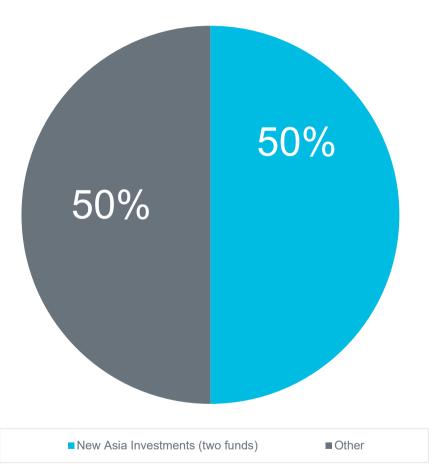


### **Corporate Snapshot**

ASX code	DEM
Ordinary shares	107.7m
Market capitalisation	\$22m
Cash on hand (31.12.17)	\$3.3m
Listed on ASX	7 April 2017
Issue price	\$0.20
Last price (12.3.18)	\$0.205
52 week high	\$0.50
52 week low	\$0.19
Average daily volume	57,832
GICS classification	Utilities





### **Overview**

### Introduction

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

### **Key Investment Proposition**

DEM strives to become the market leader in the fragmented de-centralized water treatment segment based on a range of new and revolutionary membrane technologies developed at NTU, Singapore

### **Key Target Markets**

Potable water Sewage treatment Industrial waste water

### **Key Product Lines**

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

12 Singapore

8 Vietnam

### demem 💥 Locations Perth Brisbane Singapore Ho Chi Minh City, Vietnam **Employees** Offices 25 Australia

**Projects Completed** 

kwa-Worx

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

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

#### **Potable Water**



#### Sewage



#### Industrial waste water



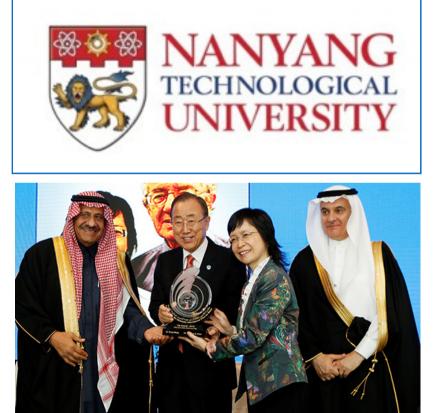
### Process Water & Recycling





# Underpinned by the Best Water & Waste Water Treatment Technologies

- Collaboration with Nanyang Technological University (NTU), Singapore – 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 fiber 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



### **Financials**

A\$m	2016	2017	2018 Forecast
Revenues	0.3	2.9	8.0 – 10.0
COGS	0.4	2.4	n/a
Gross Margin	(-0.1)	0.5	n/a
Gross Profit (%)	Neg.	18%	n/a
Net Operating Cash Flows	(-1.2)	(-2.4)	n/a

- Revenue growth in CY17 from \$0.3 to \$2.9m
- Revenue forecast to grow further to \$8m-10m in CY18 based on strong sales pipeline in Australia and Asia
- Forecast includes approx. \$3m in recurring revenue from BOO & O&M projects
- Gross margins of approx. 18% in CY 2017
- Cash balance of \$3.3m as of 31 Dec '17 – well funded for growth in 2018
- Reasonable cost structure: -\$2.4 million operating cash outflows in CY17



## DEM: Excellent Leverage to Growth in Water Infrastructure Spending

Company	FY17 Revenue	Market Capitalisation (12.3.18)	Technology	Market Focus
Fluence ASX: FLC	<b>A\$44.0m*</b> 12 months to 31/12/17 *(US\$ 33m)	A\$179m	Aerobic waste water treatment (MABR)	Municipal waste water
CleanTeQ ASX:CLQ	<b>A\$1.6 m</b> 12 months to 30/6/17	A\$722m	lon exchange	Industrial waste water (mining)
Phoslock Water Solutions ASX: PHK	<b>A\$3.8m</b> 12 months to 30/6/17	A\$152m	Chemicals to bind phosphorus	Prevention of algae growth
De.mem ASX:DEM	<b>A\$2.9m</b> 12 months to 31/12/17	A\$22m	Membranes	Industrial (across many sectors) & municipal/ residential water and sewage



### **Integrated Service Offering**

ENGINEERING KNOW-HOW	PROPRIETARY TECHNOLOGIES	PROCESS EXPERTISE	FLEXIBLE END PRODUCTS FOR THE CUSTOMER
<ul> <li>Wide range of base components, i.e.</li> <li>Bioreactors</li> <li>Chemical dosing</li> <li>DAF</li> <li>Oil removal</li> <li>MBRs</li> <li>UF-RO</li> </ul>	<ul> <li>Low pressure, hollow fiber nanofiltration membrane</li> <li>Hollow fiber forward osmosis membrane (for dewatering of waste from membrane based water treatment plants)</li> <li>De.live monitoring system</li> <li>Further membrane technologies (planned)</li> </ul>	<ul> <li>Engineering</li> <li>Operations &amp; Maintenance</li> <li>Process design</li> <li>System integration</li> </ul>	<ul> <li>Specialised products <ul> <li>Containerised</li> <li>Modular</li> <li>Compact</li> <li>Customised, high quality, efficient</li> </ul> </li> <li>Operations &amp; Maintenance</li> <li>Build-Own-Operate (BOO)</li> <li>Build-Own-Transfer (BOT)</li> </ul>

De.mem's business model includes proprietary technology, engineering and system integration as well as ongoing operations & maintenance



8

### Highly Scalable Revenue Model



 De.mem owns the equipment

- Long term contract
   with the customer
- Stable recurring
   revenue stream
- High margin



### **Equipment sales**

- Customer driven
- Opportunity for ongoing maintenance revenue



### Pricing

- Flexible pricing structure
- De.mem's pricing model allows the company and its customers to share those savings – providing a genuine win-win outcome

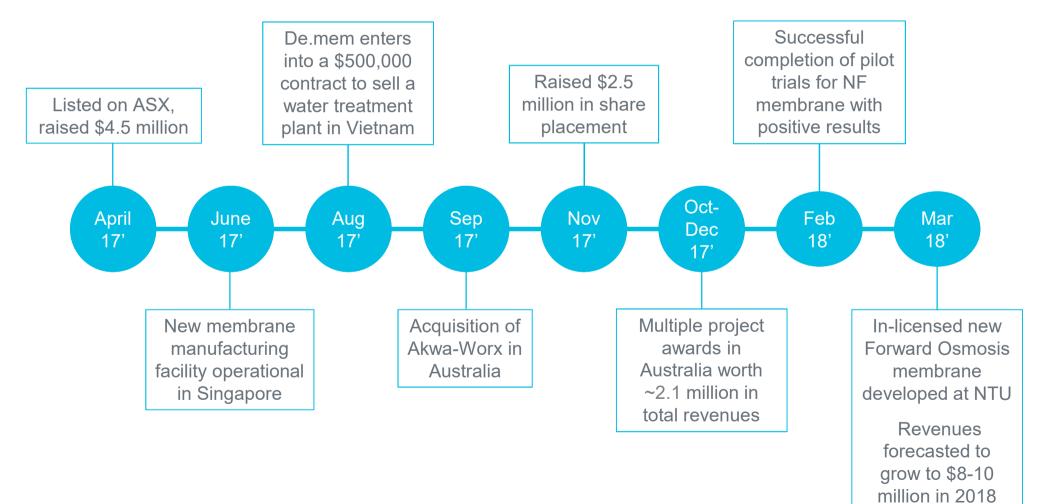


### **Customer base**

- Long-term, repeat customers
- Multi-national corporations from high volume and high growth sectors
- Clients with manufacturing presence in many countries



### **Key Milestones Achieved since IPO**



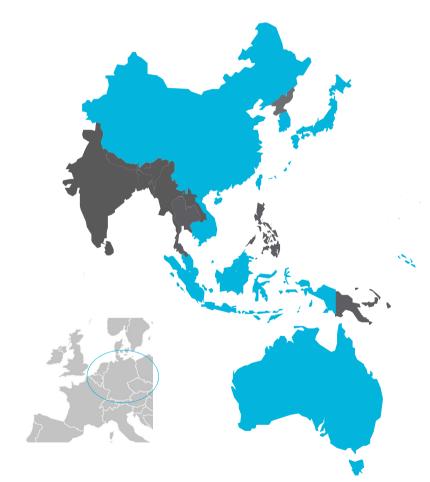


### **Blue Chip Customer Base**





### Global Opportunities: Expanding into Growth Markets



#### Germany

- A\$13 billion market <sup>1</sup>
- Started marketing De.mem
   products in Germany in 2017

#### Singapore

- A\$ 2 billion market <sup>2</sup>
- Established presence through
   De.mem in Singapore
- · Focus on industrial waste water
- Strong reference for the region

#### Malaysia & Indonesia

 Short term expansion plans based on expanded product range

#### China

- A\$20 billion market <sup>1</sup>
- Strong potential for the combined group to expand into China

#### Vietnam

- A\$1 billion market <sup>3</sup>
- Established presence and manufacturing capability through De.mem
- Short term expansion plans based on expanded product range

#### **PNG & Pacific Islands**

- Multiple projects completed by De.mem/Akwa-Worx
- · Potential to gain significant market share

#### Australia

- A\$5 billion market <sup>4</sup>
- Strong and well established presence in Queensland through Akwa-Worx
- Short-term expansion plans into other regions i.e. Western Australia

Sources: 1. Global Water Intelligence 2. The Singapore EDB 3. Frost & Sullivan 4. IBIS



### **Near Term Growth Drivers**

- CY 2018 revenue forecast
   \$8-10 million
- Award of customer contracts
- Expansion into key growth markets
- M&A / Partnerships / JV's
- Access to new technology / expansion of intellectual property portfolio



## Appendix

### Board with Strong Industrial Background



**Cosimo Trimigliozzi** 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 Management Team



**Shane Ayre** Managing Director, Akwa-Worx

- Founder of Akwa-Worx
- 20 years industry experience



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



### Portfolio of World Class Membrane Innovations

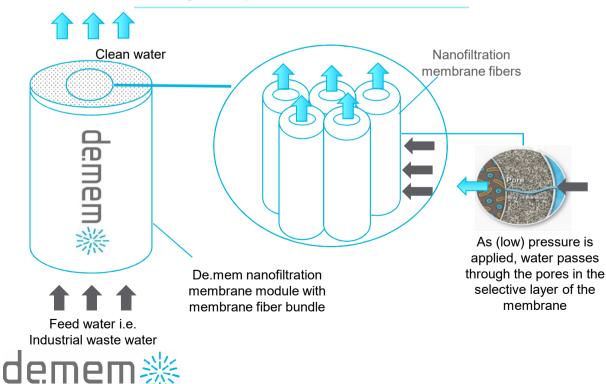
**HF Membrane Bundles** 



#### Membrane Modules



#### **Working Principle of HF Membrane Filtration**



- De.mem offers a range of proprietary hollow fiber (HF) membrane technologies
- The membranes/membrane modules serve as the key component (the actual filter) in De.mem's water treatment systems
- Technologies originally developed at Nanyang Technological University (NTU), Singapore
- Licensed to De.mem exclusively and world-wide at favourable terms (based on royalties in % of revenues)

### Membrane Manufacturing in Singapore

- With the proceeds from the IPO, De.mem has started its own membrane manufacturing facility in Singapore
- At the De.mem factory, different types of hollow fiber membranes and modules can be produced
- The factory has been fully operational since mid-2017 and manufactures industry standard membrane modules (4-inch and 8-inch diameter)







### Low Pressure Hollow Fiber Nanofiltration Membrane

- De.mem holds a worldwide, exclusive license from NTU for a novel low pressure hollow fiber nanofiltration (NF) membrane
- Enables significant reduction in operating cost (less power consumption due to lower pressure required) and investment relative to traditional technologies
- Estimated market size of ~\$ 570 million per annum for NF membranes as a component\*
- Technology is at the commercial stage





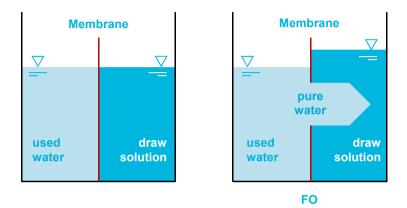


### Hollow Fiber Forward Osmosis Membrane

- In March 2018, De.mem signed an exclusive license for a novel hollow fiber 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 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)

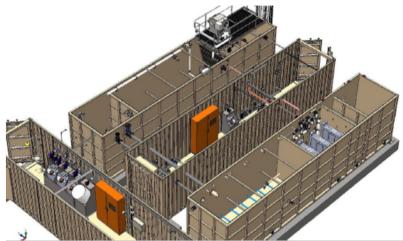
#### Working Principle of Forward Osmosis Membrane



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



### Sample Projects: Membrane-based Water Treatment Plants



### Sewage Treatment Plant MBR

LocationHeron Island, QLDDescriptionSubmerged Membrane Bioreactor<br/>(MBR)ClientHeron Island ResortValue\$1 millionYear2015



### Sewage Treatment Plant UF membranes

Location	Papua New Guinea
Description	Ultrafiltration membrane based process plus pre treatment via BNR
Client	Wafi Golpu Mine JV
Value	\$1 million
Year	2013



# Sample Projects: Long term Operations & Maintenance Contracts





### **Project Experience**



### Civeo Coppabella Sewage Treatment Plant

Coppabella, QLD

#### Capacity: 270kl per day

**Total value:** Approx \$1.5 million

- Membrane Bioreactor (MBR)
- Treats waste water from mining camp
- Operational in April 2015



### Monadelphous East Nogoa Water Treatment Plant

Papua New Guinea

#### Total value: Approx \$0.4 million

- Fluoride saturator and powder polymer preparation and dosing plants
- Operational in July 2015



### Civeo Coppabella Water Treatment Plant

Coppabella, QLD

#### Capacity: Approx 1,500kl per day

Total value: Approx \$1.2 million

- Containerised water treatment system including dosing and potable water storage
- Supplies drinking water to mining camp
- Operational in April 2015



### Mount Isa City Council Containerised Re-Chlorination Package

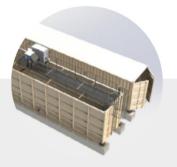
Mount Isa, QLD

Total value: Approx \$0.1 million

- Containerised re-chlorination package
- Operational in March 2015



### Project Experience (Cont.)



### Jacobs Bulwer Island Sewage Treatment Plant

Bulwer Island, QLD

#### Total value: Approx \$0.5 million

- Packaged sewage treatment plant to treat waste water for discharge into Brisbane river
- Operational in 2016



### Ausco Modular Containerised Water Treatment Plant

Cavel Ridge Mine Moranbah. QLD

#### Total value: Approx \$0.3 million

- Using Ultrafiltration (UF) membranes, packaged in standard industrial 40 feet container, fully automated incl. remote monitoring package
- Operational in 2012



## Mining Industry Sewage and Water Treatment Plants

Papua New Guinea

#### Total value: Approx \$2.0 million

- Capacity: 350 kl per day
- Using multiple bioreactors and Ultrafiltration (UF) membranes
- Operational in 2012



Carwash facility with 20 bays **Carwash** Greater Brisbane, QLD

#### Total value: Approx \$0.1 million

- Integrated system including DAF and multimedia filters, treating car wash water to recycling standards
- Operational in 2014



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De.mem Limited (ASX:DEM) Andreas Kroell CEO De.mem Limited investor@demem.com.sg

Media & Investor Enquires

Henry Jordan Six Degrees Investor Relations henry.jordan@sdir.com.au +61 431 271 538