vulnerability of poor people to natural disasters and other environmental change is essential. This requires increasing the capabilities people have to adapt to and mitigate such change.

The region has signed up to policy responses such as NEPAD and the MDGs. These provide opportunities to seriously address the socioeconomic problems currently facing Africa. Trends show the interest and commitment of countries in the region to alleviate extreme poverty and hunger, address health and education, and provide more services and so on. Action is now required on these commitments in advancing Africa's sustainable development agenda.

Foreign Direct Investment (FDI), overseas development assistance (ODA) and debt relief are some of the tools available. These need to be complemented with structural changes that address gender issues, access to resources and secure tenure to those resources. Effectively tackling extreme poverty and hunger translates into providing universal education, reducing child mortality, improving



The production of herbs and plants used in traditional medicine. Ethiopia supports local livelihoods and increases the value placed on indigenous knowledge systems.

Source: P. Virot/WHO

maternal health and reducing the disease burden exacerbated by HIV/AIDS, malaria and other water-borne diseases. Success in these areas would facilitate building the resilience of Africa and helping in realizing its opportunities. The UN Millennium Project (2005) argues that “geographical vulnerabilities (which are common in Africa) can and need to be offset by targeted investments in infrastructure, agriculture and health.” By the end of 2005, under the Heavily Indebted Poor Countries (HIPC) Initiative, 24 African countries have benefited from debt relief (IMF 2005a). In terms of the Group of 8's (G-8) Multilateral Debt Relief Initiative, by the end of 2005, a total of 19 countries had been granted total debt relief – or debt forgiveness (IMF 2005b). Of these 13 are in Africa (IMF 2005b). This debt relief increases the prospects for enhanced investment in Poverty Reduction Strategies and if those strategies are MDG-based, then the likelihoods of enhanced performance on both the MDGs and the NEPAD goals are high.

Action

While improved governance is necessary, it alone cannot guarantee poverty alleviation. There are critical policy and institutional changes that deserve serious consideration (UN Millennium Project 2005). Discussions and decisions on the relevant policy and institutional changes should involve all stakeholders, including the private sector and civil society.

It is proposed that policymakers in Africa take serious consideration of the actions that have already been proposed in relation to poverty-environment linkages and reaffirmed by both the UN Millennium Project and the Commission for Africa:

- Strengthen the resource rights of poor people.
- Enhance the capacity of poor people to manage the environment.
- Expand access to environmentally-sound and locally appropriate technology.
- Reduce environmental vulnerability of poor people.
- Integrate poverty-environment issues into economic policy reforms.
- Increase the use of environmental valuation.
- Encourage appropriate private sector involvement.
- Implement pro-poor environmental fiscal reforms.
- Incorporate gender-based measures in social, economic and environmental policies and ensure that data collection and analyses are gender-disaggregated.
- Promote indigenous knowledge systems in strengthening education for sustainable use and management of the environment.

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- Invest in improving the quality of life in urban areas, including through the better provision of essential services and diversifying the livelihood opportunities available to urban dwellers.
- Improve urban planning to minimize the impact of settlements on the environment, particularly the encroachment and conversion of habitats and ecosystems.
- Lobby for improving the international and industrial country trade policies.
- Ensure that foreign direct investments are more pro-poor and pro-environment.
- Negotiate effectively to ensure that the implementation of multilateral environmental agreements benefit poverty reduction.

Stakeholders

Tackling extreme hunger and poverty is not exclusive to governments, but should also involve poor people, civil society, the private sector including big businesses, research institutes and other stakeholders. Partnerships between and among all relevant players are critical to the success of tackling extreme poverty and hunger, and other socioeconomic issues.

Result and target date

Governments should work to meet the MDG targets to halve extreme poverty and hunger by 2015. These issues should remain top on the agenda into the future. However, it is worth noting that it is hardly possible to completely eradicate extreme poverty and hunger.

ATMOSPHERE**Issues**

The issues range from extreme weather events, such as drought and floods related to climate variability, to access to energy for the majority of the people in the region. These extremes in weather mean too much rain in some areas or too little rain in others. The consequence of such extremes is that ecosystem functions are disrupted, with disastrous consequences for biodiversity and the people who are affected. For example, both drought and floods negatively impact food production and food security as well as hydroelectricity generation which supplies energy for domestic and industrial use.

Oxides of sulphur and nitrogen emissions resulting from the use of fossil fuels such as coal and diesel in the power generation and smelting industries are important contributors to air pollution. In trying to address the negative aspects of the atmosphere there is a tendency to focus on such emissions and air pollution, while taking the assets inherent in the atmosphere for granted.

The atmosphere, and maintaining its integrity, is essential for environmental and human well-being. All weather takes place in the troposphere, which is 14 km above the Earth's surface. Weather patterns and climate are key components in Africa, influencing seasonal and annual variations in temperature and rainfall patterns in and between sub-regions and countries. The stratosphere and the ozone layer, which are above the troposphere, absorb ultraviolet radiation from the sun. Without absorption, ultraviolet radiation is hazardous to life, and the Africa region is part of international efforts to phase out the use of fluorocarbon compounds which deplete the ozone layer.

Outlook

With the slow pace of industrialization, many African countries will continue to be minor contributors to industrial air pollution. In the foreseeable future, low-income consumers will continue to purchase and use reconditioned vehicles that fail to meet air quality standards and that may contribute to increased levels of local vehicular emissions. Some industrialists' antipathy against air quality standards is likely to continue for a while, especially given the political tendency to pitch environmental concerns against those for employment and economic empowerment of the poor. The uptake of cleaner production technologies is likely to remain slow, in line with the overall pace of industrialization. However, increasing involvement of the private sector in the formulation and implementation of air quality standards may improve the efficiency and compliance of local industries, as illustrated by the example of the cement



The Global Atmospheric Watch Station at Mount Kenya provides important data collection and atmospheric monitoring and assessment services.

Source: C. Lambrechts/UNEP

industry in Uganda. The monitoring and enforcement of atmospheric quality standards is likely to remain a challenge in the face of lack of investment in institutional and human capacity-building.

A serious problem across Africa is that of indoor air pollution, given the heavy dependence of the population on biomass fuel for cooking and the inadequate ventilation of the kitchen (Gordon and others 2004). The respiratory diseases associated with indoor air pollution may persist for a while unless measures are taken to introduce affordable cleaner energy systems for the poor.

Action

Policymakers could consider the following actions:

- Develop appropriate air quality policies and standards with the active involvement of all stakeholders, and effective systems for their implementation.
- Review the components of the transport and taxation policies that relate to better management of emissions from motor vehicles.
- Introduce or improve the management of a carbon tax, the revenues from which could be used to develop green belts in urban centres to serve as carbon sinks.
- Promote access to clean energy systems for the rural and urban poor in order to reduce health problems associated with indoor air pollution.

Stakeholders

The stakeholders include government, the private sector and civil society. Partnerships with the scientific and health communities are essential in developing appropriate standards.

Result and target date

Countries should aim at having policy and standards in place by 2010 and reducing the levels of indoor air pollution by 50 per cent through a combination of improved technologies, such as more efficient stoves, and other affordable cleaner energy systems by 2015.

LAND

Issues

Land resources in Africa are priceless, as they support the majority of the people, particularly in terms of agriculture and livestock production. Land is an environmental, social and economic good and is a key resource for the realization of development opportunities. Trends show continued degradation of the resource, particularly due to desertification and climate change, but also as a result of poor management and planning. Such degradation undermines productivity and the achievement of the MDGs, especially those pertaining to hunger and poverty.

Although land degradation is usually defined by reference to productivity, its effects may include diminished food security, reduced calorie intake,



Livestock offer opportunities for rural communities across the region providing household security including during periods of drought.

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economic stresses and loss of biodiversity (Stocking and Murnaghan 2000). Land can be degraded or lost through unplanned and badly planned activities related to agriculture, forestry and industry, as well as urban sprawl and infrastructure development. Natural disasters, such as cyclones and floods, result in land loss and deterioration in the functional capabilities of soil. Industrial pollution is increasingly contributing to land degradation as well. An estimated 500 million hectares of land in Africa have been affected by soil degradation since about 1950 (Oldeman and others 1990), including as much as 65 per cent of the agricultural land (Oldeman 1994). This includes 25 per cent or 320 million hectares of Africa's susceptible drylands (Secretariat of the CBD and others 2001), and the degradation-drought-famine linkage exacerbates vulnerability to livelihood insecurity. Recurrent droughts increase soil degradation and this soil degradation then magnifies the effects of drought (Ben Mohamed 1998). This situation, therefore, has implications for the attainment of many of the MDGs and the NEPAD goals.

Increasing population pressure on land combined with reduced fallow periods, inequitable land tenure regimes and poor land-use planning contribute to overcultivation. While overgrazing is a common problem in countries with large livestock populations, the conversion of traditional grazing land into protected areas, use of perverse subsidies that encourage overstocking, poor siting of watering points and the imposition of sedentary agriculture or ranching on pastoral communities also contribute to overgrazing.

These factors have negatively impacted on the capacity of Africa's biologically productive land to sustain its population at current consumption levels. This is referred to as its ecological footprint (Stocking and Murnaghan 2000). The estimated per capita productive land available in Central and Eastern Africa varies from the low of 0.69 ha in the Democratic Republic of the Congo, 0.75 ha in Burundi, 0.85 ha in Ethiopia, 0.88 ha in Uganda, 0.89 ha in Cameroon, 0.90 ha in Rwanda, to 1.12 ha in the Central African Republic, 1.15 ha in the Congo and 2.06 ha in Gabon. Other things being equal, increasing consumption levels will definitely put severe pressure on the ecological footprint.

Africa is extremely dry, in both percentage terms (43 per cent of the land area is classified as drylands), and in total available moisture (5 000 m³ per capita per year). These drylands are unevenly distributed in the region. For example, the percentage of total land area considered semi-arid and arid is low in the Democratic Republic of the Congo (3 per cent), Burundi (5 per cent),

the Central African Republic (12 per cent), Cameroon (17 per cent), Rwanda (19 per cent) and Uganda (25 per cent) and high in Chad (no percentage given), Ethiopia (74 per cent) and Kenya (87 per cent). The percentage of the country populations having to derive their livelihoods from such lands are 2 per cent in the Democratic Republic of the Congo, 4 per cent in Burundi, 9 per cent in the Central African Republic, 10 per cent in Rwanda, 16 per cent in Uganda, 23 per cent in Cameroon, 39 per cent in Kenya and 42 per cent in Ethiopia (UNSO/UNDP 1997).

Countries such as Ethiopia and Kenya have hotspots within their drylands where a combination of land degradation and grinding poverty seriously undermine income and food security, exacerbating human vulnerability. These hotspots present serious development challenges, requiring a thorough understanding of the poverty-environment nexus to implement programmes which enhance human well-being and effective environmental management. Opportunities exist for investment in drylands to fight poverty and promote sustainable human development. For example, focusing on high-value crops, such as fruit and vegetables, can intensify cash crop production. New opportunities for livestock production can be found, including the range farming of game animals. Ecotourism with fair and equitable benefit-sharing arrangements with local communities can be promoted in wildlife reserves to the benefit of both people and biodiversity (Dobie 2001). Small-scale irrigated agriculture can more equitably expand the frontiers of opportunity for the poor in the drylands of Africa.



Throughout Africa cotton is a valuable drylands crop and securing favourable market terms will help improve livelihoods. Burkina Faso.

Source: D. Tiveau/CIFOR



Africa cannot realize the full opportunities associated with its natural resources if it does not address its infrastructural problems.

Source: Z. Tchoudjeu

In Africa's Small Island Developing States (SIDS) heavy pressure on land has resulted in the conversion of natural vegetation, clearing of forests, loss of productivity and soil erosion. In Mauritius, for example, land degradation is a major problem such that only 1.5 per cent of the original native vegetation cover remains (IOC 2004). In addition, agricultural trade in Small Island Developing States (SIDS) has declined and continues to be threatened, mainly due to the fact that they are small, vulnerable and remote, and also as a result of the changing international trading environment (FAO 2004).

The issues of land tenure and land-use management are critical in ensuring that land is effectively used to benefit poverty reduction and sustainable livelihoods in Africa. In many countries this will require fundamental land-tenure reform. A related issue is that of land conflict, which, if not properly managed, can have adverse consequences for livelihood security.

Africa's main policy responses to the land issues highlighted above have included reforms in land-tenure policies and laws, and the translation of the UN Convention to Combat Desertification into strategies and plans for sustainable land management. Tenure reforms have yielded mixed results with access and control as issues of contestation. Rarely have efforts been made to take due account of the links between land and water rights, yet that link is fundamental to land productivity. While progress has been made on the formulation and implementation of the National

Action Plans to Combat Desertification (NAPs), their effectiveness has tended to be undermined by the failure to integrate the NAPs into national policies and strategies and/or other relevant action plans such as those for biodiversity conservation and adaptation to climate change.

Outlook

Given the slow development of the industrial and service sectors in many African countries, huge sections of the population will continue to depend directly on land for their livelihoods. Overall, land degradation is likely to continue in the short to medium term. The worsening poverty situation, sustained high rates of population growth, and negligible growth in the industrial and service sectors will combine to perpetuate extensive rather than intensive land use with little or no application of productivity-enhancing inputs. The upshot of this is likely to be increasing costs on people, economies and the environment. Climate change and desertification will also continue to be limiting factors well into the future.

The adoption of integrated planning that embeds the NAP requirements into the budget and land reforms, which are pro-poor and rationalize the protection of both land and water rights, may attract technological investments in agriculture, improving the prospects for productive land use with positive effects on reducing poverty and hunger. Countries that adopt measures to promote agricultural and rural development, especially the policy action on doubling the area of arable land under irrigation by 2015, might also accelerate the attainment of the MDGs on poverty and hunger (Commission for Africa 2005). The Africa Water Vision 2025 sets a target of a 25 per cent increase in irrigated land by 2015 and a 100 per cent increase by 2025.

Action

The UN Millennium Project (2005) has highlighted the need to focus on rural development, and to achieve a 21st century revolution in agriculture as well as strategies to make Africa's fast-growing cities more productive, through a focus on labour-intensive exports. It noted that many countries in the region "require a big push in public investments to overcome the region's high transport costs, generally small markets, low-productivity agriculture, adverse agroclimatic conditions, high disease burden and slow diffusion of technology from abroad."

In practical terms, policymakers could consider the following actions in the light of the realities facing them:

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- Ensure that land tenure policy and law provide for equal opportunities to access land and protect the property rights of vulnerable groups, including but not limited to, women, children and the elderly, through effective land registry and control mechanisms, based on adequate information to enable efficient and sustainable use of land resources.
- Institute effective mechanisms for implementing land policies and laws towards effective land use as a means of reducing land degradation and desertification.
- Formulate and implement adaptation measures to minimize the impacts of climate change on land and freshwater resources, taking advantage of resources available under the Montreal and Kyoto protocols.
- Expand the area under irrigation to reduce dependence on rain-fed agriculture, while ensuring that promotion of irrigated agriculture does not yield undue social and environmental problems, such as erosion, salinity and siltation.
- Develop and/or strengthen measures to facilitate peaceful resolution of land-related conflicts which will promote social stability and economic growth and protect natural resources.
- Promote market access for products in dryland areas to broaden the opportunities to improve income and livelihood security.

Stakeholders

The success of these and other policy reforms not only depend on governments but other stakeholders as well. These include civil society, farmers, the private sector, research organizations, banks and the international community.

Result and target date

The UN Millennium Project suggested 2005 as the start of “a decade of bold action” for governments to ensure the success of the MDGs. In the nine years left to 2015 – the MDG target year – strategies should be in place to address land degradation, improve food production and cut down food imports, and enhance household and national resilience in the face of natural disasters. Such strategies would not only be in line with the provisions of the UN Convention to Combat Desertification, but also with the MDG and NEPAD targets. In fact, such strategies would help strengthen the NEPAD priority programme to combat land degradation, drought and desertification. Some of the actions identified above would extend beyond the next nine years, but the foundation should be laid during this period.

FRESHWATER

Issues

Access to safe drinking water and sanitation is critical to maintaining and improving health. In general, poor water supply and sanitation is a major public health problem throughout Africa. More than 50 per cent of people in Africa suffer from water-related diseases such as cholera and infant diarrhoea (UN Millennium Project 2006). Improvements in safe water supply, and in particular in hygiene and sanitation, can reduce the incidence of cholera, diarrhoea as well as the number of deaths of children under five. Poor access to safe water and sanitation has been described as “the silent humanitarian crisis that each day takes thousands of lives” (UN Millennium Project 2005b). Conventional wisdom suggests that no single type of intervention has had greater overall impact upon economic development and public health than the provision of safe drinking water and proper sanitation. “Expanding water and sanitation coverage is not rocket science. It requires neither colossal sums of money nor breakthrough scientific discoveries and dramatic technological advances” (UN Millennium Project 2005b).

Freshwater resources have been described as life itself because they drive human life and activities, including agriculture, manufacturing, tourism, fisheries, and forestry, and they sustain the environment and biodiversity. Access to water has also been recognized as a fundamental human right. Water availability and access impacts on all three components of sustainable development: environment, society and economy. For example, about 180 million people in Africa –

● Most countries require a big push in public investments to overcome the region's high transport costs, generally small markets, low-productivity agriculture, adverse agroclimatic conditions, high disease burden and slow diffusion of technology from abroad.

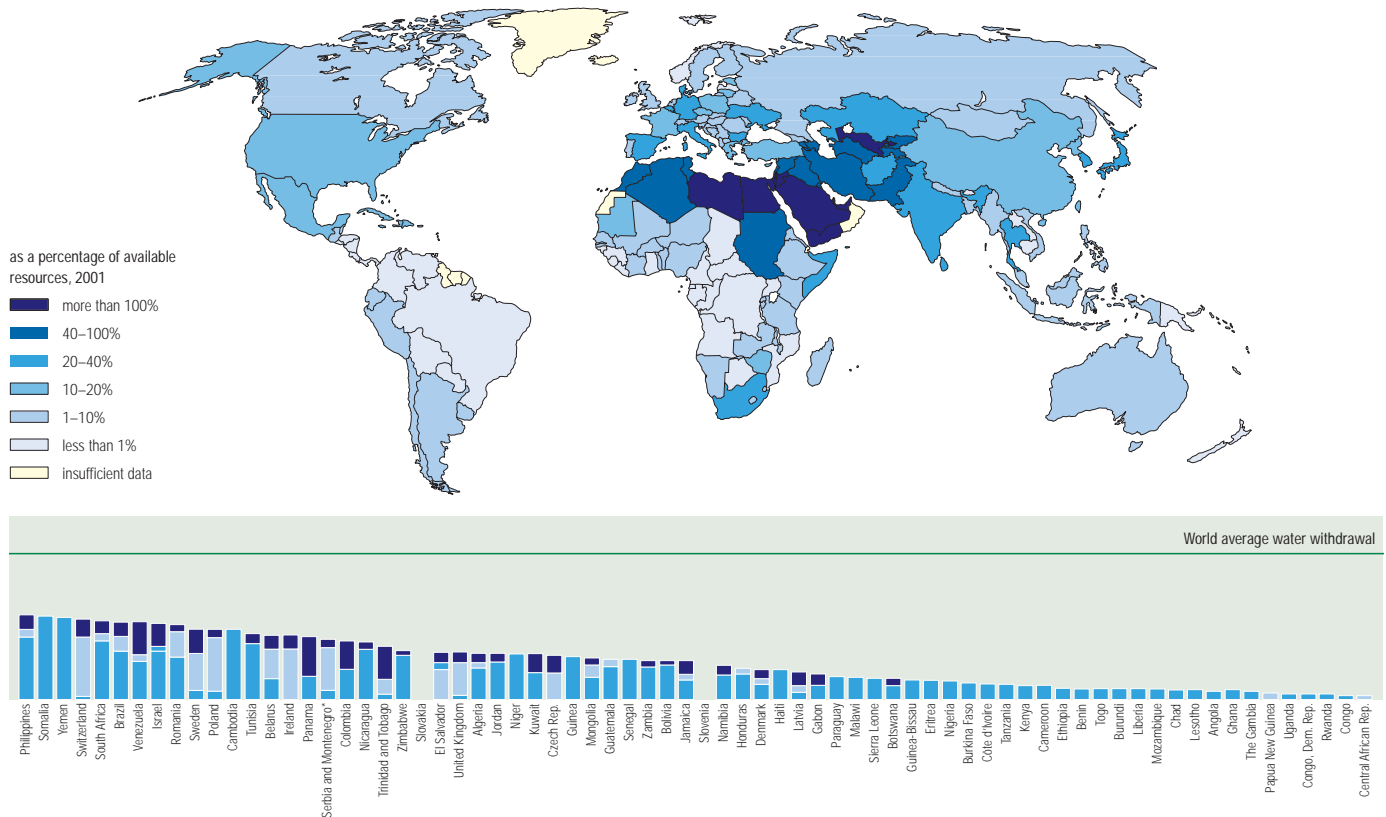
● UN Millennium Project 2005a



Reservoir for sprinkler irrigation, Ribeira Grande, Cape Verde.

Source: M. Marzot/FAO

Figure 3: Water withdrawals by country



Source: WWF 2004b

* includes Bosnia and Herzegovina, Croatia and Macedonia, FYR

pastoralists, farmers and other land users – live on fragile drylands where growing numbers compete for water and land. More than 20 per cent of the regional population’s protein comes from freshwater fisheries (Curtin 2003).

Despite their centrality to human and environmental vulnerability, and their potential to enhance the resilience of both, freshwater resources are not evenly distributed across the region. Some sub-regions and countries, for example Central Africa and the Democratic Republic of the Congo, have more resources. Others, such as North Africa and Egypt, have less. Some of the sub-regions receive more than adequate rains, leading to devastating floods, while others are prone to severe droughts, impacting food production and exacerbating poverty and hunger.

In addition to issues related to access, availability and distribution, increasing pollution is presenting a serious challenge. Freshwater resources are also increasingly being polluted through human activity such as agriculture and mining. This compounds human health and well-being issues. At the beginning of 2005, a total of 280 million people in sub-Saharan Africa (SSA) had no access to safe water and 454 million had no access to improved sanitation (UN Millennium Project 2005a). Projections show that if current trends continue, by 2025 about 67 per cent of the world’s

population will be facing serious water shortages or have no water all (UN 2002).

In the interest of sustainable water use, Africa has to devise effective ways of dealing with the pertinent economic, social and ecological challenges. The economic challenge pertains to maximizing social and economic benefits from available water resources, while ensuring that basic human needs are met and the environment is protected. The growing competition between water users has to be effectively managed, and water disputes and conflicts avoided or adequately resolved. The social challenge is to ensure equitable access to safe water. This should be complemented by actions focused on reducing the vulnerability of poor people (especially women and children) to health hazards associated with water pollution. Meeting this objective requires that sufficient and priority attention is paid to the rehabilitation of water-supply systems destroyed by conflict or water-related disasters (floods, droughts). And, the ecological challenge is to ensure sustainable water use in terms of protecting the quality and quantity of the water resource in order to safeguard the needs of future generations.

These challenges become even more complex given that much of Africa’s freshwater resources are transboundary. Africa has 50 significant international river basins, each of which is shared by two or more

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countries. For 14 countries their entire territory is within international river basins. There are at least 83 river and lake basins shared by a number of countries: 11 in Northern Africa; 29 in Western Africa; 8 in Central Africa; 20 in Eastern Africa; and 15 in Southern Africa (Giordano and Wolf 2003). Africa has a number of significant lakes. Lake Victoria is the largest tropical lake and the second largest freshwater lake by surface area in the world. With the potential negative impacts of climate change on the region's water resources, freshwater stress and scarcity are likely to continue to be major issues.

Policies and legislative and institutional responses at the national and sub-regional levels have been adopted to deal with these challenges. Cooperation, decentralization, privatization and integrated water resources management (IWRM) have been strategies adopted in pursuit of sustainable water resources management. The adoption of cooperative approaches, such as establishing river basin organizations and action plans, have been critical in moving towards a more sustainable, fairer and equitable regime for transboundary management. River basin organizations, over the years, have encountered serious problems, including: lack of strong, sustained political commitment from member states; overly-ambitious programming and lack of focus on priority areas; administrative, managerial, technical, and financial problems; and political instability and civil strife (ECA 2004).

Outlook

Freshwater issues have been on the regional and international agendas for many decades and will remain so for many more decades as demand on the resource grows. African governments established the African Ministerial Council on Water (AMCOW) to provide regional leadership and strategic responses to the challenges of providing safe water and sanitation to the growing population. The role of AMCOW, along with other sub-regional and regional organizations, individual governments and civil society organizations, will continue to evolve as demands on managing the resource change. Water stress and scarcity, transboundary water resource management, irrigation expansion, pollution, climate change and other factors demand responses in the short, medium and long term.

The challenges are massive but not insurmountable. In terms of access to safe water and sanitation:

- An additional 405 million people must have improved access to safe drinking water by 2015, from January 2004, an average of more than 36 million each year, 690 000 each week.



Mother washing her baby under a newly-installed public water tap, Comoros.

Source: H. Wagner/FAO

- An additional 247 million people must have improved sanitation by 2015, with an average of more than 22 million every year, 425 000 people every week, from January 2004 (UNEP 2003).

While Northern Africa had by the beginning of 2005 met the MDG target to "halve the proportion of people without improved drinking water in urban areas," the rest of Africa had not registered any change (UN Millennium Project 2005a). In the short term, most of Africa will continue to lag behind in terms of trying to meet the MDG targets on access to safe water and sanitation in urban and rural areas. Debt relief along with national-level responses may improve the opportunities for meeting these targets.

This may, for example, include more effective management of transboundary water resources through the rationalization of the multiple institutional arrangements, guided by the principles of equitable rights and sustainable and efficient water use (ECA 2004). At the inaugural meeting of the African Ministerial Conference on the Environment (AMCEN) in Cairo in 1985, the ministers placed water issues high on the agenda for regional cooperation. They encouraged the establishment of regional technical cooperation networks



FAO supervisors demonstrating pressure testing of irrigation sprinkler systems to local technicians in Harare, Zimbabwe.

Source: FAO

on environment to adopt, among other objectives, “comprehensive soil and water development and conservation measures in irrigated and rain-fed agricultural areas in Africa” (AMCEN 1985). Many such networks are at work involving governments, sub-regional and regional organizations as well as the UN system. These networks can provide an effective basis for action.

Action

The objective of action should be “an Africa where there is an equitable and sustainable use and management of water resources for poverty alleviation, socioeconomic development, regional cooperation, and the environment” (ECA and others 2000). This requires action at multiple levels, within different time frames. (Irrigation targets are dealt with under the preceding section on land.) The following are some of the many necessary types of urgent policy action:

- Ensure that water safety and sanitation issues remain key areas for attention. The Africa Water Vision 2025 sets the target to reduce by 75 per cent the proportion of people without access to safe and adequate water supply by 2015. By 2025 this should be reduced by 95 per cent. And by 2015, the proportion of people without access to safe and adequate sanitation should be reduced by 70 per cent. By 2025 this should be reduced by 95 per cent.
- Promote integrated water resources management (IWRM) strategies, including water harvesting technology. Under the Africa Water Vision 2025, African countries agreed to aim to implement measures in all countries to ensure the allocation of

sufficient water for environmental sustainability, as well as measures to conserve and restore watershed ecosystems by 2015. By 2025 this should be extended to all river basins.

- Promote water re-use and recycling, and encourage introduction of necessary wastewater treatment before release into the environment.
- Harness water resources for hydropower generation, tourism, and industry to enhance the process of development, while at the same time ensuring that comprehensive environmental impact assessments are conducted. By 2015, countries should aim, as per targets set in the Africa Water Vision, to realize 10 per cent of the development potential of water for these sectors, and by 2025 to increase this to 25 per cent.
- Mainstream freshwater issues in all development initiatives to facilitate effective, efficient and equitable use, and properly value its contribution to sustainable development.
- Develop national, sub-regional and regional strategies for climate change adaptation to minimize its potential negative impacts on freshwater resources.
- Strengthen early warning systems through working closely with UNEP and other relevant organizations to mitigate the effects of extreme weather events such as droughts and floods.

Stakeholders

The stakeholders are governments, the private sector, communities, non-governmental organizations and civil society.

Result and target date

The result should be effective management of the resource which ensures improved access to safe water and sanitation to people in Africa, builds the resilience of people to overcome the impacts of extreme weather events and other disasters, and enhances food production to alleviate hunger. The target dates are 2015 and 2025, but water issues will continue to be an ongoing challenge for people in Africa and their governments.

COASTAL AND MARINE ENVIRONMENTS

Issues

Africa has some 40 000 km of coastline, extending over 32 countries. Coastal areas are the locus of rapid urban and industrial growth, including tourism, the development of oil and gas resources, and port development. The seas surrounding Africa are

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endowed with rich fisheries and varied coastal ecosystems, including wetlands, coral reefs and mangroves. Coastal areas host a wealth of historic sites and the western and northern parts of Africa are well endowed with oil and gas resources, some of which are offshore. The rich biodiversity, the historic heritage, and the fisheries and energy resources, coupled with an amenable climate, are key assets for the development of opportunities to improve the economic and social well-being of the population.

However, coastal and marine resources are under considerable threat from degradation. The main concerns are the loss of habitats and the modification of coastal ecosystems, leading to species loss. These adverse impacts are due primarily to the pressures of human activities, both land-based and marine. The pressures include: urbanization and industrialization resulting in pollution, eutrophication and loss of habitats; damming and agricultural irrigation leading to coastal erosion and saline intrusion; and the overexploitation of marine fisheries. There is also ongoing concern about the potential impacts of climate change and the anticipated sea-level rise, particularly with regard to coastal erosion and the inundation of coastal lowlands (IPCC 2001). Another concern is the introduction of IAS from ballast waters of marine vessels. Oil and gas development will lead to an increased problem of marine and coastal pollution from terminals, tankers and offshore wells.

A number of initiatives have been put in place, at different levels, to address the environmental issues and threats to the marine resources in the region. Many of these are based on the integrated coastal zone management (ICZM) programme. Cooperation through MEAs is an important aspect of sub-regional response to the challenges faced:

- Countries in Northern Africa are party to either the Convention for the Protection of the Mediterranean Sea against Pollution (the Barcelona Convention) or the Regional Convention for the Conservation of the Red Sea and Gulf of Aden Environment (the Jeddah Convention), or, in the case of Egypt, both.
- Eastern African countries are party to either the Convention for the Protection, Management and Development of the Marine and Coastal Environment of the Eastern African Region (Nairobi Convention) or the Jeddah Convention.
- Countries in Western Africa are party to the Convention for Cooperation in the Protection and Development of the Marine and Coastal Environment of the West and Central African Region (Abidjan Convention).

The Cape Town Declaration on an African Process for the Development and Protection of the Coastal and Marine Environment, adopted in 1998, committed Africa's leaders to promoting cooperation and supporting the implementation of the existing global and regional agreements. The African Process identified coastal erosion, pollution, sustainable use of living resources and management of key habitats, ecosystems and tourism to promote sustainable economic development as important areas for future action.

The NEPAD-EAP programme area on coastal and marine resources builds on these MEAs and identifies six priority focuses: pollution, physical changes to the coastal and marine environment, biodiversity, integrated management approaches, environmentally sustainable economic development, and climate change.

Outlook

Coastal and marine areas will continue to be hubs for industrial and commercial activities in the region for the foreseeable future. The major focus will continue to be oil and gas production and processing, fisheries and tourism, all of which have a potential for supporting medium- to long-term development. These developments will continue to induce environmental changes which threaten ecosystem health, human well-being and future development potential. This creates various challenges for environmental management which, if not addressed in a pre-emptive manner, may undermine the potential of these resources.



The ocean holds immense opportunities – from wave energy to fish to oil. Ensuring it is sustainably used is a priority. Morocco.

Source: J.C. Mohamed-Katerere



Many of Africa's SIDS, such as the Seychelles, have idyllic beaches that support a vibrant tourism industry.

Source: M. Chenje

Mass coastal tourism development, as is already happening in Egypt, Algeria, Kenya and South Africa will result in rapid urban sprawl, habitat and biodiversity loss from construction, solid waste and sewage discharge, and coral bleaching as a result of climate change and increased pollution loading. Tourism, especially where it displaces people who are dependent on coastal and marine resources, can lead to conflict and affect local livelihoods. The concentration of growing numbers of people along the coast will increase their exposure to extreme events. In the absence of effective coping and mitigation strategies, including early warning systems and disaster preparedness, it may also increase their vulnerability. Reducing the vulnerability of these populations will emerge as a key policy challenge. The tsunami which occurred in Indonesia on 26 December 2004, some 7 000 km away, was able to cause significant damage on the east African coast seven hours later. More than 200 people were reported killed in the town of Hafun, in Somalia (CARE 2005). Several fishing boats and facilities were damaged on the Tanzanian and Kenyan coasts. The impact of such incidences is likely to increase with the increasing population on the coastline and in absence of any practical mitigation plans.

A growing fisheries sector will place new pressures on the environment, from overharvesting and by-catch problems. Additionally, the growing commercial (and often foreign) sector will place increasing pressures on artisanal fishers and in particular on coastal communities that depend on the nearshore fisheries resource for food (NOAA 2003). This becomes particularly serious in a context of growing population of coastal areas.

The problem of reduced freshwater discharge from rivers will become more significant as more rivers are dammed inland to provide water for irrigation and supply for the cities. This will impact adversely on wetlands, mangroves, and coastal flats and have direct costs for livelihoods utilizing these resources.

Action

The multiplicity of MEA and regional and sub-regional initiatives demonstrate collective commitments and goodwill. However, individual governments need to undertake the following specific actions:

- Introduce stringent measures to abate marine and coastal pollution, through incorporating the polluter pays principle into the legal framework and strengthening the institutional capacities for enforcement.
- Enhance public awareness on the issues of land-based pollution, such as waste discharge and soil erosion.
- Identify coastal areas which are sensitive and crucial for maintenance of ecosystem integrity and designate them for conservation or regulated development.
- Ensure better coordination at the national level in the granting of fishing access rights to industrial fleets, taking into account social and environmental considerations. There is an urgent need for more effective transboundary cooperation in managing fishstocks, including better monitoring, control and surveillance, and the enforcement of regulations. These actions are best complemented by international agreement on fisheries regulation, and this could be an important area for advocacy.

Chapter 14 • Back to Our Common Future: A Renaissance for the Environment**Stakeholders**

Although public participation is crucial in coastal and marine management, governments will continue playing a leading role, especially in monitoring and enforcement. Support from development and donor partners is important.

Result and target date

Results in terms of restoration and recovery of ecosystems can be realized within three to five years, while some other processes such as coral reef regeneration may take as long as ten years.

FORESTS AND WOODLANDS**Issues**

The forest sector plays an important role in the economic development of many countries and livelihoods of many communities in the region. On average, forests account for 6 per cent of GDP in the Africa region, which is the highest in the world (NEPAD 2003). They provide resources for energy, food and medicines, as well as timber and non-timber forest products (NTFP) which have considerable potential to generate income. Forests and woodland can contribute to the long-term social and economic development goals of NEPAD. They are also key environmental components, and have a fundamental link to the provision of other environmental goods-and-services. They are critical to the success of the other aspects of NEPAD's Environmental action Plan (NEPAD-EAP) programmes, including combating land degradation and climate change, conserving wetlands, coastal and freshwater resources, and controlling alien invasive species.

Forests and woodlands have multiple values at all levels of human society, including the community, national, sub-regional, regional or global levels. At the local (community) level forests and woodlands have multiple uses, which vary extensively with the type of forest, and the community. These include construction materials, foods, energy, medicines, catchment protection, soil protection, shelter and shade, habitat for wild life and grazing as well as cultural values (sacred groves, shade, peace trees and plants, meeting places, boundaries, training areas). Local communities therefore use forests and their products in a multitude of ways that differ from direct commercial exploitation or conversion to agricultural land. At the national level and regional level forests and woodlands also play an important role in catchment protection for water quality, hydropower, and regulation of river flows, prevention of soil erosion, timber products, biodiversity,

non-timber forest products (food, materials, and medicinal substances), energy and leisure. At the global level they are valued for their role in climate regulation and as repositories for biodiversity.

However, forests in the region are declining in quantity and quality, due to a number of factors. Chief among them are demand for fuel and agricultural land, livestock production and plantations (rubber, coffee and cocoa), population growth, and infrastructure development. Other pressures include inappropriate forest policies, lack of enforcement, weak forest departments, and low investments in research, training and management. Management challenges include incomplete inventorying, poor monitoring and enforcement, poor governance (such as inadequate community involvement and decentralization) and inadequate valuation of natural resources (goods-and-services).

Urbanization is also a major driver of environmental degradation in its immediate vicinity, particularly deforestation due to increasing fuelwood demand from the urban poor and pollution resulting from improper location of garbage disposal sites.

Conflicts have also taken their toll on forests, especially in the Great Lakes Region (GLR) and parts of western Africa. In these areas, conflict has rendered state agencies ineffective, peacetime efforts at forest protection are suspended, and illegal loggers, even if not directly involved in the conflict, can proceed unchecked. In the Democratic Republic of the Congo (DRC), a series of civil wars in the 1990s created a power vacuum and broke down conventional forest management regimes, fostering illegal logging and other resource conflicts (Renner 2002).



Adding value to timber is essential for improving national and local income. Craftsperson making wooden furniture.

Source: J. Maillard/LO

The impact of forest and woodland degradation is having undesirable manifestations. In many countries, the change in area and quality of forest cover has resulted in catchment destruction, siltation, loss of hydroelectric power and soil erosion. Timber products are becoming scarcer in a number of countries, including Uganda and Kenya, who have imposed restrictions on harvesting in natural forests. Collaborative forest management and developing markets for environmental services exemplify innovative policy responses in dealing with the problem of deforestation. They represent part of a new paradigm that explicitly recognizes the need to bridge the interests of communities that are dependent on forests as well as landholders and those of the conservation agencies and external beneficiaries, while ensuring tangible benefits for conservation and livelihoods (CIFOR 2005, Brown 1999).

Outlook

In view of the low investment in the forest sector, increasing population pressure and weak public sector institutions responsible for forestry resources management, deforestation and declining forest quality will continue in most countries over the next decade. This will reduce the ability of forests to provide environmental services such as climate modification, biodiversity reserves, desertification control and protection of water catchment.

Nevertheless the state and integrity of forest and woodland resources will continue playing a major role

in the livelihoods of many, including communities living in close proximity to forests. As forests in catchment areas are destroyed, water quality, quantity and stability will be adversely affected, as exemplified by the situations in Kenya, Ethiopia and some countries in southern Africa. The loss of water quality will increase the incidence of water-borne diseases, as many people depend on untreated water from streams and rivers for their domestic water supply. Decreasing water quantity will impact on water supply for cities.

Increasing woodfuel shortage will affect the overall well-being of more people as more time and resources will be diverted to procurement of the woodfuel. Communities who rely on staple foods that take long to cook will be forced to resort to types of food that are less demanding on biomass energy, with adverse consequences for nutrition and health.

Housing quality in some areas is already declining and is likely to continue to do so as construction timber becomes unaffordable, especially for poor people.

Action

It is imperative to build on existing commitments, such as the NEPAD-EAP which recognizes the importance of forests and woodlands and incorporates them as part of Programme Area 6, *Transboundary conservation or management of natural resources*. It emphasizes the protection and sustainable management of Africa's forest resources through:

- Strengthening national plans and programmes for forest management, inventory and monitoring. This includes the participation of stakeholders, such as communities and the private sector, new approaches and initiatives, and the promotion of the wide range of roles and values played by all forest areas.
- Maintenance of protected areas, by improving capacities, forming partnerships with other countries, and the restoration of landscapes, etc.
- Strengthening forest law and governance by encouraging sharing of information on trade in illegally harvested forest products, participation in international forums and international agreements, and implementing measures to curb corruption.

These focal points within NEPAD-EAP provide a viable framework for governments to implement the following actions:

- Strengthen institutions responsible for implementing national plans and programmes for forest and woodlands resources management, and actively engage the private sector and civil society.



Establishing systems for managing timber extraction is essential. Officials check log numbers of timber intended for market.

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- Promote protected areas management by providing adequate incentives for adjacent communities through better benefit sharing and increased participation in management.
- Review the legal and institutional capacities of public sector institutions responsible for forestry resources management, to give them overall responsibility for all forests and woodlands resources, including those outside protected areas.
- Strengthen capacities for controlling illegal trade in forest and woodlands products through better enforcement of forest laws, sharing of information, and participation in international forums and agreements.
- Undertake comprehensive inventory and valuation of the forests and woodland resources, and introduce mechanisms which encourage optimum utilization of the resources, including issuing concessions on standing volumes rather than harvested volumes.

Additionally, investing in alternative energy development to alleviate the pressure placed on forests and woodlands is an important action. The opportunities offered by growing markets for environmental services should be considered.

Stakeholders

The above policy actions can only bear fruit when governments enter into functional partnerships with other stakeholders such as the private sector, civil society, farmers, research organizations and the international community.

Result and target date

The actions can be implemented in the short to medium term (five to ten years) as one of the bold steps towards the MDG targets of reducing extreme poverty through equitable distribution of resources and enhancing the quality of the environment.

BIODIVERSITY**Issues**

Africa's biodiversity wealth is an important feature of its environment (UNEP 2002). Biodiversity plays a role in poverty reduction through contributions to food security, health improvement, income generation, reduced vulnerability to climate change and provision of ecosystem services such as the cycling of nutrients and the replenishment of soil fertility (WEHAB Working Group 2002). This wealth of biodiversity is unevenly distributed throughout Africa. South Africa, for



Managing transboundary resources increases the opportunities for all countries. The tropical moist rain forest of the western Congo basin, Gabon.

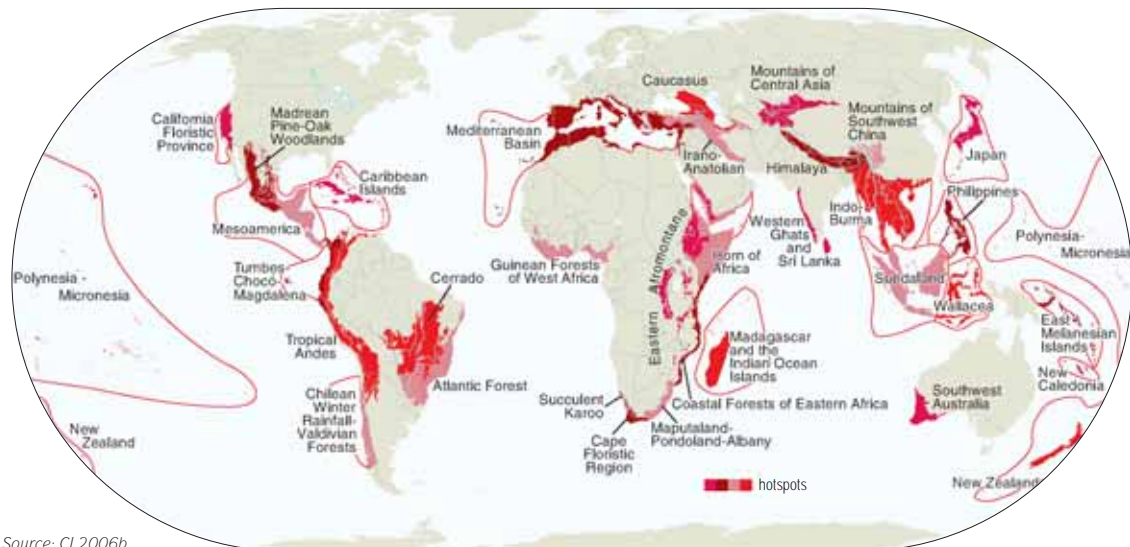
Source: M. Harvey/Still Pictures

example, has over 23 000 plant species, compared to Cameroon's approximately 8 260 species and Kenya's 6 500 species (Groombridge and Jenkins 2002). Some African countries, such as Madagascar, the DRC and Cameroon, are known for their rare internationally recognized plant and animal species. Some of Africa's plant species have also contributed immensely to the world's pharmaceutical industry. Noteworthy among these are *Ancistrocladus korupensis* (Cameroon), *Pausinystalia yohimbe* (Nigeria, Cameroon and Rwanda) and *Catharanthus roseus* (Madagascar), which are being used in pharmaceutical research in industrialized countries. This also is the case in Botswana and South Africa, where indigenous peoples' and rural communities' knowledge and use of a cactus (*Hoodia gordonii*) has become the basis for substantial investment in developing a dietary drug.

There are of course microbial and other species that offer potential for scientific development in agriculture and medicine. The diversity of fish species includes some of the most economically significant species such as *Thunnus thynnus* (tuna), *Tetrapturus albidus* (white marlin), *Makaira indica* (black marlin) and *Istiophorus albicans* (billfish). In countries such as Namibia the fisheries sector contributes substantially to both GDP (over 35 per cent) and employment. The Eastern Afrotropical Hotspot is an extremely important area for freshwater fish diversity, with more than 620 endemic species (CI 2006b).

Africa's dryland ecosystems are also rich in biodiversity. Although the diversity of species in the

Figure 4: Biodiversity hotspots



Source: CI 2006b

drylands is quantitatively lower than in other ecosystems, that diversity is marked by its tremendous qualitative value. There are exceptions to this: some areas with harsh climates including the Namib Desert and the Karoo in the west of South Africa have an estimated 4 500 plant species, a third to one-half of which are endemic (Davis and others 1994). The ecological conditions within drylands require species to become resilient or tolerant to drought and salinity, to be able to grow readily and to set seeds within a very short time frame. Such genetic traits are of global value and are particularly important to populations living in drylands (Kingdom of Swaziland 2003). Some of the plant species in the drylands of Ethiopia and Madagascar, for instance, are valuable alternative food sources during drought.

Overall, Africa is home to eight of the 34 internationally recognized biodiversity hotspots in the world. These are the Cape Floristic Region, Coastal Forests of Eastern Africa, Eastern Afromontane, Guinean Forests of West Africa, the Horn of Africa, Madagascar and the Indian Ocean Islands, Maputaland-Pondoland-Albany and the Succulent Karoo (CI 2006a).

Biodiversity has influenced the culture and development in the region over centuries. There is a correlation between centres of biodiversity richness and human settlement. Historically, biodiversity has been at the core of livelihoods, and this remains true for many peoples, especially those who have maintained a traditional lifestyle, including forest dwellers in the Congo basin and the nomadic peoples of Eastern Africa and Southern Africa. At the regional level, biodiversity has played an important role in food security by ensuring the availability of a genetic

base for improved local varieties, both crops and animals. In the tourism sector, which is a major income earner for many countries in the region, it is the foundation on which tourism is built. These resources are also supporting vibrant fisheries and pharmaceutical industries.

Disturbance and loss of habitat has, however, resulted in the loss of species and, combined with agricultural practices which focus on a few crops, is narrowing the genetic base. The impact of genetic modification of these resources remains uncertain. Invasive alien species pose a significant threat to biodiversity and to the survival of many native species, causing substantial economic losses and threatening livelihoods. The erosion of Africa's biodiversity wealth arising from human activities is a serious problem. In the 1990s threats to higher plants included loss of 67 species in Cameroon, 69 in DRC, 125 in Ethiopia, 130 in Kenya, 255 in Madagascar, 326 in Tanzania, and 1 875 in South Africa (WRI and others 2000).

In response, African governments have, among other things, established protected areas, of which there are, for instance, 405 in South Africa, 68 in Kenya, 54 in Uganda, 45 in Madagascar and 39 in Ethiopia (Secretariat of the CBD and others 2001). In some countries, the management of the protected areas has not been effective because of the tendency to focus heavily on biodiversity protection at the expense of people's livelihoods, therefore turning the affected communities against conservation. Another response has been the ratification of biodiversity-related multilateral environmental agreements (MEAs) such as the UN Convention on Biological

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Diversity (CBD), Ramsar and the Convention on International Trade in Endangered Species (CITES). However, for many of these reporting and implementation remains weak. For example, until the year 2000, performance on CITES reporting requirements was mixed.

However, most biodiversity occurs outside of protected areas, and if it is to be effectively conserved then alternative measures need to be adopted. The integration of conservation measures into other land-use systems is essential, and ensuring a fair and equitable sharing of the benefits from biodiversity use is a fundamental component of this. Experience throughout the region has demonstrated the value of community involvement in biodiversity conservation and ensuring its sustainable use.

Although some countries have incorporated the MEAs into national policies and framework laws, few have succeeded in achieving the enforcement of policies and laws. Similarly, while 37 countries in Africa have ratified the Cartagena Protocol on Biosafety (CBD 2006), less than ten have put in place mechanisms, including the legal and institutional frameworks, to operationalize it. The implementation of the national biodiversity strategies and action plans (BSAP) by a number of African countries has yet to generate the expected impacts in terms of conservation, sustainable use and equitable sharing of benefits accruing from commercial transactions on biodiversity.

Outlook

Biodiversity will continue to be the most important resource endowment for many countries in the region, sustaining both national economies and community livelihoods. As the population grows, demands on the resource to meet basic needs will intensify. Expanding economic activities and human settlements will encroach on important habitats thus compromising the survival of many species. Reduced access to the resources for medicine and food will adversely affect the livelihoods of many communities. With increasing scarcity, more and more biodiversity resources, including wildlife, woodlands, medicinal plants, etc. will be managed for commercial purposes to the exclusion of the poor. This too will impact on livelihoods and overall levels of well-being. Most biodiversity will continue to be located outside protected areas.

With the continued realization of the importance of biodiversity resources in national development, efforts will be pursued to safeguard the resource. Financial commitments and support will be required to finalize these frameworks and start the implementation.

Action

Africa's commitment and goodwill on biodiversity conservation have been reasserted in the Environment Initiative of NEPAD. The 2010 targets adopted by the CBD and reiterated at WSSD in 2005 are important global targets that Africa has also committed to. The priorities for biodiversity include:



Baboon (*Papio anubis*). Nakuru National Park, Kenya.

Source: C. Lambrechts/
UNEP

- Supporting and improving implementation of the objectives of the CBD, in particular the sustainable use and fair and equitable sharing of benefits and the development of an ecosystem approach to sustainable management.
- Bringing communities and other resource users on board as both managers and planners. This could include support for and the development of community conservation areas based on multiple land uses and the objectives of the CBD.
- Implementation of the African Protected Areas Initiative (APAI).
- Supporting and implementing the CBD's Bonn Guidelines on Access to Plant Genetic Resources and Fair and Equitable Sharing of Benefits Arising from their Utilization.
- Preventing and controlling invasive alien species, through control of entry points, awareness raising, aquatic and terrestrial programmes, and developing a special programme on control of invasive alien species on Africa's SIDS.
- Adopting or strengthening measures in line with the CBD 2010 targets to promote the conservation of ecosystems, as well as species and genetic diversity. Such measures may include better integration of land use, development, and conservation by recognizing that most species will occur outside protected areas.

The following actions can be implemented by governments in the short to medium term:

- Strengthening national conservation programmes through increased financing and introducing innovative means of generating revenues from biodiversity assets. This revenue can provide additional funding for conservation programmes, some of which can be targeted at enhancing support to planning, research, monitoring and public awareness.
- Instituting and/or strengthening a system of transfers of benefit accruing from biological resources to communities through collaborative management of ecosystems.

Stakeholders

Partnerships with other stakeholders are essential to implementing the recommended actions. These partnerships in the first instance should be with resource users and managers, such as local communities and other landholders. For some areas partnerships with the private sector, civil society organizations, farmers, the scientific and research community, and the donor community will be important.

Result and target date

The actions can be implemented in the short to medium term (five to ten years). However this is an area that will require ongoing attention.

GENETICALLY MODIFIED CROPS

Issues

The introduction of genetically modified organisms (GMOs) in Africa probably equals the CITES listing of the African elephant as the most divisive issue among policymakers in the region. Already there is an apparent split with some countries taking a lead in introducing GMOs in agriculture, and others opposed to even importing GMO food which is unprocessed. The issue is not limited to Africa but has international dimensions involving agricultural production and food security, pesticide use and environmental pollution, organic agriculture and the risk to biodiversity, as well as the role of the private sector and international trade.

Controversy revolves around (Young 2004):

- The interpretation of science, specifically whether GMOs are inherently safe or inherently dangerous from a human and environmental perspective;
- Economic analysis and in particular how to evaluate the cost-and-benefits associated with GMOs; and
- Socio-cultural impacts and biosafety implications concerning food production and security, livelihoods, and human and environmental health.

Already, IUCN-the World Conservation Union (IUCN), which brings together government, civil society, and experts from a wide range of disciplines, has declared "a



Consumers protest about genetically modified foods and assert their right to choose.

Source: Biowatch

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moratorium on further environmental releases of GMOs until this can be demonstrated to be safe for biodiversity, human and animal health beyond reasonable doubt.” A further concern is that the introduction and promotion of GMOs “are driven primarily by the private sector, whose interests in development and marketing may be greater than in assessing potential risks to biodiversity, human and animal health” (IUCN 2004a). But this decision is controversial, with some members such as Japan, The Netherlands and Sweden opposed to the resolution. The United States Government and its agencies did not take part in the deliberations. Recognizing the controversy around this issue, IUCN also called for “substantive work, within reasonable time and within reasonable resources, to develop credible knowledge and information concerning biodiversity, nature conservation and associated risks of GMOs.” It further requested IUCN to promote and support initiatives to ratify and implement the Cartagena Protocol on Biosafety (IUCN 2004b).

IUCN has more than 1 000 members, of which more than 30 are African government departments or statutory bodies (IUCN 2005). Many of these, including departments and civil society organizations, would have participated in the debates on these two resolutions at IUCN’s World Conservation Congress in Bangkok in 2004.

Outlook

Although GMO technology is relatively new and many countries still do not have strong governance structures for monitoring and enforcing its use, it is poised to gain more ground over the coming decades. Data and information on GMO impacts on the environment will possibly lag behind and it may take even longer for the region to have comprehensive knowledge of such impacts.

Controversy over whether or not it can be a panacea to food insecurity in Africa as well as potential risks to the environment will continue to rage. More governments may follow the lead of South Africa, which in 2004 passed the National Environmental Management: Biodiversity Act, which regulates the release of GMOs in the environment. The new law requires an environmental impact assessment to be approved before the government will permit any GMO to be released into the environment, either on a trial or a general basis (Government of South Africa 2004). The effectiveness of such laws, however, depends on national and regional capacities for enforcement as well as scientific assessments of risks and benefits.

Action

African governments, individually and collectively, are faced with an enormous challenge given the high levels



Genetic improvement of coffee (*coffea spp.*) through hybridization is used to enhance yield and quality. However, the success of the hybrid Catimor (above) grown in Malawi in achieving this is disputed.

Source: A. Conti/FAO

of uncertainty surrounding this technology. At the centre of a government’s response package should be a commitment to making the best decision possible based on all relevant available information, and taking into account the priorities and values of its people.

Governments will need, according to their development priorities and values, to develop appropriate laws, policies and regulations to govern GMO and strengthen the institutions for effective decision making as well as the monitoring and enforcement of such decisions. The AU’s Model Law on Safety in Biotechnology is a valuable starting point for all countries in developing national frameworks. This will include incorporating legal principles and processes that they have adhered to in MEA, including the CBD and the Cartagena Protocol. In particular, legislation will need to incorporate the precautionary approach. This will require investing in building individual and institutional capacity. Where appropriate, governments will introduce measures requesting manufacturers to label all food products which contain GMOs. They will also ensure that consumers are provided with adequate information to exercise their right of product choice.

Those governments that opt to allow GM products onto their markets will need to provide the relevant legal framework for the private sector to operate, and in some cases to undertake research. Regulation will need to fully incorporate a precautionary approach, including measures to evaluate risk and monitor the release of GM products into the environment.

The following immediate actions are required:

- Develop and implement national biosafety frameworks comprising national biosafety policies, regulatory regimes, systems for making informed decisions, mechanisms for monitoring and evaluation and public participation mechanisms.
- Require the private sector to engage in substantial monitoring and evaluation (M & E) of the impact of GMO releases on the environment. This will need to be complemented by governments investing in their own capacity to evaluate such M & E activities and enforce regulations.
- All M & E evaluation of all GMOs should be ongoing from "cradle-to-grave".
- Introduce measures to ensure that food security is not compromised by monoculture. The measures should also decouple GMO technology from fertilizers and pesticides manufactured by the supplying manufacturer. Such measures should also contain anti-trust provisions.
- Protect indigenous crops from biotechnology manipulation which may threaten biodiversity and also lead to the inaccessibility of new varieties to the majority of indigenous farmers.
- Guarantee for farmers the choice to either use GMO technology or refuse it. Accidental cross-pollination should not be subject to intellectual property legal challenges.
- Work with the private sector, farmers and scientists to make reliable and appropriate information on GMOs available to all stakeholders.

Stakeholders

In addition to governments, other stakeholders include the private sector, civil society, research organizations, universities, farmers and consumers. Each of these stakeholders should work to ensure that relevant information is accessible for informed decision making. Regular consultations among these groups should be facilitated.

Result and target date

The desired result is a comprehensive regional strategy on genetically modified organisms, and this should be ready by 2010. The strategy should be the basis for sub-regional and national strategies on GMOs. Countries which are already advanced in this area are encouraged to share their experiences in order to strengthen capacity in the region.

INVASIVE ALIEN SPECIES

Issues

Invasive alien species (IAS) have become a major threat to sustainable development in Africa, forcing governments to divert millions of dollars a year to fight the spread of such species. In South Africa, for example, it has been estimated that invasive alien trees and shrubs, which consume about 7 per cent of the country's freshwater, will double in 15 years if they are not controlled. It has been estimated that economic losses due to IAS amount to about 5 per cent of the world economy or about US\$1.4 million million annually. This is about three times the gross national product of all

Many exotic species have mixed impacts. *Eucalyptus spp.* are an important source of firewood but at the same time threaten indigenous species through invasion and high water usage.

Source: R. Faidutti/FAO



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countries in Africa (National Botanical Institute and Global Invasive Species Programme 2004).

Invasive alien species pose a serious threat to ecosystems and biodiversity, and are second only to habitat loss as a cause of biodiversity loss. The loss of biodiversity presents a serious threat to the sustainability of human society, as it undermines the provision of essential ecosystem functions and reduces the availability of environmental goods.

Outlook

Invasive alien species will not be eradicated, at least in the foreseeable future. The only options available to policymakers are to control and manage the species which are already creating havoc for people's livelihoods, economies and ecosystems. The costs of managing IAS will continue to be high.

Action

Urgent action is required to undertake a comprehensive inventory of both floral and faunal IAS, including spatial extent in the region and impacts on people, various economic sectors such as agriculture and forestry, and on endemic species.

Policymakers should also undertake the following:

- Develop a list of IAS and facilitate its publication and distribution on a regular decadal period.
- Mount a massive public campaign across the region to inform people about the impacts of IAS on biodiversity, economic activity and their livelihoods.
- Implement stringent measures to control the export and import of living organisms from one territory to another, particularly where information on a particular organism is lacking.
- Introduce regulatory measures which control the marketing and distribution of GMOs whose impact on biodiversity is unknown, and for which comprehensive information on their properties is lacking.
- Fund research on various IAS and encourage the development of technology that could assist in controlling the further spread of such species.
- Introduce measures to comprehensively cost the impacts of IAS on the environment and on socioeconomic development.
- Make the eradication and control of IAS the first focus of government policy. To achieve these objectives innovative ways of engaging with the private sector, including micro-, small- and medium-scale enterprises, should be considered. This may include encouraging the use of IAS in manufacturing, provided that this investment does not lead to the



Protecting indigenous species such as the *Protea spp.* (Cape Fynbos ecosystem) from invasive alien species is an important conservation objective.

Source: M. Harvey/Still Pictures

continued propagation of IAS. Additionally, it must be recognized that the control of IAS is crucial for restoring ecosystem well-being and enhancing environmental services; this may serve as an important basis for engaging with the private sector.

Stakeholders

Governments, the public, the private sector, research organizations and regional and sub-regional organizations have a stake in ensuring that the issue of IAS is high on the agenda. The sharing of information among and between these stakeholders is important.

Result and target date

IAS is an ongoing challenge for policymakers at different levels, and cannot really be tied down to a specific date in terms of control. However, the development of strategies and programmes for individual national and collective sub-regional and regional action is critical. It is important that such strategies and programmes be fully operational by the beginning of the next decade.

CHEMICALS**Issues**

Although currently Africa is neither a major consumer nor producer of chemicals in global terms, the level of risk faced by poor countries is disproportionately higher than in those with sufficient resources to effectively manage and monitor chemical use. With economic growth, Africa is likely to grow as a producer and consumer of chemical products, increasing the



Waste management is an important part of effective chemical management, Egypt.

Source: Topham/UNEP

importance of this issue. In particular, Africa will face a growing challenge in the management and monitoring of chemicals due to inadequate human capacity and the lack of technology required for effective M & E.

The increased use of chemicals, particularly in the agricultural sector, may lead to increased contamination of water sources, with adverse effects for both human and ecosystem health (MA 2006). The increased exposure to agricultural and industrial chemicals and waste exacerbates the impacts of traditional environmental health risks in many developing countries. Contaminated sites and obsolete stocks present serious problems for Africa which require immediate actions. Estimates suggest that across Africa at least 50 000 tonnes of obsolete pesticides have accumulated (NEPAD 2003). Continued trade in hazardous waste is likely to exacerbate this problem. And, toxic chemicals that enter the environment place a serious threat to biodiversity and ecosystems, causing disease and undermining essential functions (WWF 2004a).

Outlook

As Africa's economy grows and GDP per capita increases, the consumption of chemicals for domestic use as well as in the agricultural and industrial sectors is likely to grow (OECD 2001). With the growing use of chemicals there is likely to be increased exposure to them in the workplace as well as in the home. In the agriculture sector, this will put women and children at increased risk of chemical exposure. In many cases, both in subsistence and commercial farming, producers and workers have

insufficient knowledge about the health risks posed by chemicals and therefore do not adopt personal protective measures. The increased use of chemicals will place new demands on the already fragile health sector.

Increased chemical use will contribute to increased environment degradation and pollution. Developments in the agricultural sector may lead to the increased use of agricultural chemicals, contaminating water sources and threatening ecosystem viability. These developments will place both human and environmental health and well-being at risk (UN 2004). The contamination of water sources may lead to a decrease in the environmental goods-and-services freshwater systems supply, as well as reduce the ability to meet the MDG targets on the provision of safe water.

Increased chemical use will increase the risk of chemical production accidents and the likelihood of pollution through industrial waste discharge. This will place a new burden on chemical management systems, and place new challenges on governments to effectively regulate and develop appropriate M & E systems.

Action

Governments should put in place legal and institutional frameworks which ensure effective management of chemicals and embrace core principles as outlined in Agenda 21, including the precautionary approach, producer liability principles, the polluter pays principle, and comprehensive right-to-know laws (UN 1992) and that build on the wide range of MEAs which directly address specific chemical issues.

In developing a framework for chemicals management, an approach that focuses on sound management throughout their life cycle is essential. Specifically, governments' actions should relate to (UNEP 2006):

- Risk reduction – prevention of and preparedness for accidents and natural disasters.
- Information and knowledge – improving the accessibility of information on hazardous chemicals.
- Governance – integration of Strategic Approach to International Chemicals Management (SAICM) objectives into national development planning.
- Capacity-building and technical assistance – promotion of life cycle approaches to chemicals management.
- Illegal international traffic – symposium on illegal international traffic in chemicals and hazardous wastes.

At a regional meeting in Abuja, Nigeria in May 2004, African governments adopted a position on SAICM, which seeks to promote synergies and coordination

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among regulatory instruments and agencies. It proposed the following, among other activities, (SAICM 2004):

- Manage chemicals at all stages of their life cycle, using the principles of “cradle-to-grave” life cycle analysis.
- Target the most toxic and hazardous chemicals as a priority.
- Ensure full integration of chemicals management and better coordination among stakeholders.
- Increase chemical safety capacity at all levels.
- Ensure that children and other vulnerable people are protected from the risks of chemicals.
- Promote corporate social responsibility and develop approaches that reduce human and environmental risks for all, rather than transferring the risks to those least able to cope with them.
- Incorporate the legal approaches or principles of precaution, polluter pays and the right-to-know. This must be complemented by a commitment to substitution of toxic chemicals by less harmful alternatives and promotion of more environmentally-friendly practices by industries. This can be achieved through, among other measures, encouraging the private sector to seek compliance with the ISO 14000 standards.
- Integrate the precautionary, life cycle, partnership, liability and accountability approaches in management.

The statement urges that SAICM should be established at national, regional and international levels as a coordinating structure for harmonizing legal instruments and organizations responsible for chemicals management (SAICM 2004).

Stakeholders

Collaborative efforts between governments, NGOs, the private sector and civil society organizations are essential for building a collaborative and sustainable approach to chemical management. In particular, stakeholders from agriculture, environment, health, industry, labour, consumers and science have a specific interest. The Africa Stockpile Programme (ASP) has prominent partners, the World Bank, FAO, UNEP, World Wildlife Fund, the Africa Union and NEPAD, who can also play a key role in chemicals management and use.

Result and target date

SAICM implementation is to take place within a 15-year time frame, corresponding to the WSSD Johannesburg Plan of Implementation’s 2020 target for the sound management of chemicals (UNEP 2006). The



Many African governments still need to develop effective systems for chemical management. Pesticide factory, Matola, Mozambique.

Source: J. Schytte/Still Pictures

Johannesburg Plan of Implementation envisaged that by this time chemicals should be produced, managed and used in ways that minimize significant adverse effects on human health and the environment.

Governments should develop tools for participatory risk assessment analysis and procedures for chemical management. Mechanisms for ensuring access to relevant data and information on chemical management issues should also be developed and adopted at the national, regional and international levels. Tools should also be developed for monitoring the effects and impacts of industrial and domestic chemicals while existing laws on chemical management should be enforced.

ENVIRONMENT FOR PEACE AND REGIONAL COOPERATION**Issues**

Regional cooperation has been part of Africa’s strategy for economic transformation for more than three decades – and in some cases almost a century (ECA 2004). African countries continue to “build upon a rich history of bilateral and multilateral water treaties, spanning nearly 1 200 years across the world” (Giordano and Wolf 2003). More than 3 600 treaties relating to international water resources, dating back to AD 805 have been identified, and about 300 treaties negotiated since 1814 deal with water specifically as a limited consumable resource (Giordano and Wolf 2003). In Southern Africa, for example, an Anglo-



The Victoria Falls are a natural attraction shared by Zambia and Zimbabwe.

Source: P. Springett/Still Pictures

Portuguese Convention on the Zambezi River was signed in Lisbon in 1891 and covered the main river and its tributaries (Chenje 2003). These and other agreements on water resources laid the foundation for regional cooperation in conflict resolution and environmental management in Africa.

The body of regional policies, and bilateral and MEAs has grown over the decades, and now include the management of transboundary national parks, large marine ecosystems, forest resources, and mountain ranges as well as hydropower generation and exploitation of oil. Regional cooperation now also extends to trade and economic sectors such as tourism.

Despite these successes, regional integration has a long way to go in achieving concrete results in terms of accelerating growth and promoting regional trade. A recent assessment by the ECA pointed to a number of constraints including (ECA 2004):

- Multiple and overlapping membership;
- Reluctance by member states to adhere to integration programmes;
- Insufficient technical and analytical support;
- Divergent and unstable national macro-economic policies;
- Inadequate capacity and resources to spearhead the integration process;
- Lack of coherence and links among sectoral cooperation programmes and the macro-economic policies pursued by regional economic communities;

- Missing or ineffective mechanisms for organizing, implementing, controlling, monitoring and revising the integration process;
- Lack of national mechanisms to coordinate, implement, and monitor integration policies and programmes; and
- Inability to make integration objectives, plans and programmes part of national development framework.

There have been some important developments related to cooperation in the management of transboundary freshwater resources. The Southern African Development Community (SADC), which has the most advanced water sector integration among the regional communities, is the only regional economic community (REC) with a special protocol for addressing water issues. While recognizing that SADC has a way to go, especially in harmonizing national water laws and policies, the ECA opines that SADC's protocol "shows that members are committed to integrated water management" making SADC "a model for cooperation between river basin organizations and regional economic communities across Africa" (ECA 2004).

Despite these and other cooperative activities, Africa has also experienced many major armed conflicts, which have left millions dead, hundreds of millions displaced in their own countries or forced to flee across national borders, and the environment has

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been seriously threatened. In 2003, for example, Africa had the largest number of refugees: of the more than 9.7 million refugees reported worldwide, about 2.9 million were Africans. About half of the world's refugees were female (49 per cent), and in Africa, more than half of the refugees were under 18 years (UNHCR 2004). Conflict impacts upon people in multiple ways; it especially threatens human security. Human security, is more than just freedom from fear and the threat of physical harm, it is also about having sufficient capabilities – such as access to material goods (including natural resources on which many livelihoods are based), good health, adequate education etc which are the foundation of opportunities – to lead a good and fulfilling life. Conflict has impacts at all these levels, and detracts from the opportunities people have as well as their quality of life. Many people face starvation as a direct result of conflict, and women and girls face the risk of rape and kidnapping (OSAA 2005a). Conflict destroys social and political networks, consequently increasing the incidence of social exclusion.

Settlements of refugees and internally displaced persons (IDPs), especially in the GLR and Western Africa, present special challenges for achieving environmental and human well-being goals. Virtually all of these settlements were not planned to support the numbers of people which now inhabit them. In many areas this has resulted in a high level of environmental vulnerability. For example, refugee settlements alongside the Virunga National Park in the DRC placed considerable strain on its resources. Such settlements may also have undesirable impacts on the host communities and resource use by the host communities.

Armed conflict is a serious threat to regional priorities in focusing on the opportunities which are provided by the environment for sustainable development. It also contributes to the diversion of scarce resources to the war effort, the breakdown of environmental management systems, and overexploitation of natural resources to fund wars. Recent actions by the AU, ECOWAS and the Inter-Governmental Authority on Development (IGAD) to foster peace and security in the region are, however, commendable.

Outlook

In Africa a combination of historical, internal and external factors converge to exacerbate conflict. Internal factors include patterns of governance, poverty and competition over resources. (OSSA 2005a). Unless Africa invests in conflict avoidance and peace-building efforts, by improving governance, addressing poverty and increasing cooperation, conflicts are likely to

increase. And because there is a direct correlation between social conflict and environmental degradation (MA 2006) this will increase the negative impact on the environment, which in turn has economic and social implications. The World Bank, for example, estimates that conflict in Africa results in an annual loss of 2 per cent economic growth (DfID 2001).

Africa has adopted a number of instruments which facilitate regional cooperation, including the Constitutive Act of the African Union (AU), which among other objectives, promote peace, security and stability as a prerequisite for the implementation of the region's development and integration agenda (AU 2000). Protocols of sub-regional economic groupings also highlight the need for regional integration and development. These arrangements will continue to be strengthened in the years ahead across areas critical to sustainable development. Such developments can only provide an atmosphere for the region to exploit the opportunities available, particularly in terms of the environment.

Given that, at the national level efforts to avoid and resolve conflict are also important. Moves towards greater democratization, and more transparent and equitable systems for sharing of benefits from natural resource use is important. Increased stakeholder participation is also key to enhancing the opportunities for peace.



Regional and international collaboration is an important part of peace-building. In addition to peace-keeping, the UN Mission in Liberia offered essential support, including transportation, to the transitional government. UN helicopter, Liberia, 2005.

Source: Y. Katerere



Greater democratization in Africa has resulted in more freedom of expression. Here, the people in Mbale demonstrate in support of President Museveni in the run-up to elections in Uganda, 2001.

Source: J. Schytte/Still Pictures

Action

While Africa has many examples of successful regional cooperation and conflict management, more needs to be done to focus on the opportunities for cooperation and conflict reduction. Below are some of the areas which require attention and action:

- Implement realistic measures which address poverty. Research has shown a strong causal impact of poverty on the onset of conflict. Poverty creates the conditions for igniting and sustaining conflict (UN Millennium Project 2005a).
- Adopt the environment as one of the key areas to be included in the NEPAD peer review mechanism. At present, the environment is not one of the criteria used to review the performance of each other's governments.
- Designate urban areas and human settlements as one of the programme areas of the NEPAD-EAP. Settlements of refugees and IDP could be an important focus.
- Rationalize the multiplicity of sub-regional and regional organizations with competing environmental mandates and interests, ensuring synergy among them, and the ways in which they all feed into decision-making processes of the AU.
- Negotiate, collectively through the AU, across different sectors and issues, including foreign aid, technology and trade (UN 2004) in order to meet the challenges of sustainable development.
- Lobby for the AU Constitutive Act, particularly its conflict management provisions, to be applied in trying to resolve disputes over natural resource use or access.

- Recognize the crucial role that regional economic communities, such as IGAD, ECOWAS, and SADC, have played in promoting peace and sub-regional cooperation. And, in support of this, further strengthen these organizations and encourage the sharing of best practice between them.

Stakeholders

All governments and institutions, the private sector, civil society, universities and the public have a stake in ensuring that regional cooperation is a major consideration in their activities.

Result and target date

Regional cooperation, conflict management and peace build investor confidence and encourage investment. The UN Millennium Project (2005) has reported that investing in development is important to reduce the probability of conflict. Regional cooperation is not automatic nor is it a given; it needs commitment and action – from governments right down to the public. The main target for cooperation should be the AU, and through its institutions the implementation of programmes to support sustainable development and achieve the MDG targets.

VULNERABILITY OF SMALL ISLAND

DEVELOPING STATES

Issues

The vulnerability of African SIDS, along with other SIDS, was highlighted at the 2005 Mauritius international meeting to review the 1994 Barbados Programme of Action (BPoA) for the sustainable development of these countries. For most SIDS their small land size and limited natural resources create a serious challenge for meeting the needs of their growing populations, and the related demands for more food, jobs and other services. Extreme poverty in some SIDS remains a challenge. Achieving a balance between conserving their land and marine environments and promoting economic sectors such as tourism, agriculture and manufacturing is a challenge. In terms of environmental issues, SIDS are threatened by IAS, pressures on endemic species, land degradation, climate change and increased frequency of natural disasters, freshwater availability, solid waste and wastewater management.

The African SIDS have made significant progress in drawing international attention to the many challenges they face, as well as establishing intergovernmental institutions to address these issues. These include the Indian Ocean Commission

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(IOC) and Alliance of Small Island States (AOSIS), who, along with regional institutions such as the AU, ECA and the African Development Bank (AfDB), will continue to be key players in assisting governments to tackle problems which threaten their sustainable development.

Outlook

The challenges facing the African SIDS will continue to be a major policy issue in the decades ahead, requiring innovative and strategic interventions to respond to both traditional and emerging issues. The greatest challenge is presented by climate change whose impacts may threaten the very existence of some communities. Mass tourism and overexploitation of coastal and marine resources may exacerbate the degradation of these environments. Tourism also affects demands for freshwater and contributes pollution through increased waste generation and general land degradation.

Action

From the 1992 Earth Summit, to the 1994 BPoA, to Rio +5, to the 2002 WSSD and the 2005 Mauritius international meeting, many policies have been adopted. However, many of these still face implementation challenges. In support of these and regional and sub-regional responses, the following

actions are critical to support sustainable development in SIDS in Africa:

- Develop strategies that balance economic development of sectors such as tourism with the cultural needs of the people including the promotion of indigenous knowledge related to nature management.
- Allocate adequate resources in annual national budgets to strengthen environmental monitoring and enforcement.
- Allocate adequate resources to universities and research organizations to conduct integrated research which brings together data and knowledge from scientific, social, economic and environmental disciplines to facilitate planning and management.
- Install both low- and high-tech early warning systems which are appropriate at different levels, from household and community to national and sub-regional.
- Develop professional exchange programmes among themselves and other SIDS regions to build capacity in environmental management.

Stakeholders

The stakeholders include governments, sub-regional and regional socioeconomic groupings, the private sector and big business, civil society and the public.



Public-private partnership can make a valuable contribution to GDP: vanilla production in Madagascar.



Promoting technology use in SIDS will contribute to meeting the needs of their populations. A sophisticated irrigation system being tested at an agricultural centre in the Seychelles.

Source: W. Wagner/FAO

Result and target date

Strategies for sustainable development in the context of the NEPAD environment action plan should be finalized, and implementation should start, in five years. However, the targets of the MDGs are also critical in the SIDS and remain the overall target.

POLICY INTERLINKAGES

Issues

The global environment, in its entirety, is composed of complex, interrelated ecosystems. To protect and preserve this complex environment requires a holistic approach that better integrates environmental problem-solving at the local, national and international levels. The human and environment systems are intricately connected. On the one hand the human system is dependent on the environment for its survival, and on the other the environment is constantly changing from anthropogenic activities. Within the human system itself, a set of interconnections also exist between the social, economic and political needs and aspirations of a population. Furthermore, in a rapidly globalizing world, policy responses at the international level have ripple effects at the regional, sub-regional, national and local levels.

Because of these interlinkages between the environment and human systems, and within each, it is imperative that the implications for the environment of all policy responses, whether in environmental or non-environmental sectors, are given due consideration. For example, macro-economic reforms undertaken by a government may impact on the effectiveness of policies

governing the environment and social services. Similarly, as environmental policies are being developed or modified, their implications for policies in other sectors must also be considered (Stahl 2005). The objective in doing so is to enable a country or the region to reap the benefits of policy convergence and synergies and reduce policy conflicts.

The same holds true at the international level. It is important to consider how MEAs relate to and impact on the objectives of each other. The case of the three Rio Conventions is illustrative. The common objectives and implementation requirements of the CBD, the UN Framework Convention on Climate Change (UNFCCC) and the UN Convention to Combat Desertification (UNCCD) constitute a clear case of interlinkages, which if carefully considered can enable a more synergistic approach to the implementation of these conventions. The issue of biodiversity, for instance, is not only important in terms of the CBD but also for the UNCCD, regarding the impact of desertification on biodiversity, and the UNFCCC in terms of the relationship between biodiversity loss and climate change. For Africa, all three conventions directly relate to the issue of local livelihoods and their sustainability:

- The CBD in addressing issues of biodiversity links the need for conservation directly to sustainable use, and the fair and equitable sharing of benefits arising from the use of biological resources.
- The UNCCD addresses processes of desertification and land degradation, which are directly related to the ability of people to meet their material needs, including food security.
- The UNFCCC addresses climate change and its impacts. Climate change and variability potentially impact on freshwater resources, food production and both household and national food security.

The similar requirements of these conventions on monitoring, reporting and assessment provide an excellent opportunity for common data collection (Raustiala 2001). Synergistic approaches to the implementation of these conventions will help reduce transaction costs and avoid overstressing the limited institutional capacities in developing countries (Blaikie and Simo 2000). Such an approach can, however, be undermined by the machinery of governments, especially bureaucratic arrangements and the fragmentation of environmental functions across ministries and other institutions. These institutional arrangements, although intended to enhance efficiency, encourage policy responses that tend to overlook collaboration. Often a policy response in a given sector,

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such as water, is taken without due consideration of its consequences for policy performance and outcomes in other sectors, such as land, agriculture and industry. In the absence of mechanisms that foster inter-sectoral collaboration in policy development and policy implementation, interlinkages cannot be developed, and the benefits associated with an interlinkages approach will not be realized. Interlinkages create opportunities for minimizing policy conflicts, creating synergies and sharing costs. Some countries have made progress in instituting inter-sectoral collaboration in policy development and implementation.

Outlook

The medium term outlook is both encouraging and challenging. While the issue of policy interlinkages is gaining greater currency in development dialogue and practice in Africa, the capacity for such integrated policy analysis is a constraint. This is being addressed at various levels. AMCEN, for example, emphasizes the need for evidence-based policy making as well as capacity development for policy analysis. The increasing recognition of the usefulness of inter-sectoral approaches, based on multi-stakeholder involvement, augurs well for more effective environmental decisions and management. The growing interest in rationalization and harmonization of policies at the sub-regional and regional levels also makes the outlook more positive. Nonetheless, the identification and management of synergies and

conflicts among the various policy responses at the different scales and over time will continue to be a challenge. In the short run, it may be prudent to limit this effort to policies that have direct impact on the environment such as economic, fiscal, trade, industry, agriculture, energy and minerals policies.

Action

The actions that could be taken in the short to medium term are:

- Institutionalize an inter-sectoral and inclusive approach to policy development.
- Strengthen the data and information systems in the various sectors, including development of indicators, so that they are available for understanding the nature and impact of policy interlinkages (Markowitz and others 2005).
- Strengthen the national capacity for policy analysis, so that stakeholders have ready access to information on the critical policy interlinkages in order for them to make better-informed decisions at both the national and sub-regional levels.
- Use the Africa Finance Ministers' Forum, that is periodically organized by the ECA, to hold a joint session with AMCEN Ministers on economic, financial and environmental policy linkages.
- Support a limited number of case studies that demonstrate the national-regional-global policy interlinkages between trade and sectors such as agriculture and fisheries.



Sustainably managing water resources - for energy, social needs and biodiversity – requires interlinkages between environment and development sectors. Nyanga, Zimbabwe.

Stakeholders

Governments and their ministries and departments are key players in this area. Regional and sub-regional organizations as well as the UN organizations can play an important role in facilitating interaction and action. The private sector and civil society also have a critical role to play.

Result and target date

The result would be greater understanding of the interlinkages of human development and environmental sustainability in the context of issues such as poverty and hunger, consumption and obesity, land degradation and desertification, climate change and freshwater stress and scarcity, agricultural production and food security as well as legal and institutional frameworks. The results should be evident from 2010 onwards.

CONCLUSION

The challenge facing Africa is not new. Africa must harness the resources available to it – human, physical, financial and environmental – to realize fundamental

human and development goals. Developing and implementing an effective environmental strategy can have wide-ranging crosscutting benefits for human well-being and economic development, and can be an essential tool in ensuring that the NEPAD aspiration for the 21st century to be Africa's century is realized (NEPAD 2001).

An effective strategy will need to be based on purposeful and clearly articulated goals, with achievable time-bound targets. Existing MEA and other global commitments should be seen as a platform for action, and not a ceiling.

Actions need to be strategic, focusing on those areas where investment, whether in environmental management or human and physical capital, will have multiple follow-on impacts. For example, relatively small investments in improving water quality will not only have important environmental outcomes but can increase opportunities for access to safe water, resulting in improvements in human health, decreasing overall vulnerability and increasing human capability. Such investments may as a consequence result in improved economic growth.

Just as Africa has begun to make fundamental improvements economically and politically, an environmental turnaround is within its reach – and in its interest.



An old mosque at Bobo Dioulasso, Burkina Faso, built in 1880. Africa has a glorious past – and it can claim the future.

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