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A Global Hydrohub

Factsheet 2011

Singapore ~ A Global Hydrohub

At a Glance

As the world moves towards addressing the issues of anthropogenic climate change, fossil fuel depletion and rapid urbanization, the need for more eco-friendly products and solutions is set to accelerate, especially in Asia which has more than half the world's population. Singapore has thus identified the Cleantech industry as a strategic economic growth area.

We are committed to growing the Cleantech industry. Singapore has allocated nearly S\$700 million to develop five key pillars: R&D, developing manpower, grooming Singapore-based enterprises, branding our industry internationally and growing a vibrant industry ecosystem.

Environment and Water is an essential sector in the Cleantech industry. Having left behind its days of water rationing in the 1960s, Singapore is now recognized as a Global Hydrohub with a thriving water industry eco-system. The city is now home to more than 70 water companies, such as GE Water, Siemens Water, Black & Veatch, Deltares, Nitto Denko, Toray Industries, Hyflux, Keppel and Sembcorp. Beyond water, Singapore is also nurturing the environmental industry which includes waste management and pollution control.

By 2015, the Environment and Water sector is expected to contribute \$1.7 billion to Singapore's gross domestic product and employ 11,000, with a majority in professional and skilled categories. Other sectors in the Cleantech industry include the Clean Energy sector.

Environment and Water Industry Programme Office

The Environment and Water Industry Programme Office (EWI), under the ambit of PUB – Singapore’s national water agency - spearheads the growth of the water industry in Singapore. Separately, the Research, Innovation and Enterprise Council (RIEC) announced in July 2006 S\$330 million set aside over five years to boost the development of the local environment and water industry by providing additional funding to build R&D and manpower capabilities.

EDB is part of the EWI, together with other agencies such as the Public Utilities Board (PUB), Agency for Science, Technology & Research (A*STAR), International Enterprise (IE) Singapore, Nanyang Technological University (NTU) and National University of Singapore (NUS). EWI aims to:

- Attract major international water companies to anchor their R&D, engineering, manufacturing and headquarter operations in Singapore
- Groom Singapore-based companies to be international players.
- Encourage more companies and research institutes to develop cutting-edge water technology; and
- Further export Singapore's capabilities to growing markets especially in the Middle East and China.

Outlook for the Future

The need for sustainable fresh water supply is an important global concern today, with many countries actively seeking solutions for their water and environmental management needs. There is no doubt that in the coming years, the water industry will continue to enjoy robust growth and Singapore will be there to ride the wave of this economic growth sector.

In a country where diversity, innovation and change are embraced with passion, Singapore’s enterprising water industry is flourishing. We are home to a thriving water industry ecosystem, with over 70 international and local water companies operating here today. Located at the heart of Asia, we continue to attract major global water players to use Singapore as a R&D, test-bedding and commercialisation base for new water technologies, and a launch pad to expand into the region.

Singapore International Water Week

The annual Singapore International Water Week (SIWW) is a global platform for water solutions. It brings together policymakers, industry leaders, experts and practitioners to address challenges, showcase technologies, and discover opportunities. SIWW 2010 attracted over 14,000 delegates and trade visitors. In addition, total deals exceeding S\$2.8 billion were sealed during the week.

SIWW 2011 will take place from 4 to 8 July. Themed “Sustainable Water Solutions for a Changing Urban Environment”, programmes at SIWW 2011 will focus on urban water solutions and other issues that affect the urban environment, such as climate change and the management of watersheds and river basins.

Recent Key Investments

Black & Veatch

This leading engineering design and consultancy company's core expertise is in the water industry. Its 120-staff International Headquarters in Singapore manages its Asia-Pacific operations. Black & Veatch also launched a Global Advanced Water Design Centre and a Centre of Excellence in Desalination in 2007, providing advanced conceptual engineering design services to support its water projects globally. Singapore will be their only such centre with these capabilities, aside from their Kansas City headquarters.

GE Water & Process Technologies

This General Electric Company unit will invest S\$130 million over the next decade to establish a world-scale Global Water R&D Centre at the National University of Singapore. 100 top-tier researchers will engage in R&D activities aimed at alleviating pressing water issues in areas from as diverse as water treatment and systems integration, fundamental chemical and membrane applications to ion-exchange technology.

Hyflux

Singapore's homegrown giant is now a leading global environmental solutions provider and currently houses Asia's largest commercial R&D centre for membranes and materials technology outside Japan, with some 150 researchers based in Singapore. The company is also building the world's largest seawater desalination plant in Algeria. In November 2009, Hyflux announced its expansion plans to build a new global headquarter and R&D campus, coupled with a new membrane manufacturing centre, with total investments amounting to some S\$120 million over the next few years.

Keppel Corporation

To enhance capabilities in water and environmental technology, Keppel established a 27-man environmental technology centre (KETC) in 2007 to spearhead R&D efforts in water, wastewater and waste-to-energy areas. This Singapore-grown industrial conglomerate is also taking the lead in developing the Sino-Singapore Eco-City in Tianjin, China. Separately, KETC is collaborating with Singapore Refining Company to build a demonstration plant on Jurong Island to produce desalinated water using waste heat.

Marmon Water / KX Technologies

KX Technologies, a subsidiary of US-based Marmon Water Group, is a world leader in carbon filtration technologies for residential water treatment applications. It recently expanded its 35,000 square metre manufacturing plant in Singapore with new cutting-edge carbon filter product lines. In addition, Marmon Water has a joint-venture R&D centre with Hyflux which will focus on developing point-of-use and point-of-entry water filtration and conditioning solutions for the global residential market.

Nitto Denko Corporation

Leading diversified materials manufacturer, Nitto Denko Corporation is the first Japanese enterprise to set up a R&D Centre dedicated to water treatment in Singapore. Established to develop membrane technology for water reuse and desalination, Nitto Denko's Water Membrane Technical Centre will also be the company's international base for application technology development and technical support.

Pall Corporation

A US\$2.4 billion annual revenue global fluid management company specialising in filtration, separation and purification technologies, Pall Corporation has established its Asia-Pacific headquarters in Singapore where key management activities for the region are now centralized.

Siemens Water Technologies

The world leader in products, systems and services for water and wastewater treatment has set up a S\$50 million Global Water Technology Research Centre in Singapore. The 60-researcher centre works closely with PUB, NEWRI and A*Star to develop next generation water and wastewater treatment technologies. Singapore is also Siemens Water Technologies' global R&D headquarters and international headquarters ex-USA

Toray Industries

The world's largest producer of carbon fibre, Toray Industries, is another leading Japanese enterprise to establish a R&D centre focused on water treatment technologies in Singapore. Toray is collaborating with the Nanyang Environment and Water Research Institute (NEWRI) to develop advanced membrane technologies and the company plans to expand to a 50-man research centre by 2015.

Research Centres

Nanyang Technological University

Nanyang Environmental & Water Research Institute (NEWRI)

In the Nanyang Technological University, the Nanyang Environment & Water Research Institute (NEWRI) was set up as a culmination of the university's efforts in environmental & water technologies, and to serve as a one-stop centre for industry and research partners to access NTU's capabilities. The NEWRI eco-system includes the following centres:

- Singapore Membrane Technology Centre (SMTC) headed by renowned membrane expert Professor Anthony Fane
- DHI-NTU Water & Environment Research Centre & Education Hub - a collaboration between DHI Water & Environment, a Denmark-based international consultancy and research organisation, and NTU,
- Institute of Environmental Science and Engineer (IESE), the commercialisation and translation arm of NEWRI,
- Residues and Resource Reclamation Centre (R3C) – specializes in environmental management and aims to be a world-class urban waste management research hub for the Asia Pacific region, and
- Advanced Environmental Biotechnology Centre - a collaboration between University of New South Wales and NTU.

National University of Singapore

NUS Environmental Research Institute (NERI)

The National University of Singapore set up the NUS Environmental Research Institute (NERI) to draw together research expertise from across the university in the areas of environmental monitoring, surveillance and treatment, human health and sustainable energy.

As an extension of NERI's collaborative outreach overseas, the Singapore-Peking-Oxford Research Enterprise (SPORE) for Water Eco-Efficiency was set up in 2010 in partnership with Peking University and Oxford University. SPORE will develop new technological solutions for providing and treating water using less energy and resources. This represents a new research frontier for the water industry as the world continues to seek out more sustainable ways of conserving our water resources.

Singapore-Delft Water Alliance (SDWA)

The Singapore-Delft Water Alliance (SDWA) has been set up by NUS, PUB and Deltares Institute, a Netherlands-based international research and specialist consultancy firm. SDWA will carry out research on aquatic systems, smart sensing and engineering and technologies relating to the urban water cycle and offer Masters and PhD training in areas such as Hydraulic Engineering and Water Management.

About the Singapore Economic Development Board

The Singapore Economic Development Board (EDB) is the lead government agency for planning and executing strategies to enhance Singapore's position as a global business centre. EDB dreams, designs and delivers solutions that create value for investors and companies in Singapore. Our mission is to create for Singapore, sustainable economic growth with vibrant business and good job opportunities. EDB's 'Host to Home' strategy articulates how we are positioning Singapore for the future. It is about extending Singapore's value proposition to businesses not just to help them improve their bottom line, but also to help them grow their top line through establishing and deepening strategic activities in Singapore to drive their business, innovation and talent objectives in Asia and globally.

For more information, please visit www.sedb.com

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