

2017 WINTER LANDSCAPE WORKSHOP

cape

Campus
Asia
Plant
Environment innovation

CHIBA, JAPAN

The Role of Ecological Landscapes
in Development of Kashiwa-no-ha Smart City

CHIBA UNIVERSITY

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.

Objectives of Design Workshop

Using an existing site, the workshop asks students to explore the potential of an area around Kashiwanoha campus station for greening the city. 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 near Kashiwanoha campus station 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 to 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.



Design Deliverables

The design are to 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.

Teams

Students were divided into the following four teams.

Abbreviations:

CU-Chiba University;
NUS-National University of
Singapore;
TU-Tsinghua University.

A

Seki Tomomi -CU
Dai Junwei -NUS
Amanda Jennifer Chandra -NUS
Pei Yu -TU

B

Shi Qu -CU
Tagi Hinako -CU
Sun Hao Jen Ashley -NUS
Peng Qinyi -TU

C

Hu Bowen -CU
Yan Ran -NUS
Bai Zhuhui -NUS
Zhang Shujie -TU

D

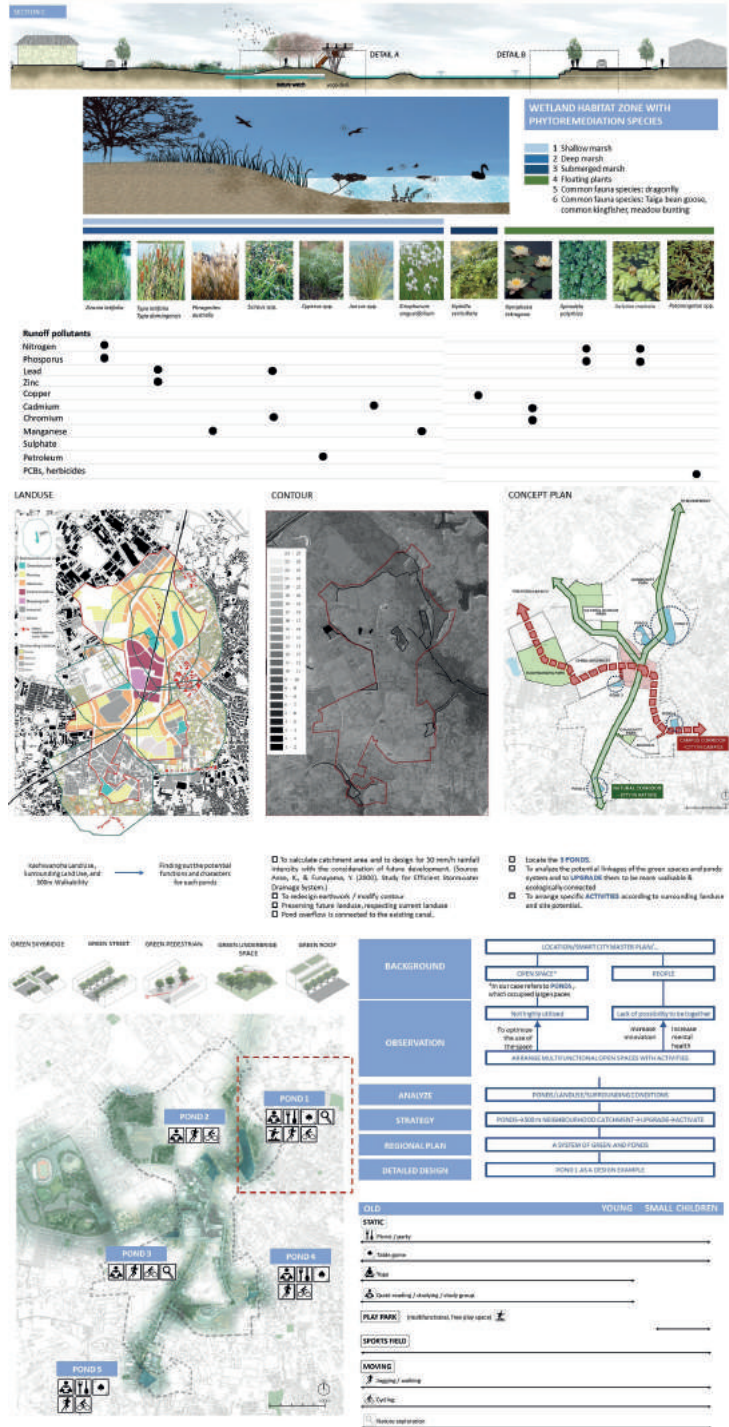
Xu Lu -CU
Wu Yitong -NUS
Rong Yu -TU
Zhou Zhumeng -TU

A HYDROSCAPES

Hydroscares is a project that aims to revitalize and upgrade five water detention ponds on Kashiwanoha new town to be multifunctional spaces and water parks that can add value based on specific needs and characteristics of the surrounding neighbourhood. On the regional planning level, the project confirms to the Kashiwanoha Smart City Vision by enhancing environmental education, inducing community building, while also improving on the health and well-being of the citizens.

At the regional planning level, the connectivity of five ponds is designed as a value added route by utilizing available walking facilities and cycling plans, hence supporting the healthy living vision. At the neighbourhood level, bringing the water park closer and more accessible to the residents supports environmental education as the natural hydrological processes can be observed more intimately. Lastly, the transformed water parks provide community shared spaces where residents of all ages, both from new and old town, can gather and interact while enjoying various activities.

Multifunctional Neighbourhood Water Park





B

Forging Identity Through Memories:

Transposing history into the socio-ecological landscape of Kashiwanoha Smart City

Kashiwanoha city is branded as a Smart City, despite the fact that cultural traces of what the city was before is relatively unknown. This project aims to investigate the historical landscape of this area and incorporate some traces of history into the socio-ecological landscape of Kashiwanoha. The selected site is bus stop with-in a circular road next to the sub-way station, strategically located to be redesigned as the new gate of the city. The project was inspired by the painting "Shimosuma Koganehara" by Hiroshige, which was a depiction of the city during the 5th year of the Ansei Era (1854-1860). The site was previously a pasture for military horses, surrounded by rivers and pine forests. The design hopes to reinvent and reflect the essence of these cultural elements, while integrating them into ecological strategies – rainwater harvesting combined with urban agriculture, as well as activating formerly underused walkway into a new playscape central for families with young children.

Species Consideration of Site

WETLAND SPECIES CONSIDERATION

- ENDANGERED
- HIGH RESISTANCE/ EASY TO GROW
- VARIETY OF COLOURS



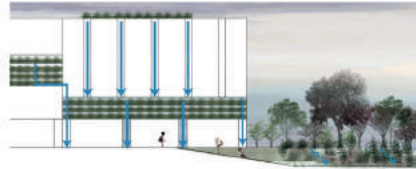
Kobukuro-pond's actual species (most environment)



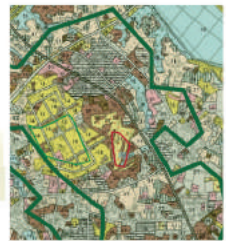
KONBUKURO POND PARK IS 5 MIN WALK FROM SITE

Species Consideration of Site

NATIVE / ORIGINAL LANDSCAPE SPECIES CONSIDERATION



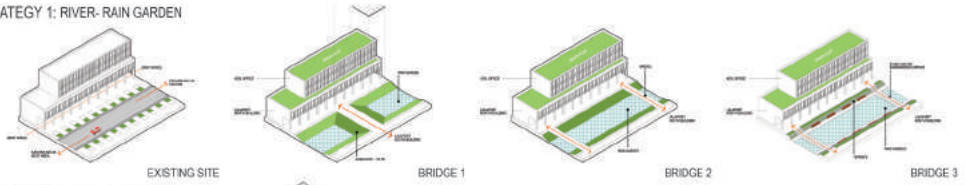
Our site's original species



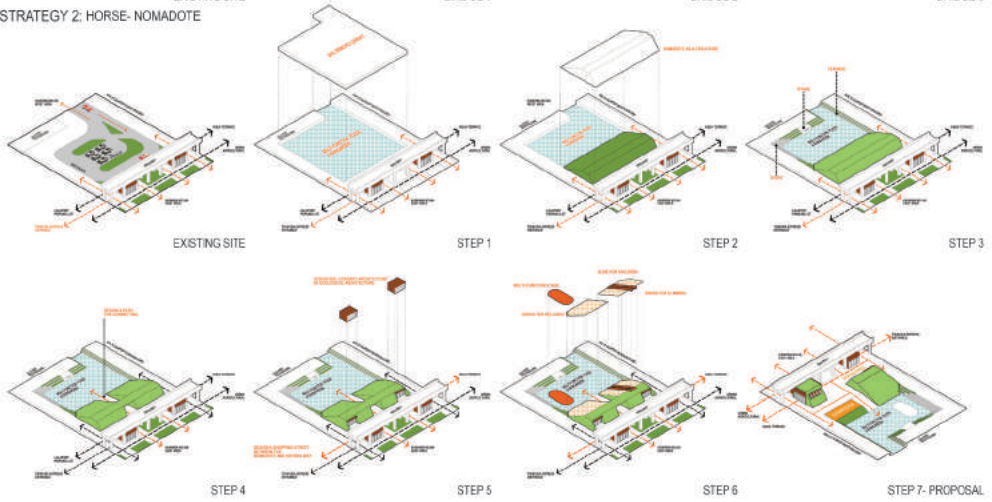
SITE WAS A PINE PLANTATION AND PASTURE NAMED Takadatsimeki (高田台敷)



STRATEGY 1: RIVER-RAIN GARDEN



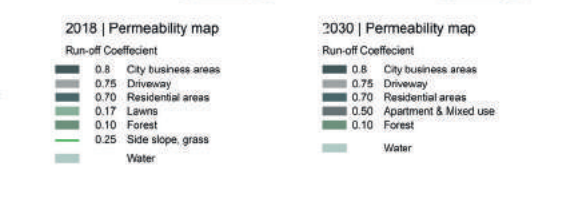
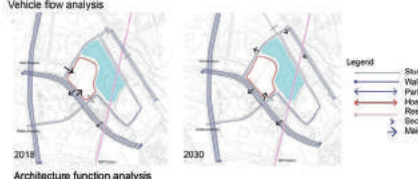
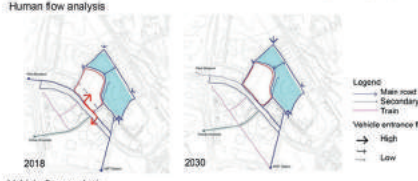
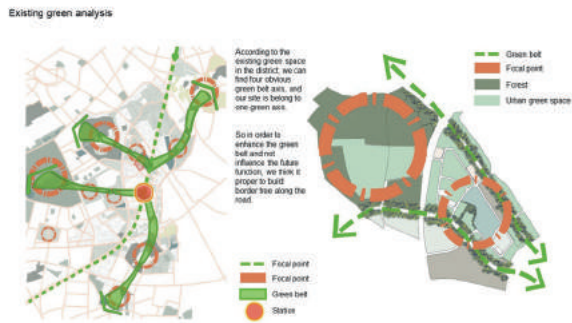
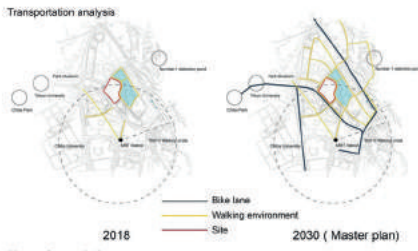
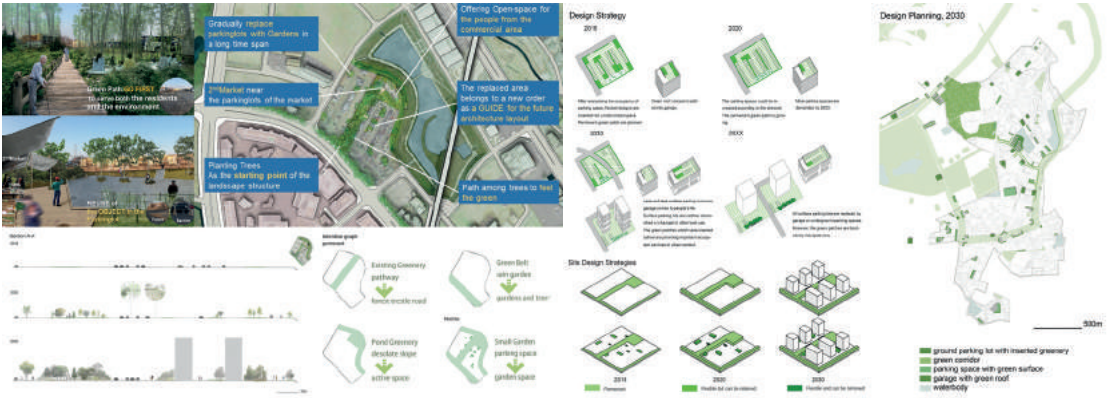
STRATEGY 2: HORSE-NOMADOTE



C

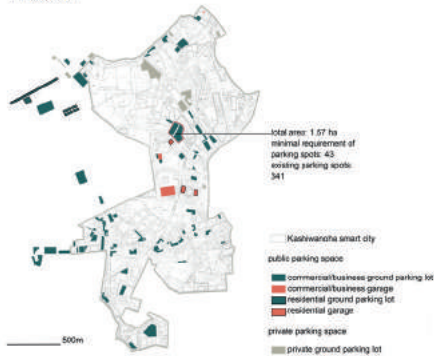
Park"ing" – Adaptive & Dynamic Design of Parking Lot for Developing Smart City

During the development of Kashiwanoha city, the parking space will not be fixed in conventional way, it will change over time. We want to propose a new typology of "smart" parking space by greening the parking space, which is functioning in social and ecological aspect, also connecting. Our design will be applied in a regional scale and specific site scale.



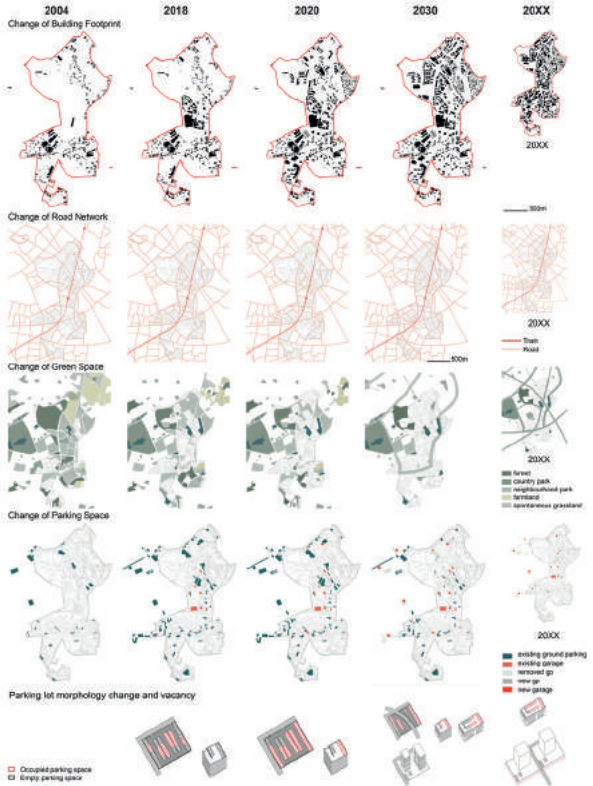
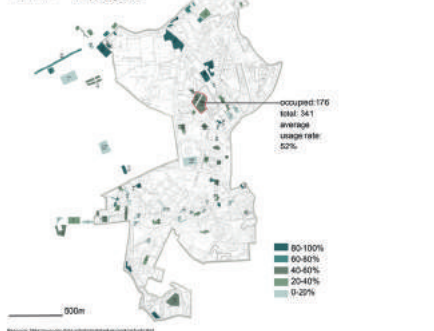
Parking Space Analysis

Parking space type

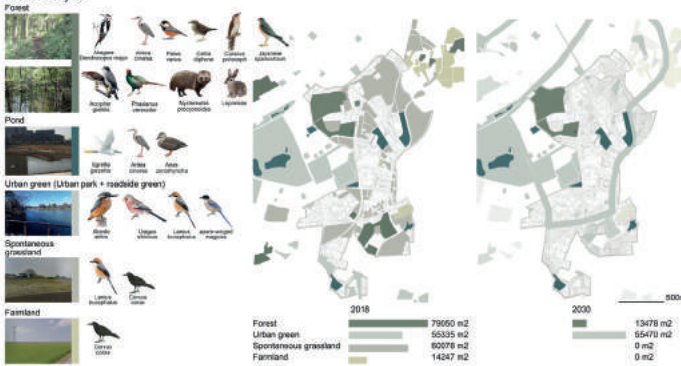


Average usage rate of parking space

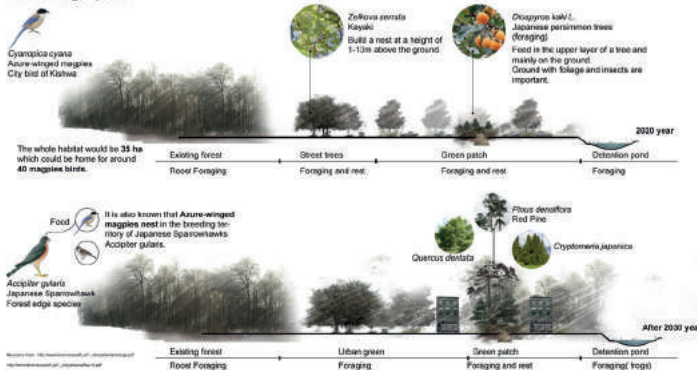
average usage rate = $\frac{\text{occupied parking spots}}{\text{total parking spots}} \times 100\%$



Habitat Analysis



Habitat for target species

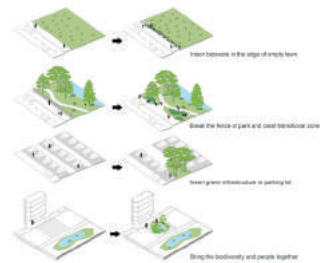


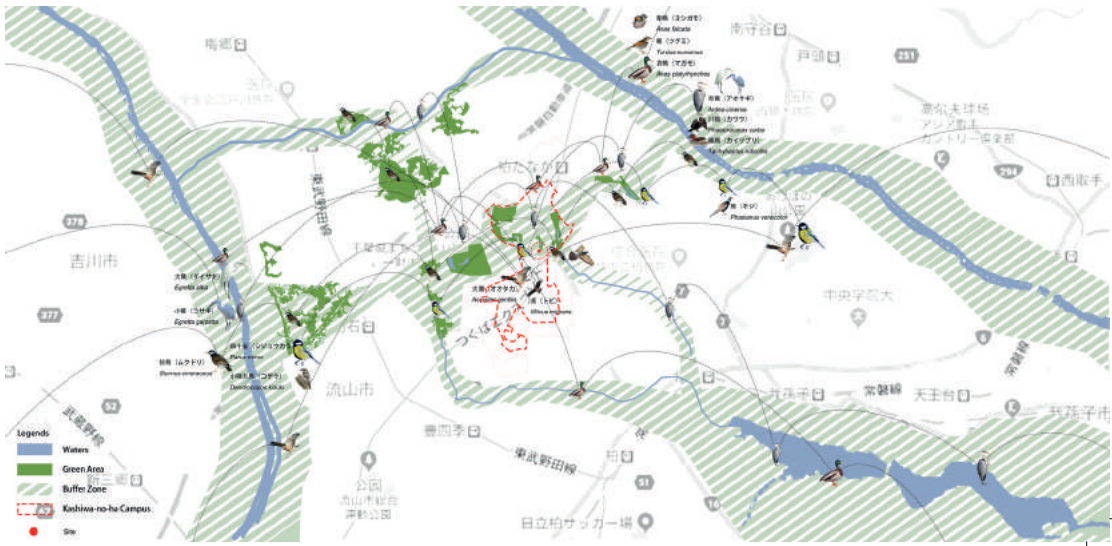
D

Biophilic Kashiwanoha

During our site visit, we observed that, although there was some biodiversity in the nearby parks and large waterbody, people living inside the smart city cannot easily get access to this fascinating scene. The new built-up area and the nearby nature environment is quite separated.

In order to provide a more liveable and natural environment for Kashiwanoha as well as create more interaction between human and nature, our project aims to enhance the ecological performance of landscape and bring the biodiversity and human together. We start with large regional scale to look at the ecological connection in terms of green and blue network, and we identify the potential connections between several large green patches in small neighbourhood scale. We design different habitats for target bird species in neighbourhood scale and design multi-function constructed wetland in site scale to bring the biodiversity closer to human.





cape

Campus
Asia
Plant
Environment innovation



2017

CAPE Winter Landscape Workshop

The Role of Ecological Landscapes in Development of Kashiwa-no-ha Smart City

CHIBA, JAPAN

FEB. 24 – MAR. 2, 2018

CHIBA UNIVERSITY JAPAN

TSINGHUA UNIVERSITY CHINA

NATIONAL UNIVERSITY of SINGAPORE SINGAPORE

Supervisors

Ayako NAGASE CHIBA UNIVERSITY, JAPAN

Ryosuke SHIMODA CHIBA UNIVERSITY, JAPAN

Hailong LIU TSINGHUA UNIVERSITY, CHINA

Tan Puay Yok NATIONAL UNIVERSITY of SINGAPORE, SINGAPORE