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Urban Solutions

Factsheet 2009

Singapore: Your “Living Lab”

Urbanisation

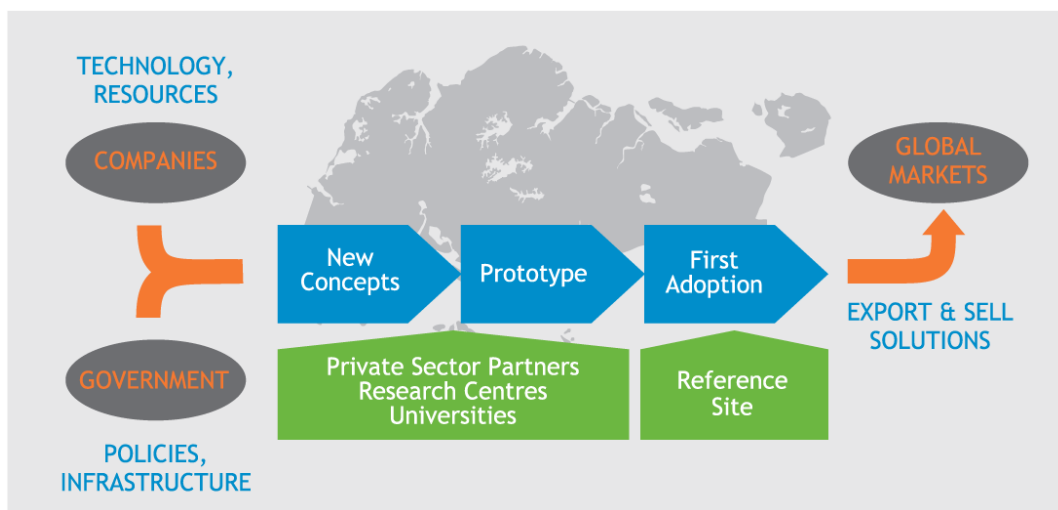
Half of the world’s population are now city-dwellers and this trend is swiftly rising. We expect this urban population to double from 3.3 billion in 2007 to 6.4 billion in 2050. More specifically, by 2025, we expect 16 out of 27 megacities in the world to be in Asia¹. With this rapid and unprecedented urbanisation trend, governments and city planners around the world need to cope with the challenges of urban planning, environmental pollution, traffic congestion and security threats amongst others. Urbanisation is hence a global trend of mega proportions that brings with it many challenges and opportunities.

Singapore can play a role in this. As a small and highly urban state with no natural resources, we have had to cope with these challenges to ensure that Singapore continues to be a liveable city. In some cases we have also been able to turn these challenges into opportunities. Backed by good governance and balanced development,

we have developed expertise in several areas such as urban planning, traffic management, public housing, water and environment, which are now exported to other cities.

EIDB
SINGAPORE

¹ United Nations, 2008. *World Urbanisation Prospects: The 2007 Revision*.



Flowchart 1: Singapore, A “Living Lab”

“Living Lab”

We want to build on this by allowing Singapore to be a “Living Lab” - a microcosm of the new Asia, a low-risk place for companies to test and prove their latest solutions before exporting them to the rest of the world.

Under our “Urban Solutions” initiative, EDB, together with other government agencies, aims to catalyse the search for innovative technological answers to Singapore’s own future challenges. We seek to work with companies to carry out research, development, demonstration and first adoption of cutting-edge products and services that solve urban challenges, for example, energy and carbon restrictions, human and traffic congestion, noise and air pollution.

The “Living Lab” is realised by the creation of innovation platforms. These platforms include opening up existing infrastructure, changing policies and tying up companies with local partners to test, develop, adapt and export solutions. Drawing from Singapore’s successes in solving challenges like continuous water supply and traffic management,

companies also stand to gain from tapping on the resources of research or co-development partners here.

As rapid urbanisation takes place around the world, cities are starting to face urban challenges similar to those of Singapore. Hence, leading-edge urban solutions developed for Singapore will have the potential to be exported to other emerging urban centres in the world. In particular, Singapore could serve as a model for the increasing number of urban cities in Asia.

The broad focus areas covered under Urban Solutions include built environment & city management, urban mobility, clean energy, environment and water, IT and security. Some specific examples are listed in Table 1.

Focus areas	Examples
Built Environment & City Management	- Green buildings - Urban greenery - Urban planning
Urban Mobility	- Green Transportation - Intelligent Transport Systems
Clean Energy	- Renewable energy - Intelligent grid management - Energy efficiency
Environment & Water	- Waste and water treatment - Pollution control
Infocomm Technology	- Telecommunications - Green IT - E-Government
Security	- Public safety - Homeland security - Command and control systems

Table 1: Focus areas

Examples of Focus Areas

Water Treatment

Water is an excellent illustration of the “Living Lab” in action. Singapore’s limited water resources has motivated our national water agency, PUB, to constantly innovate and develop new water management technologies such as water reclamation and desalination.

PUB’s Ennovate programme is an effective platform for companies to test-bed their latest technologies. For example, PUB was the first in the world to try out 16-inch reverse osmosis membrane systems on a large scale. These were subsequently scaled up and adopted in PUB’s NEWater plants. Similarly, companies such as General Electric (GE), Siemens and Nitto Denko are tapping on PUB’s

infrastructure to test various leading-edge water technologies and have established global R&D centres here.

Home-grown water treatment company, Hyflux, has also done the city proud. The company, which was awarded the Water Company of the Year 2006 by Global Water Intelligence magazine, has implemented innovative water solutions in Singapore and is now exporting these successfully to markets such as China and the Middle East. Hyflux will be building the world’s largest membrane desalination plant with capacity of 500,000 m³ per day in Algeria.

Urban Mobility

An acknowledged thought leader in urban transport, Singapore is the world’s first country to implement the Electronic Road Pricing (ERP) scheme in 1998. The ERP charges motorists as they use the road during peak hours. It subsequently inspired similar systems in cities such as London. Companies such as ST Electronics have built up significant expertise in urban transport, and exported these solutions to cities in the region.

Under the Land Transport 2020 Masterplan, Singapore is looking at innovative ways of creating a people-centric land transport system. As part of the Singapore Urban Transport Solution (STARS) initiative, various companies such as Cisco, IBM, 3M, ST Electronics, Steria Asia and Thales, will be collaborating with Singapore on transport optimisation, telematics, integrated user experience, and environment and energy.

Besides traffic management, another key interest area is sustainable mobility. A multi-governmental agency taskforce is investing \$20 million to help roll out electric vehicles (EVs) in Singapore from next year. Renault-Nissan and Keppel Energy have signed a memorandum of understanding with the EV taskforce to supply a test fleet

of electric cars and set up charging infrastructure by 2010.

Singapore's small geographical size and high-density urban setting makes it an ideal location for testing green vehicles. Other automotive companies like Daimler and Bosch have also used Singapore to test fuel cell and biodiesel cars since 2004. In addition, Zeco Systems will be partnering with organisations such as IKEA, INSEAD and Republic Polytechnic to proliferate parking lots with charge spots for its electric scooters in Singapore. They are also working with local partners to develop plug-and-play charging infrastructure. Their next target is to develop a completely zero-emissions solar charging station.



Picture courtesy of Renault-Nissan
Renault-Nissan will test-bed its fleet of electric cars in Singapore by 2010.

Clean Energy



Picture courtesy of PUB
The largest Solar Park in Singapore at the Marina Barrage covers an area of 1,200sq m. The 405 solar panels generate electricity used for indoor lighting and power points in the Marina Barrage.

Today, many Cleantech companies are taking advantage of Singapore's location in the heart of Asia and our strong reputation in environmental sustainability. For example, the Renewable Energy Corporation (REC) of Norway is setting up the world's largest integrated solar manufacturing complex here, producing up to 1.5 gigawatts of solar products at steady state for global markets. Vestas, the world's leading manufacturer of wind turbines, also established its Asia-Pacific headquarters in Singapore and is investing up to S\$500 million (USD\$328 million) over the next 10 years to develop its largest wind technology R&D centre outside of Denmark.

With a strong emphasis on R&D and innovation as growth drivers, Singapore provides Cleantech companies with ample opportunities to forge strong collaborations with local research and educational institutions. They include the Solar Energy Research Institute of Singapore (SERIS) which spearheads Singapore's drive into solar energy research focusing on three areas: silicon-based solar cells, new-generation materials for solar energy and integration of solar technologies into buildings.

A number of initiatives have also been launched to encourage Cleantech R&D and adoption in both the private and public sector. Examples include the Clean Energy Research Programme (CERP), a S\$50 million research funding programme, and the Solar Capability Scheme (SCS) which incentivises the private sector to incorporate solar technologies into their building designs.

Case Studies

Siemens Centre of Competence for City Management

Siemens established its first Global Center of Competence (CoC) for City Management in 2008 in Singapore. The Center is responsible for designing, developing and implementing innovative urban technological solutions that can help cities improve their local economy, environment and quality of life. The CoC technology portfolio covers the areas of Smart, Safe, and Mobile solutions, and targets city authorities worldwide. By establishing its CoC for City Management in Singapore, Siemens is able to leverage Singapore's capabilities in IT, e-government and urban management so as to develop innovative city management solutions for cities of tomorrow.

Siemens has also set up a City of the Future Exhibition and Solutions Centre in Singapore. This will allow city management officials from across the world to share best practices and experience Siemens' suite of innovative technologies for city management and sustainable living.



Picture courtesy of Siemens
Siemens City of the Future Exhibition and Solutions Centre in Singapore

Accenture Management Consulting Innovation Centre

Accenture's Management Consulting Innovation Centre in Singapore was opened in 2009 to serve as a regional

hub for developing innovative strategies that focus on maximizing opportunities and minimising risk in a rapidly changing global business environment.

Clients can develop and align their business strategies in areas such as operational excellence, cost management and sustainability by drawing on Accenture's global intellectual property and insights from around the world, and combining that with innovation and technology. The Centre will also be a resource to help clients identify and enter new markets in Asia Pacific and increase revenues in existing markets.

Accenture can leverage Singapore's position as the 'home base' away from home for multi-national companies to address business challenges faced by clients across the different cultural, political and socio-economic climates in Asia.

Centre for Liveable Cities

The Centre for Liveable Cities (CLC) was established by the Ministry of National Development and the Ministry of the Environment and Water Resources in June 2008. It brings together Singapore's expertise in good governance, urban management, integrated resource management, and sustenance of a highly liveable environment in a densely-populated setting. The Centre facilitates the sharing of knowledge and best practices among cities globally through seminars, workshops and conferences, such as the World Cities Summit in June 2010. This high-level event will bring together policy-makers, urban planners, industry experts and international organisations to exchange ideas in a concerted effort to promote sustainable and liveable cities.

About 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 and grow the Singapore economy. We dream, design and deliver solutions that create value for investors and companies in Singapore. In so doing, we generate economic opportunities and jobs for the people of Singapore; and help shape Singapore's economic future.

'Host to Home' articulates how EDB is sharpening its economic development strategies to position Singapore for the future. It is about extending Singapore's value proposition to businesses not just in helping them improve their bottom line, but also in helping them grow their top line. EDB plans to build on existing strengths and add new layers of capabilities to enable Singapore to become a *'Home for Business'*, a *'Home for Innovation'* and a *'Home for Talent'*.

For more information on how EDB can help your business, please visit www.sedb.com

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