

Health Impacts of Climate Change: Priority Focus Areas for the Western Cape

Executive Summary

Climate change impacts on health is a global issue however, the current provincial climate change response strategy (i.e. the WC Climate Change Response Strategy [WCCCRS] of 2014) has only a **brief section on health**. This is **not comprehensive** likely due to the paucity of available WC-specific research and government's limited access to published articles. A literature review conducted by the University of Cape Town (UCT) highlights **priority focus areas** for the WC government (WCG) and includes the WCG adopting a **"health and climate change in all policies"** approach. The WCCCRS (2014) requires the inclusion of various climate change-related health impacts such as the **burden of disease, vulnerable populations, mental ill-health** and other issues mentioned in Figure 2. A full report is available from the Department of Environmental Affairs and Development Planning (DEA&DP).

Findings Highlights

- Direct and indirect climate-related risk factors should be addressed in all policies.**
- The WCCCRS update needs to include the impact of climate change on: injury, non-communicable diseases (NCDs), mental ill-health, food and nutrition insecurity-related diseases, water-borne diseases, reproductive health and children's health.
- Priority health and climate change focus areas identified by UCT (Figure 2) need to be urgently addressed by both environment and health departments.**
- The impacts of climate change on human health must feature more prominently in health professional's education curriculum.
- The WCG should create adaptation and mitigation strategies and projects from a health perspective at the beginning of project development and there should be a "health and climate change in all policies" approach.**
- The WCG should create a database of successful global adaptation and mitigation strategies (Table 1) which can be reviewed during strategic adaptation planning.

Table 1. Global examples of adaptation and mitigation projects that the WCG could review.

Health Impact	Global Examples of Adaptation (A) and Mitigation (M) Projects
Heat-related illnesses	Covering buildings with living edible vegetation to lower indoor temperature (A&M) [Green Curtains, Japan, 2018]
Cardiovascular diseases	Encourages active transport to reduce CO ₂ emissions (M) and increase exercise (A) [Healthy Streets for London, 2017]
Renal diseases	Provision of water, mobile shade and rest stations (A) [Water, Rest, Shade, Central America, 2016]
Mental ill-health	Preparing for climate-related mental health outcomes (A) [Mental Health and our Changing Environment, USA, 2017]
Allergies	Educational awareness and early warning systems on climate change and respiratory effects (A) [Asthma and Allergy Foundation of America, 2018]
Social conflicts	Contextual scenario-based planning approaches to social conflict and climate (A) [Saferworld, Nepal, 2011]
Hazard-specific death & injuries	Educational awareness programs to promote sun safety and skin cancer prevention as people spend more time outdoors in warmer weather (A) [SunSmart, Australia, 2018]
Water quality-related diseases	Using green infrastructure to manage storm water during current and future periods of heavy precipitation (A) [Green Infrastructure, USA, 2015]
Vector-borne diseases	Communications project distributing preventative health information to curb epidemics (A) [MHSS, Quebec, 2016]

Introduction

The impacts of climate change are cross-cutting and adversely affect public health. The World Health Organization estimates an additional 250 000 deaths globally per year between 2030 and 2050 due to climate change. The WCG in partnership with the Cape Higher Education Consortium (CHEC) requested and funded a review of literature assessing climate change risks and impacts on the health sector in the WC. Global, national and provincial publications and grey literature reports were consulted, along with input from provincial stakeholders.

Adaptation and Mitigation Interventions

Table 1 provides global examples of interventions that the WCG could review.

PRIMARY RECOMMENDATIONS

- Existing climate change adaptation strategies often exclude an analysis of how climate change will impact health and there should be a **"health and climate change in all policies"** approach.
- There should be improved **research translation** and the WCG should create a platform where researchers can upload their findings and publications.
- A database of **global adaptation and mitigation interventions** should be created (Table 1) as a resource for future WC climate change adaptation projects.

For some health outcomes, adequate examples of climate change adaptation and mitigation intervention strategies (i.e. those strategies which consider a changing climate inherent in their design, rather than as a co-benefit) were not found. This signifies that climate change and health strategic planning is in its early phases and much work is needed in this sector.

Therefore, global examples of programmes addressing environmental health risk factors with resilience co-benefits are found in Table 2 and could be considered by the WCG to address health issues. However, specific strategies designed to address future projections of a changing climate are needed for these health outcomes locally, but also globally.

Table 2. Global examples of programmes addressing environmental health risk factors exacerbated by climate change for the WCG to review.

Health Impact	Global Examples of Programmes Addressing Environmental Health Risk Factors Exacerbated by Climate Change
Respiratory diseases	Improve air quality by reducing ozone and greenhouse gases thereby improving health [ProAire, Mexico City, 2018]
Malnutrition	Reduce food and water waste to reduce malnutrition and minimize CO ₂ emissions [Espigoladors, Spain, 2018]
Infectious diseases	Reduces the risk of crowding and indoor air pollution [Partners in Health, Low- and Middle-Income Countries, 2018]

Climate Change Risk Factors and Health Impacts

RISK FACTORS. Direct, climatic risk factors are of a hotter and drier future for the WC with further increases in sea-level rise and increased frequency and severity of extreme events such as heatwaves, droughts, floods and fires. These direct risk factors present several health challenges requiring adaptation strategies. Climate change-related risk factors for human health that are not directly the result of climate or extreme events but are rather indirect risks, include environmental and social issues and are detailed in Figure 1.

HEALTH IMPACTS. The anticipated health impacts of climate change for the province are indicated in Figure 1. These fall into broad categories of: communicable diseases, NCDs, vector- and pest-borne diseases, food-borne diseases, hazard-related injury and mortality, violence, mental ill-health, water-borne diseases, food and nutrition insecurity-related diseases, and reproductive health.

Western Cape Gap Analysis

GAP ANALYSIS. A summary of the gap analysis conducted for the province is provided in Figure 2 below. The WCG should include these public health issues in the updated WCCCRS and make provision for future research funding.

--- Risk Factors
 --- Health Impacts

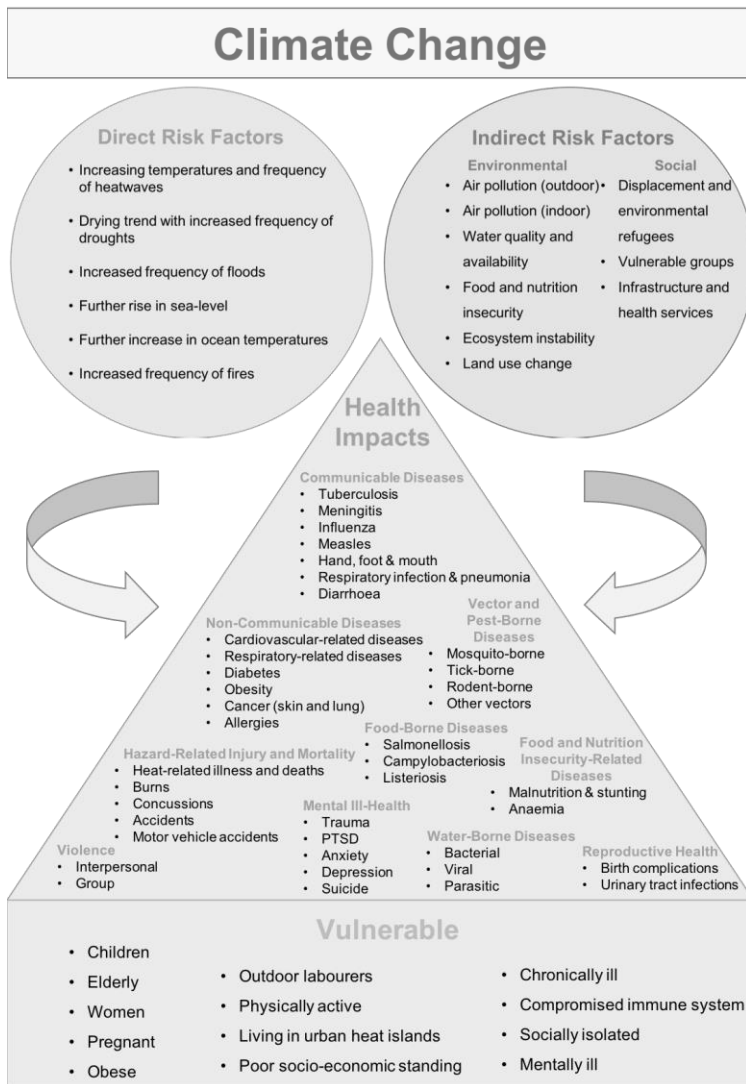


Figure 1. Climate change-related risks and health outcomes.

UCT-identified Additional Research Gaps

- Hazard-specific mortality
- Cardiovascular diseases
- Respiratory diseases such as COPD*
- Renal diseases
- Allergies
- Food-borne diseases such as campylobacteriosis and listeriosis*
- Cancer
- Immune dysfunction
- Tight/sick building syndrome*
- Musculoskeletal health
- Poisonings
- Vulnerable populations
- Motor vehicle accidents*
- Emerging vector-borne diseases e.g. African trypanosomiasis, leptospirosis, dengue, Crimean-Congo haemorrhagic fever*
- Emerging infectious diseases such as TB, hand, foot and mouth disease*
- Pests as vectors of disease particularly flies*
- Ocean acidification*
- Water quantity and quality such as *vibrio vulnificus* bacterial contamination*
- Food quality and nutrition insecurity
- Displaced communities and environmental refugees*
- Vulnerable groups e.g. women and children and those living in urban heat islands

WCCCRS Monitoring & Evaluation Report 2015/2016 Research Gaps

- Heat-related illnesses
- Mental ill-health
- Chronic diseases
- Malnutrition
- Communicable diseases
- Vector-borne diseases
- Reproductive health*
- Women and child health
- Occupational health specifically agricultural workers in the heat
- Violence*
- Transport infrastructure
- Resilience of human settlements and urban infrastructure

*no researchers currently focused on this topic in the WC

Figure 2. Climate change and health research gaps in the WC.



Authors: Dr Christie Nicole Godsmark & Professor Hanna-Andrea Rother

Division of Environmental Health, School of Public Health and Family Medicine, University of Cape Town,

PSG: James Irlam, Caroline Deignan, Goosain Isaacs, Frances van der Merwe, Bart Willems & Mark New

Contact
 environmentalhealth@uct.ac.za