

Editorial

Top Ten Environmental Priorities for Africa

A tenacious urgency underlies most African affairs. In particular, the matters of health and environment stand perpetually pregnant with disaster. Although we must progress simultaneously on all fronts, it is important to establish priorities for the agents of research and development. By what measures should we rank the many environmental challenges facing the African continent and its peoples? Is it the number of individuals who are affected by hazardous environmental conditions, in terms of morbidity and mortality, or the impacts on their quality of life? What of the vulnerability of forests and wildlife that attract many of the world's influential citizens to visit Africa?

According to the World Health Organization's (WHO) recent comprehensive study on the Environmental Burden of Disease (EBD), 2.97 million people die every year in all 46 African countries because of environmental risk factors^{1,2}. Most of these deaths are preventable because they are associated with water quality, sanitation, and hygiene. Air quality is also a major risk factor. But these are very broad categories, and it is important to dissect the constituents of African water and air that make them so deadly. Perhaps even more than the knowledge of biological and chemical pollutants, which is described very richly in the academic literature, the question is rooted in the recalcitrance of human behavior and implementation of technology. For example, Of the 46 African countries included in WHO's EBD study, only six countries have unequivocally eliminated the use of lead (Pb) in gasoline (kudos to Cameroon, Democratic Republic of Congo, Eritrea, Ghana, Malawi, and Mauritania). The dangers of Pb in the water, soil, and air are certainly no secret, and there are ample technological tools to get rid of it to ensure that our children should no longer be exposed to this deadening metal. An old Pb mine in Kabwe Zimbabwe is the only African location on the list of top ten "worst polluted sites on Earth"³, but the pervasiveness of Pb poisoning affects everyone on the continent.

Depending on the country, controllable environmental hazards contribute from the lowest proportion of 13% (Botswana) to the highest proportion of 37% (Angola) to the total burden of disease and disability (Table 1). These are unacceptably high levels, giving the scientific resources and technological knowledge available globally, and in Africa. For example, one of the most obvious environmental problems encountered by first time visitors to large urban centers in Africa is the sheer obscenity of solid waste and inefficient urban run-off systems. Most modern cities have solved this problem, although in a way that encourages waste dumping rather than recycling. Instead of developing innovative ways of solid waste management on the continent, many African countries occasionally import hazardous solid waste disguised as potentially useful "second-hand" products that end up polluting air and water, despite the best intentions of the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal which is touted as the most comprehensive global environmental agreement on hazardous and other wastes⁴. The open air incineration and dumping of solid waste contributes major hazards associated with environmental pollution.

One does not need to search too far, then, to identify environmental conditions that should belong in the list of the top ten risk factors that affect Africans. These problems will be found to different extents in all countries, and priorities will shift to reflect local conditions and resources. In future editorials and I hope in published empirical research, readers should look for coverage of each of these environmental challenges:

- Water disinfection
- Air disinfection
- Solid waste management
- Lead (Pb) poisoning
- Smoke pollution
- Dust pollution
- Pesticide pollution
- Drought and deforestation
- Petrochemical pollution
- Physical injury

¹ World Health Organization. 2007. Quantifying Environmental Health Impacts. http://www.who.int/quantifying_ehimpacts/en/. Accessed on 11 August 2007.

² Public Health and Environment Department (WHO). 2007. Country Profiles of Environmental Burden of Disease http://www.who.int/quantifying_ehimpacts/countryprofilesafro.pdf. Accessed on 11 August 2007.

³ Blackwell Institute. 2006. The Worlds Worst Polluted Sites – The Top Ten. <http://www.blacksmithinstitute.org/ten.php>. Accessed on 11 August 2007.

⁴ Basel Convention. <http://www.basel.int/>. Accessed on 11 August 2007.

Table 1. Rank order of African countries based on the comparative impact of environmental risk factors on disease burden.

Country	Annual deaths from environmental diseases	Environmental disease burden as a percentage of total disease burden
ANGOLA	116,000	37
MALI	85000	35
BENIN	29000	34
BURKINA FASO	83000	34
NIGER	86000	34
DEMOCRATIC REPUBLIC OF CONGO	325000	33
MAURITANIA	13000	33
SIERRA LEONE	44000	33
MADAGASCAR	66000	32
CHAD	46000	31
GUINEA-BISSAU	8200	31
RWANDA	40000	31
SENEGAL	32300	31
GAMBIA	4700	30
LIBERIA	21000	30
COMOROS	1600	29
GUINEA	34000	29
NIGERIA	581000	29
CAMEROON	65000	28
ERITREA	11000	28
ETHIOPIA	300000	28
MOZAMBIQUE	108000	28
TOGO	17000	28
BURUNDI	32000	27
COTE D'IVOIRE	68000	27
EQUATORIAL GUINEA	2000	27
GHANA	56000	27
MALAWI	68000	27
SAO TOME AND PRINCIPE	350	27
UNITED REPUBLIC OF TANZANIA	155000	26
CENTRAL AFRICAN REPUBLIC	19000	25
ZAMBIA	58000	25
ALGERIA	42000	24
KENYA	94000	24
CAPE VERDE	600	23
CONGO	10000	23
GABON	3400	23
SEYCHELLES	100	19
MAURITIUS	1300	18
NAMIBIA	4700	17
SWAZILAND	4300	17
SOUTH AFRICA	109000	16
UGANDA	109000	16
ZIMBABWE	44000	15
BOTSWANA	5000	13

It is not entirely clear why some countries are ranked very high, and others low on the list presented in Table 1. All readers of the African Journal of Environmental Science and Technology should consider this editorial as an open invitation to think deeply about specific risk factors and peculiar situations in each country and its relative position on the list. In particular, the great scientists and environmental policy makers in the top ranked countries are invited to share their views on the great challenges to environmental research and development. For those in countries low on the list, please share the success stories that have worked to create better environments.

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