



COOL CITIES – The value of urban storm water in climate change resilience

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On the 6th of January 2018, Penrith was the hottest city on the planet – at 47.3 degrees. By 2036, the daily projected increase in stormwater and treated sewerage flows for nearby South Creek will be greater than the output of the Sydney Desalination plant, and equal to 25% of Sydney's current water usage.

The opportunities for using captured stormwater for irrigation could provide a win-win outcome by reducing stream flows and creating a cool, green, liveable city.

The benefits of irrigation include:

- Greener, cooler, more inviting lawns that are not rock hard to play on.
- More resilient sports fields, capable of handling more wear and tear.
- Cooler spaces through evapotranspiration and shade.
- Faster tree growth and therefore greater canopy cover and more shade.
- Increased rates of carbon capture.
- Cooler pavements and a reduction in urban heat island effect, from street tree shade.

The Greater Sydney Commissions – A Metropolis of Three Cities identifies the third city as The Western Parkland City. Extending from Richmond to Campbelltown, this area is set to grow to a population of 1.5 Million by 2036 - a city larger than Adelaide. Most of this city will reside in a single river catchment – the South Creek Valley.

Paradoxically, by 2036, let alone 2056, the relatively dry and intermittent chain of ponds landscape of South Creek could have a surplus of water flowing down it – changing dramatically the landscape. So much so that creek may need to be concrete lined to protect it. The outflow is projected to be an additional 132 Gigalitres per year or an average of 361 Million litres per day. To put this in perspective, this greatly exceeds the 250ML per day output of the Sydney Desalination plant.

The outcomes for the western city for increased capture and re-use are going to be essential for helping us to become more resilient to climate change.

This presentation will:

- Examine opportunities for water re-use for irrigation in the south creek catchment.
- Review existing schemes within the catchment such as the Blacktown International Sportspark.
- Review existing programmes such as Penrith's "Cooling the City Strategy"
- Consider the dilemma of storage and how to create a "sponge city" when the Western Parkland City is all clay.
- Examine limitations on South Creek water bodies posed by bird strike issues at the new Sydney airport.

- Compare best practice examples including Sydney Olympic Park, Sydney Park re-use schemes and Warrnambool's "Roof to Tap" programme.
- Investigate efficiency opportunities created by the Internet of things and current sensor technology.
- Are we already too late with multiple suburbs already in planning and development?
- Review likely cooling effects from comparative desk top research and new data

We can help create a cool, green, liveable city by carefully planning to use our urban stormwater for parklands, streetscapes, and urban plazas.