

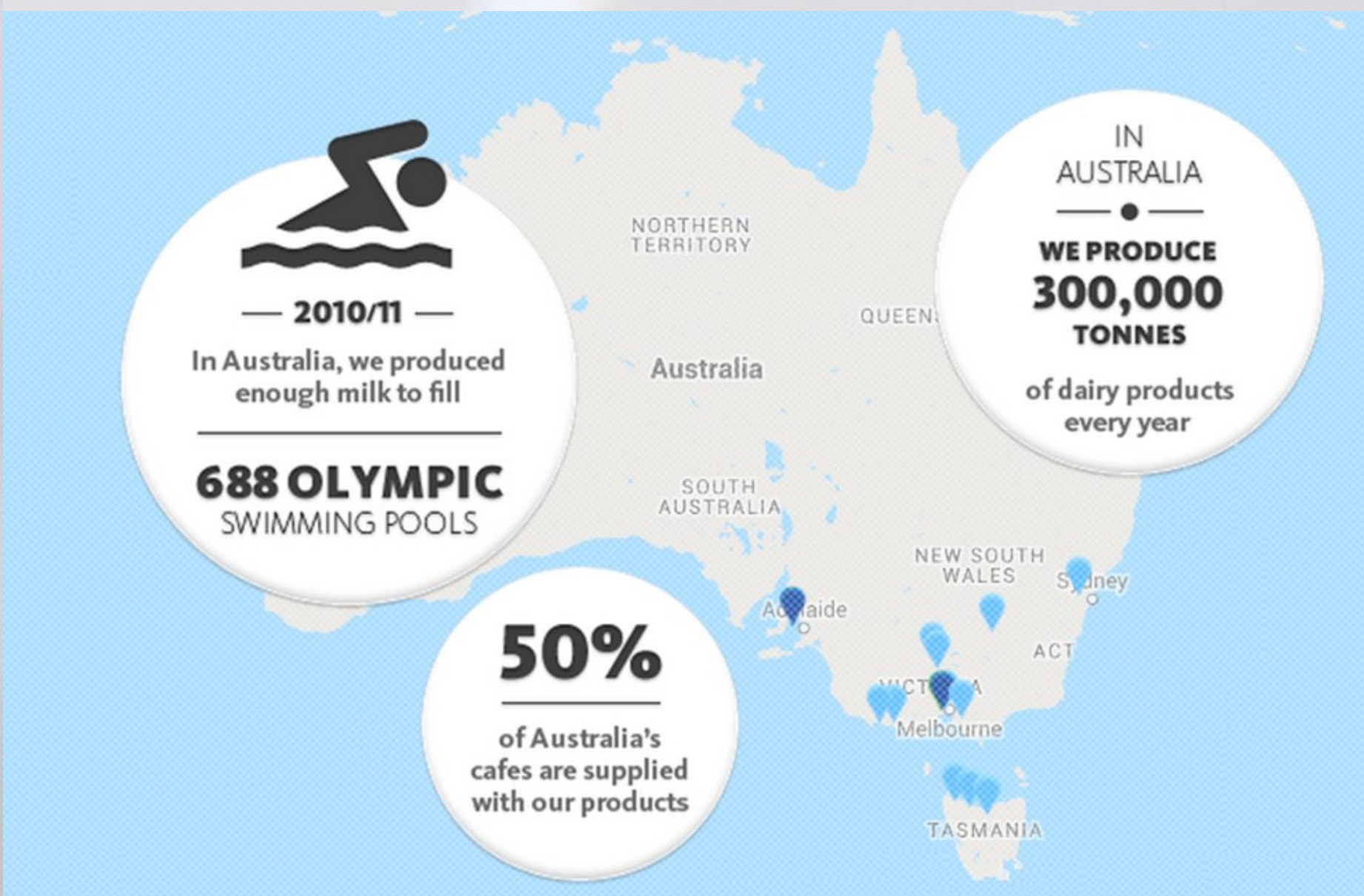
MITI - Fonterra

Management of phosphorous as a waste output of dairy processing

MITI Team
 Andrew Amico
 Erol Buyukcinar
 Nicholas Fung
 Conor Rogers

The company

Fonterra Co-operative Group Limited is a New Zealand multinational dairy co-operative. It is responsible for approximately 30% of the world's dairy exports, with a revenue exceeding NZ\$ 19.87 billion. Within Australia, the co-operative produces a wide variety of dairy products at its 10 different sites.



Scope of project

This MITI project was based at Fonterra's factory in Stanhope. The Stanhope site produces a wide variety of products including cheese, whey, milk powder and anhydrous milk fat (AMF).

In the dairy manufacturing industry, water is a critical resource. The Stanhope site can produce 3.0 million litres of waste water each day. Traditionally wastewater is treated through a lagoon system and irrigated onto surrounding farm land. The main focus of this project was to explore management and treatment options for elevated phosphorous levels in the factory waste water that can be of a detriment to this practice.

In the past a Tangential Flow Separator (TFS) has been used to clarify the waste water and reduce phosphorous concentrations. This system was problematic and subsequently decommissioned. This system, along with alternative technologies were to be considered in this project.

Outcomes

- Review of wastewater treatment process
- Identified major contributors to phosphorous loading
- Reviewed consultant's work on treatment technologies
- Wastewater data analytics
- Explored treatment locations and alternative technologies
- Devised a chemical dosing regime for phosphorous removal
- Feasibility, design and costings of treatment options
- Detailed final report



Learning & Discoveries

Factory and site OH&S	Factory processes and wastewater management	Chemical treatment technologies for Phosphorus removal
Laboratory work: Jar tests and Spectrophotometer	Report writing & presentation skills	How to effectively collaborate in a multidisciplinary team
How to take a 'big-picture' approach to large scale problem	Engaging with other organisations on behalf of Fonterra	Independent living



Working at Fonterra

- This project involved a mix of time spent in rural locations, and the head office in Mount Waverley.
- On-site hands on experience, Fonterra owns multiple farms in the surrounding area, with extensive machinery.
- Friendly environment, seniors were always available for consultation.
- Accommodation was at a caravan park in Kyabram, a 20 minute drive from Stanhope.

