



De.mem Limited (ASX:DEM)



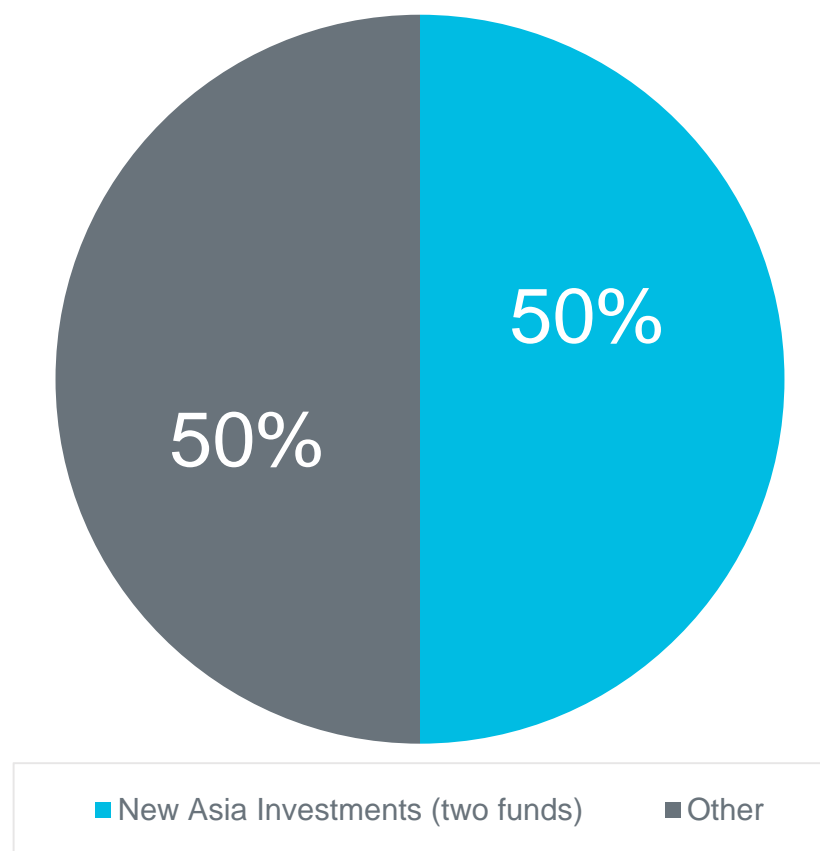
A Huge Market Opportunity: Decentralised Water Treatment

- The global market for packaged / decentralised water treatment systems was valued at USD 12 billion in 2015 and is projected to reach USD 21.8 billion by 2021 - a compounded growth of 10.4% per annum*
- Water pollution and scarcity among key issues for many developed and developing countries worldwide
- Outdated and ageing infrastructure in many countries are compounding the matter
- Large centralised plants are often inefficient, require heavy budgets or take too long to deploy
- Decentralised or “packaged” plants as a cost-efficient and easy to deploy solution
- The opportunity is a reality for De.mem – not a pipe dream!



Corporate Snapshot

ASX code	DEM
Ordinary shares	107.7m
Market capitalisation	\$18.8m
Cash on hand (30 June 2018)	\$2.1m
Listed on ASX	7 April 2017
Issue price	\$0.20
Last price (6 September 2018)	\$0.175
52 week high	\$0.34
52 week low	\$0.12
Average daily trading volume (3 months)	~62,000
GICS classification	Utilities



Overview

Introduction

De.mem Group (DEM) is a Singaporean-Australian company which builds de-centralised water treatment systems for customers in the Asia Pacific region

Key Target Markets

Potable water
Sewage treatment
Industrial waste water
Process water i.e. for F&B

Key Product Lines

Membrane based water treatment systems
MBRs
Bioreactors
Chemical dosing systems
Hollow fibre membranes



Key Investment Proposition

DEM strives to become the market leader in the highly fragmented de-centralised water treatment segment – based on a range of new and revolutionary membrane technologies

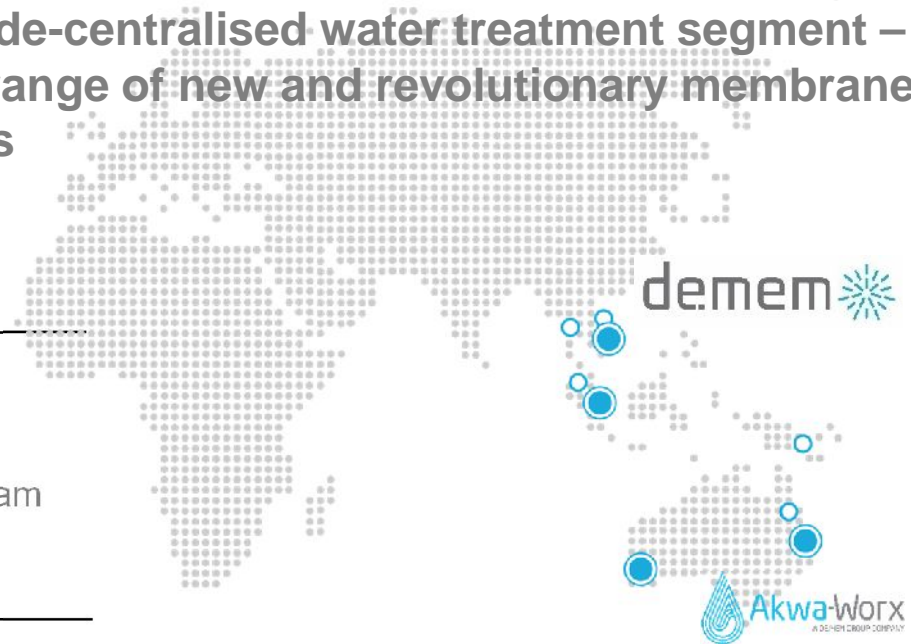
Locations

Perth
Brisbane
Singapore
Ho Chi Minh City, Vietnam

Employees

57

38 Australia
12 Singapore
7 Vietnam



- Offices
- Projects Completed

Leading Expertise in Engineering & Design of Water & Wastewater Treatment Systems

- De.mem builds, owns, operates and sells a wide range of decentralised water and waste water treatment systems – “packaged” or containerized and turn-key to the customer
- Systems use membranes as their key component (filter)
- Customers include mining companies, global EPC contractors, municipalities and water utilities

Potable Water



Industrial Waste Water



Sewage



Process Water & Recycling



Underpinned by the Best Water & Wastewater Treatment Technologies

- Collaboration with Nanyang Technological University, Singapore (“NTU”) – one of the world’s leading institutions for water technology research & development
- NTU ranked no. 2 in membrane research worldwide by Lux Research (2013)
- De.mem owns the exclusive rights to a range of membrane technologies developed by NTU
- Technology portfolio includes breakthrough innovations such as
 - low pressure hollow fibre Nanofiltration (NF) membrane and
 - hollow fibre Forward Osmosis (FO) membrane



Inventors Prof. Wang Rong and Prof. Anthony Fane awarded with the Alternative Water Resources Prize by UN Secretary-General Ban Ki Moon

Portfolio of World Class Membrane Innovations

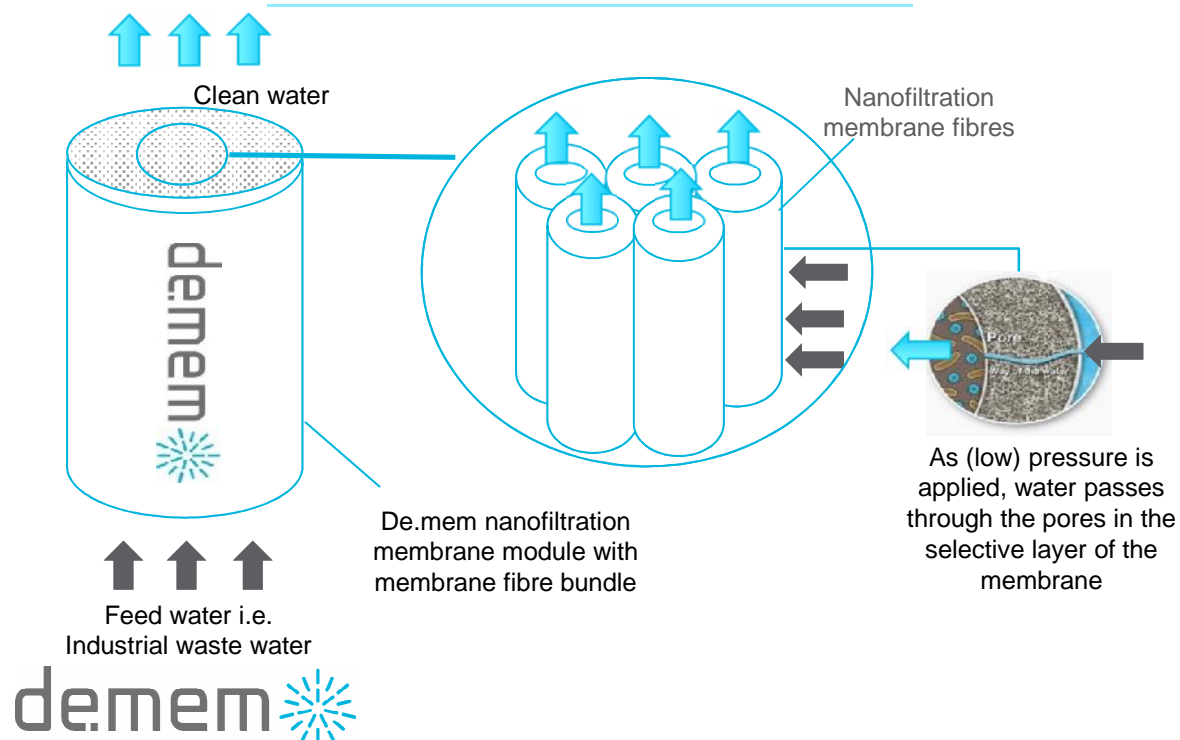
HF Membrane Bundles



Membrane Modules



Working Principle of HF Membrane Filtration



- De.mem offers a range of proprietary hollow fibre (HF) membrane technologies
- The membranes/membrane modules serve as the key component (the actual filter) in De.mem's water treatment systems
- Several technologies originally developed at NTU and licensed to De.mem exclusively and world-wide at favourable terms (based on royalties in % of revenues)
- New products developed in-house upcoming

Financials

A\$ million	2016	2017	HY 2018	2018 Forecast
Revenues	0.3	2.9	6.0	10.0 – 12.0
COGS	0.4	2.4	4.5	n/a
Gross Margin	(-0.1)	0.5	1.5	n/a
Gross Margin (% of revenues)	Neg.	18%	24%	n/a
Net Operating Cash Flows	(-1.2)	(-2.4)	(-0.6)	n/a

- Revenue growth in CY17 from \$0.3 to \$2.9m; to \$6.0 in HY18
- Revenue forecast to grow further to \$10m-12m in CY18 based on strong sales pipeline in Australia and Asia
- Forecast includes approx. \$3m in recurring revenue from BOO & O&M contracts
- Gross margin of approx. 24% in HY18 (18% in CY17)
- Cash balance of \$2.1m as of 30 June 2018 – well funded for growth in 2018/19
- Reasonable cost structure: -\$0.6 million operating cash outflows in HY18

Blue Chip Customer Base



Selected Project References



Industrial Waste Water

Food Industry Waste Water

- Location: Singapore
- Value: Approx. 0.3 million A\$ (over 2 years under BOO)
- Using different types of membranes plus pre and post-treatment



Municipal / Potable Water

Nghe An Water Treatment Plant

- Location: Nghe An Province, Vietnam
- Value: Approx. 0.5 million A\$
- Using ultrafiltration membrane technology



Mining / Potable Water

Coppabella Water Treatment Plant

- Location: Coppabella mine, Queensland, Australia
- Value: Approx. 2 million A\$
- Using chemical dosing and membrane bioreactor technology



Mining / Potable Water & Sewage

Sewage and Water Treatment Plants

- Location: Wafi Golpu Mine, Papua New Guinea
- Value: Approx. 2 million A\$
- Using membrane technology

DEM: Excellent Leverage to Growth in Water Infrastructure Spending

Company	HY18 Revenue	Market Capitalisation (6 September 2018)	Technology	Market Focus
Fluence ASX: FLC	A\$44.0m* 6 months to 30/6/18	A\$183m	Aerobic waste water treatment (MABR)	Municipal waste water
Phoslock Water Solutions ASX: PET	A\$9.7m 6 months to 30/6/18	A\$214m	Chemicals to bind phosphorus	Prevention of algae growth
De.mem ASX:DEM	A\$6.0m 6 months to 30/6/18	A\$19m	Membranes	Industrial (across many sectors) & municipal/residential water and sewage

*US\$ 33 million

**A\$15.7 million reported for the 12 months ended 30 June 2018 less A\$6 million reported for the 6 months ended 31 December 2017

Growth Plan – Building a Comprehensive Portfolio of Innovative Hollow Fibre Membranes

- **Nanofiltration membrane**

Superior filtration performance due to minimum pore size at low pressure / energy consumption
Developed at and licensed from NTU

- **Ultrafiltration membrane**

Large applicable market, i.e. pre-filtration for Reverse Osmosis and potable water treatment
Developed at and licensed from NTU

- **Forward Osmosis membrane**

De-watering of industrial waste water and liquid concentration in F&B (via Aromatec Pte Ltd)
Developed at and licensed from NTU

- **Domestic “point of use” filter system**

Completed (2017-18)

- **Ultrafiltration membrane**

Maximizes rejection, flux and stability; in-house development

- **Microfiltration membrane**

Large applicable market, including process water applications in F&B; in-house development

- **Membrane Bioreactor (MBR)**

Treatment of high organic load waste water

Planned (2018-19)



Growth Plan – Regional and International Expansion

Germany / Europe

- Strong demand for decentralised/ packaged solutions – in particular in industrial waste water treatment
- Pursuing initial project leads in Germany

Singapore / SE Asia

- Singapore as the water technology hub in South East Asia and worldwide
- Strong manufacturing base with large demand for industrial waste water treatment solutions
- De.mem as leading supplier for industrial waste water treatment in Singapore
- Huge need for decentralised water treatment in SE Asia countries due to lack of modern water treatment infrastructure
- De.mem with existing presence in Vietnam
- Expansion into further SE Asian countries based on partnerships

* Source: Global Water Intelligence

China

- Tightening regulatory environment drives demand for municipal and industrial water and waste water treatment
- Capex on industrial waste water and waste water treatment forecasted to hit US\$ 6.8 bn p.a. by 2020*
- China as key target market for De.mem – expansion strategy based on partnerships

Australia & Pacific

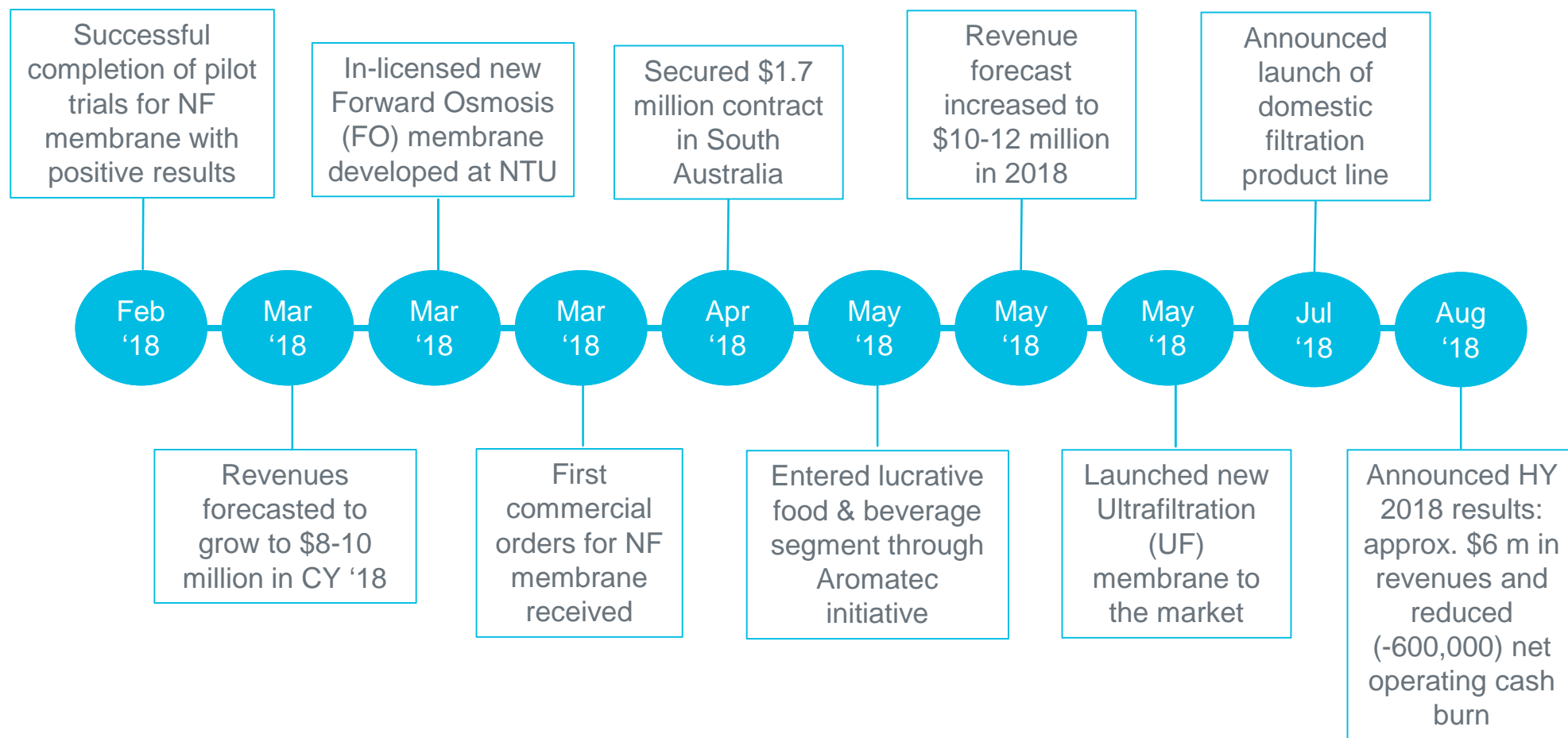
- Australia as a strong home market
- Generating cash in HY 2018
- De.mem as a market leader in QLD
- Completed projects i.e. in WA, NSW, VIC and several Pacific islands
- Regional expansion with sales & services offices planned in WA, SE Australia

Near Term Growth Drivers

- Award of new customer contracts
- Further strengthening of order book
- Expansion into key growth markets – well advanced with specific opportunities in Europe and Asia
- Access to new technology / expansion of intellectual property portfolio
- M&A / Partnerships / JV's
- Well placed to meet CY 2018 revenue forecast of \$10-12 million

Appendix

Key Milestones Achieved – 2018



Development of Nanofiltration Membrane to Commercial Stage

- De.mem holds a worldwide, exclusive license from Nanyang Technological University (“NTU”), Singapore, for a novel low pressure hollow fibre nanofiltration (NF) membrane
- Enables significant reduction in operating cost (less power consumption due to lower pressure required) and investment relative to traditional technologies, while providing high quality treated water
- De.mem successfully completed commercial scale trials in Singapore and Vietnam (announced 20 February 2018)
- Received first commercial orders for projects using the new technology in Singapore and Vietnam (announced 3 April 2018)

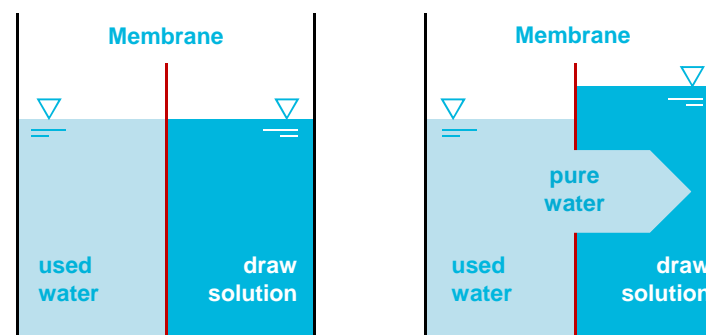


In-licensed New Forward Osmosis Membrane for Industrial Waste Water Treatment

- On 8 March 2018, De.mem signed an exclusive license for a novel hollow fibre Forward Osmosis membrane (FO) for applications in industrial waste water (de-watering of concentrate / waste from membrane based water treatment plants)
- Working principle of FO is based on osmotic pressure differences, without the use of external mechanical pressure
- Helps to reduce the waste from membrane based water treatment plants and leads to substantial cost savings for customers
- Large addressable market of \$400m p.a.*
- Mature technology with first commercial projects expected from 2019 onwards

*Source: ForwardOsmosisTech (projection for market for “Zero Liquid Discharge” applications of FO)

Working Principle of Forward Osmosis Membrane



FO

**Inventors Prof. Wang Rong and Prof. Anthony Fane
Awarded with the Alternative Water Resources Prize
by UN Secretary-General Ban Ki Moon**



Entry Into Lucrative Food & Beverage Segment Through Aromatec Initiative

- As announced on 8 May 2018, De.mem took strategic stake (32%) in Aromatec Pte Ltd, a Singaporean company targeting the food & beverage industry
- Aromatec offers innovative membrane based products for the de-watering of flavours, fruit juice, dairy and other products – based on the innovative hollow fibre Forward Osmosis membrane technology developed at NTU
- Significant opportunity – the use of membrane technologies in the food and beverage industry is estimated to be a market worth ~US\$5.8 billion per year by 2020*
- De.mem to provide systems as manufacturing partner – strong pipeline of opportunities building

*Source: BCC Research



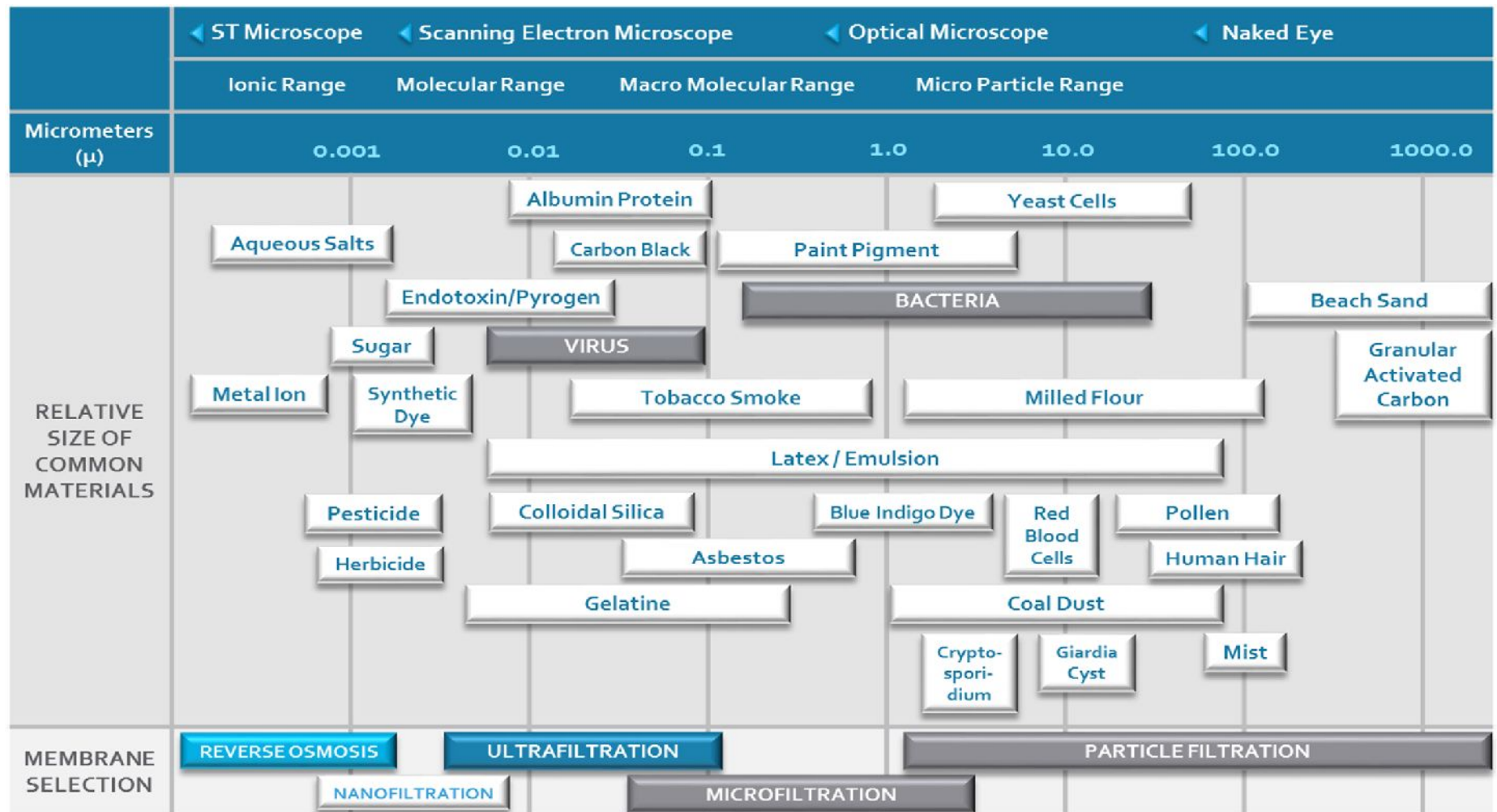
Launch of New Product Line: Domestic “Point of Use” Water Filter System

- De.mem launched a new product line targeting domestic “point of use” water filtration, as announced on 18 July 2018
- The product uses De.mem membranes as a key treatment process and is deployed prior to domestic consumption (i.e. under the kitchen sink)
- Using De.mem membranes, the filter system delivers high quality treated water – it is tested i.e. for “6-log” reduction of bacteria (a number of 1,000,000 microbes is reduced to 1 after filtration)
- Planned commercialisation through partnerships
- The market for domestic point of use filtration is estimated at 24.5 billion USD per annum worldwide, with the Asia-Pacific region accounting for the largest share*



*Source: Markets & Markets

Filtration Spectrum



Board with Strong Industrial Background



Cosimo Trimiglozzi
Chairman

- COO of Wild Flavors International
- Managing Director Givaudan Asia
- MBA, University of Basel, Switzerland



Andreas Kroell
CEO and Director

- Director New Asia Investments
- Deutsche Bank Corporate Finance
- Deloitte Audit & Advisory
- MBA, University of Frankfurt, Germany



Bernd Dautel
Non-Executive Director

- Director New Asia Investments
- Managing Director Wieland Metals Asia Pacific
- Master of Chemical Engineering, Karlsruhe University of Technology, Germany



Stuart Carmichael
Non-Executive Director

- Partner & Director Ventnor Capital
- Executive Vice President UGL Limited (ASX:UGL) KPMG Corporate Finance
- Bcom, CA



Michael Edwards
Non-Executive Director

- Non-Executive Director Norwood Systems Limited (ASX:NOR) & Dawine Limited (ASX:DW8)
- BBus (Economics / Finance), BSc (Geology), Grad Dip (Oen)

Experienced Senior Management Team



Shane Ayre
Managing Director,
Akwa-Worx

- Founder of Akwa-Worx
- 20 years industry experience in the Australian water sector



Kian Lip Teo
Chief Operating Officer

- Lien Aid
- Bachelor/Master, Nanyang Technological University, Singapore



David Chua
Director, Membrane
Manufacturing

- Mann+Hummel
- Hyflux
- 10+ years experience in membrane production
- Bachelor/Master, Nanyang Technological University, Singapore



Nicanor Suarin
Chief Engineer

- Hyflux
- Doosan Hydro
- 30+ years experience in process and system design
- Bachelor of Engineering, MBA, Philippines

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