

Fostering green dialogue to meet urban challenges



Structured: The crystalline building, or the Crystal, in London is a center for sustainable urban development aimed to better build and manage cities. (Courtesy of Siemens AG)

One cannot help but think Jakarta is on the brink of an apocalypse. A study released in 2010 says that the city is sinking at a rate of 10 centimeters per year.

Jakarta is now home to around 10 million people — and the population continues to grow, though the rate is slowing. After years of mismanagement, it is now the only megacity in Southeast Asia that does not have mass rapid transit. In the past few months, many of its residents have been suffering from what could be the worst water crisis in years.

In short, Jakarta is facing a plethora of problems that surely cannot be solved single-handedly by governor-elect Joko Widodo, despite all the hype about his coming all the way from Surakarta in Central Java to salvage the capital city.

These challenges are not entirely unique to Jakarta. More people around the globe are swarming into cities, which have to provide them with basic needs like access to clean water and electricity.

According to the UN-Habitat, the urban population has far exceeded the rural population, accounting for around 75 percent of the world's population today.

Cities are therefore the biggest energy consumers, making them the largest contributors to the world's greenhouse gas emissions. This is the reason why issues of sustainability have become more crucial than ever in the global attempt to address the vast array of urban woes.

On Sept. 19 in London, Siemens opened the Crystal, a center for sustainable urban development that is aimed at fostering dialogue among policymakers, experts, businesses and the community about how to better build and manage cities — including Asian megacities like Jakarta — in the face of the cataclysmic consequences of humanity's failure to prevent rapid urban development from destroying their own habitat.

"If we're going to make progress in combating climate change, cities must lead the way. The decisions cities make today, will shape our future for years to come," Siemens president and CEO Peter Loscher said at the Crystal's opening ceremony.

In his speech during the opening ceremony, London Mayor Boris Johnson likened the building to Charles Darwin's theory of evolution.

This may sound over the top for many, but what the jovial mayor meant was that innovation has long been part of London and he was glad that the Crystal, which aims to set a benchmark of sustainable building, is located in one of the world's oldest cities.

Standing at the Royal Victoria Docks, the center of London's new Green Enterprise District, the Crystal is an all-electric building that uses solar power and ground-source heat pumps to generate its own energy. This means that there are no fossil fuels burning in the building.

According to Siemens AG, two thirds of the Crystal's roof is covered in PV panels that could generate 20 percent of its electrical energy. It harvests rainwater for use, making sure that not a drop of water is lost throughout the building as it all will be recycled and reused.

"Taking into account the renewable energy produced on site, CO2 emissions — at an expected 23 kilograms/CO2/square meter/year on average — will be more than 65 percent lower than in comparable office buildings, based on the UK grid mix," the company claimed.

The construction of the Crystal began in January 2011 and was completed in July 2012. The building is more than 6,000 square meters wide and Siemens has invested more than €35 million (US\$45.12 million) in it. The building was designed by Wilkinson Eyre Architects, which drew inspiration from nature with its crystalline geometry.

"This project offers the fantastic opportunity to explore how new technologies can help create a highly sustainable building without relying solely on a 'passive system'," said Sebastian Richard, director of Wilkinson Eyre Architects.

"Our concept for the building was inspired by nature, creating a distinctive crystalline form which aims to inspire people to see the future of sustainability as an opportunity to be more innovative and improve the quality of fabric of our cities."

The company said it was designed to be the first building in the world that will have the highest certification both according to the world's renowned rating systems: the BRE Environmental Assessment Method (BREEAM) and Leadership in Energy and Environmental Design (LEED).

"The successful completion of this iconic building marks the culmination of a project with the very real potential to elevate the profile of sustainable construction at a global level," said Craig Tatton, the managing director of ISG's UK Construction.

"The Crystal demonstrates that striking architecture can successfully coexist with the ideals of sustainable construction to deliver a building which is both an exemplar for environmental performance and an educational resource for this and future generations."