Climate Change and Tennis Infrastructure

Tennis Victoria recognises that the protection of the environment is an integral part of our business**.** Our affiliates and participants enjoy the experience of playing tennis in a clean environment and we want to ensure the ability to continue to do so. Protecting the places where we play is important to us. That's why Tennis Victoria a proud member of the Sports Environment Alliance.

More than a century of burning fossil fuels as well as unequal and unsustainable energy and land use has led to global warming of 1.1°C above pre-industrial levels. This has resulted in more frequent and more intense extreme weather events that have caused increasingly dangerous impacts on nature and people in every region of the world. More intense heatwaves, heavier rainfall and other weather extremes increase risks for human health and ecosystems. When the risks combine with other adverse events, such as pandemics or conflicts, they become even more difficult to manage (Intergovernmental Panel on Climate Change, Press Release, 20 March 2023).

Climate change is a global phenomenon with far-reaching consequences, affecting various aspects of our lives, including sports and recreational activities. Tennis is not immune to the adverse effects of climate change and here we look at the impact on the key facility infrastructure necessary for our game:

Rising Temperatures:

One of the most noticeable impacts of climate change on tennis infrastructure is the rise in temperatures. Increasing temperatures can have several implications for tennis facilities:

1. Rising temperatures can lead to more frequent and severe heatwaves, potentially making tennis matches unsafe for players and spectators. Tennis facilities may need to invest in cooling systems, shade structures, or even consider rescheduling matches during extreme heat. It is likely more competitions will be moved to evening play if lighting is available.
2. As our bushfire seasons become longer and more intense, the problem of air quality will become more frequent, particularly in rural and regional areas more prone to fire attack. Damage to community tennis infrastructure and the replacement of these items can be costly and time consuming, in some cases taking many years to rebuild.
3. Higher temperatures can accelerate the wear and tear of all types of tennis courts. Hard courts and artificial courts may suffer increased cracking and surface degradation. Maintaining these surfaces becomes more challenging and expensive if they require frequent resurfacing and repair. There are products that can reduce heat absorption and the adverse effects of heat islands (phenomena that occur when natural land cover is replaced with dense concentrations of pavement and other surfaces that absorb and retain heat). Grass and red porous surfaces can also suffer degradation and loss. They may require larger volumes of water to maintain surface quality and for dust suppression and the ability to secure an affordable and adequate water supply will become a crucial factor.

Extreme Weather Events:

Climate change is also associated with an increase in the frequency and intensity of extreme weather events such as heavy rainfall, storms, and flooding. These events can adversely affect tennis infrastructure:

1. **Flooding**: Tennis courts can be damaged by flooding, causing long-term structural issues, and requiring costly repairs. Ensuring proper drainage systems, regular cleaning and flood prevention measures becomes crucial for facility owners.
2. **Storm Damage**: Strong storms can damage fencing, lighting, and other equipment essential for tennis facilities. Regular inspections and reinforcement of infrastructure may be necessary to mitigate storm-related damage. High winds can also have adverse effects on fencing, wind breaks, red porous surfaces, and lighting infrastructure.

Sea Level Rise:

Sea level rise is a consequence of climate change that can impact tennis infrastructure located in coastal areas:

1. **Coastal Erosion**: Tennis facilities located near the coast may face coastal erosion, leading to the loss of courts and amenities. Coastal facilities may need to consider relocation or invest in protective measures such as seawalls.

2. **Saltwater Intrusion**: Rising sea levels can lead to saltwater intrusion into freshwater sources used for court maintenance, affecting court conditions. Tennis facilities may need to explore alternative water sources or implement water-saving technologies.

Mitigation and Adaptation:

To address the challenges posed by climate change to tennis infrastructure, a range of actions can be considered:

Design

Buildings that provide great thermal comfort year-round while avoiding or minimising the need for auxiliary heating and cooling:

- Optimising site potential by utilising north facing elements
- Fixed or adjustable external shading
- Indoor/outdoor spaces to provide summer heat respite
- Adjustable internal blinds
- Double glazing
- Effective cross ventilation - openable windows, ceiling fans, orientation to capture dominant breeze
- Pale and reflective roofing/wall and car park colour palette to minimise summer heat retention
- Local Indigenous green roofs/walls encouraged that are minimal maintenance and suitable for local climate, light, and wind conditions
- Select domestically manufactured materials wherever possible

Energy efficiency

- Employ use of natural light to minimise artificial lighting – skylights, window placement
- Light sensors
- LED (Light Emitting Diode) technology
- Rooftop solar PV

Water

- Water Sensitive Urban Design (WSUD) - design and works to minimise the impact of development on the surrounding environment and waterways
- Best-practice water efficiency with all rain and storm water either reused or treated
- 100% of hard surfaces connected to either rain / stormwater harvesting and re-use
- Where landscape irrigation is required, systems to be automated and integrated with rainwater/storm water storage
- Fixtures and fittings to meet relevant Australian Standards for water efficient products

Waste

- During construction – aim to reuse or recycle demolition and building waste
- Provide suitable (paper/cardboard, comingles and organic) waste recycling facilities

Transport

- Encourage and provide for sustainable travel modes
- Way finding included as appropriate directing to bike/pedestrian networks
- Bike hoops
- Electric vehicle charging points
- Parking space for motorised mobility devices

Landscaping

- Consider native species and conservation of native wildlife (e.g., bird boxes, apiaries etc)
- Community gardens

Resilience Planning

Facilities in vulnerable areas should develop risk management and resilience plans that include flood mitigation measures, backup power sources, and infrastructure designed to withstand extreme weather events.

Adaptation and Education
Players, coaches, and facility managers should be educated on how to adapt to changing conditions, including heat stress management, schedule changes and maintenance practices tailored to a changing climate, switching to green energy plans, reviewing heating/cooling systems, and installing light sensors.

Government Support
Government can support tennis facilities through grants and incentives for climate-resilient infrastructure upgrades and green initiatives.

Collaboration between stakeholders, including facility owners, governing bodies, and governments, is crucial to mitigate the impacts of climate change on tennis infrastructure and secure the future of the sport.