

Case study

Wastewater treatment and reuse plant - Ballarat (Victoria), Australia

Project	
Where (Country/City):	Ballarat - Victoria - Australia
When and contract length:	2006 - 15 + 5.
Goal: Construction and/or Operations?	Design, Build, Operate and Maintain
Scope: water/ Wastewater?	Wastewater
Scope: plant and or network)?	Wastewater treatment plant
People served:	20,000
Brief description of the project	
<p>In 2006, Central Highlands Water, a local water authority, awarded Veolia the Ballarat North Water Reclamation Project DBOM contract (15 + 5 years) with the objective of improving water quality discharged to the environment.</p> <p>This contract initially involved Veolia taking over the operations of an existing wastewater treatment plant (trickling filters). In 2007, construction commenced on the new Biological Nutrient Removal wastewater treatment plant. This plant was completed in 2008 and received a mix of industrial (50%) and municipal wastewater. The design capacity is 8.4 MLD (dry weather) and 23 MLD (wet weather). Due to the industrial influent low COD/TKN ratio, the plant uses sugar/molasses as an external carbon source for nutrient removal, removing 60% to 70 % phosphorus biologically. Alum is used to remove the remaining 30% to 40% chemically.</p> <p>The facility includes a thermal sludge dryer that produces pelletised biosolids for beneficial land-based reuse and a class A Recycled Water Treatment Plant. The recycled water is available for various uses, including distribution into Lake Wendouree, the main recreational lake in Ballarat.</p>	
Is this project unusual or different compared to others?	
<p>As the influent is 50% industrial (food factory), the inconsistent and shock load of nutrients into the plant caused final effluent quality issues at the commissioning stage. During commissioning, the food factory unexpectedly changed its discharge pattern from 7 to 5 days. Load and flow balancing</p>	

allowed better control of the ammonia and phosphorus in the influent and better management of the carbon source dosing.

The change in discharge patterns while in compliance with the trade waste agreement was not contemplated by the client at the inception of this project

What have been the major outcomes or success so far?

Full treated water compliance and treatment cost optimisation have been the main outcomes. Due to the quality of the service delivered, the water authority granted the potential 5-year extension of the contract.

Has “working in partnership” helped to make the project successful?

Collaboration with the Water Authority has been key in tackling the initial commissioning issues in particular on the trade waste agreement with the industry connected to the Ballarat North wastewater treatment plant. Diversion of carbon-rich wastewater to the Ballarat North plant from a sewer connected to the other wastewater treatment (Ballarat South - operated by the Water Authority) allowed significant OPEX savings.

Veolia and Central Highlands Water developed together an Emissions Reduction Plan to reduce Scope 1 and Scope 2 Emissions. The installation of a 750 KW solar farm on site has allowed Opex savings and moving towards NetZero.

A concept for a waste-to-energy facility was also developed with the Water Authority

Contribution to the United Nations 2023 Conference themes

1) What does the project contribute to?

Water for Development: Valuing Water, Water-Energy-Food Nexus and Sustainable Economic and Urban Development

YES/
See above

Water for Climate, Resilience and Environment: Source to Sea, Biodiversity, Climate, Resilience and Disaster Risk Reduction

YES/ this project directly addresses the resilience to drought of the local community, by providing water fit for recreational use and environmental enhancement.

What topic of the “Global Acceleration Framework” does the project contribute to?

1. Optimized financing – did you improve targeting or utilize existing resources more efficiently, or mobilize additional funds

No, the project was financed by the water authority

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2. Improved data and information – how did you use data and information to improve the service and increasing accountability and transparency	Yes . We are currently working with the client on addressing the inflow and infiltration of clean water into the sewer network which negatively impacts the volume of influent received at the wastewater treatment plant . We are currently looking at implementing SeWerView which is a platform developed by Veolia in Denmark . This platform should allow a better understanding of the volumes of clean water
3. Capacity development - did you create new jobs or developed local people's skills and talents?	We traditionally appoint staff with a trade qualification and train them to become operators and maintainers. The WTP is operated by 7 people.
4. Innovation – how have you used innovation and technologies to make the service better?	Yes, we have used innovative approaches to improve asset management using reliability and experienced-centred maintenance models in order to reduce thermal dryer downtime. Full automation of the BNR plant using analysers has allowed significant cost savings. All the innovations were implemented by the ANZ Veolia staff . The savings were about 20% of the operation costs
5. Governance – what have you done to maintain and strengthen governance around the project?	As per the contract, we have regular operations meetings with the Water Authority management team. We initiated an annual partnership workshop and regular joint assessment of the quality of the relationship (10 KPIs are assessed every quarter).
Has the project in any way supported the development and involvement of young people and/or supported gender equality, and if yes, how ?	
Veolia implemented a competency development and assessment framework with 6 grades across all its operations in Australia. This gives an opportunity to young staff (grade 1) to acquire skills and access higher grades and better remuneration.	