June 12, 2019

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大阪大学
OSAKA UNIVERSITY

Overview

- Date: June 24 to July 3, 2019.
- Contents: International student teams explore urban renewal design from many aspects using Computational design, BIM (Building Information Modeling), GIS (Geographical Information System), and XR (Virtual, Augmented and Mixed Reality) technologies.
- This workshop helps students acquire expert knowledge and skills and develop international perspectives and skills.

Venue

- TechnoAlliance Complex
- Interexchange space (1st Floor)

Member

Harbin Institute of Technology, Shenzhen

- Assistant Prof. Dr. Sky Tian Tian Lo, Dr. Yang Xi
- Students: 5 Master, 10 Bachelor

Osaka University

- Associate Prof. Dr. Tomohiro Fukuda
- Students: 1 Doctor, 3 Master, 6 Bachelor

- Associate Prof. Dr. Shigeki Matsubara *(Midterm presentation)*
- Associate Prof. Dr. Kensuke Yasufuku *(Midterm & Final presentation)*

CAAD Futures2015 | Sao Paulo, July 2015

Schedule

June 24 (Mon)

09:15 Arrive at Handai-Honbu-Mae Bus Stop

09:30 Meet at the workshop Venue

09:45-10:15 Opening Address & Information about Design Site *(Dr. Fukuda)*

10:15-10:45 Presentation *(Dr. Tian Tian Lo (Sky Lo))*

10:50-11:20 Presentation *(Osaka-U: 10 Students, 5 min. per team)*

11:20-12:10 Presentation *(HITSZ: Yang Xi & 15 Students, 5 min. per team)*

12:15-13:30 Campus & Labo tour

13:30-14:30 Lunch

14:30-17:30 Work by the team *(Site Analysis, Make Concept, Planning, and Design)*

17:30 Closing

June 25 (Tue)

09:30 Meet at the Workshop Venue

09:30-17:00 Work by the team *(Site Analysis, Make Concept, Planning, and Design)*
17:00-17:30 First intermediate presentation *(3 min.)*

17:30 Closing

June 26 (Wed)

09:30 Meet at the Workshop Venue

09:30-17:00 Work by the team *(Site Analysis, Make Concept, Planning, and Design)*
17:00-17:30 Second intermediate presentation *(3 min.)*

17:30 Closing

June 27 (Thr)

09:30 Meet at the Workshop Venue

09:30-16:30 Work by the team *(Site Analysis*, *Make Concept*, *Planning*, *and Design)*
16:30-17:30 Midterm (Third intermediate) presentation *(5 min.)*

17:30 Closing

June 28 (Fri)

Technical Tour

09:40 Meet at Osaka Metro Tanimachi-6-Chome St. No.1 EXIT (In front of Daily Yamazaki (Convenience Store) on Ground Level)

10:00-12:00 Visit NEXT 21 *(Sustainable apartment building by Osaka Gas)*

14:30-16:00 Visit FORUM8 Osaka *(VR, BIM, and Advanced Information Technology company)*

16:30-18:30 Visit Heart Beat Plan *(Urban Planning Consultant company)*
During HBP visit, Let five teams present their mid-term presentation in three minutes. HBP members will give some valuable comments.

19:00- Social Gathering *(Green Cafe Kawano Station Hachikenya)*

July 1 (Mon)

09:30 Meet at the Workshop Venue

09:30-17:00 Work by the team *(Planning, Design, Presentation)*

17:00-17:30 Fourth intermediate presentation *(3 min.)*

17:30 Closing

July 2 (Tue)

09:30 Meet at the Workshop Venue

09:30-17:30 Work by the team *(Planning, Design, Presentation)*

17:30 Closing

July 3 (Wed)

09:30 Meet at the Workshop Venue

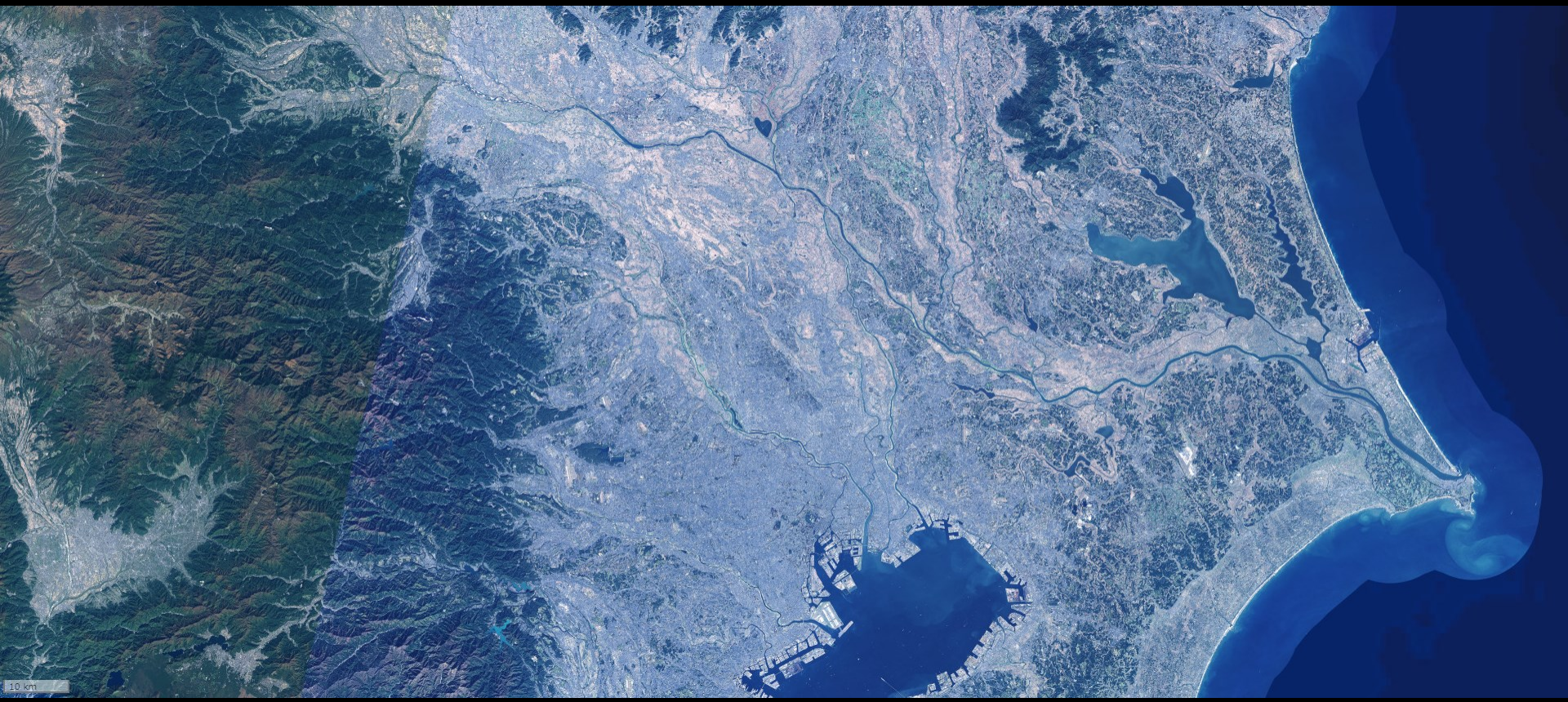
09:30-16:30 Work by the team *(Site Analysis, Make Concept, Planning, and Design)*

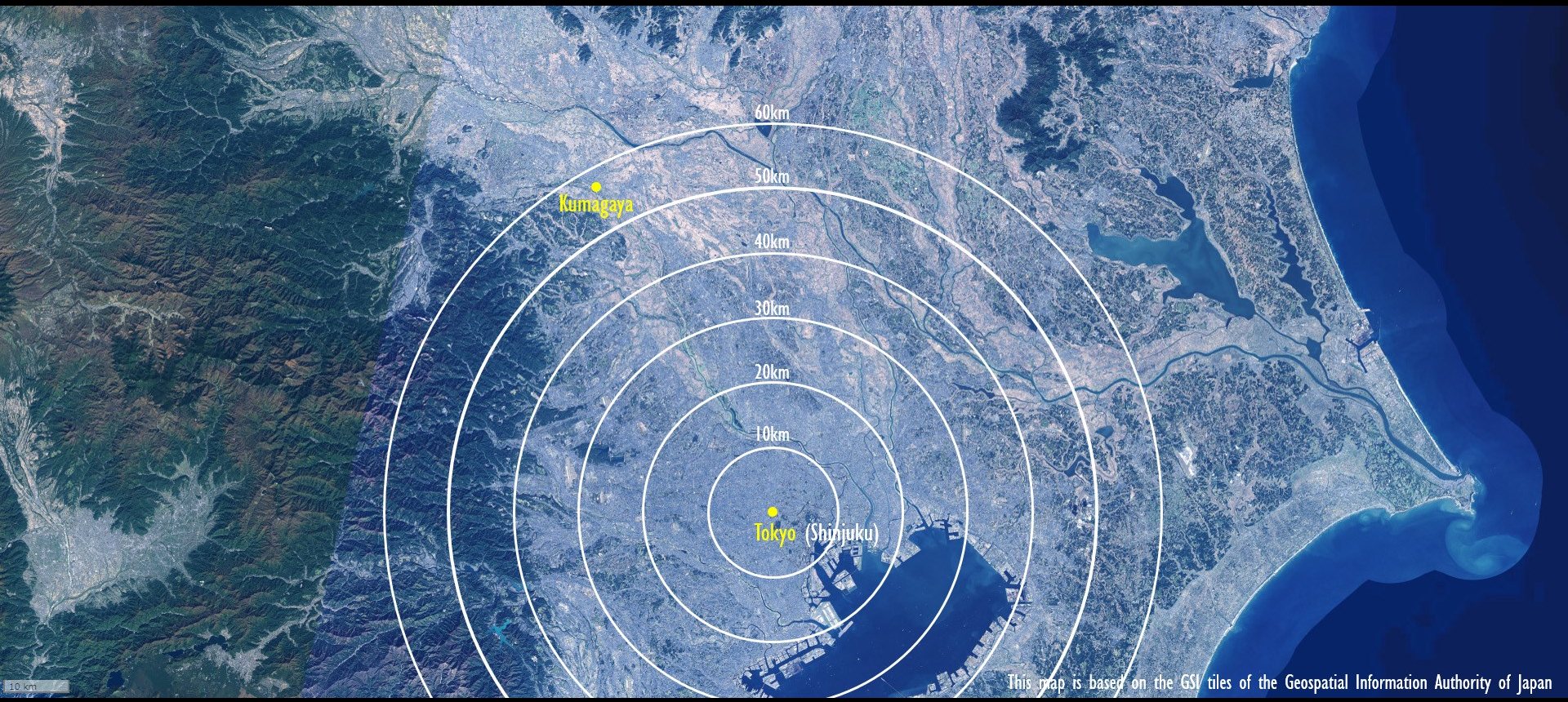
16:30-18:00 Final presentation *(10 min.)*

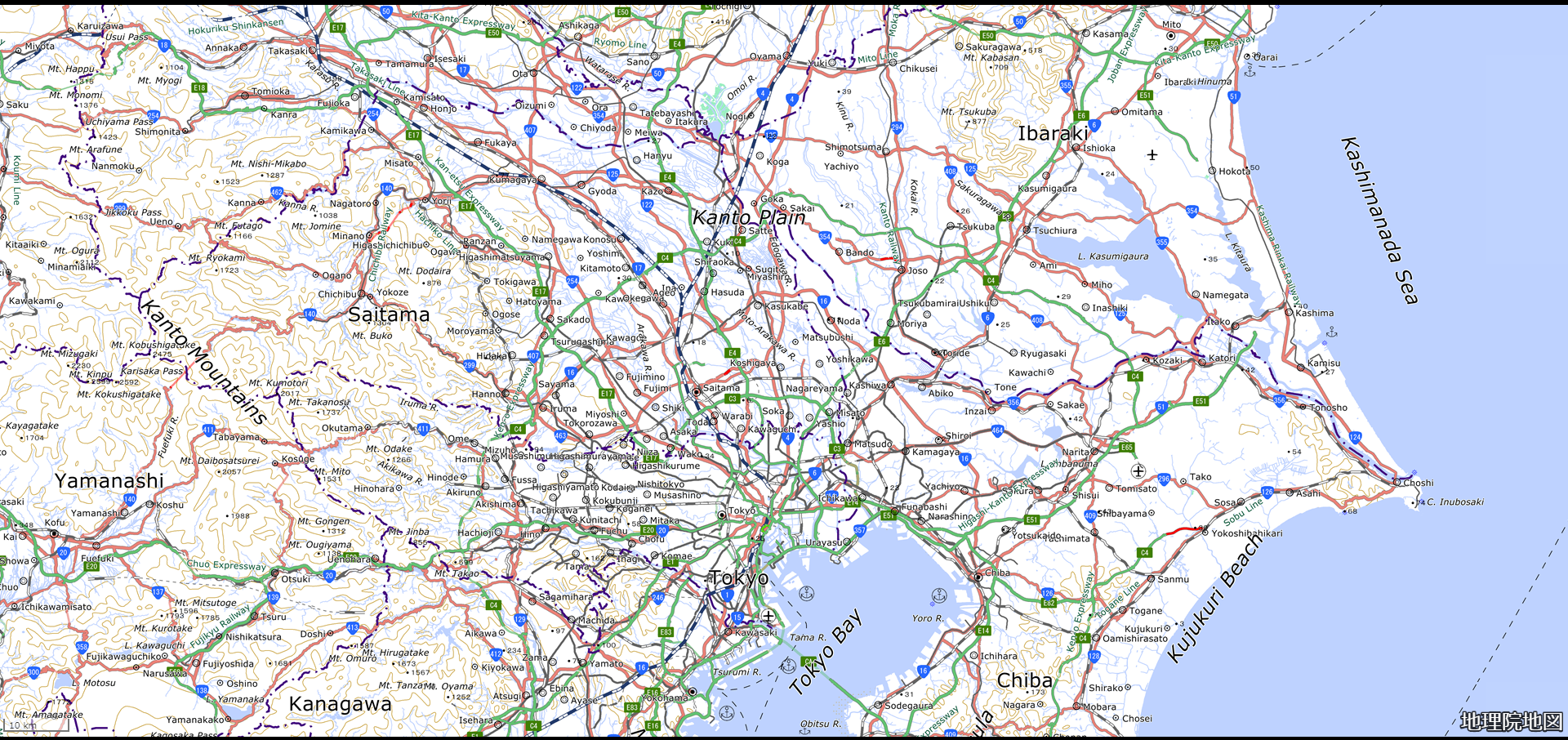
18:00 Wrap-up Party *(Workshop Venue)*

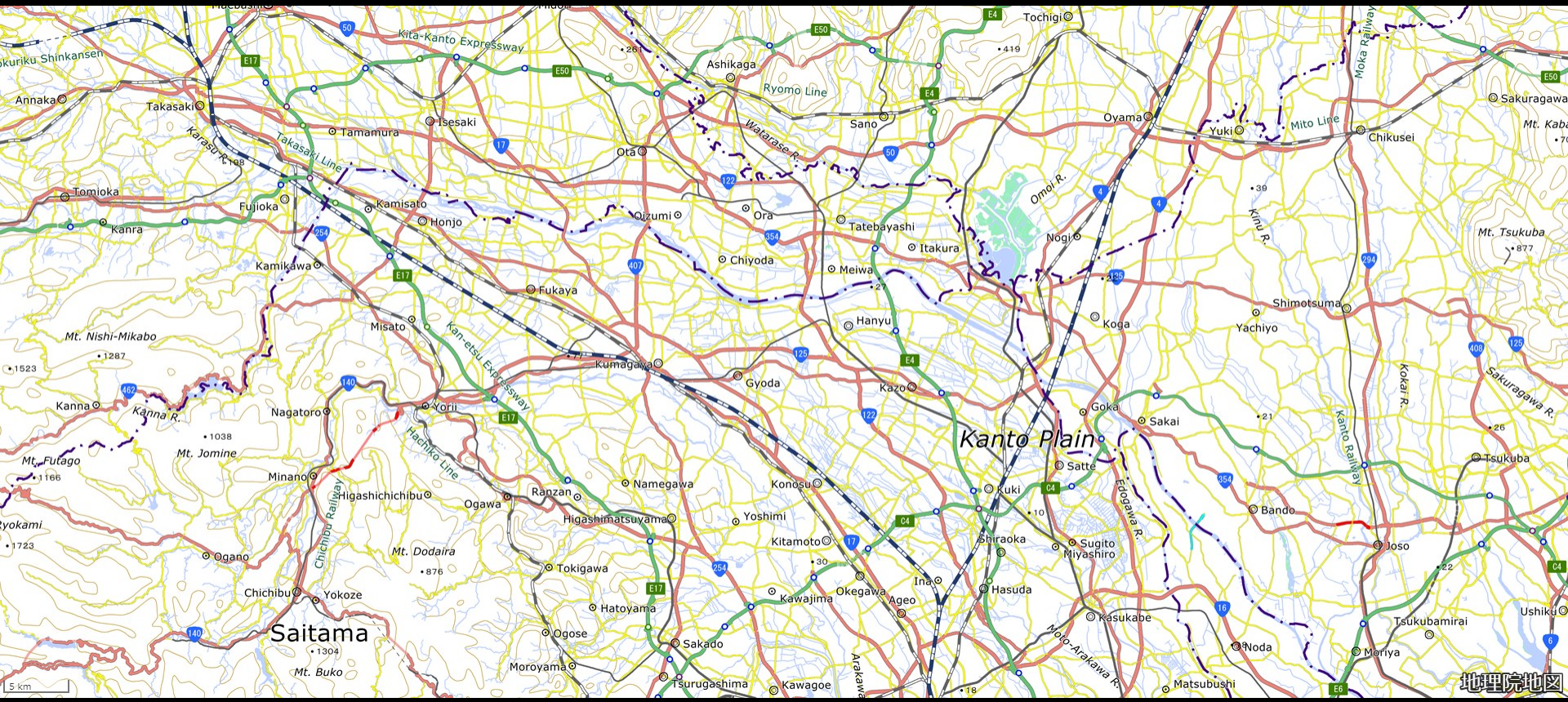
Theme

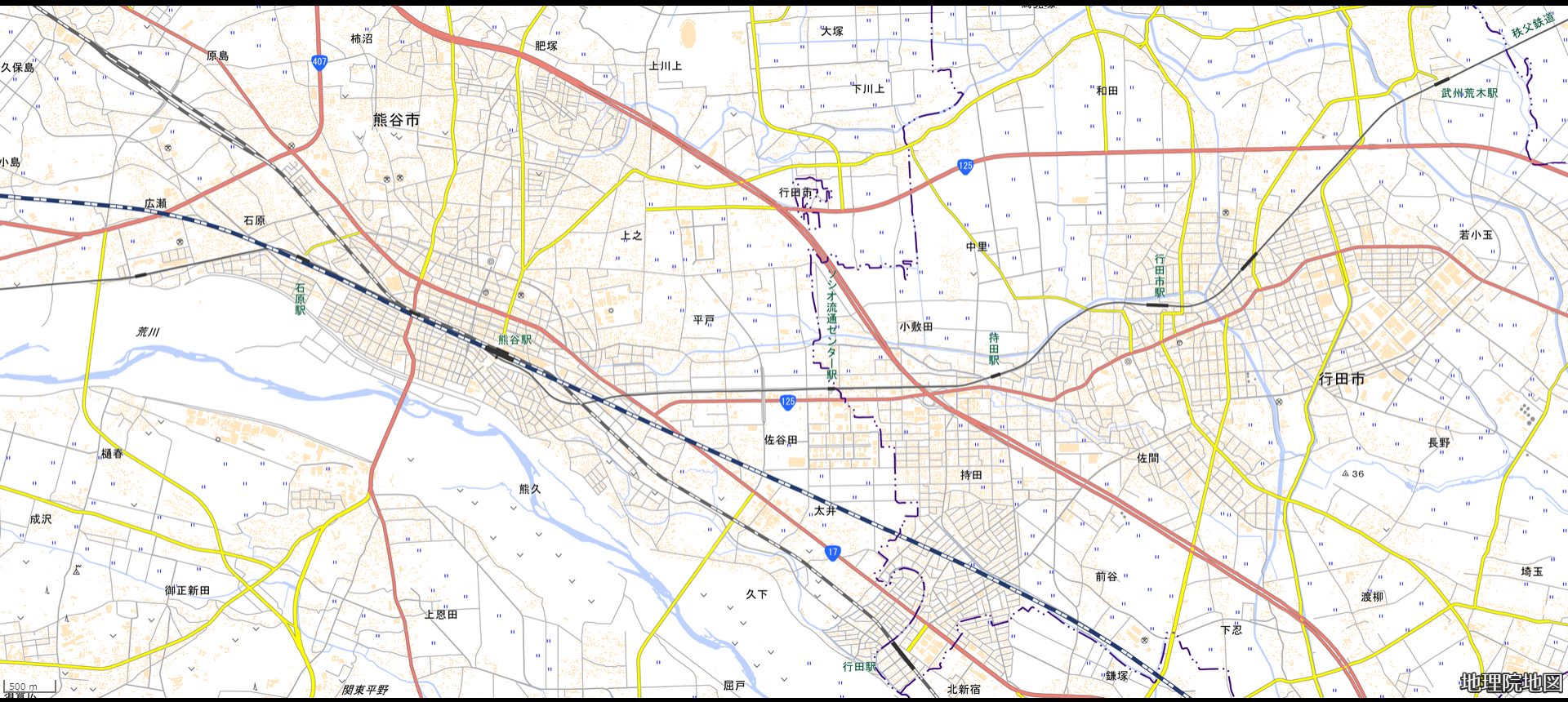
A Future of Kumagaya Distribution Center
(熊谷流通センターの未来)


10 km


60km
50km
40km
30km
20km
10km
Kumagaya
Tokyo (Shinjuku)
10 km
This map is based on the GSI tiles of the Geospatial Information Authority of Japan


Kanto Plain
Kanto Mountains
Saitama
Yamanashi
Kanagawa
Tokyo
Ibaraki
Chiba
Tokyo Bay
Kashimanada Sea
Kujukuri Beach
Kita-Kanto Expressway
Kan-etsu Expressway
Chuo Expressway
Tohoku Expressway
Joban Expressway
Keiyo Expressway
Hokuriku Shinkansen
Ryomo Line
Takasaki Line
Hachiko Line
Chichibu Railway
Kanto Railway
Fujikyu Railway
Sobu Line
Togane Line
Tone R.
Ara-kawa R.
Arakawa R.
Tama R.
Yoro R.
Kinu R.
Kokai R.
Omoi R.
Watarase R.
Kanna R.
Iruma R.
Fuefuki R.
Akikawa R.
Obitsu R.
L. Kasumigaura
L. Kitaura
L. Inbanuma
L. Kawaguchi
L. Motosu
L. Yamanaka
Mt. Fuji
Mt. Tsukuba
Mt. Kabasan
Mt. Nishi-Mikabo
Mt. Futago
Mt. Jomine
Mt. Ryokami
Mt. Buko
Mt. Dodaira
Mt. Kobushigatake
Mt. Kumotori
Mt. Takanosu
Mt. Odake
Mt. Daibosatsurei
Mt. Mito
Mt. Gongen
Mt. Jinba
Mt. Ougiyama
Mt. Takao
Mt. Hirugatake
Mt. Omuro
Mt. Tanzawa
Mt. Oyama
Mt. Amagatake
Mt. Kurotake
Mt. Mitsutoge
Mt. Kinpu
Mt. Mizugaki
Mt. Kokushigatake
Mt. Arafune
Mt. Monomi
Mt. Happu
Mt. Myogi
Mt. Ogura
Mt. Inubosaki
Usui Pass
Jikkoku Pass
Karisaka Pass
Kagosaka Pass
Uchiyama Pass
Kounji Line
10 km
地理院地図

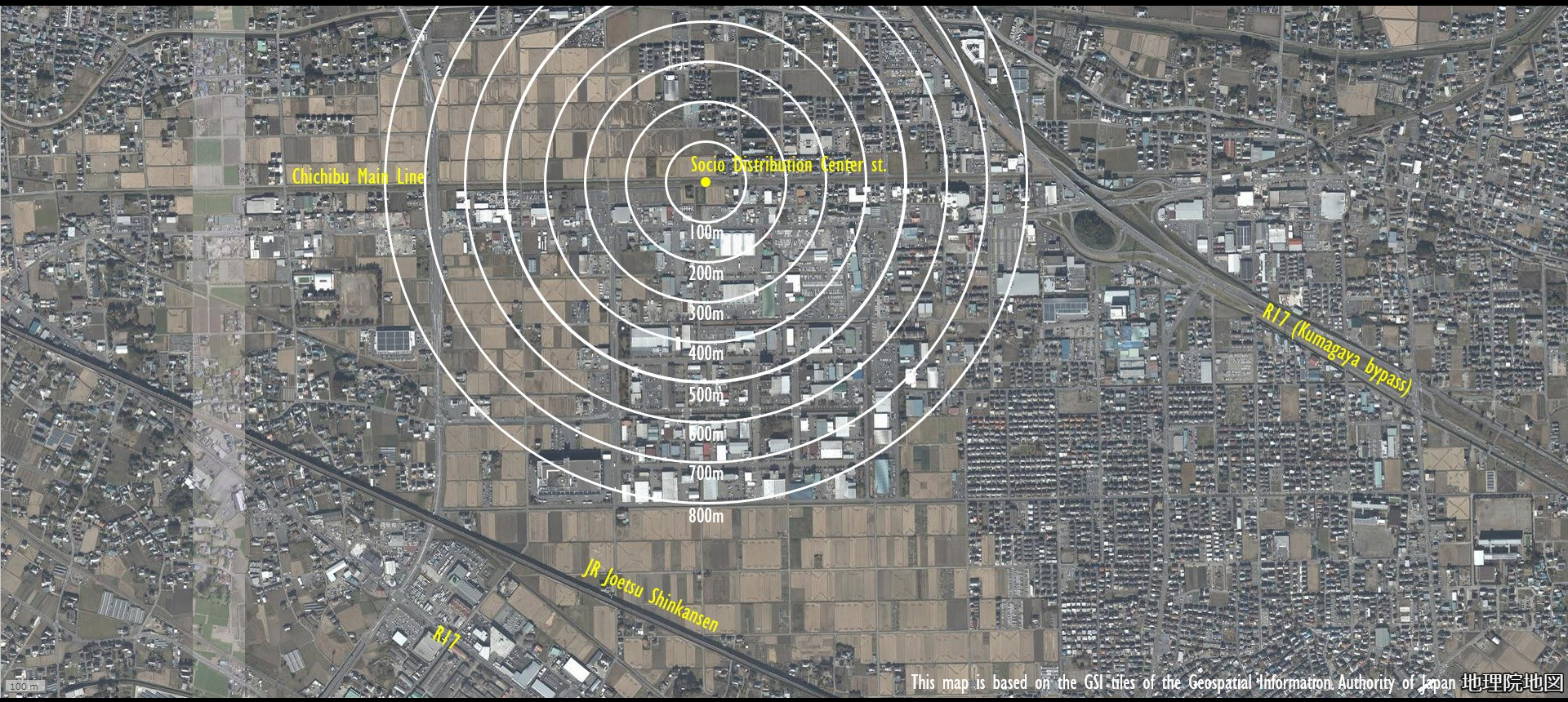

Kanto Plain
Saitama
Kita-Kanto Expressway
Kan-etsu Expressway
Takasaki Line
Ryomo Line
Hachiko Line
Chichibu Railway
Mito Line
Moka Railway
Kanto Railway
Watarase R.
Omoi R.
Kinu R.
Kokai R.
Sakuragawa R.
Edogawa R.
Moto-Arakawa R.
Arakawa
Karasu R.
Kanna R.
Mt. Nishi-Mikabo
Mt. Jomine
Mt. Futago
Mt. Dodaira
Mt. Buko
Mt. Tsukuba
Tochigi
Ashikaga
Sano
Oyama
Yuki
Chikusei
Sakuragawa
Annaka
Takasaki
Tamamura
Isesaki
Ota
Tomioka
Fujioka
Kamisato
Honjo
Kanra
Kamikawa
Misato
Fukaya
Ogawa
Nagatoro
Yorii
Kumagaya
Gyoda
Hanyu
Ora
Oizumi
Chiyoda
Tatebayashi
Itakura
Meiwa
Nogi
Koga
Shimotsuma
Yachiyo
Goka
Sakai
Satte
Kuki
Shiraoka
Sugito
Miyashiro
Bando
Joso
Tsukuba
Tsukubamirai
Ushiku
Moriya
Noda
Matsubushi
Kasukabe
Hasuda
Ina
Okegawa
Ageo
Kawajima
Kitamoto
Yoshimi
Konosu
Namegawa
Ranzan
Higashimatsuyama
Higashichichibu
Minano
Ogano
Chichibu
Yokoze
Hatoyama
Tokigawa
Ogose
Sakado
Moroyama
Tsurugashima
Kawagoe
Kazo
Ryokami
5 km

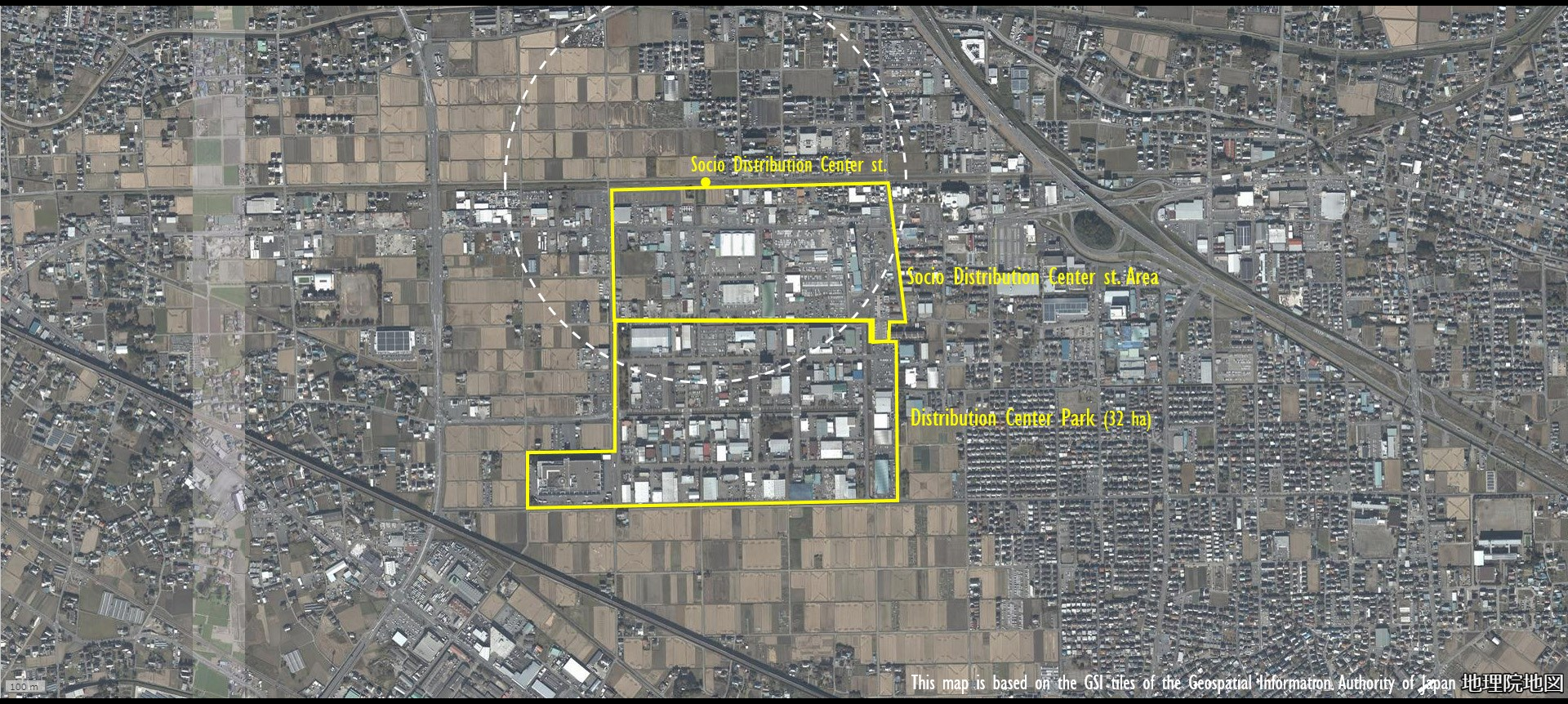

熊谷市
行田市
久保島
原島
柿沼
肥塚
上川上
大塚
下川上
和田
武州荒木駅
秩父鉄道
小島
広瀬
石原
上之
行田市駅
若小玉
中里
ソシオ流通センター駅
石原駅
荒川
熊谷駅
平戸
小敷田
持田駅
佐谷田
長野
樋春
熊久
持田
佐間
成沢
太井
御正新田
上恩田
久下
前谷
渡柳
埼玉
下忍
行田駅
鎌塚
北新宿
屈戸
関東平野
地理院地図

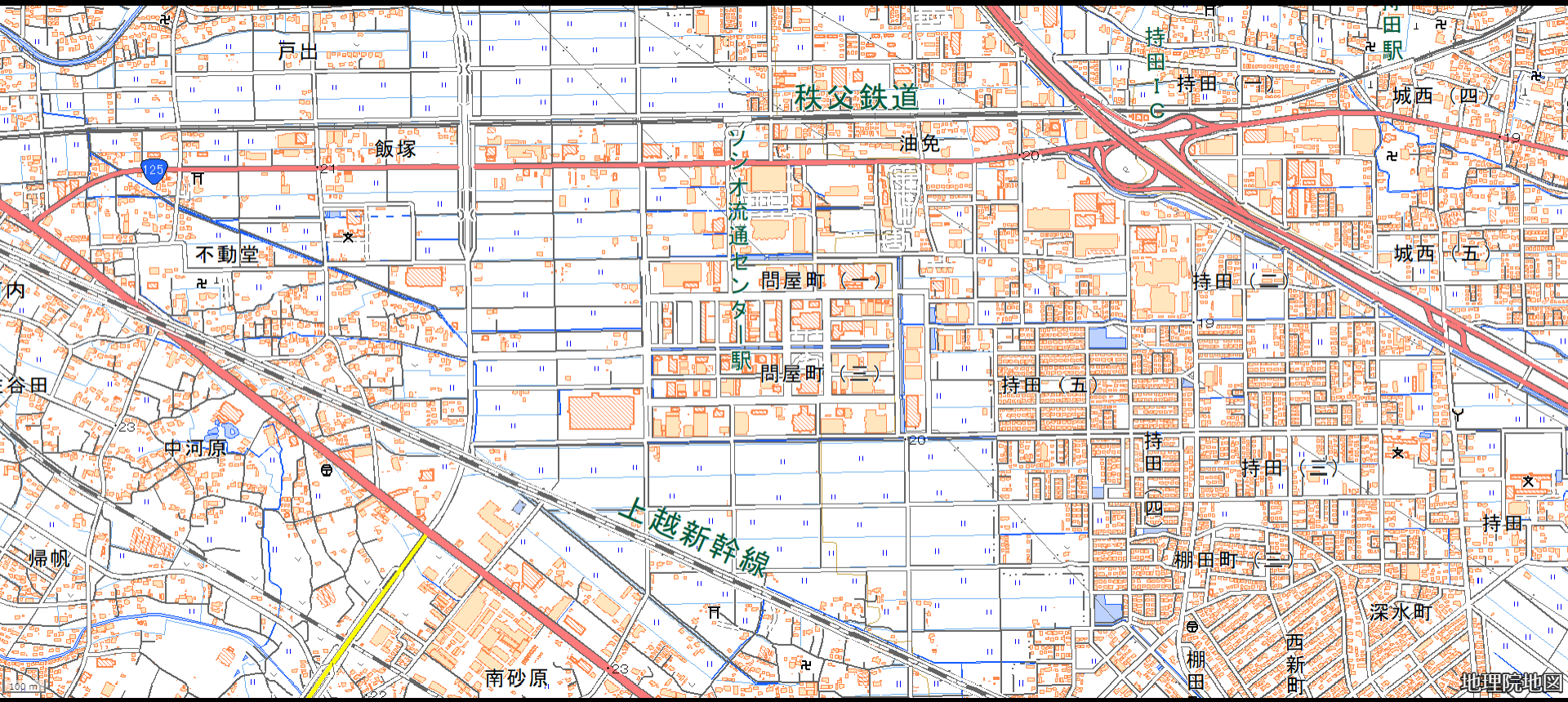

500 m


Kumagaya Sports & Culture Park (Rugby)
3500m
3000m
2500m
2000m
1500m
1000m
500m
Arakawa river
Kumagaya st
(JR & Chichibu)
Socio Distribution Center st.
Socio Distribution Center st. Area
Distribution Center Park (32 ha)
500 m
This map is based on the GSI tiles of the Geospatial Information Authority of Japan


100 m
地理院地図


Chichibu Main Line
Socio Distribution Center st.
100m
200m
300m
400m
500m
600m
700m
800m
R17 (Kumagaya bypass)
JR Joetsu Shinkansen
R17
100 m
This map is based on the GSI tiles of the Geospatial Information Authority of Japan 地理院地図


Socio Distribution Center st.
Socio Distribution Center st. Area
Distribution Center Park (32 ha)
100 m
This map is based on the GSI tiles of the Geospatial Information Authority of Japan 地理院地図


戸出
飯塚
不動堂
内
谷田
中河原
帰帆
南砂原
秩父鉄道
油免
ノンオ流通センター駅
問屋町（一）
問屋町（三）
上越新幹線
持田I.C
持田（一）
持田（二）
持田（三）
持田（四）
持田（五）
棚田町（三）
棚田
西新町
深氷町
城西（四）
城西（五）
田駅
持田
地理院地図

Background

- Japan tends to decrease the population, and to age in many aspects. The local city will appear in this phenomenon in earlier days.
- In contrast, since the so-called "super-smart society" is approaching in the near future through such innovations as industry 4.0 and society 5.0

Kumagaya-city (熊谷市) -1

- Inland local city which locates 60 km north of Tokyo
- One of the largest cities in northern Saitama Prefecture (埼玉県北部地域)
- Current population: about 200,000
- Central Kumagaya locates between Tone River (利根川) and Arakawa River (荒川)
- On July 23, 2018, the city recorded an air temperature of 41.1 °C (the highest temperature in Japan)
- 2019 Rugby World Cup games will be held at the Kumagaya rugby stadium in September and October 2019.

Kumagaya-city (熊谷市) -2

- Developed as a post town on the Nakasendo highway (中山道) during Edo period (1603-1868).
- During Meiji (1868-1912) and Taisho periods (1912-1926), Kumagaya developed as the sericultural industry city called "蚕都" in addition to the agriculture industry.
- An essential point of transportation.
  - Express highways (Kanetsu Expressway and Tohoku Expressway)
  - National highways (R17, R125, R140, and R407)
  - Railway lines (JR Joetsu Shinkansen, JR Takasaki-line, Chichibu Main Line)
  - It takes 40 minutes by shinkansen, and 80 minutes by local train to Tokyo.

Kumagaya-city (熊谷市) -3

- Kumagaya involves in Kanto Inland Industrial Area (関東内陸工業地域).
- Categories
  - Machine industry (45.0%)
  - Food industry (15.5%)
  - Metallic industry (11.6%)
  - Chemical Industry (10.2%), etc.
- The shipment amount
  - The third in Japan (JPY 30 trillion)
  - Bigger than that of Keihin Industrial Zone (JPY 24.5 trillion)

Design theme

- Re-design suburban area in local city
- Kumagaya Distribution Center and around the Socio Distribution Center Station (ソシオ流通センター駅).
- One stop from Kumagaya station via Chichibu Main Line (秩父鉄道秩父本線)

Design theme

- Kumagaya Distribution Center (協同組合 熊谷流通センター) was opened in the suburban area of Kumagaya in 1975
  - To solve urban problems in the downtown area
- Kumagaya Distribution Center has a big wholesale complex and facilities such as a hall and becomes old.
- Due to the change in industrial structures, the wholesale industry needs to rethink its role.
  - Traditional shopping streets to big supermarket
  - Supermarket to convenience store system
  - Increasing web selling system (Amazon, Alibaba, and Rakuten (JP), etc.)

Design theme

- The so-called "super-smart society" is approaching in the near future through such innovations as industry 4.0 and society 5.0
- How should the Kumagaya Distribution Center re-design in the near future in the aspects of space and utilization?
  - Urban and architectural design
  - Placemaking
  - Cooperation between the public and private sectors

Design theme

- Urban integration should be considered during the renovation process. How the renovation will bring changes to the urban environment and the needs of the people in the surrounding.
- We welcome your cutting-edge design proposal using digital technologies such as Generative design, BIM and GIS and demonstrate your proposal using XR (virtual/augmented/mixed reality) in addition to the conventional method.

Sub Themes -1

A group to look and the history and culture

Topic 1: **Virtual and Real Interaction -- Historical and Cultural Reproduction**

Firstly, the relationship between urban construction and historical background of Osaka is sorted out to understand the characteristics of the urban spatial form of Osaka in different periods. After that, it analyzes the unique historical culture of Osaka and summarizes the efforts and attempts made by Osaka to protect these historical cultures, and summarizes the concept of historical and cultural protection of Osaka on the basis of these experiences. Finally, the usability of Osaka's experience is illustrated by an example of urban space.

To understand the development level of virtual reality technology, and to explain the three characteristics of virtual reality technology: immersion, interaction and imagination through the examples of the technology in urban historical protection at home and abroad, so as to prove the applicability of virtual reality technology in the field of historical and cultural protection. At the same time, it constructs the operational implementation process of virtual modelling in the field of historical and cultural protection. Firstly, it is necessary to screen 3d modelling, virtual rendering, virtual interaction and other engines involved in the virtual modelling process, and then establish a logical, scientific and reasonable implementation process.

The contents of the topics are not updated to accommodate Kumagaya yet.

Sub Themes -2

A group to look at the urban elements

Topic 2: **Comparison of Urban Streets Design**

Urban streets not only have the function of transportation but also carry people's daily activities. The design of streets not only has aesthetic significance but also affects people's stay to a certain extent.

Shenzhen is a young city. After more than 40 years of reform and opening up, Shenzhen has become a big modern city. In order to alleviate road congestion, Shenzhen cancelled bicycle lanes 20 years ago and widened car lanes. Therefore, the streets of Shenzhen are car-oriented streets with wide roads and good greening, but bicycle lanes and sidewalks are mixed, which reduces the space of slow traffic and is not friendly to bicycle traffic. And what's more, streets have a commercial flavour, but they lack cultural characteristics.

Osaka has a long history and is the largest urban and economic centre in Western Japan. The streets of Osaka are very distinctive and humane. In addition, the rich and colourful commercial billboards on the streets add to the interest of street facades. This makes the streets not only have a modern commercial style but also rich in traditional cultural characteristics. The street design in Osaka is worth studying in Shenzhen.

The contents of the topics are not updated to accommodate Kumagaya yet.

Sub Themes -3

Topic 3: **Urban Spatial Structure Evolution**

Urban planning, as one of the important means to regulate and control the utilization of urban land resources, plays a significant role in shaping urban spatial structure. Especially for emerging cities, urban planning has a decisive impact on the formation and evolution of spatial structure. Taking Shenzhen and Osaka as examples, this paper analyses the development and evolution of urban spatial structure from the perspective of urban planning, and how urban spatial structure meets the needs of urban development.

Shenzhen, as a newly developed city after the reform and opening up, has experienced a rapid process of economic development and urbanization. Its rapid development is called a miracle in the history of world industrialization, modernization and urbanization. As the second largest city in Japan, Osaka has a very long history. In the 1970s, the Japanese government formulated a long-term plan for urban renewal, making Osaka a comfortable, safe and efficient city to play the role of economic centre management in Western Japan.

Through reviewing Shenzhen's urban planning and analyzing Osaka's urban planning in Japan, the author hopes to analyze the two cities' planning guidance to the evolution of spatial structure and the process of promoting urban economic development, summarize the characteristics and shortcomings of urban planning, explore the development trend of Shenzhen's urban space in the future and draw lessons from Osaka's planning methods and methods.

Sub Themes -4

A group to look at the local demographics

Topic 4: **Population Demand and Spatial Vitality**

New and old collisions between Shenzhen and Osaka have undergone wonderful changes in the urban form and spatial evolution. We explore the changes of population demand and spatial vitality between Shenzhen and Osaka. The needs of the population change with the changes of the times. *Spatial vitality represents the common memory of the local people.*

Based on the previous urban research in Nantou, the urban practice has proposed the development model for Nantou ancient city's protection and renewal, which is guided by interventional implementation-oriented, gradually activated from point to area and promoted by cultural activities. According to the site situation, six feasible plans for tailor-made renovation in the near future are put forward.

The renovation area is located in Shuiwei Village, the Central District of Shenzhen, with a planned area about 8,000 square meters.A total of 35 peasant buildings have been built, 29 of which have been transformed into 504 apartments for talented people. The renovation design maintains the original spatial scale of urban texture, architectural structure and characteristics of urban villages. Through upgrading fire protection, municipal supporting facilities and elevators, 900 young people are linked together to create a community and become livable space in line with modern standards.

The contents of the topics are not updated to accommodate Kumagaya yet.

Sub Themes -5

A group to look at the spatial evolution

Topic 5: **Reconstructing using Elements of Town and Cities**

Shenzhen is a fast developing city from its previous form as an urban village. Rental housing in urban villages in Shenzhen accounts for about 70% of the total rental housing, which is one of the most important subjects in the supply of the rental market. But because of hardware facilities and supporting services and other shortcomings also make a headache. In order to solve this problem, many rectification models with Shenzhen characteristics for urban villages have emerged, which attach importance to the comprehensive management of urban villages and urban renewal of urban villages.

The aim of this topic is to compare the situation in Shenzhen with Osaka and explore how the situation can be improved by reconstructing the area inserting elements of towns and cities that could form a new community. Dachong village reconstruction project is the largest urban village reconstruction project in shenzhen, with an overall reconstruction area of 685,000 square meters. Dachong village is located in the high-tech industrial park, which is planned to be transformed into a logistics service base for the development of high-tech industry. The reconstruction project design will introduce the brand new business model and lifestyle into the old village reconstruction, so that the district will form a new type of community with international quality, showing the future diversified urban vitality.

The reconstruction of Dachong village is a successful and representative reconstruction project of urban villages in shenzhen. The renewal and reconstruction of the formerly dilapidated Dachong village have acquired a new urban look and assumed more urban functions. While nakazaki town in Osaka may seem like a tranquil and ancient neighborhood, it is known as an old house regeneration area that combines vintage fashion with art and culture. The preservation of the historical pattern and the strong culture and art of the area make the area different from the bustling and noisy atmosphere of other parts of Osaka. Through the comparative study of these two urban renewal schemes, some new thoughts on the development of urban villages are generated.

The contents of the topics are not updated to accommodate Kumagaya yet.

In the premeeting

Q & A

- Budget should be considered?
  - It is better to consider, but do not worry too much. Cutting-edge ideas are more valuable.
- Prepare Software and Hardware?
  - Bring your computer after installing software and hardware. Many software are free for students. If you do not prepare laptop PC, bring your desktop PC on the workshop venue.

Team Organization

Topic 1: **Virtual and Real Interaction -- Historical and Cultural Reproduction:** Team A (Muhammad, Oguchi)

Topic 2: **Comparison of Urban Streets Design:** Team E (Nakabayashi, Kikuchi)

Topic 3: **Urban Spatial Structure Evolution:** Team B (Kido, Deto)

Topic 4: **Population Demand and Spatial Vitality:** Team D (Ikeno, Yoshinori)

Topic 5: **Reconstructing using Elements of Town and Cities:** Team C (Ishikawa, Chen)