

Our Ref: [REDACTED]

Adj. Professor Tarun Weeramanthri  
Climate Health WA Inquiry  
Department of Health  
Public and Aboriginal Health Division  
PO Box 8172  
PERTH BUSINESS CENTRE WA 6849

Dear Adj. Professor Weeramanthri

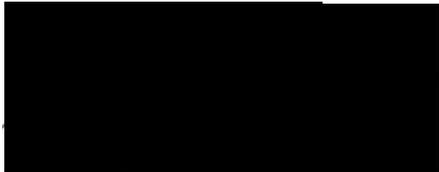
### **SUBMISSION TO THE CLIMATE HEALTH WA INQUIRY**

Thank you for the invitation to provide a written submission to the Climate Health WA Inquiry. I understand the inquiry into the impacts of climate change on health is the first of its kind in Australia and to that end, I hope it provides an impetus for others as we collectively respond to the growing challenges of climate change.

The Department of Fire and Emergency Services (DFES) similarly recognises the importance and urgency of the climate change issue and I am pleased to provide you with a detailed submission from our department.

Should you require any further information, please do not hesitate to contact Deputy Commissioner [REDACTED] via tel: [REDACTED] or email: [REDACTED]

Yours sincerely



**DARREN KLEMM AFSM**  
**COMMISSIONER**

30 August 2019

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**Submission to the Climate Health WA Inquiry**  
**Department of Fire and Emergency Services**  
**August 2019**

**Aim of the Inquiry**

1. We acknowledge the aim of the Inquiry is to review the current planning and response capacity of the health system in relation to the health impacts of climate change and make recommendations for improvement with respect to mitigation and adaptation strategies.
2. We also recognise the 5 key 'objectives' of the Inquiry as outlined in the *Terms of Reference*.
3. DFES, as the Hazard Management Agency for a range of natural hazards potentially affected by climate change is particularly interested in the 'objective' around the *strengthening of the preparedness and resilience of communities against extreme weather events, with a focus on the more vulnerable in the community*.
4. We also acknowledge that the Inquiry is looking to identify challenges, strengths, opportunities and initiatives in the context of climate change and how any issues may be addressed going forward. In addition, the Inquiry is interested in potential ongoing contributions by agencies following tabling of the report.
5. Considering the above our response will initially focus on the science of climate change, followed by its potential impacts in Australia and Western Australia and the implications for emergency management. Then we will discuss strengths, opportunities and initiatives that DFES is involved with which are pertinent in the climate change context. Concluding with a section which overviews the potential synergies and inter-relationships between DFES and DOH and potential ongoing contributions.

**Challenges of Climate Change<sup>1</sup>**

The science of climate change

6. DFES acknowledges the global and local challenges, now and in to the future, associated with climate change.
7. DFES as the Hazard Management Agency<sup>2</sup> for a range of hydro-meteorological hazards is directly impacted by the effects of climate change. These hazards include cyclone, storm, flood, and bushfire.

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<sup>1</sup> Sections science from Jones, D., 2019 *State of the Climate, Bureau of Meteorology* and IPCC2018, *Special Report on Global Warming of 1.5°C*

<sup>2</sup> DFES is the HMA for cyclone, flood, storm, fire (structural and bushfire), tsunami, earthquake and hazard

8. It is understood that many agencies will see the indirect effects of climate change but DFES, due to the nature of its business, will (and is) seeing both direct and indirect effects.
9. DFES through its Rural Fire Division, Bushfire Technical Services Branch, Emergency Management Intelligence Branch and State Risk Profiling areas is cognisant of the science of anthropogenic climate change. In addition, DFES has strong scientific relationships with the Bureau of Meteorology, CSIRO, Bushfire and Natural Hazards CRC, Geoscience Australia, Department of Water and Environmental Regulation and the University of Western Australia.
10. These internal skills and external partnerships are assisting DFES to understand the mechanics and implications of climate change especially on the hazards the agency is responsible for. In addition, DFES also appreciates the implications to other hazards prescribed in emergency management legislation such as heatwave, pandemic, animal and plant biosecurity, and electricity supply disruption which are managed by other agencies.
11. DFES acknowledges the effects of anthropogenic greenhouse gas emissions and how rapidly rising concentrations of CO<sub>2</sub> in the atmosphere is contributing to a rise in global average temperature, with changes locked-in until a minimum of 2030.
12. DFES recognises that the global average temperature has risen by about 1 degree over pre-industrialisation levels and that in Australia that figure is presently closer to 1.4 degrees.
13. Heat records each year are continuing to be broken around the globe including an array of records in Australia during the 18/19 summer.
14. The *Intergovernmental Panel on Climate Change* has set an ambitious target to limit global warming to 1.5 degrees, however as global emissions continue to rise DFES understands that average temperatures well above this level need to be planned for.
15. DFES also understands that small increases in global average temperature can make a significant difference to the frequency and size of extreme weather events. It is likely that there is a non-linear (i.e. growth curve) relationship between each increment in global average temperature and the effect on the frequency and size of these events. This would have notable implications for emergency management service delivery going forward.

#### The potential impacts of climate change

16. DFES is an active member of the Australasian Fire and Emergency Services Authorities Council (AFAC) Climate Change Group. In October 2018, this group released a *Position paper on fire and emergency services and climate change*.

The paper makes the following observations:

- a. "AFAC member agencies are already experiencing the impacts of climate change and experiencing first-hand how communities are being *affected*. AFAC and its members are well placed to champion these issues and work collaboratively to address them."
  - b. "An ongoing concern for AFAC and its members is the increasing frequency and severity of extreme weather events. Particularly heatwaves, storms, floods and extreme bushfire conditions, as well as increasing social and environmental vulnerabilities..."
17. As per the above, the impacts of climate change are already being felt in the emergency services sector across Australia.
18. From a Western Australian perspective, the south-western areas have experienced a 20% reduction in rainfall over the past century and with more heat in the system the climate models indicate this drying trend will continue with an associated increase in fire risk.
19. Conversely the northern and interior parts of the state have experienced "very much above average" to the "highest on record" rainfalls over the past 20 years. With increasing heat, including raised sea surface temperatures, it is anticipated the State will see more monsoonal type activity and thus the "wetting" trend in these regions would continue.
20. Changes to climatic conditions can also affect biodiversity and the ecosystem. Natural buffers can be an important part of hazard mitigation and changing environmental circumstances may alter local vegetation and landform elevating some hazard risks (e.g. flood, storm surge).
21. Overall modelled future impacts of climate change on the emergency management sector include:
- a. Increased frequency, intensity, duration and extent of heatwaves
  - b. Longer fire seasons with more days with extreme Fire Danger Ratings
  - c. Continuing drying of the south west with associated increase in fire risk, drought and heatwave
  - d. Increase in ocean temperatures, more monsoonal activity and a greater proportion of rainfall from heavy rainfall events and associated flooding potential
  - e. Potential for more intense cyclonic activity, albeit less frequent
  - f. Sea level rise and increased frequency of coastal storm surge inundation and coastal erosion
  - g. The potential effects on other hazards due to elevated heat and moisture e.g. pandemic, animal and plant diseases, and electricity supply disruption.

22. The AFAC position paper also highlights other potential impacts such as:
- a. Change to the complexity of extreme weather events (this could include simultaneous, cascading and successive events)
  - b. Increasing exposure and vulnerabilities of communities
  - c. Increasing economic costs of events, impacts on infrastructure and stretching of emergency service resources
  - d. Increasing pressure on resourcing, responders, and capabilities due to increased frequency and intensity of events
  - e. Increasing health and safety risks for career and volunteer workforce including fatigue and mental health
  - f. Increasing liabilities on emergency services and associated insurance implications
  - g. Failure of land-use planning and building codes to adequately adapt.

### **Strengths, Opportunities and Initiatives in the climate change context**

23. In the context of climate change DFES recognises that emissions abatement and agency service delivery adaptation (including hazard mitigation) are key activities for the emergency management sector for the future.
24. DFES also appreciates that the Inquiry's findings and recommendations will provide a roadmap for not just DOH, but potentially also for an array of other organisations. Synergies, partnerships and the dovetailing of established initiatives across government, the private sector and community will be an effective way for the Inquiry's findings and recommendations to gain traction post tabling of the report.

### State and national strategic initiatives that are enhancing climate adaptation

25. DFES is an active member of the Directors General Climate Steering Group which is presently undertaking scoping and development work on the State Climate Policy. Through that forum DFES has shared initiatives which may be pertinent to climate change adaptation in Western Australia including the State Risk Project, State Capability Project, Emergency Preparedness Report and management of the new Disaster Recovery Funding Arrangements.
26. DFES is represented on the Australia New Zealand Emergency Management Committee (ANZEMC). This body is overseeing the adoption and roll out of the new National Disaster Risk Reduction Framework (2019-2023) (NDRRF) as developed by the National Disaster Resilience Taskforce.
27. ANZEMC is also presently reviewing the next generation National Partnership Agreement on Disaster Risk Reduction which is earmarked to provide grants funding over five years to State and Territories (on a matched basis) to address the 4 key priorities of the NDRRF

These priorities include:

- a. understanding disaster risk
- b. accountable decision-making to respond to immediate and long-term disaster risk and manage the creation or exacerbation of disaster risk
- c. enhanced investment in disaster risk reduction to build resilience, and
- d. transparent, sustainable and accountable governance, ownership and responsibility for disaster risk management.

28. The NDRRF has been undertaken with climate change central to its direction, and a series of guidance materials for implementation of the NDRRF have been released known as *Guidance for Strategic Decisions on Climate and Disaster Risk*.
29. In addition to the NDRRF a concomitant body of work by the Taskforce is the Australian Vulnerability Profiling (AVP). This work considers what makes Australia systemically vulnerable (as people and as a society) in the face of hazards and changing climate. All these national products are available through the Australian Institute for Disaster Resilience (AIDR) website.
30. Other pertinent bodies of work that DFES is engaged with include the WALGA Climate Change Policy, the National Catastrophic Planning Roadmap, the Australian Disaster Preparedness Framework and an array of scientific investigations under the Bushfire and Natural Hazards CRC. These all take into account the potentiality of extreme weather events and the adaptation, planning and capabilities required to tackle those events in future.

#### DFES restructure that can enhance climate adaptation

31. DFES has undergone significant restructure over the past 2 years. This includes establishment of the Rural Fire Division (RFD) and the adoption of the supporting functions for the State Emergency Management Committee (SEMC).
32. DFES acknowledges the need to be active before, during and after emergencies. This is pertinent given the expected increase in the frequency and impacts of extreme weather events in future. A comprehensive strategic planning process is presently underway, consulting both internally and externally, to build the next generation strategy which will include an enhanced emergency management focus.
33. Some pertinent aspects in the restructure of DFES which are significant in context of the future challenges of climate change include:
- a. The establishment of the RFD and its focus on mitigation including the science, modelling, analysis, and risk management for bushfire
  - b. Development of a new Bushfire Centre of Excellence under the RFD which will increase knowledge and capabilities in bushfire management
  - c. Establishment of the Resilience and Recovery portfolio and its focus on preparedness activities, engagement with vulnerable groups and building

community resilience. As well as enhancing recovery systems and processes so as the overall impacts of emergencies are minimised

- d. Establishment of the Emergency Management Intelligence Branch (EMIB) and its hazard, exposure, vulnerability and impact modelling capacities. This includes the ability to analyse cyclone, flood and storm surge impact potentiality, as well as infrastructure resilience and societal vulnerabilities
- e. Establishment of the SEMC Business Unit and its coordination and collaboration functions on behalf of the SEMC which gives broad engagement reach across all-hazards (27) and across all agencies covered under the Emergency Management Act (2005) and Regulations (2006).

Initiatives that can enhance carbon abatement and/or service delivery adaptation

34. From a service delivery adaptation perspective, the SEMC Business Unit currently manages several grants programs that focus on hazard mitigation and resilience building activities including the Mitigation Activity Fund (MAF) and the Natural Disaster Resilience Program (NDRP).
35. Several NDRP projects approved in the 18/19 round are pertinent in the context of climate change, hazard and vulnerability assessment and resilience building, such as:
  - a. DFES: WA Strategy for community disaster resilience
  - b. WALGA: Climate Resilient Councils - preparing for impacts of climate change
  - c. City of Greater Geraldton: Geraldton CBD Flood and Inundation Study, and
  - d. Shire of Denmark: Bushfire resilience in the Great Southern.
36. DFES is presently developing a Climate Change White Paper to assist in informing future planning for the agency, specifically in relation to carbon abatement and service delivery adaptation. Topics earmarked to be covered include:

Carbon abatement

- a. Improved energy efficiency for the agency
- b. Application of renewable energy sources
- c. Looking at carbon neutrality and the trade-offs against fleet and equipment
- d. Application of carbon offsets including savanna burning programs
- e. Funding programs and grants initiatives for carbon reduction

Service delivery adaptation

- f. Hazard mitigation programs e.g. flood, fire, cyclone, storm, storm surge
- g. Enhanced involvement in land-use planning, building codes and retrofitting analysis
- h. Community preparedness and resilience building partnerships
- i. Enhanced recovery techniques

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- j. Addressing the vulnerabilities of interconnectedness - road, power, telecommunications, fuel supply
- k. Volunteer and career workforce health and safety
- l. Increased time demands on the volunteer workforce and the associated training requirements and potential difficulty in retaining the workforce
- m. The potential for an expanding gap between the frequency and impact of hazards and an available and ready workforce to combat those hazards. This is particularly in light of an aging population and other social changes that is making volunteer retention difficult.
- n. Need for new response techniques and application of new technology
- o. Unintended consequences of low carbon economy and effect on resilience, response and recovery methods and safety (e.g. lithium batteries, microgrids, solar panel vulnerability)
- p. Water restrictions and response adaptation
- q. Adaptation initiatives to be undertaken at both a strategic and operational level including actions at the local station and brigade level and the need for a link to corporate strategy, corporate plans, KPIs and auditing
- r. The need to invoke new methods, technologies and training which will incur additional adaptation costs.

### **Inter-relationships between DOH and DFES and the potential for ongoing synergies**

- 37. There is an inter-relationship between the service delivery of DFES and that of DOH. Both are interested in the health and wellbeing of the Western Australian community.
- 38. Both agencies capacities and capabilities will be tested under changing climate circumstances. Planning for effective carbon abatement by organisations is a moral and practical obligation that in turn will help constrain some of the service delivery challenges of the future.
- 39. Dovetailing findings and recommendations from the Inquiry with already existing initiatives underway across government, the private sector and the community would be an economically efficient and expedient way of getting traction on the issue; both from a carbon abatement and adaptation perspective.
- 40. DFES' main contribution to the issues faced by DOH would largely fall in the domain of preparedness and resilience of communities against extreme weather events and in the supporting of the more vulnerable in the community.

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41. Regarding the above, the following table summarises the potential contributions and partnership/s that DFES may be able to provide following the Inquiry as they already form part of the agencies work program:

<b>Activity/Initiative</b>	<b>Co-benefit</b>
Community preparedness and resilience building activities against a range of hydro-meteorological hazards and their expected escalation	A more resilient community that is risk aware and takes action will mitigate some demands on emergency and health services
Effective recovery systems and processes to bounce back quickly after emergencies which are expected to be more frequent with greater impacts in future	Recovery methods particularly around waste, environmental health, water quality and mental health can potentially help lower the demands on health services
Analysis and adaptation planning for career and volunteer first responders and recovery personnel considering the likely increasing demands upon them	Effective workforce adaption planning including aspects related to physical and mental health will lower direct demands on DOH services from emergency personnel. It will also ensure emergency personnel remain optimally active which in turn provides greater support to the community, potentially also lowering their demands on health services.
Scenario analysis and exposure, vulnerability and impact modelling against an array of hydro-meteorological hazards including analysis of the resilience of critical infrastructure (e.g. health facilities, power, water, communications, road access).	DFES modelling capacities can be leveraged against to help DOH, WACHS and other health providers undertake risk analysis of their venues and service provision to in turn inform resilience building and adaptation planning.

For clarification on any technical details, please do not hesitate to contact:

[Redacted]

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Mobile - [Redacted]

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Government of **Western Australia**  
Department of **Health**  
Public and Aboriginal Health Division

Mr Darren Klemm  
Department of Fire and Emergency Services  
GPO Box P1174  
PERTH WA 6844

Dear Mr Klemm

### **INVITATION TO PROVIDE A WRITTEN SUBMISSION TO THE CLIMATE HEALTH WA INQUIRY**

In March 2019, the Hon Roger Cook, Minister for Health, announced an inquiry into the impacts of climate change on health in Western Australia (WA), to be conducted under the *Public Health Act 2016*.

The Climate Health WA Inquiry will be conducted over several months, with a period for written submissions (June-August, 2019), followed by a series of formal hearings by invitation (September-November, 2019). I now invite you and/or your organisation to make a written submission.

#### **The Inquiry is particularly interested in receiving submissions that:**

- highlight particular challenges, strengths, opportunities or initiatives relevant to WA, that may not be evident from the national or international literature
- outline not only what the issues are but how problems can be addressed
- describe what you or your organisation would be willing to do or contribute following the Inquiry.

A final report will be presented to the Minister by March 2020.

The Terms of Reference (ToR) for the Inquiry set out the matters that will be considered. Information about the Inquiry, including the ToR and how to make a submission, is available from the Inquiry website at [health.wa.gov.au/climatehealthwa](http://health.wa.gov.au/climatehealthwa)

**The closing date for submissions is 30 August 2019.**

Yours sincerely

**Adj. Professor Tarun Weeramanthri**  
**Climate Health WA Inquiry**