



Keung: You cannot have an inclusive society without an inclusive built environment

# Building with heart

Dr John Keung, CEO of the Building and Construction Authority, explains why building 'green' apartments and improving productivity will create an inclusive and user-friendly Singapore

Ask Heaven, the theme song for the Taiwanese soap opera *Love*, which lasted an epic 386 episodes, was a big karaoke hit in Singapore and Malaysia. It was also a refrain often sung by contractors in the local building and construction industry, as the lyrics resonated with their plea for "heaven", or more accurately, the government, to stop throwing a spanner in the works by making labour more expensive.

Dr John Keung, CEO of the industry regulator, the Building and Construction Authority (BCA), has been singing his own "song" to the contractors too. But it is one that urges the construction industry to boost productivity by cutting reliance on cheap foreign workers and reducing costs with the help of new technologies and processes.

Although the transition process will be painful, the government feels that with the construction industry in a relatively healthy state and with plenty of projects in the pipeline, now is a good time to get things moving in the desired direction. Construction demand, estimated at between \$26 billion and \$32 billion this year, is expected to range between \$20 billion and \$28 billion for both 2014 and 2015. This is about double that of a decade ago. "So, it is good that during boom times, you look for all these improvements. That's the song I've been singing to most people in the industry," says Keung in an interview with *Management@Work*.

The construction industry has been bearing the brunt of criticism that Singapore's economy has lagged behind in productivity improvement, whether or not the brickbats are justified. According to the Ministry of Trade and Industry, last year, labour productivity in the construction industry dipped 0.2%, compared with the drop of 2.6% in total labour productivity in Singapore.

To be sure, other sectors have fared worse. Labour productivity in manufacturing was

down 1.4%, that in wholesale and retail fell 3.5% and, surprisingly, even the more knowledge-based finance and insurance sector saw a decline of 3.7% in 2012. However, because of the sheer size of the construction industry, Keung and his colleagues at BCA have been spending much of their time and effort in helping to raise its productivity. Indeed, construction has been the main hirer of the 300,000-plus foreign workers in Singapore, which has a total population of five million.

Keung, who has been CEO of BCA since 2006, has a favourite illustration whenever he needs to repeat the productivity song: In a bid to keep the streets of Singapore dust-free so as not to spoil the image of a clean and green Garden City promoted by the Singapore Tourism Board, trucks and other vehicles leaving the numerous construction sites in Singapore have been ordered to give their mud-clogged wheels a good wash before they hit the roads.

For many contractors, it is cheaper to get this done by having two workers hose the tyres of vehicles leaving the worksite, as an automated wheel washer costs \$30,000 to \$50,000 while the salaries of two foreign workers amount to \$1,200 per month.

But with the recent government regulations, specifically the raising of levies to make it more expensive to hire foreigners, it is beginning to make economic sense for contractors to consider buying that \$30,000 machine instead, says Keung. And the good news is that more contractors are doing so. "The message we are really telling the industry is that we are going to face a labour crunch, so like it or not, we need to change. For those who want us to help and who are progressive, we will help," says Keung, referring to the grants and incentives offered to contractors. These include defraying up to half of the purchasing costs of higher technology equipment such as automated washers.

Indeed, the call to rely less on foreign work-

ers did not arise solely from growing complaints by citizens that the influx has added more strain to Singapore's transport and housing infrastructure. Currently, the biggest sources of construction workers are China, Bangladesh and India, and there are indications that the supply may not be as plentiful as before. The reason is simple. These countries, particularly China, have launched their own infrastructure projects to boost growth and that has increased the demand for construction workers. As a result, their salaries have gone up to a level close to Singapore's.

## Ambitious targets

The BCA has set some ambitious targets. By 2020, it wants to improve the productivity of the industry by between 20% and 30%. In other words, the same amount of work that is being done now by 10 workers should be handled by seven or eight workers in just over six years' time.

A poster boy for productivity in the industry is **Tiong Seng Holdings**. The construction company has not only set up a high-tech precast plant in Tuas, it has also been able to double its production capacity using half as many workers. Tiong Seng also plans to invest \$15.6 million in another precast plant in Iskandar Malaysia in Johor, where a great deal of construction activity is going on.

On July 12, Tiong Seng announced that it is investing \$10 million in a joint venture to set up a precast plant in Myanmar, where the government is planning to build 50,000 new residential units a year for the next two decades.

BCA has also introduced new ways to build apartments. One such technology is the unitised building system in which room-sized units with internal finishes and fixtures are manufactured in factories before being transported to the site for installation.

Such a construction method is already in use in Melbourne. For one, it can help cut down

the actual time needed on site by a third or even half. More importantly, by generating less noise and dust, it will make life more pleasant for residents living adjacent to the site. "We are encouraging some developers to come on board to try this out and we should be hearing of some breakthroughs," he says.

However, the obstacle to the wider adoption of new technologies such as the unitised building system is the cost, which can be 20% to 30% higher than those for existing methods. "If workers continue to be very cheap, then why would contractors want to try it out? That's why, in future, when worker and labour cost problems have been addressed, this technology will become economically viable. But we want to start first and get the pilot going so that, at least, our industry can learn how to improve using game-changing technology that we want to introduce to Singapore in a big way," explains Keung.

Nevertheless, it seems that his constant "singing" has had some effect on raising productivity. There are more than 8,000 active companies in the building and construction sector and BCA has so far helped more than 2,600 of them, including 2,200 small and medium-sized enterprises. In other words, a growing number of the smaller companies have answered the call and not just industry leaders like Tiong Seng that have the resources to invest in new technology. In fact, according to Keung, other companies will be introducing even more sophisticated methods of producing precast here.

## Talent shortage

However, just when the building and construction industry is undergoing major transformations, it has to figure out how to attract new talent. According to the 2013 Graduate Employment Survey jointly conducted by the three local universities, fresh graduates from the Singapore Management University's law school can



command an average starting pay of \$5,082, putting them at the top of the heap.

By contrast, civil engineering graduates from the Nanyang Technological University and National University of Singapore — presumably where the construction industry draws the bulk of its new professional and managerial recruits from — command an average of \$3,270 and \$3,101 respectively, placing these two groups of graduates at 42nd and 60th positions among their peers. To make matters worse, there are better-paid engineering jobs out there: NTU's aerospace engineering graduates, for one, get \$3,578 in starting salaries, according to the same survey. Evidently, civil engineers' starting salaries — among the highest in the previous boom back in the mid-1990s before the Asian financial crisis — have not kept pace with the times as new industries emerge and grab the limelight.

Keung agrees "100%" that drawing new top talent is increasingly difficult. One way he wants to do this is to stress that there is more to the construction industry than just engineering knowledge. Instead, the sector should appeal to graduates with interest in environmental sustainability efforts. "We are basically transforming the construction industry into a green industry. It is not just the end products or buildings that are green. We encourage our industry to go green during construction. This is what we call sustainable construction."

To drive the sustainability message across, BCA launched the BCA Green Mark scheme in 2005. Awards are given out to building owners, developers, architects and various other industry participants if their projects fulfil certain "green" criteria such as cutting down energy and water usage. This year, a total of 293 awards were presented.

The recipients included new projects such as Tanjong Pagar Centre, which incorporates the green theme in its building plans, and existing buildings that had been refurbished to make them more environment-friendly. Take Swissôtel Merchant Court, for example. Besides installing new systems for recycling cooking oil and breaking down food waste, the building can expect energy savings of more than 2.28 million kWh per year and a reduction in water consumption by some 6,460 cu m per year.

BCA has set for itself a "very tough" challenge of getting 80% of all existing buildings in Singapore to be green by 2030. "I don't think anyone in the world [can dare do that]," says Keung.

Then, there are other green incentives. For example, if projects achieve a certain level of green features, BCA will give the developers a bonus GFA (gross floor area). Under existing plot ratio regulations, there is a maximum amount of floor space the development can have pegged to the land area. If the project's design meets the set of green criteria, the developer can build an extra 2% more floor space, which, for a GFA of 100,000 sq ft, is 2,000 sq ft. Assuming a conservative selling price of \$1,000 psf, that means an additional \$2 million in revenue for the developer.

BCA has in recent years also exported its Green Mark certification standards to other countries such as Malaysia and Brunei and even to Africa. For example, a Singapore developer can launch a new development in China that is built according to Green Mark standards. It can then market the project as an eco-friendly and sustainable development.

Going green has been found to be beneficial to the bottom line of companies too. BCA has done many studies to show that buildings with green features can obtain energy savings of 20% to 40%, which will eventually outweigh the additional 2% to 5% extra cost incurred by introducing green features. "You can get your payback in two to five years, and after that, it is pure gain. So, there's a strong business case for a building to go green," says Keung.

BCA has not only been focusing its attention on residential and commercial buildings. The agency, together with IT regulator Infocomm Development Authority of Singapore, recently introduced the Green Mark standards for data centres — essential facilities where companies

store and compute vast amounts of networked data. Unfortunately, data centres are notorious energy guzzlers, as air-conditioning is needed continuously to cool the servers. And the space required by data centres is projected to grow by 50% from 2010 to 2015. Three data centres were among the first to receive the Green Mark award: Credit Suisse Regional Data Centre, Equinix SG2 Data Centre and Singapore Tourism Board Data Centre. The Credit Suisse Regional Data Centre, which was given the Platinum rating, was able to save around a fifth of its energy consumption, or 3.85 million kWh per year, which amounts to \$1 million.

#### The friendliness test

At the end of the day, for all the technologies and processes involved, the building and construction industry is a people-oriented business in which the skills and management chops of those at various leadership levels make a real difference. "The industry is a people's industry. You need good people to do all these things. I feel very strongly that in our small city, our built environment really has to play a big part to make sure that we are future-ready. What I mean is that in all these areas — sustainability, productivity, quality and safety — you must make sure our built environment can survive the 'future test'. But there is another area: infrastructure friendliness," says Keung.

Interestingly, he does not have a degree in civil engineering, although most people would assume that the qualification is needed for someone in his position. Rather, he did geography at York University, before going on to earn a Master of Science in town planning, followed by a doctorate from the University of Wales. In 1981, he joined the Ministry of National Development (which oversees the BCA) as a planner and from then on, had a hand in various national-level master plans.

By 2001, he was made deputy CEO of the Urban Redevelopment Authority and the following year, he was seconded to the HDB to help in the corporatisation of its building and development division. He was appointed to his current position in June 2006. A recipient of the Public Administration Medal (Gold) this year, Keung added another



An artist's impression of Tanjong Pagar Centre, which received a BCA Green Mark award this year



After refurbishment to make it more environment-friendly, Swissôtel Merchant Court can expect energy savings of more than 2.28 million kWh per year and a reduction in water usage by some 6,460 cu m

feather to his cap when he was named as one of the three Leading CEOs at the Singapore HR Awards organised by the Singapore Human Resources Institute this year.

To Keung, a government agency such as BCA has a higher purpose than just telling building owners that they have to do something for the environment or getting contractors to complete similar projects with a lower headcount. It is about creating the hardware for an "inclusive society" that this country in its early years of hurried development overlooked. Take, for example, lifts that open on every floor instead of on every fourth or fifth floor and ramps that enable people in wheelchairs to gain access to a building. Such attention to "inclusiveness" will no doubt be more important as Singaporeans age at a faster clip than before.

"We've come to the conclusion that you cannot have an inclusive society without an inclusive built environment. If I am old and I can still move around freely and go up a building without difficulty, it means I am still independent and can move around with dignity. When you are young, you may not feel it, but when you grow old... This is probably one area where we need to do a lot more, to make sure that our environment is really friendly to everybody," says Keung. ■