

# Chapter 103

## A Review of Heat Stress Policies in the Context of Climate Change and Its Impacts on Outdoor Workers: Evidence From Zimbabwe

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### **ABSTRACT**

*Record-breaking summer heat events are increasing in frequency in Zimbabwe and 2016 was a particularly hot year with the country experiencing its worst heat wave event in decades. Currently, Zimbabwe has no coordinated public health response to deal with heat wave events and no specific data on heat-related morbidity and mortality. The country has no legislation for protecting workers against environmental heat exposure, particularly those most vulnerable who are employed in the informal sector. These workers are also at risk due to their outdoor work environments. The article outlines the state of climate and heat stresses in Zimbabwe, as benchmarked against other African countries and France. It further summarizes outdoor workers' susceptibility to heat exposure and the need for the Zimbabwean Government to develop policies to ensure the health and safety of an increasing population of outdoor workers in Zimbabwe.*

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## **INTRODUCTION**

Climate change has been impacting global climatic and environmental conditions over the last few decades and many countries are experiencing extreme high temperatures, which have caused a serious public health issue. Extreme temperatures, particularly in occupational environments, have impacted negatively on humans, increasing their susceptibility to disease and heat-related mortality. Susceptibility among human populations depends on various factors which include social, cultural and /or physical status. Current studies show that the effects of climate change are progressively affecting the cultural and socioeconomic lives of communities (Frimpong, Van Etten, Oosthuizen, & Fannam, 2015). It has been shown that many people throughout the world are frequently exposed to environmental conditions that exceed the capacity of normal human physiological coping mechanisms, placing such individuals at risk of suffering heat-related illnesses (Kjellstrom, 2009). Heat is one of the naturally occurring hazards associated with climate change, and heat waves account for a significant proportion of human mortality (WHO, 2014). Globally morbidity and mortality trends associated with heat wave events have been published in a number of developed countries. The heat waves that occurred in Western Europe in August 2003 exposed flaws in the management of environmental public health risks (Kovats & Hajat, 2008). The extreme heat event that struck Europe in 2003 resulted in 15,000 deaths (Rey et al., 2009). Russia experienced 1,100 deaths in 2011 (Grumm, 2011) and the Chicago heat waves had a reported mortality of 800 in 2010 (Hayhoe, Sheridan, Kalkstein, & Greene, 2010). Research has shown that a lack of intervention plans and coordination between health agencies and social services impacted negatively on the management of these events (Kovats & Hajat, 2008). However, there is a gap in data for Africa, which is particularly vulnerable to the effects of climate change and heat waves. Global average surface temperatures are estimated to increase further by between 1.8 – 4.0°C by the year 2100 (Intergovernmental Panel on Climate Change (IPCC), 2007). Current literature concurs that heat-related illnesses will emerge as major public health issues in the future, particularly in developing countries, including Zimbabwe. Studies have shown that heat waves occur more frequently than any other natural hazard, yet are not generally recognized as a significant cause of mortality, particularly in developing countries (Koppe, Kovats, Jendritzky, & Menne, 2004). Contemporary global economic changes and urbanization in poor countries has further exposed populations to environmental health hazards, including heat waves, with there being very limited policies on heat prevention and adaptation strategies in place. Zimbabwe and the whole of the Southern African Development Community (SADC) region, is facing an increase in the frequency of hot summer days and extremely dry cold winter days caused by climate change. These changes are being experienced in Zimbabwe, greater parts of South Africa, Botswana and Namibia with an increase of between 0.2°C to 0.5°C per decade (Young et al., 2010). Since 1980, Zimbabwe's average annual temperatures have also been increasing. The issue has been compounded by changes in rainfall patterns that have resulted in rainfall becoming increasingly uncertain (United Nations Framework Convention on Climate Change (UNFCCC) zimnc2, 2013). In recent years increasing heat wave episodes have also been experienced in the region. Although people may adapt to higher temperatures, their physiological capacity to cope with sporadic heat events is uncertain (Patz et al., 2000). According to Zimbabwe's National Climate Change Response Strategy (2014), there has been an increase in daytime temperatures between the months of September and November with an average minimum of between 15°C, average maximum of 29°C and a potential peak of above 35°C. During the wet season, the average minimum temperature is 12°C, and the average maximum is 30°C, potentially peaking as

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