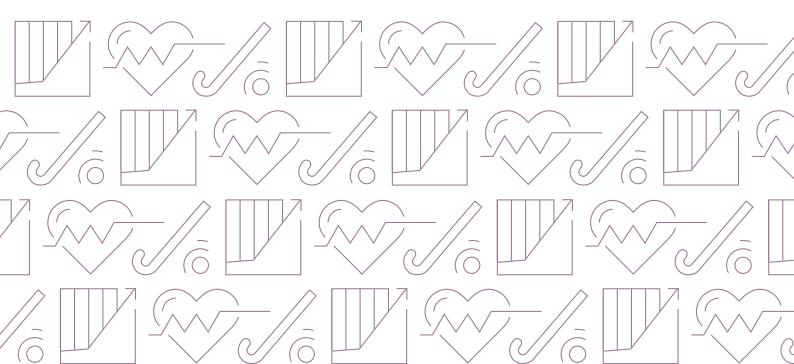


HEAT, HUMANITY, AND THE HOCKEY STICK: CLIMATE CHANGE AND SPORT IN CANBERRA

September 2019



Acknowledgements

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CONTRIBUTIONS AND APPRECIATION

This Issues Paper has been prepared in consultation with, and consideration of, Australian Government agencies, ACT Government directorates, academics, industry experts, not for profit organisations, community groups and sport organisations.

This is represented in the following list:

























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Issue

This Issues Paper has been developed to inform the ACT Commissioner for Sustainability and the Environment (the Commissioner) on the following matter:

How can government, industry and the community address climate change impacts in sporting settings? It focuses specifically on:

- climate change as it relates to sport and active recreation in Canberra, and
- the role of government, the sport industry, and community in climate change adaptation and mitigation.

This issue links to the Office's 2017 Implementation Status Report on ACT's Climate Change Policy and the 2019 State of the Environment Report. It relates directly to the statutory remit of the Office.

Purpose

The purpose of this paper is to:

- inform the Commissioner of the performance status of the ACT,
- raise awareness and understanding in the community, and
- engage and motivate key stakeholders to take action.

Statutory relationships of Issues Papers

The Commissioner is an independent statutory position established by the *Commissioner for Sustainability and the Environment Act 1993*. The Commissioner undertakes the following functions and activities:

- Investigating complaints about the management of the environment by the Territory or a territory authority; and issues relating to ecologically sustainable development in the ACT;
- Conduct investigations as directed by the Minister;
- Conduct on the Commissioner's own initiative, investigations into actions of an agency where those actions would have a substantial impact on the environment of the ACT; and
- Deliver State of the Environment Reports.

The Commissioner must take into account the objects of the Act outlined in Section 2(B). These are:

- ensure regular and consistent reporting on matters relating to the condition and management of the environment in the Territory; and
- ensure regular reporting on progress towards ecologically sustainable development by the Territory and Territory authorities; and
- encourage decision making that facilitates ecologically sustainable development; and
- enhance knowledge and understanding of issues relating to ecologically sustainable development and the environment; and
- encourage sound environmental practices and procedures to be adopted by the Territory and Territory authorities as a basis for ecologically sustainable development.

Under Section 12 (1)(c) of the Commissioner for Sustainability and the Environment Act 1993, one of the Commissioner's functions is "conducting, on the Commissioner's own initiative, investigations into actions of an agency where those actions would have a substantial impact on the environment of the ACT."

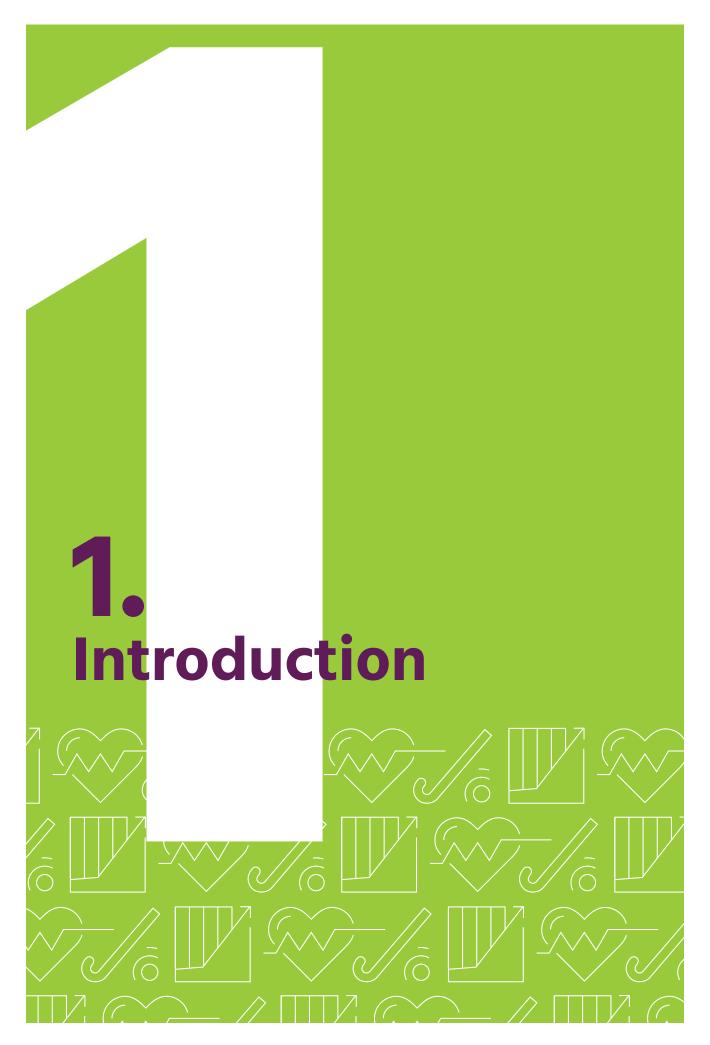
In Section 19 (2)(e)(ii), the Commissioner must give a State of Environment Report to the Minister every four years that must include *any other matters, whether or not occurring within the triennium to which the report relates, that*—the commissioner considers relevant.

Issues Papers are linked to these statutory requirements.

Issues Papers are a preliminary exploration into matters of environmental significant to the ACT, informing the Commissioner and/or Minister on matters to be considered for investigation.

There is no statutory requirement for Issues Papers to be tabled in the Legislative Assembly, or for recommendations to be presented. This is only required if the matter is elevated to an investigation.

l https://www.envcomm.act.gov.au/about/our_role



This call to action reflects the climate change, social health, and economic concerns expressed in many recent reports.³ ⁴ ⁵ ⁶ ⁷ ⁸

Climate change is deleterious to human health. Participation in physical activity is good for human health. Sport provides a useful metaphor for this struggle.

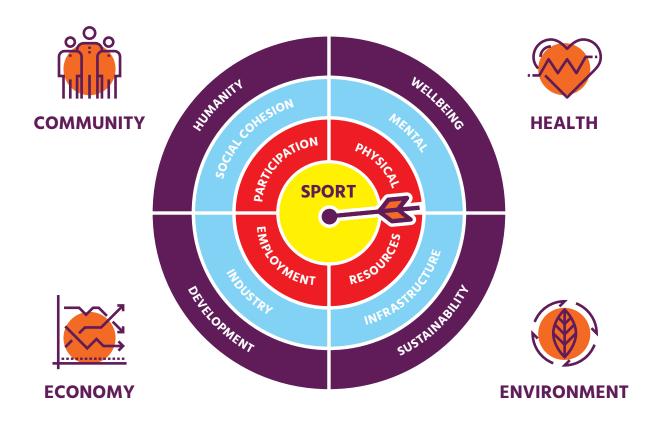
Extraordinary numbers of people engage with sport and active recreation in Australia and are exposed to the risks. Administrators, many of which are volunteers, are largely accountable for these risks.

Canberra is Australia's most active sporting city. This Issues Paper explores heat and humanity, using sport and active recreation as the lens in this jurisdiction.

Participation levels, social capital, and the built and natural environment are adversely affected by climate change.

Actions that mitigate climate change impacts, build resilience, or promote adaptation through sport will have many co-benefits.¹⁰ These have been outlined here:

CO-BENEFITS OF SPORT AND RECREATION AND CLIMATE CHANGE RISKS



© Office of the Commissioner for Sustainability and the Environment 2019

² https://climateemergencydeclaration.org/about/

³ World Health Organisation, Climate change and human health, https://www.who.int/globalchange/summary/en/

⁴ United Nations Framework Convention on Climate Change, Human health and adaptation: understanding climate impacts on health and opportunities for action https://www.who.int/globalchange/summary/en/

⁵ Intergovernmental Panel on Climate Change Special Report, Global Warming of 1.5 degrees Celsius https://www.ipcc.ch/sr15/;

⁶ Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services, Nature's Dangerous Decline 'Unprecedented'; Species Extinction Rates https://www.un.org/sustainabledevelopment/blog/2019/05/nature-decline-unprecedented-report/

⁷ https://www.ipbes.net/news/Media-Release-Global-Assessment

 $^{8 \}qquad \hbox{International Rivers reports https://www.international rivers.org/publications}.$

 $^{9 \}qquad https://www.sport.act.gov.au/__data/assets/pdf_file/0009/754245/150727_S-and-R_Statement_of_Intent_web.pdf$

 $^{10 \}quad \text{https://sustainable.unimelb.edu.au/_data/assets/pdf_file/0012/3087786/Australias_Clean_Economy_MSSI_Issues_Paper12.pdf}$

"With its global reach, universal appeal and the power to inspire and influence millions of people around the globe, sport is uniquely placed to drive global climate action and encourage crowds to join in."

Prince Albert II, Chair of the International Olympic Committee¹¹

1.1 Sport and active recreation in Canberra

Across Australia it is estimated that 17 million adults participate in physical activity every year.¹²

Activity ranges from casual bushwalking to elite sporting competitions. Spectator sports are also critical to the sporting economy, with 7.5 million Australians attending a sporting event every year.¹³

Canberra is Australia's most active city. ¹⁴ This level of activity is serviced by city parks, reserves, and suburban and elite sporting facilities. In the last 12 months, 91.4 per cent of Canberrans have participated in some form of physical activity. ¹⁵



View of Canberra from Mount Ainslie bush walk. Source: https://visitcanberra.com.au/articles/101/a-visitors-guide-the-ultimate-canberra-bucket-list

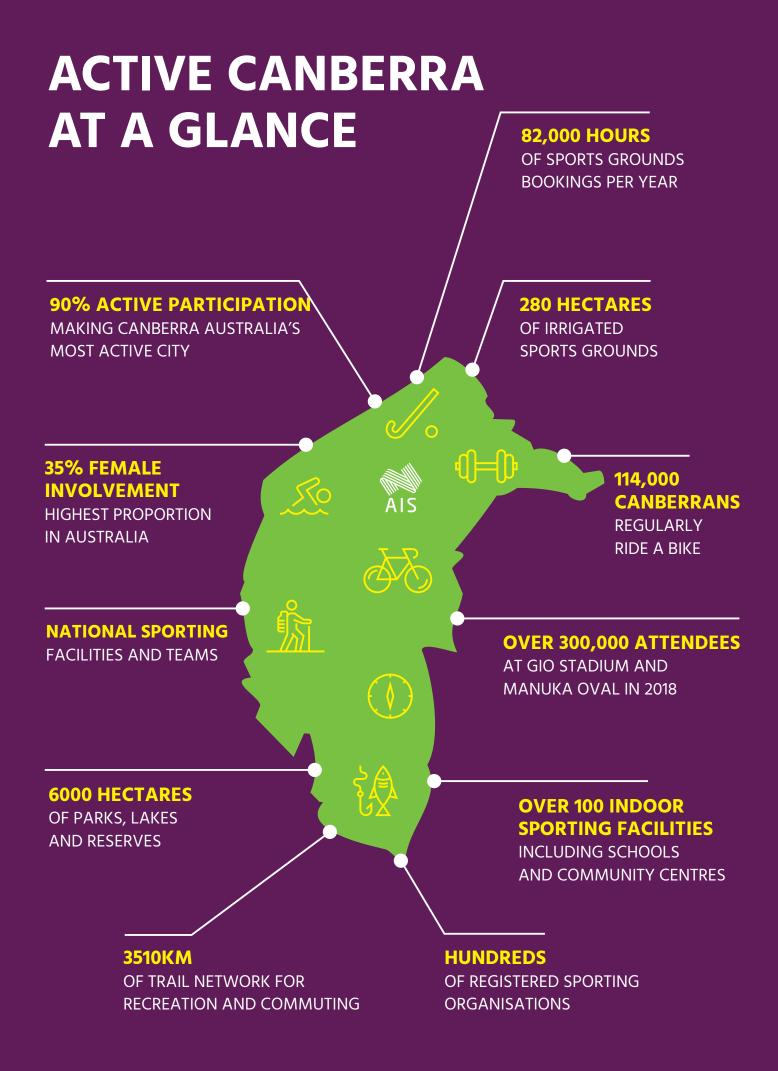
 $^{11 \}quad https://unfccc.int/sites/default/files/resource/UN-Climate-Change-Annual-Report-2018.pdf \\$

¹² https://www.ausport.gov.au/supporting/nso

¹³ http://www.climateinstitute.org.au/verve/_resources/Sport_and_climate.pdf

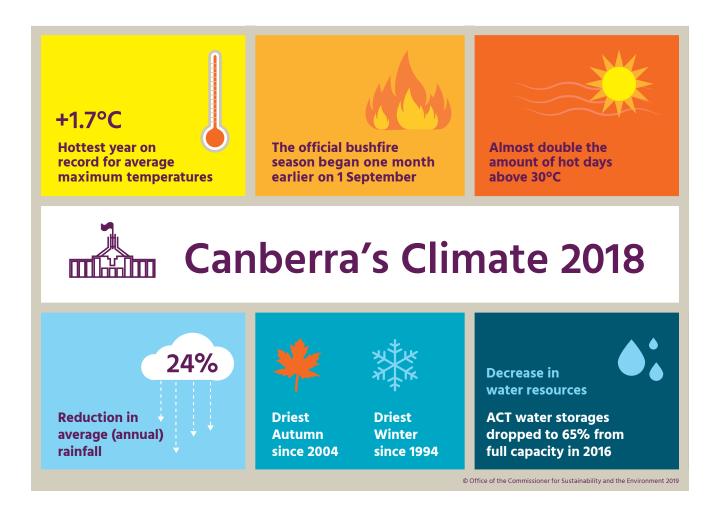
 $^{14 \}quad https://www.sport.act.gov.au/__data/assets/pdf_file/0009/754245/150727_S-and-R_Statement_of_Intent_web.pdf$

¹⁵ https://www.accesscanberra.act.gov.au/app/answers/detail/a_id/2246/~/healthy-weight-initiative



1.2 Canberra heat and health

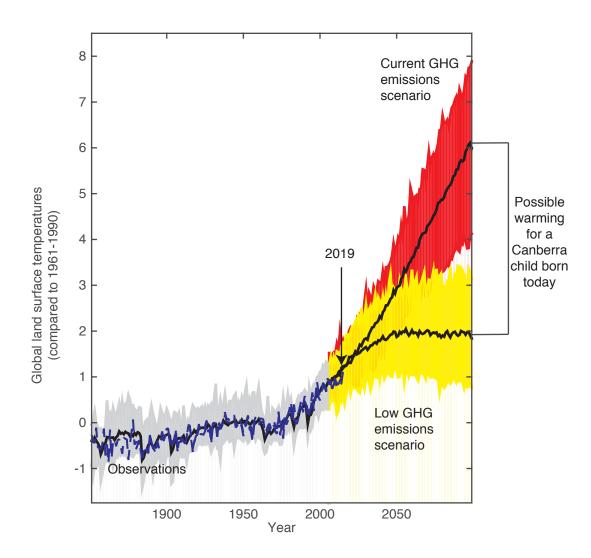
Canberra's 2018 exposure to climate change looked like this:



Climate change is likely to produce:

- higher maximum temperatures hotter days, hotter evenings, and hotter nights,
- more bushfire days rated as high, extreme, and catastrophic across a longer timeframe,
- · increasing heatwaves and extreme events,

- · higher minimum temperatures,
- changes in frequency of frost occurrence,
- decreases in snow cover by up to 40 per cent,
- · decreases in rainfall, particularly in winter, and
- increases in drought frequency and severity.



"It is heatwaves, not bushfires or floods, that are Australia's most deadly disasters. Extreme heat pushes our ability to cope, leading to increased hospital admissions and deaths. Extreme heat pushes our agricultural and manufacturing industries and stresses our native ecosystems like the Great Barrier Reef. Extreme heat also occurs with enhanced bushfire and drought risks that compound impacts."

Dr Sophie Lewis, 2019 ACT Scientist of the Year¹⁷

¹⁶ Projections provided by Dr Sophie Lewis, climate scientist, School of Science UNSW Canberra

¹⁷ https://sophieclewis.com/2019/08/11/my-journey-and-where-i-am-now/

Climate change will impact people in sporting settings. Heat, water availability, wind speed, humidity, increased bushfires and reduced air quality may lead to:

- · decreased or more sporadic participation rates,
- disengagement, inactivity and associated health impacts and costs,
- an increased number and seriousness of injuries due to pollution asthma, muscle and bone injuries, heat exhaustion, hyperthermia, and heat stroke, and
- people pursuing different sport and physical recreation opportunities.

Climate change may impact infrastructure and the sports economy in the following ways:

- present challenges to use and management of sporting facilities,
- damage and destruction of facilities, including surfaces and infrastructure,
- increased maintenance costs,

- reduced revenue resulting from delays and cancellations,
- an increased number of insurance claims and costs implications of litigation, and
- innovative design solutions for sport and recreation infrastructure.

The insurer of last resort will often be government or the owner of public sporting grounds. 18 19

To promote sustainable climate-ready practices, to stay competitive and to continue to engage the community for health, social, cultural and other co-benefits, the sport sector – including government, industry, and the volunteer cohort – will need to lead, adapt, adjust, and harness industry influence.



Competition hockey game in Canberra. Source: http://www.hockeyact.org.au/News/Photo-Gallery

 $^{18 \}quad \text{https://www.nccarf.edu.au/content/economics-economics-government-insurer-last-resort-climate-change-adaptation}; \\$

https://www.pc.gov.au/inquiries/completed/disaster-funding/submissions/submissions-test/submission-counter/sub001-disaster-funding-attachment.pdf; https://www.abc.net.au/news/2019-02-06/could-climate-change-make-australia-uninsurable/10783490?pfmredir_-sm



2.1 Issues

- Climate change presents real challenges to the community's capacity to continue to enjoy sport and active recreation. Government, industry, and community all have a role to play in responding effectively.
- 2. Key areas for government, industry, and community climate action include:
 - managing participation,
 - infrastructure, design, and construction, and sport governance across the whole sector.
- 3. Beyond 2020, there is no Canberra-specific sport and active recreation strategy with future reach essential to meet the challenges of climate change.
- 4. Federal support will be essential to drive appropriate action on sport and climate change. One of the appropriate national vehicles is the Australian Government's National Sport Plan, Sport 2030. This Plan does not presently provide the necessary leadership and guidance.

Business also has a role, particularly in respect of insurance and legal liability. Climate change responses, in sporting activity as elsewhere, will be multiscale and involve multiple players.

- 5. All sport and active recreation will be affected by climate change in different ways. Variability across sport, including organisation size, activity, location, governance structure, and facility requirements, add to the complexity of the issues.
- Limitations to availability of data on health, wellbeing, and mortality in relation to environmental factors impacts the capacity to plan and adapt to the climate change issues which have emerged.
- 7. Funding limitations often require sport organisations to prioritise limited resources towards core business activities, limiting capacity for some segments of the industry to look at innovations or change solutions to address broader societal issues.



¹ https://www.sportaus.gov.au/nationalsportplan/home/featured/download/Sport_2030_-_National_Sport_Plan_-_2018.pdf

2.2 Opportunities

GOVERNMENT OPPORTUNITIES

- 1. National commitment to the UNFCCC Sports for Climate Action Framework and consideration to incentive industry commitment.
- Provide leadership in climate action by raising awareness, education and change management.
- 3. Develop a sport and active recreation industry framework for climate change adaptation using an adaptive management approach.
- Inform sport organisations and active communities about climate change impacts.
- Assist sport organisations and active communities to develop climate ready strategies to respond and adapt.
- Deploy climate change research and policy initiatives to respond and adapt to climate change impacts in sporting and active recreation settings.
- Design and communicate best practice examples.
- Adaptive scenario planning to deal with extreme events and the associated health, economic, and tourism risks.
- Exploring the potential for sustainable procurement, building practices, urban heat island responses in all sporting environments.
- 10. Support for the crucial social capital engendered by sport and active recreation organisations.
- 11. Exploring the development of a Climate Action Toolkit for use across sport organisations and active communities.

INDUSTRY OPPORTUNITIES

- 1. Pledge commitment to the 2018 UNFCCC Sport for Climate Action Framework by:
 - Adopting systematic sustainable practice and environmental responsibility.
 - The comprehensive incorporation of climate change and its impacts into organisational strategy across operations, events, procurement, infrastructure and communications.
- Partner with government to design and communicate best practice examples.

COMMUNITY OPPORTUNITIES

- 1. Prioritise sustainability and climate action as a core organisational pillar.
- Utilise the Climate Action Toolkit and commit, plan, do, review.
- Celebrate climate action achievements recognise volunteers, promote for grant applications, funding opportunities, and cost saving measures.

12

13











SUSTAINABLE BEST PRACTICE - NOT AN ADD ON

Every sport has the potential to embed sustainable practice into its operations. The UNFCCC Framework provides a guide as to how this might be done. World Sailing provides a demonstration site.

In accordance with its pledge to become carbon neutral by 2022 and reduce carbon output by 50 per cent by 2024, World Sailing has moved to phase out combustion engine-powered support boats, one of the sport's biggest carbon emitters.

"It's an ongoing process but we have prioritised the areas where we can have the greatest impact first. It's very strategic and there's a clear methodology in place rather than just random ad-hoc targets."

Dan Reading, Sustainability Programme Manager, World Sailing³



 $Australian\ female\ sailors\ in\ the\ surf.\ Source:\ http://11 th hour racing\ org/2018-youth-sailing-world-championships-sustainability-report/$

 $^{2 \}qquad https://unfccc.int/climate-action/sectoral-engagement/sports-for-climate-action\\$

 $^{3 \\ \}text{http://www.sustainableinnovationinsport.org/resources/speaker-interviews/interview-with-dan-reading-sustainableinnovationinsport.org/resources/speaker-interviews/interview-with-dan-reading-sustainableinnovationinsport.org/resources/speaker-interviews/interview-with-dan-reading-sustainableinnovationinsport.org/resources/speaker-interviews/interview-with-dan-reading-sustainableinnovationinsport.org/resources/speaker-interviews/interview-with-dan-reading-sustainableinnovationinsport.org/resources/speaker-interviews/interview-with-dan-reading-sustainableinnovationinsport.org/resources/speaker-interviews/interview-with-dan-reading-sustainableinnovationinsport.org/resources/speaker-interviews/interview-with-dan-reading-sustainableinnovationinsport.org/resources/speaker-interviews/interview-with-dan-reading-sustainableinnovationinsport.org/resources/speaker-interviews/interview-with-dan-reading-sustainableinnovationinsport.org/resources/speaker-interviews/interview-with-dan-reading-speaker-interview-with-dan-readin$



There are very clear benefits to people engaging in sport and active recreation. As outlined previously, the climate conditions, projections and described implications of heat on humans is obvious. The co-benefits of climate change adaptation and mitigation activities represent a crucial health opportunity for the nation.¹

Few, if any, sports are insulated against the accelerating consequences of climate change. No participants will be immune from the consequences of climate change – individually or as a function of impacts on the built environment.

Indoor sports may provide an outlet if infrastructure is provided, but only if climate change implications have been considered in establishing sporting facilities. E-sports may also provide a competitive opportunity, but not without detraction to engagement with the natural environment, decreased physical activity and health outcomes.

Reducing illnesses and deaths associated with air pollution and sedentary lifestyles through participation in sport and active recreation will contribute to improved life expectancy and a reduction in the burden on health care systems. These co-benefits serve as further evidence that climate change action should not be viewed as a cost, but rather as an opportunity to reduce the social and economic burden of ill health.²

3.1 Heat risks to humans

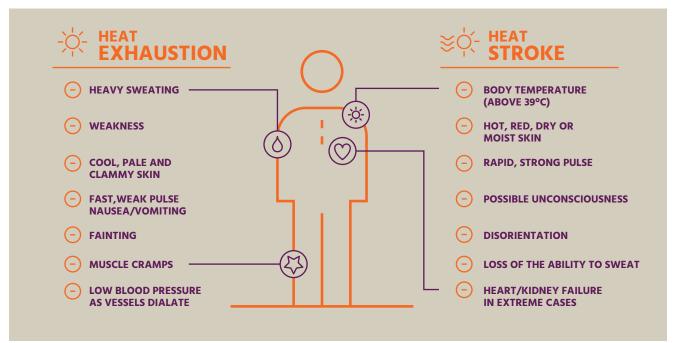
During extreme heat, inability to avoid heat exposure is risky for everyone. Vulnerability is heightened amongst people with certain pre-existing health issues, particularly those with impaired cardiac function, the socio-economically disadvantaged, and those who are unaware of extreme heat. However, the young and relatively fit also succumb.

Heat related illnesses are represented as follows: ³



THE SYMPTOMS OF HEAT-RELATED ILLNESS

MUSCLE CRAMPING IS OFTEN THE FIRST SIGN OF HEAT-RELATED ILLNESS AND COULD LEAD TO MORE SEVERE CONDITIONS LIKE HEAT EXHAUSTION AND HEAT STROKE. THE SYMPTOMS FOR EACH ARE LISTED BELOW.



¹ https://www.caha.org.au/national-strategy-climate-health-wellbeing

² https://www.caha.org.au/national-strategy-climate-health-wellbeing

³ Implementation Status Report of Climate Change Policy 2017, Office of the Commissioner for Sustainability and the Environment.

Longitudinal research from the University of Canberra⁴ shows that the most common heatwave coping strategies are staying indoors and increasing water consumption. Most people also reduce strenuous activity such as exercise, housework and gardening, and used fans or air conditioning to stay cool in their home. 42 per cent of people changed the time they exercised during a heatwave, and a further 37 per cent sometimes did this.

Human physical performance peaks on days of 12 degrees Celsius. In warm weather, additional muscle generated heat must be shed to the environment, and this becomes more difficult as the temperature increases. As climate change impacts the community, sustaining prolonged exercise or work will elevate the health risks.

Understanding heat exposure as a genuine health threat and sporting challenge, and reducing exposure will become a critical challenge as the ACT experiences more frequent, and more intense heatwayes.⁷

Attitudinal change, and social re-engineering will be necessary to promote climate change adaptation.⁸ Governments play an essential part in this by building resilience and preparing for emergencies.⁹ 10

The ACT Climate Change Strategy resilience indicators seek to address heat exhaustion, cardiovascular failure, asthma, and obesity, all of which present as climate change risks. 11

Case study

CLIMATE CHANGE, HUMAN HEALTH AND BLUE-GREEN ALGAE

Lakes and rivers of the ACT offer numerous water based sporting and active recreation opportunities, including swimming, fishing, boating, and water skiing. Annual visitation to the Murrumbidgee Corridor and Cotter Precinct is estimated to be 900,000 per year.¹²

All these activities require water of a particular standard. Increased levels of Blue-green algae compromise water quality.

Blue-green algae can produce toxins that are harmful to humans and animals when swallowed, inhaled, or in contact with the skin. Common symptoms include irritated skin/mucosa, flu-like symptoms and gastrointestinal illness.

Some Blue-green algae flourishes and is difficult to control under increased temperatures.

Local government agents have identified this as a current climate change risk already taking effect on participation in sport and recreation.¹³

Closures to waterways from Blue-green algae and the associated recreational benefits will be lost. This will become more prevalent as temperatures continue to rise. 14



Lake Tuggeranong bright green from Blue-green algae. Photo: George Tsotsos, reported in RiotAct.

⁴ https://www.environment.act.gov.au/__data/assets/pdf_file/0019/1316521/Longitudinal-Survey-ACT-Resilience-to-Climate-Change-Report. pdf?fbclid=IwAR1cY3YWySQFaE4uqOsvuA4iEA9VUnuBAb4tJINZqkVS5GEwQdj3Clt3w2U

⁵ https://www.nccarf.edu.au/content/climate-change-impacts-workplace-heat-extremes-health-risk-estimates-and-adaptive-options

⁶ Implementation Status Report on Climate Change Policy 2017. Office of the Commissioner for Sustainability and the Environment

⁷ https://www.thefifthestate.com.au/urbanism/environment/hot-enough-yet-what-this-heat-is-doing-to-our-health/

⁸ Hanna, E. 2017. Implementation Status Report on Climate Change Policy. Office of the Commissioner for Sustainability and the Environment

⁹ https://www.nccarf.edu.au/research/narps

¹⁰ http://www.vcccar.org.au/publications

 $^{11 \}quad https://www.health.act.gov.au/sites/default/files/2018-09/ACT-Chief-Health-Officer-Report-2018.pdf$

¹² https://www.environment.act.gov.au/__data/assets/pdf_file/0019/621424/ACT-Water-Strategy-ACCESS.pdf

¹³ Pers. Comm. Meeting with Sport and Recreation section, Chief Ministers, Treasury, Economic Development Directorate

 $^{14 \}quad https://www.canberratimes.com.au/canberra-news/like-a-green-enamel-paint-lake-tuggeranong-cops-massive-algae-bloom-20190301-p51164.html$

3.2 Mental health

Climate change impacts mental health.

Recent research published in the Medical Journal of Australia and The Lancet identifies an association between rising temperatures caused by climate change and poor mental health, even suicide. ¹⁵

"In Australia, hot days have a damaging effect on [the] whole population, equivalent to that of unemployment, and predict hospitalisation for self-harm."

Professor Helen Berry, Climate Change and Mental Health at the University of Sydney¹⁶

As sporting and active recreation activities are impacted, participation in physical activity will lessen and mental health issues will escalate. These include:

- · stress and distress
- anxiety and depression, and
- post-traumatic stress disorder.

More broadly, mental health professionals have reported an increasing number of patients presenting with 'eco-anxiety' or 'climate-change anxiety', describing feelings of stress, anxiety, dread and uncertainty about the future. ¹⁷

As incidences of climate related disasters increase there will be a consequential increase in the number of individuals requiring services, both those with existing mental illness, and those who will develop mental health problems, placing further burden on the mental health care system.

There is a known correlation between participation in physical activity and mental well health. It is important that access to participation in physical activity is available to all sectors of the community, particularly during periods of environmental stress.

3.3 Federal ambitions and climate change realities

Participation is one of the Australian Government's strategic sport priorities. ¹⁸ This reflects the well understood individual, community, economic and other co-benefits of promoting sport and active recreation.

Approximately 1.8 million Australians donate their time and energy to community sport and recreation clubs. The labour input of these volunteers has been estimated to be valued at \$4 billion annually.¹⁹

Participation can include:

- · coaching, instructing, teaching,
- · refereeing, umpiring, timekeeping,
- providing medical, sports trainer or welfare officer support,
- acting as a committee member, administrator or team manager,
- volunteering, or
- simply attending to watch. ²⁰

Each of these roles, from active to passive, produces social capital and other benefits; climate change will impact them all.



AFL NSW/ACT Inclusion Rams at a National Carnival. Source: South Coast Register²¹

¹⁵ https://www.mja.com.au/system/files/issues/209_11/10.5694mja18.00789.pdf

¹⁶ https://www.sbs.com.au/news/scientists-find-alarming-impact-of-climate-change-on-mental-health

¹⁷ Health Directorate, ACT Government Response: Productivity Commission's inquiry into the social and economic benefits of improving mental

 $^{18 \}quad https://www.sportaus.gov.au/nationalsportplan/home/featured/download/Sport_2030_-_National_Sport_Plan_-_2018.pdf$

 $^{19 \}quad https://www.clearinghouseforsport.gov.au/knowledge_base/sport_participation/community_participation/volunteers_in_sport_participation/community_participation/volunteers_in_sport_participation/community_participation/volunteers_in_sport_participation/community_participation/volunteers_in_sport_participation/community_participation/volunteers_in_sport_participation/community_participation/volunteers_in_sport_participation/community_participation/volunteers_in_sport_participation/community_participation/volunteers_in_sport_participation/community_participation/volunteers_in_sport_participation/community_participation/volunteers_in_sport_participation/community_participation/volunteers_in_sport_participation/community_participation/volunteers_in_sport_participation/community_participa$

 $^{20 \}quad https://www.abs.gov.au/ausstats/abs@.nsf/0/9FD67668EE42A738CA2568A9001393AC? Open document \\$

²¹ https://www.southcoastregister.com.au/story/6225265/shoalhaven-duo-named-in-rams-side-for-inclusion-carnival/

3.4 Local ambitions and climate change realities

The ACT Government is committed to keeping communities active, for health, economic and social co-benefits.

Linking physical activity directly to health outcomes, the ACT Chief Health Officer's Annual Report 2017–18²² provides a snapshot of engagement in physical activity across different age groups in Canberra.

2015–2016 PERCENTAGE OF PEOPLE WHO WERE SUFFICIENTLY ACTIVE EACH WEEK 150 MINUTES EACH WEEK OR EACH WEEK

OF MODERATE INTENSITY PHYSICAL ACTIVITY

OF VIGOROUS INTENSITY PHYSICAL ACTIVITY



65.3% YOUNGER ADULTS AGED 18-44 YEARS



61.9% OLDER ADULTS AGED 45-64 YEARS



47.0% ELDERLY ADULTS AGED 65+ YEARS

© Office of the Commissioner for Sustainability and the Environment 2019

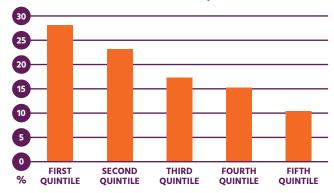
Source: ACT Chief Health Officer's Annual Report 2017–18

While every participant will be impacted, there is the potential for climate change to drive inequities and the depletion of social capital.²³

The relationship between engagement in physical activity and disadvantage is highlighted in the community surveys conducted by the Australian Bureau of Statistics.²⁴

This graph represents the proportion of persons aged 18 and over who engaged in no exercise by disadvantage 2017–18:

PERSONS AGED 18 YEARS AND OVER – PROPORTION WHO ENGAGED IN NO EXERCISE BY DISADVANTAGE, 2017–18



SOCIO-ECONOMIC DISADVANTAGE

© Office of the Commissioner for Sustainability and the Environment 2019

Source: Australian Bureau of Statistics

 $^{22 \}quad https://www.health.act.gov.au/about-our-health-system/data-and-publications/reports/chief-health-officers-reports/chief$

²³ Flo Harrison et al. 2017. Weather and children's physical activity; how and why do relationships vary between countries? International Journal of Behavioral Nutrition and Physical Activity 2017 14:74

²⁴ https://www.abs.gov.au/ausstats/abs@.nsf/0/9FD67668EE42A738CA2568A9001393AC?Opendocument

Governments have an opportunity to promote sport and active recreation responses to climate change which avoid embedding inequitable outcomes. These not only affect the social fabric of our community but also have economic implications.

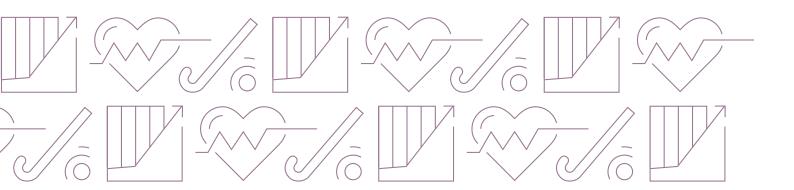
The ACT Government is in the process of developing a set of Wellbeing Indicators²⁵ to monitor progress across a

broad range of areas that reflect the values of Canberrans and influence quality of life. Challenges will differ across the demographics, but no one will remain unaffected.

These indicators will provide an opportunity to assess the value of participation in physical activity to help guide government decision-making on priorities and investments that benefit the whole population.



ACT Government pop-up physical activities trial. Source: City Renewal Authority.



²⁵ https://www.yoursay.act.gov.au/wellbeing/why-have-wellbeing-indicators

3.5 Youth, heat and participation

Physical activity in youth has clear co-benefits in an ageing population.

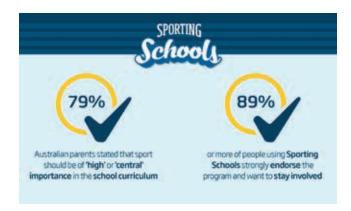
Those aged 5–17 years require at least 60 minutes of moderate to vigorous physical activity per day. ²⁶ Concentration, cognition, academic performance all benefit from sporting activity. ²⁷

Only two-thirds of school aged children participate in organised out-of-school sport. $^{28}\,$

Research shows that once young people have withdrawn from regular physical activity they are less likely to reengage or remain active as an adult.²⁹

Climate change, and heatwaves more specifically, will compound the potential for disengagement and can often coincide with the onset of depression. ³⁰ Prolonged periods of drought can also result in young people taking on more family responsibilities, leaving less or no time outside of school for play, sport or other recreational activities. ³¹

For all of these reasons, it is essential to promote physical activity through the school curriculum to build resilience to climate change eventualities.³²



Sporting Schools infographic. Source: https://www.facebook.com/ SportingSchools/photos/



Sporting Schools in action. Source: https://www.facebook.com/SportingSchools/photos/

²⁶ http://www.health.gov.au/internet/main/publishing.nsf/Content/health-publith-strateg-phys-act-guidelines#apa512

²⁷ Kohl, H.W et al 2013. Educating the Student Body, Taking Physical Activity and Physical Education to School. National Academies Press (US).

²⁸ http://www.climateinstitute.org.au/verve/_resources/Sport_and_climate.pdf

²⁹ Kohl, H.W et al 2013. Educating the Student Body, Taking Physical Activity and Physical Education to School. National Academies Press (US).

³⁰ http://theconversation.com/how-physical-activity-in-australian-schools-can-help-prevent-depression-in-young-people-107889

³¹ https://www.unicef.org.au/Upload/UNICEF/Media/Documents/Drought-Report-2019.pdf

³² https://www.australiancurriculum.edu.au/f-10-curriculum/health-and-physical-education/

3.6 Elite youth, climate change and participation

Climate change, specifically heat, is also likely to impact elite youth sport. Costs may increase as better, more adaptable equipment will be required. These costs will inevitably be passed on to participants directly and indirectly.

Elite sporting event 'add-ons' including parking, catering and entertainment already drive up the cost of elite sport.

Polarisation is being experienced in the USA where there has been an 8 per cent reduction in participation in competitive sports in the last 10 years. This has the potential to reduce participation, undermine social capital, and elevate the risks of health and mental health problems for young people. ^{33 34}

DIRECT COSTS

- · ice packs
- · drink bottles
- uniforms and equipment
- · recovery activities

INDIRECT COSTS

- competition for peak period facility hire
- increased lighting for evening activities
- · heating and cooling expenses
- · shade facilities
- · medical and sports trainer support
- increased maintenance and irrigation



ACT representative water polo player. Source: http://mygungahlin.com.au/sports/sophie-to-represent-act-at-2019-australian-youth-water-polo-championships

³³ https://www.washingtonpost.com/sports/2018/10/16/youth-sports-still-struggling-with-dropping-participation-high-costs-bad-coaches-study-find-s/?noredirect=on

³⁴ https://www.theatlantic.com/education/archive/2017/09/whats-lost-when-only-rich-kids-play-sports/541317/

3.7 Elite athletes, climate change and the urge to perform

Elite athletes are already experiencing climate change challenges.

There is an expectation that elite and professional athletes will push through environmental barriers to break records even as the climate becomes hotter, drier, and more humid, sometimes in circumstances where infrastructure has failed to keep up with the pressure to perform.

Duty of care thresholds vary within and across sports, ranging from 32°C to 41°C. The potential for costly legal action due to climate change injuries is real, and growing climate change litigation is increasing.³⁵ ³⁶ ³⁷ The breach of a legal duty of care to sports people has implications for clubs, facilities managers, sporting ground owners and operators.

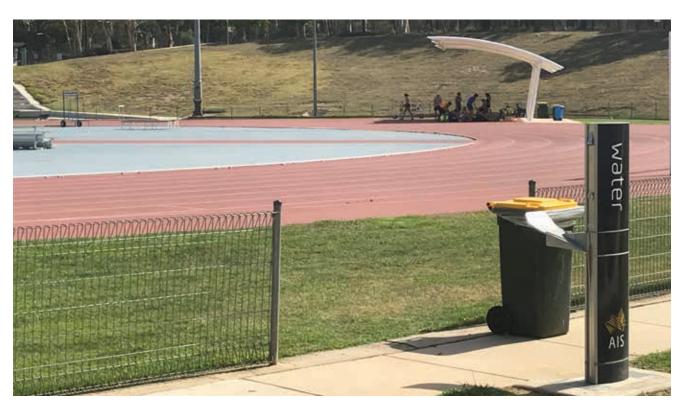
Sports Medicine Australia's³⁸ heat policy and the 'wet-bulb globe temperature', (two measures commonly used in Australia to define heat-stress levels) have some serious limitations in the current environment, including sun exposure, individual acclimatisation and air movement.

As climate change elevates temperatures and impacts humidity, the risk to monitoring is itself elevated. Research is being undertaken in this area to address these risks. 40 41 42

When considering the potential for significant changes to the range of environmental conditions across Australia, strategic and timely responses are required. Sport organisations will need expert advice and support. Provision of water and shade during or after the heat or extreme event will arguably not provide a defence to potential litigation, particularly if the athletes are young and vulnerable.

In the absence of highly effective monitoring, sport organisations and administrators should adopt a cautious approach.

A proactive example of this is the Victorian Government's recent launch of tailored fact sheets to assist sport organisations identify exertional heat illnesses, as well as actions to take if symptoms of heat illness present during sport activities.⁴³



Athletes at the AIS seeking respite from the afternoon sun. Source: Caitlin Roy

³⁵ https://www.abc.net.au/news/2019-02-22/how-investors-regulators-and-litigators-are-moving-australia/10834648

³⁶ https://www.climateliabilitynews.org/2019/02/04/government-climate-change-lawsuit-ninth-circuit/

 $^{37 \}quad \text{http://www.lse.ac.uk/GranthamInstitute/publication/global-trends-in-climate-change-legislation-and-litigation-2018-snapshot/legislation-and-litigation-2018-snapshot/legislation-and-litigation-and-litigation-2018-snapshot/legislation-and-litigation-and-$

https://sma.org.au/resources-advice/policies-and-guidelines/hot-weather/

³⁹ https://www.ncbi.nlm.nih.gov/pubmed/17765661

⁴⁰ https://iopscience.iop.org/article/10.1088/1748-9326/aaa00e/pdf

⁴¹ https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5547064/

⁴² Chen et al. 2019. Global Heat Wave Hazard Considering Humidity Effects during the 21st Century. International Journal of Environmental Research and Public Health, 16, 1513

⁴³ https://vicsport.com.au/hot-weather-resources

Case study

LEARNING FROM OUTDOOR PROFESSIONS

In Australia there is no workplace exposure standard or limit for heat stress due to varying work tasks, environments, and individuals.

To address this, Occupational Health and Safety Australia has developed guidelines to manage heat stress that take into account more than ambient heat temperature.⁴⁴

Recognising the health implications of working in such conditions, one of Australia's largest unions, the Construction, Forestry, Mining, Maritime and Energy Union, is explicit in its heat policy slogan: "35°C, that's enough."⁴⁵

Monitoring for climate change related injury is in its infancy but the general duty of care is clear.



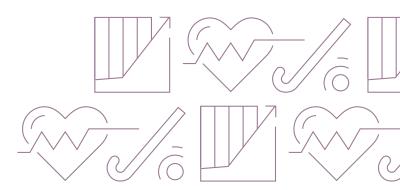
3.8 Seniors, heat, and active recreation

In encouraging participation, governments recognise the social cohesion, health, and ultimately, economic, benefits of engaging older people in physical activity.

A number of limiting factors to participation for older people include:

- organised physical activity is cost prohibitive (financial pressure is often an issue),
- physical activity can be less of a priority than food or access to medical treatment,
- proximity of sport facilities and access to transport can be a constraint,
- there is a tendency to suffer in silence,
- · social isolation is real and compounding, and
- a heavy reliance on incidental physical activity. ⁴⁶

Climate change will further exacerbate these limiting factors. Unpredictable conditions, for instance extreme heat and cold temperatures, will limit incidental activity such as walking to the bus stop or gardening. Social isolation and mental health problems may be compounded which will flow on to health budgets. ⁴⁷



%80%99s-enough-cfmeu-hot-weather-policy

⁴⁴ https://www.ohsa.com.au/services/heat-stress-monitoring/

⁴⁵ http://www.climateinstitute.org.au/verve/_resources/Sport_and_climate.pdf

⁴⁶ Pers. Comm. Meeting with Council of the Ageing ACT

⁴⁷ Implementation Status Report of Climate Change Policy 2017, Office of the Commissioner for Sustainability and the Environment

3.9 New opportunities for participation in a climate change age – indoor sporting activities

The ACT Government commissioned report, Planning for Indoor Facilities and Other Sport and Recreation Infrastructure 2018 report⁴⁸ demonstrates the level of complexity in providing sports services, infrastructure, and innovation in respect of sports which have historically been undertaken indoors.

The report considers future risks to indoor sporting facilities such as population growth and commercial viability. Surprisingly, it does not include a reference to climate change in the planning of new multi-court indoor sports facilities, even though it would seem that increasing heat in open air activities has the potential to drive the sporting public into such venues.

The potential for indoor activity, including personal fitness and E-sports, ⁴⁹ that are accessible any time of day or night, provide an opportunity that can be actively explored as a direct response to climate change impacts.

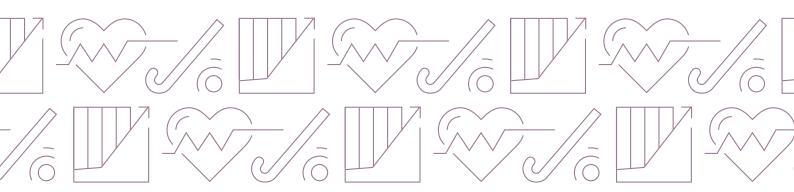
While there is limited evidence supporting a positive correlation between E-sports and the health benefits derived from being active, emerging E-sports such as Zwift e-cycling are developing professional rules, structured training programs and data analysis that promote physical exertion. ⁵⁰



Indoor cycling training. Source: http://www.bicyclingaustralia.com.au/news/zwift-the-rise-and-rise-of-indoor-training



Indoor rock climbing. Source: https://highcountryonline.com.au/canberra-indoor-rock-climbing/



⁴⁸ https://www.sport.act.gov.au/__data/assets/pdf_file/0006/1374504/Planning-for-Indoor-Facilities-and-Other-S-and-R-Infrastructure-Final.pdf

 $^{49 \}quad https://www.dailytelegraph.com.au/sport/olympics/should-egaming-be-an-olympic-sport/news-story/e47d467a858f1e63c5da27dbcc95385a$

⁵⁰ https://zwift.com/training-plans



4.1 Climate change, economics and participation in sport

Australia is recognised as one of the developed nations most vulnerable to the impacts of climate change.¹ Actions to mitigate and adapt to the impacts will have significant co-benefits.

Climate change will involve economic costs and emerging climate conditions will often have budget implications. Unprecedented heat levels and extreme weather events affecting participation in sport for players and spectators have already become a significant issue.

Action is underway globally to recognise, quantify and capture the social, environmental and health co-benefits of climate change action. In particular, cost savings of health co-benefits achieved by policies to reduce emissions are potentially large, and offer an opportunity to not only protect the health and well-being of Australians, but also to prevent health impacts which could result in significant additional health expenditure from government and personal finances.²

Climate change impacts with economic outcomes for sport are outlined below:

In terms of the 'numbers through the door' and tourism, this challenge is already illustrated by the correlation between crowd attendance and available rain or shade cover.³

As reported by the Australian Climate Council,⁴ the Australian Open has experienced extreme playing conditions in 2014, 2016 and 2018. Impacts are logistical and financial, including reduced spectator numbers and associated revenue, ensuring medical practitioners were readily available on site and on call, providing bottled water and cooling stations.

CLIMATE CHANGE IMPACTS ON SPORT Variation to traditional seasons and conditions **INCREASED** More resources required for maintenance **TEMPERATURE** • Increased risk to participants • Harder surfaces, increased risk of injury **INCREASED** Ground closures RAINFALL • Reliance on irrigation Damage and destruction of facilities **EXTREMES** • Event delays and cancellations Increased risk to participants and spectators Disrupted events and reduced participation UNPREDICTABLE • Uncertain future (e.g. high season summer and winter sports) • Increased costs and loss of revenue

l https://www.gbm.hsbc.com/solutions/global-research/fragile-planet

² https://www.caha.org.au/national-strategy-climate-health-wellbeing

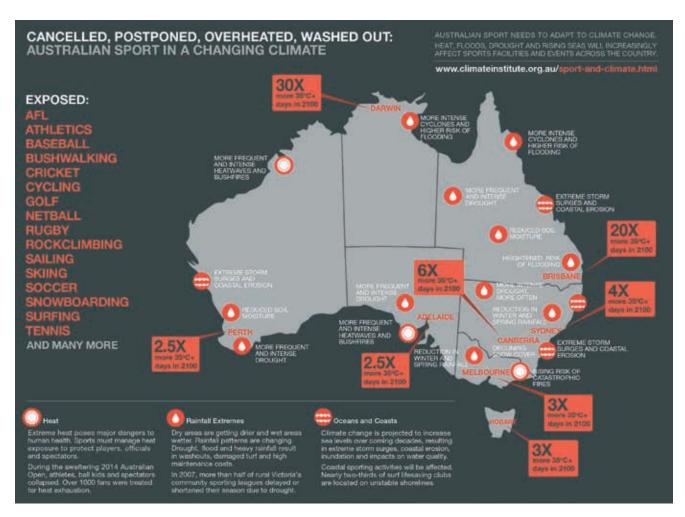
³ https://www.abc.net.au/news/2018-12-13/cricket-second-test-fan-backlash-over-shaded-seats-perth-stadium/10612452

⁴ https://www.climatecouncil.org.au/category/climate-impacts/

"Heatwaves during the event in 2018 affected crowd numbers and resulted in organisers shifting gears to adapt to the conditions by making changes to key stages, cancelling side events and ensuring tour doctors were on alert for signs of heat stress." 5

"Following the 2018 heat, experts recommended changing the timing of the tournament or the design of tennis courts to provide as much shade as possible, incorporating plants and greater air movement. In other words, they started to consider ways to ace a response to climate impacts such as heatwaves."

Examples of climate change burn outs and wash outs listed across Australia:⁷



Climate change impacts will also impact infrastructure and this requires more vigilant and costly maintenance. Natural infrastructure will be affected as well as the built environment.

⁵ https://www.climatecouncil.org.au/australias-iconic-sporting-events-feeling-the-heat/

 $[\]begin{tabular}{ll} 6 & https://www.climatecouncil.org.au/australias-iconic-sporting-events-feeling-the-heat/\\ \end{tabular}$

 $^{7 \}qquad http://www.climateinstitute.org.au/verve/_resources/Map_Infographic_Final.jpg \\$

4.2 The climate change economy of sporting infrastructure

Investment in the sport industry, innovation and infrastructure is a crucial driver for economic growth and sustainable development, in Australia and globally.

Community sport directly employs 57,000 people with more than eight million Australians using community sporting infrastructure every year. This generates an annual value of more than \$16.2 billion worth of economic, health, and social benefits.⁸

Pre-eminent consulting firms PwC and KPMG have recently assessed the economic value of sport infrastructure. PwC considers the potential for economic growth through complementary use sporting precincts

focussing on entertainment and increased women's participation,⁹ while KMPG evaluates community sport infrastructure in the following way: ¹⁰

The wider economic and other co-benefits are connectedness and community pride, and the provision of spaces which provide for safety in response to disaster and security threats. 11 12 13

To ensure the ongoing viability of these investments, governments need an integrated approach to developing and managing sporting facilities which work to actively consider physical and social infrastructure.

VALUE	BENEFIT	RATIONALE
\$6.3 billion	Economic	Economic activity associated with the construction, maintenance and operation of community sport infrastructure and the increased productivity of those who are physically active as a result of such infrastructure.
\$4.9 billion	Health	Personal benefits to those who are less likely to contract a range of health conditions which are known to be associated with physical inactivity and the benefits to the health system from a healthier population.
\$5.1 billion	Social	Increased human capital resulting from the social interactions that are facilitated by community sport infrastructure and the broader community benefits of providing green space (e.g. sports fields).



 ${\it Music concert at GIO Stadium. Source: https://www.facebook.com/pg/giostadiumcanberra/photos/acebook.com/pg/giostadiumcanberra/pg/giostadiumcanberra/pg/giostadiumcanberra/pg/giostadiumcanberra/pg/g$

⁸ https://assets.kpmg/content/dam/kpmg/au/pdf/2018/value-community-sport-infrastructure-australia.pdf

⁹ https://www.pwc.com.au/industry/sports/10-minutes-on-sport-april2019.pdf

 $^{10 \}quad \text{https://www.sportaus.gov.au/nationalsportplan/home/featured/download/Sport_2030_-_National_Sport_Plan_-_2018.pdf} \\$

 $^{11 \}quad https://assets.kpmg/content/dam/kpmg/au/pdf/2018/value-community-sport-infrastructure-australia.pdf$

 $^{12 \\} https://www.clearinghouseforsport.gov.au/knowledge_base/organised_sport/value_of_sport/sport_for_community_development$

¹³ http://www.sportni.net/sportni/wp-content/uploads/2013/03/the_social_benefits_of_sport_an_overview_to_inform_the_community_planning_process.pdf





7,500 haOF CAMPING, ACTIVE RECREATION AND SOCIAL USE AREAS IN RIVER CORRIDORS



STROMLO FOREST PARK

MULTI-SPORT FACILITY
FOR BOTH FAMILY
RECREATION AND
SOCIAL/COMPETITIVE
SPORT AND RECREATION



6,000 ha

OF FORMAL PARKS, LAKES AND PARKLAND WITH DIVERSE SPORT AND RECREATION OPPORTUNITIES



250 ha

OF ROLLING HILLS AND VALLEYS AT THE NATIONAL ARBORETUM



NEIGHBOURHOOD PARKS

SMALL PARKS IN RESIDENTIAL AREAS WITH PLAYGROUND AND PICNIC AREAS



VENUES CATERING FOR A RANGE OF ACTIVITIES



OVER 280 ha

OF IRRIGATED
SPORTS GROUNDS

4.3 Tourism and sport – the climate change economy of tourism

Canberra has numerous parks and reserves, attracting more than 13 million visitors during 2012–13 financial year. ¹⁴ In times of drought and watering restrictions, government foots the expense for irrigation to maintain condition. ¹⁵

With the recent announcement that a new aqua park may be given approval for the shores of Lake Burley-Griffin¹⁶ and the proposed construction of a new ice skating rink¹⁷ it would appear that the ACT Government is ready to capitalise on the growing tourist market in activities which include both organised and informal sport.

Climate change will impact tourist attractions and the associated revenue. Searing temperatures and other extreme weather events are already changing the tourism industry.¹⁸

Economic and health implications will include:

- storms, hail, smoke from bushfires and other extreme weather can disrupt flights, creating discomfort, elevating costs and environmental impacts,
- emergency services can suddenly be stretched, for example, if a bushfire arrives and thousands of people need to be evacuated, sporting facilities and amenities are often relied on for disaster relief, and
- secondary impacts will include increased traffic congestion creating pollution and carbon emissions.



Mountain biking in Stromlo Forest Park. Source: https://www.facebook.com/stromloforestpark/photos/

 $^{14 \}quad https://www.environment.act.gov.au/__data/assets/pdf_file/0019/621424/ACT-Water-Strategy-ACCESS.pdf$

¹⁵ https://www.environment.act.gov.au/__data/assets/pdf_file/0019/621424/ACT-Water-Strategy-ACCESS.pdf

¹⁶ https://www.abc.net.au/news/2019-05-14/canberra-aqua-park-inflatable-water-playground-black-mountain/11110204

¹⁷ https://www.canberratimes.com.au/story/5995076/government-puts-money-aside-for-new-canberra-ice-rink/

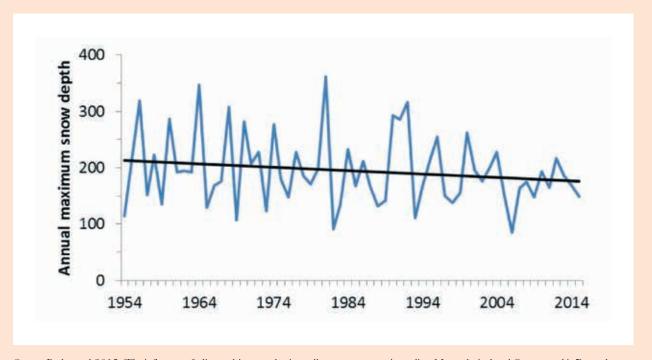
¹⁸ https://www.smh.com.au/politics/federal/lonely-unfit-and-hooked-on-air-conditioning-is-this-the-summer-of-the-future-20190208-p50whm.html

SNOW WORRIES – THE IMPACT OF CLIMATE CHANGE ON SNOW SPORTS

Canberra capitalises on the nearby snow industry, economically and recreationally.

Australia's ski resorts, and the associated benefits for Canberrans, face the prospect of a long downhill run as a warming climate reduces snow depth, cover and duration.¹⁹ The industry's ability to create artificial snow to keep up with demand is also being challenged.

According to CSIRO-Bureau of Meteorology 2017 technical report,²⁰ a snow retreat has been observed for half a century, with rising temperatures rather than reduced precipitation to blame.



Source: Pepler et al 2015. The influences of climate drivers on the Australian snow season. Australian Meteorological and Oceanographic Journal (2015) 65:2.

Projections show a continuing trend of reduction in snowfall depending on altitude and emissions levels, with worst case scenarios projecting years without any snowfall being observed from 2030.²¹

"In 30 years' time winter as we know it will be non-existent. It ceases to be everywhere apart from a few places in Tasmania."

Dr Geoff Hinchcliffe, ANU School of Art and Design $^{\!22}$

The snow industry recognises the threat climate change poses. Resorts such as Perisher²³ and Thredbo²⁴ are switching to renewable energy to protect natural assets and jobs that depend on them.

The long-term viability of the industry requires a shift to a bi-partisan agreement on climate change policy and the snow sports community taking action too.²⁵

¹⁹ https://www.smh.com.au/environment/climate-change/snowy-retreat-climate-change-puts-australias-ski-industry-on-a-downhill-slope-20170804-gxp74h.html

 $^{20 \}quad https://www.climatechangeinaustralia.gov.au/media/ccia/2.1.6/cms_page_media/168/CCIA_2015_NRM_TechnicalReport_WEB.pdf$

²¹ https://www.climatechangeinaustralia.gov.au/media/ccia/2.1.6/cms_page_media/168/CCIA_2015_NRM_TechnicalReport_WEB.pdf

²² https://www.businessinsider.com.au/climate-change-anu-visualisation-tool-2019-3

²³ https://www.perisher.com.au/how-we-get-to-zero/

 $^{24 \}quad https://www.thredbo.com.au/blog/2018/thredbos-environmental-initiatives/\\$

²⁵ https://www.smh.com.au/environment/climate-change/thredbo-4wd-visitors-need-to-think-about-climate-change-20190711-p5267v.html





 $Adaptive\ snow\ sports.\ Source:\ Disabled\ Wintersport\ Australia$



Snowboarding in the sun. Source: https://www.facebook.com/skiandsnowboardaustralia/

4.4 Sporting infrastructure must be climate ready

Residents in the ACT and region use sport grounds is in excess of 82,000 hours per year.²⁶

There is a major opportunity to design sports facilities to deal with climate change and promote sustainability.

ACT planning legislation supports this in principle. Initiatives that the ACT Government has incorporated into existing facilities include:

- non-potable water infrastructure,
- transition of irrigated turf species to more drought tolerant varieties,
- improved sportsground irrigation systems and infrastructure to more efficiently provide watering (reducing consumption and cost),
- supporting the sector to move toward LED lighting technologies, including systems at sportsgrounds, indoor venues and tennis courts,
- ensuring all ACT Government sportsground amenities are dual-flush systems,
- adoption of synthetic surfaces to reduce water requirement and increase the amount of usable playing time from an asset,
- promoting/supporting facility mangers to implement solar options, and
- Variable Speed Drives at aquatic facilities to reduce gas consumption.

The ACT Government initiative to replace halogen lights with LED lights is an example where sustainability, scalability and long-term cost savings have aligned.

Wherever possible it is important to prevent the need to retrofit to avoid unnecessary expense.

New proposals such as the ACT Government commissioned report, Planning for Indoor Facilities and Other Sport and Recreation Infrastructure, ²⁷ and the Ice Sports Facility Options Analysis Report, ²⁸ contain limited consideration of sustainability and climate change adaptation measures. Broad references to 'minimise energy loss, leverage renewable energy, and maximise recycling' are simply not adequate to futureproof facilities.

Issues which arise when seeking to address climate change and sustainability challenges are complicated, however there is a major opportunity for sustainable design that can be monitored for effectiveness over time. Incorporating green space is imperative.

4.5 Green spaces are good for us and reduce the heat risk of climate change

Green spaces can be psychologically and physiologically restorative.²⁹

Delivery of these benefits is dependent on the green open spaces' capacity to perform sustainably under a wide range of climate and use conditions.

In the face of climate change, governments will need to plan for the conservation of green space.

Population growth and the associated increased use are putting pressure on green space managers to meet increased demands.³⁰ In the ACT, one of the primary indicators of green space, tree canopy cover, continues to decrease while grass cover and hard surfaces almost directly make up for the increase.³¹ This has been represented in the 202020 Vision³² research report on Canberra trees shown here:

SHRUB AND TREE CANOPY CHANGES IN ACT 2008–2016

KEY STATISTICS	2008	2016	DIFFERENCE
Tree Canopy Cover	56.3%	45.6%	10.7% Loss
Shrub Cover	5.4%	4.5%	0.9% Loss
Grass Cover	33.1%	42.5%	9.4% Gain
Hard Surface	5.2%	7.4%	2.2% Increase

²⁶ https://www.environment.act.gov.au/__data/assets/pdf_file/0019/621424/ACT-Water-Strategy-ACCESS.pdf

²⁷ https://www.sport.act.gov.au/_data/assets/pdf_file/0006/1374504/Planning-for-Indoor-Facilities-and-Other-S-and-R-Infrastructure-Final.pdf

²⁸ https://www.sport.act.gov.au/__data/assets/pdf_file/0005/1297184/Ice-Sports-Facility-Options-Analysis-Report.pdf

²⁹ https://www.environment.act.gov.au/__data/assets/pdf_file/0004/912478/ACT-Climate-Change-Adaptation-Strategy.pdf

³⁰ https://www.clearwatervic.com.au/user-data/research-projects/swf-files/bpg-final.pdf

³¹ https://202020vision.com.au/media/72931/wsattg_act_fa3_lr.pdf

³² https://202020vision.com.au/media/72931/wsattg_act_fa3_lr.pdf

NATURAL VS SYNTHETIC PLAYING SURFACES

Synthetic playing surfaces may appear to be a good investment in water-constrained times. They require less water, no fertiliser or pesticide for maintenance, and sustain higher weekly usage hours than grass.

However, synthetic surfaces have a short life of approximately 8–10 years, do not cool the environment or provide a carbon sink, and produce micro plastics when breaking down which is a stormwater runoff risk.

Conversely, natural surfaces absorb carbon dioxide, produce a cooling effect, and filter rain and storm

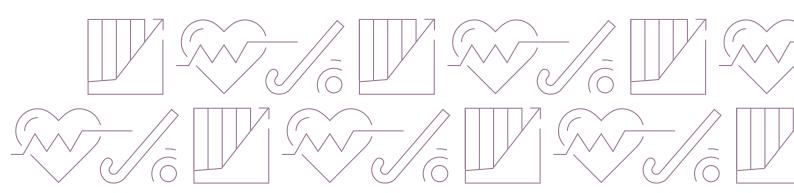
water.³³ This may seem optimal, however increasing levels of evaporation, water deficits and the anticipated inadequacy of traditional grass varieties to cope with these deficits also impact sporting facilities and the budget bottom line.³⁴

Sport administrators, who have to plan for climate change futures and develop climate-ready facilities to adapt to extremes, and design and implement new technologies, equipment and practices, will need to balance these competing issues.

35



Aerial view of the AIS. Source: https://experienceais.com/sport-facilities



 $^{33 \}quad https://www.safehealthyplaying fields.org/environmental-hazards \\$

³⁴ https://www.ibrc.indiana.edu/ibr/2015/spring/article1.html

4.6 Urban design is the key to accessible physical activity

A failure to act on the elevated risks of a changing climate will be costly and potentially promote unhealthy environments that are hot, oppressive and lacking in amenity.

Living infrastructure will reduce heat island effects, provide cool areas for active recreation, and maintain a connection with nature, key to improved mental health outcomes.³⁵ Sporting grounds need to be considered as one of the living infrastructure domains.

The City Renewal Authority's Sustainability Strategy³⁶ establishes a target of 30 per cent shade area under tree canopy and open space within the city precinct by 2025. Other initiatives include planning for green roofs and green walls.³⁷

Governments which respond to climate change will proactively implement climate-sensitive urban design and living-infrastructure strategies. Canberra's Living Infrastructure Plan: Cooling the City is soon to be finalised and will guide the design, planning, development and management of Canberra's living infrastructure.



Bike and running paths in an inner North suburb of Canberra. Source: City Renewal Authority Sustainability Strategy

³⁵ Health Directorate, ACT Government Response: Productivity Commission's inquiry into the social and economic benefits of improving mental health

 $^{36 \}quad https://www.act.gov.au/__data/assets/pdf_file/0005/1281956/sustainability-strategy_Online.pdf$

³⁷ https://www.canberratimes.com.au/politics/act/canberra-must-be-greener-to-cope-in-a-hotter-future-20190221-p50z8t.html



5.1 Sport's contribution to climate change

HOW SPORT AND ACTIVE RECREATION IMPACTS THE ENVIRONMENT

Just as the climate impacts on sport and active recreation, the converse is also true. The sport industry's impact on the environment, and more specifically on climate change, is complex.

Most sport organisations, participants and fans now acknowledge that sport contributes either directly or indirectly to climate change in various capacities. Impacts include:

- the initial clearing of natural areas for sporting facilities,
- the use of water and electricity to maintain and operate sporting facilities,

- · production of waste, noise, light and odour,
- production and consumption of equipment, merchandise and clothing (often unethical and unsustainable),
- carbon emissions from travel to and from sporting events, and
- carbon emissions through electricity requirements for broadcast-quality lighting, entertainment and other stadium services. ^{1 2}

SPORT IMPACTS ON CLIMATE CHANGE



ENVIRONMENTAL IMPACT

- Land clearing for sports facilities
- Water use and contamination
- Impact on biodiversity



WATER AND ELECTRICITY USAGE

- Water use for irrigation
- Water electricity use for lighting
- Heating and cooling Club rooms, gyms, pools



WASTE PRODUCTION

- Waste to landfill
- Waste noise, light and odour from events
- Facility and equipment end of life



CARBON EMISSION

- Construction of facilities and equipment
- Transport, freight, maintenance
- Broadcast, entertainment and stadium services















¹ Mallen, C. and C. Chard 2012. "What could be" in Canadian sport facility environmental sustainability. Sport Management Review, 2012, vol. 15, issue 2, 230-243

² https://www.unenvironment.org/annualreport/2018/index.php

Historically, sport organisations have considered climate responsibility as a secondary concern to operational cost efficiency and competition.³

More recently sporting businesses and organisations have started to think of these matters as critical, through corporate social responsibility and reputational concerns.

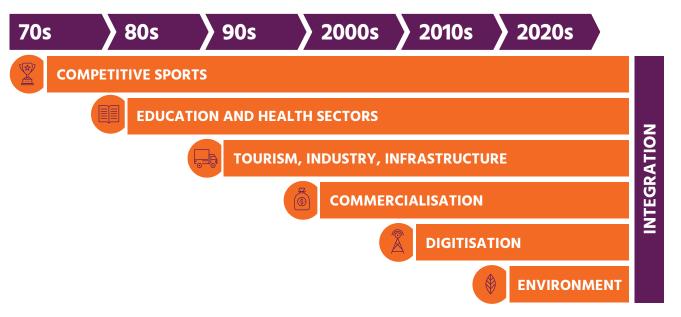
All sport organisations and events have some environmental impact and all sport organisations have the

opportunity to reduce these impacts, irrespective of their size or budget. This is a business decision, the concern of administrators (voluntary and otherwise), and can ultimately be encouraged by various government, industry or community interventions.

The following infographic considers the evolution and complexity of contemporary sport:

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SPORT INDUSTRY EVOLUTION



© Office of the Commissioner for Sustainability and the Environment 2019



 $^{3 \}qquad https://www.ibrc.indiana.edu/ibr/2015/spring/article1.html \\$

INTERNATIONAL LEADERSHIP – SPORTS FOR CLIMATE ACTION FRAMEWORK 2018

Recognition of the relationship between sport and the environment dates back to the 1994 Winter Olympics in Norway. Concerns regarding the negative impact on the environment were addressed by initiating more than 20 sustainability projects to ensure the games were environmentally friendly.

Australia followed suit, with the Sydney 2000 Olympics being dubbed 'The Green Games'.⁴

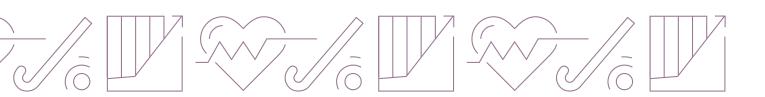
The UNFCCC recognises the unique and unparalleled, ability of sport to inform and mobilise millions of people.⁵ As such, it has established a Sports for Climate Action Framework outlining a set of principles to promote a net-zero emissions economy by 2050.⁶

The Sports for Climate Action Framework can be adopted at different scales, encourages proper monitoring and evaluation of relevant data, and provides a template for change. Sports for Climate Action goals:

- Achieving a clear trajectory for the global sports community to combat climate change, through commitments and partnerships according to verified standards, including measuring, reducing, and reporting greenhouse gas emissions, in line with the well below 2 degree scenario enshrined in the Paris Agreement;
- 2. Using sports as a unifying tool to federate and create solidarity among global citizens for climate action.



Importance of sport recognised by UN in achieving Sustainable Development Goals. Source: https://news.un.org/en/story/2018/04/1006671



⁴ Chalkley, B. and S. Essex 1999. Sydney 2000: The 'Green Games'? Geography Vol. 84, No. 4 (October 1999), pp. 299-307

⁵ https://unfccc.int/news/sports-launch-climate-action-framework-at-cop24

 $[\]label{eq:control_for_control} 6 \qquad \text{https://unfccc.int/sites/default/files/resource/Sports_for_Climate_Action_Declaration_and_Framework.pdf}$

5.2 Industry commitment – construction and operations

Large scale sporting events such as the Olympics, Soccer World Cup, Formula One, and other international competitions have come under scrutiny for their high carbon footprints.

Some sport organisations such as the International Olympic Committee, world federations including FIFA, Rugby, Formula E, Triathlon and individual clubs have taken independent steps to lead environmental sustainability.

Sporting goods producers like Adidas and Puma have taken steps to address community concerns and environmental issues. For instance, Puma has developed an 'environmental profit and loss' assessment.⁷

This concern for sustainable management of sport has triggered two types of environmental initiatives:

- · to reduce the ecological footprint of sports, and
- to use sport, participants and commentators as a means to raise environmental awareness, particularly in the fields of waste management, energy and water-efficient technologies.

Sporting entities are increasingly looking to partner with emerging technology companies to enhance customer experience and design sporting infrastructure projects. The promotion of this emerging industry as a means to address climate change is having tangible results.⁸

Case study

SPORT AND SUSTAINABILITY INTERNATIONAL (SANDSI)

The SandSI Network is an example of one of the many emerging networks supporting sports federations, leagues, clubs, venues, businesses and fans seeking to address climate change and other pressing environmental, social and ethical issues.

SandSI seeks to ensure that sustainability is a key business principle throughout the global sport

industry. It envisions a sport sector that addresses its impact and leverages the cultural and market influence of sports to promote healthy, sustainable and equal communities.⁹

At present the SandSI Network covers 79 sports in over 55 countries:



 $^{7 \}qquad https://www.trucost.com/publication/puma-environmental-profit-loss-account/\\$

 $^{8 \}qquad https://sportsustainabilityjournal.com/analysis/the-modern-stadium-a-hub-for-sustainable-development/analysis/the-modern-sustainable-development/analysis/the-modern-sustainable-development/analysis/the-modern-sustainable-development/analysis/the-modern-sustainable-development/analysis/the-modern-sustainable-development/analysis/the-modern-sustainable-development/analysis/the-modern-sustainable-development/analysis/the-modern-sustainable-development/analysis/the-modern-sustainable-devel$

⁹ http://www.sandsi.org/#/about_us

REGIONAL LEADERSHIP – SPORT ORGANISATIONS PRIORITISING SUSTAINABILITY

Case study

MELBOURNE CRICKET GROUND

In September 2018, the Melbourne Cricket Ground (MCG) became the first stadium anywhere in Australia to completely offset carbon emissions for any period of time.

This action adds to a number of long-term commitments to reduce carbon emissions and waste management initiatives which have reduced waste to landfill by 83 per cent.¹⁰

Other sustainability measures adopted at stadiums included:

- · using 100 per cent renewable energy,
- converting to machinery and vehicle to electric power,
- · buying low-energy rating equipment,
- · installing motion sensor technology,
- engaging in comprehensive recycling and segregated bins,
- segregating food waste and using anaerobic digestion for waste,
- locally sourcing food and using seasonal food, and
- donating unused edible food.¹¹



Melbourne Cricket Club article on carbon neutral September at the MCG. Source: Kate Auty

Case study

SPORTS ENVIRONMENT ALLIANCE

Founded in 2015, the Sports Environment Alliance (SEA),¹² members, ambassadors, and partners represent Australia and New Zealand in the global conversation about sustainability in sport.

With over 25 member groups, SEA has a vision to lead the sport industry's circular economy engagement, as well as promoting eco-stories and opportunities for sustainable practice by sharing the most up to date research.

SEA contributed to The Climate Institute's Climate Change and Sport Report 2018, presented at COP21, the Green Sports Alliance summits, the 2016 Asia Pacific Venue Industry Congress, and the 2017 Golf Managers Association forum.

#SEA_theChange

#BalanceforBetter

#noplanetnoplay



SEA ambassadors on International Women's Day 2019. Source: https://www.instagram.com/sea_thechange/

¹⁰ Melbourne Cricket Club Newsletter

¹¹ https://www.theclimatecoalition.org/gamechanger

¹² https://sportsenvironmentalliance.org/

5.3 Government responsibility

GOVERNMENT AND SPORT GOVERNANCE

Sport organisations in Australia take many forms, from National Sport organisations (NSOs) to amateur community groups. Different sport organisations operate under different governance structures.

Sport Australia is the Australian Government's statutory authority responsible for developing and funding Australian sport. ¹³ Its primary function in overseeing sport governance is to provide support to national sport organisations which receive taxpayer monies.

Sport Australia has developed an overarching set of Sports Governance Principles:¹⁴

- to assist sport administrators to develop, implement and maintain a robust system of governance that fits the particular circumstances of their sport,
- to provide the mechanisms for an entity to establish and maintain an ethical culture through a committed self-regulatory approach, and
- to provide members and stakeholders with benchmarks against which to gauge the entity's performance.

These principles provide a consistent framework for NSOs and other sporting groups and communities to self-administer within their respective state and territory regulations.

Additionally, Sport Australia has a vast array of publicly available resources covering topics such as:

- · athlete and club development,
- · sports nutrition,
- · integrity in sport,
- · Sporting Schools, and
- research and innovation.

Across all of the publicly available material, including the Australian Government's National Sport Plan 2030, ¹⁵ there is a paucity of climate change guidance.

The states of Western Australia, with their Environment Sustainability Pack, ¹⁶ ¹⁷ and Victoria, developing a Roadmap for Climate Change in partnership with the Sport Environment Alliance, ¹⁸ show what can be done with a targeted strategy for sport organisations.

In the absence of this sort of guidance the responsibility to fund and manage climate change mitigation and adaptation initiatives lies with individual sport organisations.

Governments can and should adopt a leadership role managing the risks and opportunities which arise in respect of climate change and sport. In acknowledging climate change and the long-term impacts for sport and active recreation, the opportunities which emerge for government include:

- national commitment to the UNFCCC Sports for Climate Action Framework,
- providing grants which specifically promote sustainable infrastructure and initiatives,
- provision of resources,
- · monitoring and microclimate assessments, and

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 adaptive scenario planning to deal with extreme events and the associated health, economic, and tourism risks.

¹³ https://www.sportaus.gov.au/governance

¹⁴ https://www.sportaus.gov.au/_data/assets/pdf_file/0011/686036/CORP_33978_Sports_Governance_Principles.pdf

 $^{5 \}quad http://www.acsep.org.au/content/Document/Sport_2030_-_National_Sport_Plan_-_2018.pdf$

¹⁶ Climate Change 2007. Department of Sport and Recreation, Government of Western Australia

 $^{17 \}quad http://www.dsr.wa.gov.au/docs/default-source/file-support-and-advice/file-facilitiy-management/sustainability-pack.pdf?sfvrsn=0 \\$

¹⁸ Future Proofing Community Sport: A Roadmap for Climate Change Management for the Sport and Recreation Facilities Sector project is supported by the Victorian State Government in partnership with the Sports Environment Alliance

SPORT GOVERNANCE IN THE ACT – LEGISLATION AND REGULATION

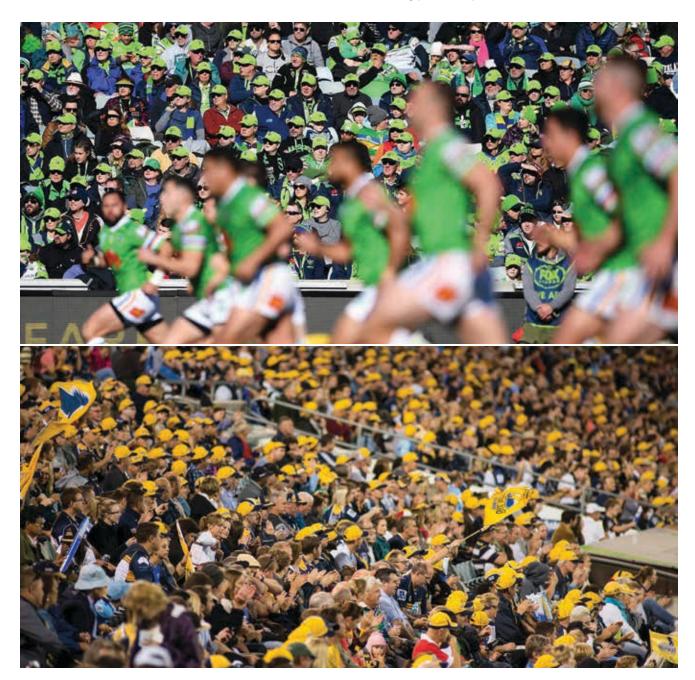
Legislation which responds to sporting needs in Canberra is diverse and includes, but is not limited to, the Public Unleased Land Act 2013, the Major Events Act 2014, and the Public Pools Act 2015.

The ACT Government recognises that sport runs sport, ¹⁹ in that sport organisations effectively operate under their respective peak body standards and regulations. State, federal, and international standards guide action, depending on the size and function of the organisation.

Climate change and other environmental factors are starting to challenge the established rules in sport and in law.

Sports governance, integrity, and insurance matters are now beyond the control of any single stakeholder. Sport organisations will increasingly struggle with the implications of the need to respond to climate change impacts on players, fields and facilities.

Sport administrators, often volunteers, need to be equipped to deal with these changing environmental conditions. A robust and coordinated response across the sport sector, involving regulators, the wagering industry, law enforcement and other stakeholders is increasingly necessary.²⁰



Raiders and Brumbies fans at GIO Stadium. Source: (T) https://www.raiders.com.au/news/(B) https://www.facebook.com/giostadiumcanberra/

¹⁹ Per. Comm. Sport and Recreation, ACT Government

²⁰ Hansard Australian Sports Anti-Doping Authority Amendment (Sport Integrity Australia) Bill 2019 - Second Reading

Following two industry led economic impact studies, in 2011 the first formalised sporting strategy was released, Active 2020 – A Strategic Plan for Sport and Active Recreation in the ACT and Region 2011–2020.²¹

This strategy was developed well before the full extent of the climate emergency became apparent. ²² A review of the strategy, including an update on the implementation status of recommendations, would provide a real opportunity for the ACT Government and the Canberra community to lead in this complex area.

Sport and active recreation priorities can also be found in multiple other regulatory instruments and strategic plans. These include: **Connecting and Building Recreation – a vision for the Territory**,²³ which delivers the following climate action opportunities in relation to sport and active recreation:

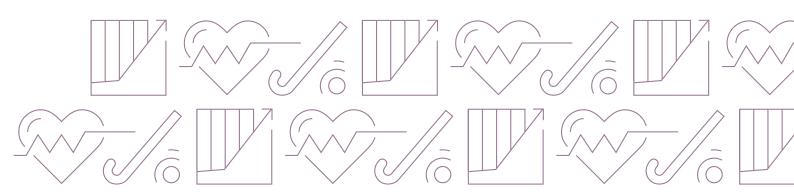
- increased participation in active recreation and play across the community,
- increase the use of our natural assets, play spaces and sporting amenities by residents and visitors, and
- deliver new opportunities through effective partnerships.

ACT Water Strategy 2014–44,²⁴ which delivers the following climate action opportunities in relation to sport and active recreation:

 to the extent possible, continue to irrigate sportsgrounds and public open space areas in an efficient manner.

Active Travel Framework,²⁵ which delivers the following climate action opportunities in relation to sport and active recreation:

- include and prioritise walking, cycling and riding when planning for land use and transport,
- build appropriate infrastructure for walking and cycling needs, and
- enable greater participation in walking, cycling, riding and accessing public transport.



²¹ A Strategic Plan for Sport and Active Recreation in the ACT & Region 2011–2020

²² Six strategic priorities were identified with over 50 strategic initiatives for implementation. Of these initiatives, only one reflected environmental challenges: 7.3 Identify and address environmental challenges and ensure the sport system adapts to environmental changes and is environmentally conscious and responsible https://www.sport.act.gov.au/_data/assets/pdf_file/0006/847869/ACTIVE-2020-Strategic-Plan.pdf

 $^{23 \}quad https://www.sport.act.gov.au/_data/assets/pdf_file/0009/754245/150727_S-and-R_Statement_of_Intent_web.pdf$

²⁴ https://www.environment.act.gov.au/__data/assets/pdf_file/0019/621424/ACT-Water-Strategy-ACCESS.pdf

²⁵ https://www.transport.act.gov.au/__data/assets/pdf_file/0006/1247064/Active-Travel-framework-ACCESS.pdf

ACT Planning Strategy 2018, ²⁶ which delivers the following climate action opportunities in relation to sport and active recreation:

- Investigate planning mechanisms to deliver a range of sport and recreation opportunities to meet changing community need by taking a strategic city-wide approach including consideration of:
 - supporting existing and new or emerging sport and recreation sectors
 - supporting innovative and emerging sport and recreation facility delivery models
 - the allocation of land to support future sport and recreation facilities (both in existing suburbs and in the planning of new suburban areas)
 - the provision and siting of outdoor and indoor sport and recreation facilities that recognises co-location opportunities (i.e. indoor sporting facilities co-located with outdoor sporting facilities)
 - mix and scale of uses appropriate in response to sectors experiencing transition and external pressures; for example, golfing and equestrian sectors.
- Investigate opportunities to enhance the network of accessible, high quality local urban open space to meet changing community need through a district planning approach that considers:
 - distribution, role and quality of open space network
 - neighbourhood connectivity, including access to nature reserves within the urban environment
 - strategic alignment of urban growth and further investment with the open space network.

ACT Climate Change Strategy (draft),²⁷ which will give consideration to delivering the following actions:

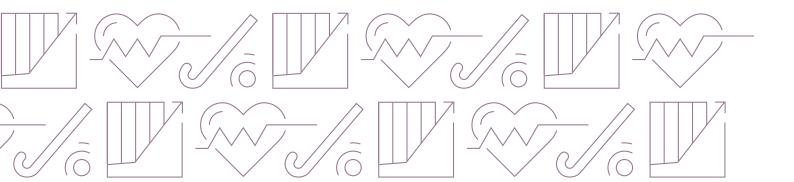
- consolidate climate change action plans of the previous decade,
- work towards achieving the ACT Government's commitment of 100 per cent renewable energy supply by 2020, and
- work towards achieving the ACT Government's commitment and zero net greenhouse gas emissions by 2045.

ACT Wellbeing Index (under development), which will give consideration to the following actions:

- monitor progress across a range of indicators that reflect the values of Canberrans, and
- influence wellbeing and quality of life.

In respect of opportunities for sport organisations and active communities to address climate change challenges in the ACT, the existing sporting regulatory instruments could, for optimal climate change resilience outcomes, align with and embrace the following initiatives:

- Actsmart Business Waste and Energy Programs
- Container Deposit Scheme
- Plastic Bag Ban, Straws suck campaign, discussion paper on banning single use plastics
- Uber, Car share, bike rental, Air BnB
- Icon Water anaerobic digestion of sewerage sludge
- Three bins kerbside recycling collection and processing system, potentially four (organics)
- E-waste, battery, phone, and mattress recycling systems at Mugga tip
- Zero emissions community grants programs



 $^{26 \}quad https://www.planning.act.gov.au/__data/assets/pdf_file/0007/1285972/2018-ACT-Planning-Strategy.pdf\\$

²⁷ https://www.yoursay.act.gov.au/zero-emissions

ACTSMART WASTE, RECYCLING, ENERGY AND WATER PROGRAMS

There is a major opportunity in the ACT to link sport organisations to the existing sustainability programs run by Actsmart.²⁸

Actsmart waste, recycling, energy, and water programs can be applied to commercial and not-for-profit sport organisations and community groups in the same way they have been successfully applied to businesses and schools.

Initiatives for improvement include water-efficient and energy-efficient technologies such as lighting, appliances, heating or cooling, refrigeration, insulation, toilets and tapware.

In terms of recycling and waste management, by following a straightforward 10-step program,²⁹ sport organisations and active communities can:

- reduce costs recycling waste can be cheaper than tipping at landfill,
- reduce impacts on the environment a motivating factor for participants and sponsors,
- benefit from public recognition of policies and actions through annual accreditation, and
- meet environmental commitments.

Recognition is an important part of celebrating sustainability achievements. The Actsmart Business Awards³⁰ have recognised numerous sport organisations in their 10 year history. Some examples are included below:

actsmart Business Sustainability Awards

2017



Winner – Energy and Water Star

Anytime Fitness Gungahlin

Working with the Actsmart Energy and Water Program, this 24 hour facility recognised there were opportunities to reducing their greenhouse gas emissions.

Installing 150 LED light panels will save them approximately \$4,928 per year in energy bills. It will also reduce energy by 27,999 kwh per year – equivalent to about 19.3 tonnes of CO_2 emissions.



Highly Commended – **Energy and Water Star**

Squash ACT

The lighting at this Woden facility had not been upgraded since the 1960s and brought many challenges to the team at Squash ACT. Identifying suitable options for squash court lighting upgrades has resulted in an annual saving of \$1300 and 4.53 tonnes of CO_2 with players commending the improvements.

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²⁸ https://www.actsmart.act.gov.au/

²⁹ https://www.actsmart.act.gov.au/what-can-i-do/business/recycling

³⁰ https://www.actsmart.act.gov.au/_data/assets/pdf_file/0003/1364763/20190315-Newsletter-Awards-Pages.pdf

Case study

CONTAINER DEPOSIT SCHEME

Linking sport organisations to the Container Deposit Scheme (CDS)³¹ is another example of an opportunity to address sustainability and climate change realities with tangible benefits.

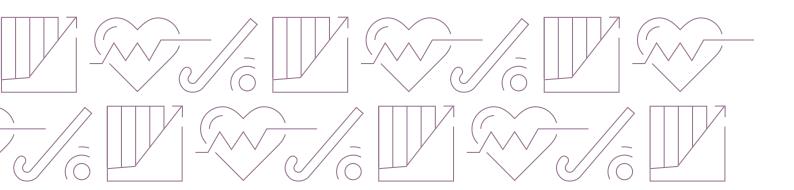
The scheme works to commit beverage producers to take greater responsibility for container packaging,³² while incentivising beverage consumers to be more conscious when disposing and recycling their container waste.

Sporting clubs are large consumers of beverage containers and make an ideal hub for the initial collection of beverage containers. The benefits are clear. 33

In NSW, introduction of the CDS has been a great success in its first 19 months. About one in two adults have participated in the scheme, reducing the amount of containers reaching landfill by about 57 per cent, or around 1.8 billion containers.³⁴



A community sporting club utilising the CDS. Source: Caitlin Roy



³¹ https://actcds.com.au/

³² https://www.cmtedd.act.gov.au/open_government/inform/act_government_media_releases/meegan-fitzharris-mla-media-releases/2018/canberr as-container-deposit-scheme-to-start-on-30-june

³³ https://www.boomerangalliance.org.au/cash_for_containers

³⁴ https://www.smh.com.au/environment/sustainability/game-changer-nsw-scheme-collects-2-billion-containers-in-19-months-20190701-p52303.html

5.4 Community empowerment

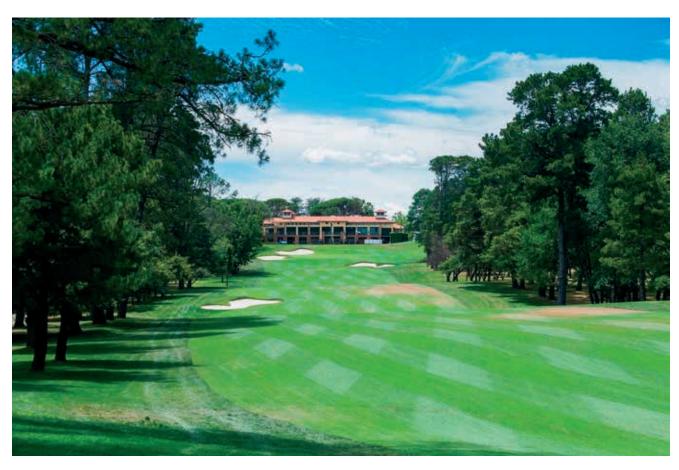
WHAT CAN SPORTING CLUBS AND COMMUNITY GROUPS DO? – A GUIDE TO ACTION

It is important that sport administrators and active communities are encouraged to adapt, and develop resilience in the face of climate change.³⁵ With a few small steps the whole enterprise can benefit.

The key is to prioritise and embed sustainability principles into organisational philosophy. This is something that any sport organisation or community group can undertake at the most basic level.

Here are some simple examples of sport organisations taking action in the ACT:

- Australian Institute of Sport worm farm³⁶
- Canberra Royal Golf Club and Federal Golf Club incorporating environmental stewardship into their mission and operations ³⁷ ³⁸
- Canberra Raiders' oval irrigated by bore water supplied from CIT Bruce³⁹
- Various clubs utilising the CDS, including Belconnen United FC Blue Devils, ANU and Woden Australian Football Clubs ⁴⁰
- Canberra City Stallions partnership with The Green Shed ⁴¹



18th hole at Canberra Royal Golf Club. Source: https://iseekgolf.com/courses/australia/act/canberra/royal-canberra-golf-club

³⁵ https://www.sportaus.gov.au/__data/assets/pdf_file/0006/678687/34896_Youth_participation_project-full_report_acc2.pdf

³⁶ https://www.ausport.gov.au/annual_report_2014-15/chapter_3_accountability/other_statutory_requirements

³⁷ https://www.royalcanberra.com.au/cms/club/our-values/

³⁸ https://www.federalgolf.com.au/cms/about/environment/

³⁹ https://cit.edu.au/about/innovation/sustainability

⁴⁰ https://www.bufc.com.au/fundraising

⁴¹ https://www.facebook.com/pg/canberracitystallions/posts/

CLIMATE ACTION TOOLKIT

In the absence of any formalised national strategy to address climate impacts on sport, there are many avenues to take action locally.

Development of a Climate Action Toolkit for sport organisations and community groups would enable practical application of the UNFCCC Sports for Climate Action Framework for volunteers and administrators.

Consultation with sporting clubs to test the usefulness of such a toolkit would provide insights into how to address some of the serious risks associated with climate change, heat, humidity and the broader health ramifications.

The following Climate Action Toolkit graphic is adapted from the UNFCCC Sports for Climate Action Framework⁴² and the Western Australian Department of Sport and Recreation action plan.⁴³ It provides an entry point for sport organisations and community groups to consider ways to take climate action within their means.

Q&A WITH LOCAL SPORT VOLUNTEER SUSTAINABILITY CHAMPION, LAUREN RASCHE

Q. Why do you think it's important to take action to make your community sporting club more sustainable?

A. Sporting clubs bring together people that otherwise might not interact and that diversity is important to the visibility of, and conversations about, sustainability issues. It's about reach.

Q. What is the benefit of implementing sustainability initiatives, to you personally and to your sporting club?

A. Personally, it's how I've identified a way I can give back to my club and to the environment my club exists in. For the club, I think the benefit is twofold. Firstly, through the CDS we're raising funds that go directly to improving the club, so there is a monetary benefit. Secondly, there's an aspect of pride and stewardship for the environment we train and play in that reflects the pride we feel to be a part of the club.

Q. What could local sporting clubs do better to address climate change?

A. Three things come to mind. The first thing to do would be to look within the club for capacity for action – is someone particularly passionate about

sustainability? Does someone have professional or personal networks the club could tap into for support? What actions do club members take for sustainability in their personal lives?

Secondly, I think it's important to start with one small initiative and really try to nail it before moving on to the next one.

Lastly, different sporting clubs and sporting codes should work together! A Saturday morning at the oval/field/pitch/court looks pretty similar which means learnings and initiatives from one club would probably translate well into another. Plus, clubs often share facilities so a coordinated effort could be very effective.

Q. What has the reaction to implementing CDS been like from fellow club members and spectators?

A. Fellow club members have been really supportive and keen to discuss future initiatives, which is good because any change requires a team effort. Spectators have also been supportive and I have been surprised at how low the levels of contamination in the allocated bins have been.

⁴² https://unfccc.int/climate-action/sectoral-engagement/sports-for-climate-action

 $^{43 \}quad https://www.dsr.wa.gov.au/support-and-advice/facility-management/managing-facilities/environmental-sustainability-pack$

FOR CLUBS AND COMMUNITIES **CLIMATE ACTION TOOLKIT**

4 REVIEW	EVALUATE	• ENVIRONMENTAL • SOCIAL • ECONOMIC	SHORT AND LONG TERM GOALS	RECOGNISE AND SHARE
	REDUCE ENVIRONMENTAL IMPACT			
3 Do	∭ WASTE	⊘ WATER	ENERGY	CARBON EMISSIONS
> 2 PLAN	GOALS AND OBJECTIVES	PEOPLE AND PARTNERS	RESOURCES	FUNDING
1 COMMIT	INITIATE	DISCUSS	PRIORITISE	PLEDGE

ENGAGE BUSINESSES AND OTHER STAKEHOLDERS

EMBRACE DIGITAL CONNECTIVITY

Sport has been dealing with changing consumer and market demand for decades. This includes new product development, alternate delivery models, adapting sport from competition through to social, accessibility, reducing costs, and more recently, incorporating digital technologies.

The sport industry is primed to utilise its existing foundations to address the next phase: sustainability and climate change challenges.

There is a raft of technology already being employed across the sport sector for a range of purposes:

- · communications,
- · time keeping and scoring,
- · monitoring performance,
- · biomechanics and kinesiology,
- · geographic and spatial information, and
- · facility management.

Recent technology upgrades to the Sydney Cricket Ground⁴⁴ include:

Competition and consumer interaction demands the use of cutting edge technology. Sport is already leading the way in this, from the elite level through to grass roots.

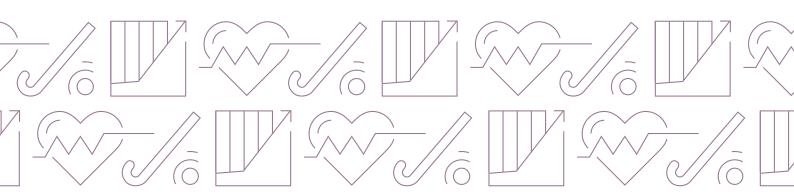
Digital platforms enable all users to share resources, experiences and achievements instantaneously with a multitude of other audiences, generating momentum and motivation.

There is undiscovered potential in utilising technology to address climate change, sport, heat and health related issues.

Incorporating the Climate Action Toolkit or a sustainability checklist into existing widely used technology applications is a practical and efficient way that industry and community can affect immediate broad scale change.



The full list of issues and opportunities raised in this Issues Paper can be found on pages 12-13.



⁴⁴ https://pmygroup.com/sydney-cricket-ground

"We need the right conditions to maintain peak performance. For too long we've treated the planet as if we're in a sprint – using all our energy and resources in one short blast. We must understand that far from a sprint, we are, together, in the longest of marathons. The more of us that run together, the better our future will be, and one in which every man, woman and child can win."

Patricia Espinosa, Executive Secretary of the UNFCCC⁴⁵



Deadly Runners, Indigenous Marathon Foundation in front of Old Parliament House. Source: Indigenous Marathon Foundation



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