



CRC for
Water Sensitive Cities

Marrickville West Primary School eco water garden

Location:
Sydney,
NSW



Case Study — Prepared by Cooperative Research
Centre for Water Sensitive Cities, September 2020



Business
Cooperative Research
Centres Program

Insight

Stakeholders used a co-governance model to create an eco water garden at Marrickville West Primary School. This co-governance model helped overcome barriers to create a functional and dynamic community asset

Project description

This project involved diverting water from a council drain into the grounds of Marrickville West Primary School, filtering it and then harvesting it to create a green space for the school and the local community. Water is diverted from a drain through a water sensitive landscape, harvested for use and occasionally discharged downstream during high rainfall events.

The school uses the space as a play area and also a teaching opportunity, such as involving children in designing the area, embedding sustainable water management knowledge into school curriculum and conducting gross pollutant trap clean out tours. The Marrickville West Community Garden group uses the harvesting system to water an adjacent garden.

The project began in 2010, when then Marrickville Council (later amalgamated into Inner West Council) completed a place-based planning process to identify water sensitive solutions that could be adopted or located across its subcatchments.

The school was considered a good location for a raingarden for several reasons:

- there was space available
- there was a drainage system that could be diverted (from Henson Street)
- it had an urban catchment upstream.

But rather than call it a raingarden, the organisations involved decided to call it an 'eco water garden', which they considered to be a friendlier term for school children and the community. The eco water garden was finally constructed in 2018. It combines several water sensitive urban design elements—a bioretention system, rainwater tanks, pumps and filters, native plants, seats and paths, and an ephemeral creek bed that flows when children pump water.



What does this case study demonstrate?

Each case study has been selected to demonstrate specific solutions, benefits or enabling structures that support the creation of water sensitive cities. This case study focuses on:

Alternative water supplies

Leadership and influence

Amenity and urban greening

Governance and policy

Ecosystem health

Stormwater treatment

Community engagement

The drivers

By 2050, Marrickville is a water sensitive city where we can swim and play in the waterways as outlined in the Riverside Crescent Subcatchment Management Plan (Marrickville Council, 2010)

- **Reduce stormwater pollution flowing into the Cooks River** – As well as reducing pollutant loads from council owned land and roads, this project allowed the council to take advantage of all the space available in the subcatchment.
- **Increase the use of alternative water sources to replace potable water** – The harvesting system provides water for the eco water garden at the school and the adjacent community garden.

- **Raise the profile of water sensitive infrastructure in the community** – Council saw the opportunity to use this infrastructure to engage and educate the local community about the value of water and local waterways. For example, the school uses the space as a play area and incorporates knowledge about water into the curriculum. The principal confirmed the project has been a huge success for the teachers and students.




- **Using a co-governance model to deliver catchment scale works** – The project involved representatives from Marrickville Council, the primary school, the Department of Education (which owned the land), local community groups, Sydney Water and academic researchers. Stakeholders used a co-governance model, which is an inclusive and deliberative approach that emphasises public involvement in planning, designing and managing traditionally governmental functions such as providing urban water services. This co-governance approach differs from traditional forms of stakeholder engagement through its strong emphasis on power sharing and equity among collaborators.

The innovations

- **Planning at the catchment level** – Council looked at stormwater and waterways management from a catchment perspective and included all land, not just council land. By doing so, it could identify the relevant stakeholders to include in the process to realise solutions. This approach gave council the social licence to look beyond its boundaries, think differently and explore partnership opportunities.

The outcomes

Water sensitive urban design elements produce a creative and dynamic play space.

 Cities providing ecosystem services	 Cities as water supply catchments	 Cities comprising water sensitive communities
<ul style="list-style-type: none"> • Healthier waterways – Diverted stormwater reduces pollutants entering the Cooks River. • Improved amenity – The green space improves the amenity of the school and local community. 	<ul style="list-style-type: none"> • Alternative water source – Harvested stormwater supplies around 70% of the water demand of the community garden, eco water garden and open water zone. 	<ul style="list-style-type: none"> • Working together on a place-based project has strengthened community partnerships. • Council engineers have refined their understanding of technical issues about water sensitive infrastructure. • The school has embedded water sensitive principles and practice in the curriculum.

The lessons

- **Recognise that complex projects need people with a broad mix of skills** – Complex projects need much more than environmental, engineering and educational expertise. A particular issue for this project was developing a contract to manage a stormwater asset built by council, on land owned by the Department of Education, and managed by the Marrickville West Primary School. The Department of Education did not have a template contract for this type of arrangement; instead, council's legal counsel led that process. The co-governance model facilitated this process, by reducing the technical and contractual complexity, but it proved to be one of the most challenging parts of the project. Stakeholders also agreed that including academic researchers (like the CRC for Water Sensitive Cities) helped maintain momentum for the project and reinforced the innovative work being done at the school.
- **Engage with all stakeholders early** – Several stakeholders agreed the Department of Education should have been engaged sooner.
- **Understand the health risks of using harvested water in a school environment** – Health and contact issues of using harvested water in a school play space were raised at council. After a risk assessment was completed, additional water filters and risk reduction measures were incorporated into the design. The co-governance model ensured the risk, design and on-ground outcome was managed appropriately from whole-of-community and whole-of-government perspectives.
- **Consider the maintenance arrangements at the beginning** – All stakeholders agreed contracting arrangements for maintaining assets should be in place before funds are committed and before works begin. Despite several attempts over 10 years, a maintenance contract was not in place when the project was built. The council is working with the school to develop a maintenance agreement.
- **Don't underestimate the effort involved in realising complex projects** – The personal commitment of council officers and the school principal were critical factors in maintaining momentum for the project over 10 years. However, the co-governance process is resource intensive and may extend over many years. 'Burn out' can be a very real factor for people involved.

Transferability

The concept of working with all types of landowners in a catchment can be applied to all types of city-wide asset management and planning issues: health, transport, biodiversity, air quality and water. A co-governance model could be used in all these sectors to deliver community wide outcomes and share the risks and benefits. For example, Inner West Council is using the co-governance model in the 'Green Way' project.

The model is transferable to any jurisdiction across Australia and the world, where it is appropriate and necessary to work with multiple stakeholders and landowners, and where there is limited space to deliver water infrastructure.

But it is important to remember that this model requires a large degree of institutional and personal commitment.

Business case

The project cost \$460,000.

The school benefited from access to funding to revitalise part of the school grounds. It also benefited from working with the community for a wider regional benefit.



Project collaborators

- Marrickville West Primary School
- Marrickville West Primary School P&C
- Inner West Council (formerly Marrickville Council)
- Marrickville West Community Garden
- Connect Marrickville
- Riverside Crescent Subcatchment Working Group
- Henson Street catchment community
- Cities as Water Supply Catchments
- Department of Education
- Department of Health

Additional information

[Marrickville West Eco Water Garden—The little raingarden that could](#)

[Ecological Rainwater Management!—Growth Civil Landscapes](#)


[New Eco Water Garden to bring education, play and environmental opportunities](#)

[Riverside Crescent Subcatchment Management Plan October 2010](#)

[Pursuing sustainable urban water management through co-governance – A case study of Marrickville Council](#)



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