



UNIVERSITY OF CAPE TOWN
IYUNIVESITHI YASEKAPA • UNIVERSITEIT VAN KAAPSTAD

Cape Higher Education Consortium / Western Cape Government
Joint Research Programme

FINAL REPORT

Literature Review Assessing Climate Change Risks and Impacts on the Health Sector in the Western Cape, South Africa

Provincial Strategic Goal 4: Enable a Resilient, Sustainable, Quality and Inclusive Living Environment

APRIL 2018

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ABSTRACT

Introduction: The impacts of climate change are cross-cutting and will adversely affect public health. The Western Cape government (WCG) of South Africa in partnership with the Cape Higher Education Consortium (CHEC) requested and funded, in April 2017, a review of literature assessing climate change risks and impacts on the health sector in the WC. The aim of this project was to assess the literature and conduct a gap analysis of WC-specific health impacts and risk factors by drawing on global, national and provincial publications to better understand what health impacts the WCG can anticipate and prepare for.

Method: The project duration was from April 2017 until April 2018. To best analyse the vast literature on this topic, a stepwise methodological framework was developed by the research team in the Division of Environmental Health (DoEH) at the University of Cape Town (UCT). This unique, comprehensive framework allowed for comparing global research findings with national and WC-specific research to highlight gaps and research needs for the WCG. The framework has a six-step approach allowing for considering WC climate projections with associated health impacts, referencing vulnerable populations whilst also addressing local burden of diseases, as well as incorporating an analysis of key indicators and research in the global and national setting. A further analysis of the WC-specific research gaps required sending out a climate change and health research questionnaire to WC researchers (sent to N = 292 with N = 31 WC researchers consented to taking part) to identify past, current and planned future research. A review of climate change and health intervention strategies in the WC, South Africa and globally was also undertaken through a five-stage process.

Results: Some regions of the WC might fall outside of the general climate projections overall, however, the WC is likely to experience a hotter and drier trend with further increases in sea-level rise and a greater frequency and intensity of extreme weather events. Multiple climate change-related indirect risk factors for the WC were categorized into two main areas: environmental (e.g. air pollution), and social (e.g. urbanisation). Generalized projected health impacts in the WC resulting from climate change include: temperature-related deaths and illnesses; cardiorespiratory, renal, infectious, vector-borne and water-borne diseases; mental ill-health; hazard-specific deaths and injuries; malnutrition; allergies and social conflicts. Therefore, the WCCCRS (2014) update should include the following climate change-related adverse health outcomes: injury, NCDs, mental ill-health, food and nutrition insecurity-related diseases, water-borne diseases and reproductive health. The gap analysis, including the results from the research questionnaire of health impacts, revealed that the WCG should further prioritize climate change research in many areas with the most urgent being: heat strain in outdoor workers, violence and the urban heat island effect, pests and diseases, child and gender-focused research and reviewing the provincial burden of disease within the context of climate change. The WCG could strengthen interventions to address climate change impacts on health and particularly incorporate climate change health risk communication into existing strategies and health professional's curriculum. To reduce pressure on the WCG to design appropriate interventions, the WCG would benefit by building on global adaptation strategies implemented in countries that were identified in this study.

Conclusions: Although the WCG has made several efforts to include health in climate change policies, the key health issues for the WC are not addressed both in policies and adaptation interventions. Additionally, the impacts of climate change on human health should feature more prominently in health professional's education curriculum. A way forward, would be for the WCG to create adaptation and mitigation strategies and projects through a health lens at the initial formation stages of projects such that there is a "health and climate change in all policies" approach. There is an extensive need for further research in the WC-specific priority focus areas identified in this review through the gap analysis to inform policy, strategies and interventions.

INTRODUCTION

Climate change has been deemed the "greatest global health opportunity of the 21st century" (Watts et al., 2015) and the impacts of climate change on human health are featuring more prominently in global discussion. Considerations of climate change and health at the regional level, particularly in Africa, are limited (Baker et al., 2012; Pasquini et al., 2013). Climate change is a cross-cutting concern of many sectors, especially health, and developing locally appropriate regional health strategies is often challenging for governments of low- and middle-income countries (LMICs), particularly as there is a plethora of information available from a global perspective, which may not be applicable to, or translated for, local conditions.

In South Africa, the current national documents and assessments of climate change impacts on health rarely consider local regions or provinces, and therefore the WCG requested evidence for local decision-making on climate change and health policies. The current provincial climate change response strategy (i.e. the WC Climate Change Response Strategy [WCCRS] of 2014) has a brief section on health which is not comprehensive due to the paucity of available WC-specific research as well as government’s limited access to published academic articles. Thus, a thorough literature review and gap analysis highlighting key climate change and health issues for the WC was conducted. This literature review is a response to a call from key stakeholders in the province, namely the WC Department of Health (WC: DoH) and the WC Department of Environmental Affairs and Development Planning (WC: DEA&DP), for an updated literature review to identify the anticipated health impacts of climate change and the required responses of the WCG.

PROJECT AIMS

The aims of this research conducted under the DoEH at UCT were:

1. To review the global, national and provincial literature on the likely climate change health impacts, risk factors and vulnerabilities anticipated for the WC;
2. To identify climate change and health gaps in the current WC climate change response strategy and WC-specific research;
3. To identify adaptation and mitigation intervention strategies and gaps around climate change and health in the WC.

RESEARCH APPROACH AND METHODS

The following methods were employed to address the three study objectives:

Objective 1

A stepwise methodological framework for the literature review was developed by the DoEH, UCT research team for meeting the first and second project objectives (Figure 1). Such a framework has not previously existed and is comprehensive to compare global research findings with national and local research to highlight gaps and research needs at the local level. The framework employed a six-step approach and considered local climate projections with associated health impacts, provided reference to vulnerable populations whilst also addressing local burden of diseases and drew knowledge from the global and national setting.

This framework (Figure 1) incorporates local climate change projections with anticipated risk factors and health impacts to provide both a detailed and generalised summary of how local governments need to adapt and respond to climate change impacts on health. This method was facilitated through engagement and action from stakeholders of the Project Steering Group (PSG). UCT’s methodological framework was developed to guide this literature review but may also be applicable to guide other LMICs developing local adaptation strategies and priorities.

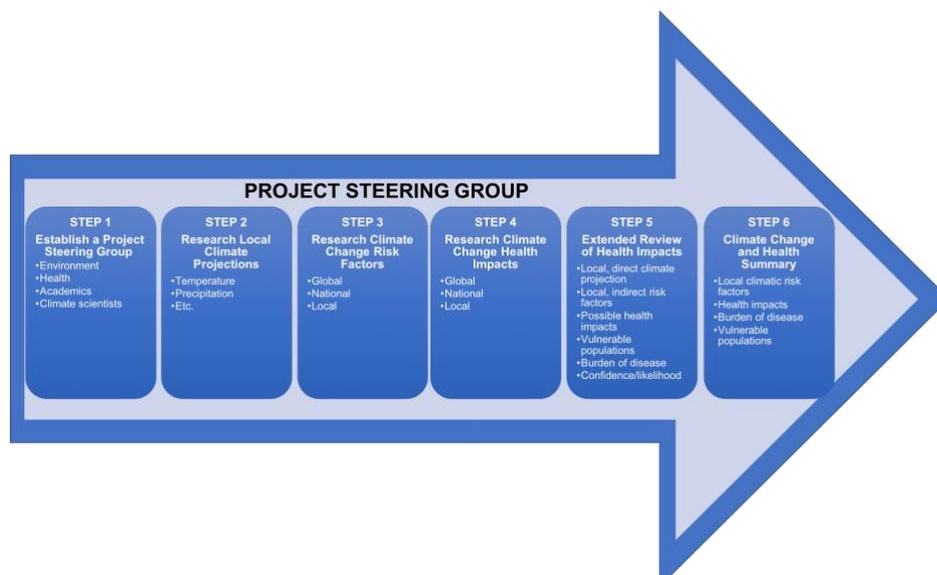


Figure 1: Methodological framework developed to assess Western Cape climate change risks and health impacts.

Step 1: Established a Project Steering Group (PSG). At the onset of the project (April 2017), a PSG consisting of relevant stakeholders was established to provide input into the methodology, comment on the findings, provide grey literature resources and relevant contacts. The group met seven times during the duration of the project from April 2017 to April 2018 (meeting dates: 8th of May 2017, 12th of June 2017, 5th of July 2017, 8th of August 2017, 21st of September 2017, 5th of December 2017, 2nd of February 2018). PSG members included UCT public health specialists and climate scientists, and provincial government staff from the WC: DEA&DP and the DoH. Academics and government staff who were involved in writing the original call for this project were invited as members on the PSG. A full list of the seven PSG members can be found in Appendix 1 of the Literature Review.

Step 2: Researched Local Climate Projections. WC climate projections were obtained by climate scientist experts from the African Climate and Development Initiative (ACDI) and from grey literature sources such as the Climate Systems Analysis Group (CSAG) (2014), DEA&DP (2016) and WCG (2016). The ACDI is a UCT initiative which actively responds to Africa's climate change and development challenges. Local climate projections from these sources were discussed with the PSG who provided expert opinion to identify the most appropriate climate projections for the province.

Steps 3 and 4: Researched Climate Change Risk Factors and Health Impacts. Indicators and key words of climate change-related health impacts and risk factors were identified from reference documents to determine climate change risks and health impacts, as well as for conducting a gap analysis. These reference documents were selected because they were peer-reviewed, published by a reputable source and were largely considered the gold standard report for the region. Details of the reference documents for each region are contained within the main Literature Review. The reference document chosen to represent global research was from the Lancet Commission on Health and Climate Change (Watts et al., 2015). The reference document chosen to represent the African continent in general was the Africa Chapter (Niang et al., 2014) from the Intergovernmental Panel on Climate Change's (IPCC) latest report (IPCC, 2014). The reference document chosen to represent research covering Southern Africa was a paper by Myers and colleagues published in the South African Medical Journal (Myers et al., 2011). The reference document chosen to represent South Africa specifically was the Long-term Adaptation Scenarios (LTAS) technical report on Human Health (DEA, 2013). Finally, the reference document chosen to represent a summary of information for the local region was the WCCCRS (WCCCRS, 2014) as it is the current climate change response strategy for the province. The PSG also provided guidance on the selection of the reference documents.

Step 5: Extended Review of Health Impacts. A thorough analysis and review of health impacts is difficult if an adequate search strategy is not employed. Therefore, the indicators and key words identified in Steps 3 and 4 provided the structure for the search strategy for the literature review. Each risk factor was searched against each health impact, for example, "flooding AND depression" and "food security AND depression". Articles were excluded from review if they were not peer-reviewed and published in English. The following search domains were used: PubMed, Scopus and Google Scholar (first 10 pages). Due primarily to the limited funds received and given the that this step was labour intensive, only temperature and health outcomes were researched to provide an example of what type of research could be conducted in the future. Therefore, completing the extended search for all climatic variables and risk factors is recommended for future research. By presenting stakeholders and decision-makers with an extended review of adverse health outcomes, there was a risk of inducing fatalism which can lead to inaction or disengagement (Clayton et al., 2017). Therefore, it was vital to conduct Step 6 which presents a summary of the key health impacts resulting from climate change.

Step 6: Climate Change and Health Summary. Creating a summary of climate change-related health impacts for the WC was the final step in our framework to present the broader distribution of information in a concise and accessible format. Whilst indirect risk factors are important variables that influence health outcomes, only climatic risk factors were presented in the summary for the WC linked to regional climate projections. We felt that it was also important to highlight vulnerable populations and the region's burden of disease to indicate which diseases on the burden of disease list (Morden et al., 2016) were likely to be affected by climate change. The IPCC's (2014) Chapter 11 on health provided the summary of direct climate and weather on health which was useful for obtaining summary data on heat- and cold-related impacts as well as floods and storms. The WHO Atlas of Health and Climate (2012) was used for obtaining summary data on floods, cyclones, drought and heat stress. For other climatic risks, such as sea-level rise, it was necessary to search for a dedicated review using the following search terms in PubMed and Scopus: "health sea level" and filtering by Review.

Objective 2

To fulfil the second objective of the study (identify climate change and health gaps in the current WCG climate change response strategy and WC-specific research), a health-focussed gap analysis was conducted. This was achieved through an online questionnaire developed by the project team and PSG. The questionnaire aimed to determine what WC climate change and health research had been done, was currently taking place and identify research plans. Researchers were also asked what topics they felt should be research priorities for the province. The questionnaire was sent out to researchers (N = 292 with N = 31 WC researchers consented to taking part) in October 2017 who were potentially involved in research on climate change and health in the WC.

Objective 3

To fulfil the third objective of the study, an extensive search of WC climate change and health interventions was undertaken using a five-stage research approach detailed in Figure 5 below. The five stages included: i) an analysis of the WC climate change database, ii) an analysis of the current state of WC key climate change documents, iii) a Google search for WC climate change interventions or projects, iv) a Google search for national climate change interventions or projects, and v) a Google search for global climate change interventions or projects.

CONCLUSIONS

A detailed analysis of the literature review findings is contained within the Literature Review attached as an output for this project. A summary is presented below. The findings are divided into various risk factors (direct and indirect) and health impacts (direct and indirect) that are relevant to the WC. A further summary of the gap analysis conducted is presented along with a brief outline of the interventions findings.

Findings: Potential Western Cape Risk Factors

As shown in Figure 2 below, risk factors can either be direct or indirect and, if indirect, can be further subdivided into environmental or social risk factors.

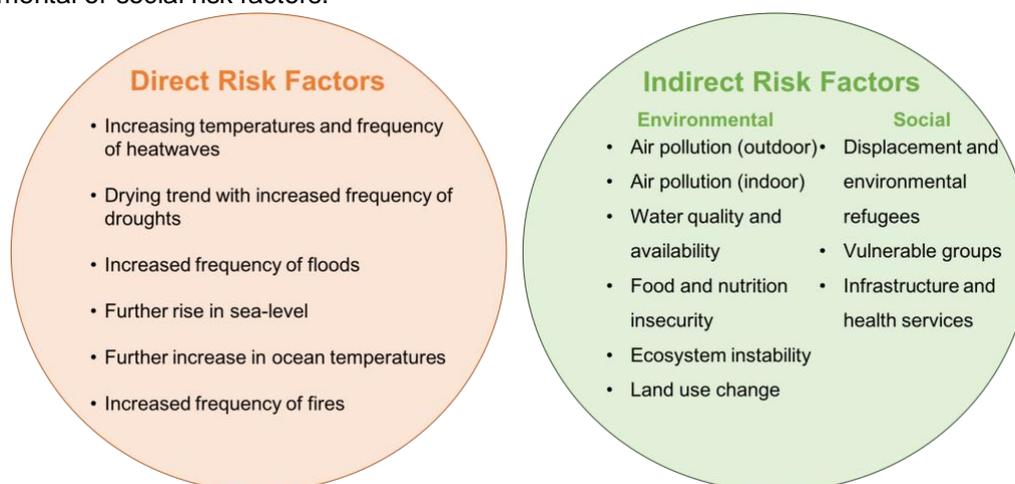


Figure 2: Climate change risk factors for health in the Western Cape.

Regarding direct risk factors, the long-term projection (to 2100) of a hotter and drier future for the WC with further increases in sea-level rise and more extreme events such as heat waves, droughts, floods and fires presents several health challenges requiring adaptation strategies. This is particularly the case for vulnerable populations. Specifically, climate variability in the WC will result in both direct and indirect risk factors that will need to be addressed. Suggested interventions from the global sphere are presented in the interventions section below. Climate change-related risk factors for human health that are not directly the result of climate or extreme weather events but are rather indirect risks include issues that we have grouped within two broad areas: environmental (e.g. air pollution) and social (e.g. environmental refugees) (Appendix 2 of the Literature Review). Often an indirect risk factor might span both areas. Any adaptation strategy for addressing health impacts of climate change in the WC will need to include addressing these risk factors so as not to undermine the efforts of the strategies.

Findings: Potential Western Cape Health Impacts

The WHO estimates that globally, climate change is projected to account for an additional 250 000 deaths annually between 2030 and 2050 (WHO, 2017). Although the risk factors identified play a key role in increasing

the health impacts from climate change, there are several climate change-specific health impacts that may be directly or indirectly climate-related that the WCG should be considering in climate change adaptation strategies (Appendices 3 and 4 of the Literature Review). Figure 3 provides a summary of the main health outcomes of projected climatic risk factors for the WC.

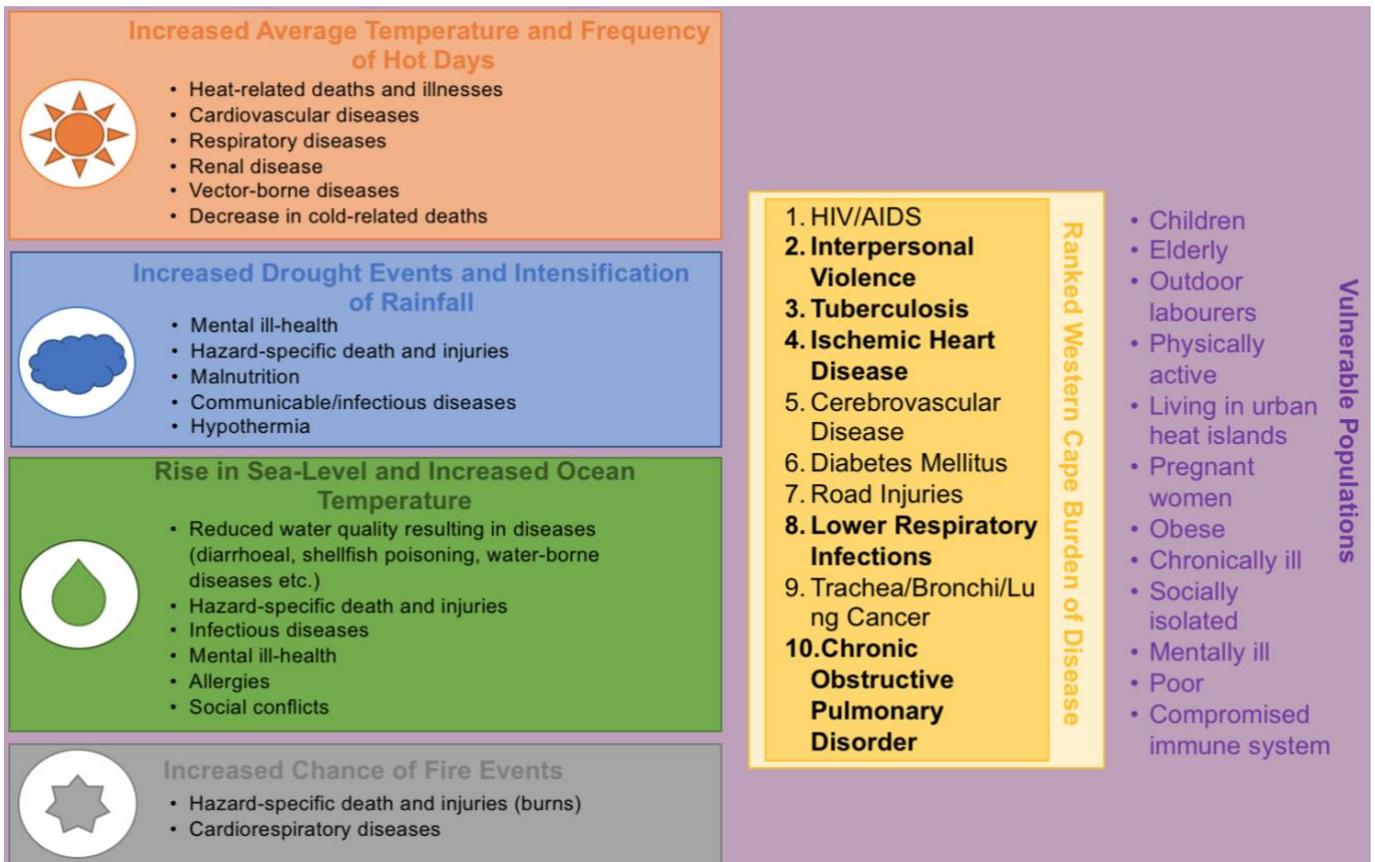


Figure 3: Summary of the main climate change-related health impacts based on the climate projections specific for the Western Cape, showing the province's burden of disease and vulnerable populations.

Note that any diseases bolded in the burden of disease box are those mentioned in climate-specific boxes

Findings: Western Cape Research Gap Analysis

Results from the research questionnaire are presented in detail in the Literature Review. However, examples of topics that were commonly researched in the past include: water-borne diseases, respiratory diseases and a review of all health impacts. Current topics of high interest include: respiratory and cardiovascular diseases, heat-related health impacts and a review of all health impacts. However, no respondents indicated conducting research on cancer, musculoskeletal injuries, nutrition, reproductive health (nor any planned future research) or tight/sick building syndrome (nor any planned future research). When asked about what factors drive research in climate-change and health, most respondents stated that the primary driving factor was community need and personal interest. Figure 4 indicates a summary of the results from the gap analysis conducted and highlights future areas of climate change and health research for the WCG.

Findings: Adaptation and Mitigation Interventions

The findings from the literature review of climate change risks and impacts on the health sector in the WCG was used as the basis for the extensive literature review of WC climate change and health interventions. The results and recommendations are summarized in Figure 5 below and detailed in the Literature Review but in general, we strongly recommend that the good effort of the WCG to have a database capturing all implementation projects be strengthened, and there be a mechanism put in place prior to implementation whereby project leaders can inform the WCG of their upcoming projects and submit their current research findings and publications. Additional funding mechanisms for climate change and health research should be made available at a strategic level and successful adaptation and mitigation strategies at a global level (Table 1) should be utilized as examples in the creation and implementation of climate and health interventions in the WC.

Climate Change and Health Research Gaps in the Western Cape

Risk Factors

Health Impacts

<p>WCCCRS Monitoring & Evaluation Report 2015/2016 Research Gaps</p> <ul style="list-style-type: none"> • Occupational health specifically agricultural workers in the heat • Violence* • Transport infrastructure • Resilience of human settlements and urban infrastructure
<p>UCT-identified Additional Research Gaps</p> <ul style="list-style-type: none"> • Ocean acidification* • Water quantity and quality such as <i>vibrio vulnificus</i> bacterial contamination* • Food quality and nutrition insecurity • Pests • Displaced communities and environmental refugees* • Vulnerable groups such as women and children and those living in urban heat islands

*no researchers currently focused on this topic in the WC

<p>WCCCRS Monitoring & Evaluation Report 2015/2016 Research Gaps</p> <ul style="list-style-type: none"> • Heat-related illnesses • Mental ill-health • Chronic diseases • Malnutrition • Communicable diseases • Vector-borne diseases • Reproductive health* • Women and child health
<p>UCT-identified Additional Research Gaps</p> <ul style="list-style-type: none"> • 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, meningitis, hand, foot and mouth disease* • Pests as vectors of disease particularly flies*

Figure 4: Climate change and health research gaps for the Western Cape.

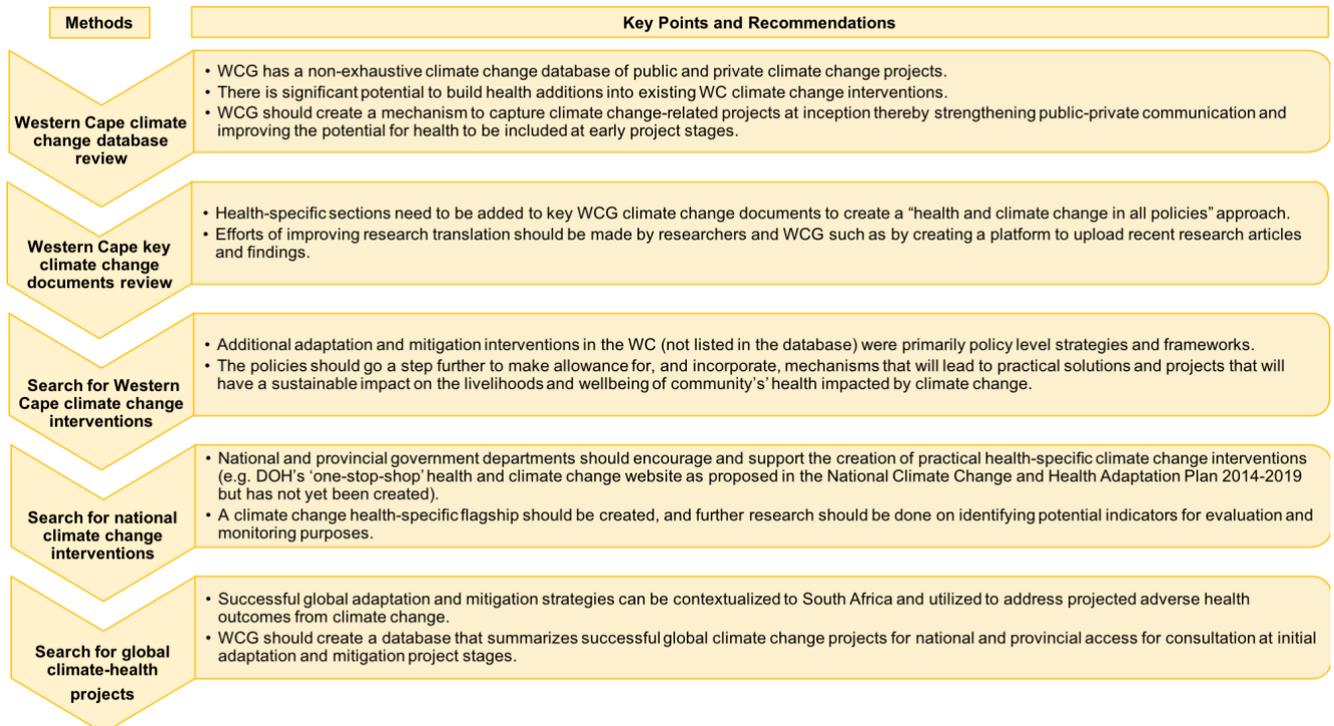


Figure 5: Process summary identifying climate change and health adaptation and mitigation strategies.

Table 1: Global examples of adaptation and mitigation projects that the Western Cape Government 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) [The Green Curtains, Japan, 2018]
Cardiovascular diseases	Encourages active transport to reduce CO ₂ emissions (M) and increase exercise (A) [The 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]
Water quality-related diseases	Using green infrastructure to manage storm water during current and future periods of heavy precipitation (A) [Green Infrastructure, USA, 2015]
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 greater time outdoors in warmer weather and with the influence of climate change on UV radiation (A) [SunSmart, Australia, 2018]
Vector-borne diseases	Communications project distributing preventative health information to curb epidemics (A) [MHSS, Quebec, 2016]

RECOMMENDATIONS FOR FOLLOW-UP ACTION

Overall, further research building on this literature review is needed to provide evidence-based findings on how climate is playing a significant role in impacting on health or exacerbating current conditions in the WC health department. Climate change and health issues should be included in all policies and planning, similarly to how the American Public Health Association advocates for climate change to be included in all health research. In this way WCG monitoring and surveillance systems and processes would become proactive in screening health issues for a climate change influence, rather than reactive. To be effective, the WC:DoH would need to have access to climate information and data to allow capacity to make climate connections. It is also recommended that an extended review of health impacts, such as the one conducted for temperature (Appendix 4 of the Literature Review), be conducted for all climatic projections as well as direct and indirect risk factors identified. For some diseases, it is advisable that disease repositories in the region, and the regions bordering the area (particularly with potential geographic expansion of some vectors), should be consulted to check if the disease has occurred in the region recently such as within the last 10 years (e.g. Dengue Fever in the WC) and it is also useful to consult with the health experts on the PSG for disease prevalence.

As indicated in the Lancet Countdown on Health and Climate Change (2017), climate change should feature more prominently in professional health education. Walpole et al. (2017) argue that an environmentally accountable medical curriculum enables future health professionals to appreciate and understand the interaction of ecosystems and human health. It is through the inclusion of environmental health into the medical curriculum that students can become agents and advocates of change. As an example, at the University of Cape Town, the teaching time of climate change and health totals one hour in a six-year medical curriculum. This is not sufficient to impart climate change and health urgency and impact. Organizations such as the International Federation of Medical Students' Associations have developed useful materials such as the Climate and Health Training Manual for students and young professionals which includes sections on knowledge and capacity building. [EcoAmerica](#) have created a guide on communicating health and climate for health professionals and includes successful messages and key talking points around the topic. It is vital to integrate health into the climate change conversation and educating health professionals and medical students on the health impacts of climate change is imperative for the province.

The WCG and WC-focused policy initiatives should remain cognizant that climate change will disproportionately impact on vulnerable groups and climate change preparedness strategies should address this. WC-specific outreach activities, communication campaigns and health promotion strategies on climate change health impacts should target vulnerable groups and, vulnerable group-sensitive early warning systems, forecasting, surveillance and monitoring should be implemented.

The primary follow-up action from this project is that there should be increased provision of research funds for the priority focus areas noted in Figure 4.

The key highlights that have arisen from this research project:

1. Both direct and indirect (environmental and social) risk factors should be addressed in future policy decisions to reduce the prevalence of climate change-related health outcomes.
2. The WCCRS (2014) update needs to include the following climate change-related adverse health outcomes: injury, NCDs, mental ill-health, food and nutrition insecurity-related diseases, water-borne diseases and reproductive health.
3. Specific outreach activities, communication campaigns and health promotion strategies on climate change impacts on health should target vulnerable groups (i.e. outdoor workers, children and women) and ideally, vulnerable group-sensitive early warning systems, forecasting, surveillance and monitoring should be implemented in the WCG.
4. Priority focus areas for the WCG include the health impacts of climate change-exacerbated burden of disease, vulnerable populations (e.g. outdoor workers, women and children), violence, ocean acidification, reduced water quality and water scarcity, environmental refugees, reproductive health, NCDs, food-borne diseases, motor vehicle accidents, emerging vector-borne diseases, emerging infectious diseases and pests as vectors of disease (Figure 4).
5. The impacts of climate change on human health should feature more prominently in health professional's education curriculum.
6. The WCG should create adaptation and mitigation strategies and projects that are viewed through a health lens at the initial formation stages of projects such that there is "health and climate change in all policies".
7. The WCG should consider creating a database, such as that contained within this report (Table 1), of global success stories of adaptation and mitigation intervention strategies that elicit co-benefits which can be reviewed during future strategic adaptation planning for the province.

OUTPUTS

Outputs and other significant outcomes resulting from this project and attached to this report include the following:

1. Extensive Literature Review

An extensive literature review document has been successfully created on a: Literature Review Assessing Climate Change Risks and Impacts on the Health Sector in the Western Cape, South Africa.

2. Policy Brief

A two-page policy brief, intended for the WC: DEA&DP and WC: DoH, accompanied the extensive literature review document. The policy brief summarizes the key points and recommendations for various stakeholders in an easy-to-understand manner.

3. Journal Article

A draft of the journal article has been prepared and approved of by two of the five authors. This paper will be submitted for peer-reviewed to the journal *Environment International* by the 11th of May 2018, provided all co-authors have reviewed.

4. Stakeholder Engagement

Successful engagement with stakeholders from the WC:DoH and the WC:DEA&DP through the PSG which acted as a platform for sharing of research findings, research translation and critical thought and discussion around climate change and health for the province. There have also been further discussions on integrating the PSG members into existing structures within the DoEH to maintain the dialogue and actions on health and climate change.

5. Research Dissemination

Two posters based on the findings of this research have been accepted at the Adaptation Futures 2018 international conference to be held in Cape Town in June 2018. The titles of the posters and the authors are listed below:

Poster 1

Assessing projected health impacts of climate change in the Western Cape, South Africa

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Poster 2

A methodological framework for assisting governments in preparing local strategies for adaptation to climate change impacts on health.

Dr Christie N Godsmark¹ & Professor Hanna-Andrea Rother¹

¹Division of Environmental Health, School of Public Health and Family Medicine, University of Cape Town

BUDGET

The funds were used in full to cover staff time to conduct this research. To do a good job, more time was required than the six months salary received from CHEC and so additional research funds were used to support this work. Figure 6 provides the financial statement for this project.



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Funder: CHEC - Cape Higher Education Consortium
Principal Investigator: Prof HA Rother
Assessing Climate Change Risks and Impacts on the Health Sector in the Western Cape (Literature
Project Title: review of Climate Change Risks in the Health Sector in the Western Cape)
Period of project: 13 April 2017 to 31 December 2017
Period of report: 13 April 2017 to 31 December 2017
Claimant's Ref: Fund 430958 UO: 27159

Statement of Income & Expenditure for the period ... 13 April 2017 to 31 December 2017

Description	Budget (ZAR)	Actuals for this Period (ZAR)	Cumulative Actuals (ZAR)	Variance (ZAR)
INCOME: Received 01 June 2017		60,000.00		
EXPENSES:	60,000.00	60,000.00	60,000.00	0.00
Post Doc salary - Christie Godsmark	60,000.00	60,000.00	60,000.00	0.00
	0.00	0.00	0.00	0.00
	0.00	0.00	0.00	0.00
TOTAL FUNDS REMAINING FOR THE PERIOD:		0.00		
FUNDS REMAINING AT THE START OF THE PERIOD:		0.00		
FUNDS REMAINING AT THE END OF THE PERIOD:		0.00		

26.4.2018

Prof HA Rother
PRINCIPAL RESEARCHER
I certify that all the amounts above have been actually and necessarily expended under the grant,
in accordance with the terms and conditions outlined in the accounting instructions of the grant.

26/4/2018

Ms Lize Mampies
ASSISTANT RESEARCH MANAGEMENT ACCOUNTANT
I confirm that the above figures agree with the books and records of the University of Cape Town.
UCT's financial policies, procedures and books of account are the subject of an annual external audit
by the firm Ernst & Young.

Figure 6: Financial report from the University of Cape Town.

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