

# Climate change and environmental health in Southern Africa: *It's not only about malaria*

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**W**hat is global climate change? The climate system is one of the most important life-supporting systems on Earth. In recent years, evidence has shown that the global climate is changing and will continue to change at an alarming rate if we don't make some changes to the way in which we live. The notion of climate change conjures up images in our minds of tidal waves, flooding and drought. Less is thought and said about how these extreme weather events, as well as the other less talked about occurrences, for example, subtle temperature rise, may impact on human health.

Environmental health sits at the centre of the balancing beam, right between the environment and public health. As climate change alters the environment in which we live, the risk of us being exposed to new threats becomes a problem. In South Africa, the most commonly talked about climate change-related, human health risk is a changing pattern in the distribution and severity of malaria, and rightly so, since malaria is a life-threatening disease. However, there are three other important issues that also deserve some attention if we are to protect the health of our population in a changing climate.

## **Temperature: heat exhaustion, reduced productivity, stroke**

The human body requires a temperature of 37° C to function normally. When temperature increases resulting in hot conditions, the body responds by cooling itself through breathing, sweating and changing blood flow. However, if temperature increases beyond what is normal, the body cannot cool itself and therefore heats up, resulting in what is commonly known as heat stress. Under such conditions, affected people may suffer heat cramps, heat exhaustion, and ultimately stroke which may lead to death if proper treatment is not administered. People with pre-existing chronic conditions such as heart and lung, and mental problems are more likely to be affected than those who are healthy. In addition, the elderly and those who are poverty-stricken are also likely to succumb to the effects of heat stress. In cases where air-conditioning is not an option, economic productivity may also be affected.

## **Near surface ozone: respiratory problems, exacerbates asthma**

In the lower atmosphere, ozone is formed when pollutants such as nitrogen oxides and volatile organic carbons react in the presence of sunlight. Near surface ozone is a harmful pollutant and exposure to low levels is known to cause respiratory problems and to worsen asthma attacks. Exposure to high amounts of ozone may cause permanent lung damage and increases the risk of premature death from heart or lung

disease. Near surface ozone is the main component of smog and is also a greenhouse gas, thus having important implications for climate change. Evidence suggests that near surface ozone levels have increased since pre-industrial times, indicating that human activities play an important role in influencing these levels.

## **Solar ultraviolet radiation: cataracts, immune suppression, skin cancer**

Solar ultraviolet (UV) radiation is part of the sun's rays that reach earth. Stratospheric ozone in the upper atmosphere protects us from UV-C but not from UV-A and UV-B. Some sun exposure is good for humans, for example, it's important for vitamin D production, but too much UV exposure can be harmful to our eyes, skin and immune system. Stratospheric ozone depletion, causing increased surface solar UV radiation, as well as people's outdoor lifestyles have augmented these risks.

## **A local perspective**

A project team is busy preparing maps to describe these environmental health risks for changing patterns of temperature, solar UV radiation and near surface ozone in Southern Africa. These maps will help decision-makers make informed choices. The maps will be made available on the South African Risk and Vulnerability Atlas website ([www.sarva.org.za](http://www.sarva.org.za)). ■

The **World Health Organisation** says . . .

### **Why should you care?**

1. Wherever you live, climate change threatens your health.
2. Health damage from climate change is already happening.
3. It is projected to get much worse.
4. The risks are not fairly distributed.
5. It doesn't have to be this way: action now can protect human health from climate change.
6. In fact, reducing global warming can be good for health, the environment and the economy.

### **What can you do to help?**

1. Learn, share and act.
2. Protect yourself and your family.
3. Work for the necessary 'system level' action.
4. Carry out a personal 'carbon audit'.
5. Reduce your carbon footprint.
6. Advocate for healthier and fairer climate change policies.