



Climate Change

Climate change is no longer just a concept

How climate change could affect sport and recreation now and in the future



Department of Sport and Recreation
Government of Western Australia

December 2007



Acknowledgements

Dr. D. Deeley and M. Casserly, Parks and Leisure Australia,
Western Australian Branch.

Disclaimer

This resource contains comments of a general nature only and is not intended to be relied upon as a substitute for professional advice. No responsibility will be accepted by the Department of Sport and Recreation for loss occasioned to any person doing anything as a result of any material in this resource.

Enquiries or comments may be directed to:

Greg McLennan
Senior Policy Officer
Department of Sport and Recreation
P.O. Box 329 Leederville WA 6903
or
info@dsr.wa.gov.au
www.dsr.wa.gov.au

December 2007
ISBN: 978-0-9804210-1-9

This document has been printed on 100% recycled paper.

Climate Change

Climate change is no longer just a concept.

Climate change was recognised as a significant challenge in 'Strategic Directions 4 — for the Western Australian Sport and Recreation Industry (2006–2010)'. The document identified the following challenge: *Sport and recreation interests must contribute to the assessment of the implication of climate change and its consequences, especially as they impact on the active lifestyles of Western Australians.*¹

There is now sufficient evidence available to governments and the community to seriously consider the implications of our changing weather patterns.

Indeed, the implications of climate change are bigger than we think.

While some people think that climate change is a problem for scientists to fix, the reality is that climate change is already forcing us to think differently about the simplest aspects of our lives.

This framework will help you to understand the implications of climate change and take you through a series of steps to help you and your organisation consider how climate change will affect sport and recreation in Western Australia.

1. Department of Sport and Recreation. (2006). *Strategic directions for Western Australian sport and recreation industry (2006-2010)*. Perth, Western Australia: Government of Western Australia.

What are the big impacts of climate change?

Experts predict Western Australia's climate will change in a number of major ways over the next 30 years.

- WA will be hotter, particularly inland regions, by between half a degree and two degrees Celsius.
- WA will be drier, particularly in the South West.
- More intense droughts, heatwaves and fires.
- More intense storms, floods, rainfall events and tropical cyclones.
- Sea levels will rise.

And for sport and recreation this means ...

Reduced rainfall and increased evaporation

Direct Impacts

- Reduced irrigation of dedicated sportsgrounds and public open space.
- Increased evaporation requiring more water for existing turf.
- Reduced playing surface quality.
- Damage to facilities such as tennis courts and cricket pitches.
- Forced, permanent or temporary closure of facilities.
- Increased evaporation at open water facilities.
- Reduced access to shared facilities.
- Reduced flushing of waterways.
- More potentially harmful algal blooms limiting direct contact recreational water pursuits.
- Adverse impacts on the diversity of natural bushland, particularly for water-sensitive species.

Indirect Impacts

- Alternative water supplies become more expensive.
- More frequent monitoring and reporting of facilities, water-use efficiencies.
- Greater reliance on user-pays for facilities and services.
- Compromised fitness-related health programs.
- Reduced opportunity for freshwater-based recreational pursuits.
- Increased coral bleaching and reef death affecting recreational diving.





Higher temperatures

Direct Impacts

- Limitations on school-based physical education programs or more indoor programs.
- More frequent heat stress-related events.
- Tropical zone marine stingers species may extend southward.

Indirect Impacts

- Increased demand for water-based recreational pursuits.
- Increased exposure to UV radiation.
- Increased exposure to disease-causing agents in recreational waters.
- Reduced participation in outdoor fitness-related health initiatives.
- Summer daytime events rescheduled to evening fixtures.
- Funding demands for sports field lighting and air conditioned indoor facilities.
- Financial stress on poorer clubs due to the cost of night events.
- Increased respiratory and cardiovascular diseases.
- Increased exposure to vector-borne diseases such as malaria.
- Increased risk of bushfires in natural recreation areas (parks and bushland).

More frequent and extreme natural events

Direct Impacts

- More frequent and severe floods, fires and cyclones.
- Greater risk of storm or fire damage to facilities and infrastructure.
- Significant financial implications for ticketed major events.
- Increased flood risk for facilities located within multiple-use corridors.
- Increased risk of damage to coastal facilities.
- 100-year flood models may underestimate the likelihood of extreme events.
- Potential structural engineering issues from extreme events.
- Potential geotechnical problems from extracting too much groundwater.

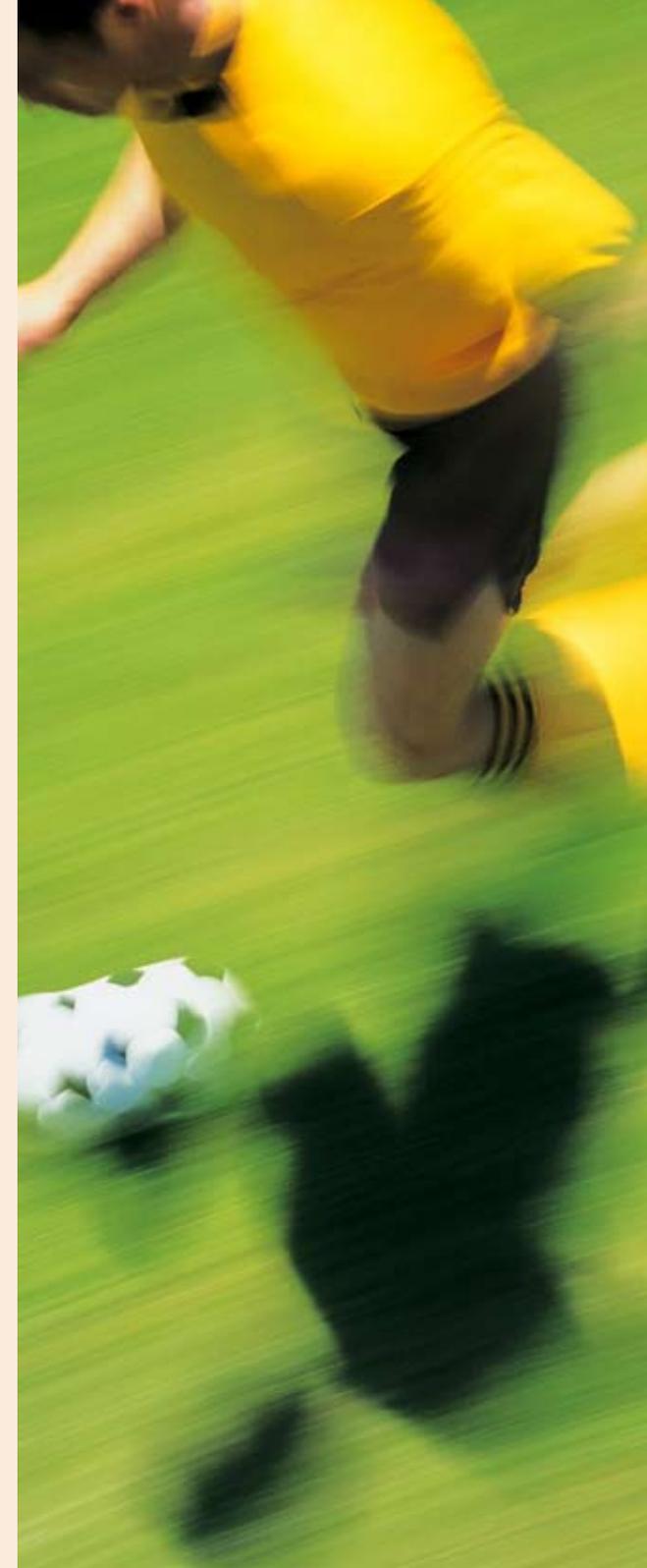
Indirect Impacts

- Difficulty in obtaining extreme event insurance.
- Increased insurance costs may be prohibitive for individual club or group schemes.
- Greater requirement for recreation centres to provide emergency facilities during extreme weather events.
- Disruption to electricity supplies during extreme events.
- Economic stress for facilities managers through loss of income and assets.

Sea level rise

Direct Impacts

- Dislocation of facilities and communities in low-lying areas.
- Greater risk of storm surge in low-lying areas.
- Increased mosquito nuisance in low-lying areas.
- Adverse impacts on freshwater ecosystems.
- Increased beach erosion from changing wave activity making swimming and surfing dangerous.



But wait ... there's more ...

There may be additional impacts, threats and risks for our society and culture.

- The use of water to maintain public open space is seen as discretionary in other States. This is a challenge to government policies in relation to participation, fitness and obesity management. The risk is that sport, leisure and recreational sectors will remain outside the decision making process of larger planning and water allocation agencies.
- Land developers may use water shortages to argue for a reduction in the proportion of open space required under planning guidelines in favour of greater residential lot yield when public open space is a mitigation strategy.
- There is the potential to lose experienced staff during temporary and permanent closures of facilities.
- Recreation tourism or major sporting competitions may be restricted to less affected regions.
- Unfriendly competition
 - increased competition for land
 - increased competition for access to limited facilities
 - greater fragmentation of public open spaces
 - fewer reserves for walking

- Water shortages from climate change may be an immediate and serious threat to sport and recreation generally.
- Higher temperatures and more frequent extreme weather events need to be considered in a climate change adaptation strategy.
- Extreme weather event early warning systems may be needed to alert facilities managers, particularly for ticketed events where the economic impact could be significant.
- Contingency planning may be needed to lessen the impacts of extreme weather events.

Vulnerable communities

- Higher temperatures and extreme weather are likely to have a disproportionate impact on elderly, infirmed and very young people.
- Regional communities are likely to be more severely impacted by extreme weather events than those in the South West.
- The South West is likely to be more adversely impacted by emerging water shortages than northern communities that have learned to live with water shortages.

What can you do?

Strategic Responses

- Acknowledge the State Government's recognition that sport and recreation are central to Western Australia's unique lifestyle.²
- Develop and promote a sport and recreation industry framework for climate change adaptation using an adaptive management approach.
- As an industry engage in wider policy development efforts to respond and adapt to climate change impacts.

Operational Responses

- Sport and recreation organisations must be informed on climate change impacts that will affect the industry or their programs and develop strategies to respond and adapt.
- Local governments must continue to recognise the crucial social capital engendered by sport and recreation organisations and provide leadership in awareness raising, education and change management to support clubs and associations.
- Share best practice examples.

2. Department of Premier and Cabinet. (2006). *Better planning: better futures — a framework for the strategic management of the Western Australian public sector*. Perth, Western Australia: Government of Western Australia.





The framework will take you through a series of steps to help you and your organisation to consider how climate change will affect sport and recreation in Western Australia.

A framework to assess and respond to the impacts of climate change

Below is a strategic framework that follows a logical sequence to help at an industry sector or organisational level to respond to climate change.

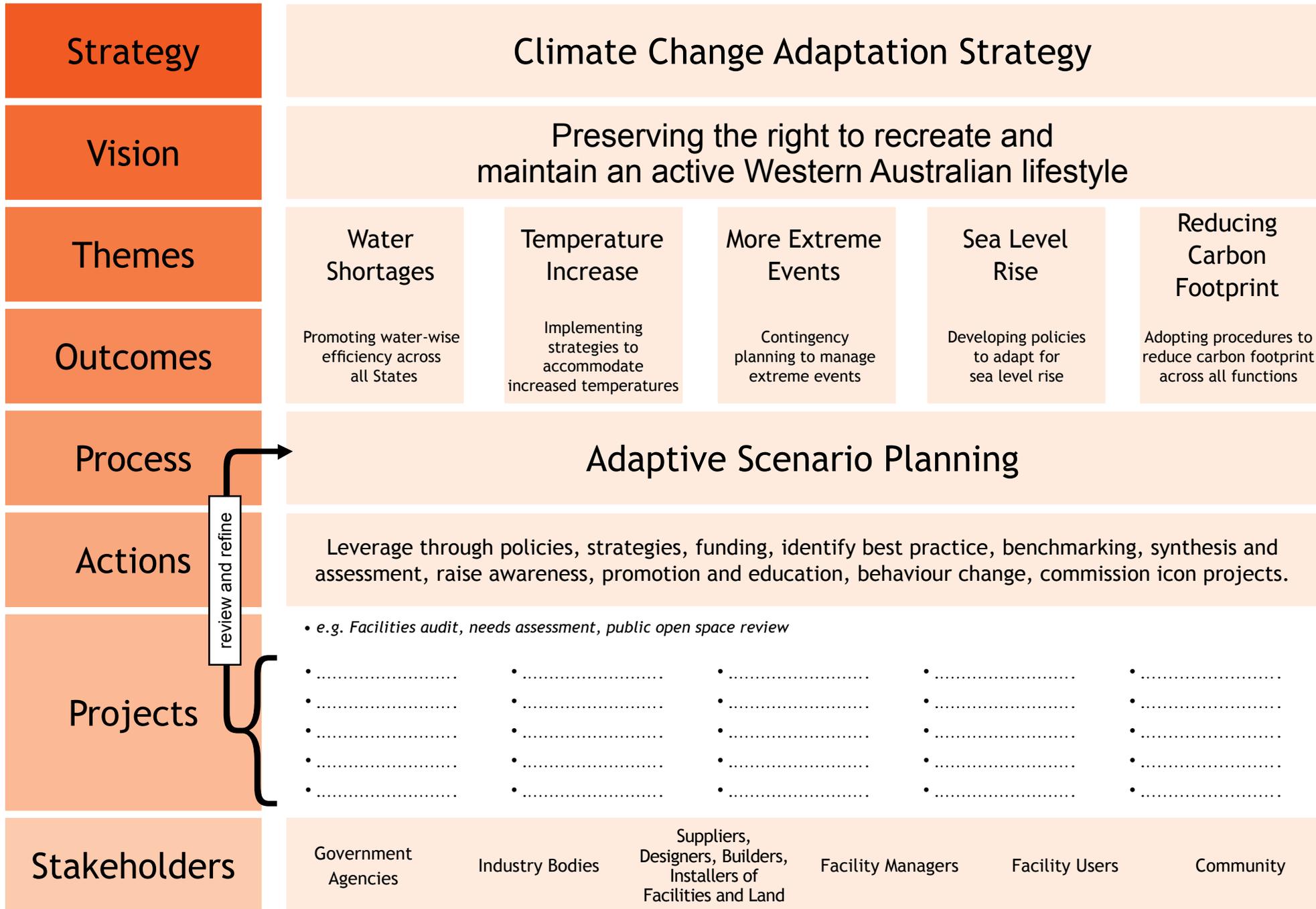
Strategy	Climate change adaptation strategy
Vision	Preserving the right to recreate and maintain an active Western Australian lifestyle
Themes	The five main climate change themes
Outcomes	A range of focused outcomes for each theme
Process	A process of scenario planning with evaluation and feedback
Actions	Strategic, policy, benchmarking and awareness raising actions
Projects	Integrated suite of metropolitan and regional projects
Stakeholders	All levels of government, parks, leisure, sport and recreational sectors

The framework uses a series of integrated metropolitan and regional projects and actions across a range of climate change themes to develop appropriate responses.

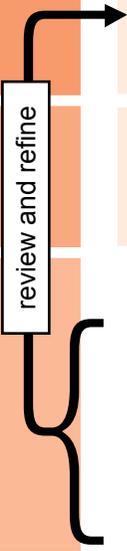
A process known as adaptive scenario planning will document the outcomes of the various projects and evaluate their success. Over time, a suite of responses to climate change applicable across Western Australia will be available for the industry to apply.

This systematic approach will allow a timely review of the resource implications of actions undertaken within the framework. It will facilitate the orderly provision of resources together with a clear identification of contingencies required should worse-than-predicted climate change impacts be experienced.





review and refine



Conclusions

The emerging influence of climate change may affect low-cost, regular community-based sport and recreation participation.

A further cost may be a diminished sense of community as a result of a lack of physical activity and reduced involvement of people in sport and recreation clubs.

The only certainty associated with climate change is that there will be greater uncertainty.

Climate change will be accompanied by a complex range of direct and indirect impacts with many unknown variables necessitating a range of socio-cultural/community responses.

The best model for strategic management in the face of complexity and uncertainty will be an industry framework for climate change.

Early intervention through strategies, policies and actions will provide cost-effective solutions. The industry must work in partnership to ensure these strategies work together and do not compete.

It is vital that urban green spaces are recognised as underpinning the very fabric of our sport, leisure and recreational industries and that water used to maintain them is considered to be necessary. Green spaces also mitigate the impacts of climate change.

As industry practitioners, it is essential that we demonstrate maximum water-use efficiency across all sectors and develop and maintain a culture of excellence and continuous improvement across all industry sectors.





Department of Sport and Recreation
Government of Western Australia

www.dsr.wa.gov.au

METROPOLITAN

246 Vincent Street, Leederville WA 6007
PO Box 329, Leederville WA 6903
Telephone (08) 9492 9700
Facsimile (08) 9492 9711
Email info@dsr.wa.gov.au

GASCOYNE

4 Francis Street, Carnarvon
PO Box 140, Carnarvon WA 6701
Telephone (08) 9941 0900
Facsimile (08) 9941 0999
Email gascoyne@dsr.wa.gov.au

GOLDFIELDS

106 Hannan Street, Kalgoorlie
PO Box 1036, Kalgoorlie WA 6430
Telephone (08) 9022 5800
Facsimile (08) 9022 5899
Email goldfields@dsr.wa.gov.au

GREAT SOUTHERN

22 Collie Street
Albany WA 6330
Telephone (08) 9892 0100
Facsimile (08) 9892 0199
Email greatsouthern@dsr.wa.gov.au

KIMBERLEY

Broome

Unit 2, 23 Coghlan Street
PO Box 1476, Broome WA 6725
Telephone (08) 9492 9650
Facsimile (08) 9192 2436
Email kimberley@dsr.wa.gov.au

Kununurra

Government Offices
Cnr Konkerberry Drive
and Messmate Way, Kununurra
PO Box 1127, Kununurra WA 6743
Telephone (08) 9166 4900
Facsimile (08) 9166 4999
Email kimberley@dsr.wa.gov.au

MID WEST

Mid West Sports House
77 Marine Terrace, Geraldton
PO Box 135, Geraldton WA 6531
Telephone (08) 9956 2100
Facsimile (08) 9956 2199
Email midwest@dsr.wa.gov.au

PEEL

Suite 3, The Endeavour Centre
94 Mandurah Terrace, Mandurah
PO Box 1445, Mandurah WA 6210
Telephone (08) 9550 3100
Facsimile (08) 9550 3199
Email peel@dsr.wa.gov.au

PILBARA

Unit 2, 3813 Balmoral Road, Karratha
PO Box 941, Karratha WA 6714
Telephone (08) 9182 2100
Facsimile (08) 9182 2199
Email pilbara@dsr.wa.gov.au

SOUTH WEST

80A Blair Street, Bunbury
PO Box 2662, Bunbury WA 6231
Telephone (08) 9792 6900
Facsimile (08) 9792 6999
Email southwest@dsr.wa.gov.au

WHEATBELT

Northam

Mclver House
297 Fitzgerald Street, Northam
PO Box 55, Northam WA 6401
Telephone (08) 9690 2400
Facsimile (08) 9690 2499
Email wheatbelt@dsr.wa.gov.au

Narrogin

John Higgins Centre
Clayton Road, Narrogin
PO Box 54, Narrogin WA 6312
Telephone (08) 9890 0464
Facsimile (08) 9890 0499
Email wheatbelt@dsr.wa.gov.au