City Water Stories:
Sydney

Population
- 2016 estimate is 211,695, with forecast to grow to 280,964 by 2036.
- Change 2016-36 by 37.2%.

Geography
- World's biggest natural harbor.
- Blue mountains supply freshwater to the city through a series of dams.
- Local Government Area: 25km^2.

Main challenge
- Changing climatic conditions and population growth cause serious concern for potable water security.

Main solution
- Resilience to climate change by reducing consumption and using alternative water sources, while also managing stormwater for improved health of waterways.

A Green, Global and Connected City

The millennium drought has caused serious water security concerns for Sydney in the past, and further strain on the current water supplies is expected in the future. The predicted impacts of climate change and population growth translate into an increase of 30 per cent of the water demand by 2030. In the face of these predictions, the City of Sydney is developing a strategy to drought-proof the city and "keep it green and cool", with a target to maintain the potable water use to the 2006 consumption level.

A key component of the City of Sydney's plan initiated in 2010 with the support of the Federal and State Governments is the commitment to be a water sensitive city. This is captured in a series of targets across the theme to "*build resilience to the predicted impacts of climate change, we need to keep our city cool and green. We aim to minimise use of potable water through efficiency and by capturing alternative water sources to recycle for non-potable purposes.*"

A Resilient, Cool and Productive City

The City is transforming to a water sensitive city that is resilient, cool, green and productive. The water management approach to meet these targets involves: using less water through changes in behaviour and using water efficient fixtures and fittings, and reducing stormwater pollution, minimising local flood risk, enhancing greening and urban cooling through retrofitting the stormwater management network with raingardens, wetlands, swales and gross pollutant traps.

The City's Decentralised Water Master Plan identifies actions and investments to reduce the City's reliance on potable water through retrofitting the most resource intensive properties, including water efficiency in all new constructions, using recycled water in parks and in buildings, and harvesting stormwater. Parks are to be equipped with new water use data monitoring and analysis systems by June 2017 to guide efficiency measures.

Sydney's approach is to secure water availability when it is hot and dry. The vision embraces flood risk mitigation with the floodplain management plan, which is implemented in partnership between the City of Sydney and the State Government. It aims to get stormwater safely out of vulnerable places in each catchment, while ensuring it can be reused.

Case Study: Green Square Flood Management

The first Floodplain Risk Management Plan and alliance partnership was approved by the City and State Government in June 2013. Its implementation has begun with the Green Square Trunk Drain. The $100 million drainage work will be completed in 2017, draining floodwaters away from homes, businesses and roads. The City of Sydney is also delivering up to 270 million litres per year of recycled stormwater to the new buildings and open spaces in the Green Square Town Centre, saving precious drinking water.

Sydney's Journey to Become a Water-Wise City

A closer look at how Sydney is satisfying the IWA Principles for Water-Wise Cities

1 Regenerative Water Services

Replenish Waterbodies & their Ecosystems

- ✓ Waterway health improved through stormwater control.
- ✓ Reducing consumption & using alternate non-potable supplies.

Reduce the Amount of Water & Energy Used

- ✓ Water efficient fixtures and fittings, smart meters & rating tool.
- ✓ Upgrading park irrigation systems.

Reuse, Recover, Recycle

- ✓ Alternative water sources including stormwater, rainwater and wastewater for non-potable purposes.

Apply a Systemic Approach for Integration with Other Urban Services

- ✓ Decentralised Water Master Plan.
- ✓ Environmental Sustainability Strategy and Action Plan 2016-2021.

Increase the Modularity of Systems and Ensure Multiple Options

- ✓ Efficiency, recycling & water sensitve urban design to relieve pressure on supply to support growing populations.

2 Water Sensitive Urban Design

Enable Regenerative Water Services

- ✓ Green Square Project.

Design Urban Spaces to Reduce Flood Risks

- ✓ City Floodplain Management Plans.

Enhance Liveability with Visible Water

- ✓ Sydney Park wetland and the Drying Green Park wetland introduce water in the landscape.
- ✓ Raingardens integrated into footpaths and public open space.

Modify & Adapt Urban Materials to Minimise Environmental Impact

- ✓ Sustainable procurement guidelines, sustainable design guidelines.

3 Basin Connected Cities

Plan to Secure Water Resources & Mitigate Drought

- ✓ Maintain the 2006 potable water supply quantities by 2030.
- ✓ Harvesting initiatives endorsed by the State Government's Office of Water through collaboration.

Protect the Quality of Water Resources

- ✓ Working with neighbouring Councils in the greater catchment to improve the health of waterways in the City.

Prepare for Extreme Events

- ✓ First Floodplain Risk Management Plan 2013.
- ✓ Adapting to Climate Change strategy (adopted in 2015) that looks to 2070 to assess and adapt to the risks posed by climate change for the city.

4 Water-Wise Communities

Empowered Citizens

- ✓ Smart Green Business, Better Buildings Partnership, City Switch, Smart Green Apartments & Green Villages programs.

Professionals Aware of Water Co-Benefits

- ✓ Increasing internal skills and capabilities, eg. Sustainability Strategy and Green Infrastructure teams.

Transdisciplinary Planning Teams

- ✓ Working with all government levels to influence water sensitive outcomes in urban renewal areas.

Policy Makers Enabling Water-Wise Action

- ✓ Policy and regulatory frameworks are developed to enable the vision.

Leaders that Engage and Engender Trust

- ✓ Strong vision with measurable targetsvision.

5 Building Blocks for Sydney on the journey to water-wise cities

Vision

Sustainable Sydney 2030.

Governance

The strategic, planning, delivery and asset management departments operate together to meet the City's vision and targets. Regular monitoring and reporting are in place.

Knowledge & Capacity

Connecting to local research institutes.

City to city exchange of knowledge on completed projects and strategies in place.

Sustainability Strategy and Green Infrastructure teams.

Planning Tools

The Environmental Strategy and Action Plan 2016-2021.

Implementation Tools

Sustainable Procurement Guidelines.