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11.307 Beijing Urban Design Studio
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Greening Shougang Factory: A Global Sustainability Institute in Beijing

**Sonam Gayleg
He Zhong Yu
Jesse Hunting
Jia Zheng
Sarah Neilson
Sun Penghui**

CHINA IN 2008

BEIJING OLYMPICS

Anticipated audience of 4 billion

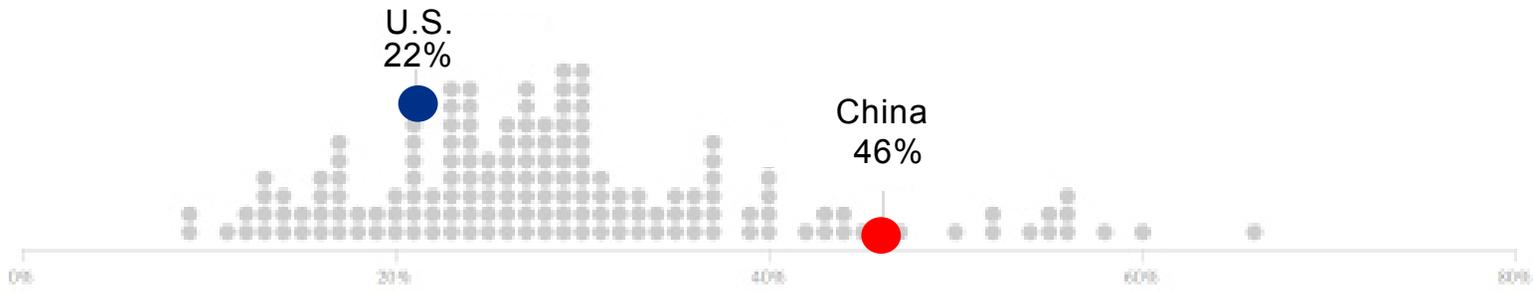
SHANGHAI EXPO 2010

Anticipated attendance of

China is positioned to
demonstrate world leadership
on key global issues

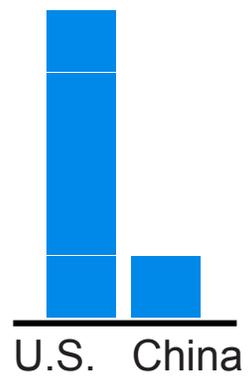
WHY SUSTAINABILITY MATTERS RIGHT NOW

Industry's share of GDP, in 2004

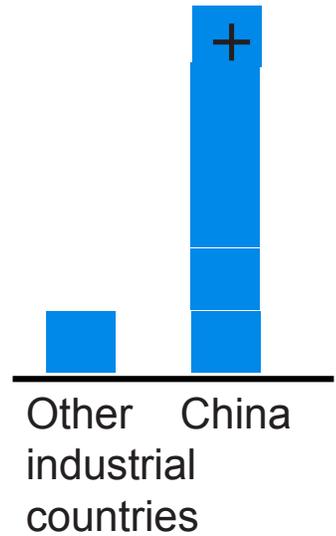


Annual growth rate of industrial production: 18.9 %
Economy grew by 11.5% in 3rd quarter 2007

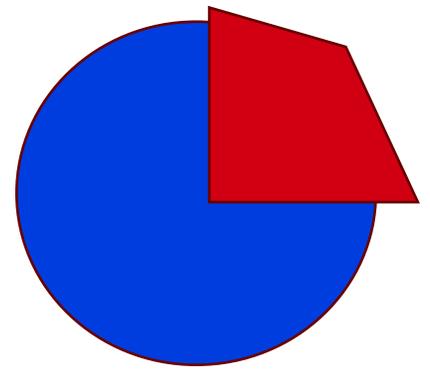
China has one-fifth as much water per capita as the United States.



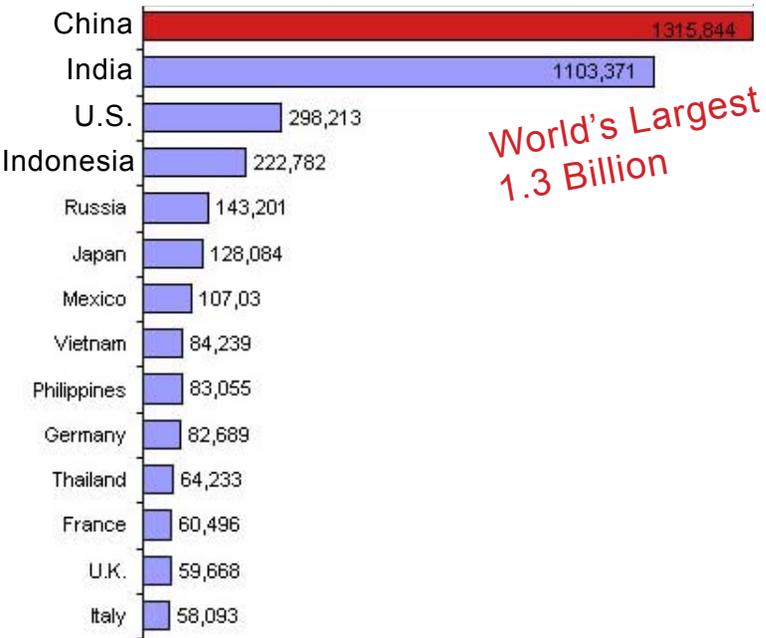
Industrial Water Use, per unit of production



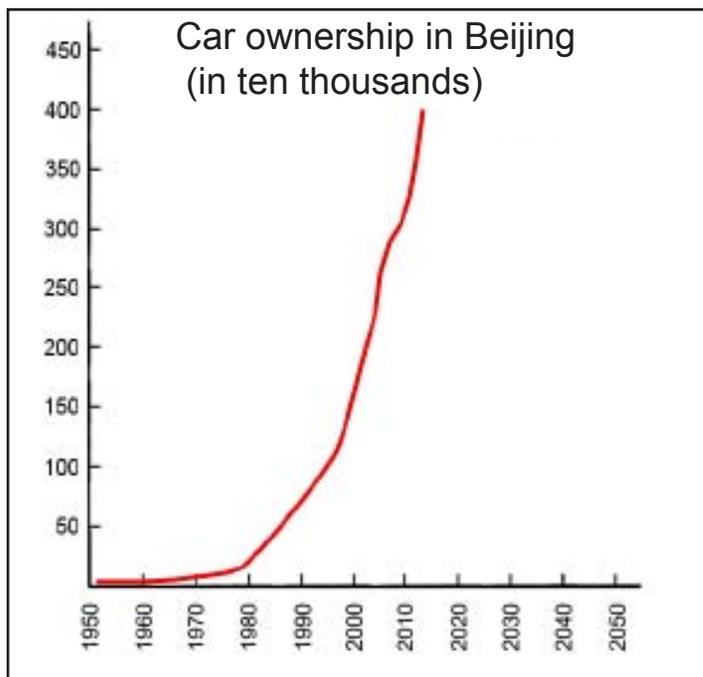
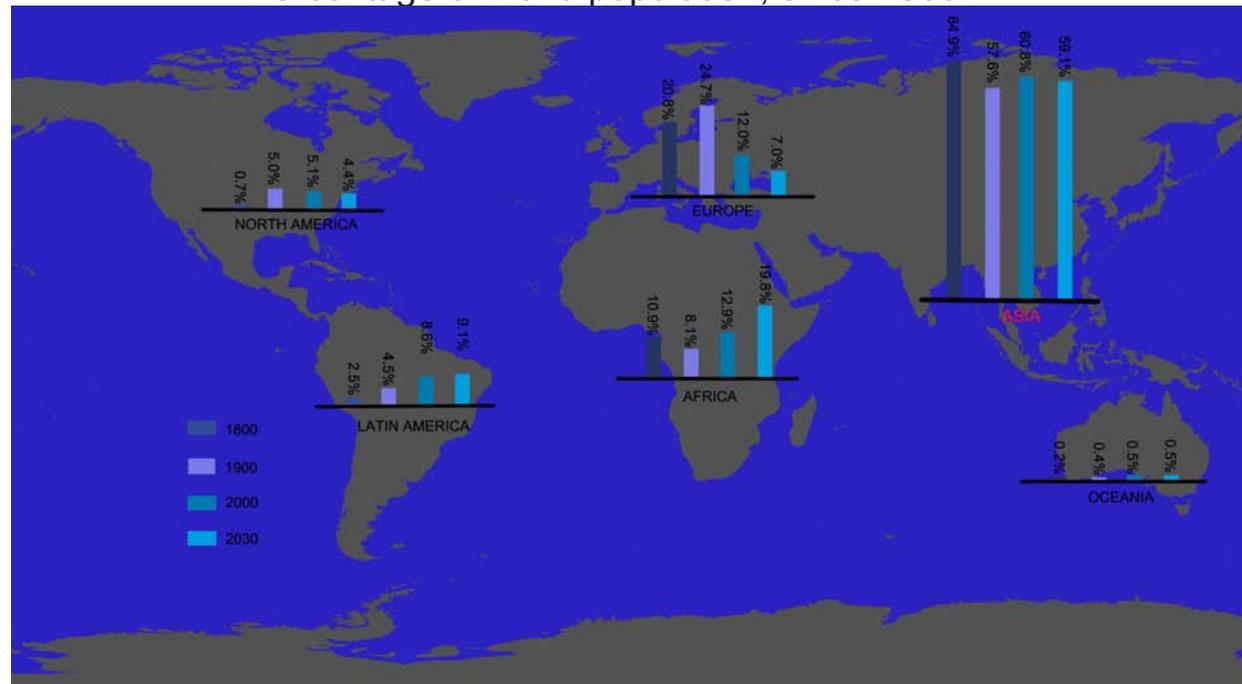
U.S. produces 25% of new global greenhouse gases



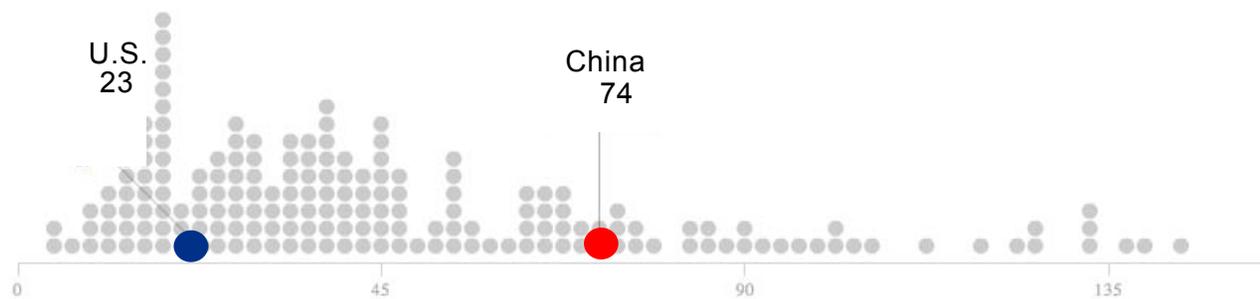
TOTAL POPULATION



Percentage of world population, since 1860

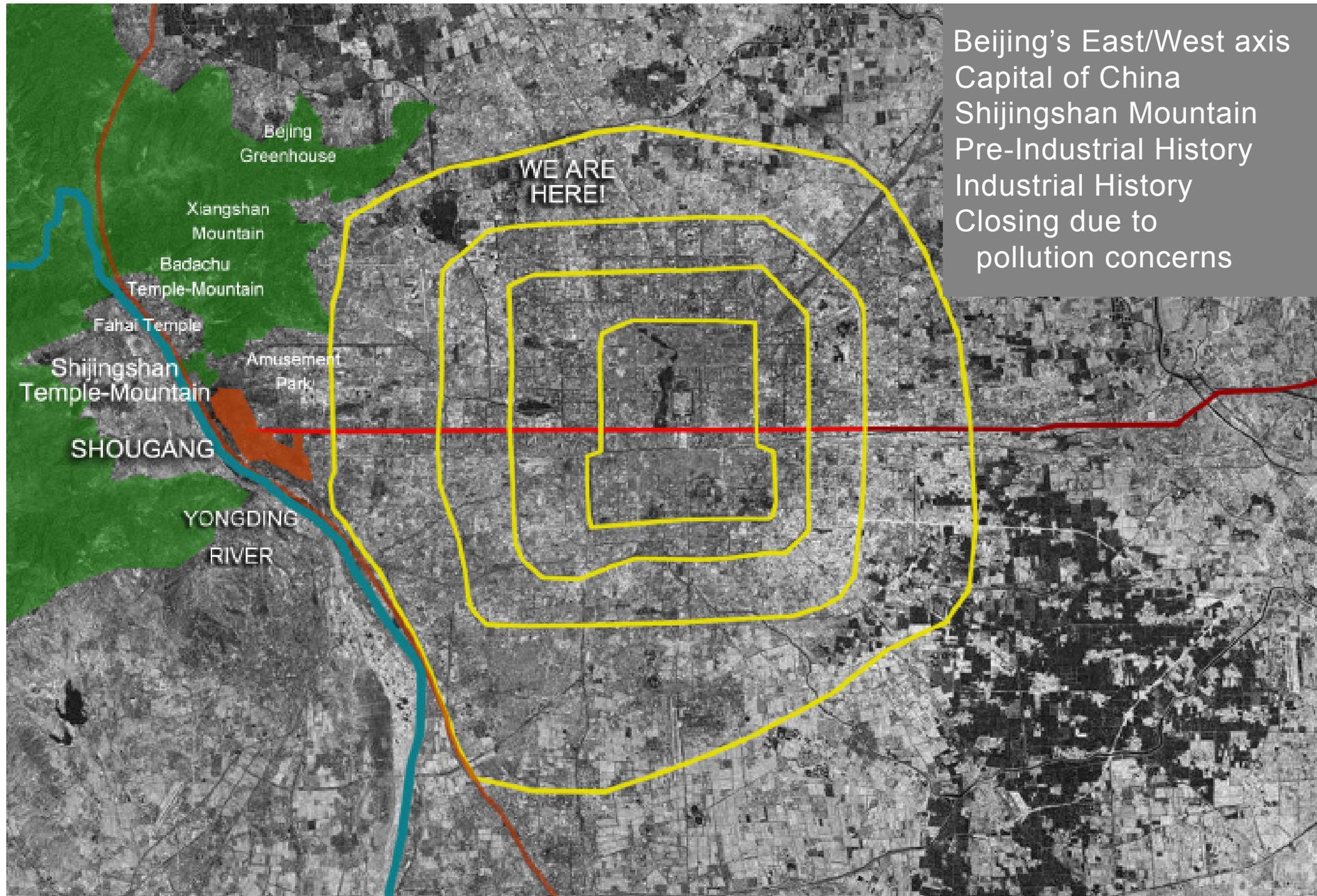


Air pollution in China, in 2004 Micrograms per cubic meter



300,000 deaths per year attributed to air pollution

SHOUGANG SITE



Beijing's East/West axis
Capital of China
Shijingshan Mountain
Pre-Industrial History
Industrial History
Closing due to
pollution concerns

SCALE OF SHOUGANG



SHOUGANG FACTORY

FORBIDDEN CITY

TSINGHUA UNIVERSITY

LOWER MANHATTAN

SOURCE OF POLLUTION

BECOMES

SOURCE OF ENVIRONMENTAL RENEWAL



SUSTAINABILITY

ENERGY: solar, wind, cooling / air-conditioning,
ocean / wave / tidal, and geothermal

TRANSPORTATION: rail networks, smart bikes,
other transportation alternatives

FUELS: hydrogen, other alternative fuels

CLEANUP AND POST-POLLUTION:
toxics, industrial pollution (air, water, land)

FARMING / AGRICULTURAL

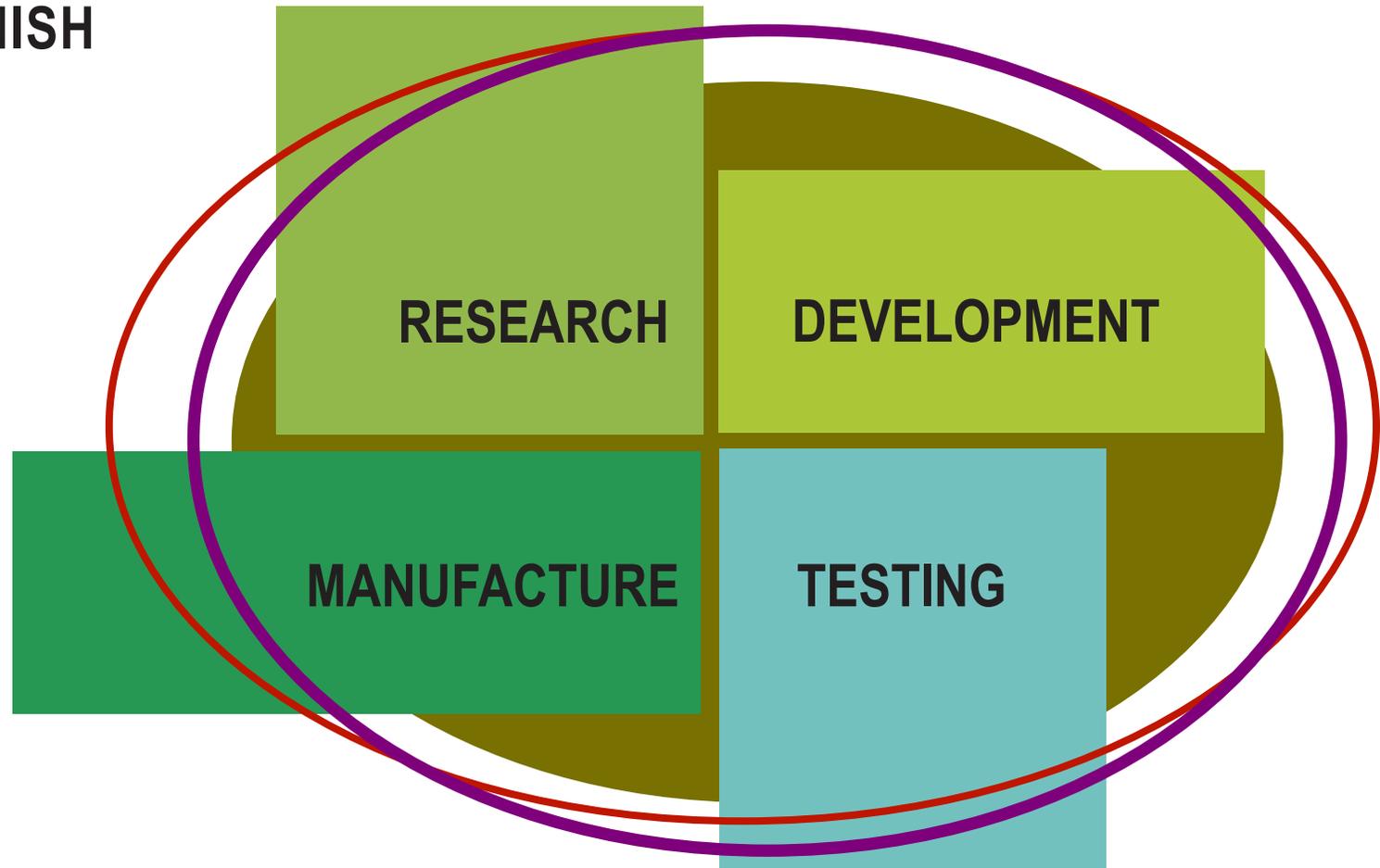
WASTE MANAGEMENT: garbage, recycling, compost

ENERGY EFFICIENCY

APPROACH:

CONVENES GLOBAL PARTNERSHIPS
FOR COLLABORATIVE PROBLEM-SOLVING

INSTITUTE TAKES
START-TO-FINISH
APPROACH



KEY PRINCIPLES OF THE INSTITUTE

1.

SET A GLOBAL EXAMPLE FOR
A SYSTEMS-APPROACH TO
SUSTAINABILITY TOPICS
IN RESEARCH AND PRACTICE



2. PRESERVE OR RE-USE HISTORIC STRUCTURES OF SHOUGANG FACTORY, HIGHLIGHTING THE UNIQUE VERTICAL FEATURES ON SITE



3. PROVIDE OPPORTUNITIES FOR EDUCATION:
Current sustainability research and practice
Qing and Ming period architecture
20th century manufacturing history



4. JOBS

Skilled workforce available

Approximately 50,000 current Shougang employees
Many will stay in district

Opportunity for re-training

Manufacturing

Fabrication

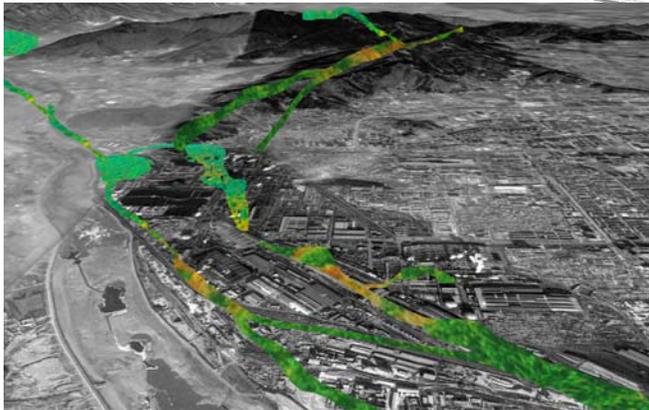
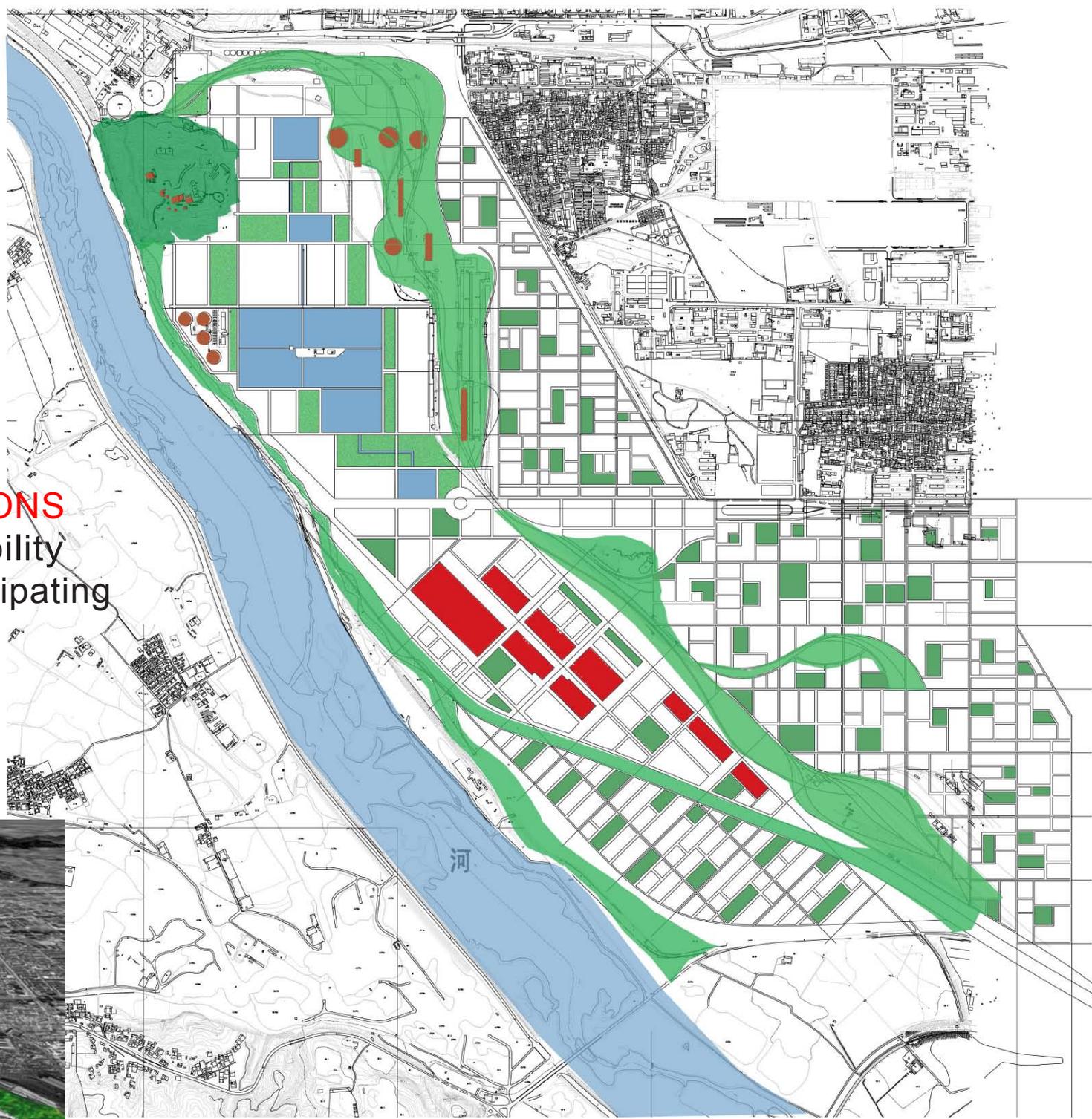
Green technologies

“GREENING THE RUST BELT”

- Preserved structures
- Blast furnaces
- Cooling towers
- Pipes
- Other infrastructure
- Visitor amenities

INTERNATIONAL PAVILIONS

Showcasing sustainability achievements of participating countries



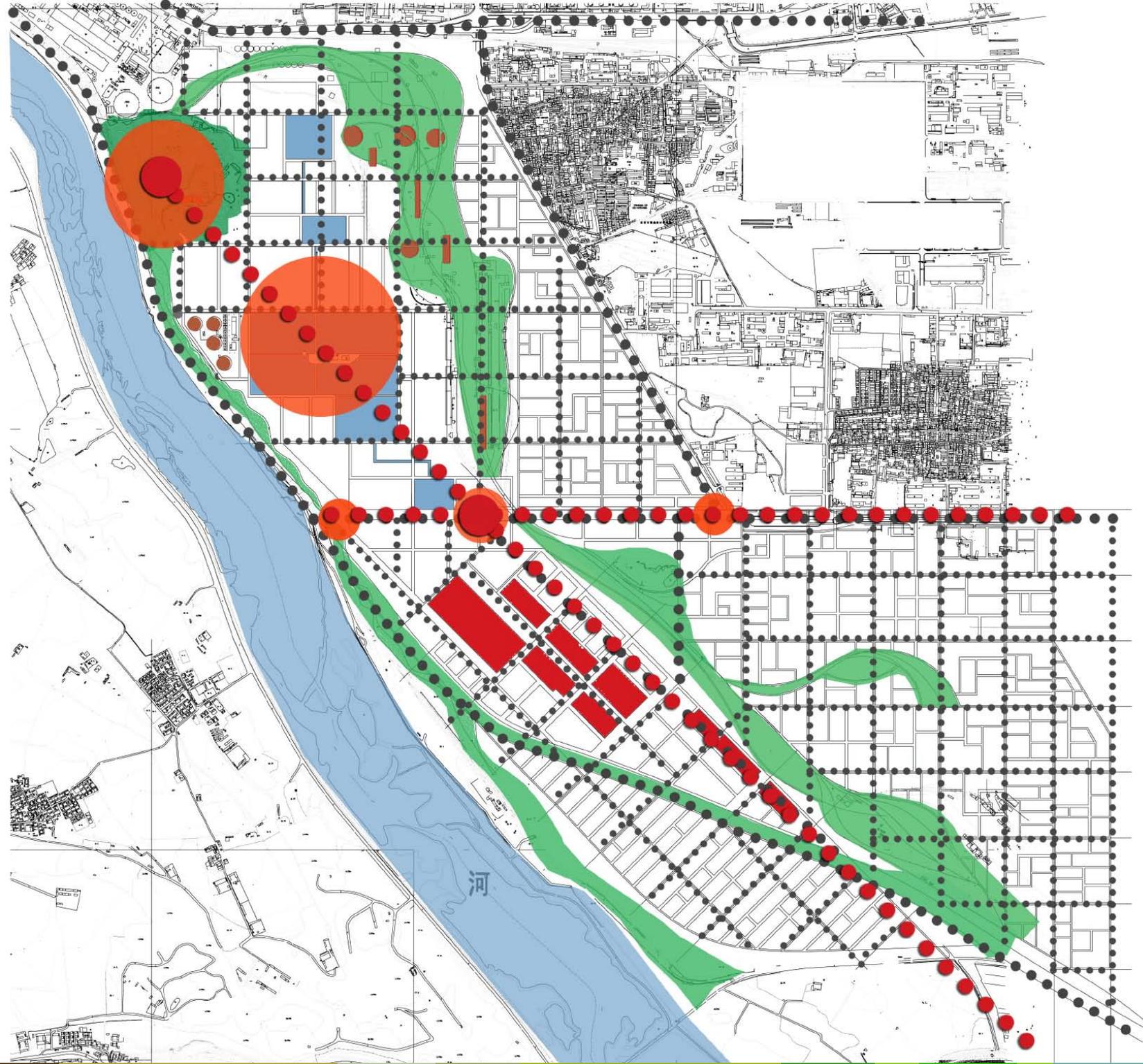
AXIS

NODES

CONNECTIONS
TO BEIJING



BLOCK GRID



TRANSPORTATION NETWORK

Few cars

Incorporate rail network

Tram system possibly using pipe infrastructure

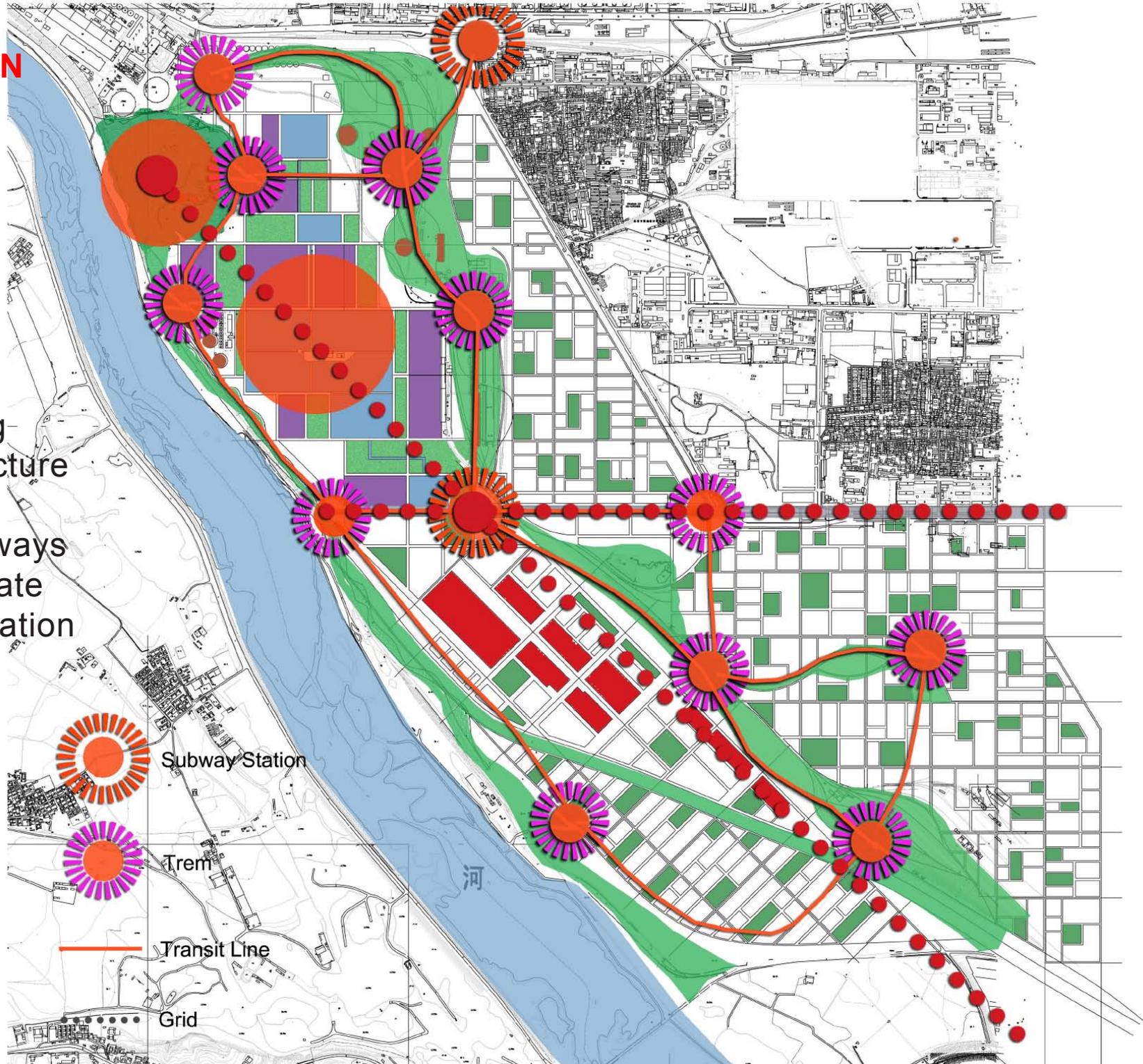
Flexible roadways to accommodate new transportation methods

Bicycle and pedestrian

TO BEIJING

Subway lines

Street grid

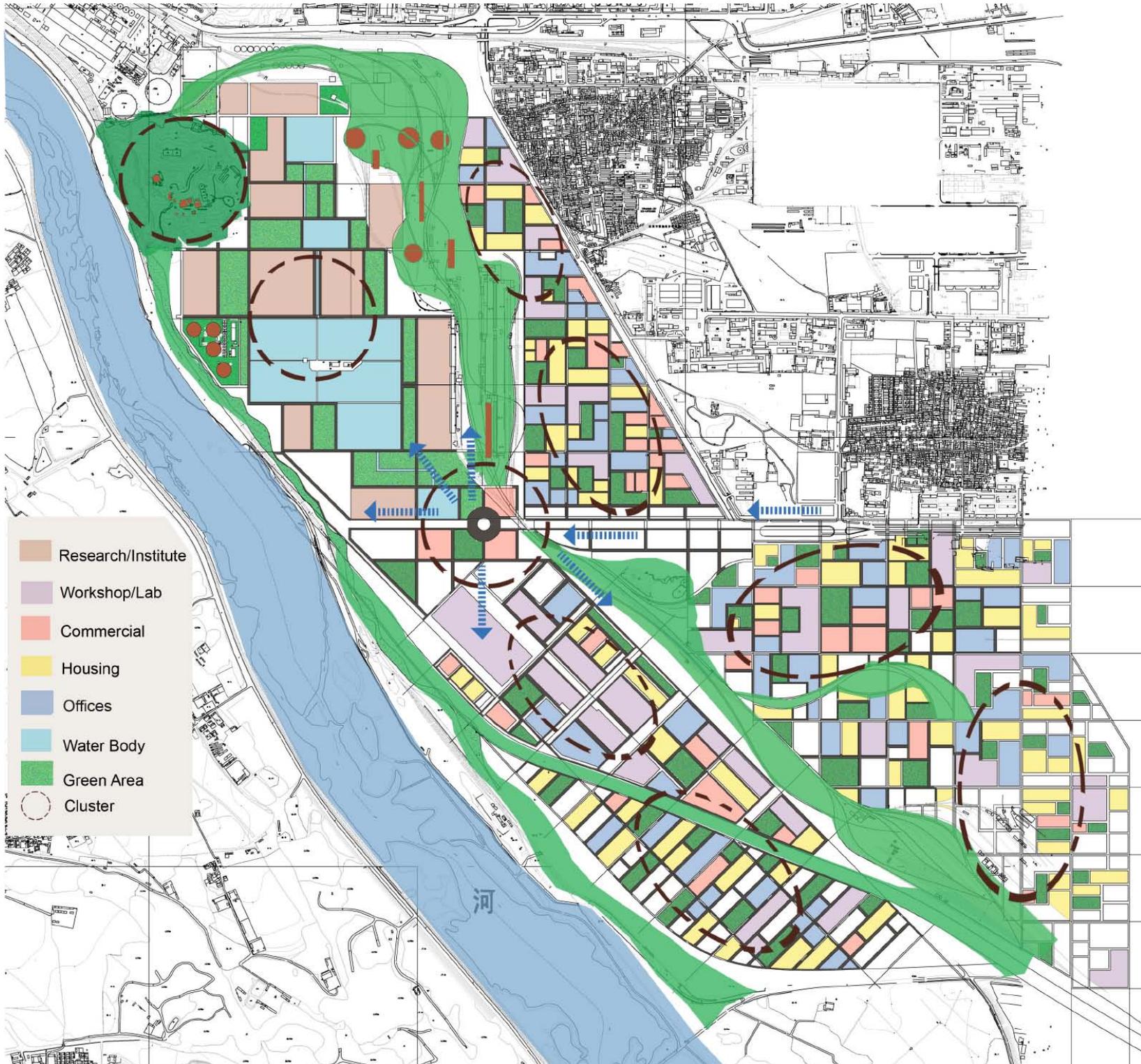


LAND USE

Central nodes

Institute buildings

Clusters



RESEARCH / DEVELOPMENT CLUSTERS WILL INCLUDE:

Fine grain mix of uses in each cluster:

Offices

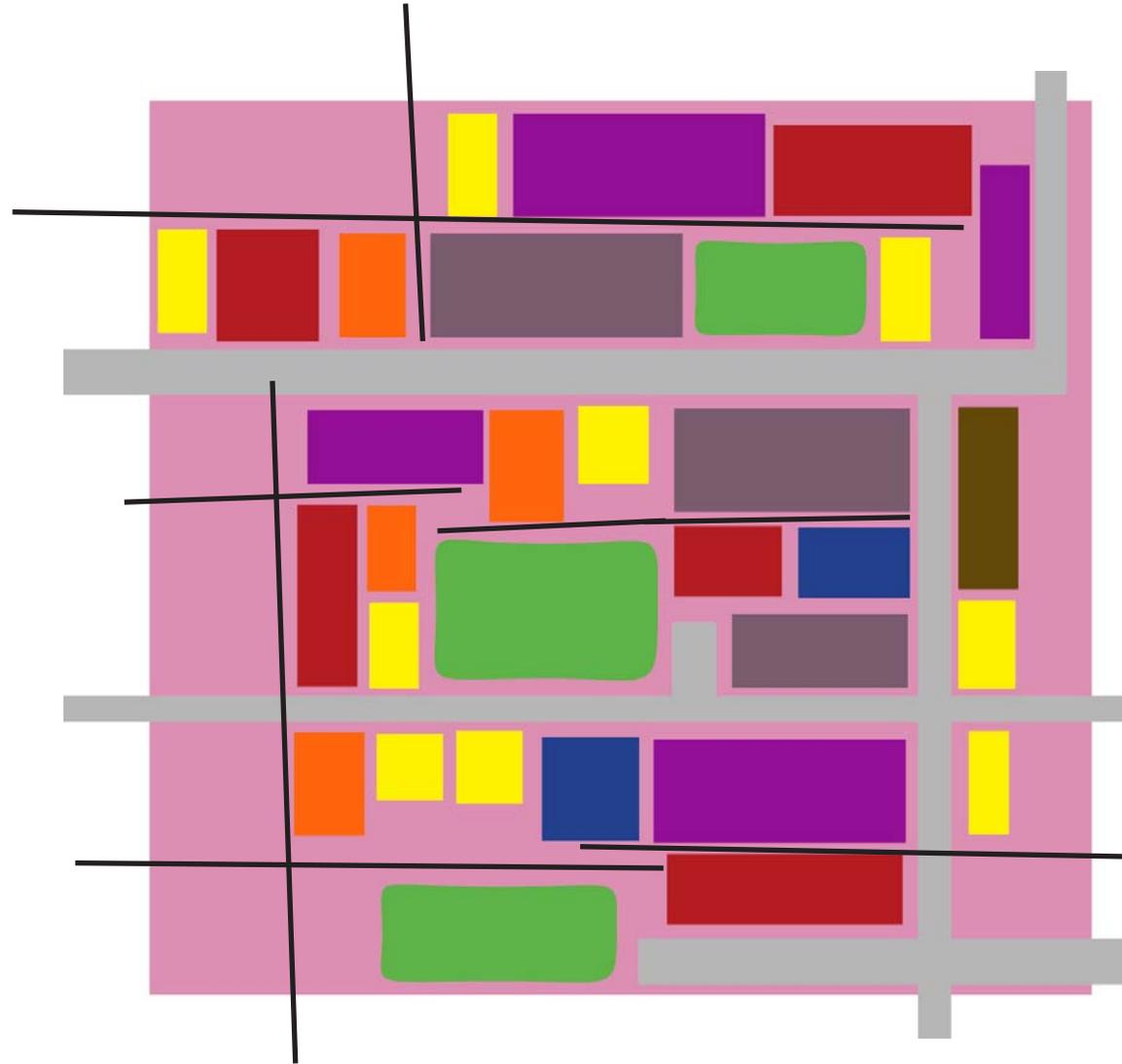
Labs and
Manufacturing
Testing spaces

Flexible spaces

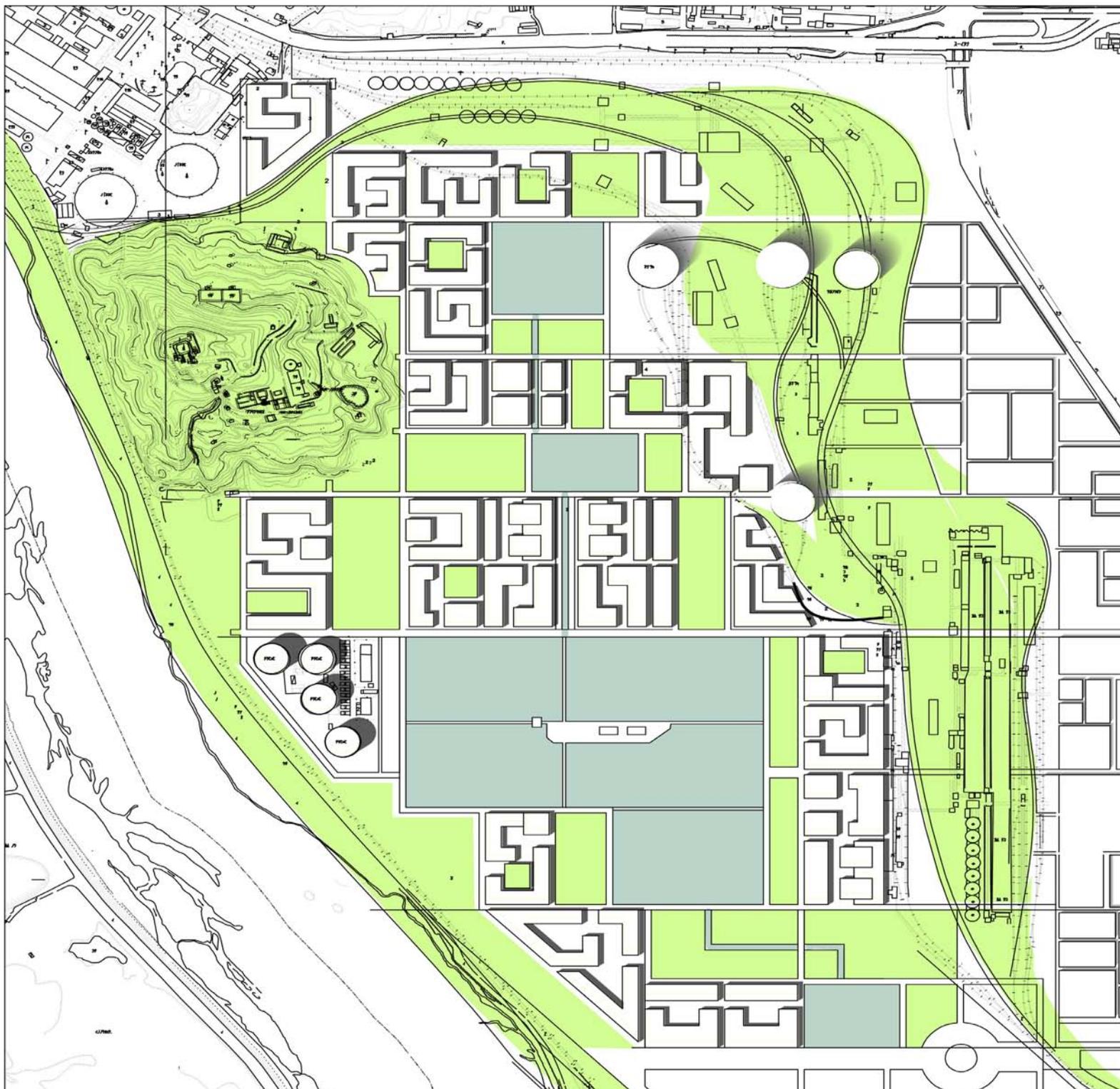
Housing
Various densities

Community /
Civic spaces

Recreation



SITE AT 1:3000 scale



PERSPECTIVE: CURRENT



PERSPECTIVE: PROPOSED



HOUSING

Most employees live on site

Most long-term researchers live on site

Abundant guest accommodations -- all types

RETREAT CENTER

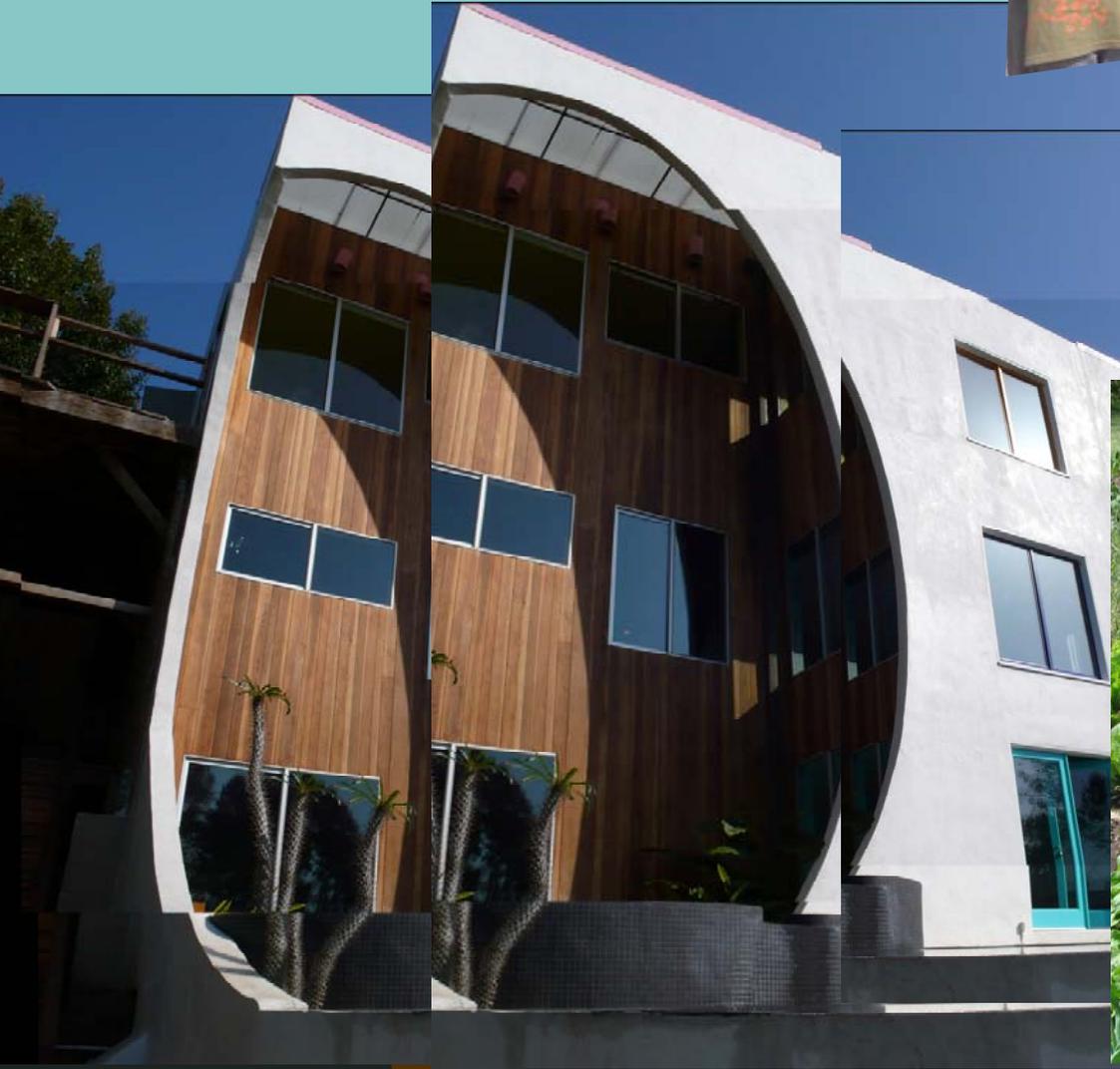
CITY SETTING: BEIJING SCALE BLOCKS, INTERIOR ALLEYS

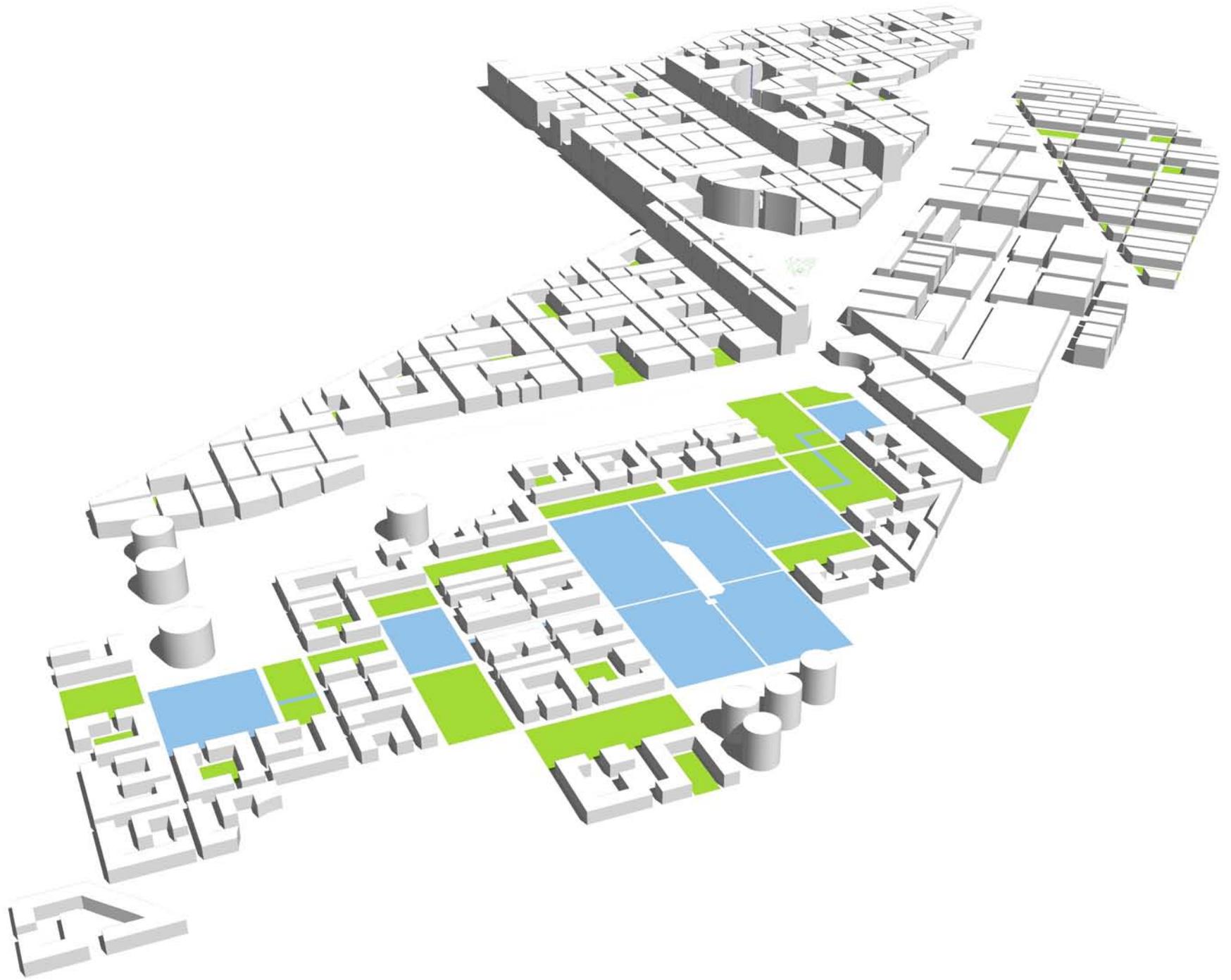
Housing once held 5,000 on site

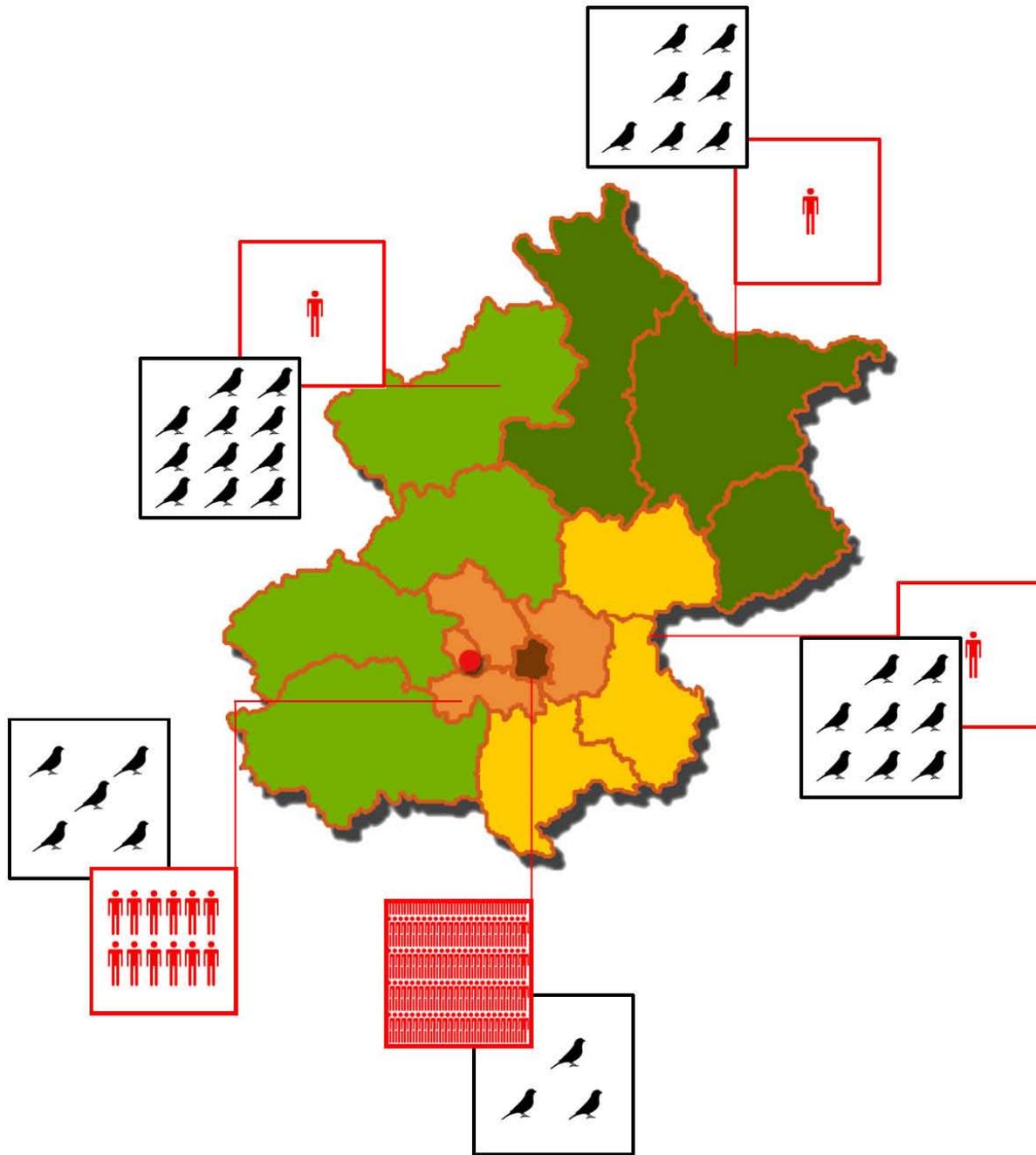
**GRAPHICS: HOUSING SITUATIONS IN LOCAL DISTRICT
RESPONDS TO CURRENT HOUSING AND
DEMOGRAPHIC NEEDS OF DISTRICT**

RETREAT CENTER

Short term lodging for visitors
Southern slope of mountain
Access to attractions
Place of rest and relaxation
Opportunities to learn about the Institute







RIVERFRONT AND MOUNTAIN CONNECTION

POSSIBLE CHANGE OF RAIL LINE



SITE AXIS

Western waterfront terminus area

Monumental gate or structure

Selected through international design competition



EMPLOYMENT

FORMER SHOUGANG WORKERS
EMPLOYMENT ON-SITE
WORKER RE-TRAINING

SPECIALISTS
RESEARCHERS
ACADEMICS
DESIGNERS
INDUSTRY LEADERS

estimates: MIT employs 11,000 people (in all levels of work)
Pfizer in China: 2,500 employees

bicycle research testing area: 43,000 sq.feet

