



Does Current WSUD Policy Setting Help to Lessen Urban Heat Island Effect?

Jane McArthur¹, Dr Dale Browne¹, Dr Sara Lloyd¹, Dr Chris Ulrich¹, Dr Kerry Nice¹, Kym Whiteoak¹
¹E2DesignLab, Melbourne, Australia

It is well accepted by policy officers and practitioners that integrated water management (IWM) and urban greening investments produce a range of benefits to a broad range of community stakeholders. Quantifiable benefits tend to focus on the water resource value of localised alternative water supplies and the value of pollution load abatement to end receiving waters.

In addition, an array of unquantified social and environmental benefits of IWM investments is often listed. Aesthetic values of attractive public open space, health benefits flowing from active and passive use of restored and revegetated waterways, and habitat values of urban wetlands are just a few of the many identified and as yet unquantified benefits.

Chief among these is its potential to reduce the Urban Heat Island (UHI) effect, whereby urban landscapes generate, trap and store heat leading to higher peak temperatures and associated costs to society.

This project set out to answer the following questions:

- 'How far does WSUD infrastructure go towards achieving UHI mitigation goals?'
- 'Are the current policy settings for WSUD helping to achieve these aims, and if not, what level of policy settings are required to ensure cooler urban environments?'

The cost of the UHI effect has been quantified in dollar terms in several studies, focusing on increased avoidable mortality and morbidity during peak heat events. A unitised estimate of UHI mitigation economic value produced by IWM investments under different policy settings will be a significant contribution to IWM policy, and was an overarching goal of this project.

The project aimed to question the argument that if higher standards for IWM are introduced in new urban developments then a mitigation of the UHI effect would logically follow. This project offers a rigorous and defensible case for the UHI mitigation impact of IWM policies for this policy space.

This presentation describes the scientific analysis undertaken to estimate the expected UHI mitigation impact of IWM investments under different policy settings including the rigorous and appropriate estimate of the economic value of the change to urban temperatures produced for the various levels of WSUD investment.