2016 WINTER LANDSCAPE WORKSHOP

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CHIBA, JAPAN

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Campus
Asia
Plant
Environment innovation

The Role of Ecological Landscapes in Development of Kashiwanoha Smart City

Overview

The 2016 Winter Landscape Workshop of Campus Asia Plant Environment innovation was held in Center for Environment, Health and Field Sciences, Chiba University in Kashiwa, Chiba. in collaboration with Tsinghua University (China), National University of Singapore (Singapore), and Chiba University. The workshop was held during 17 Feb – 25 Feb, 2017. Prof. Tan Puay Yok and Prof. Hwang Yun Hye from Department of Architecture, National University of Singapore, and Prof. Ayako Nagase from College of Liberal Arts and Sciences, and Prof. Ryosuke Shimoda from Department of Horticulture, Chiba University supervised the workshop.

Context

Kashiwanoha campus city is planned to be a Smart City. Currently, there is a lot of emphasis on the hardware (such as infrastructure, smart grid, and disaster response systems) and development of new industry in the planning and implementation. In the broad concepts for the development of the Smart City, while there are ideas for "An Environmental-Symbiotic City" to create the "world's most environmentally friendly city", there are no explicit plans for how greenery can be part of the urban environment, such that greenery can actively contribute to the physical and mental well-being of individuals and the community.

For instance, there are no explicit plans for urban agriculture. There also does not seem to be explicit considerations for how greenery in Kashiwanoha Smart City can move beyond creating a green urban ambience, but also contribute more ecologically to dealing with urban challenges such as stormwater management, urban heat island, biodiversity loss, etc.

Objective of Design Workshop

Using an existing site, the workshop asks students to explore the potential of an existing shopping mall 'LALA PORT' for greening the city. The site is chosen as it is located near the Kashiwanoaha station and playing a role as a public space especially for families, but one which seems to be underutilized, or its potential not fully optimized.

In developing the design, the broad considerations are the appreciation of the relevance of greenery in the development of Smart City of the future through benefits greenery can bring, how greenery can be made more "ecological", and how even a simple existing space through deliberate design, can potentially deliver more than conventional designs. The students will choose from one site in LALA PORT and show the design.

The design objectives are:

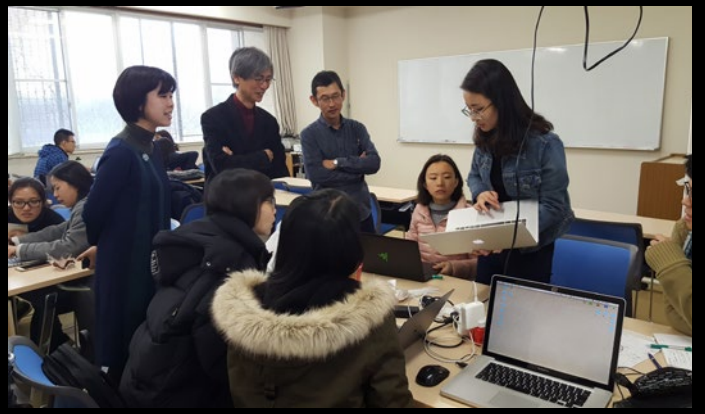
1. Conduct an analysis of current conditions and the concept of smart city. This includes an assessment of the current coverage and distribution of green spaces in the site, how such spaces are used (or not used), environmental constraints faced in implementing greenery, the needs of people, relationships between the site and adjacent neighbourhoods, etc.
2. Identify and articulate key issues that can be addressed through planning and design, keeping in mind current encumbrances.
3. Address how selected sites can contribute for the concept of Kashiwanoha Smart City
4. Develop a conceptual design for how green spaces can be better revamped, new spaces added or amalgamated to deliver more functions, either in improving environmental performance (biophysical or biodiversity), or better meet the needs of people.

The design should be presented in 2 A1 posters. Although only conceptual schemes are needed, important cross-sections to illustrate key innovations, or concepts must be included. Design must be grounded in technical assessment or empirical evidence gathered from site study.











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Yue Cao
Pearlyn Chang
Su Yuting
Christin Busch

Heart of Kashiwa-no-ha

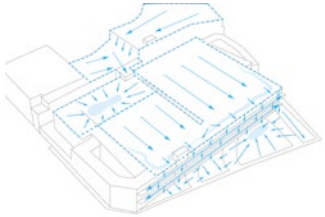
Team 1 suggested a multi-functional rooftop garden. The problems they were tuckling were stressful lifestyles (especially hikikomori) and not-so-well-combined concepts of smart city, ecological city, and healthy city.
Heart of Kashiwa-no-ha is aimed to serve three hearts:
healthy heart, representing the relationship with your own heart;
social heart, representing the relationship with others' hearts;
green heart, representing the relationship with environment.

To fulfill these intertwining hearts and to mitigate stress, the team suggested four main strategies:
sports & fitness, gathering places, activities with nature, and environmental therapy.

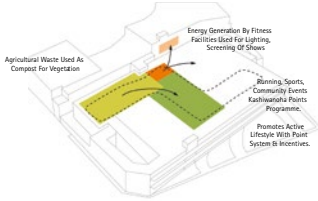
Multi-functional Rooftop

Planting Design

Hydrology



Energy Flows



Accessibility

Sports & Fitness

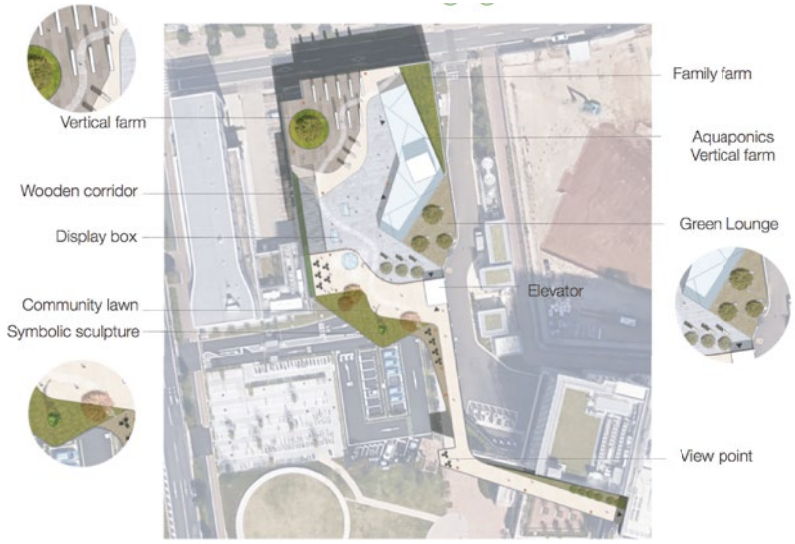
Multi-sensory Experience

2

Kashiwa-no-ha Sharing Ground.

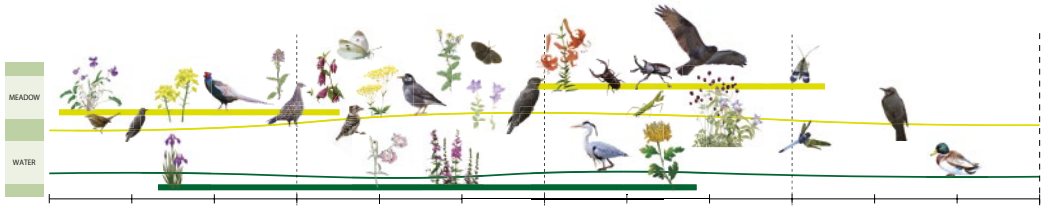
Ma Zhi Ye
Zhang Qingqing
Lee Jihye
Utsunomiya Kiyoharu

Team 2 focused on four issues Kashiwa-no-ha Smart City currently facing.
1. Lack of the public open green space, 2. Community gathering destinations being monotonous indoor activities, 3. Under-utilized spaces, and 4. Missing opportunities to synergise with creative industry at KOIL (Kashiwa-no-ha Open Innovation Lab).
Team 2's proposal was a shared rooftop that is comprised of three intertwed functions.
Located at the center of the rooftop was Social Economy: the interactive spaces for co-working community and the residents. Diversified urban farming with vertical farms, family farms, aqua-ponic vertical farms, and community lawn represents ecological symbiosis, and located around Social Economy. Public open space is an extended social and open space to encourage community activities for public health.



Bird-eye View

Seasonal Vegetation Map



Activity Map

3

Children's Utopia

Wang Yuqian
Song Chenwei
Qian Xuanyu

Team 2's work, Children's Utopia, is a network of playground-like gardens. Scattered all around the site, these diversely-scaled gardens are supposed to educate children through interactions with plants, while providing sophisticated environments for them to play in.

The main garden is a hub for these relatively smaller playgrounds. It is designed to be a space that children and citizens can safely and easily access. It provides various activity needs for children of different ages, while also serving for public functions urban areas require.

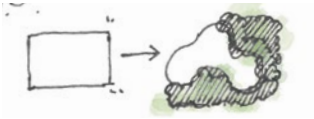
Main Garden (Hub)

Design Considerations

Safety

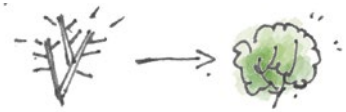
Parents' monitoring

Children play together within the protected area.
Parents take care of their children and watching them play.



Arc to form the space

The sharp boundary is softened and the forest-like experience is provided.
Plants are carefully selected and used to provide various experiences for children to touch and feel.



Children-friendly plants

Plants are carefully selected and used to provide various experiences.
The sandpit is used to protect children (3-6y) falling down.

Environmental Education

Natural classroom for children

Plants are carefully selected and used to attract butterflies and other insects.

Naturalized space

Landform is changed to provide unique experience.
Plants are carefully selected and used to provide various nature experiences.

Participatory design for children

Rainwater collecting system is made to let children irrigating the farm by themselves.

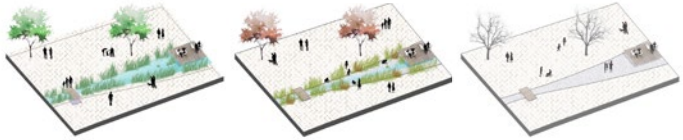
4

Rethinking Smart Street In Smart City

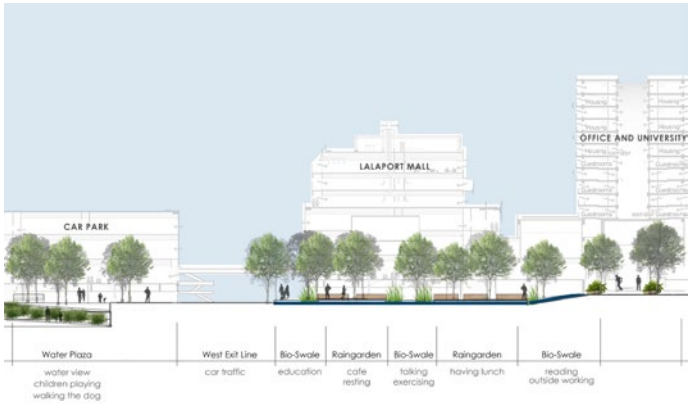
Daiki Mabuchi
Wei Fang
Chen Jumin
Tan Wenbin
Pu Wenjun

Smart Street Landscape uses water as the main media to provide different social functions related to communication, recreation and education for public, which play important roles in smart city development.

Team 4 proposed a new system to recycle and reuse rainwater or street water to create a dynamic landscape that can be changed by different weathers ,which defines the public activities and behaviours.

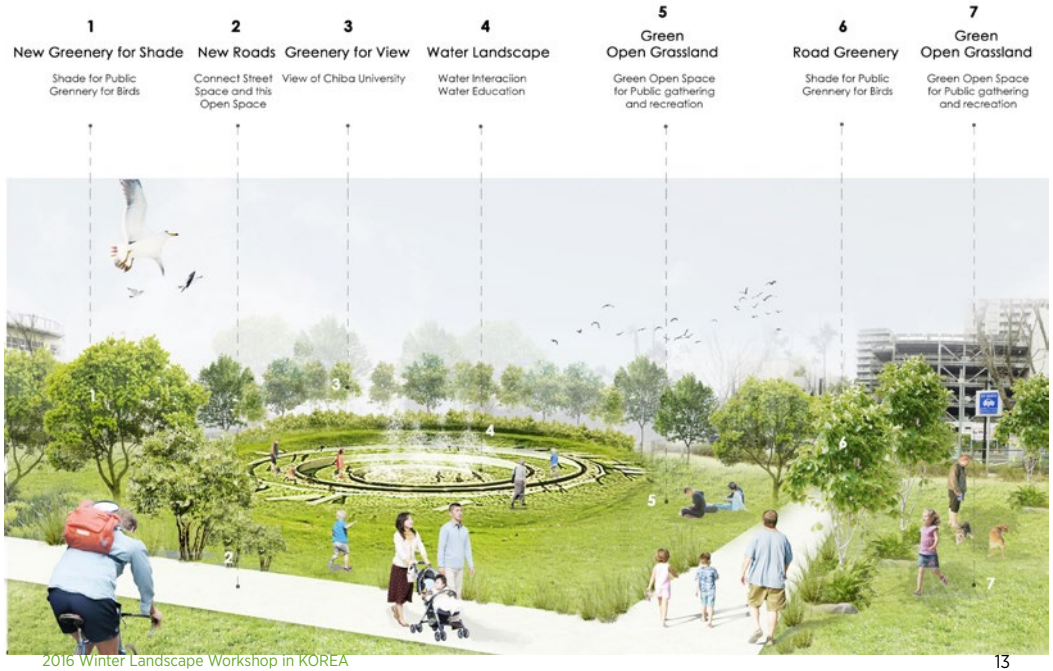


Rainy Day (3-6 Month) Rainy Day (1-3 Month) Winter



They also propose kinds of open spaces for public, which aims to attract more people and provide different social functions related to gathering, recreation and education. Also, this dynamic landscape provides experience for people to touch natural environment and live with greenery.

Rainy Day (3-6 Month) Rainy Day (1-3 Month) Winter



5

The Living Room

Song Xiao Ping
Hiroshi Ichikawa
Liu Yuehua
Ye Jing
Pang Yu Rong

How can we enhance biophysical function at the site? How can we build community and promote environmental education amongst existing users? With these questions in mind, Team 5 modified a plaza.

They chose the plaza (Lalaport Plaza) for their site, for the following reasons: High visibility & human traffic (especially families with children); relatively large space that can support multiple uses & functions; opportunities to optimise ecological function and the sea- sonality of human use (hourly, weekly, annually).

Rendering (Sunny). Rainy version on the cover of this leaflet, promoting both communal & educational function of the site.

Their design proposal comprised of two key elements:
1) Enhance site versatility and ecological performance. This is done by improved hydrology (water regulation & quality) and leveraging on seasonality – solar shading & wind block, choice of plants (energy conservation), and the site usage.
2) Promote the use of the site as a communal and educational space, by increased accessibility, community activities.

Research & Innovate

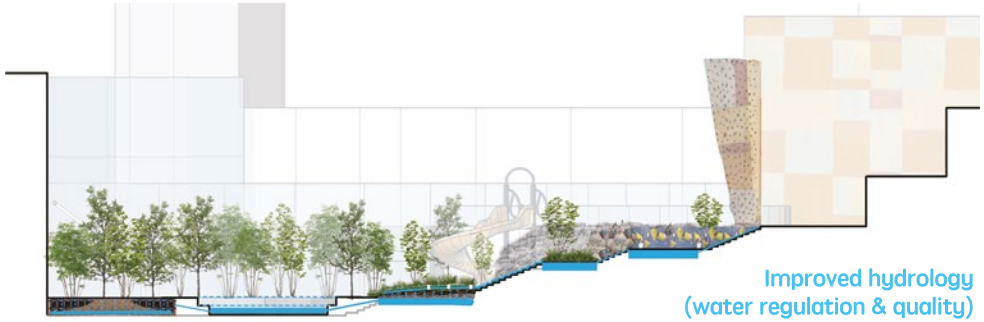
KOIL showcase spaces, user testing, & publicity

Sense of Identity

Community events & festivities

Education

Public education & outdoor learning



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CHIBA UNIVERSITY JAPAN

TSINGHUA UNIVERSITY CHINA

NATIONAL UNIVERSITY of SINGAPORE SINGAPORE

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