

## Desertification, drought, sand and dust storms and their impact on human health

(library research covering the period 1996 to 2017)

### Major studies

2009

- [Our Planet, Our Health, Our Future – Human health and the Rio Conventions: biological diversity, climate change and desertification](#)

Exploring the linkages between health and biodiversity, climate change and desertification

The World Health Organization (WHO) has published a discussion paper on the linkages between health and biodiversity, climate change and desertification, the representation of health in the three Rio Conventions, and the opportunities for more integrated and effective policy.

Read more and download the publication: [Our Planet, Our Health, Our Future – Human health and the Rio Conventions: biological diversity, climate change and desertification](#). Major study (discussion paper 64 pp.)

[http://www.who.int/globalchange/publications/reports/health\\_rioconventions.pdf](http://www.who.int/globalchange/publications/reports/health_rioconventions.pdf) ( p34-42) drought, dust, sand storms etc

2009

- [World Ecology report \( Special focus : Desertification: Its effects on people and land.](#)  
[http://worldinfo.org/wp-content/uploads/library/wer/english/2009\\_Spring\\_Vol\\_XXI\\_no\\_1.pdf](http://worldinfo.org/wp-content/uploads/library/wer/english/2009_Spring_Vol_XXI_no_1.pdf)

2013

- [Short- and Long-term Effects of Drought on Human Health](#)

*Drought and desertification* contribute not only to water and food shortages and often famine, ... *health* effects are not only short-term or life-long problems

[www.preventionweb.net/english/hyogo/gar/.../ole-MoiYoi,%202012.pdf](http://www.preventionweb.net/english/hyogo/gar/.../ole-MoiYoi,%202012.pdf)

2016

- [Climate change poses increasingly severe risks for ecosystems, human health and the economy in Europe](#)

The observed changes in climate are already having wide-ranging impacts on ecosystems, the economy and on human health and well-being in Europe, according to the report '[Climate change, impacts and vulnerability in Europe 2016](#)'. The main health effects of climate change are linked to extreme weather events, changes in the distribution of climate-sensitive diseases, and changes in environmental and social conditions. River and coastal flooding has affected millions of people in Europe in the last decade. The health effects include injuries, infections, exposure to chemical hazards and mental health

UNCCD Library Biblio references (<http://knowledge.unccd.int/unccd-elibrary>)

consequences. Heatwaves have become more frequent and intense, leading to tens of thousands of premature deaths in Europe. This trend is projected to increase and to intensify, unless appropriate adaptation measures are taken. The spread of tick species, the Asian tiger mosquito and other disease carriers increases the risk of Lyme disease, tick-borne encephalitis, West Nile fever, dengue, chikungunya and leishmaniasis.

**[Safeguarding human health in the Anthropocene epoch: report of The Rockefeller Foundation–Lancet Commission on planetary health](#)**

09-02-2017

By unsustainably exploiting nature's resources, human civilisation has flourished but now risks substantial health effects from the degradation of nature's life support systems in the future. Health effects from changes to the environment including climatic change, ocean acidification, land degradat...

**[The Lancet Countdown: tracking progress on health and climate change](#)**

09-02-2017

The Lancet Countdown: tracking progress on health and climate change is an international, multidisciplinary research collaboration between academic institutions and practitioners across the world. It follows on from the work of the 2015 Lancet Commission, which concluded that the response to climate...

**[References compiled by UNCCD Library covering the period](#)**

**[2013-2017](#)**

**February 2017**

- **[Droughts and flooding rains already more likely as climate change plays havoc with Pacific weather](#)**

Global warming has already increased the risk of major disruptions to Pacific rainfall, according to our [research published today in Nature Communications](#). The risk will continue to rise over coming decades, even if global warming during the 21st century is restricted to 2°C as agreed by the international community under the [Paris Agreement](#).

**<http://reliefweb.int/report/papua-new-guinea/droughts-and-flooding-rains-already-more-likely-climate-change-plays-havoc>**

- **[Statement by the IGAD Executive Secretary on the current drought in the Greater Horn of Africa](#)**

The climate predictions and early warnings produced by IGAD through advanced scientific modeling and prediction tools, which were provided to Member States and the general public, have elicited early actions (preparedness and mitigation measures). Highly comparable to the 2010 GHA drought, the current depressed rainfall and resultant poor vegetation conditions since March 2016 eroded the coping and adaptive capacities of the affected people. It also depleted water points, reduced crops, forages and livestock production, increased food insecurity, and adversely affected the livelihoods of vulnerable communities in the region.

<http://reliefweb.int/report/somalia/statement-igad-executive-secretary-current-drought-greater-horn-africa>

### January 2017

- **Latest update from the KHub) <http://knowledge.unccd.int/publications/barcelona-dust-forecast-center>**

High vigilance for dust-related meningitis over N. Senegal, S. Niger and W. Chad, See the latest news and maps on dust [here](#). **Barcelona dust forecast center** [https://twitter.com/Dust\\_Barcelona](https://twitter.com/Dust_Barcelona)

- **Global Warming and Its Health Impact ( study Jan 2017)**

<http://theijoem.com/ijoem/index.php/ijoem/article/view/963>

<http://theijoem.com/ijoem/index.php/ijoem/issue/view/36>

- **Sandstorm causes health problems**

<https://www.unisdr.org/archive/45756>

- **MEDLINE database (full access is paid! See some references to articles below)**

<https://health.ebsco.com/products/medline>

- **Dust storms are an indication of an unhealthy environment in East Asia.**

<https://www.ncbi.nlm.nih.gov/pubmed/16572293>

- **The Mental Health Outcomes of Drought: A Systematic Review and Causal Process Diagram**

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4627029/>

- **Environmental challenges in Aral Sea Basin: Impact on Human Health**

[https://www.researchgate.net/profile/Akanksha\\_Gupta25/publication/305953081\\_Environmental\\_Challenges\\_in\\_Aral\\_sea\\_basin\\_impact\\_on\\_Human\\_health/links/57a730c808ae3f452937a066.pdf](https://www.researchgate.net/profile/Akanksha_Gupta25/publication/305953081_Environmental_Challenges_in_Aral_sea_basin_impact_on_Human_health/links/57a730c808ae3f452937a066.pdf)

- [PLOS /magazine Article](#)

### **Health Effects of Drought: a Systematic Review of the Evidence( full text pdf)**

Published online 2013 June 5. doi: [10.1371/currents.dis.7a2cee9e980f91ad7697b570bcc4b004](https://doi.org/10.1371/currents.dis.7a2cee9e980f91ad7697b570bcc4b004)

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3682759/>

- [Drought in India 2015-16: When Coping Crumples - A Rapid Assessment of the Impact of Drought on Children and Women in India](#)

<http://reliefweb.int/report/india/drought-india-2015-16-when-coping-crumple-rapid-assessment-impact-drought-children-and>

[http://reliefweb.int/sites/reliefweb.int/files/resources/pub\\_doc117.pdf](http://reliefweb.int/sites/reliefweb.int/files/resources/pub_doc117.pdf)

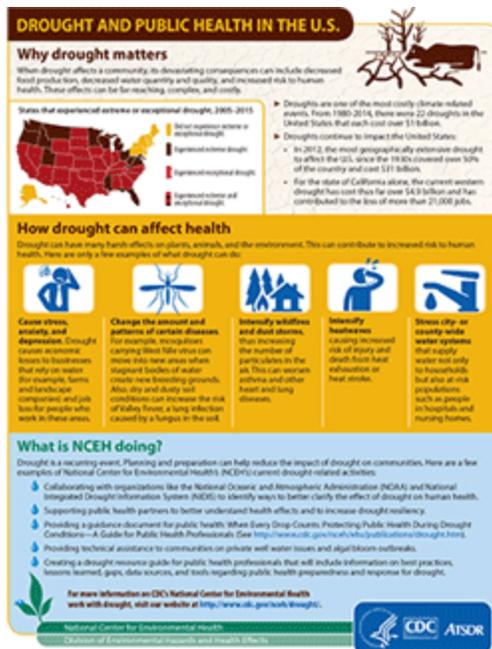
- [Drought and Your Health](#)

<https://www.cdc.gov/features/drought/>

**Cycles of drought have affected North America for the last 10,000 years.** Droughts can last from a single season to many decades and can affect from a few hundred to millions of square miles.

Drought can affect areas or communities differently depending on several additional variables. These variables include:

- the structure and capacity of existing water systems,
- local governance of water use,
- economic development,
- the at-risk populations living within the affected area, and
- other societal factors, such as the presence of local social networks.



For more information on drought, [see our infographic \[1.69 MB\]](#), which offers an overview on these three main questions: Why drought matters? How drought can affect health? What is NCEH doing?

Severe drought conditions can negatively affect air quality. During drought, there is an increased risk for wildfires and dust storms. Particulate matter suspended in the air from these events can irritate the bronchial passages and lungs. This can make chronic respiratory illnesses worse and increase the risk for respiratory infections like bronchitis and pneumonia.

<https://www.cdc.gov/features/drought/>

- [References compiled by UNCCD Library covering the period 1996- 2012](#)

1. [Climate change will also worsen respiratory diseases \(2012\)](#)

22 March 2012-Washington: Global climate change magnifies the effects of pollution and will worsen the incidence of asthma, allergies, infections and cardiovascular diseases worldwide, says a study.

“Since my research focuses on environmental air pollution and its impact on the respiratory system, my biggest concern has been with issues of air quality,” said Kent Pinkerton, professor of paediatrics at the University of California, who co-authored the study.

“These include more smoke and particulate matter from more wildfires, which are known to increase in frequency as the climate warms, and the presence of airborne particles from dust storms caused by desertification,” added Pinkerton.

The study outlines a complex web of interrelated respiratory health effects from global climate change, the journal *Proceedings of the American Thoracic Society* reports.

UNCCD Library Biblio references (<http://knowledge.unccd.int/unccd-elibrary>)

1. <http://resiliencesystem.org/official-american-thoracic-society-workshop-report-climate-change-and-humanhealth>
2. [http://www.khaleejtimes.com/Displayarticle09.asp?section=health&xfile=data/health/2012/March/health\\_March47.xml](http://www.khaleejtimes.com/Displayarticle09.asp?section=health&xfile=data/health/2012/March/health_March47.xml)
3. <http://www.rtcc.org/living/experts-climate-change-to-increase-lung-diseases/>
4. <http://postnoon.com/2012/03/19/climate-change-will-also-worsen-respiratory-diseases/38449>
5. [http://www.eurekalert.org/pub\\_releases/2012-03/uoc--lde030912.php](http://www.eurekalert.org/pub_releases/2012-03/uoc--lde030912.php)
6. <http://www.ucdmc.ucdavis.edu/publish/news/medschool/6320>

"Since my research focuses on environmental air pollution and its impact on the respiratory system, my biggest concern has been with issues of air quality," said Pinkerton, who is co-author of the paper and the organizer of the workshop upon which the paper is based. "These include more smoke and particulate matter from more wildfires, which are known to increase in frequency as the climate warms, and the presence of airborne particles from dust storms caused by desertification

The position paper was written by a 10-member committee that included representatives from Europe, Asia, India, the Middle East and Africa."In these proceedings, we address such questions as how climate change may impact the distribution of respiratory disease worldwide, the impact of heat stress and adaptation, and how extreme heat affects the individual and the community," said [Kent Pinkerton](#), professor of pediatrics at the [UC Davis School of Medicine](#) and director of the [UC Davis Center for Health and the Environment](#).

#### **Among the recommendations:**

**Desertification: Understand how climate forced desertification and the long term transport of mineral dusts will impact respiratory health**

#### **From the headlines**

##### **EPA official blames dust storms on "faulty human activities"**

KUWAIT, March 20 (KUNA) -- Director of the Coastal Desertification Department of Kuwait's Environment Public Authority (EPA) Farah Ibrahim said the faulty human activities risk degenerate the wildlife and result in dust storms.

Speaking to KUNA on Tuesday in the wake of the dust storm that hit the country early this week

<http://www.kuna.net.kw/ArticleDetails.aspx?id=2228513&language=en>

##### **Double trouble in the sands**

Rare clash of two weather fronts and desertification in Iraq bring choking dust to the UAE

The widespread storm, which has laid a veil of fine dust across most of the GCC, will gradually clear off by tomorrow and temperatures will start to climb again, weather forecasters said yesterday.

The powerful storm, described by several meteorologists as the 'Super Sandstorm', has affected the entire Arabian Gulf and parts of Southeast Asia. Conditions took an awful turn when two storms from different directions clashed, with the impact felt across the Arabian Peninsula.<http://earthobservatory.nasa.gov/NaturalHazards/>

<http://gulfnews.com/news/gulf/uae/weather/double-trouble-in-the-sands-1.997569>

### **Mongolia- Dust in the wind**

<http://ubpost.mongolnews.mn/index.php/community/88888940-community-top/6871-dust-in-the-wind>

## **2. Desertification Poses Problems for Child Health (2010)**

27/2/2010 - Desertification and drought are major challenges for Africa and its children, and the international community is responding with urgency

2010 marks the start of the United Nations Decade for Deserts and the Fight against Desertification. This international decade of observance is designed to focus international attention on the importance of drought and desertification, climate change, and poverty.

The United Nations formally recognized the importance of the issue with the United Nations Convention to Combat Desertification in Those Countries Experiencing Serious Drought and/or Desertification, Particularly in Africa. The convention is “mindful that desertification and drought affect sustainable development through their interrelationships with important social problems such as poverty, poor health and nutrition, lack of food security, and those arising from migration, displacement of persons and demographic dynamics.”

Africa in particular is extremely vulnerable to drought. Indeed, the World Food Programme has identified the response to drought as one of the key gaps in international disaster prevention and mitigation strategies. Some countries, such as the United States, have used their respective foreign aid agencies to create early warning famine systems, which use geography-related technology to survey agricultural land and predict and prevent famines, based on climate and environmental conditions. The United Nations Environment Programme works to reverse this trend by planting trees as a means of reforestation. Reforestation can reduce the leaching of soil nutrients and increase the fertility of the land, leading to increased food production.

Desertification represents a substantial challenge to poverty reduction, because it usually translated into a decrease in arable land (land that can be farmed), a decrease in the country's agricultural production, and decreased food availability. This, in turn, will foster malnutrition and chronic hunger. In [Angola](#), for instance, drought is substantial problem and one that requires urgent attention, as agriculture accounts for 8% of gross domestic product—providing incomes to much of its rural populace. In Angola, 35% of the population is estimated to be food insecure and 31% of children are underweight. The country's global hunger index has been described as “alarming.” Such realities are reflected in the country's high indicators for child and infant mortality.

Training rural families with the knowledge to practice sustainable farming is key to improving their incomes and the [lives of children](#), for with increased incomes, families will be better empowered to send their children to school.

Globally, every 3.6 seconds, a child dies of hunger. Reversing this trend and halving this statistic comprise part of the first of the [Millennium Development Goals to Eradicate Extreme Poverty and Hunger](#).

<http://www.soschildrensvillages.ca/News/News/child-charity-news/Pages/Desertification-Child-Health-603.aspx>

### 3. [Assessing potential desertification environmental impact in life cycle assessment \(2010\)](#)

#### **38 percent of world's surface in danger of desertification**

"Despite improvements in the [life cycle assessment](#)( LCA), it has a methodological weakness, which is a lack of environmental impact categories to measure the effect of human activities such as cultivation or grazing on the soil", Montserrat Núñez, lead author and a researcher at the Institute of Agro Food Research and Technology (IRTA), tells SINC.

The research, published in the latest issue of the *International Journal of Life Cycle Assessment*, is the first study in the world to include the impact of desertification in the LCA, based on classifying 15 natural areas or "eco-regions" according to their degree of aridity. By simultaneously using the LCA and a Geographic Information System (GIS), the researchers have shown that eight of these 15 areas can be classified as at risk of desertification, representing 38% of the land surface of the world.

Part 1: Methodological aspects/Montserrat Núñez & Bárbara Civit & Pere Muñoz &

Alejandro Pablo Arena & Joan Rieradevall & Assumpció Antón

<http://springerlink.com/content/u7mj4x087324t7p6/fulltext.pdf>

in LAND USE IMPACTS/ Int J Life Cycle Assess (2010) 15:67–78

### 4. [Managing the health effects of climate change\(2009\)](#)

Costello, A., Abbas, M., Allen, A., *et al.*(2009). Managing the health effects of climate change. *Lancet*. 373: 1693–733. Lancet and University College London Institute for Global Health Commission. (<http://www.ucl.ac.uk/global-health/>)

The report ( a copy in our Library)can be accessed at:

[www.ucl.ac.uk/global-health/ucl-lancet-climate-change.pdf](http://www.ucl.ac.uk/global-health/ucl-lancet-climate-change.pdf)

<http://www.ucl.ac.uk/global-health/outcomes/reports/publications-docs/publications>

### 5. [Argentina NAP\(2009\)](#)

UNCCD Library Biblio references (<http://knowledge.unccd.int/unccd-elibrary>)

The only possible way to grow up is in a healthy body. And this statement is not only valid for an individual, but also for the whole world. Therefore, three of the eight Millennium Development Goals (MDG) are related to health. They are as follows: 1) Reduce child mortality, 2) Improve maternal health, 3) Combat HIV/AIDS, malaria and other diseases. In this sense, the main purpose of this edition of the Digital Newsletter is also related to health: to the health and degradation of land. Within the framework of the Conferences on Desertification, Zoonosis and Animal and Human Behaviour called "Desertification as an emerging and re-emerging factor in Zoonosis", held in the Universidad Nacional de Morón and organized by the Agreste Foundation in the frame of the NAP, Dr. Ricardo Ferrari posed the possibility of considering desertification from a transdisciplinary point of view, without delimiting it to a specific cause and a consequence, and without approaching it from only one science. He explained that, although the world went through climate change processes in the past, the difference with the present is the time in which they are occurring: evolution was an answer to these changes, but the speed of current change makes difficult to get an answer. The changes produced in the behaviour of the different species and their consequences are closely observed: these changes in desertified areas have an impact on the regions which desertification has not reached yet, as they disorganize and change them. That is why it is necessary to consider the environmental system as globally as possible, taking into account that a simple change occurring in some place in the country can impact on the "global village". This shows that to limit approach to only one science makes that all causes of desertification fail to be considered.

<http://www.ambiente.gov.ar/archivos/web/DCSyLD/file/Peridico%20Digital/Digital%20Newsletter%20n%20-%20BA%2014%20English%20Version.pdf>

#### **6. What is desertification, and how does it impact health? (2008 )**

The potential impacts of desertification on health include:

- higher threats of malnutrition from reduced food and water supplies;
- more water- and food-borne diseases that result from poor hygiene and a lack of clean water;
- respiratory diseases caused by atmospheric dust from wind erosion and other air pollutants;
- the spread of infectious diseases as populations migrate

<http://who.int/features/qa/69/en/index.html>

#### **7. Global Environment Outlook: environment for development ( 2007)**

(GEO-4) assessment is a comprehensive and authoritative UN report on environment, development and human well-being, providing incisive analysis and information for decision making.

#### **GEO4: Chapter 3 Land (2007)**

Chapter 3 addresses the land issues identified by UNEP regional groups, and highlights the pressures of human demands on the land resource as the cause of land degradation. Malnutrition and hunger, water-borne diseases, respiratory problems etc

UNCCD Library Biblio references (<http://knowledge.unccd.int/unccd-elibrary>)

[http://www.unep.org/geo/geo4/report/03\\_Land.pdf](http://www.unep.org/geo/geo4/report/03_Land.pdf)  
[http://www.unep.org/geo/GEO4/report/GEO-4\\_Report\\_Full\\_en.pdf](http://www.unep.org/geo/GEO4/report/GEO-4_Report_Full_en.pdf)

**8. Desertification puts the health and well-being of more than 1.2 billion people in more than 100 countries at risk, according to the United Nations.**

The theme of this year's World Day to Combat Desertification, held every year on 17 June, is 'Desertification and Climate Change – One Global Challenge' (15 June 2007)

**9. Severity of desertification on world stage ( 2007)**

[http://www.esa.int/esaEO/SEM5KQXXV2F\\_index\\_0.html](http://www.esa.int/esaEO/SEM5KQXXV2F_index_0.html)

**10. WHO report : Preventing disease through healthy environments: Towards an estimate of the environmental burden of disease (2006)**

[http://www.who.int/quantifying\\_ehimpacts/publications/preventingdisease/en/](http://www.who.int/quantifying_ehimpacts/publications/preventingdisease/en/)

[http://www.who.int/quantifying\\_ehimpacts/publications/preventingdisease.pdf](http://www.who.int/quantifying_ehimpacts/publications/preventingdisease.pdf)( the full text report)

**11. What does land degradation mean for health?**

These social and environmental processes are stressing the world's arable lands and pastures essential for the provision of food and water and quality air. Land degradation and desertification can affect human health through complex pathways. As land is degraded and in some places deserts expand, food production is reduced, water sources dry up and populations are pressured to move to more hospitable areas

<http://www.who.int/globalchange/ecosystems/desert/en/>

**12. Millennium Ecosystem Assessment -Ecosystems and Human Well-Being: Desertification Synthesis (2005)**

An increase in desertification-related dust storms is widely considered to be a cause of ill health (fever, coughing, and sore eyes) during the dry season. Dust emanating from the East Asian region and the Sahara has also been implicated in respiratory problems as far away as North America and has affected coral reefs in the Caribbean.

<http://www.millenniumassessment.org/documents/document.355.aspx.pdf>

**13. Increasing dust storms in Asia affecting health of Canadians, study says**

Thursday, June 16, 2005 [Increasing dust storms in Asia affecting health of Canadians, study says](#)

TORONTO (CP) - A growing number of sandstorms as far away as China that researchers blame on climate change are contributing to an increase in health problems for Canadians, such as coughing, fevers and sore eyes, a new international report warns. A growing number of sandstorms as far away as China that researchers blame on climate change are contributing to an increase in health problems for Canadians, such as coughing, fevers and sore eyes, a new international report warns.

The study, co-authored by a Hamilton researcher and to be released Thursday, says global warming and population growth are drying out parts of the planet.

It ranks desertification - the transformation of fertile land into a desert, often by human activity or climate change - as one of Earth's chief environmental challenges for the future.

While the precise extent of desertification around the world is still unknown, three studies in the last 15 years have found 10 to 20 per cent of the planet's drylands have been affected, said Adeel, and even more could be at risk in the future, he warned.

The report recommends improving irrigation methods around the world to prevent overgrazing and water loss, alternative sources of energy such as solar power and encouraging alternative industries like ecotourism to lessen the impact of desertification.

Adeel's findings were the culmination of a three-year global study, entitled Ecosystem and Human Well-Being, being released Thursday to coincide with the United Nations World Day to Combat Desertification and Drought. <http://www.medicineonline.com/news/12/729/Increasing-dust-storms-in-Asia-affecting-health-of-Canadians-study-says.html>

<http://canadaeast.com/apps/pbcs.dll/article?AID=/20050616/CPN/22470018>

Global environmental change and human health: biodiversity, climate and desertification . Carlos Corvalan, Protection of the Human Environment WHO -Geneva ( 2 pager) 2003

[https://unfccc.int/files/adaptation/adverse\\_effects\\_and\\_response\\_measures\\_art\\_48/application/pdf/200307\\_who\\_environmental\\_change\\_health.pdf](https://unfccc.int/files/adaptation/adverse_effects_and_response_measures_art_48/application/pdf/200307_who_environmental_change_health.pdf)

**14. [The health impacts of desertification and drought Review. UNCCD Newsletter, no. 14, pages 4-6 \(2000\)](#)**

Although further research is necessary, there is sufficient evidence that droughts and desertification negatively influence human health. In areas affected by desertification, health policies need therefore to be fully integrated into programmes to combat desertification. The health impacts of desertification can be divided into malnutrition and famine, water borne diseases, other infectious diseases, respiratory diseases and burning injuries.

[http://www.unece.org/fileadmin/DAM/env/water/meetings/TF\\_EWE/The%20healt%20impacts%20of%20desertification%20UNCCD.pdf](http://www.unece.org/fileadmin/DAM/env/water/meetings/TF_EWE/The%20healt%20impacts%20of%20desertification%20UNCCD.pdf)

**15. Human health severely affected by desertification and drought, says the World Health Organization - 2000**

"In Africa, some 49% of the 10 million annual deaths among children under 5 years of age are associated with malnutrition. Desertification, deforestation and overuse of wilderness areas have drastically reduced the amount of supplementary products gathered in the bush, which provide nutritional supplements to entire families. Furthermore, changes in local biodiversity can put at risk traditional medicine, which plays a very important role all over Africa."

WHO points out that the drying of water sources forces people to use heavily polluted water, leading to severe epidemics. In particular, desertification and droughts can increase water-related diseases such as cholera, typhoid, hepatitis A and diarrhoeal diseases. Malaria epidemics are also subject to rapid increases in incidence, usually related to season and population movements. The Sahel is the only dryland in the world to have experienced a long drought, with a 21% decline in annual rainfall over the past 100 years. Rainfall has also become less predictable, making malaria prevalence in Sahelian countries appear to be in decline but likely to become unstable, with epidemics occurring in years with excessive rainfall.

[http://www.unccd.int/media/pressrel/showpressrel.php?pr=press10\\_12\\_00](http://www.unccd.int/media/pressrel/showpressrel.php?pr=press10_12_00)

See the recovered link from the archive here

[http://archive.unccd.int/media/pressrel/showpressrel.php?pr=press10\\_12\\_00](http://archive.unccd.int/media/pressrel/showpressrel.php?pr=press10_12_00)

**16. Desertification and drought greatly affects Africans' health – October 2000**

The effects of desertification, drought and poverty can include protein-energy malnutrition intrauterine growth retardation and deficiencies of several micronutrients (such as iron and Vitamin A), infections, blindness and anaemia.

WHO points out that the drying of water sources forces people to use heavily polluted water, leading to severe epidemics. In particular, desertification and droughts can increase water-related diseases such as cholera, typhoid, hepatitis A and diarrhoeal diseases. Malaria epidemics are also subject to rapid increases in incidence, usually related to season and population movements

[http://www.afrol.com/Categories/Health/health048\\_desertification.htm](http://www.afrol.com/Categories/Health/health048_desertification.htm)

**17. Methods of assessing human health vulnerability and public health adaptation to climate change- The potential health effects of desertification and drought**

[http://www.euro.who.int/\\_data/assets/pdf\\_file/0009/91098/E81923.pdf](http://www.euro.who.int/_data/assets/pdf_file/0009/91098/E81923.pdf)

**18. Desertification, drought and their consequences 1996**

<http://www.fao.org/sd/EPdirect/EPan0005.htm>

**19. Water for health**

[http://www.who.int/water\\_sanitation\\_health/takingcharge/en/index.html](http://www.who.int/water_sanitation_health/takingcharge/en/index.html)

**20. News on from TUNZA <http://www.ourplanet.com/>**

A special supplement on health and the environment: Healthy people in a healthy environment. This links the health of young people/children with the environment and examines this in the context of the UN's Convention on the Rights of the child (CRC). Based on the Children's Environment and Health Action Plan for Europe (CEHAPE) and Article 24 of the CRC, the booklet looks at water and sanitation; safe environments, physical activity and healthy diet; outdoor and indoor air quality; exposure to chemicals and noise; air pollution; climate change; consumerism and resource use and how these impact the citizens of the future leading healthy lifestyles and enjoying physical wellbeing. Complete with useful tips.

<http://www.ourplanet.com/ourplanet.html>

Back issues

[http://www.ourplanet.com/tunza/tunza\\_back\\_issues\\_frame.html](http://www.ourplanet.com/tunza/tunza_back_issues_frame.html)

**In focus: Soil the forgotten element**

[http://www.ourplanet.com/tunza/tunza\\_back\\_issues\\_frame.html](http://www.ourplanet.com/tunza/tunza_back_issues_frame.html)

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