

PART 2
SECTION 2
MAJOR RISKS
RESULTING
FROM HUMAN
ACTIVITIES

“Of the 80 countries substantially affected by land degradation, 36 are situated in Africa.”

Air pollution

Air pollution is seen as a general risk in 20 countries, with outdoor air pollution being reported in 17 countries, and indoor air pollution in 13. Air pollution has a great economic impact, with up to 5% of the GDP spent on air pollution in developing countries.

Indoor air pollution is mainly caused by the use of biomass fuels (e.g. firewood, crop residues, dung) and kerosene for cooking and heating. Many countries report a lack of data on indoor air pollution, but they state that it is a high risk, mainly in rural areas. For example, in Niger, women are known to use plastic bags to accelerate or facilitate the burning of wood. According to WHO estimates, 65 deaths per 100 000 capita in Africa are attributable to household air pollution. This form of air pollution contributes to a number of health conditions, including lung cancer, cataracts, eye irritations, skin diseases, increased acute respiratory illness and aggravation of asthma (especially in children), as well as asphyxiation with a possibility of death. Indoor air pollution exposes women and children in particular to these health risks.

Outdoor air pollution results from an elevated level of fine particulate matter (PM10 and PM2.5) in ambient air. This is mainly caused by vehicles, the burning of waste in the open air, bushfires, industry, and energy generation processes. Dust is also a serious problem in many African countries. Collectively they are associated with increased

daily and long-term illness and premature mortality, due to cardio-pulmonary diseases, acute respiratory infections and cancers.

Soil degradation and pollution

Land degradation can cause malnutrition through reduced food productivity, particularly among children under five years of age. It also contributes to desertification, impaired water supply, poor sanitation conditions and reduced water quality. The lack of waste disposal systems leading to soil degradation also leads to the proliferation of disease vectors and generates other public health concerns. Land degradation can also cause erosion and landslides.

Causes of soil degradation range from the use of fertilisers to dumping of industrial waste. Poor approaches to safeguarding habitats and dealing with deforestation can lead to degraded land. Unsustainable land use, including overgrazing, also reduces the quality of soil. Utilisation of crop residues for fuel and other uses hinders the natural processes of land rejuvenation and disturbs the sustainability of land resources. Soil degradation is part of a vicious circle of flooding and drought related to climate change. Of the 80 countries substantially affected by land degradation, 36 are situated in Africa. In Lesotho, for example, over 100 km² (approximately 2% of the total land area) has been degraded due to overgrazing and incorrect farming practices, as well as mismanagement of rangeland and residues from chemicals/pesticides.

“Of the top 10 countries affected by annual loss of forest land around the world, six are in Africa.”

Food contamination

Microbiological and chemical hazards in food, including mycotoxins and other naturally occurring toxins in foods represent serious threats to health within the region. The emergence of new food production processing technologies has also increased public concern about food safety. Food-borne diseases impose substantial economic costs onto individuals, households, health systems and other sectors. Economic losses as a result of food exports rejected due to shortcomings in food safety are often very significant in Africa.

Both rural and urban settings experience food contamination as a risk factor. Food contamination is often related to environmental degradation such as drinking water pollution and soil contamination with pesticides and fertilisers. Contamination from organic sources such as bacteria, fungi and parasites is most common in the African region. This creates risks of food-borne disease such as diarrhoea or cholera. Malnutrition increases the risk of food-borne diseases. Common problems associated with food contamination include inadequate or inappropriate slaughter and cold storage facilities, as well as infestation by vectors as a result of poor sanitation and personal hygiene.

Deforestation and loss of biodiversity

Deforestation and loss of biodiversity are both serious risks. Deforestation is reported as a risk in 19 countries, while biodiversity loss is reported as a risk in 20 countries.

Deforestation is mainly caused by urbanisation, harvesting for timber and fuel, slash-and-burn agriculture and bush fires. Deforestation frequently leads to loss of biodiversity, which is also linked to poaching, fires, land use change, desertification, crop intensification and other factors. Of the top 10 global countries most affected by annual loss of forest land, six are African. In Sierra Leone, less than 5% of the country's mature forest remains.

Biodiversity of flora and fauna is famously large in the African region, but is in danger due to uncontrolled exploitation and loss of natural habitats. National resources are being depleted by the increasing population and as a result, processes such as deforestation, overgrazing or soil erosion have become major threats.

Deforestation and loss of biodiversity cause a range of health effects such as undernourishment and skin diseases. They lead to loss of food and medicinal plants. Deforestation also favours fresh water snails carrying schistosomiasis, and mosquitoes carrying malaria. From the SANA reports there are many examples of the problems caused by deforestation. For instance, in Gabon, the decline of agricultural production has led to a change in dietary habits, with increased

consumption of bush meat. Several countries cite low public awareness as a constraint in stopping harmful activities that endanger biodiversity.

Disease vectors

Vector-borne diseases are illnesses caused by pathogens and parasites in human populations. The distribution of these diseases is determined by a complex array of environmental and social factors. Pollution, poor waste management, floods, general poor hygiene, urbanisation and climate change all play a role. Changes in agricultural processes due to temperature and rainfall can affect the transmission of vector-borne diseases.

Disease vectors particularly thrive where waste, including human excreta, is indiscriminately disposed of without due regard to the implications for human health. Madagascar has reported that urban planning can create breeding sites for vectors such as mosquitoes. In 16 reports, disease vectors are mentioned as a health risk.

Vector-borne diseases account for 17% of the total disease burden in Africa, the major contributor being malaria. Malaria kills over 1.2 million people annually. Other important disease vectors are tsetse flies, black flies and rodents. Besides malaria, other vector-borne diseases such as dengue, chikungunya, rift valley fever, onchocerciasis, human African trypanosomiasis and lymphatic filariasis create public health problems on the continent.

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Chemicals and hazardous waste

The position of African countries in global systems of economic production creates situations where the manufacture and disposal of chemicals is often situated close to African communities. Although chemical trade is prohibited under several multilateral environmental agreements, it persists and causes substantial health risks in Africa. A relocation of chemical production to developing countries and increasing urbanisation contribute to increased exposure to chemicals with associated health risks. Chemicals are a key source of air, water and soil contamination. In Africa the risks they pose are exacerbated in the many countries with burgeoning extractive industries. It is expected that by 2020, developing countries will produce 31% of all chemical substances, leading to increased exposure and health risks.

The group of chemicals which is of the greatest concern for most African countries is pesticides. Due to their importance in agriculture, they have been used for more than 40 years, particularly in Sub-Saharan Africa. The main health risks as a result of chemical waste include poisoning, cancer and skin disease. As an example, the SANA report in Kenya describes how people are known to recycle pesticides, causing serious skin diseases.

The management of waste, both hazardous and non-hazardous, is a concern in many African countries, and seen as one of the main risks related to environmental health, illustrated by the 20 countries that report a lack of management for hazardous waste. Many countries note that hospital waste is often not treated, or what happens to it is unknown.

Illegal trade of chemicals continues, despite being prohibited under several Multilateral Environmental Agreements. The adverse impacts of illegal trade are considerable: degradation of environmental resources, health dangers to inhabitants and revenue losses by governments and producers of legitimate products. Many of the transboundary shipments of electronic waste (e-waste) are illegal, and do not comply with existing multilateral environmental agreements. African countries are a frequent destination for the e-waste of developed countries. Efforts to recycle the toxic metals in e-waste endanger workers and cause environmental contamination.

Climate variability and climate change

It is now widely accepted that a warmer, more variable climate leads to increased air pollution and increased transmission of diseases, due to a variety of issues including changing disease vectors, water and food shortages, poor sanitation and inadequate hygiene. Negative health consequences include heat stress, different distribution and intensity of disease and thirst and malnutrition, as well as a range of immediate threats (injury, displacement) and long-term social issues. By current estimates, climate change is already estimated to be responsible for 3% of diarrhoea cases, 3% of malaria cases and 3.8% of dengue fever cases worldwide, with a total attributable mortality of about 0.2% of deaths, of which 85% were child deaths. It had been estimated that the global warming that has occurred since the 1970s was causing over 140 000 excess deaths annually by the year 2004.

Climate change is mentioned as a risk by many countries. Tanzania is seeing malaria prevalence in areas where it was not commonly found before. In Madagascar, natural disasters are more frequent and more severe. Moreover, Madagascar reports changes in cropping calendars, and outbreaks of malaria, dengue, chikungunya, influenza and malnutrition. Countries note that many health risks and stressors may be indirectly related to climate change.

The World Health Assembly adopted resolution WHA61.19 and a workplan on climate change and health which, inter alia, requested the Director-General to continue close cooperation with Member States and appropriate United Nations organisations, and other agencies and funding bodies, in order to develop capacity to assess the risks from climate change for human health and to implement effective response measures. Progress on this front is significant, but much more needs to be done.

Other risks

Other risks caused by human activity and listed in the SANA reports include floods, marine pollution, drought, road accidents, noise pollution, erosion, poor and crowded housing, mines, accidents at work and explosive devices. Risks that are classified as occurring naturally are reported to be sometimes linked to human activities. For example, droughts and floods are linked to deforestation and poor agricultural practices.

Marine pollution is seen as a substantial risk in 11 countries. Threats for the marine environment include pollution, overexploitation and plastic waste. The Chemu lagoon in Ghana has in fact been described as dead.

“Illegal trade of chemicals continues, despite being prohibited under several Multilateral Environmental Agreements.”

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SUMMARY: in pictures

FOOD CONTAMINATION



Food contamination can be caused by many factors, such as pollution and the use of pesticides.

In Africa, contamination of food with **bacteria, parasites and fungi** is most common, and contributes to the high risk of food-borne disease, ranging from diarrhoeal diseases to cholera. Malnutrition, together with poor food hygiene, induces a strong vulnerability to food-borne diseases.

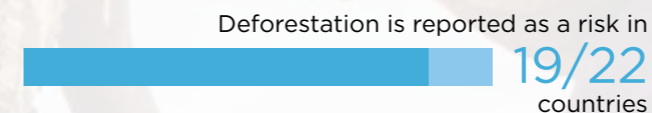


DEFORESTATION AND LOSS OF BIODIVERSITY



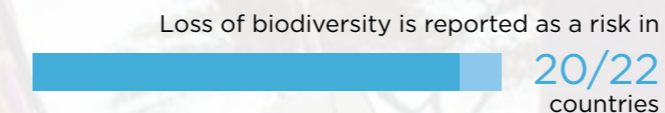
DEFORESTATION is mainly caused by urbanisation, harvesting for timber and fuel, slash-and-burn agriculture and bush fires.

Deforestation and loss of biodiversity are both serious risks.



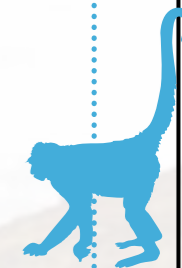
Of the top 10 countries most affected by annual loss of forestland,

6 are African.



Deforestation and loss of biodiversity cause diverse health effects such as **undernourishment** and **skin diseases**. They lead to loss of food and medicinal plants. Deforestation also favours fresh water snails carrying **schistosomiasis** and mosquitoes carrying **malaria**.

In Gabon, the decline of agricultural production has led to a change in dietary habits with **increased consumption of bushmeat**.



DISEASE VECTORS

Many reasons are listed for the proliferation of disease vectors. These include **pollution, insufficient waste management, urbanisation and climate change**. Madagascar has reported that urban planning can create breeding sites for vectors including mosquitoes.



Vector-borne diseases account for **17%** of the global disease burden... with the biggest contributor being **malaria in Africa**.

Besides malaria, **other vector-borne diseases** such as dengue, chikungunya, rift valley fever, onchocerciasis, human African trypanosomiasis and lymphatic filariasis create public health problems on the continent.



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WATER POLLUTION



Worldwide, **11%** of people do not have access to safe drinking water. Of these, **43%** live in Sub-Saharan Africa.

Water pollution is mainly caused by **improper waste management** and **sanitation issues**, combined with **industry and agricultural run-off**.

The **organic pollution of drinking water** is mentioned as a risk in **19/22** countries



It is one of the main health risks in many countries. **Chemical pollution of drinking water and pollution of waste water** (organic and chemical) also pose substantial risks to health.

Improper solid waste management is seen as a risk in **18/22** countries



Pit latrines are still widely used, water bodies serve as sinks for waste, and dumps become breeding sites for disease.

SUMMARY: in pictures

The main health risks related to water pollution are **diarrhoeal diseases, parasites and waterborne diseases**.

90% of **diarrhoeal disease** cases are linked to a lack of safe drinking water, environmental pollution and poor sanitation.



AIR POLLUTION



OUTDOOR AIR POLLUTION risks in Africa are mainly related to dust, the transport sector, industries and bushfires.



INDOOR AIR POLLUTION is mainly related to the use of solid fuels and kerosene for cooking, combined with lack of ventilation. Indoor air pollution particularly affects women and children.

Air pollution is seen as a general risk in **20/22** countries



Outdoor air pollution was reported as a risk in **17/22** countries



Indoor air pollution was reported as a risk in **13/22** countries



Many countries report a lack of data on indoor air pollution, but they state it is a high risk, mainly in rural areas.

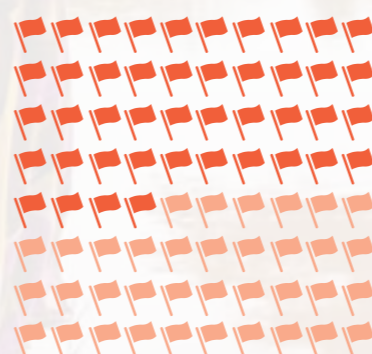
According to WHO estimates, **65 deaths per 100 000 capita** in Africa are attributable to household air pollution.

Among the many health risks of air pollution are **respiratory infections, conjunctivitis** (related to dust), **allergies, skin disease, cardiovascular disease, stroke, tuberculosis and meningitis**.

SOIL DEGRADATION & POLLUTION



Causes of soil degradation range from the use of fertilisers, dumping of industrial waste and poor management practices to deforestation, unsustainable land use, overgrazing and other causes. Soil degradation is a key contributor to climate change and also part of a vicious cycle of flooding and drought related to climate change.



Of the **80** countries substantially affected by land degradation, **36** are situated in Africa.

Land degradation can cause malnutrition through reduced food productivity, but it also contributes to **desertification, impaired water supply, poor sanitation conditions and reduced water quality**.

Land degradation is also reported to cause erosion and landslides.

