

# Transit Oriented Urban Development in Asian Cities

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on Railway and Area Development in Thailand

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## Introduction

1. Why is TOD desirable ?
2. Value Capture for Financial Resource of Railway
3. Sub-division Development and TOD
4. Future Network of Urban Railway
5. Failure Railway PPP (Public Private Partnership)

## Conclusion

# Introduction

Rapid economic growth;

- Increase of in-migration (population) in the mega-city, and
  - \* Housing shortage
  - \* Squatter problem
  - \* Suburban sprawl
  - \* Lack of infrastructure
  - \* Expansion of disparity etc.
  
- Necessity of institutional reform for urban development, especially ;
  - for planning system
  - for urban structure
  - for land-use control
  - for land acquisition
  - for financial resources
  - for urban development project scheme etc.

# 1. Why is TOD desirable ?

Against car-oriented sprawl

under increasing housing demand in Asian mega-cities

- Desirable urban structure
- Value capture for railway
- Land acquisition for railway and urban development

**TOD is a key element of PPP**

Down town

; around the central station and the stations along the circular line

- Business district
- Commercial area

Suburban area ; around major stations approximately 5 km interval

- Sub center; shopping center, office area, hospital, etc.
- Residential area

; around other local stations

- Residential area and shops

## 2. Value Capture for Financial Resource of Railway

- **What kinds of institution for value capture ?**

- Tax ; Property tax, Sales tax, Corporate Inhabitant Tax, Land acquisition tax, Urban development tax, etc.
- Bond ; Bond for infrastructure  
(Beneficiary burden of future generation)  
TIF(Tax Increment Financing), Bond by future property tax  
( Investment for the Special Assessment District), etc.
- Fee ; IF(Impact fee, Payment by land owner and building owner),  
Fee for additional floor area ratio, etc.
- Urban renewal scheme ; Land readjustment, Urban renewal,  
Special Land Readjustment law for Railway Right of Way  
(Tsukuba express railway) , etc.

TOD could be increase the value capture.

- Constraints of TOD
  - Lack of coordination between railway and urban plan related agencies.

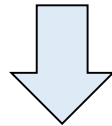
“Understanding of urban plan related organization that TOD is useful for better urban structure, and that it is used as a financial source for railway.”
  - Misunderstanding of urban development project as a financial resource for railway.

“Risk of loss in urban development project.”

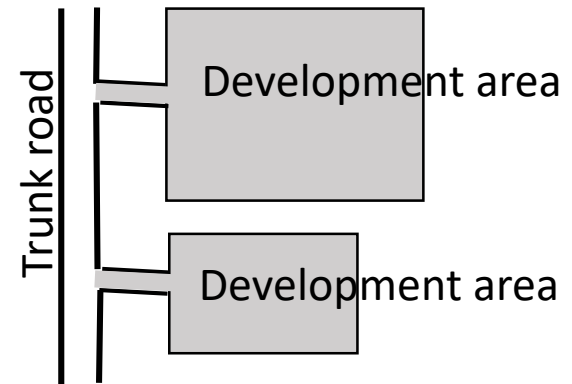
“It takes too long term for urban development benefits to be realized for cover the railway initial deficit.”

### 3. Sub-division Development and TOD

- Lots of roadside urban development projects and limited development along the railway in ASEAN countries
- The housing area development is allowed under the condition that the access road to trunk road and Infrastructures in the area were developed and maintained by developer.
- In many cases, the developed area is exclusive for outside people without the permission of the resident.
- Lack of coordination between each development area for example the through traffic cannot pass the exclusive area.



- Wide area development master-plan along railway is required for better urban structure.
- Station plaza and access road are expand the TOD area.

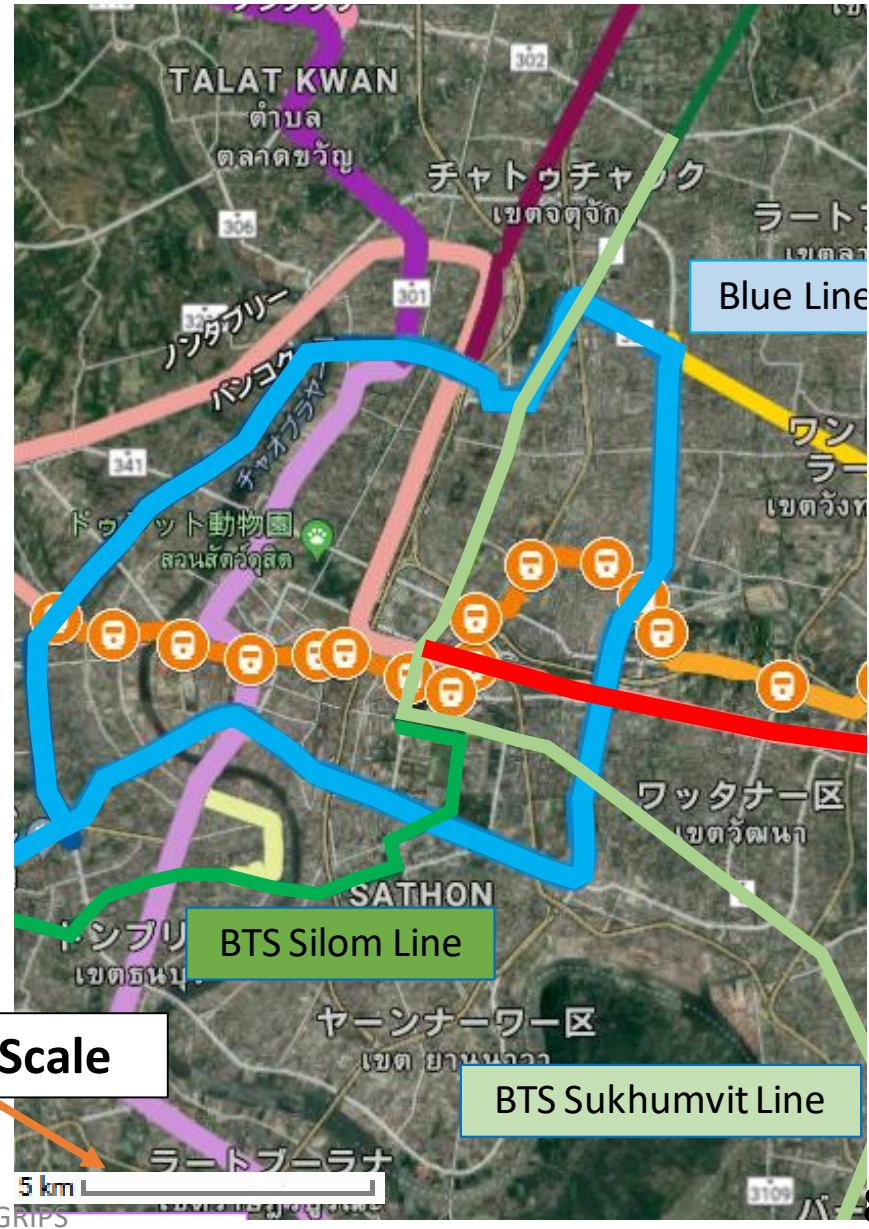
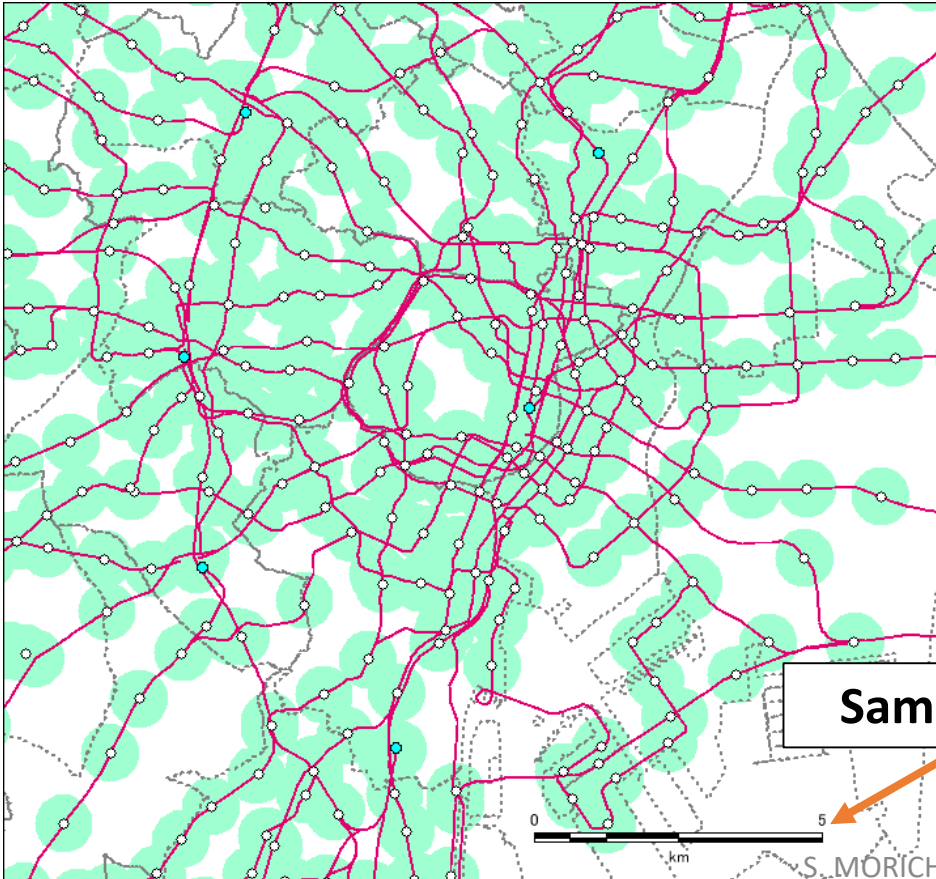


# 4. Future Network of Urban Railway

## Accessibility to Railway Station

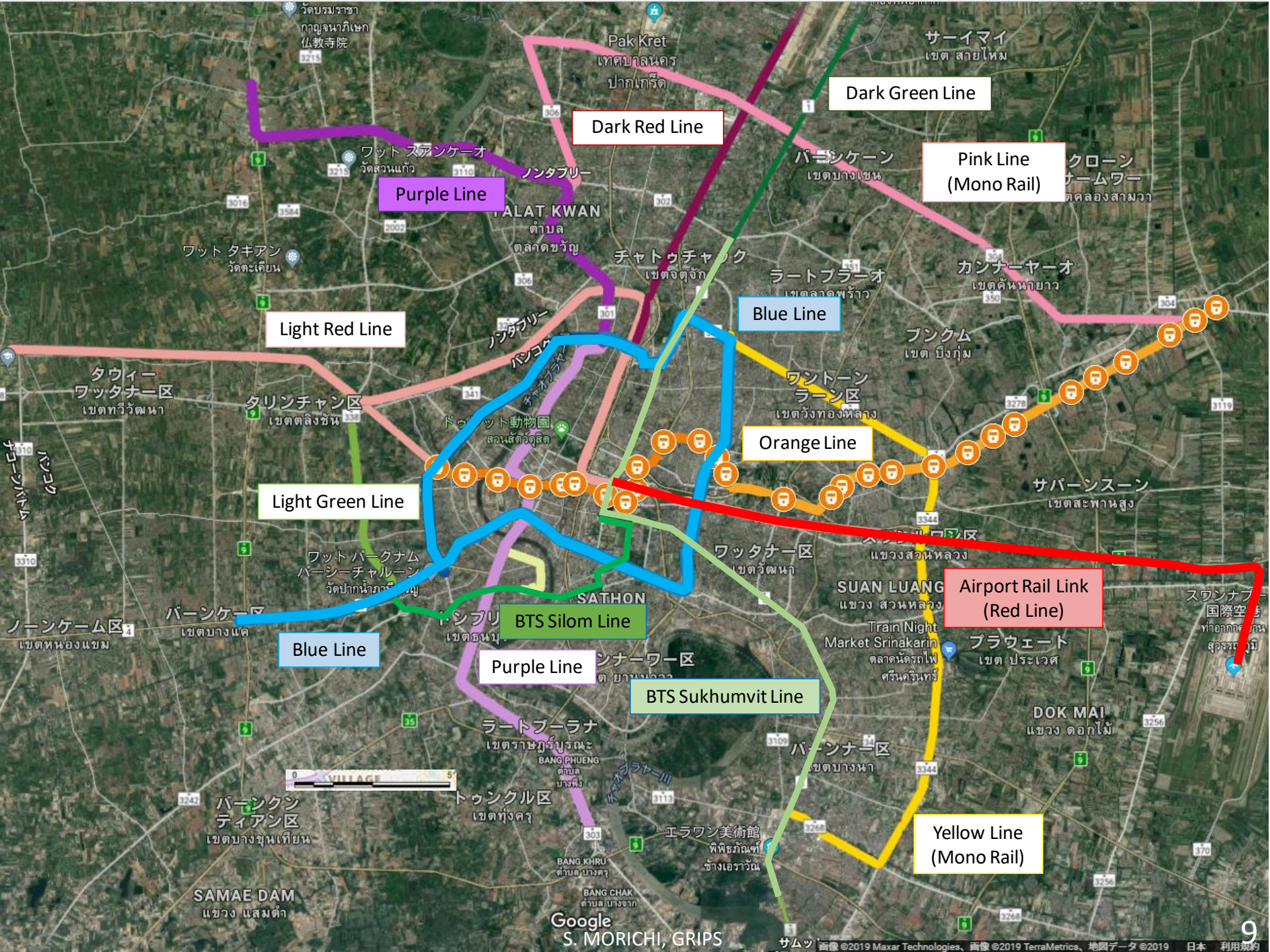
Most of Tokyo's central areas are within 500m from the station.

Green Circle : 500m from Station



Same Scale





Dark Green Line

Dark Red Line

Pink Line  
(Mono Rail)

Purple Line

Light Red Line

Blue Line

Orange Line

Light Green Line

Airport Rail Link  
(Red Line)

Blue Line

Purple Line

BTS Sukhumvit Line

Yellow Line  
(Mono Rail)

0 5  
VILLAGE



# TOD in Down town along the Circular Line

## Railway network in Tokyo



- Terminal stations of suburban railway located on the circular line
- Many offices and commercial function came in the areas which became sub-centers : multi-cores urban structure of Tokyo
- Direct operation between suburban lines and subway lines to solve the congestion of the terminals

# 5. Failed Urban Railway PPP in Asia

## Seoul Metro Line 9 : example of country risk

- Change of MRG (Minimum revenue guarantee)
- Government rejected the SPC report for increase of fare
- Lawsuit against government
- Withdraw of MKIF (Macquarie Korea Infrastructure Fund)

and Hyundai Rotem

## Delhi Airport Express Line :

private to public after the bankrupt → concession (private)

- Delay of construction and broken parts
- Lack of demand and revenue
- Lack of revenue from rental business
- Transfer the project to the Delhi Metro(public sector)

## Bangkok Metro :

- Lack of demand and revenue (Start of operation:2004)
- Insolvency, Capital increase by MRTA and increase of fare (2006)
- Debt rescheduling, Loan condition changing (2008)
- Revision of fares(2009), Revenue became cover the expenditure (2010)
- Capital increase (Cho Kanchan, Inc.,2013)

## Kuala Lumpur: Kelana Jaya Line (Putra LRT)

private to public after the bankrupt

- BOT, Concession period :60years
- Delay of the construction:  
Start of operation after Commonwealth Games (1998)
- Shortage of the demand → huge deficit
- significant deterioration of business conditions of the Holding company (Renong)through the Asian Financial Crisis(1997).  
(Takeover by other company)
- Special purpose company SPNB (owned by Government)  
purchased Putra LRT to keep the service in 2002.
- purchase price was 1.6 billion US \$ and  
loan (1.5 billion US \$) was transfer to the government bond.

# Kaohsiung MRT, Taiwan, Red line and Orange line

## 2001 Construction

- Civil engineering and architecture infrastructure; Public
- Other Infrastructures; Private  
(SPC owned the vehicles, signal system, power system, etc. )
- Cost allocation : Government 83.3%, Private 16.7%

## 2008 Start of operation ; Red Line, Orange Line

## 2013 Insolvency

Delay of construction : Plan 2006 open → actual 2008

Demand : Predicted ; 562 thousand/day/2 lines → Actual; 136 thousand

Kaohsiung City bought the infrastructures owned by SPC

SPC increased the equity (1.5 billion NT\$ )

## Manila LRT3 (MRT3)

- BLO Scheme : SPC constructed and have received rental fee of railway.  
Operation is by government agency
- The total amount of payment for the rental fee and Loss supplement money is 1.7 times of construction cost.
- The maintenance was changed from Japanese to local company.  
After that the number of vehicles that could be used decreased and serious accidents continued.
- The fare was lowered just after the start of operation and the deficit swelled .
- The waiting time in the morning and evening was two hours every day and 40 minutes still now.

### What kinds of risks ?

Limited demand, High construction cost,  
Delay of construction, Inefficient operation,  
Deficit of urban development, Situation of economy

# 5. Conclusion

## Desirable institutional reform for TOD

- There were many urban development projects, while developments along railway were limited in ASEAN countries
- The reason is the weakness of institution for TOD.

Recommendation of the institutional reform :

- ① Coordination system between railway and urban development
- ② Improvement of city planning system
  - <Institution for planning> : planning procedure, land-use regulation, urban infrastructure, etc.
  - <Institution for project > : Land readjustment scheme, Urban renewal scheme, incentives for developer, investor and other stake holders, etc..
- ③ Mechanism to form consensus with residents



Thank you for your kind attention !

# Appendix

Appendix 1. Functions and Contents of Urban Planning

Appendix 2. Land Acquisition system : Japanese Case

Appendix 3. Station Area Redevelopment

# Appendix 1. Functions and Contents of Urban Planning

## Functions

- The coordination of land-use and infrastructures
  - for related stakeholders and organizations
  - between existing situation and new development
- The information of future land-use and infrastructures
  - for decision making of citizens and related organizations



## Contents

1. Planning procedure
2. Land-use control : Zoning and building control
3. Location of Infrastructures
4. Urban development project scheme :
  - land re-adjustment project
  - Urban renewal project                      etc.

# Areas for land-use control in Japan

## ➤ City Planning Area

- Urbanization Promotion Areas (UPA)

Area designated for urbanization → Zoning for urban land use

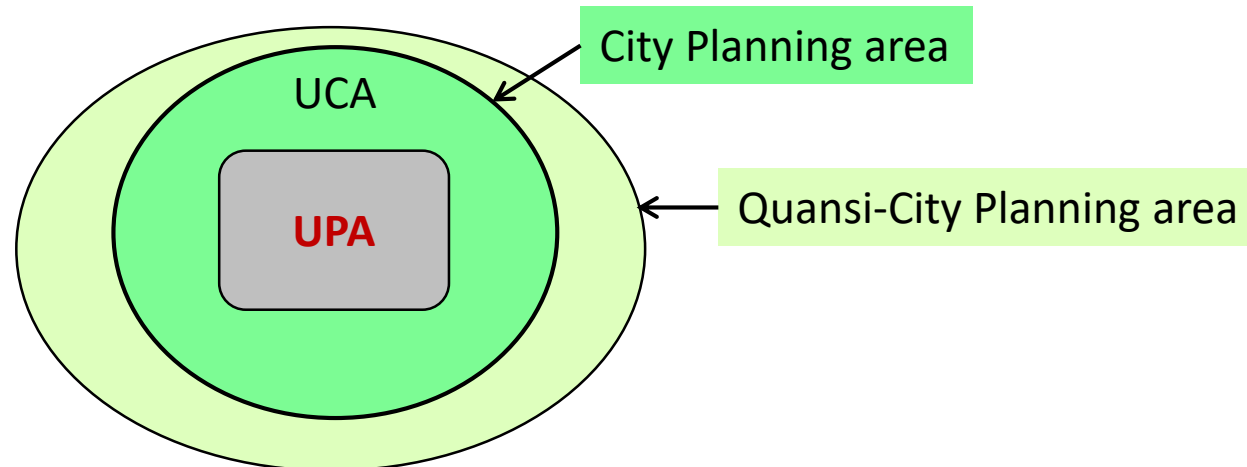
- Urbanization control area (UCA)

Originally decided for the efficiency of infrastructure

→ Thereafter approved only large scale development

## ➤ Quansi-City Planning Area

- Possible urbanized area without control



# Institutions for Land-use control in urban area

- Land-use zoning
    - Control by each zone
  - Building control
    - Building coverage ratio
    - Floor area ratio
    - Building height restriction
  - Approval of development plan and building
  - Incentives for better land-use and building
  - Consensus building system for project owners,  
stakeholders, and neighboring residents
  - Taxation system
- etc.

# Incentives for better land-use

- Change of land-use zoning
- Higher floor area ratio
- Building height limit
- Subsidy
- Tax incentives
  - ex. Property tax
  - Land acquisition tax incentives* etc.

- Contributions for these incentives ;
- open space
  - public use of land or floor (ex. school, road, etc.)
  - conservation of historical building
  - partnership with other project etc.

## Appendix 2. Land Acquisition system : Japanese Case

### land registration system

- Registration system of real estate : ownership and rights
- Citizen and corporate registration system (to identify the land owners)
- Cadastral Survey ( boundaries and areas by parcels of land )

### Land appraisal

- Land price publication : Land price for standard 26,000 points
- Land appraisal committee determines the normal prices considering the evaluated prices by two appraisers and other conditions.
- Land acquisition price is evaluated by licensed real estate appraisers in consideration of the standard points price.
- Approved system for the licensed real estate appraisers and evaluation method of land price

## Land acquisition procedure

- Approval of the project
  - : including the PI (public Involvement ) process
- Negotiation process
- Land expropriation process
  - Public interest certification by the Minister or the Governor
  - Land Expropriation Committee of each Prefecture  
(local government)
- Tax incentives
  - Tax exemptions for ¥ 50 million (US\$ 450,000)
  - etc.



## Appendix 3. Station Area Redevelopment

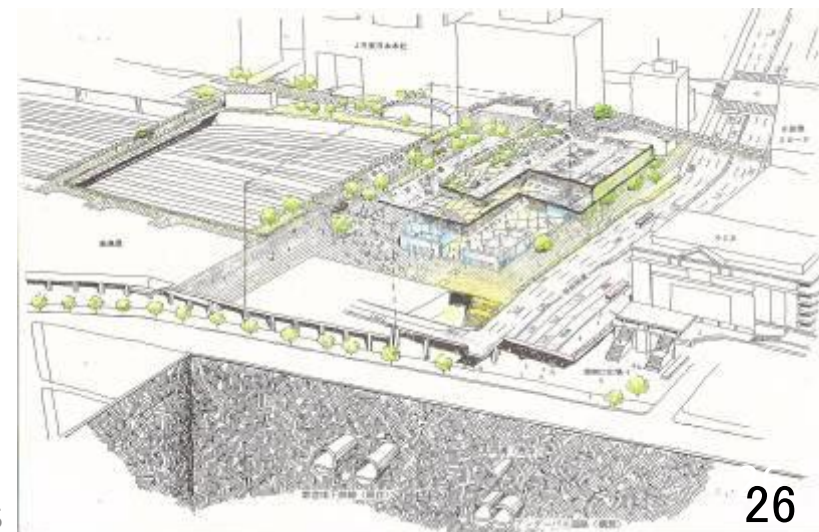
- Stations and surrounding areas developments had been major PPP Projects in EU, US from 1980's under the world-wide recession.
- In the case of Japan, the projects have been conducted using the former railway spaces which were sold out from JNR to municipalities or private sector after the privatization of JNR.

### Examples of station area renewal projects in Tokyo

- ① Shinjyuku St.
- ② Shibuya St.
- ③ Tokyo St.
- ④ Oosaki St.
- ⑤ Shinagawa St.

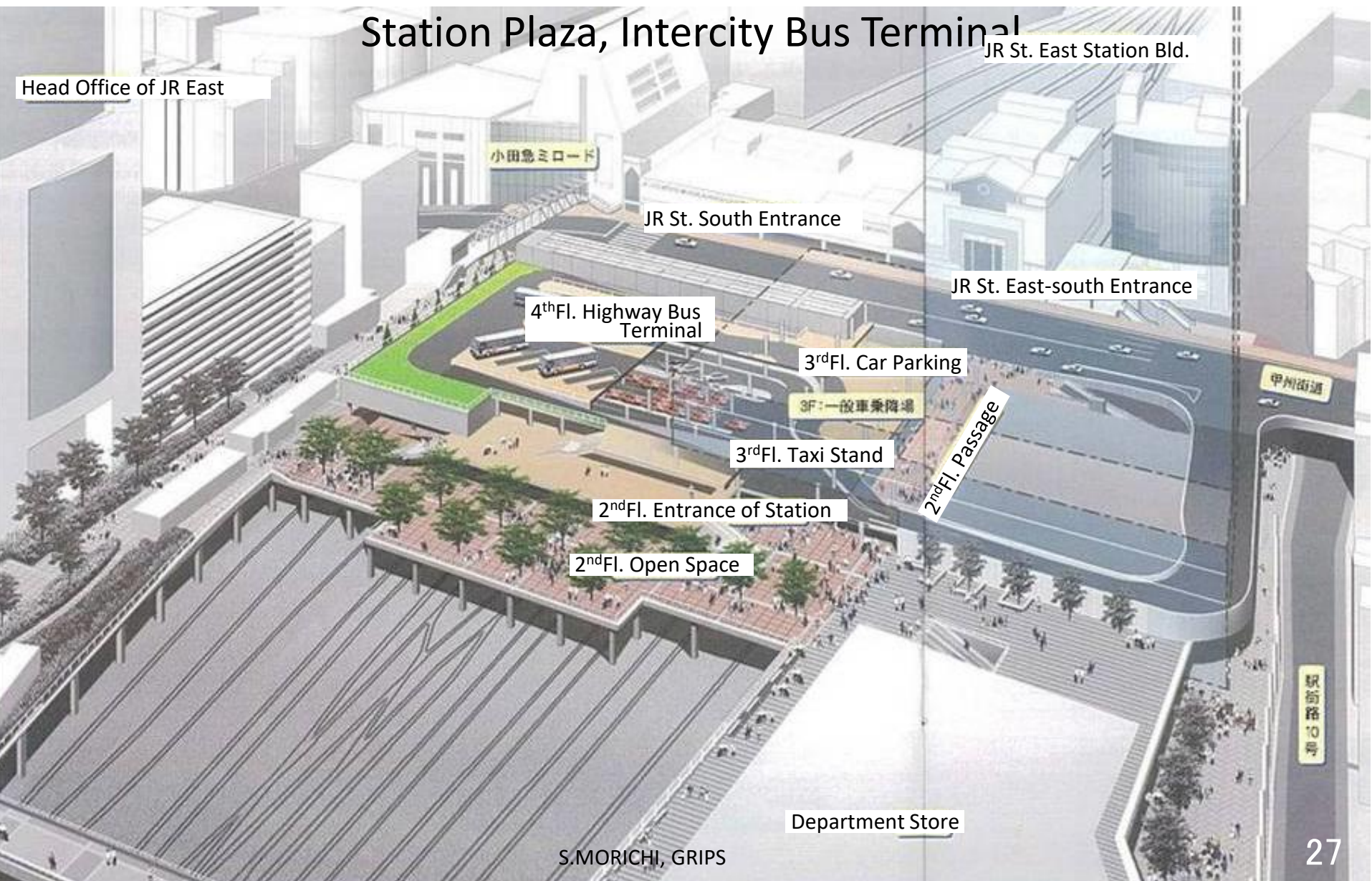
# ① Shinjuku Station

- Necessity of earthquake proof structure of national road over bridge
- Congestion of the national road
- Lack of station plaza at the south gate
- Lack of intercity bus terminal



# ① Shinjuku Station

New Space Utilization above Railway Tracks :  
Station Plaza, Intercity Bus Terminal



# Shinyuku St. Tokyo

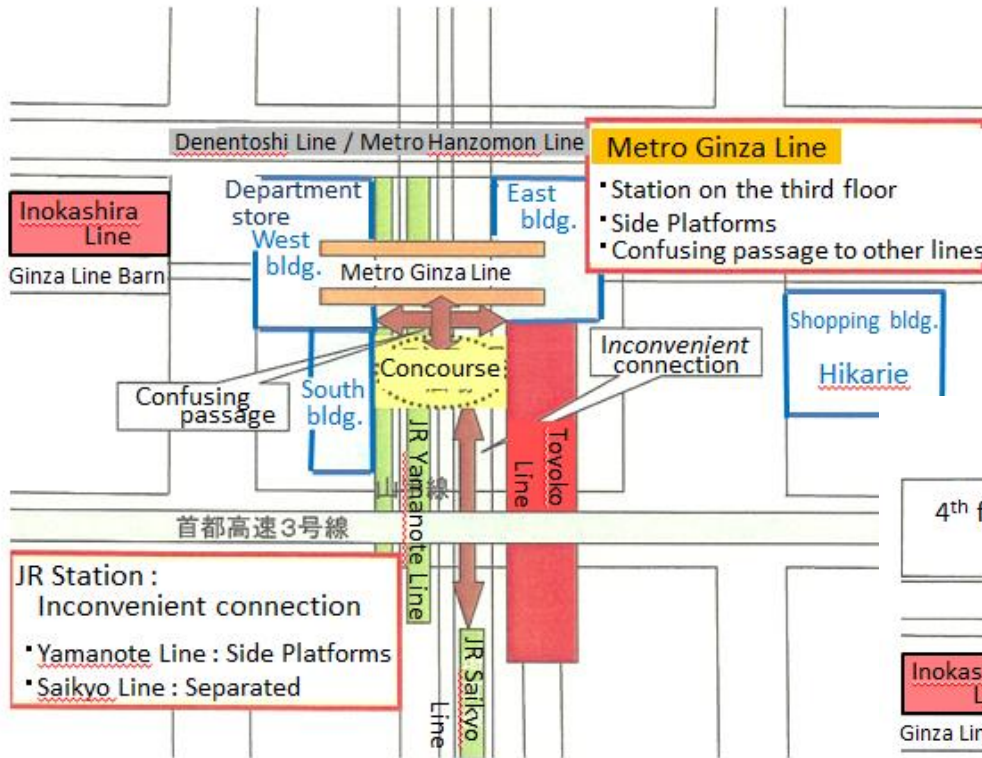
Before (1991)

After (2016)

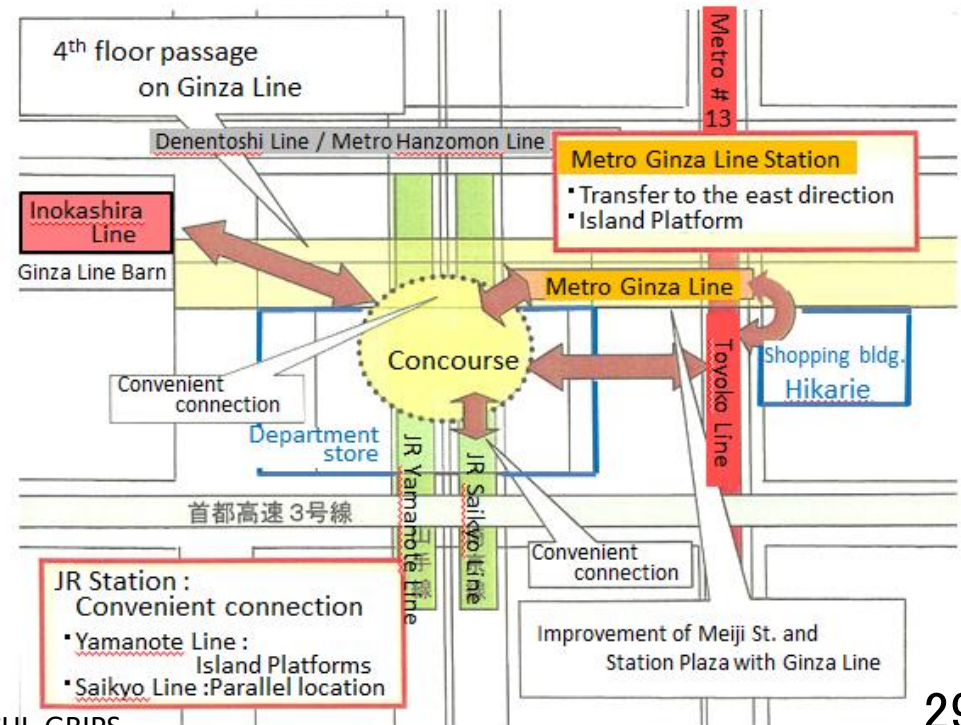


# ② Shibuya St.

## Present Layout of Shibuya Station



## Future Layout of Shibuya Station



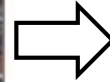
# Future View of Shibuya St.



### ③ Tokyo St.

## Reform of Tokyo St. Blding

Before (2004)



After (2012)



# Renovation of the Station Plaza : Yaesu Side





## ④ Oosaki St.

Before



After



## ⑤ Shinagawa St.



Former freight St. was redeveloped  
for business district



# Shinagawa depot area

- Renewal of Shinagawa St.(JR East, Keihin-kyuko Co. ,Metro)
- Business district (developed) + New St. and urban development
- Shinkansen St. (developed)+ St. of MAGLEV Line

