

Expert advisory solutions for sustainable management of saline water and wastewater

Backed up by technology and know-how



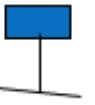
Impactus VAP Pty Ltd

www.impactusvap.com

Sydney, Australia

February 2023





Impactus VAP, under the leadership of Aharon Arakel, provides end-to-end salinity management across every stage of your organisation's sustainability journey

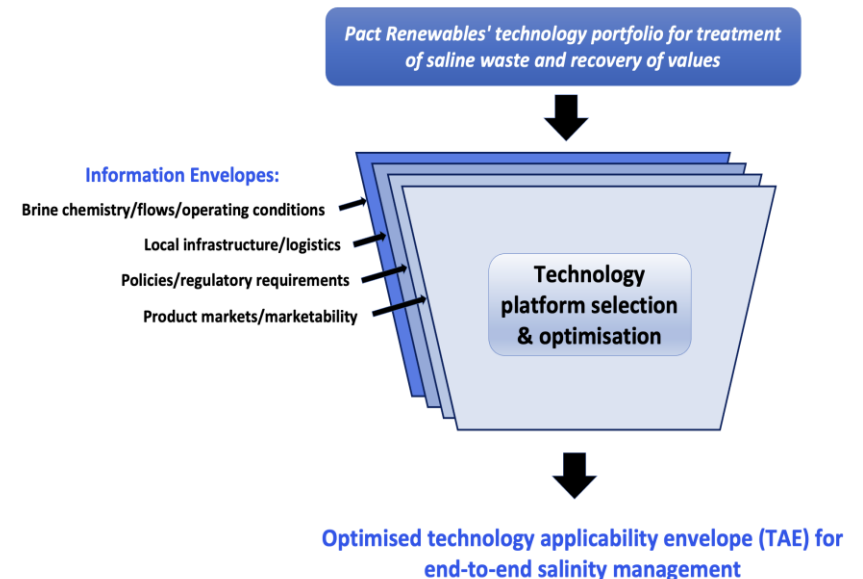
We help enterprises, large and small, set and implement strategies to reduce their carbon footprint through the recovery of additional water and valuable products from their saline waste streams, as a resource, whilst offsetting treatment costs.

This integrated technology-based approach to waste solutions can become a cornerstone for organisations serious about sustainably reducing the impacts of their waste footprint.

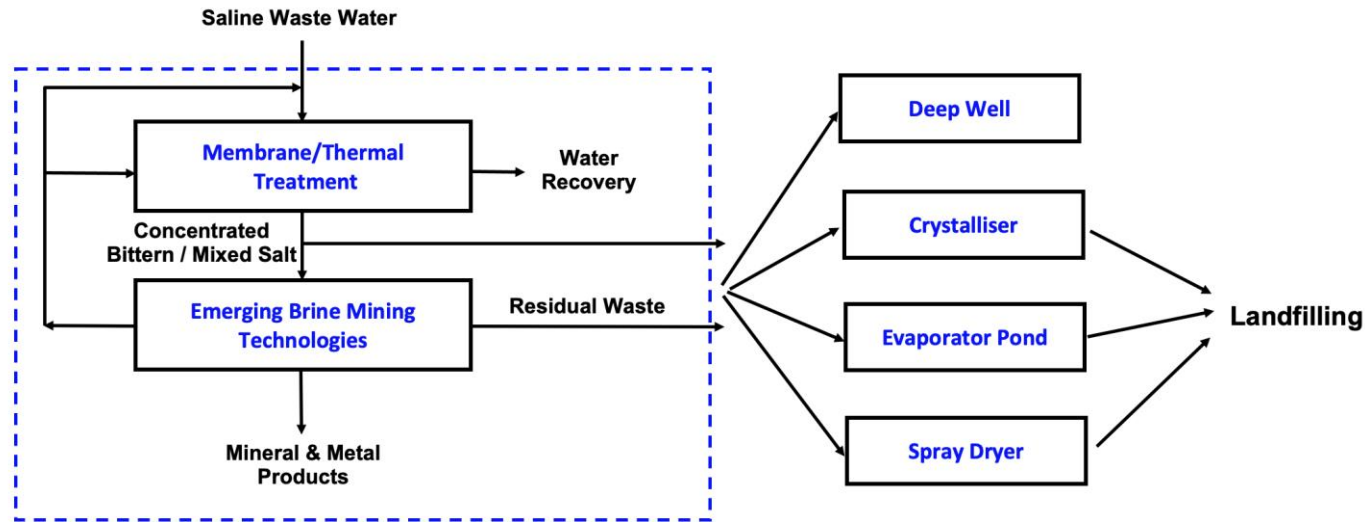
Our Technology Applicability Envelope (TAE) backed up by our [technology platform](#) enables larger organisations with multiple saline waste generating operations develop actionable strategies for salinity reduction, comply with regulatory requirements, and embed saline waste management into all aspects of their business.



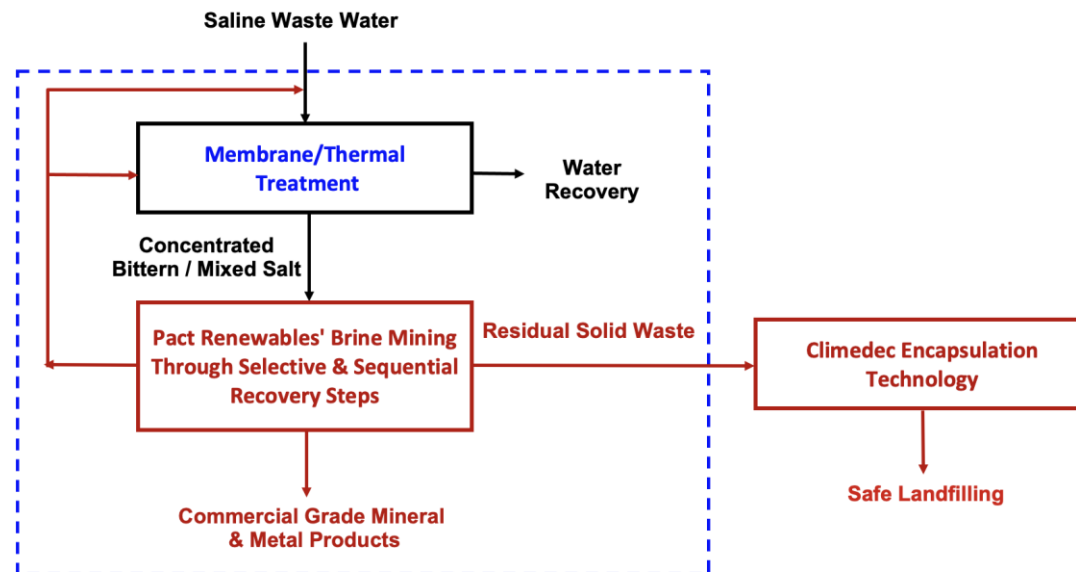
Side view of Takata Corp's 23,000tpa salt removal capacity plant in South Australia for production of high purity magnesium metal feedstock and byproducts from seawater brines using *Salpro*.



Our Zero Waste Discharge (ZWD) saline wastewater solutions lead to safe, permanent disposal of residual solid waste.



Conventional brine management approach



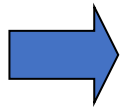
Our ZWD solutions



Example of how we can help you achieve your sustainability goals



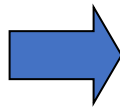
We use brines currently being discharged, as a resource.....



... By treating them, using our technologies to...

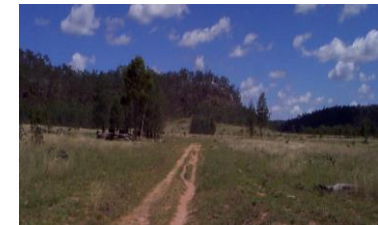
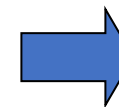


recover fresh/irrigation quality water



Industrial salts, fertilisers, REEs, critical minerals, and precursor minerals and compounds for producing composites and value-added products

produce saleable products



and achieve zero waste discharge outcomes or go beyond this and restore your site.



About Impactus VAP

The Company has since its establishment in 2011, been directed by [Dr Aharon Arakel](#), a global foundational expert in the field of sustainable management of saline waste through recovery of values to achieve zero liquid waste discharge.

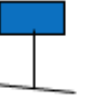
Aharon's first patent on production of minerals from salt lake brines dates back 30 years and since the mid 2000s, his Salpro technology, for selective or sequential recovery of commercial grade minerals, metals and compounds from saline wastewaters, has been highly ranked based on technical, operational and economic feasibility and sustainability.

He has assisted many major companies and advised governments in Australia, China and USA on matters related to sustainable management of saline wastewaters and has licensed his patented technologies to entities in Middle East, Japan, USA and Australia.

His saline consulting team includes Dr Mike Mickley, a global expert on concentrate/brine treatment and management and Josh Leverett, a highly skilled chemical engineer charged with conducting integrated lifecycle and techno-economic assessments.

The Company uses in-house engineering and chemical testing facilities for its projects.

Unique advantages of our integrated approach to saline waste management through recovery of values



In view of recently recognised global water scarcity, our integrated approach has become more poignant, considering that the technology platform, developed by the Company, addresses global water security risk from an angle different from that of conventional wisdom.

Considering that climate change has increasingly become irreversible, our integrated approach offers a practical alternative by:

- (a) producing additional water from saline waste streams which are currently largely disposed to sea and landscape and
- (b) using minerals recovered from saline waste streams as a feedstock to produce sustainable nature-based products (i.e., degradable seedling pots, slow-release fertilisers, etc).

Aharon and his teams efforts for onsite production and application of degradable seedling pots, were recently recognised through selection of Pact Renewables by the US Forestry Service for restoring U.S. forests (under 1 Trillion Tree USA Forestation Challenge), which was announced at the World Economic Forum [annual meeting](#) in January 2023



Industries we serve

- Mining and mineral processing (including tailing storage facilities, mine drainage, legacy mine sites and site rehabilitation projects)
- Desalination (including seawater and inland desalination plants and types)
- Oil and gas (including flowback impoundments associated with shale gas operations and residual salt storage ponds in coal seam gas/coalbed methane production)
- Energy generation (including waste-to-energy, geothermal energy, lithium recovery from geothermal brines and coal power stations)
- Fertilisers and specialty chemicals (including potash and energy mineral recovery projects from salt lake systems)
- Food chain, from production to waste disposal (including cattle, livestock dairy and municipal solid waste landfills)
- Municipal and industrial water and wastewater
- Paper/cardboard manufacturing
- Petrochemical/metallurgical facilities
- Biogas generation (including saline effluents from anaerobic digestion systems)

Examples of the organisations assisted by Dr. Arakel on their saline waste challenges





Services

Consulting services including expert independent reviews for engineering companies, municipalities and utilities.

Desktop studies including prefeasibility and feasibility studies. As a supplier of both technology and sustainable saline waste solutions we are uniquely placed to undertake integrated lifecycle assessments (LCA) and techno-economic assessments (TEA) on behalf of our clients.

Expert advice on integrated water cycle management planning to organisations faced with the challenge of sustainable management of their saline waste streams from operations and also seeking additional water supply in the face of water scarcity

Contract R&D for generation of site-specific IP, to be owned by the client.

Expert advice to brine mining solution providers on the technology-based options for safe landfilling of residuals from their processes and QC/QA aspects of their mineral products.



Contact us to discuss your organisation's requirements

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