

Land, Water, Biodiversity, and Air Quality under Pressure in Africa

The African continent has large untapped environmental resources: together with Latin America and the Caribbean, the continent has the largest reserve of agricultural land, accounting for 80 per cent of the global total. Land is a very important resource on which much of the region's economic development and food security hinge. Africa is also home to important biodiversity assets and ecosystems, including the Congo Basin rainforest – the second largest tropical rainforest in the world.

Africa continues to register steady economic growth, with its real Gross Domestic Product (GDP) rising at an average of 4.9 per cent per year. This growth is helped by an expanding youthful population, whose proportion is expected to grow from 54 per cent in 2010 to 64 per cent in 2090, thereby increasing the youth's contribution to economic development.

Despite this positive socio-economic outlook, Africa is faced with a number of environmental challenges including illegal trade in wildlife, low access to clean forms of energy, weak environmental governance systems, loss of biodiversity, inadequate waste management practices, and climate change and variability. The continent's natural capital is under pressure from urbanization and industrialization, as well as from a growing population. Poverty and lack of investment are contributing factors to this situation in many countries of the region, preventing people from utilizing the continent's natural resources in a sustainable manner.

Sustainable management of Africa's natural capital is critical to ensuring its continued economic development. The GEO-6 Regional Assessment presents the state of play for land, water, biodiversity and air in Africa and explores how these resources can be best managed.

Below are some of the key environmental issues that Africa needs to address.

Land degradation

Africa's landmass of 30 million square kilometres makes the region the second largest continent in the world, after Asia. With maize making an annual contribution to the economy of nearly \$21 billion in 2013 and livestock bringing in \$65 billion, land is Africa's most prized asset for food production, nutritional health and economic development. Despite its importance, about 500,000 square kilometres of land in Africa is being degraded every year due to soil erosion, salinization, pollution and deforestation. This land degradation can adversely affect agricultural productivity, nutrition and human health.

The key drivers of land degradation include: urbanization - the region has six of the top ten countries experiencing rapid urbanization; deforestation - the forest cover in Africa is projected to continue shrinking, declining to less than 6 million square kilometres by 2050 due to the increasing conversion of forests to agricultural land to support the growing population and associated demand for firewood; unsustainable farming practices, such as over-cultivation and overgrazing. In addition, the region will have about 450 million people added to its population by 2050, and these are likely to take up significant land away from agriculture and other uses to meet housing needs.

The observed impacts of these trends include reduced agricultural productivity (for example the average maize harvest in Africa is less than one tonne per hectare compared to 10 tonnes in the United States of America), reduced food security that in turn can lead to migration with associated health impacts such as the spread of communicable diseases.

Africa needs to put in place a number of policy responses to address these challenges. These include implementing sustainable land-management practices, and securing land tenure for both women and men to ensure that the region's land capital is both valued and protected. The report notes success in countries such as Rwanda and Tanzania which have adopted the Comprehensive African Agricultural Development Programme and its technologies for irrigation and fertilizer use, while maintaining adequate environmental safeguards.

Freshwater, marine and coastal resources

Africa's expanding economies are resulting in greater demand for freshwater, but its quantity and quality are decreasing as a result of over-exploitation, climate change and pollution, while the growing population means that average internal renewable water resources will continue to dwindle. The proportion of the population served with clean water is increasing and grew from 64 per cent in 2005 to 68 per cent in 2012, although absolute numbers of people without safe drinking water remain high. More than half of the population in sub-Saharan Africa still does not have any access to improved sanitation, compared to 90 per cent coverage in North Africa, with a vast difference between urban and rural areas.

Land based activities are not only polluting freshwater bodies, but also causing degradation of the continent's coastal and marine resources which are important economic assets that provide fish, tourism services, trade access, and non-renewable resources such as minerals and gas. This is further exacerbated by the fact that there are 320 coastal cities in Africa, with associated high levels of economic activity, such as mining, oil and gas exploration, extraction and refining, and transportation.

African megacities such as Cairo, Kinshasa and Lagos, and emerging megacities such as Dar es Salaam, Johannesburg and Luanda, face challenges from poor management of sanitation services due to inadequate and deteriorating infrastructure resulting from underinvestment.

The report observes that Africa's main water consumer is agriculture, which often results in unwanted wastage through evaporation and runoff. In addition, the quantity of water available for a range of human needs is variable, depending on the climatic and geological setting. Furthermore, owing to their easy accessibility, lakes, rivers and streams are the main recipients of pollution across Africa and the quality of the water is often compromised. These aquatic systems, used as an immediate source of water for large cities, may not be suitable for direct consumption and such water is either wasted or requires expensive treatment. The re-emergence of waterborne diseases such as cholera and dysentery, and the proliferation of water weeds such as water hyacinth is associated with poor access to safe water and eutrophication of water bodies.

Africa needs to invest in low-cost technologies for the management of wastewater, as well as the delivery of safe drinking water. As an initial priority, there is a need to substantially improve the information base on groundwater, which represents a significant under-exploited resource.

With 63 shared river basins, Africa is strongly urged to engage in effective integrated water resources management for the better protection of catchments and increased intra-basin cooperation for equitable use of limited water resources.

Also, aquaculture holds great promise for exploiting the fish resources which are a potential sustainable source of protein. However, it is a necessary pre-requisite to take biodiversity and other environmental implications into account when promoting this industry.

Air quality

Indoor and outdoor air pollution poses a major problem for the continent, both for the environment and human health. About 90 per cent of people in Sub-Saharan Africa are exposed to indoor air pollution, impacting both economies and livelihoods while contributing to increased emissions of greenhouse gases.

The key drivers of poor air quality in Africa are urbanization, industrialization and motorization which have all led to an increase in outdoor air pollution on the continent. In addition, reliance on solid fuels as a result of unpredictable income streams makes electricity unaffordable for large parts of the population. Thus about 70 per cent of the people in sub-Saharan Africa still rely on solid fuels for cooking, heating and lighting. There is a notable underutilization of the continent's vast renewable energy resources where only 10 per cent of its hydropower potential is exploited.

Poor air quality affects human health, with an estimated 600,000 deaths per year attributed to indoor air pollution in Africa. A much larger number suffers from chronic obstructive pulmonary disease.

There is a need to reduce the dependence on solid fuels for cooking and heating through affordable energy by utilizing Africa's vast renewable energy resources, particularly solar, wind and hydropower. Investing in transport solutions that reduce the need for travel, such as sustainable mass transport systems can also help to stem deteriorating air quality in the region. In the short term, there is a need for improved housing with better ventilation, investment in off-grid renewable energy supplies, and promotion of clean cookstoves, among others. All efforts in this regard need to be supported by the monitoring of both indoor and outdoor air quality.

Illegal trade in wildlife

The illegal trade in wild flora and fauna is a global problem but it poses serious economic and security risks for Africa. The illegal trade in flora and fauna damages ecosystems and rural livelihoods, and threatens national and regional stability.

The report notes that the growing **demand** from South East Asia and China for certain species and the **high prices of illegal wildlife and forest products** are the key drivers of this illegal trade. Indeed, this is one of the largest sources of criminal earnings in the world, estimated to be worth \$50–150 billion per year. Animals, including fish, as well as plants, timber and charcoal are widely traded. Local demand for wildlife products is equally high, and the report findings indicate that the illegal local harvesting of biological resources may actually be higher than the global organized crime.

This has resulted in **loss of biodiversity** in the region. Both the rhino and the elephant are threatened with extinction because of this illegal wildlife trade. Official estimates show that close to 25,000 elephants were killed in 2013 to supply the illegal ivory trade. In addition, there are **lost opportunities** as Africa's biological resources have multiple applications that the region has not yet exploited, including the sustainable use of wild fauna and flora for the purpose of sustainable development. The report notes that given the rapidly growing human populations in most of Africa, the interactions between human and wildlife species will also increase, with likely implications for transmission of zoonoses back and forth between humans and wildlife.

The African Union has agreed on a strategy to combat the illegal trade in wild fauna and flora, which includes the objectives to: increase the level of political commitment to prevent, combat and eradicate the illegal exploitation and illegal trade in wild fauna and flora, and recognize illegal trade in wild fauna and flora as a serious crime; improve governance integrity and enhance regional and inter-regional cooperation; enhance engagement with consumer states to reduce demand, supply and transit of illegal products of wild fauna and flora; and, increase the capacity of source and transit states in detecting illegal wild fauna and flora products, including at exit and transit points.

Overall recommendations for Africa:

1. Invest in strategies to improve land productivity, enable access to markets and ensure all developmental activities are climate-resilient.
2. Implement integrated water resource management strategies that focus on increased water efficiency, and improve ocean surveillance to reduce illegal, unregulated and uncoordinated fishing. Manage ocean resources sustainably to maximize the potential and value provided by the marine ecosystems.
3. Increase efforts to achieve widespread deployment of renewable energy, including off-grid energy infrastructure. Improve cooking stoves, household ventilation and cooling systems to benefit outdoor and indoor air quality.
4. Implement policies to halt illegal wildlife trade, poaching, land, marine and ecosystem degradation. Promote trans-frontier conservation, benefit sharing, and inclusive natural resources management.
5. Facilitate the creation of networks to promote ecosystem stewardship that improves livelihoods, boosts economic growth and maintains environmental sustainability.