



AFRICA ENVIRONMENT OUTLOOK 3

.....
Our Environment, Our Health



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.....
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Foreword



The quality and integrity of the environment are two main factors that influence human health and the disease burden in Africa. Indeed, Africa continues to grapple with environment related health issues, which continue to affect life expectancy, the ability to invest in children and the youth and negatively impinge on commercial productivity, investment in business at all levels, social cohesion, education and macroeconomic stability. In order for countries in Africa to meet the Millennium Development Goals, as well as to stay on the trajectory to achieve sustainable development, governments will have to better manage challenges associated with the environment-health nexus.

It has become increasingly evident that immense opportunities exist to manage the environment in order to achieve better health outcomes in Africa. Furthermore, it is clear that efforts directed at preventive, rather than curative, aspects of health must largely focus more on

environmental interventions. For countries to take strategic steps to seize these opportunities, there must be a shared and common understanding, as well as awareness of the interlinkages between health and the environment, underpinned by credible data and information.

The African Ministers of the environment are committed to implement the Libreville Declaration on Health and Environment. This will be achieved through the Health and Environment Strategic Alliance (HESA) now being coordinated with assistance from UNEP and WHO. Indeed, as part of this effort, a number of countries have completed their Situation and Needs Assessments, and are in the process to identify national priorities, develop National Plans of Joint Action, and formulate cross-sector activities to deliver health and environmental benefits to communities.

The third Africa Environment Outlook (AEO-3) report has been prepared in response to the call by African Ministers and the outcome of the Libreville Declaration on Health and Environment. Its objective and scope is to provide a comprehensive, reliable and scientifically credible assessment of the state and outlook of the environment in Africa, with a focus on its impact on human health. It aims to improve the understanding of a wide audience on the interlinkages between health and the environment. It also goes further to identify areas where data

and information are still lacking, thus providing suggestions for research and data collection. Actions resulting from the findings of this report are especially poignant as the region strives to develop and implement programmes and activities that are aligned to decisions made at the United Nations Conference on Sustainable Development held in Rio de Janeiro in June 2012.

AEO-3 is a product of collaboration between the United Nations Environment Programme (UNEP), the World Health Organisation (WHO), African institutions and experts. I would like to commend all those who have been involved in preparation of this report and urge them to continue the valuable collaboration to unravel the linkages between health and environment and encourage the elaboration of policy options to address the related challenges. The findings of this report point to a number of areas where focus is necessary to achieve benefits in the environment and health sectors.

It is my ardent hope that the report will trigger actions by policy and decision makers at all levels in Africa as they continue to make their contributions in pursuit of sustainable development. I wish you all good reading.

Hon. Dr. Terezya L. Huvisa

*Minister of State–Environment, Tanzania
and President of the African Ministerial
Conference on the Environment*



PREFACE



The health of Africa's population is central towards the aims of the Continent to make a transition towards an inclusive Green Economy and a sustainable century.

Africa's natural resources will play a pivotal role in these aims.

About 28% of the region's disease burden, largely dominated by malaria, respiratory infections and diarrhoea, is driven in large part by environmental factors and environmental change.

The third Africa Environment Outlook (AEO-3) report focuses on these issues and makes the case that human health and a healthy environment are inseparable.

Furthermore, the report demonstrates how investments in improved environmental management can lead to beneficial health outcomes which in turn have

economic and social benefits. It also highlights how the rich diversity in species and ecosystems that the continent holds have both historically and currently played a vital role in the health and wealth of Africa's people.

Conversely, the Outlook underlines that environmental degradation challenges efforts to reduce the disease burden and thus the achievement of the poverty-related Millennium Development Goals.

The Outlook also points to the wealth of Africa—from its lands, lakes, rivers, oceans, forests and grasslands—in terms of biodiversity as a treasure trove of potentially untapped breakthroughs in natural substances that in turn could be the new pharmaceutical for the global medical market.

AEO-3 builds and explores scenarios about the future under a number of different environmental management regimes, and how these are likely to manifest themselves in the realm of human health.

The report, prepared with support of the United Nations Environment Programme (UNEP), and with input from the World Health Organisation (WHO), responds to recommendations made by African Ministers of Health and Ministers responsible for the Environment at their meeting held in Libreville, Gabon, in 2008. It provides

some of the pathways along which the health and the environmental communities can work together to achieve their mutual goals as also outlined in the decisions taken at Rio+20 in June 2012 in the outcome document the Future We Want.

Above all, this report represents an analysis and directions upon which policy and decision makers in the Africa region, as well as the other stakeholders in the health and environment arena, can sharpen and catalyze the kinds of institutional and collective action that can assist in delivering an ever more sustainable future.

The environment and its health are fundamental to the lives and livelihoods of this vibrant Continent and it is incumbent upon all nations to make the informed and transformational decisions that can assist in keeping it that way.

Achim Steiner

*United Nations Under-Secretary General and
Executive Director, United Nations Environment
Programme*



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1

Health and Environment in Africa

Introduction

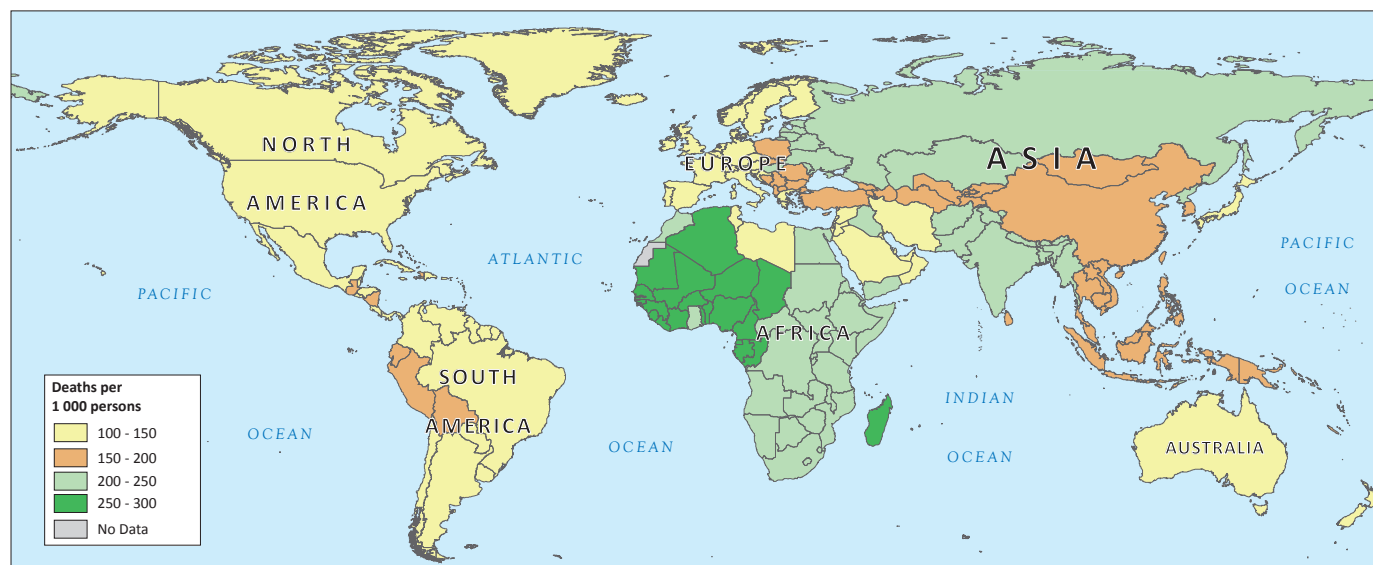
Environmental risks are blamed for about 28 per cent of Africa's disease burden (WHO and UNEP 2010). Diarrhoea, respiratory infections and malaria collectively account for 60 per cent of known environmental health impacts in the region (WHO and UNEP 2010). In 2008, Africa's ministers of environment and of health, through the Libreville Declaration on Health and Environment in Africa 2008, underscored the importance of using multi-sectoral actions on health and environment linkages to achieve substantial health and environmental improvements and their co-benefits, as well as the Millennium Development Goals (MDGs). This was reiterated in 2010 through the joint Luanda Commitment on the implementation of the Libreville Declaration.

Deaths resulting from this exposure to environmental risks indicated that Africa bears a relatively greater environmental disease burden compared to other regions of the world (Figure 1.1). Africa's burden is linked to exposure to unsafe water, poor sanitation and hygiene, and over dependence on solid fuels. An estimated 1.3 million avoidable child deaths attributable to the environment occur in the region each year (WHO and UNEP 2010).

The Libreville Declaration and the Luanda Commitment seek to enhance inter-sectoral actions and co-benefits for human health and the environment in order to achieve the MDGs, especially Goals 4, 5, 6 and 7 which relate to child health, maternal health, communicable diseases and environmental sustainability respectively. The priority areas as indicated in the Luanda Commitment are:

- Provision of safe drinking water
- Provision of sanitation and hygiene services
- Management of environmental and health risks related to climate change and variability, including sea level rises particularly in the Small Island Developing States (SIDS)
- Sustainable management of forests and wetlands
- Management of water, soil and air pollution, and biodiversity conservation
- Vector control and management of chemicals (particularly pesticides) and wastes, including biomedical, electronic and electrical wastes
- Food safety and food security including the management of genetically modified organisms (GMOs) in food production
- Environmental health of women and children
- Health in the workplace, and
- Management of natural and human-induced disasters.

Figure 1.1: Environmental disease burden



Source: Modified from Prüss-Ustün and Corvalan 2006.

Cognizant of the ministers' priority areas of focus in implementing a multi-sectoral approach to deriving benefits from environment and health interventions, an expert consultative meeting was convened in Johannesburg on 29-31 March 2011. During this meeting, consensus was reached to produce the third Africa Environment Outlook (AEO-3) with a focus on environment and health linkages. The identified areas were clustered around the themes of: air quality; biodiversity; chemicals and wastes; climate change and variability; coastal and marine resources; freshwater and sanitation; and land.

This assessment will complement the knowledge generated and shared through the Situation Analyses and Needs Assessments (SANAs) and the planned National Plans for Joint Action (NPJAs). It is envisaged that this will result in meeting the 2014 Luanda Commitment target

of establishing and strengthening national core capacities in order to:

- Forecast and prevent communicable and non-communicable diseases, reduce their incidence and the associated morbidity and mortality especially in children and vulnerable populations
- Ensure continued delivery of ecosystem goods and services in support of human health and wellbeing, taking into account climate change.

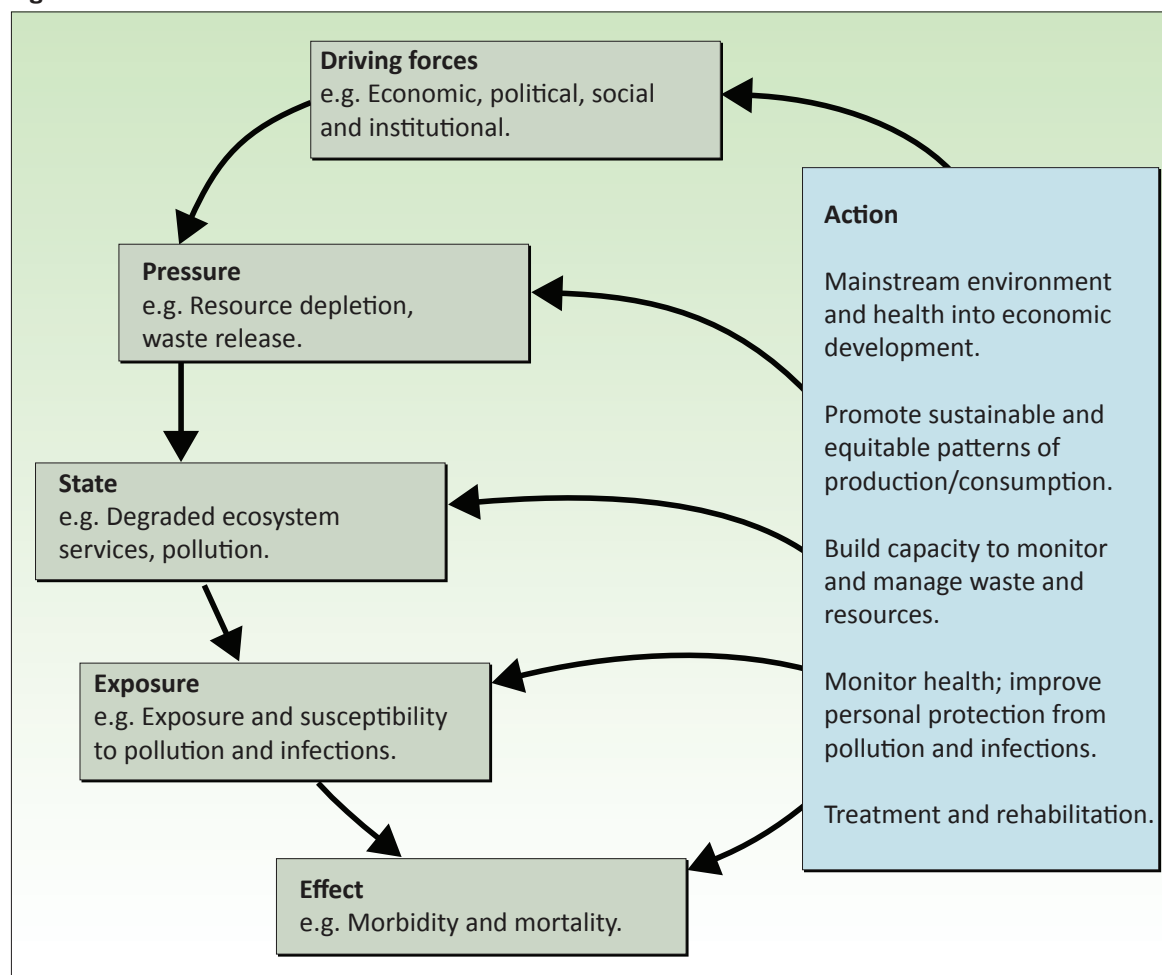
Analytical framework

An integrated analysis of the state and trends covering the themes of: air quality; biodiversity; chemicals and waste; climate change and variability; coastal and marine resources, freshwater and sanitation; and land is used in this report. The Drivers, Pressures, State, Exposure, Effects and



Safe drinking water

Global Water Partnership/
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Figure 1.2: The DPSEEA framework

Source: WHO 1999

Actions (DPSEEA) analytical framework (Figure 1.2) is used. The DPSEEA framework is employed to give a comprehensive linkage between health and environment, and to illustrate how socio-economic driving forces can generate environmental pressures, leading to altered ecosystem states, personal exposure to risks, and eventual health impacts.

The DPSEEA model adopts a linear or chain approach to mapping a spectrum of environment and health issues from higher level cultural and political **Drivers** of environmental change to **Pressures** which modify the physical environment to produce an environment with defined characteristics – **State**. A particular environmental state will impact humans through varying amounts of **Exposure**, resulting in certain health **Effects**. Society's responses to these effects constitute **Actions** that are applied at the drivers, pressures, exposure and effects

levels as part of the management efforts. The actions are aimed at reducing the magnitude of the driving forces, the impact of the pressures, alterations to the state of environment, as well as exposure and effects.

The AEO-3 report discusses drivers as key triggers of environmental change with significant implications on human health. This is because various policy interventions targeted at the pressures only provide temporary relief. It is generally argued that by addressing the drivers, long-term solutions may be found to not only Africa's but also the world's pressing environmental challenges.

Drivers

The state and trends of Africa's environment are largely driven by the region's demographic dynamics, economic development, poverty, technology, and

systems of governance and accountability. These together place several pressures on the continent that include high urbanization rates, little uptake of clean renewable energy technologies, and the negative effects of globalization.

Population

Africa's population reached one billion in 2009 and is projected to double by 2050 (AfDB 2011). Between 2000 and 2100, Africa's share of the world's population is expected to steeply rise from 13.1 to 24.9 per cent (UN 2004) with East, Central and West Africa experiencing the fastest population expansion. Africa's population is not only the fastest growing in the world, but also the most youthful. As at 2006, sub-Saharan Africa had 44 per cent of the world's population under the age of 15, making the sub-region the youngest in the world (Ashford 2007).

Sub-Saharan Africa's population is growing at an annual rate of 2.4 per cent (UNFPA 2011) which presents both challenges and opportunities for the region. A rapidly growing population stresses ecosystems by raising demand for food, energy, medicines and water, while bringing distortions to land tenure arrangements, as well as accelerating



Happy and healthy women and children in Sudan

sdhaddow/Flickr/CC BY NC SA 2.0

environmental degradation through soil erosion, deforestation and biodiversity loss (World Bank 2008). In extreme cases, competition over scarce resources leads to conflict.

A rapidly growing population also presents financial and logistical challenges in service provision, especially in the areas of education, health, safe drinking water and sanitation. Tellingly, it is partly because of the rapid population growth that many African countries are not on course to meeting a number of MDGs. For example, as at 2008, only nine countries in Africa had reached more than 90 per cent coverage of safe drinking water, while only four had over 90 per cent of their population with access to improved sanitation facilities (UNECA and others 2010). This is despite a near doubling in the Sub-Saharan population using an improved drinking source from 252 million in 1990 to 492 million in 2008, with safe water coverage increasing from an average 49 per cent in 1990 to 60 per cent in 2008 (UN 2011).

Although it is often argued that population growth contributes to environmental degradation, it is worth noting that Africa's young population provides opportunities for economic growth. Africa is set to have more working adults per child in 2030 than was the case in 2006 (Ashford 2007). The region's institutions and economies will need to be strengthened to take advantage of the increase in the working population.

The anticipated demographic dividend is expected to result in greater savings on health and social services, and a switch to sustainable livelihoods. For example, expected higher incomes may result in reduced deforestation as more people will have capacity to switch from fuelwood to cleaner energy sources. It may also lead to the use of modern high yielding agricultural techniques that reduce the demand for agricultural land. Similarly as household incomes grow, sanitation and wastewater treatment may improve.

Economic development

Africa's average economic growth rate for 2012 was estimated at 4.8 per cent, maintaining the momentum from the 4.9 per cent growth registered in 2011 (World Bank 2012). This is an improvement from the previous years in which Africa's average economic growth rate was 3.7 percent in 2003 and 2.6 per cent per year between 1990 and 2002 (UNEP 2006). This improved growth increases opportunities to meet key MDGs and to enhance human well-being, with positive spin-offs for the environment. Between 2001 and 2010, six of the 10 countries with the world's fastest economic growth rates were in Africa: Angola, Chad, Ethiopia, Mozambique, Nigeria and Rwanda.

Despite the positive economic growth trends, poverty remains a major challenge in Africa, and its linkage with environmental degradation is a persistent concern. According to UNEP (2006), Sub-Saharan Africa's annual economic growth rate must average 7 per cent if income poverty is to be halved by 2015.



Carrying water—a burden for women

UNAMID Photo/Flickr/CC BY NC ND 2.0

Poverty is more widespread in Africa's rural areas than its urban counterparts. Rural people depend on the environment for various goods, including food, medicines and energy, and regulating services such as water purification. Given their direct dependence on the environment, Africa's

largely rural population, which constitutes 60 per cent of the region's total population (UN-HABITAT 2010), is also vulnerable to environmental disasters and risks, some of which expose them to insect-borne diseases such as malaria, and water-borne diseases such as cholera.

Inappropriate policies and weak institutions can limit the value poor people derive from environmental resources, forcing them to harvest or use more in meeting basic needs (UNEP 2006). For example, policies and laws that only permit use of natural resources for subsistence needs may unwittingly encourage the poor to unsustainably exploit the resources with a view to generating more income. Similarly, bureaucratic hurdles and inefficient economies may limit access to markets and financial resources, resulting in post-harvest crop losses or general lack of investment in the natural resources sector.

Technology

Technological innovations can influence the environment in both positive and negative ways by increasing resource use efficiency or by placing unsustainable demands on the environment. New technologies may also result in new risks to human and environmental health (UNEP 2006). For example, Genetically Modified Organisms (GMOs) are not widely accepted in Africa mainly because of biosafety concerns. Only South Africa uses GMOs on a commercial basis. Only a few African countries use genetic modification technology. These are Burkina Faso, Egypt, Kenya, Malawi, Mauritius, Uganda, South Africa and Zimbabwe. However, only Burkina Faso, Egypt and South Africa have reached the commercialization stage (ASSA 2010).

A review of the pace of technological advancement in Africa presents a mixed picture. Besides the biosafety concerns highlighted above, uptake of biotechnology and hybrid seed which could have seen higher agricultural yields in Africa has been slow due to high costs of improved seed and



The use of ICT in Africa is continuing to grow

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related inputs, such as fertilizers. As a result, Africa continues to witness low cereal yields averaging less than one tonne per hectare (ICRAF undated), a situation that demands more land to be cleared for agriculture, including ecologically fragile land such as forests and wetlands.

Nevertheless, information and communications technology (ICT), especially mobile telephony, has significantly expanded in Africa in recent times. There are wide applications of mobile phones in Africa, including mobile banking, information sharing and general communication.

Positive benefits of ICT in Africa include telemedicine, which has been successfully used in the delivery of healthcare in Ethiopia, Ghana, Mali, Mozambique, Rwanda, the United Republic of Tanzania and Uganda (Mbarika 2004). Other applications of ICT have been in the area of agricultural marketing. For example, the Social Enterprise Foundation of West Africa has successfully linked rural soybean producers to mills through the use of satellite, databases and mobile phones. This has helped to ensure a fair income for producers and a steady supply of raw

materials for the mills (IICD 2007). The successful application of ICT has largely been driven by the rapid penetration of mobile telephones in Africa. In 2011, there were more than 500 million mobile phone subscribers in Africa, up from 246 million subscribers in 2008 (Rao 2011).

Governance

The state and trends of Africa's environment are to a large extent shaped by the systems of governance which range from command and control to participatory which allow for the sharing of benefits. These arrangements include policies, legislation, institutional and financial arrangements, and partnerships, some of which promote central control while others support the devolution of authority to local levels. Non off-take systems of environmental management, including Marine Protected Areas (MPAs) and some of the traditional national parks are crucial for the conservation of biodiversity and the sustainable use of natural resources. While there are more than 1100 national parks and reserves in sub-Saharan Africa, of which 36 are designated World Heritage Sites (WCMC 2004 in Newmark 2008), there is a growing recognition that protected areas are isolated and pose a serious threat to the long-term viability of many wildlife populations and migrations in Africa (Newmark 2008). This has influenced the amalgamation of protected areas into Marine Managed Areas (MMAs) and trans-frontier conservation, which is credited with opening up migration routes and dispersal areas and reducing the risk of in-breeding.

Protected areas covered 15.9 per cent and 10.1 per cent of the total land surface in the East/Southern African and West/Central African regions, respectively (Chape and others 2005 in Newmark 2008). The small ratio of the area under protection led to the realization that this was unsatisfactory, given that the remainder of the land provided vast opportunities for habitats and biodiversity (Child 2005). This led to private conservation, which later also evolved

into Community Based Natural Resources Management (CBNRM). Much of the success of CBNRM in conservation comes from the way benefits and costs are shared, as well as the fact that power is devolved to lower structures of society, which allows for consultative management of environmental resources.

Structure of AEO-3

The third Africa Environment Outlook (AEO-3) report has two main parts. The first part provides details about the health and environment linkages, following a thematic approach. The priority themes are presented as chapters in alphabetical order as follows:

- Air quality
- Biodiversity
- Chemicals and wastes
- Climate change and variability
- Coastal and marine resources
- Freshwater and sanitation
- Land

The second part deals with

- Scenarios of future health-environment linkages, and
- Enhancing implementation of environmental and health policies

While efforts were made to cover the entire Africa region in the report, there were limitations due to paucity of scientific data.

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PART I

Health and Environment Linkages







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2

Air Quality