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SMART CITIES: Asia's New Frontier?

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Smart cities: Asia's new frontier?

The smart city has been hailed by advocates as the urban utopia that will solve many of humanity's challenges. Eco-Business takes a look at its rise in Asia and if it'll live up to the promise of delivering better lives for all.

By Jean Chua

From London to Lahore, cities around the world are competing to be crowned as 'the world's smartest city', led by a firm belief in the power of technology to make urban centres more innovative, efficient and liveable than they already are.

Nowhere is this opportunity to make cities cleaner and smarter more evident than in Asia, which is already home to 60 per cent of the planet's people. The region's cities, along with Africa's, will account for 90 per cent of the increase in the world's population from now till 2050. That's about 2.5 billion people who will be moving to urban centres in those regions.

The smart city is hailed as a way for urban planners to acommodate this growth sustainably. The services and infrastructure around it has grown to a multi-billlion dollar industry in Asia alone.

According to a report by market research firm Navigant Research, investment in smart city information and communication technology (ICT) in Asia Pacific will total US$63.4 billion during the period from 2014 to 2023.

Songdo, a US$35 billion city built from scratch, is one of best examples of a smart city in Asia. The size of 1,134 American football fields, Songdo has universal broadband, integrated sensor networks to extract data, green buildings and an underground system of tubes for transporting kitchen waste from buildings directly to a processing facility. Image: Shutterstock

US research firm MarketsandMarkets forecasts that the global smart cities market will grow from US$411.31 billion in 2014 to $1.135 trillion by 2019 at a compound annual growth rate (CAGR) of 22.5 per cent.

While experts differ on what constitutes a smart city exactly, the consensus is that it is a city that employs technology to firstly, deliver urban services to residents more efficiently; secondly, reduce costs for the service providers and slash overall resource consumption; and thirdly, enable active participation by citizens in the running of the city.

For Asia, a smart city – with sustainability, liveability and inclusivity at its core – is more than just a fancy, it is a need.

Smart city infrastructure can help governments and businesses save millions of dollars in energy bills and innumerable man hours. Smart Cities Council, a US organisation of companies that work to advance the smart city business sector, for example, estimates that US cities waste US$39 billion in electricity a year because of inefficiencies in their ageing infrastructure.

"Rolling out smart cities is a pressing need across Asia," says Jonathan Woetzel, director, McKinsey & Company.

"Leaders in developing Asia must cope with urbanisation on an unprecedented scale, while those in developed Asia wrestle with ageing infrastructures," he notes.

Beyond the latest gadgets and server farms, smart city applications allow cities to save energy, cut down on carbon emissions, increase their safety and reduce the need for inefficient and unncessary human labour.

Think driverless public transport, sensors that monitor water levels, energy usage, security cameras, and traffic flows, and automated trash collection, for example.

Experts say, however, that the ultimate aim of smart cities should not be about the technology, but using it as a tool to improve the lives of urban citizens.

In other words, it's about the people.

"Smart cities are liveable and sustainable cities, based on integrated planning and good governance that may be aided by technology," says Khoo Teng Chye, executive director, Centre for Liveable Cities based in Singapore.

Experts speak of smart, liveable or eco-friendly cities, but ultimately we all want to make cities better for people – with a high quality of life, a clean and sustainable environment, and a competitive economy providing good jobs.

*- **Khoo Teng Chye,** executive director, Centre for Liveable Cities*

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SMART CITIES IN ASIA

In Asia, Seoul and Singapore are often cited as the best examples of a smart city.

Hailed by many IT experts as the smartest, most connected city in the world, Seoul's focus has been on open data, public transport and the use of digital tools for supporting citizen participation – all 10 million of them.

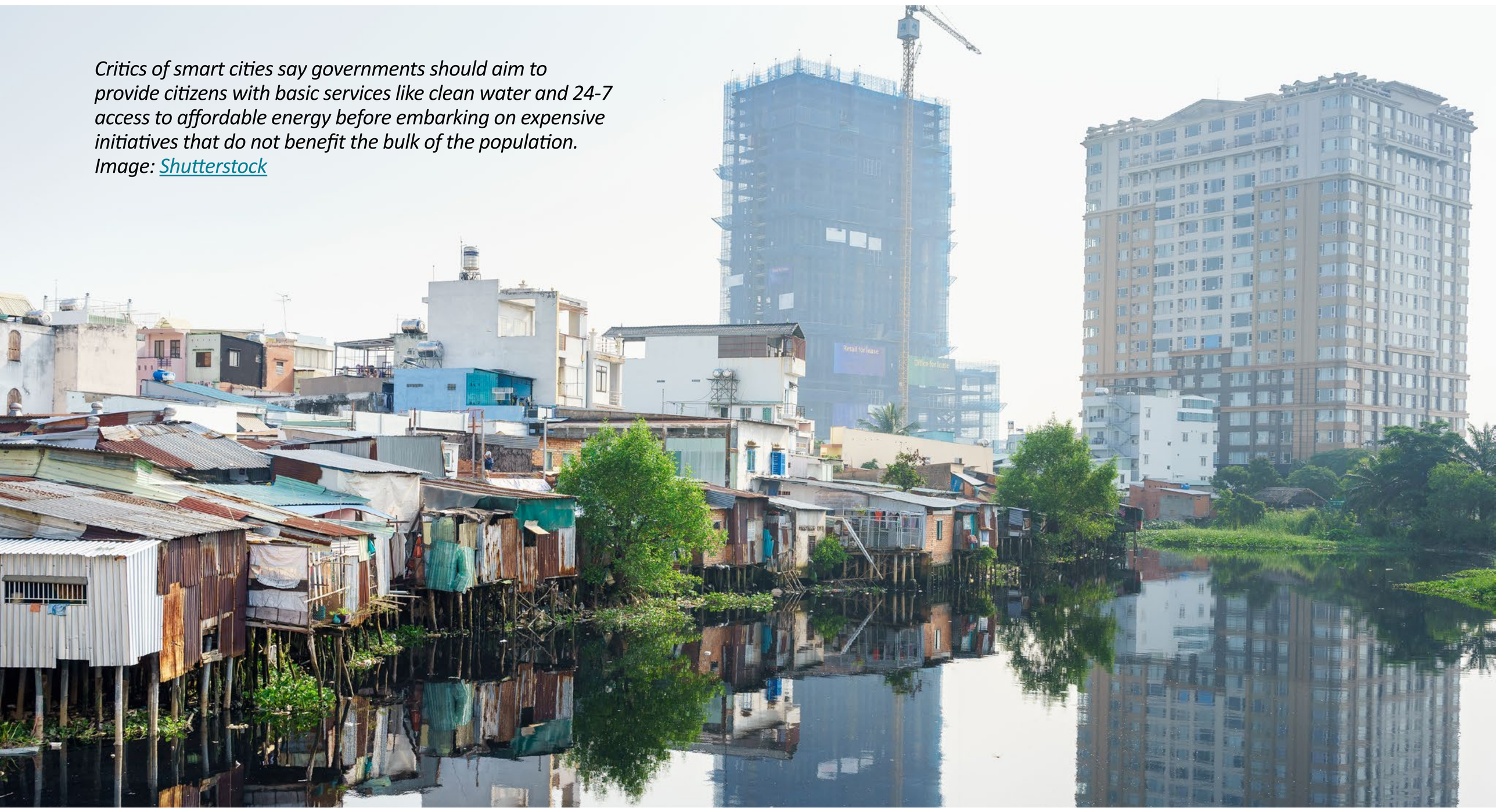
Besides being a leader in digital transactions and real-time information on transit, jobs, and other public information, the city was a pioneer when it launched, almost a decade ago, a scheme called the Online Policy Suggestion System (OASIS) to receive planning suggestions from the public online.

This has received more than 5 million contributions to date.

Then there's Seoul's high-profile experiment built from scratch: The Songdo International Business District, a US$35 billion "smart city" adjacent to the Incheon Airport and about 64 kilometres from Seoul.

While the project had attracted worldwide attention since construction started in the mid-1990s for its audacity and scale, some experts have also questioned its usefulness and whether it might ultimately end up being an oversized white elephant.

The size of 1,134 American football fields, or 1500 acres, Songdo boasts universal broadband, integrated sensor networks to extract data, green buildings and an underground system of tubes for transporting kitchen waste from buildings directly to a facility that converts it into clean energy. About 40 per cent of the land has been designated as green space.



Critics of smart cities say governments should aim to provide citizens with basic services like clean water and 24-7 access to affordable energy before embarking on expensive initiatives that do not benefit the bulk of the population. Image: Shutterstock

While the developers – United States's Gale International and South Korea's Posco Engineering and Construction – say that the city is designed to house 2 million people, the take-up rate by residents has been slower and lower than expected.

So far, there are just over 80,000 Songdo residents, who find the city's proximity to the airport and the cutting-edge services a draw.

Asit Biswas, founder of the Third World Centre for Water Management in Mexico and Distinguished Visiting Professor at the Lee Kuan Yew School for Public Policy in Singapore, feels, however, that the prospect of a city surrounded by computers and technology is unnerving, purely from a citizen's point of view.

"I don't want to live in a place where computers run my life," he says. "You're installing a whole bunch of computers which will do a whole variety of things but you're forgetting that cities are for people. And it's people who make cities."

Singapore, a tiny island of 5.5 million, is another oft-cited example of a smart city in Asia. It is on technology research firm Juniper Research's list of the top five smart cities, and came in third in Asia in the recent Sustainable Cities Index by property consultancy Arcadis.

Other experts cite Japan's Osaka, South Korea's Busan, and Malaysia's Kuala Lumpur as examples of emerging smart cities in Asia.

"At the moment, almost every city of scale is deploying smart technologies in transport, resource management and services, from Busan to Shanghai, Tokyo to Manila," McKinsey's Shanghai-based Woetzel, who advises the Chinese authorities on energy, sustainability and economic development, notes.

THE GIANTS OF THE REGION

China and India, the two most populous nations in the world, also have ambitions to build smart cities across their countries. Indian Prime Minister Narendra Modi's plan to build 100 such urban centres fitted with high-tech communication capabilities grabbed headlines when it was announced last July.

Whether the plan will indeed become reality remains to be seen. As Arcadis Singapore's Eugene Seah, country head and city executive,

puts it, "this is viewed as a priority to try and address mobility issues and an infrastructure deficit within some of the cities."

Others, including Dr Biswas, say that India should be focusing on meeting the basic needs of the people.

"We are talking about 600 million people who do not have 24-hour access to electricity," he adds. "And how about people who don't have sanitation? Those are the facts of life in India. In those cases, the word 'smart' does not mean very much."

In centrally-planned China, government agencies such as the National Development and Reform Commission, the Ministry of Housing and Urban and Rural Development, and China Development Bank are all involved in building smart city pilot projects across the country.

In 2013, 193 cities were chosen for such projects including Heilongjiang and Shenyang in the north to Kunming, Foshan and Shenzhen in the South.

Much of this will be driven by the need to cope with urbanisation. McKinsey Global Institute estimates that China's urban population will grow from 527 million in 2005 to 926 million in 2025. Cities in the country with a population exceeding 1 million are likely to increase from 153 to 226 in that same period.

This will create significant demand for digital communications infrastructure, smart applications, green building and construction, energy efficiency, carbon capture and other environmental technologies.

"In terms of emerging projects, it will be interesting to watch the development of new cities like Tianjin Eco-City in China, as well as Amaravati, the new capital of the Indian state of Andhra Pradesh," notes Khoo of the Centre for Liveable Cities.

Tianjin Eco-City is a joint project between the governments of China and Singapore, an environmentally friendly and resource-conserving city in the northern part of the country that's about 150 kilometres from Beijing. Amaravati is being developed as a smart city by the government of India with the help of the Singapore government.

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*- **Asit Biswas,** Distinguished Visiting Professor, Lee Kuan Yew School of Public Policy*

PUTTING 'SUSTAINABILITY' INTO 'SMART'

Even with all the money being pumped into smart projects across the region, a successful smart city isn't one merely equipped with the latest and flashiest technology, says Ynse de Boer, managing director, Accenture, Sustainability Services.

Getting the right operating models is the key to long-term success of 'smart' initiatives, he adds. Investments in technology have to pay off for the city and its partners, which will then deploy the project on a larger scale.

"Without the proper operating model and business model, it is very difficult to move beyond the pilot phase and get any initiative to scale and to sustain," he says.

For technology-savvy cities such as Singapore, Seoul and top-tier Chinese cities, de Boer adds, it is crucial for decision-makers to avoid the "technology pitfall" - that is, the temptation to invest in pointless infrastructure without considering the uses of the technology.

Indeed, the mantra of "sustainability" should guide the development of all smart city projects, emphasises Thomas Menkhoff, professor of organisational behaviour and human resources (education) at Singapore Management University's Lee Kong Chian School of Business.

In fact, it is no longer an option for city leaders as they confront challenges such as climate change, air pollution, and urbanisation in a world with finite resources, he says.

"A truly smart city will manage to increase sustainability," Menkoff adds. "Aspirations in terms of eco-smart towns and homes, electric car sharing services, reuse and recycling as well as greener practices in business and society at large are achievable in principle."

Driverless vehicles such as this mini-bus in Spain could be seen across Asia soon as planners try to find mass transportation that's efficient and environmentally friendly. Image: Shutterstock

"There is no doubt that the wise use of ICT can lead to a more efficient use of resources, energy savings, and a higher quality of life," he notes.

A MEANS TO AN END

On the other hand, the widespread use of technology can also increase the divide between the haves and have-not, warns Biswas.

"We want to be able to provide people with electricity, healthcare, education, transportation, water. If technology provides that, then I say, go for it, but I fear that the rich are just going to create a wall that divides them from the rest of us," he says.

In developing cities that lack institutions and structures of good governance, the rise of the smart city may actually exacerbate existing problems, says a spokesperson from the Asian Development Bank's Urban Sector group.

On the other hand, in developed Asian cities such as Singapore, Seoul, and Yokohama, the adoption of smart technologies is a positive development.

"If these cities can be modelled by other Asian cities in setting their development priorities, goals, and policy directions, then cities and towns would be able to develop sustainably, says ADB.

"The concern is how to cascade their examples into the other countries in Asia."

At the end of the day, it is about technology as an enabler of equitable development, as well as the provider of key services like electricity, healthcare, education, transportation and water, and not technology for technology's sake, experts say.

And it has to go hand-in-hand with good governance and sustainability.

"Truly smart cities make a positive difference in the lives of their citizens," says Menkoff.

To achieve this, tracking and monitoring of progress is important. He cites the European Smart City model as a example in which more than a hundred indicators on the economy, environment, people and living standards are tracked and studied.

"Technology can help to optimise all of these elements provided all social groups can benefit," Menkoff says.