

CHAPTER 9

Tackling climate change

The C40 Cities Climate Leadership Group states that 'Home to half the world's population and growing rapidly, cities consume over two-thirds of the world's energy and account for more than 70 percent of global CO₂ emissions' (C40 Cities Climate Change Leadership Group 2010). The 30-Year Plan for Greater Adelaide (DPLG 2010) refers to Australian Greenhouse Office national inventory figures showing that buildings are responsible for 23% of emissions and transport for 15.4%. The 4th Intergovernmental Panel on Climate Change 'confirms that buildings represent the single biggest opportunity for greenhouse gas abatement globally, exceeding energy, transport and industry sectors combined in terms of mitigation options available' (DPLG 2010). By adapting the built form of the city, there is considerable opportunity to reduce the growth of greenhouse gas emissions.

Within the urban context, green roofs and living walls are extremely important in creating a sustainable urban environment. The predictions of a changing climate in Australia and New Zealand, with variability in temperature and total rainfall, coupled with more severe or extreme weather events, brings many challenges to the design of the urban environment. These extreme weather events, such as intense downpours, place great pressure on existing stormwater systems. The increased global ambient temperatures will have an impact on the growth of vegetation, and more extreme conditions will have even greater impacts, with potential hazards for human inhabitants.

Some of the effects of climate change on natural systems and biodiversity have been evident for some time. Flannery (2005) states that 'global warming could not have come at a worse time for biodiversity', because 'in the past when abrupt shifts of climate occurred, trees, birds, insects – indeed entire biotas – would migrate the length of continents as they tracked conditions suitable for them'. Today most of the landscape is modified by human activity and so most of the Earth's biodiversity is restricted within human controlled parameters. It is therefore imperative that we provide opportunities for movement along corridors, especially those containing natural systems and water.

The living architecture of green roofs and living walls is one of the effective methods for adapting to urban climate change and even for climate change mitigation. As mentioned previously, green roofs and living walls can reduce the energy consumption of buildings, with multiple benefits: reduced greenhouse gas emissions; reduced ambient temperature and therefore a reduced UHI