

An aerial photograph of a city, likely Tokyo, showing a large body of water and a bridge connecting two landmasses. The city is illuminated at night, with lights visible in the buildings and streets. The bridge is a prominent feature, spanning the water and connecting the two landmasses. The overall scene is dark, with the city lights providing the main source of illumination.

# **TT ISLAND**

**IreI DEVELOP ISLAND**

TOKYO UNIVERSITY OF SCIENCE  
DEPARTMENT OF ARCHITECTURE



TITLE  
TTISLAND

AUTHOR  
TOKYO UNIVERSITY OF SCIENCE. DEP. OF ARCHITECTURE.

EDITOR  
TOKYO UNIVERSITY OF SCIENCE. DEP. OF ARCHITECTURE.

DESIGN  
JIN TAIRA

© Tokyo University of Science  
© of its texts, its authors  
© of its photographs, its authors  
© of its images, its authors

ISBN  
978-4-60000070-7

TTISLAND WORKSHOP WAS HELD AT TOKYO UNIVERSITY OF SCIENCE, JAPAN  
FROM 02 OF OCTOBER UNTIL 30TH OF NOVEMBER OF 2018

**09 OCT > 27 NOV**

FOREIGN VISITING PROFESSOR PROGRAM

**WORKSHOP | FALL 2018**

PROF. JIN TAIRA

# TT ISLAND



**[re]DEVELOP ISLAND**

**TOKYO UNIVERSITY OF SCIENCE  
DEPARTMENT OF ARCHITECTURE**

TEAMS STUDENTS

GM AYAKA OOKA  
MOEKO YAMAZAKI  
SAEKO TANAKA  
YULIN FAN

GO CHIAKI ISSHIKI  
JOE BIAN  
KANOKO TOMITA  
SHUQIAN WU  
SHAOHUA XU

GA/ HIROSHI KAWAOKA  
KEN SUGIMOTO  
ATSUHIRO TANOKUCHI  
TAKU HASHIGUCHI

GS WATARU MARUYAMA  
KOTA KATSUYAMA  
TOMOHIRO YOSHIDA



# TT ISLAND

Visiting Prof. **JIN TAIRA**  
Prof. **MOMOYO GOTA**  
Prof. **MOTOMU UNO**  
Assist. Prof. **TAKEHIRO SAKURAI**  
Assist. Prof. **KAON KO**



# INDEX

COURSE PRESENTATION 09

PROGRAMMED LECTURES 18

CRITIQUE SESSIONS 20

FINAL PRESENTATION 56

JURY CRITIQUE 120

TTISLAND REPRISE 126

# WHAT WHERE WHEN WHY ISLAND?

## WHAT

Is an isolate territory (or limited connected), that functions autonomously.

## WHERE

Tokyo Garbage reclaimed island in Tokyo Bay. As a gateway of the city, visible from airplanes arriving/ departing from Haneda or by boat entering the Sumida-Arakawa Rivers.

## WHEN

Living in the Anthropocene era\*, under the Climate Change and Global Warming\*\* menace, involve in the post-war Great Acceleration\*\*\*, the world is experiencing dramatic transformations. Japan will not be oblivious to these changes and the Sustainable Development Goals\*\*\*\*, defended by the United Nations.

## WHY

Islands as an autonomous system has the advantage to become laboratories of the Anthropocene era, a testing territory for future responses of human kind needs.

[\*\*] <https://theanthropocene.org>

[\*\*] <https://climate.nasa.gov/>

[\*\*\*] <http://www.igbp.net/globalchange/greatacceleration.4.1b8ae20512db692f2a680001630.html>

[\*\*\*\*] <https://sustainabledevelopment.un.org/?menu=1300>

# WHAT WHERE WHEN WHY TEST ?

## WHAT

A test is a experiment, not a final solution, but a potential path towards future development and innovation. Not only for Japan but the world neccessties. A showindow of Japan commitment to world development.

## WHERE

Testing territorial, urban and architecture requires certain amount of space to invest venture capital\*. The private own land properties high cost is a disadvantage for this purpose on a megapolis like Tokyo. But despite the lack of space, administration institutions owns the reclaimed islands on Tokyo Bay. Low cost due to the unattractive nature of the island know as "garbage island", an opportunity for an ecological regeneration and an economical reactivation plan.

## WHEN

Testing areas are developing around the world, like the Mcity \*\* for automated vehicles supported by the University of Michigan and the Michigan Department of Transportation, they are attacking companies from Ford, Honda, GM, etc.

## WHY

Testing as part of the creative process is as important as the final product. Open up the intermediate phases are opportunities to multiply innovative options through the interaction of innovative the companies involved in the TEST ISLAND.

[\*\*] <https://ja.wikipedia.org/wiki/ベンチャーキャピタル>

[\*\*] <https://mcity.umich.edu/our-work/mcity-test-facility/>

# HOW TEST ISLAND

## HOW

Due to the lack of time, professors will provide the site accessibility conditions, urban fabric and a basic program to be developed by each of the 4 Teams of 3 students participating in the workshop.

Each group should develop one of the following subjects:

- a) Future Urban Mobility and Architecture
- b) Future Open Space and Architecture
- c) Future Facilities and Residential Architecture
- d) Future Sustainable Infrastructure Systems and Architecture

SITE: TEST ISLAND (former Gomi Island). Every group will choose a neighborhood scale area in the GRID (500\*500\*500) to develop their project.



# TTISLAND I 2018.10.11

## QUESTIONS vs. IrelQUEST

### TTISLAND

#### GENERAL CONCEPTS:

ANTHOPOCENE, ISLAND AS LABORATORY, ECOLOGICAL FOOTPRINT, GLOBAL WARMING, CLIMATE CHANGE, SUSTAINABILITY, RESILIENCE, GENERIC CITY, TEST CITY, GREAT ACCELERATION, LANDFILL LANDSCAPE RECOVERY, ISLAND AS SHOW WINDOW, ISLAND AS GATEWAY...

#### [REFERENCE]

Delirious of New York by Rem Koolhaas; 100 Urban Trends by Bmw Guggenheim Lab. Berlin; Tokyo Plan of 1960 and 1986 by Kenzo Tange;

#### 01 MOBILITY GROUP.

##### [GM] or General Motors Group

GM group is focus in time efficiency. FUNCTION is key.

GM individuals want to depart-return home safely every day, spend less time as possible commuting.

TTISLAND will be a place to experiment with new ways of mobility.

#### CONCEPTS:

CONNECTIVITY on DEMAND, SPEED STRATEGY GRADIENT, CARBON ZERO, SUSTAINABLE MOBILITY, SMART MOBILITY, SLOW/SMART MOBILITY...

#### QUESTIONS:

How we access to the site from the city center? From Haneda or Narita Airport? From main City Train-Subway connections (Yamanote line-Oedo line...)?

How can we access/depart the site by car (driverless vehicles?), taxi (share systems?), boat, bus (BRT system?), train, motorcycle, bike (bike highway?), foot, others (dron...)?

How can access emergency service as firemen, ambulance?

How can access service trucks (if necessary), such as freight trucks (amazon service...), post, garbage, repair...

How much space mobility systems should consume? (Quantify)

How can we access buildings? First floor? Second floor? Upper floor?

How we can move building-building?

How we can move inside? Elevators should be just vertical?

How we move inside house, children, aged people?

How we park cars? Should we use mechanical parking systems?

How can we reduce contamination? Electric vehicles? Hydrogen vehicles? Alternative energies?

How we plan a smart mobility system?

How can TTISLAND contribute to explore improvements in mobility systems in Japan or the rest of the world and What kind of experiments can take place within the site.

## 02 OPEN SPACE GROUP

### [GO] or go, go, go Group

GO group is focus in landscape prevalence. PLACE is key.

GO individuals wants to keep a relation with nature, strength neighborhood relationship, culture and heritage related.

TTISLAND will be a place to experiment with new ways of open space.

### CONCEPTS:

LIVABLE CITY, PRIVATE-PUBLIC OPEN SPACE GRADIENT, GREEN CORRIDOR, VERTICAL GARDEN, URBAN ECOLOGY, SEA LEVEL RISE, RESILIENCE vs RESISTANCE, HEAT ISLAND

### QUESTIONS:

How climate affects the site, sun- wind exposition- earth temperature (Garbage Soil), season and daytime- nighttime (Heat Island effect)

How Climate Change can affect the Island like sea level rise

How can we protect from natural disasters like flooding, earthquakes, tsunami, (Resistance or Resilience)?

How we can connect the island to the natural ecological environment?

How we can contribute to the improvement of natural conditions of the island and the environment of Tokyo Bay.

How big do you think, should be green areas and open spaces in the site (500x500)? (Quantify)

What green species are appropriate to this spaces?

How you should organize trees, shrubbery, flowers, grass fields?

How you should organize the irrigation system?

How can you organize open spaces for social interaction?

How can be design a smart open space?

How can be design a continuous relation between public to private space, from the park to the dormitory?

How can we design a continuous green relation between public to private, to horizontal to vertical gardens?

How can we design building to building 3D parks?

How can TTISLAND contribute to explore improvements in open space in Japan or the rest of the world and  
What kind of experiments can take place within the site?

### 03 ARCHITECTURE GROUP

#### [GA] or Global Architecture Group

GA group is focus in manufacture artifacts. FORM is key.

GA individuals wants to develop new architecture ideas, based in current economical circumstances, people necessities, technology possibilities and ultimately, give shape in a design response.

TTISLAND will be a place to experiment with new ways of architecture.

#### CONCEPTS:

3D PRINTER, 3D URBAN PLANNING, DENSIFICATION VARIABILITY, PARAMETRIC ARCHITECTURE, ON DEMAND ARCHITECTURE, EMERGENCY ARCHITECTURE, PROTOTYPING, MIX-USE BUILDING, SHARE-SPACE, HIGH-DENSITY, INCOME-DIVERSITY

#### QUESTIONS:

How can we fabricate using 3D technology?

How can we fabricate with Robot operators, and human exoskeleton technology?

How we can design with Open Source information?

How can we design using Big Data Analysis?

How can we design with Parametric Design?

How can we design according with changing market demands?

How can we design and plan urban spaces as we do in Architecture scale?

How can we monitor and repair buildings?

How we should design compact cities?

How can we organize a mix-use building?

How we should provide facilities according to inhabitant's necessities? (Quantify)

How can we design prototypes?

How can we design smart buildings?

How can we design instant/ pop-up buildings? (reference Negroponte, MIT)

How can we adapt house requirements to Japan society changes and trends? (aging problem, immigration, tourism)

How can TTISLAND contribute to explore improvements in architecture in Japan or the rest of the world and

What kind of experiments can take place within the site?

## 04 SUSTAINABLE GROUP

### [GS] or Global Study Group

GA group is focus in balance resources. MATERIA is key.

GA individuals look forward solutions for circular economies, giving solution for food circle, water circle (including sewage systems), manufacturing process, waste management, energy systems...

TTISLAND will be a place to experiment with new sustainable strategies.

### CONCEPTS:

CIRCULAR ECONOMY, LIFE CYCLING, UPCYCLING, SHARING ECONOMY, SUSTAINABLE DEVELOPMENT, WATER FOOTPRINT...

### QUESTIONS:

How can we design a water circle system on site? From purified water to grey and black water reuse.

How can we design an energy circle system on site? (solar, wind, geothermal, tidal, etc)

How can we design a food production system? Is possible a self-sufficient development?

How can we recycle all the waste generated?

How much space do we need to develop s circular economy system? (Quantify)

How can we design a new relation with humans and infrastructures?

How can we design a new relation between architectural artifacts and infrastructure artifacts (symbiosis)?

How can we design a plug-in the city infrastructure system as an Urban isotropy strategy?

How should we distribute and layout infrastructure systems within the island in relation with the site?

How can we take advantage of open spaces and green areas to incorporate this systems?

How can we take advantage of sustainable mobility strategies to improve living conditions?

How can TTISLAND contribute to explore improvements in sustainability in Japan or the rest of the world and

What kind of experiments can take place within the site?

An aerial, high-contrast black and white photograph of a city, likely London, showing the River Thames and surrounding urban areas. The image is rotated 90 degrees clockwise. In the center of the image, there is a large, bold, red 'TT' logo.

TT

