

Transit Oriented Urban Development in Asian Cities

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Prof. Dr. Shigeru MORICHI

Director, Policy Research Center

National Graduate Institute

for Policy Studies (GRIPS)



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.”

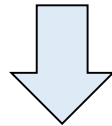
- Misunderstanding of urban development project as a financial resource for railway.

“Risk of loss in urban development project.”

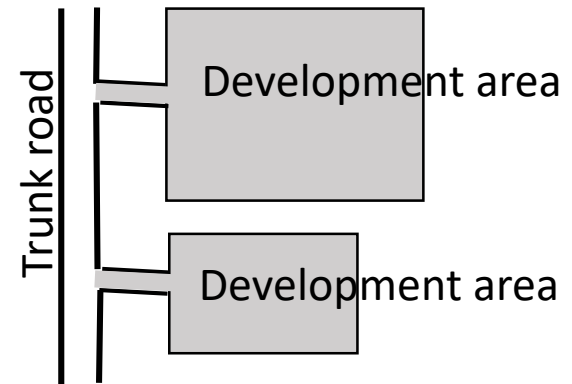
“It takes too long term for urban development benefits to be realized for cover the railway initial deficit.”

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.

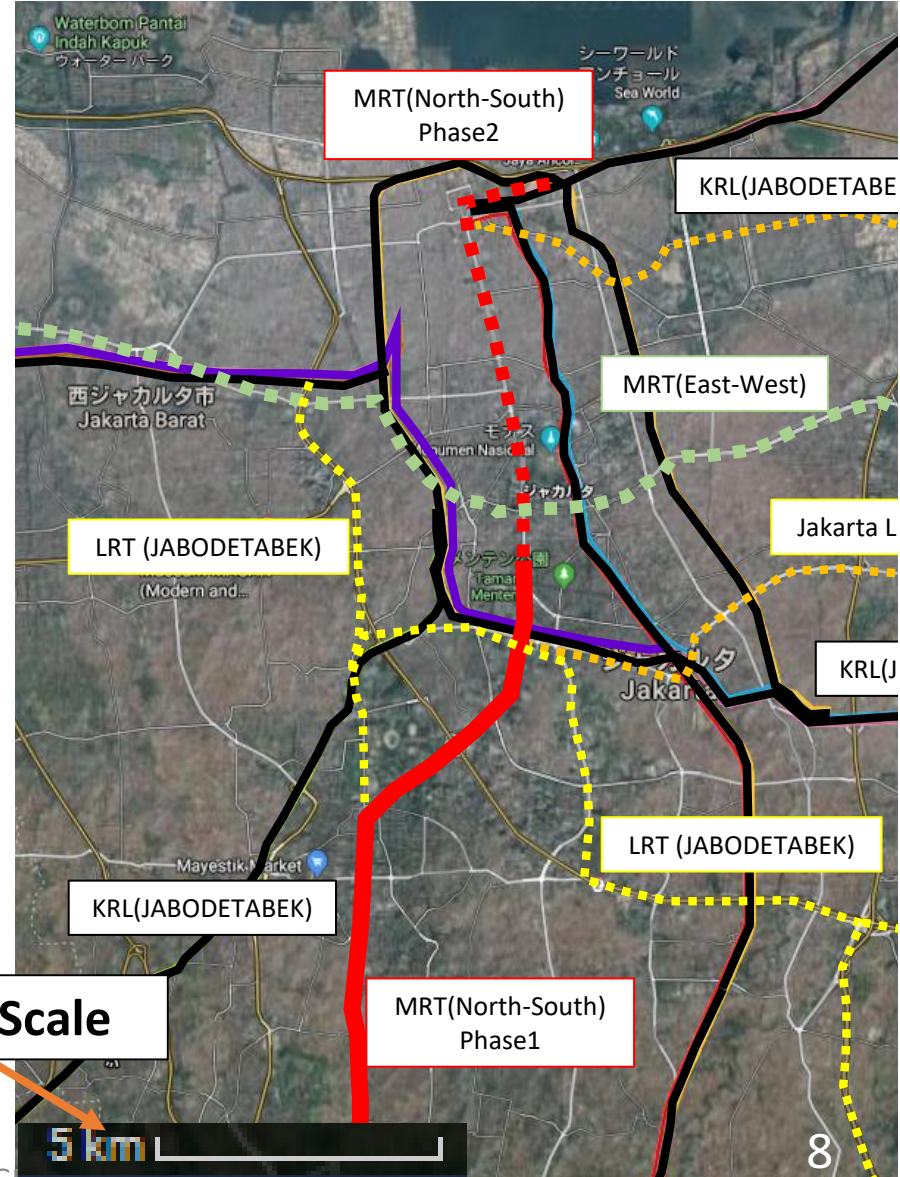
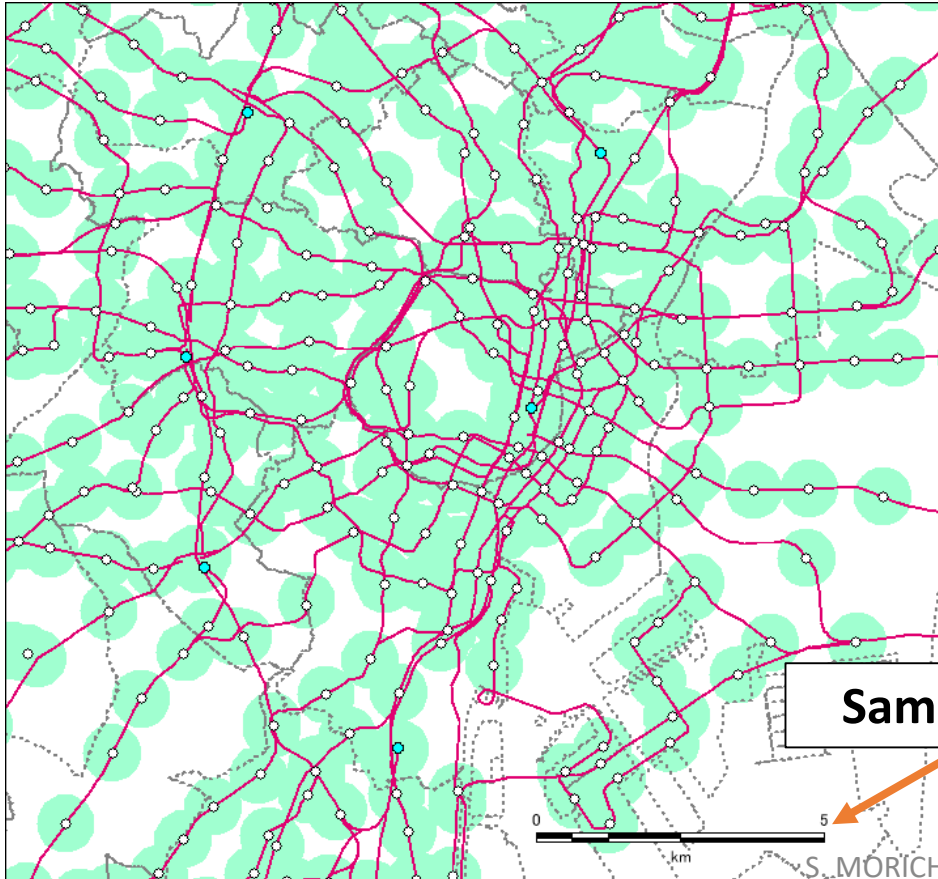


4. Future Network of Urban Railway

Accessibility to Railway Station

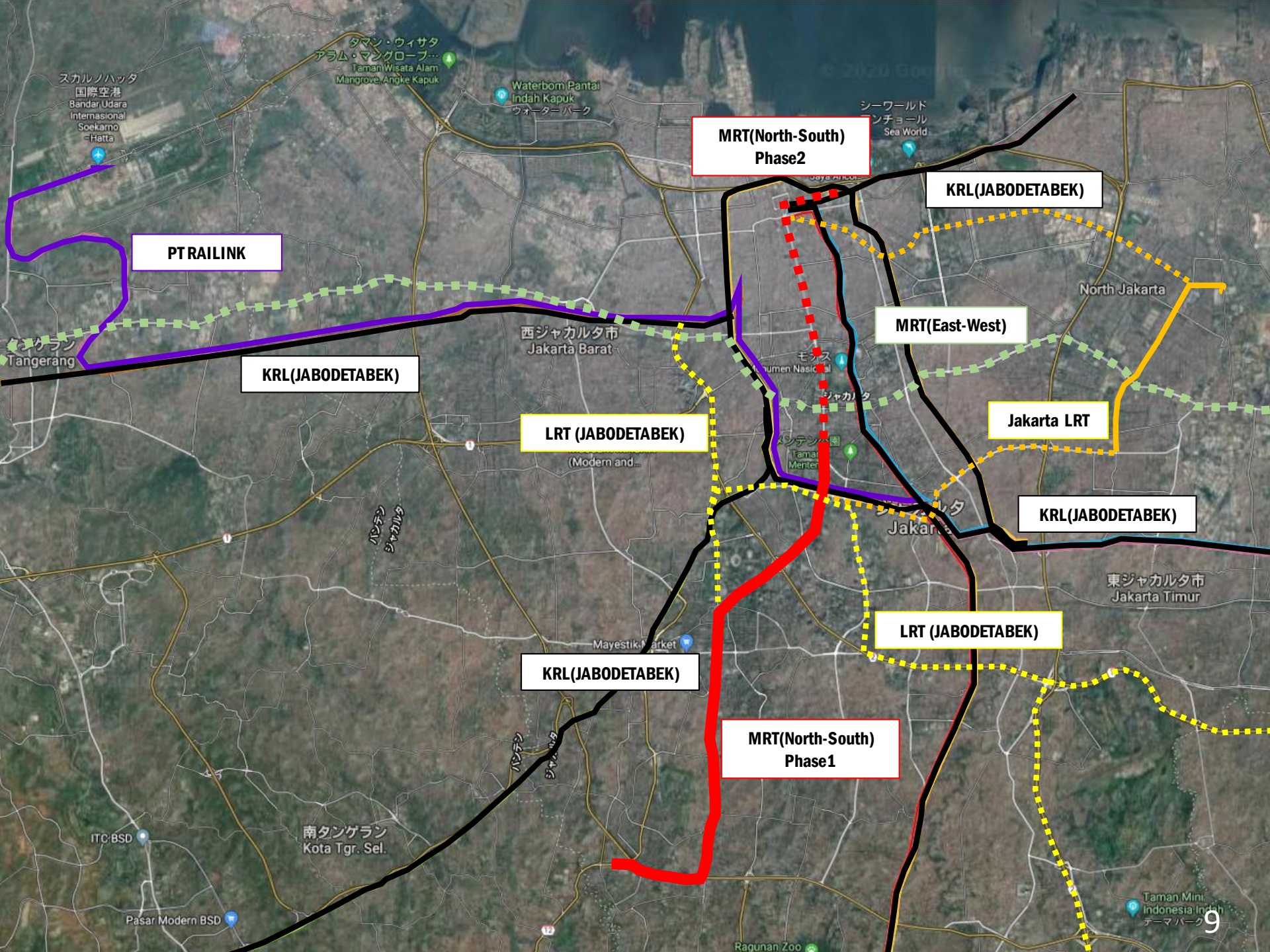
Most of Tokyo's central areas are within 500m from the station.

Green Circle : 500m from Station



Same Scale

5 km



**MRT(North-South)
Phase2**

KRL(JABODETABEK)

PT RAILINK

KRL(JABODETABEK)

MRT(East-West)

LRT (JABODETABEK)

Jakarta LRT

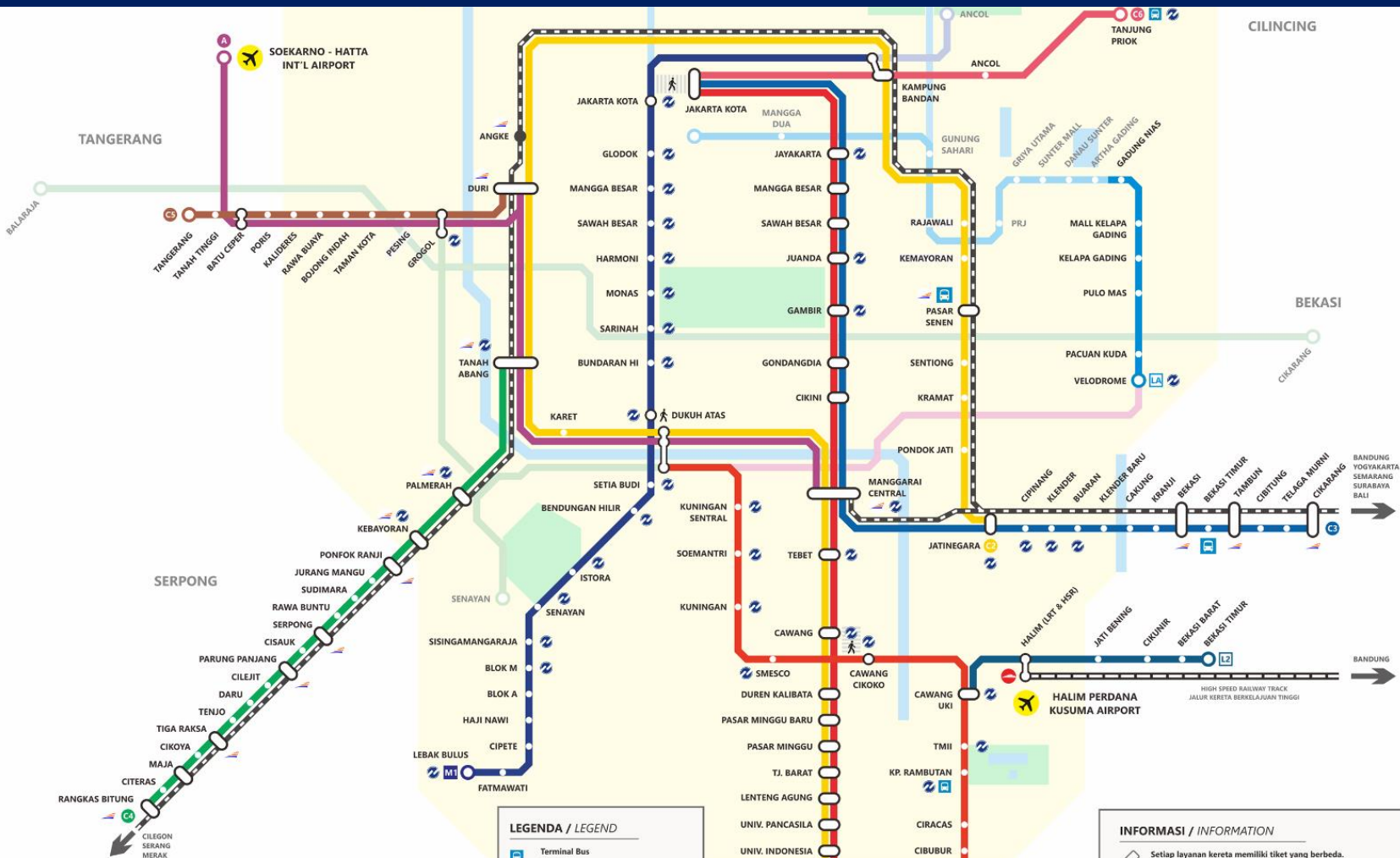
KRL(JABODETABEK)

LRT (JABODETABEK)

KRL(JABODETABEK)

**MRT(North-South)
Phase1**

JABODETABEK URBAN RAILWAY NETWORK MAP(2020)



COMMUTER LINE

- C1** Red Line
Jakarta Kota - Bogor
- C2** Yellow Line
Jatinegara - Bogor
- C3** Blue Line
Jakarta Kota - Bekasi
- C4** Green Line
Taman Abang - Bangkari Bitung
- C5** Brown Line
Duri - Tangerang
- C6** Pink Line
Jakarta Kota - Tj. Priok

LRT

- LA** Kelapa Gading
Jakarta Kota - Kelapa Gading
- L1** Cibubur
Cibubur - Dukuh Atas
- L2** Bekasi
Bekasi - Cawang

MRT

- M1** Blue Line
Lebak Bulus - Ancol

AIRPORT SERVICES

- A** Railink
Manggara - SNI

UNDER CONSTRUCTION (2019-2025)

- M2** MRT Green Line
Cawang - Balong
- L3** LRT Grogol
Senayan - Grogol
- L1** LRT Bogor
Bogor

LEGENDA / LEGEND

- Terminal Bus
Bus Terminal
- Terhubung Bus Transjakarta
Connected to Transjakarta Bus
- Stasiun Kereta Antar Kota KAI - KCIC
Intercity Railway Station KAI - KCIC
- Bandar Udara
Airport
- Stasiun Akhir
Terminal Station
- Stasiun Perpindahan Dalam Satu Area
Transfer Station in One Area
- Stasiun Perpindahan Diluar Area
Diengkapi Skywalk
Out of Area Transfer Station Equipped Skywalk
- Berpindah Diluar Area
Station Exit Required to Switch Line
- Jalur Dalam Konstruksi
Line Under Construction
- Jalur Kereta Antar Kota KAI - KCIC
Intercity Train Line KAI - KCIC

INFORMASI / INFORMATION

- Setiap layanan kereta memiliki tiket yang berbeda.
Contoh: jika anda berpindah moda dari commuter line ke MRT maka anda harus membeli tiket yang baru.
Each train services have different tickets.
Example: if you switch modes of commuter line to MRT then you must buy a new ticket.
- Untuk pembelian tiket disarankan menggunakan kartu uang elektronik seperti E-money, Brizzi, Tapcash dan Flazz.
For ticket purchase is recommended to use the card electronic money such as e-money, Brizzi, Tapcash and Flazz.
- Anda dapat memperoleh peta informasi transportasi di setiap stasiun, halte, terminal, bandara maupun pelabuhan.
Anda juga dapat mengunduh beberapa aplikasi layanan transportasi publik Que Transit, KRL Access, TRAFI or Apaja atau Apaja pada store aplikasi.
You can obtain a map of information transport in each stations, bus stops, terminals, airports and ports, you can download multiple applications public transport services Que Transit, KRL Access, TRAFI or Apaja the app store.
- Layanan kereta berkecepatan tinggi (KCIC) hanya melayani rute perjalanan ke kota Bandung. Jika anda ingin berpergian ke kota Yogyakarta, Semarang maupun Surabaya, gunakanlah layanan Kereta antar kota (KAI).
High-speed train service KCIC only serve trip to the city of Bandung. If you want to travel to Yogyakarta, Semarang and Surabaya, use inter-city train service (KAI).

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

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

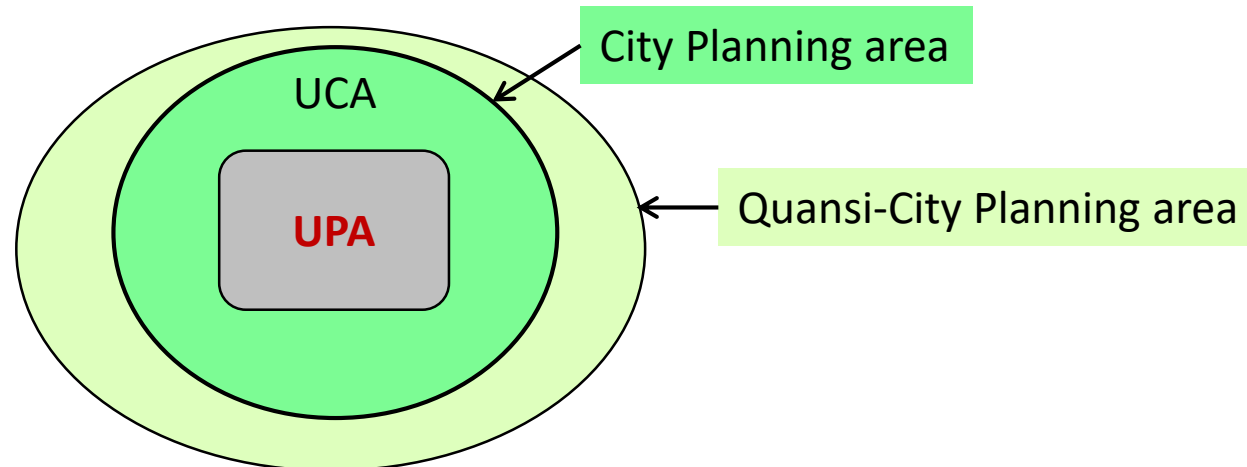
- Urbanization control area (UCA)

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

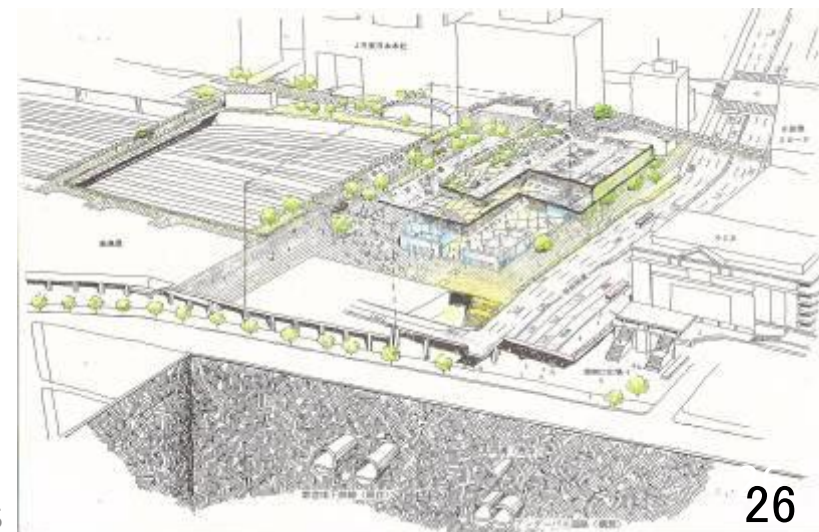
- Stations and surrounding areas developments had been major PPP Projects in EU, US from 1980's under the world-wide recession.
- In the case of Japan, the projects have been conducted using the former railway spaces which were sold out from JNR to municipalities or private sector after the privatization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

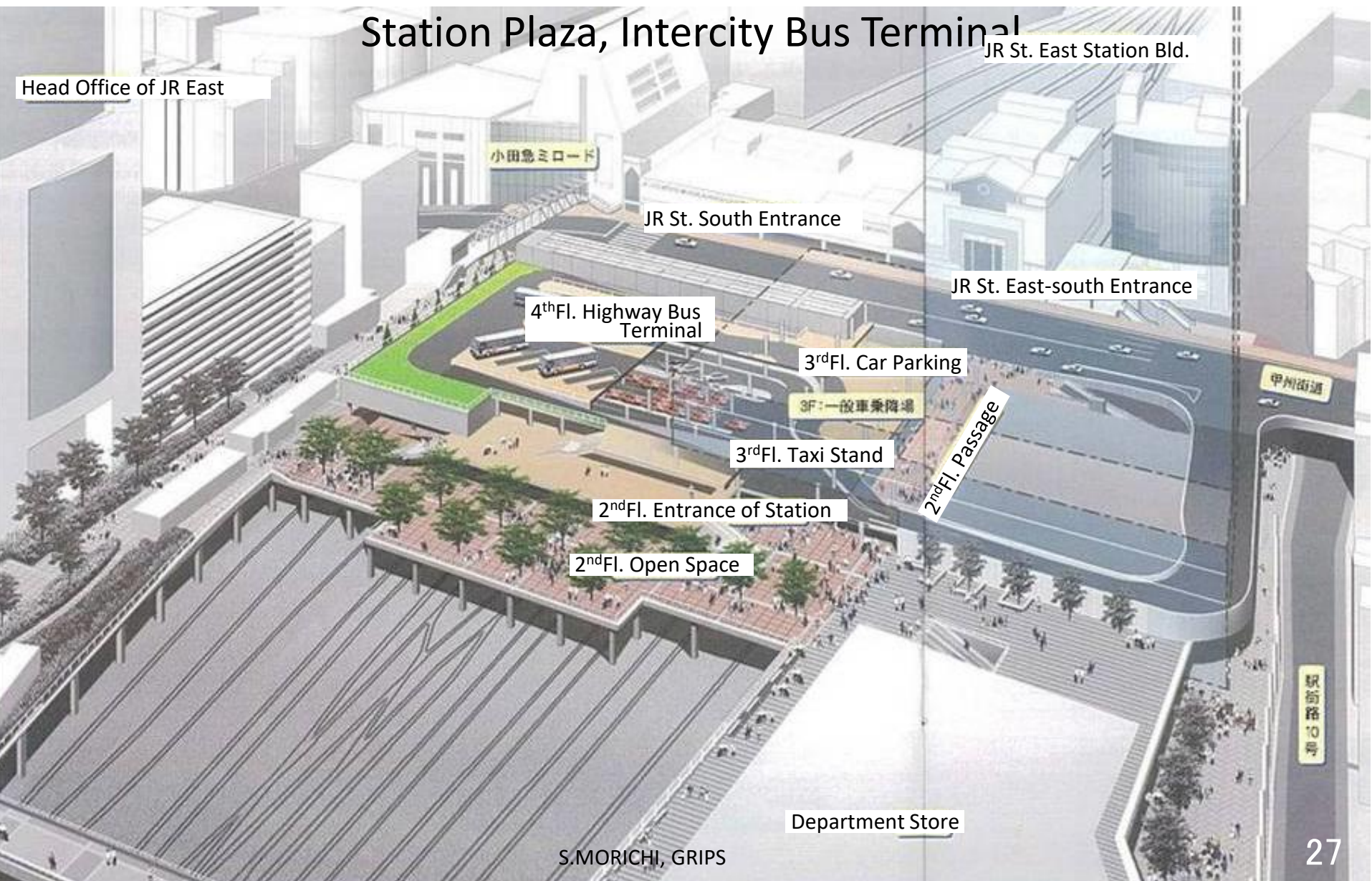
① Shinjuku Station

- 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

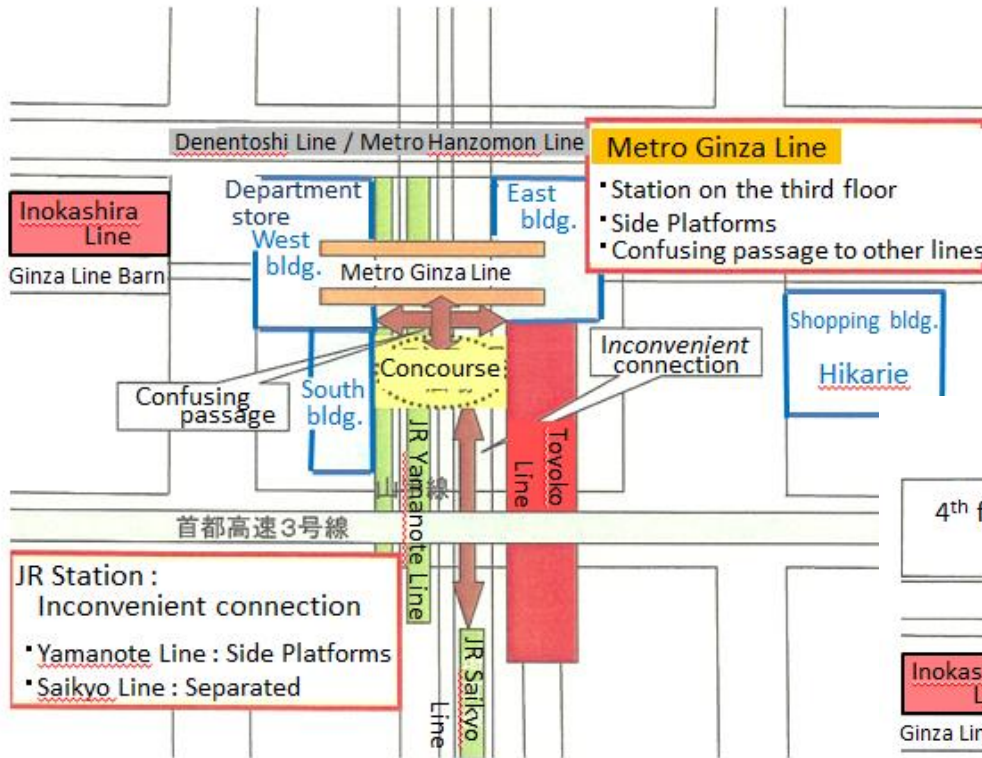
Before (1991)

After (2016)

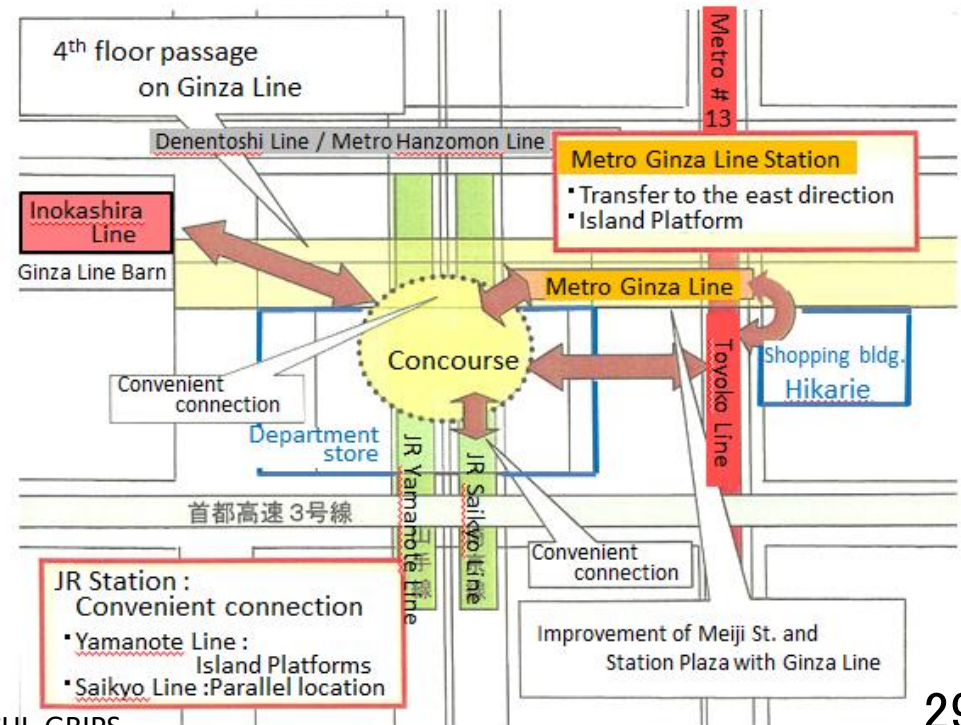


② Shibuya St.

Present Layout of Shibuya Station



Future Layout of Shibuya Station



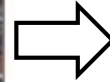
Future View of Shibuya St.



③ Tokyo St.

Reform of Tokyo St. Blding

Before (2004)



After (2012)



Renovation of the Station Plaza : Yaesu Side



Nov. 2014

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

