



Global Opportunity In Industrial Wastewater

De.mem Limited (ASX:DEM)

Investor Presentation | May 2017

Andreas Kroell | CEO & Director

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A Global Opportunity

“De.mem has a multi-billion dollar opportunity in the wastewater treatment sector, driven by environmental trends and regulatory changes around the world”



To watch the Executive Interview
[Click Here](#)

The global water and waste water solutions market has an estimated annual capital expenditure of

AUD\$240 billion*

Trend towards **de-centralised units** and **recycling of waste water**



Innovative Wastewater Solutions

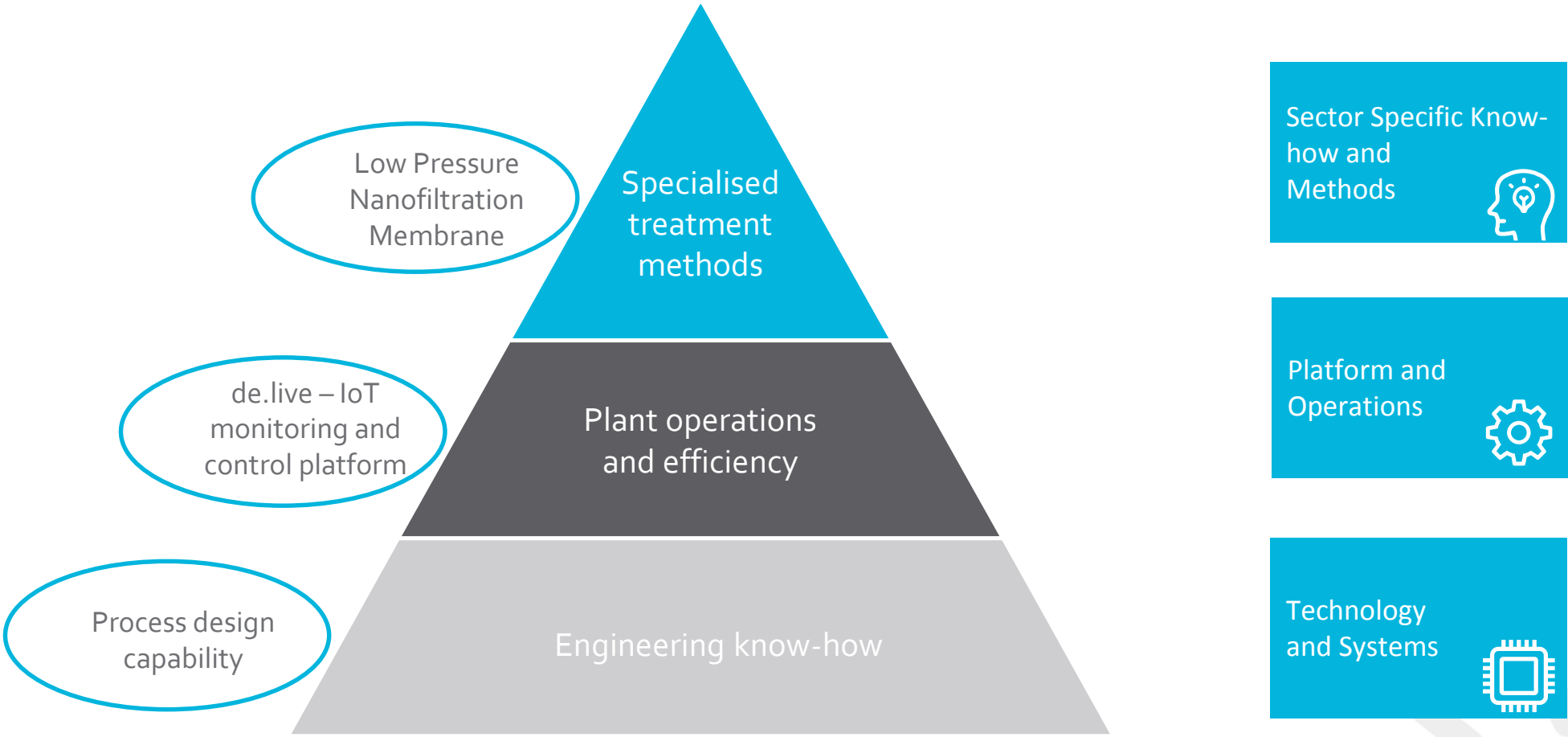
De.mem designs, builds, owns and operates de-centralised wastewater treatment systems

Licensed proprietary technologies from Nanyang Technological University (NTU) in Singapore

Innovative membrane based wastewater filtration technology – Industrial waste water focus

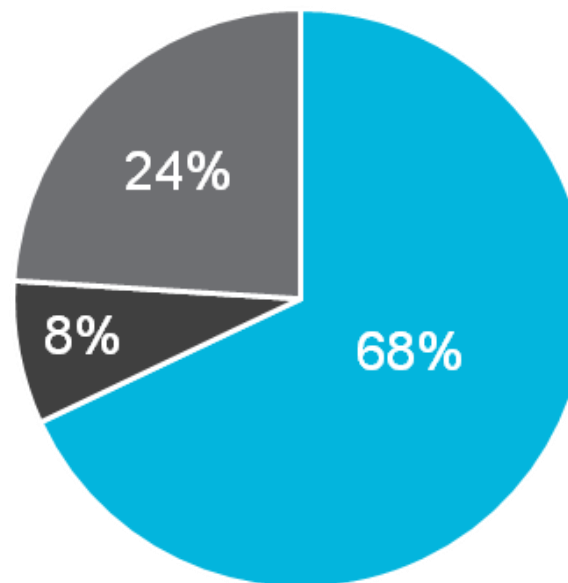
Revenue generating and positioned for growth

Leading Technology & Engineering Knowhow



Corporate Overview

ASX code	DEM
Ordinary shares	95.8m
Market capitalisation	\$30m
Cash on hand (31.3.17)	\$4.9m
Listed on ASX	7 April 2017
Issue price	\$0.20
Last price (22.5.17)	\$0.31
52 week high	\$0.50
52 week low	\$0.31
Average daily volume	198,000
GICS classification	Utilities



- NA Singapore Fund / New Asia Inv / Vendor / Other
- Pre-IPO
- IPO

Targeting High Growth Industrial Sectors



Food & Beverage

- Water and wastewater
- High turbidity, solid and oil & grease removal
- Discharge & recycling



Oil & Gas

- Wastewater
- High turbidity, oil & grease removal
- Discharge & recycling



Electronics

- Water and wastewater
- Heavy metals removal
- Ultra pure water
- Discharge & recycling



Palm Oil Industry

- Wastewater
- High organic and oil content
- High temperature
- Discharge



Mining

- Wastewater
- Environmentally friendly
- Remote operations
- Discharge, recycling and recovery



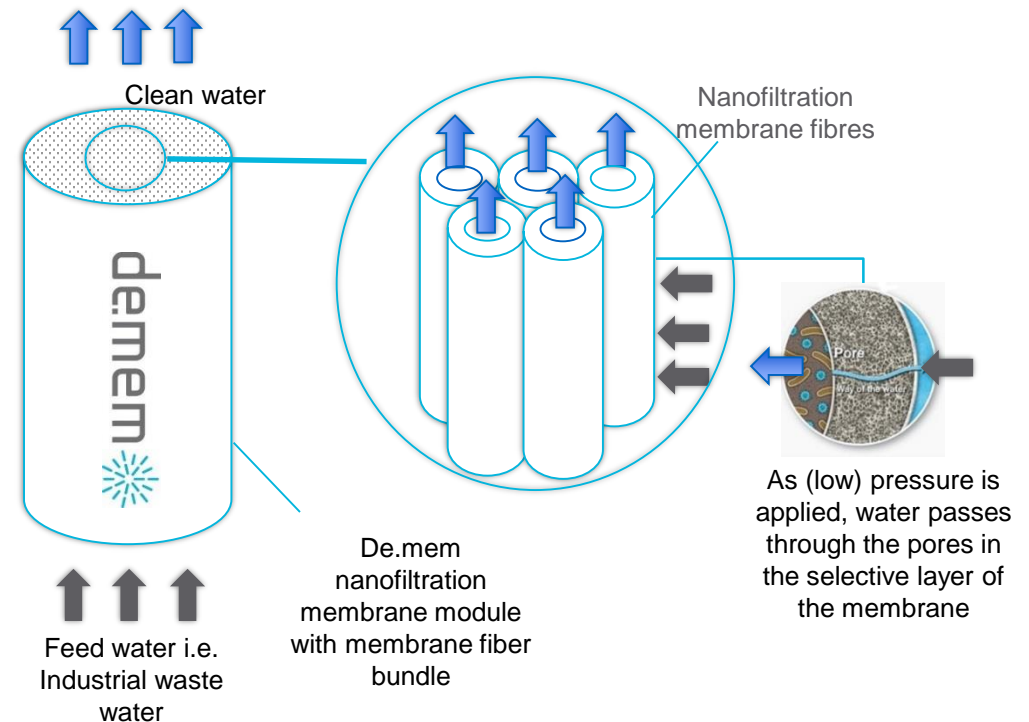
Municipal & Residential

- Potable and wastewater
- Off the shelf products
- Using river or well water
- Meeting required quality

De.mem has partnered with **Nanyang
Technological University
(Singapore)**, one of the leading water
universities in the world

Unique Proprietary Low Pressure Membrane

- De.mem commercialises a novel low pressure hollow fibre nanofiltration (NF) membrane developed at NTU in Singapore
- The membrane can reduce power consumption by up to five times
- Significant reduction in operating cost and investment relative to traditional technologies
- De.mem plans to expand its portfolio of proprietary technologies in the coming months



NF Membrane Ready For Infield Validation

- Successfully tested on different types of water / wastewater streams since 2015
- First industrial sized module produced in April 2017
- Production of the NF membrane in pilot factory in Singapore to commence shortly
- Infield validation and implementation from Q3 2017 onwards



Professor Wang, Nanyang Technological University

Integrated Business Model

Proprietary Products & Technologies

- Low pressure, hollow fibre nanofiltration membrane
- De.live monitoring system
- New technologies (planned)

Process Expertise

- Engineering
- Process design
- System integration

Operations Expertise

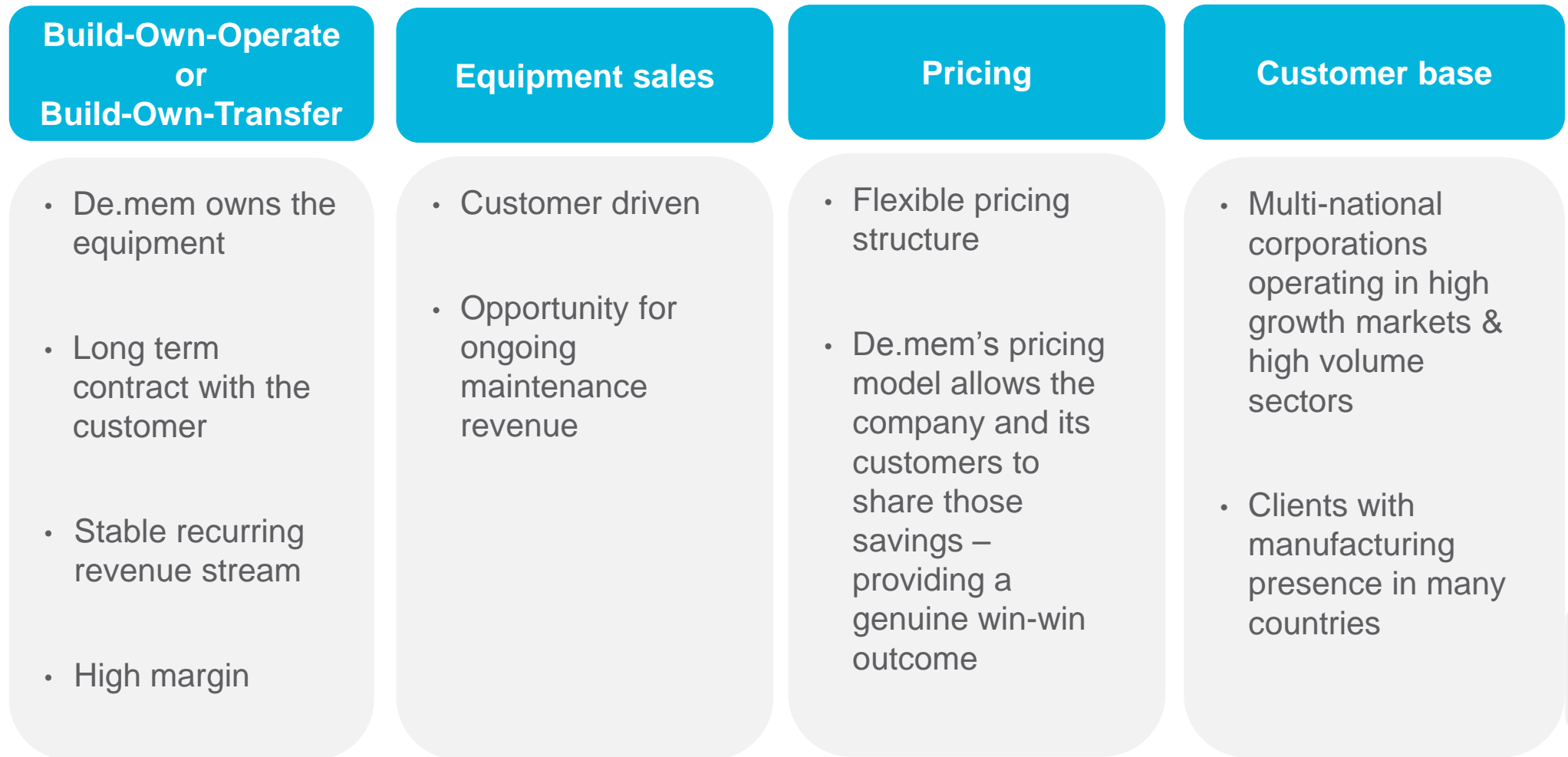
- Operations
- Monitoring
- Maintenance

Customer

- Specialised products
 - Containerised
 - Modular
 - Compact
 - Customised, high quality, efficient
- Build, Own, Operate (BOO)
- Build, Own, Transfer (BOT)

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

Highly Scalable Revenue Model



Expanding Into Growth Markets

Germany

~AUD\$13 billion¹



China

~AUD\$20 billion^{*1}



Vietnam

AUD\$1 billion³

Singapore (Malaysia & Indonesia)

~AUD\$2 billion²

Australia

~AUD\$5 billion⁴



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

85% of the total wastewater generated in urban areas in China should be treated and **20%** of the treated wastewater should be reused

(China's Water Development Plan 2011-2015)

De.mem's pipeline of opportunities is growing rapidly and currently stands at

AUD\$10m+

and includes opportunities in China, Germany and Australia

Global Commercial Validation

Impressive pedigree of clients & completed projects in 2015 & 2016



The left panel features a collection of logos for clients and completed projects. At the top is the NAVA LAND logo, which consists of a green cube-like shape above the text 'NAVA LAND'. Below it is the Givaudan logo in red. To the right of Givaudan is the text 'American multinational corporations, oil sector,'. Below Givaudan is the GROOMWERHZ logo in blue. To the right of GROOMWERHZ is the euviopharm logo, which is a blue 'e' in a circle above the text 'euviopharm'. At the bottom left is the circular logo of the National University of Agriculture, featuring a star and the text '1956' and '55th Anniversary of Establishment'. To the right of this logo is the text 'Japanese multinational corporations, electronics sector, Singapore'. A blue arrow points from this panel towards the right panel.

Robust \$10m+ pipeline of opportunities for 2017 & 2018



The right panel lists pipeline opportunities for 2017 and 2018, each accompanied by a national flag. The first entry is China, with the Chinese flag and the text 'China Currently evaluating partnership options'. The second entry is Germany, with the German flag and the text 'Germany Pipeline projects in agriculture, food & beverage sectors, resort & spas'. The third entry is Australia, with the Australian flag and the text 'Australia Pipeline projects in municipal & residential sector, food & beverage, agriculture, mining'. The fourth entry is Vietnam, with the Vietnamese flag and the text 'Vietnam Pipeline projects in municipal & residential sector, food & beverage'. The fifth entry is Singapore, with the Singapore flag and the text 'Singapore Extensive pipeline in petrochemical, oil & gas, food & beverage, electronics sectors'.

Significant Leverage Play

Company	FY16 Revenue	Market Capitalisation (22.5.17)	Technology	Market Focus
Emefcy (ASX:EMC)	A\$0.8m (12 months to 31/12/16)	A\$220m	Aeration	Municipal waste water
Phoslock Water Solutions (ASX: PHK)	A\$1.9m (6 months to 31/12/16)	A\$67m	Chemicals that bind dissolved phosphate	Prevention of algae growth
De.mem (ASX:DEM)	A\$0.3m (12 months to 31/12/16)	A\$29m	Membranes	Industrial (across many sectors) & Municipal/ Residential Water and Waste Water

Experienced Board & Management Team



Cosimo Trimigliozi | Chairman
COO of Wild Flavors International
Managing Director Givaudan Asia
MBA, University of Basel,
Switzerland



Bernd Dautel | Non-Executive Director
Director New Asia Investments
Managing Director Wieland Metals
Asia Pacific
Master of Chemical Engineering,
Karlsruhe University of Technology,
Germany



Andreas Kroell | CEO and Director
Director New Asia Investments
Deutsche Bank
Deloitte Corporate Finance
MBA, University of Frankfurt,
Germany



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



Nicanor Suarin | Chief Engineer
Hyflux
Doosan
Bachelor of Engineering, MBA,
Philippines



Michael Edwards | Non-Executive Director
CEO Latitude Consolidated (ASX:LCD)
Non-Executive Director Norwood
Systems Limited (ASX:NOR) & Dawine
Limited (ASX:DW8)
BBus (Economics / Finance), BSc
(Geology), Grad Dip (Oen)

Key Milestones

- Award of customer contracts
- Expansion into key growth markets
- M&A / Partnerships / JV's
- Access to new technology / intellectual property

Why Invest?



Substantial market opportunity: global expenditure in wastewater sector expected to reach AUD\$125bn by the end of 2016¹ and the membranes market in particular forecast to be worth AUD\$43bn by 2020²



Established revenue generating business with a strong presence in emerging Asian markets (Singapore and Vietnam)



Patented technology licensed from a leading water technology university, software development and extensive know how providing significant barriers to entry



Strong activity pipeline with expansion into Australia, Germany and China during 2017 & further product development in progress including innovative NF membrane technology



Flexible revenue model and a low cost base: Existing projects providing stable cash flow and recurring service revenues



Significant customer pipeline throughout Singapore and Vietnam and new markets of Australia, Germany and China

demem 

Appendix



Select Project Experience (Build-own-operate)

Factory of Swiss Multinational, Flavours Industry, Singapore



- Capacity: Up to 50 m3 per day
- Industrial waste water with high and varying COD content
- Limited availability of space requires containerised solution
- Currently in pilot phase

Factory of French Multinational, Electronics/Plating, Singapore



- Capacity: Up to 50 m3 per day
- Industrial waste water with high content of chemicals from plating process
- Using a customised treatment process designed by De.mem
- Operational in April 2016

Factory of Japanese Multinational, Electronics, Singapore



- Capacity: 1 m3 per day
- Industrial waste water with extremely high COD and ethanol content
- Using a customised treatment process designed by De.mem
- Operational in March 2016

Vinh Water Treatment Plant, Nghe An Province, Vietnam



- Project description: See previous slide
- De.mem operates the plant and sells water under a long term supply agreement
- Water is used for drinking by municipality and by nearby textile factory
- Commenced in January 2015

Select Project Experience (Equipment Sales)

Hanoi University of Agriculture Water Tr. Plant, Hanoi, Vietnam



- Capacity: Up to 2,000 m³ per day
- Using UF membranes
- Supplies the campus of the university
- Operational in December 2015
- System sales agreement worth approx. 170 k USD (2015)

Factory of Multinational Corporation, Oil & Gas, Singapore



- Capacity: Up to 10 m³ per day
- Industrial waste water with high oil content
- Using a customised treatment process designed by De.mem
- Operational in Dec 2015
- System sales agreement worth approx. 20 k SGD (2015)

Duc Hoa Water Treatment Plant, near Saigon, Vietnam



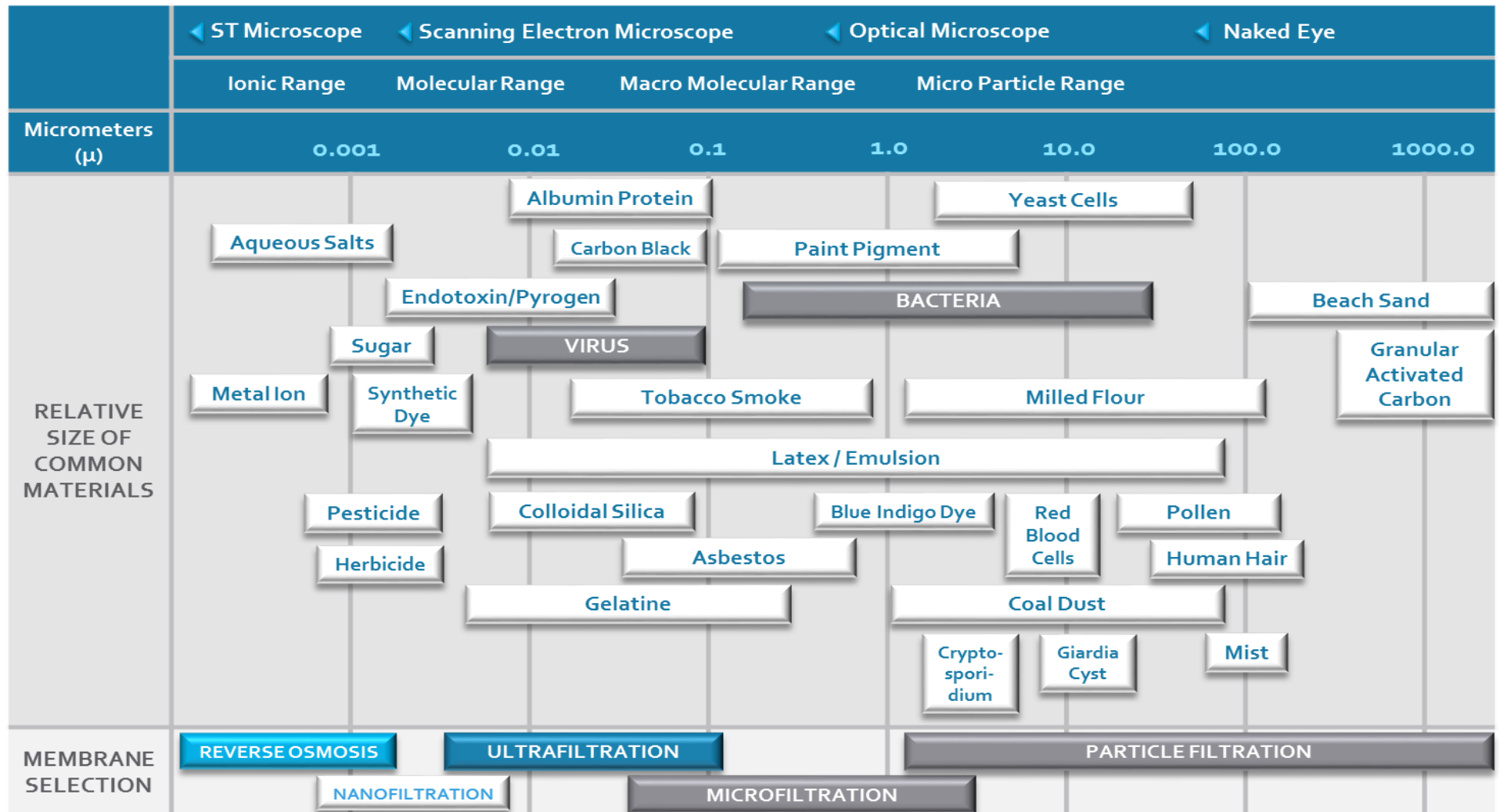
- Capacity: Up to 1,000 m³ per day
- Using UF, RO and advanced pre-filtration processes
- Supplies a nearby industrial park
- Operational in January 2015

Vinh Water Treatment Plant, Nghe An Province, Vietnam



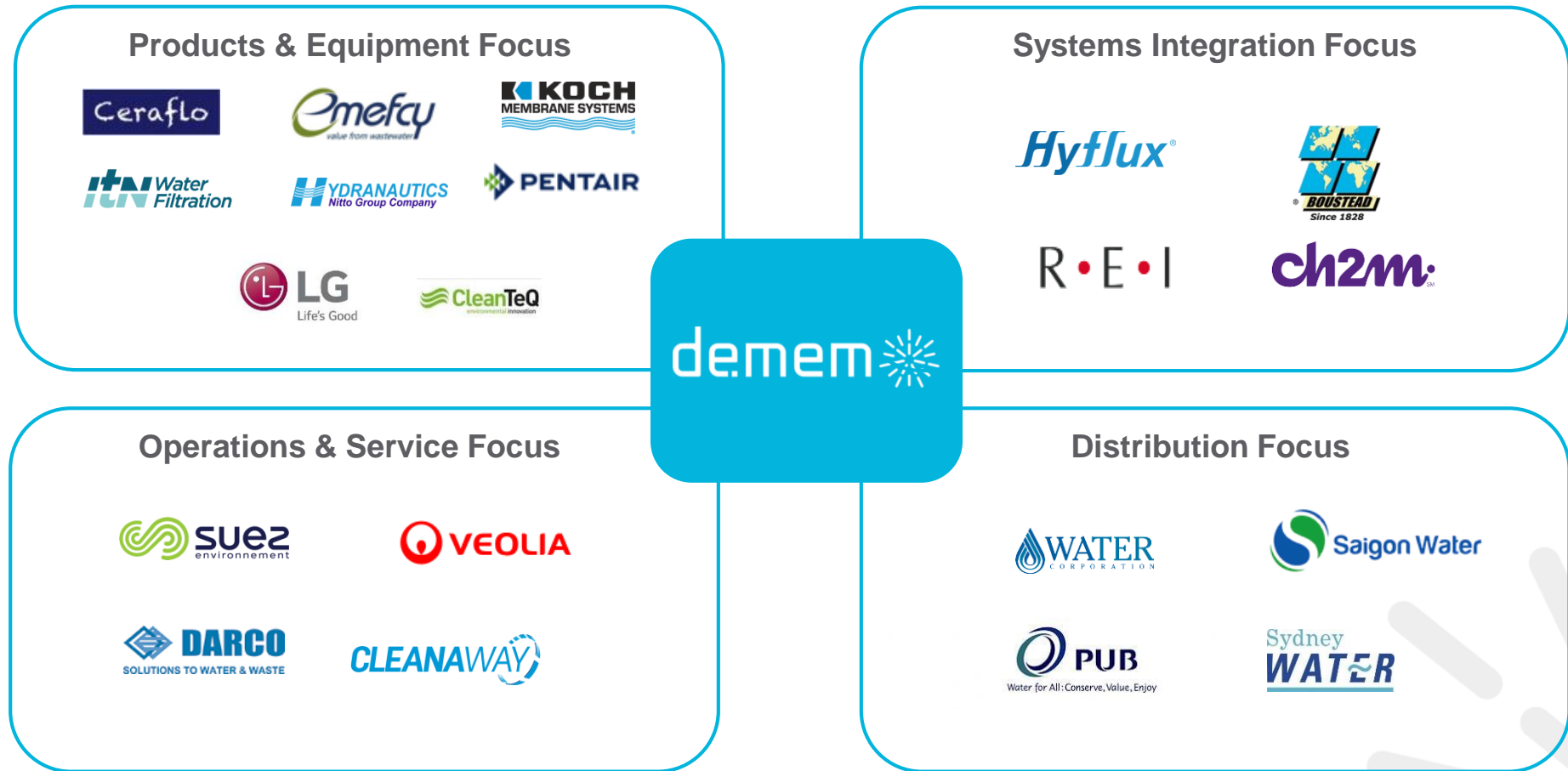
- Capacity: Up to 1,000 m³ per day
- Using UF membranes
- Supplies a municipality outside Vinh City with currently about 2,000 households connected
- Operational in January 2015
- EPC contract worth approx. 330 k USD (2014)

Filtration Spectrum



Competitively Positioned in a Fragmented Market

De.mem covers all aspects of the value chain in a fragmented market, providing end users with a cost effective, full service solution to manage their wastewater production capacity



Worldwide Press

ASIA PACIFIC

AUSTRALIAN IPO

Singapore's De.mem pivots to industrial market ahead of Aussie listing

Venture capital-backed decentralised water treatment firm De.mem is launching an IPO on the Australian Stock Exchange as it looks to raise funds to break into Australia and China. It is targeting the industrial wastewater market with a new nanofiltration product.

De.mem, an engineering and equipment sales business based in Singapore, is planning to raise \$53.7545 million (US\$2.935 million) via an initial public offering (IPO) on the Australian Stock Exchange at the end of March. New shares worth 25% of the post-money equity are available to purchase beyond 23rd March as the company looks beyond its existing markets of Vietnam and Singapore.

The company intends to spend 25% of the IPO proceeds on commercialising its proprietary nanofiltration membrane, 14% on new build-own-operate (BOO) contracts and 15% on expanding into industrial wastewater treatment markets in Australia and China.

De.mem was originally formed in 2013 by venture capitalist New Asia Investments through a fund co-seeded by the Singapore government and a number of individual investors – to address a market for engineered decentralised water treatment systems in Vietnam. The market while they were in Vietnam. The fund while they were pursuing sales leads for Membrane Instruments and Technology (MINT), a company spun out of Nanyang Technological University (NTU) to commercialise acoustic and integrity sensors for membranes. According to Andreas Kroell, CEO of De.mem, in January 2016 “the intellectual property around MINT got injected in De.mem to give De.mem more critical mass.”

“The company side with a few projects on the municipal side which we did in the past 12 months we have shifted much more to the industrial segment [where] the margins are more attractive.” Although De.mem



FULL-TIME FOCUS
Andreas Kroell moved over full time from venture capital backed New Asia Investments in 2016.



Water treatment proves to be cost-saver

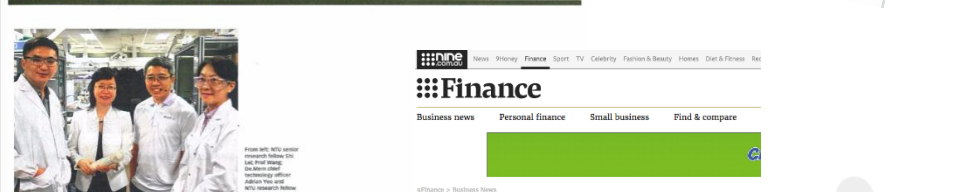
NTU-linked start-up helps car groomer, MNCs cut expenses

Carwash boom

Washing your vehicle in car grooming has become a popular pastime in Singapore, thanks to the rise of car washes, car wash services and car wash products. Water treatment companies in Singapore have been successful in making it a profitable business as the demand for car wash services has increased.

Water does not have to be treated before use in car washes. However, the high-pressure water used in car washes can be treated with a water treatment system. This system can remove dirt, oil, and other contaminants from the water, making it safer for the car and the environment.

De.mem's water treatment system is designed to be used in car washes. It can remove dirt, oil, and other contaminants from the water, making it safer for the car and the environment. This system can also be used in other applications, such as in industrial wastewater treatment.



NTU scientists invent water filter that cuts energy use by 80%

By Andreas Koh

Scientists at Nanyang Technological University (NTU) have developed a new water filter that uses 80% less energy than traditional filters. The filter is made of a porous material that traps dirt and other contaminants. It is designed to be used in industrial wastewater treatment.

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De.mem eyes commercial launch

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De.mem has produced the first industrial standard membrane module, paving the way for commercial market launch.

The module is a closed cylinder filled with NF membrane fibres.

The module has been built at Nanyang Technological University in Singapore, who exclusively licensed its innovative low-pressure hollow fibre nano-filtration membrane technology to De.mem in June 2016.



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