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Climate Change in Western Australia

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Submission from the WHO Collaborating Centre for Environmental Health Impact Assessment, School of Public Health, Curtin University.

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The WHO Collaborating Centre (the Centre) has been actively working on the issue of climate change and health at a local and international level for over a decade. The Centre was commissioned by the Department of Health (DoH) in WA to undertake a Health Impact Assessment (HIA) of climate change over a decade ago and our final report was published as "Health impacts of climate change: Adaptation Strategies for Western Australia" (DoH, 2008).

It is clear that the health and well-being of Western Australian's will be affected by climate change, as well as climate change mitigation and adaptation strategies. Each of the eleven issues discussed in the Issues Paper will have some impacts, both positive and negative, on the health and well-being of communities across WA. Many of these issues, and the strategies to address them, are linked. It is therefore clear that management of climate change requires a whole of government and interdisciplinary response.

We recommend that HIA is utilised as part of this interdisciplinary response. The application of HIA can help to inform the decision-making process and ensure that the health impacts of climate change, as well as our responses to climate change, are included as part of the State Climate Policy.

It must be recognised that despite the potential benefits to health from a transition to a low-carbon economy, there is no doubt that the future health of Western Australians will be placed at risk as a result of climate change. The State Climate Policy should support actions that reflect the urgency of the situation and prioritise actions that support the transition to both a low-carbon economy and a more climate-resilient society.

Introduction

In recent years, Australia's greenhouse gas emissions have been rising, and almost one third of safeguard mechanism facilities have applied to increase their baselines.

- An essential aim of all activities to address climate change in WA should be, where feasible, for no new COe to be generated and for opportunities to be sought to remove COe from the atmosphere
- Increases in COe by businesses and others should be constrained unless they can demonstrate an appropriate and lasting offset equivalent if not higher than the amount of increase

1 | Transforming energy generation

Energy availability, use and costs have the potential to create circumstances within the WA community that can result in adverse health outcomes, especially for vulnerable individuals and groups. The types of issues that can arise include:

- Energy security: having enough energy to cook food, heat the home during cold weather, and cool the home during warm weather
- Energy poverty: financial hardship in affording energy for these basic uses
- Energy exposure: the risks associated with mechanical or physical exposure to forms of energy, particularly fuels, and their management (extraction, processing, generation, use, and disposal).
- Energy efficiency and conservation: many health benefits

Questions from paper

➢ **What are the main challenges for decarbonising Western Australia's electricity supply while ensuring adequate generation capacity, security and reliability?**

Challenges include:
- The resistance to change to renewable energy provision by a vocal and potentially influential proportion of the population
- The costs associated with transitioning to renewable, low carbon technologies, especially for small to medium businesses and low income households including:
  - The costs associated with the establishment of storage facilities at the local level
  - The risks to communities moving away from traditional electricity supply
  - The building issues associated with retrofitting onsite renewable energy installation
  - The creation of "have and have not" groups within the community due to infrastructure and economic constraints
  - The resistance to and difficulties associated with retrofitting leased premises
- The distances required providing renewable energy across the breadth of WA and the support required for access for remote and regional communities

➢ **What are the most effective ways to overcome these challenges by 2030?**
Establishment of a clear regulatory regime for transition to non-fossil fuel energy generation that addresses:

- Implementing the Energy Transformation Strategy within a statutory framework
- Building and system requirements for new and existing buildings
- Communication strategies for the public and private sector
- Requirements for implementation of local solutions

- Public/private partnerships and shared arrangements with the resource sector for energy production and use
- Transition mechanisms to reduce emissions to 2005 levels from the SWIS through introduction of further renewable energy generation and reduction in reliance on coal

> **Should the electricity sector make a pro- rata (or greater) contribution to Australia's national greenhouse gas emission targets?**

Yes.

> **How fast do you think the transition of the electricity sector should occur?**

As quickly as is feasible

2 | Industry innovation

It is recommended that implementation of the Greenhouses Gas Emissions Policy for Major Projects considers the use of HIA in the decision making process to consider the potential for unintended consequences for health and well-being.

3 | Future mobility

This section of the issues paper focuses on transport but considerations should also be given to broader mobility issues. Changes to environments resulting from climate change can affect the short and long term mobility of populations and can have impacts on communities related to the potential for general movement, displacement and relocation. It is important that populations are educated about current and expected changes to their natural and man-made environments to facilitate better-informed mobility decisions, especially for regional and remote communities.

> **What are the barriers to purchasing a low- emissions vehicle for your household or business?**
> - The main obstacles to low-emissions vehicle use are the costs associated with the initial purchase and ongoing maintenance, distance available for travelling in e-vehicles and recharge requirements while away from home/business.
> - Not having the financial ability to purchase a new vehicle every time new developments are implemented that reduce emissions

> **What can be done to facilitate the uptake of electric and other low- emission vehicles in Western Australia?**
> - For the ongoing fleet of fossil fuel requiring vehicles, it is essential that all decision making processes ensure that requirements to include recharge facilities are mandated in all new "fuel" outlets
> - Retaining and maintaining a well serviced and low consumption vehicle for as long as possible helps during the transition period

> **How can we further encourage use of public transport and active transport, such as walking and cycling?**

The Department of Water and Environmental Regulation is referred to the publication: *Walk WA: A Walking Strategy for Western Australia* (2007 – 2020) ([Walk WA](#)), produced by the then Premier's Physical Activity Taskforce and the Department for Planning and Infrastructure's Walking WA

Committee as a means of developing strategies to minimise physical inactivity. This document identifies many of the barriers to walking in cities that are relevant to this discussion.

Similarly, the [Walkability Audit Tool](#) produced by the Department of Transport (2011), considers the infrastructure and community requirements for assessment and needs of the walkability of neighbourhoods.

The environmental and health benefits associated with active transport should be integrated into decision-making regarding transport infrastructure.

It should also be recognised that there are many groups and individuals within the community for whom the use of public transport or cycling, does not meet their needs. These include people with limited mobility and some families. In more condensed regions, movement between target locations can be easily facilitated using these methods, however many areas do not have access to regular and accessible public transport or may be too distant/awkward to walk or cycle to destinations. Additionally it is not easy to transport weekly or bulky shopping in public transport and the costs of home delivery are usually greater than the costs of using owner transport.

Similarly, behavior and activities can be affected by weather conditions, including during disasters, and many forms of active transport are not amenable to a range of weather conditions for some groups of people.

➢ **How can we ensure that Western Australia isn't left behind in the transition to cleaner transportation?**
Many of the opportunities raised in the discussion paper could be implemented through legislation. This could include:

- Requiring lower emission requirements for vehicles registered in WA
- All public vehicles to meet specific emission standards

4 | Regional prosperity

There is significant potential for health impacts associated with a drying climate and diminishment of productive land for agriculture. Appropriate consideration should be given to the requirements of the agriculture sector, including towns and support services, and potential adverse health effects, including mental health effects during the transition to a "new normal".

5 | Waste reduction

Waste management has important implications for human health and well-being. Negative impacts can be arise from:
- Handling, disposal activities and emissions that can cause soil, water or air pollution
- Inadequately disposed of or untreated waste that may result in effects on populations surrounding the disposal area
- Nuisances caused by uncontrolled or mismanaged waste disposal that may result in environmental deterioration, local water and air pollution and littering

➢ **What areas can we target to further reduce greenhouse gas emissions from waste?**
It is essential that the broader community makes improved efforts to adhere to the waste hierarchy and further efforts to engage in the circular economy as indicated in the *Waste*

Avoidance and Resource Recovery Strategy 2030. This means that the Waste Authority and Regional and Local governments need to be given greater powers and support to implement the strategy, to educate the public and to provide more comprehensive and easily accessible mechanisms and infrastructure to divert waste from landfill.

➢ **What can households, businesses and government do to reduce their waste and compost more?**
Better waste reduction and improved diversion from landfill can be gained through:

- Giving the Waste Authority and Regional and Local governments greater powers and support to implement the Waste Strategy, to educate the public and to provide more comprehensive and easily accessible mechanisms and infrastructure to divert waste from landfill
- Regarding waste as a resource and educating the public appropriately
- Requiring all business sectors to have comprehensive waste management plans that address the Waste Strategy's objectives, including all responses to climate and other emergencies
- No new landfills including in regional areas unless all other avenues for addressing the waste hierarchy have been considered and found economically and technically unfeasible
- Providing incentives and penalties for waste management to all community sectors. Currently monetary incentives are provided for people who use less water and power through reductions in their fees. This can be applied through waste collection and the technology exists to charge for waste generated rather than just bin collections.
- Providing incentives for businesses to enter into public/private partnerships to treat specific waste streams
- Ensuring that new buildings, both public and private have the appropriate space and infrastructure to allow for appropriate waste segregation and collection

6 | Safe and healthy communities

➢ **What could be done to ensure your community is better prepared for possible climate impacts?**
The WHO Collaborating Centre for Health Impact Assessment provided considerable input on this topic to the Climate Health Inquiry WA. The key issues raised by The Centre were:

a.   Current knowledge and evaluation of climate risks

The Department of Health (DOH) and the WHO Collaborating Centre for Environmental Health Impact Assessment (WHOCC) undertook an Health Impact Assessment of the potential impacts from climate change on the population of Western Australia in 2007 (Published as: *Health impacts of climate change: Adaptation Strategies for Western Australia 2008*). This publication identifies a significant range of health impacts from climate change, their risks to health and wellbeing and an extensive range of adaptation strategies that can be implemented.

The Centres believes that the process and outcomes are valid and current however the implementation of the adaptation outcomes and the effectiveness of their implementation should be reviewed. New assessments may be required to incorporate local situations and environments (the original assessment was undertaken for the whole of the State), the current climate projections, the breadth of participants, the state of knowledge related to adaptations and the monitoring and evaluation mechanisms required.

b.   The Role of Government particularly the Department of Health

The World Health Organization produced the COP24 Special Report: health and climate change to assist with negotiations at COP24. It includes recommendations for governments to:

- Identify and promote actions that both cut carbon emissions and reduce air pollution, and by including specific commitments to cut emissions of Short Climate Pollutants
- Remove barriers to investment in health adaptation to climate change, with a focus on climate resilient health systems, and climate smart healthcare facilities
- Engage with the health community, civil society and health professionals, to help them to mobilize collectively to promote climate action and health co-benefits
- Promote the role of cities and sub-national governments in climate action benefiting health
- Formal monitoring and reporting of the health progress resulting from climate actions
- Inclusion of the health implications of mitigation and adaptation measures in economic and fiscal policy

Similarly, recommendations were provided to the Department of Health WA to enhance its:

- Preparedness and resilience in design and operations to respond to extreme weather events,
- Transition to a post-fossil fuel economy
- Activities in personnel and community education and advocacy around climate change policy and the health effects of climate change
- Lead by example by working with and assisting health professionals to embrace sustainable lifestyles and reduce their carbon footprints
- Collaboration with other sectors and research institutions

Additionally, the World Health Organization produced a publication in 2015: *Operational framework for building climate resilient health systems* which outlines the key features required to respond to the health impacts of climate change and provides potential mechanisms by which these can be achieved. It was recommended that consideration be given to implementation of the Framework

The main features of the framework are shown in Table 1:

Building Blocks	Components
1. Leadership and governance	1. Leadership and governance
2. Health workforce	2. Health workforce
3. Health information systems	3. Vulnerability, capacity and adaptation assessment 4. Integrated risk monitoring and early warning 5. Health and climate research
4. Essential medical products and technologies	6. Climate resilient and sustainable technologies and infrastructure
5. Service delivery	7. Management of environmental determinants of health 8. Climate-informed health programs 9. Emergency preparedness and management
6. Financing	10. Climate and health financing

Table 1 - Key Aspects WHO Operational framework for building climate resilient health systems

c.   Climate Change and Health and Health Impact Assessment

The application of HIA in WA in the near future will be affected by the regulations that are currently being developed as part of the public health assessments under the Public Health Act of 2016.

Public Health Assessments provide an opportunity to ensure that the health impacts associated with developments and their links to climate change in terms of production of greenhouse gases are considered. The ability of these assessments to consider how proposals also affect the community's ability to respond to health impacts of climate change is also critical. They can be used both within and external to the statutory process.

7 | Water security

Water is essential for life and therefore water security must be given a very high priority. There are many areas in WA that focus on water continuity and safety including the Department of Health, the CRC for Water Sensitive Cities, the CSIRO and others. We recommend that ongoing collaborations across stakeholders is maintained to ensure that health and well-being are given appropriate consideration in development decisions.

➢ **What can we do to encourage Western Australians to use water more efficiently and adapt to a drying climate?**
  - Further education targeting specific groups
  - Incentives and penalties for water use

➢ **Are there policies adopted in other jurisdictions we should consider for Western Australia?**
It is recognized that the many stakeholders in the water arena would have extensive knowledge of policies from other jurisdictions. The following may be of assistance as well.

  - The Sustainable Cities Water Index identifies indicates that the three elements to a sustainable water future are:
    - Resiliency: water stress, green space, water-related disaster risk, flood risk, water balance, water reserves.
    - Efficiency: leakage, water charges, service continuity, wastewater reuse, metered water, drinking water, sanitation.
    - Quality: drinking water, sanitation, treated wastewater, water-related disease, water pollution, threatened freshwater species.
  - The CSIRO publication Urban Water Sustainability indicates that the factors affecting water use are related to the systems in place. Water systems need to be efficient and use local sources of water as populations grow, water resources become fully allocated, and climate change reduces the supply of water from catchments and aquifers. It is important that the health and well-being of communities is linked to the sustainability of water systems across WA.

8 | Liveable towns and cities

The places where people live are also essential to their health and well-being and it is important that decision making processes use tools such as HIA to assist with recognition of any health implications.

➤ **What are the key barriers to improved energy efficiency for our built environment?**
  - See energy responses above

➤ **What information or tools do you require to improve energy efficiency in your household or workplace?**
  - Regular audits of energy use at workplaces and their publication
  - Education of workers on energy use and the ways this can be reduced
  - Implementation of systems to reduce energy use that do not rely on human behavior (automatic lights, computer and other equipment shut downs during periods of non-use etc)

➤ **What energy efficiency standards or disclosure measures do you support for our homes and offices and the appliances we use in them?**
  - Implementation of world's best practice standards on all imported and locally made appliances

➤ **How do you think climate change will affect the liveability of your neighbourhood or region?**
  This will be highly variable depending on the characteristics of the neighbourhood or region. Exposure, sensitivity and the ability to adapt to climate change will be influenced by the location and the characteristics of the community. Effective mitigation and adaptation strategies could be the difference between climate-sensitive and climate-resilient neighbourhoods.

  For example, an increase in extreme heat needs can be influenced by other climatic factors such as humidity, which varies between the north and south of the state, and also by the characteristics of the population and the natural and built environment. A hotter and drier climate may have impacts on levels of physical activity, mental health and the ability of local government, schools, sporting clubs and residents to maintain green open space. Heatwaves may also impact on energy and transport infrastructure.

  In rural areas, prolonged drought may have significant economic impacts which can threaten the viability of towns. Similarly, the ability of remote and regional areas to respond to emergency events could have significant impacts on the ability of communities to thrive. Coastal regions will need to consider the impact of sea-level increase and storm surges on infrastructure.

  In summary, work needs to be undertaken with different communities to better understand how liveability and health will be affected by climate change and to develop adaptation plans to address these. These will need to take into account other variables such as an ageing population. Opportunities to improve liveability and health through climate change mitigation and adaptation should be supported by regulatory and non-regulatory mechanisms.

➤ **How can we improve the retention of vegetation, particularly tree canopy, in our cities and suburbs**
  This is critical with respect to a warming climate and projections for more frequent and severe heatwaves and days over 35°C. We should move beyond 'improving retention' to a significant increase in tree canopy in cities and suburbs. The potential health and liveability implications that may occur as a result of the combination of climate change and urban heat island effects

must be addressed as part of urban planning and climate change adaptation. Regulations should be imposed to ensure that mature trees are protected and that trees are required as part of the development process. Any arguments about the cost of implementation must be measured against the benefits that tree canopy provides and the long-term health and economic costs of creating areas that are even more vulnerable to extreme heat.

This is particularly important with respect to areas with urban infill targets and the trend to smaller block sizes. Action must address trees on private as well as public land. Most tree losses in suburban areas occur on private land and unless this trend is reversed, tree canopy is likely to decrease despite significant tree retention and planting programs by local governments on public land. There should be requirements to retain mature trees wherever possible and to include a minimum number of trees. Policies or regulations should be introduced to stem the common practice of whole-scale tree clearing of residential development blocks. Some local governments have been quite active in this regard, however, a coordinated approach is required to ensure that tree canopy is well-managed in all areas.

On a related note, the [State Emergency Management Plan for Heatwaves](#) states that heatwaves are the single biggest cause of deaths in Australia from natural hazards. Despite the added risk that climate change and an ageing population will create, the [State Planning Policy for Natural Hazards and Disasters](#) only refers to 'floods, cyclones, storm surge, severe storms, landslide, bush fires and earthquakes'. Given the clear and increasing health risks associated with heatwaves in WA, and the clear potential for the built environment to alter that level of risk, consideration should be given to the inclusion of heatwaves in the State Planning Policy for Natural Hazards and Disasters. This could include the role of tree canopy, but would also extend to other urban heat island mitigation strategies.

11 | Strengthening adaptive capacity

We are very supportive of all the opportunities presented in the issues paper and hope that consideration is given to ensuring these are implemented through, if necessary, statutory means.

➢ **What are the main barriers to the adoption of effective climate change adaptation?**
The adoption of effective climate change adaptation will depend firstly on the extent and nature of climate change. It should be recognised that for many impacts, there will be limits to adaptation and that the cost and effectiveness of adaptation will tend to increase as climate change increases. Other barriers include:
- Political will at national, state and local level (and politicization of climate change)
- Lack of understanding regarding the potential scale and nature of climate change impacts
- Cost of adaptation strategies
- Gaps in scientific and the technological knowledge
- Capacity in terms of infrastructure, resources and people
- Lack of integration between different sectors