



Urban Agenda Platform

The global platform for sharing progress, action and knowledge on the implementation of the New Urban Agenda to achieve sustainable urban development.

4°C Cooler – Using green infrastructure to build a climate resilient and prosperous Melbourne

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| Region | Asia and the Pacific |
| Award Scheme | Guangzhou Award |
| Start Year | 2010 |
| Sustainable Development Goals | Goal 11 - Make cities and human settlements inclusive, safe, resilient and sustainable |

Summary

In 2010, the City of Melbourne developed and endorsed two key public policy documents to guide the future development of the city: •Urban Forest Strategy •Open Space Strategy These strategies put forth a vision to create "a city within a forest". The successful delivery of these strategies will focus on using green infrastructure to cool Melbourne's summertime temperatures by 4C.

Background and Objective

Between 1995 and 2009, the city of Melbourne, Australia, suffered extremely hot weather resulting in severe drought, water shortage and heat waves that killed several hundred people. The immediate response of the city was to plan a 90 percent reduction in potable water use. It included cutting irrigation support to the city's urban forests and a plan to remove 40 percent of the city's trees. Ironically, this solution underestimated the value of green spaces and ecosystem support which are critical to climate change mitigation. Realizing the need for a more long-term strategy, in 2010 the city appointed a new Urban Landscape Team. The team produced the open space and urban forest strategy. Since 2010, 40 million dollars has been invested in related initiatives including urban forests and shrubbery; green space and rain water harvesting; permeable paving and protection of waterways; and wetlands. The goal of the initiative is to invest in green infrastructure to create "a city within a forest" so that we can increase and enhance ecosystem service provision in the City. Our desired outcome is that we will cool Melbourne's summertime temperatures by 4C. This will provide multiple socio-economic benefits, most importantly increasing the health and wellbeing of our community, and it will create climate resilience for Melbourne.

Actions and Implementation

Key actions include: •Doubling the municipal canopy cover from 20 percent to 40 percent •Increasing the permeability of the city •Expanding the stormwater harvesting network to capture 50 percent of required water •Expanding the green space network by 7.6 percent

Outcomes and Impacts

•We aim to achieve a 4C cooling of the City of Melbourne's summertime temperatures by 2040. This will provide multiple benefits for the city including: a)Climate resilience to extreme heat, increased temperatures, drought and flooding b)Increased community health and wellbeing through the provision of healthier public spaces and more green spaces for activity c)Lower energy use for cooling and lower carbon emissions as a result d)Increased biodiversity e)Lower air pollution levels •What we have achieved so far: a)We have built a storm water harvesting network, this is now contributing to securing 25 percent of the water required for landscape irrigation annually by capturing rainfall. This network will provide us with water security in a cost effective manner, even during future droughts. b)We have planted 15,000 new trees since 2010 and we have retrofitted 40 streets to increase permeability and introduce water sensitive urban design. c)We have built the world's first in-road storm water harvesting system at Darling Street. d)We have developed a four-year citizen engagement program to develop public awareness about the impacts of drought on the urban forest. e)We have invested \$5 million in Errol Street Park to expand our green space network, converting a street into a park.

Initiative Contribution

Realizing the need for a more long-term strategy, in 2010 the city appointed a new Urban Landscape Team. The team produced the open space and urban forest strategy.



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Innovative Initiative

Our innovative aspect is that we are using an ecosystem based climate adaptation approach using green infrastructure to cool our city by 4C degrees by 2040. Despite the fact that no other city in the world has ever set up such an ambitious target, we are confident this can be achieved by doubling tree canopy from 20 percent to 40 percent and maintaining the health and resilience of our urban forest. We take a holistic approach to ensure successful delivery of this target is worth sharing with fellow cities and regions: •To double the tree canopy, we have implemented our annual tree planting program to plant 3000 trees every year in the city. To strategically guide the tree planting, seven urban forest precinct plans have been developed, which priorities street upgrades using thermal image of existing hotspots and the distribution of most heat-vulnerable populations. To achieve the 4C degree cooling effect, we need a diverse, healthy and resilient urban forest to maximize its ecosystem functions. For that, we have developed a suite of urban forest health management programs. This include the 'Urban Forest Diversity Guidelines' utilizing a scientifically-based matrix to support the selection of appropriate trees for each street typology. The selection matrix and list are also scheduled to be reviewed and updated by 2015. •To support the urban forest canopy cover, we have built a storm water harvesting network, this is now contributing to securing 25 percent of the water required for landscape irrigation annually by capturing rainfall. Even during future droughts, this network will provide us with water security in a cost effective manner. •We clearly understand that we need huge support from the community. A four-year community engagement plan has been developed and communities have been invited to co-design our Urban Forest Precinct Plans. •We have also trialed a range of innovative approaches (refer to additional material) to raise the public awareness around our urban forest, including: a)The urban forest design competition which successfully raise the public awareness around urban forest in the city. b)The interactive "urban forest visual" website which not only map each individual tree in relation to its species and health, but also enables the community to establish/express their personal attachment to individual trees. c)The "Triage" whereby we commissioned two artists to turn a vandalized dead tree into a victorious street art, promoting the importance of our urban forest. •We understand the success of the target delivery also requires long term financial commitment which usually is challenging. Since 2010, we have secured investment of \$40 million from the Council and in partnerships with the State and the Federal government. •Besides the on-going dedicated budget from the Council, we have also progressed in a planning scheme amendment introducing the 'open space contribution framework' ensuring private sector developments financially contribute to green infrastructure provision. •We understand the need for scientific proof to drive the public and political agenda towards long term investment on green infrastructure. Hence, we are currently working with Victoria University on developing an economic framework to assess the value of our green infrastructure and its ecosystem and social benefits.

Resources devoted to delivery

Source of practice <http://www.guangzhouaward.org/a/973.html?lang=en>