

MONASH INDUSTRY TEAM INITIATIVE (MITI)

DESIGNING A ROADMAP FOR SALINE WASTEWATER MANAGEMENT

Claire Lim (BEnvEng (Hons)), Dinal Appuhamy (BSc (Majors in Zoology, and Ecology and Conservation)),
Rebecca Phillips (BEnvEng (Hons))

Project Background

Over the last 20 years, approximately 84 million litres of saline wastewater (the permeate concentrate from salty whey) has been sent to Saputo Cobram's evaporation ponds (see photo). The waste is very high in salinity, biological oxygen demand (BOD) and chemical oxygen demand (COD). This is not a sustainable solution as the geomembrane liners have a life of 20 years, after which cracks may form allowing the waste to leach out if not appropriately managed.

Project Scope

The project scope was to present a roadmap evaluating treatment and disposal options for both the fresh and historical saline wastewater. This involved finding treatment methods and technologies from academic literature as well as commercial solutions that could utilise or improve the disposal of the saline wastewater.

Key learnings

- Insight into the dairy industry and the issues it faces
- Understanding of onsite cheese manufacturing processes
- Insight into the complexities of implementing a circular economy
- Liaising with commercial companies and academics
- Exposure to living in regional Victoria



Saputo's Evaporation Ponds in Cobram

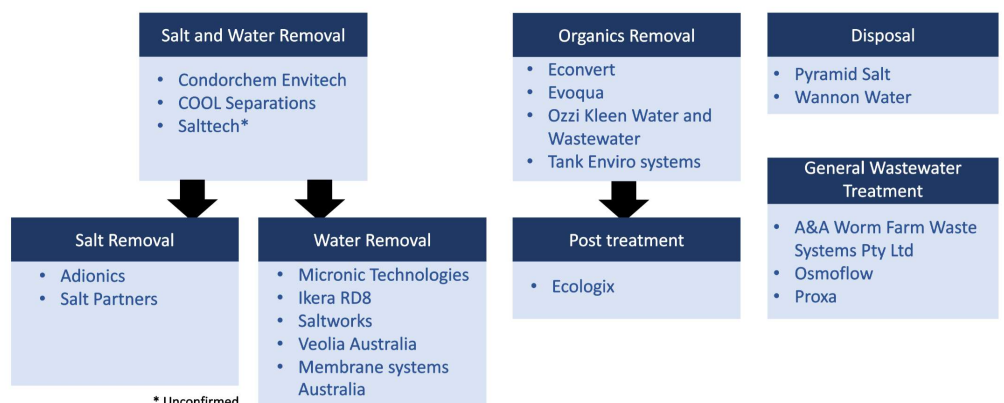


MITI Students with Saputo Employees

Categorisation of Academic Research

Saline Wastewater as a Resource	Organics Removal	Salt Removal
<ul style="list-style-type: none"> • Electrodialysis for Demineralising Sweet Whey • Electrodialysis for Ion Removal from Saline Wastewater • Processed Cheese Ingredient • Concrete Mixing Water • Solar Ponds • Fertigation 	<ul style="list-style-type: none"> • Anaerobic Digestion • Constructed Wetlands • Lactic Acid Production 	<ul style="list-style-type: none"> • Eutectic Freeze Crystallisation • Electrodialysis for Cleaning Chemicals
Disposal		
<ul style="list-style-type: none"> • Upgrades to Crystallisation via Evaporation Ponds 		

Categorisation of Company Contacts



Learning About Cheese Processing