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More than a Smart City: Kashiwa-no-ha is Healthy, Efficient and Innovative

Streetscape of Kashiwa-no-ha.

WRITTEN BY
See Boon Ping

An ultra-ageing society and a stagnant economy were some of the contemporary urban challenges that led to the birth of Kashiwa-no-ha Smart City (柏の葉スマートシティ). During the turn of the millennium, the Chiba Prefecture Government initiated this 273ha[1] development at the northern part of Kashiwa City (柏市) to create a collaborative platform that could transform the area formerly occupied by the United States Air Force Communication Base and Mitsui Fudosan's Kashiwa Golf Club.[2]

Over the last decade, the city has brought together various stakeholders, including the public sector (i.e. the Chiba Prefecture Government and the Kashiwa City Government), the private sector (e.g. Mitsui Fudosan, Metropolitan Intercity Railway Company, etc.), academia (i.e. the University of Tokyo and the Chiba University) and non-profit organisations to create a next-generation city for its population of 4,124[3] that is projected to grow to 26,000 eventually. A key player is the Urban Design Center Kashiwa-no-ha (UDCK), an independent organisation formed, managed and funded by the different partners. It functions as a research think-tank, collaboration coordinator,

1. Kashiwa-no-ha Urban Planning and Development Department, Mitsui Fudosan Co Ltd (2014). *A New Vision for the Cities of Tomorrow*, Second Edition.
2. https://www.kashiwanoha-smartcity.com/en/concept/history.html (accessed 28 December 2018).
3. http://www.city.kashiwa.lg.jp/soshiki/020800/p009116.html (accessed 28 December 2018).

Kashiwa-no-ha is 25 km away from Downtown Tokyo, and is accessible by a 23-min train ride from Akihabara Station (in Downtown Tokyo) via the Tsukuba Express. Source: Tsukuba Express

knowledge sharing centre and place management agency. Not only does UDCK research, analyse and propose new urban planning concepts, it also implements, designs and manages developments. Major research projects include advanced transportation-oriented development, urban regeneration and urban development in an aging society. UDCK also organises community activities to inject life into the town and raise awareness on urban design.

Kashiwa-no-ha Smart City was designed from the ground-up around the principles of Transportation-Oriented Development, with the Kashiwa-no-ha Campus Station as its epicentre. Spread within two kilometres of this station are the campuses of the University of Tokyo and the Chiba University, research facilities, commercial developments, residential blocks, hospital, childcare centres, parks and other urban facilities. The station is also seamlessly connected to Kashiwa-no-ha Gate Square, a mixed-use integrated development that is the hub of the development of a smart city. Besides housing a compact shopping mall, LaLaport Kashiwanoha, the Gate Square also hosts various facilities that is helping the city get smarter in managing its citizens' health, as well as its energy needs and economy.

Keeping the Community Healthy

Located on the third floor of the LaLaport Kashiwanoha is the Town Health Station, a one-stop healthcare support hub. This is the flagship of the Healthcare Innovation Project (HIP), an on-going academic-industrial partnership between the University of Tokyo Institute of Gerontology and Kashiwa City to redesign its infrastructure to better meet the demands of its ageing population and extend their years of being independent.[4] Besides providing assisted living facilities, 24-hour visiting nurses and individualised mobility assistance for the elderly, the city also now offers non-strenuous job opportunities, such as in childcare centres or vertical farms.

4. Akiyama Hiroko. Redesigning Communities for Aged Society (unpublished presentation slides). Presentation at National University Health System on 19 October 2018.

Besides developments that squarely address citizens' health, the city is also designed in a compact nature to encourage walking and cycling.

Sakura trees and flowering shrubs planted on the green verge of Kashiwa-no-ha's streets add colour and prevents pedestrians from jaywalking.

Inside the Town Health Station are an array of preventive medicine facilities, health counselling and health services for residents around the clock. This includes clinics, a gym, studios for dance and yoga classes, as well as space to host health-related events. Beyond providing the hardware, Kashiwa-no-ha is also encouraging its residents to develop healthy lifestyles through a health promotion system. The Community Health Lab ASHITA is a community-run health information centre where individuals can volunteer to share their knowledge and experience on exercise and diet. There is also a Smart Health Project pilot to utilise Information Technology to analyse health data collected from the community in order to provide appropriate counselling and treatment services.

Besides developments that squarely address citizens' health, the city is also designed in a compact nature to encourage walking and cycling. Its roads are wide and there are segregated cycling paths as well as ample bicycle parking spaces strategically provided near the station, along cycling routes and at developments. Over the past decade, Kashiwa-no-ha has seen a 10% reduction in automobile ownership, which in turn reduces carbon emissions and promotes a healthier lifestyle. The city is now experimenting with multi-modal

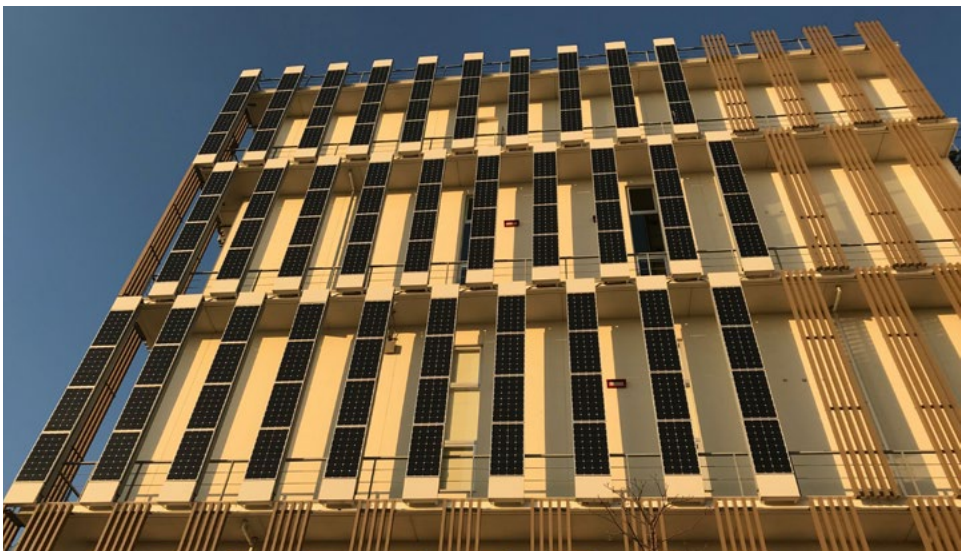
A health-related exhibition at Community Health Lab ASHITA.

On-demand bus service terminating at the West Exit of Kashiwa-no-ha Campus Station.

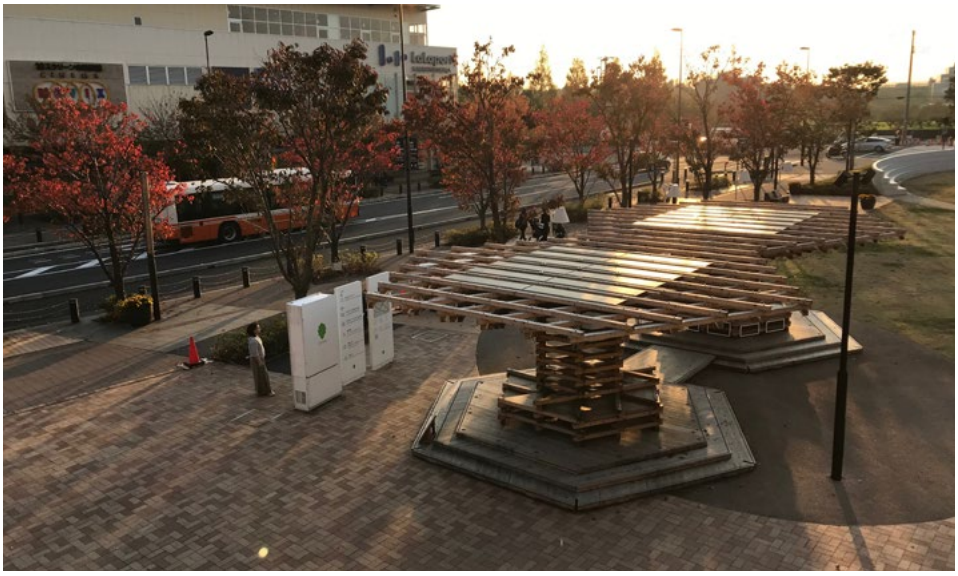
mobility stations that let residents rent bicycles and electric vehicles as well as hail buses on-demand. These stations and other intelligent systems also collect data that will be useful for formulating the city's future transportation policies.

A Model of Energy Efficiency

Housed within the Kashiwa-no-ha Gate Square is also a Smart Center that monitors and manages the electricity usage of buildings within the entire district, even during a disaster and emergency. The Area Energy Management System (AEMS) contains a system of independently-operated smart power grids that can visualise energy consumption. It can also efficiently optimise the distribution of energy from various sources of localised renewable energy producers (e.g. solar panels, storage battery) as well as power companies. This system has successfully reduced the district's peak consumption by 26%. The rental homes in this development also have a Home Energy Management System (HEMS) that uses artificial intelligence to visualise the energy consumptions of each unit. Residents can thus help conserve energy too, making the city more environmentally friendly.



Solar panels are installed on the façade of the district's Energy Building, instead of a typical "green" wall.



Some of the street furnitures in Kashiwa-no-ha Harappa can be converted into make-shift barbeque pit for cooking and warmth during emergency evacuations.

Many Pathways Towards a Smart City

Kashiwa-no-ha Smart City demonstrates how a "smart city" needs to look beyond using technology to be successful and liveable. It has also piloted numerous environmental, health and economic initiatives to ensure urban sustainability without compromising quality of life. Through an innovative Public-Private-Academic Partnership, mass collaborations and active involvement of the stakeholders, the Kashiwa-no-ha Smart City model also encourages bottom-up community building, giving its residents a greater sense of belonging to the city.

About the Writer

See Boon Ping

Researcher
Centre for Liveable Cities
Ministry of National Development

Boon Ping is a researcher from the Centre for Liveable Cities who is involved in local master planning, active mobility and urban design studies. He also manages the partnership with Japanese government institutions and urban planning think-tanks. Boon Ping graduated from Nanyang Technological University School of Art, Design & Media with a Bachelor of Fine Arts (Honours) in Visual Communication.

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About the CLC

The Centre for Liveable Cities was set up in 2008 by the Ministry of National Development and the Ministry of the Environment and Water Resources, based on a strategic blueprint developed by Singapore's Inter-Ministerial Committee on Sustainable Development. Guided by its mission to distil, create and share knowledge on liveable and sustainable cities, the Centre's work spans four main areas - Research, Capability Development, Knowledge Platforms and Advisory. For more information, please visit us at http://www.clc.gov.sg