Financing Transit-Oriented Development (TOD) with Land Values

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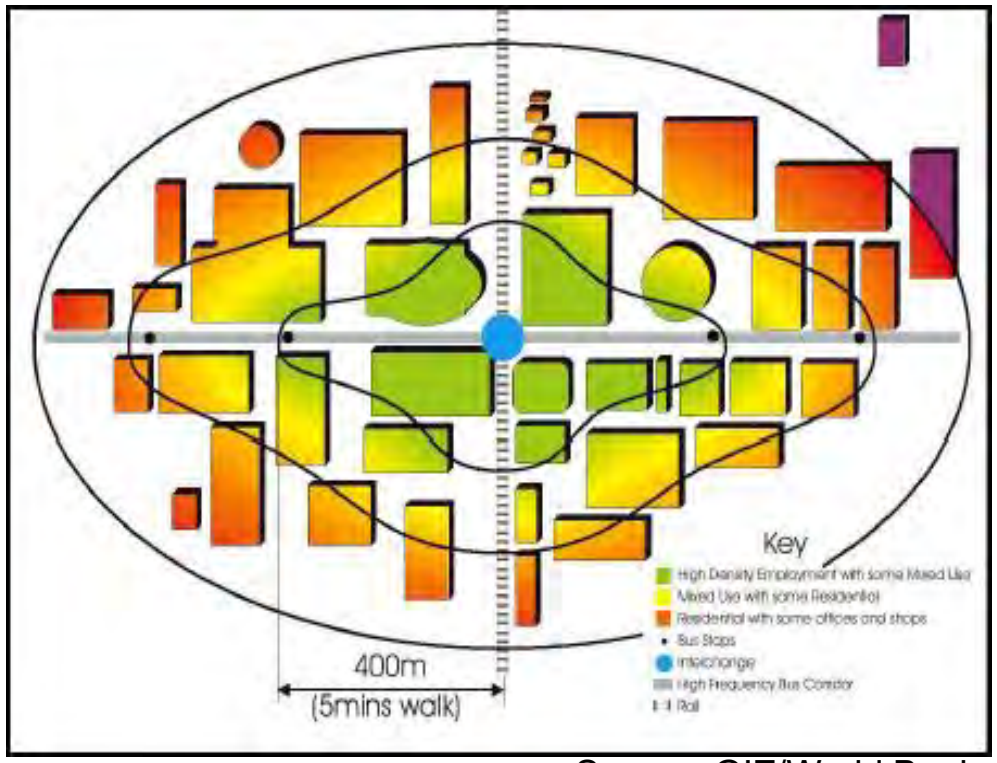
Outline

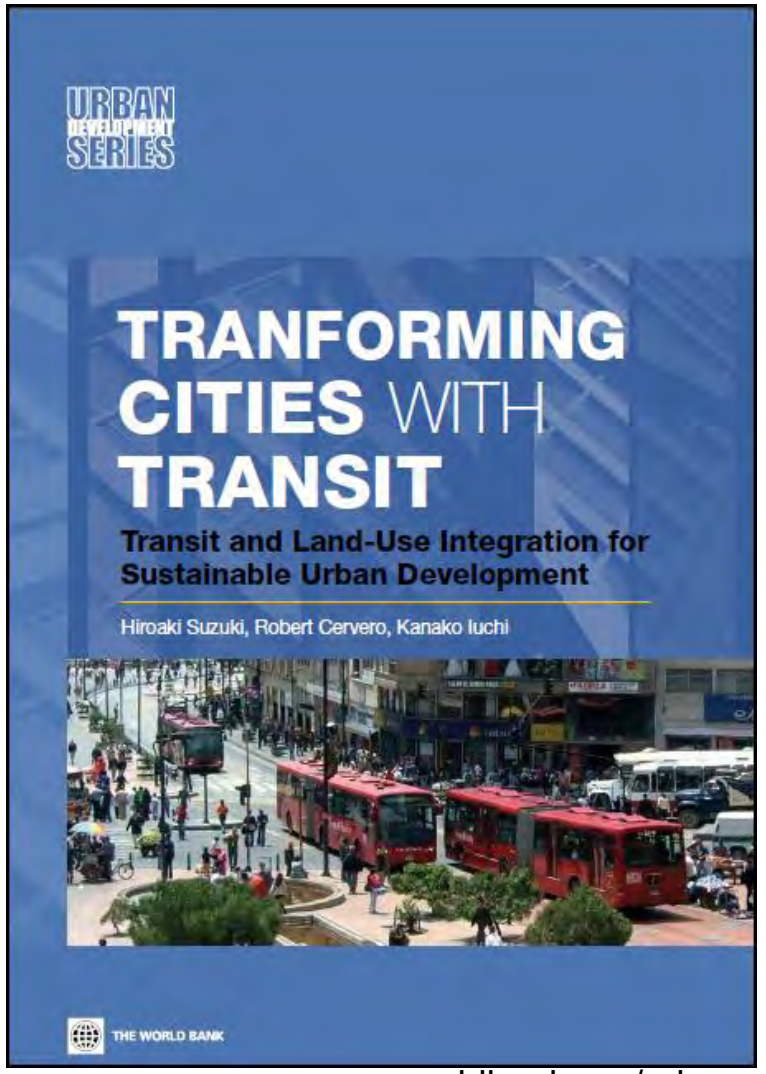
- Transit Oriented Development (TOD) as the Most Effective Measure for Sustainable Urban Development
- How to Maximize Values of TOD
- Financing TOD with Land Values – Land Value Capture
- Land Value Capture Global Good Practices: Schemes and Instruments
  - Hong Kong R(Rail)+P (Property) Model
  - Tokyo Inclusive Multiple Integration Model
  - Emerging Land Value Capture in Cities in Developing Countries
- Critical Factors for Success of LVC in Developing Countries
- Conclusion

TOD As Effective Measure for Sustainable Urban Development

TOD Promoting Urban Sustainability

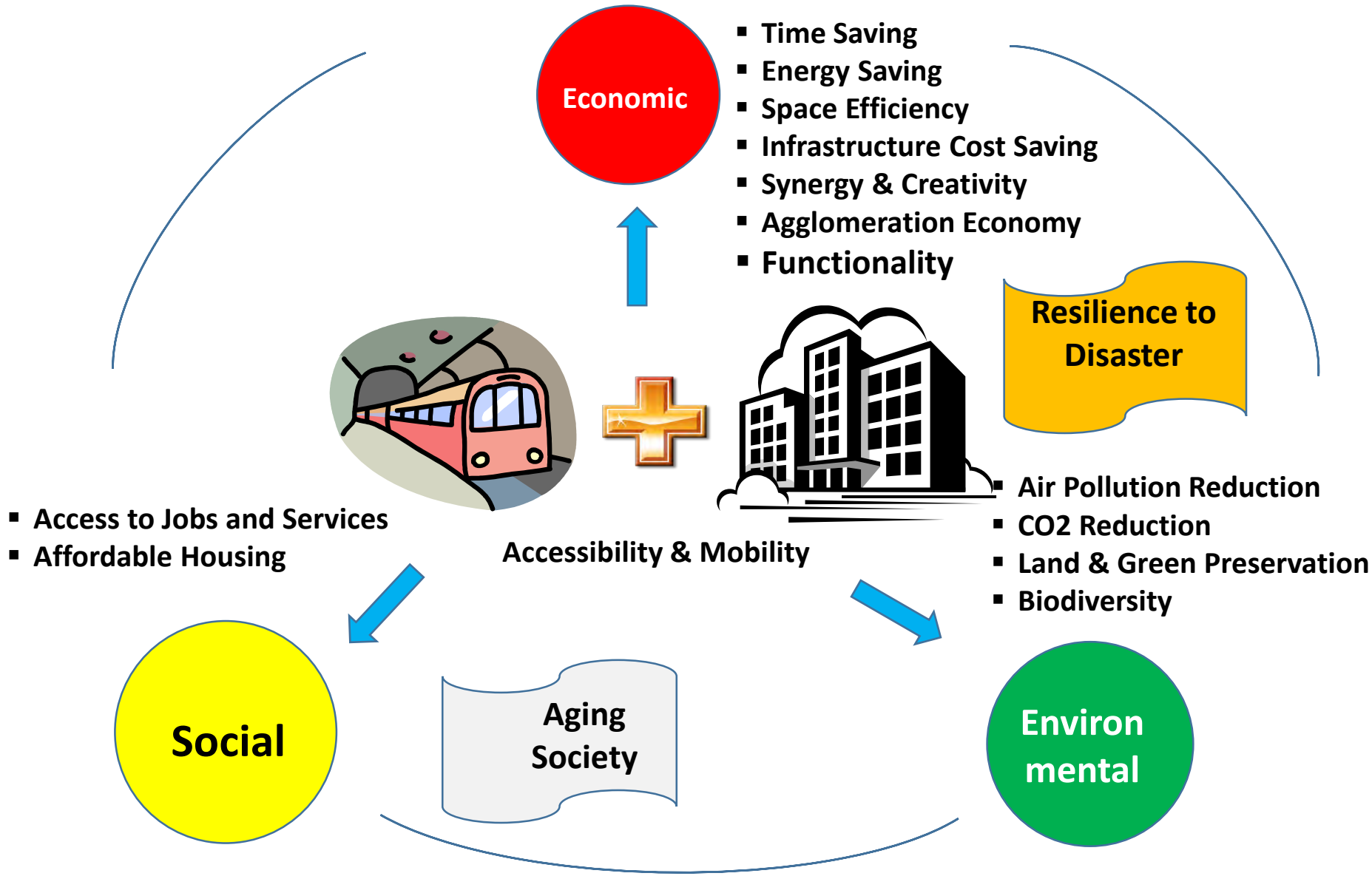


Source: GIZ/World Bank

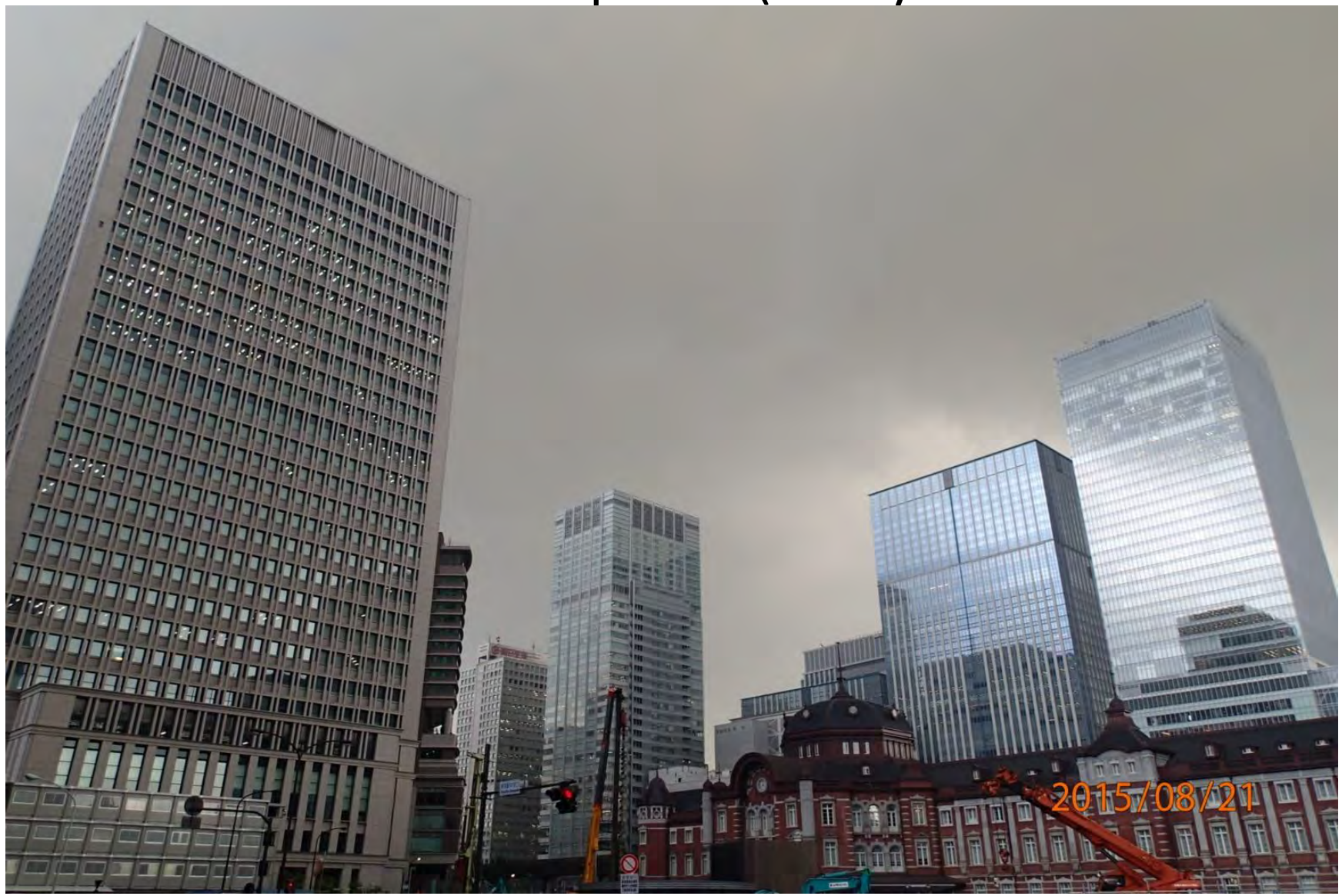


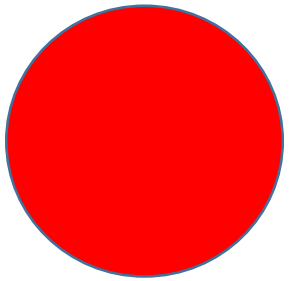
www.worldbank.org/urban

TOD & Triple Bottom Line



Economy of Agglomeration and Connectivity with Tradition in Global Capital (Tokyo Station Area)





Economic

Photo: HSuzuki

Green TOD (Freiburg, Germany)

Photo: Wulf Daseking

Environ-mental

Kashiwano Ha Smart City

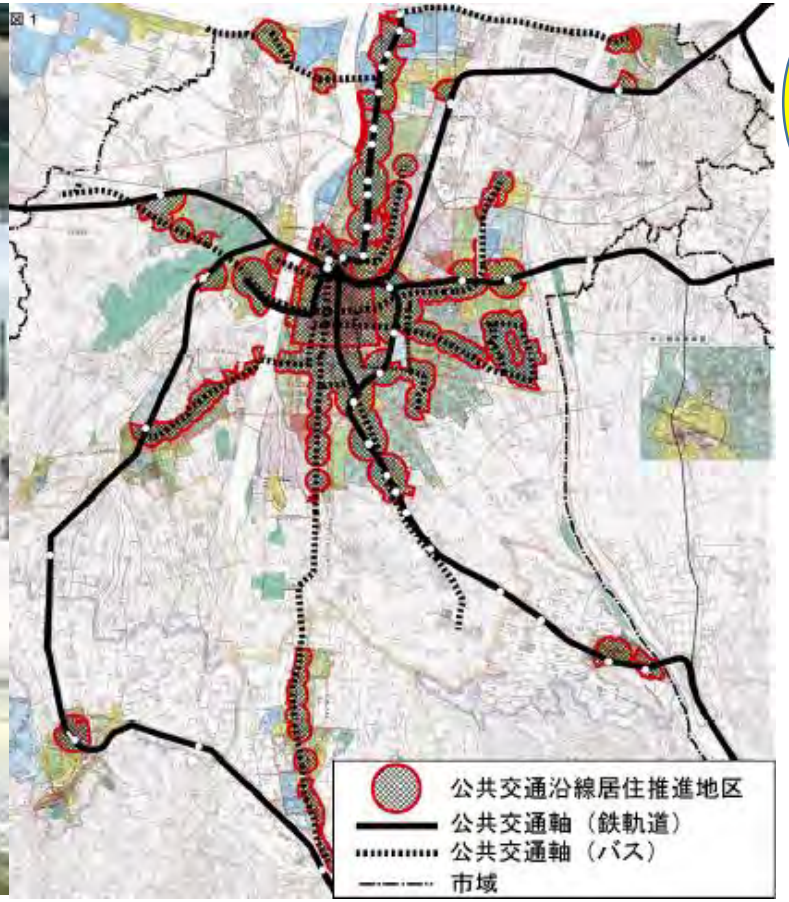
Economic

Environ mental

Source: Mitsui Fudosan

Toyama TOD for Aging Society

Social



Social

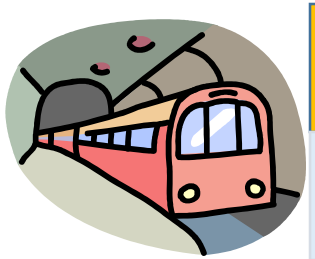
Source: City of Toyama

How to Maximize Value of TOD

Value is created by combination of transit and its influenced land use

Business As Usual

Transit

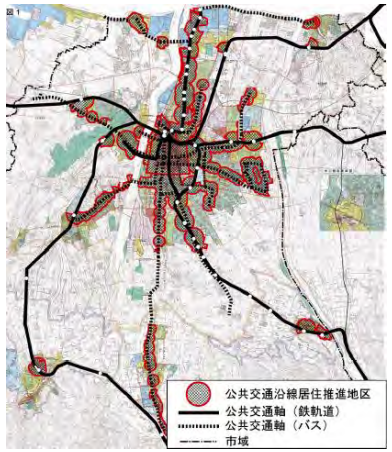


Value Capture (VC1)
Original Value (OV)

Vertical & Horizontal TOD

Quantity - Density

Quantity - Catchment



VC2
VC1
OV

VC2
VC1
OV

Tools

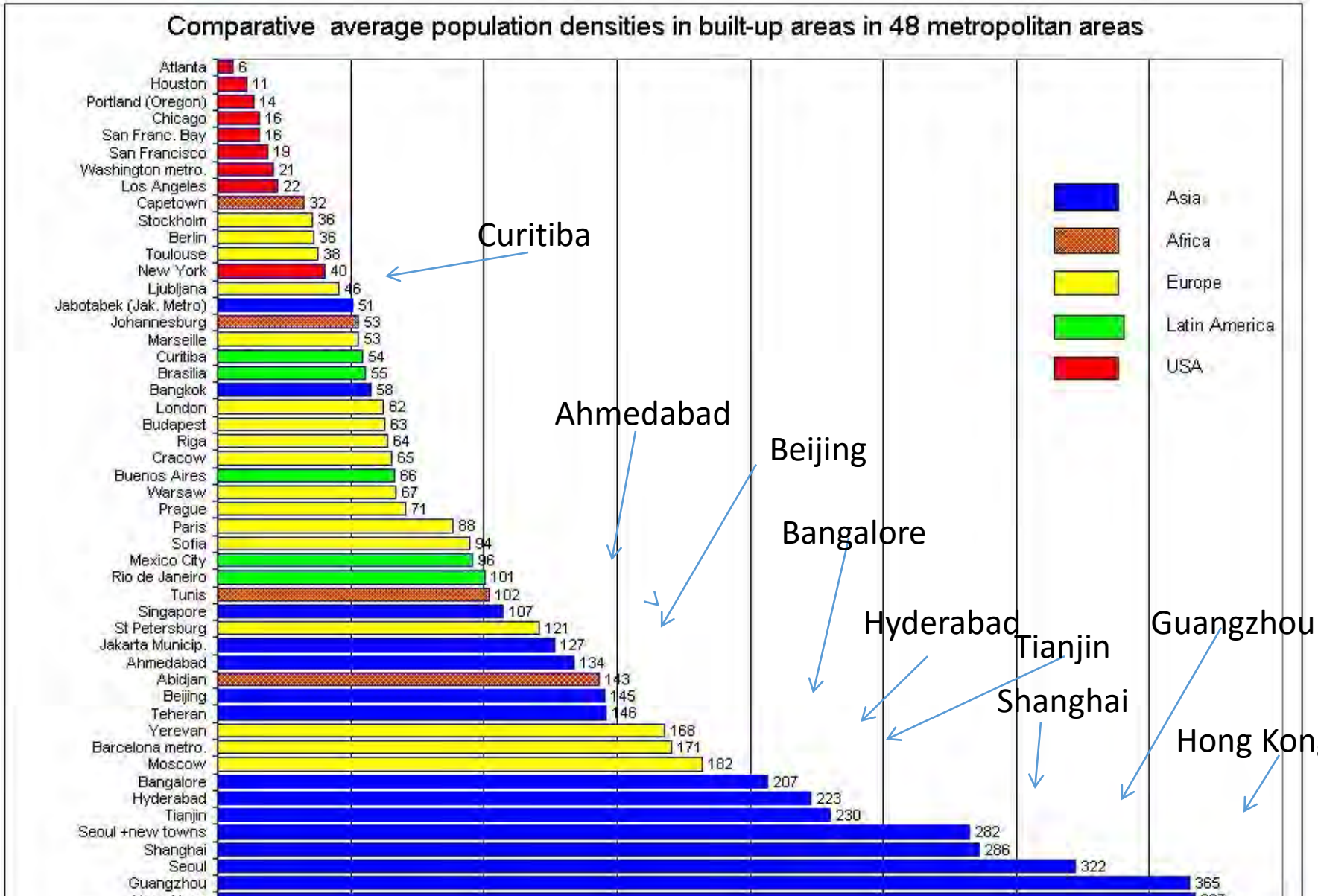
- **FAR Increase**
- **Transfer of Development Right**
- **Land Adjustment**
- **Urban Re-development, etc.**

Tools

- **Transit Feeder**
- **Bus Terminal**
- **Bicycle Lanes, etc.**

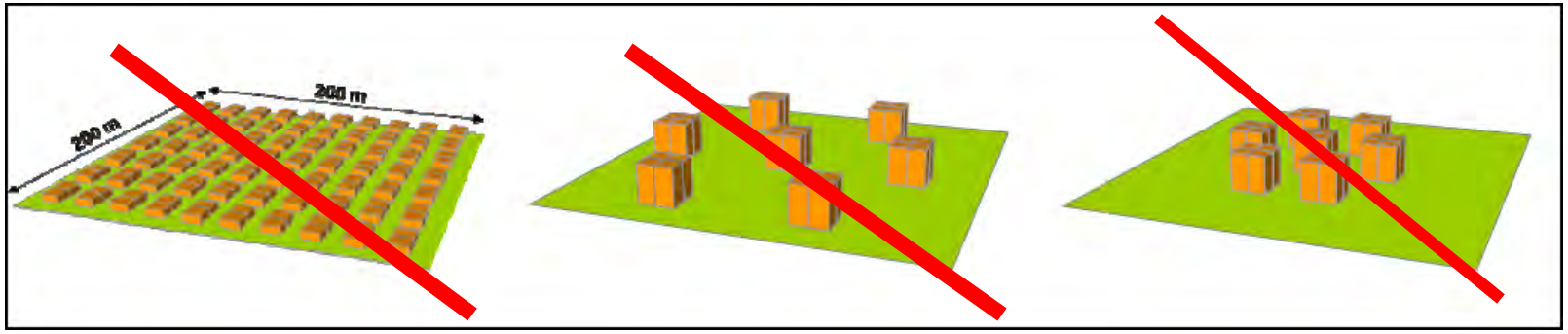
GROW HIGH: Increasing Densities

Dveloping Countries: Average Built Up Densities



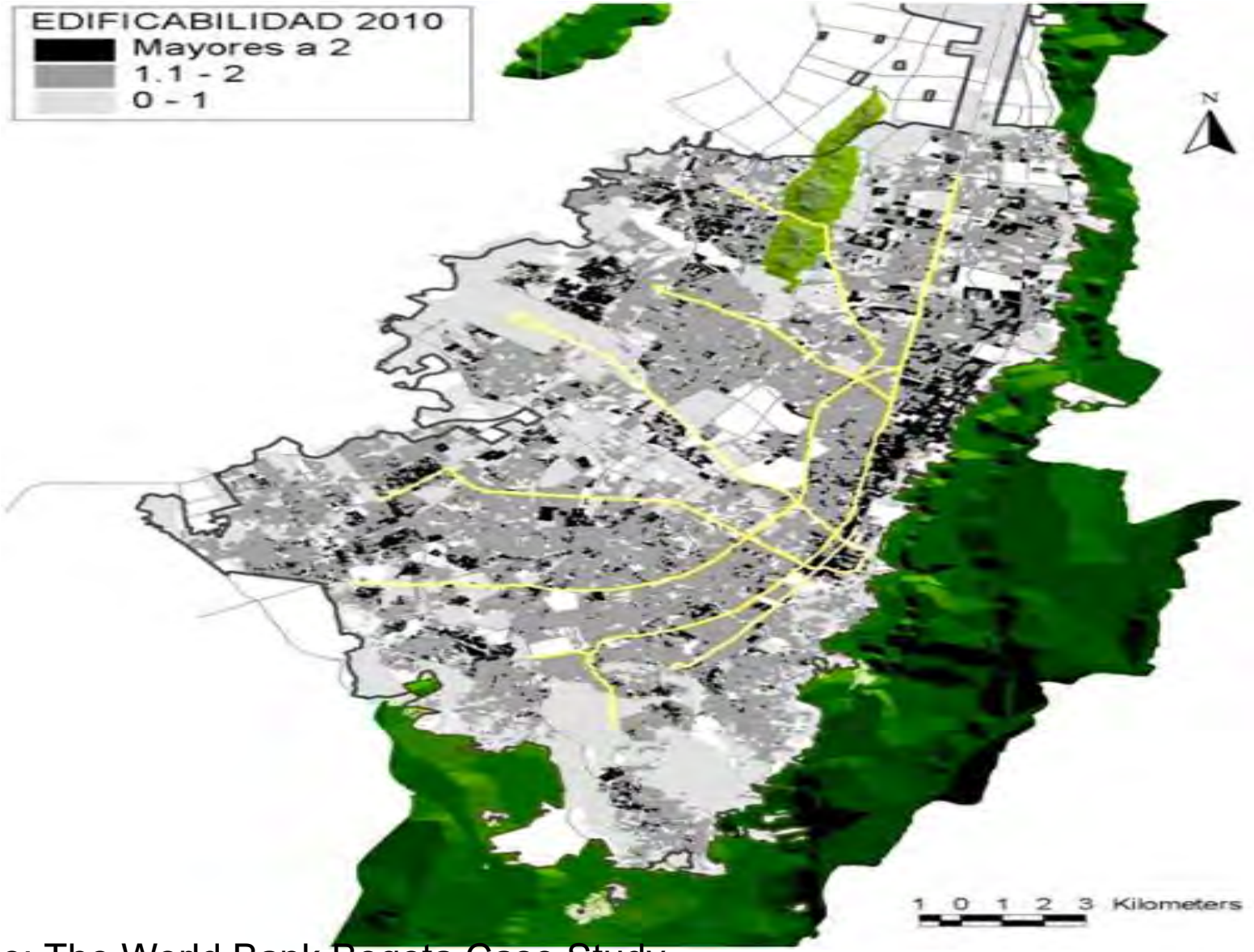
Articulated Density Matters; Not Average Density

Uniform Average Population Density can have totally different height and spatial form. What matters most for transit and land integration is not *average population density, but articulated density.*



Source: OECD Compact City Policies / Laruelle, N

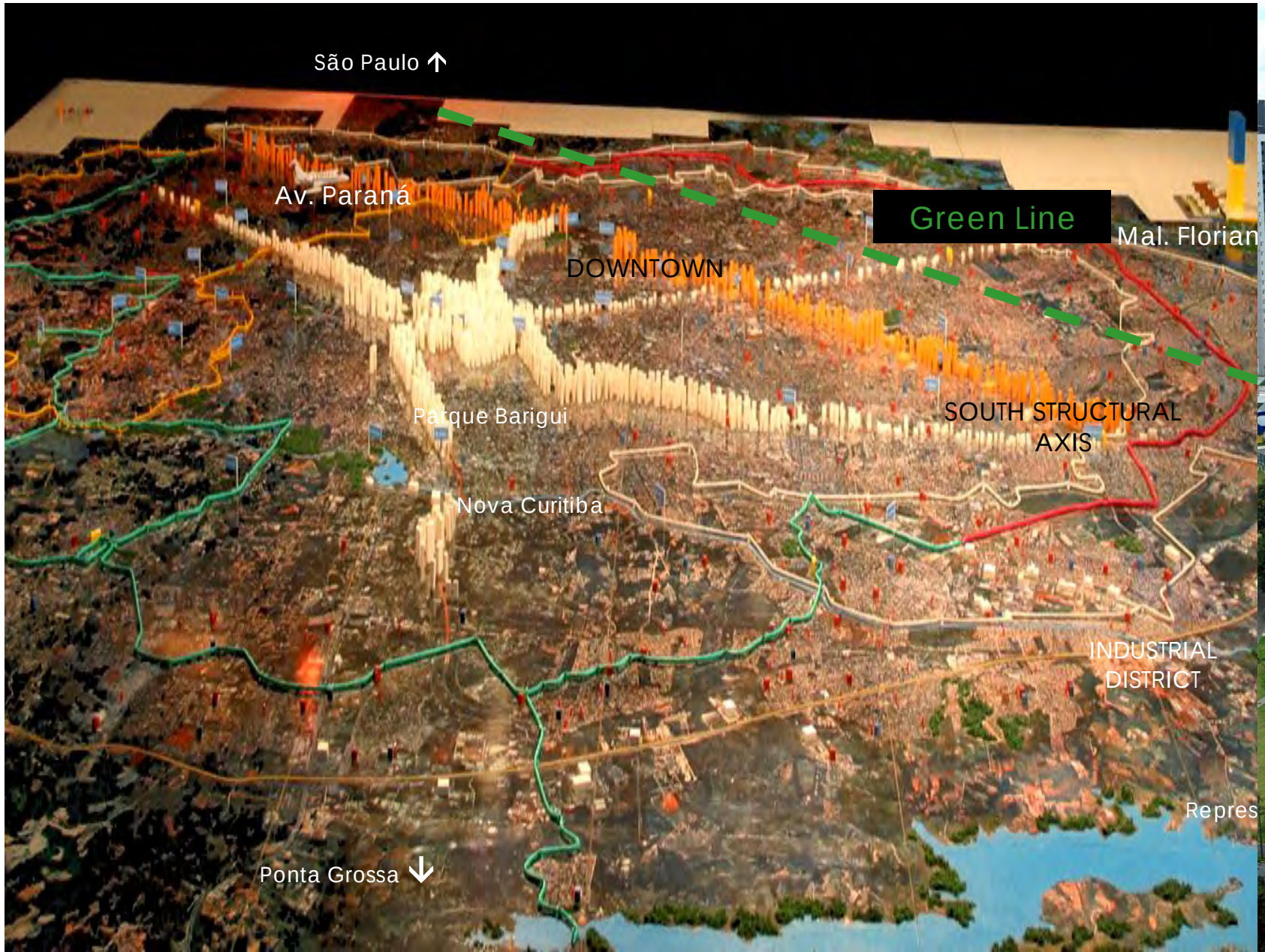
Bogota: Low (<2) FAR Control
Does Not Help Create Articulated Densities



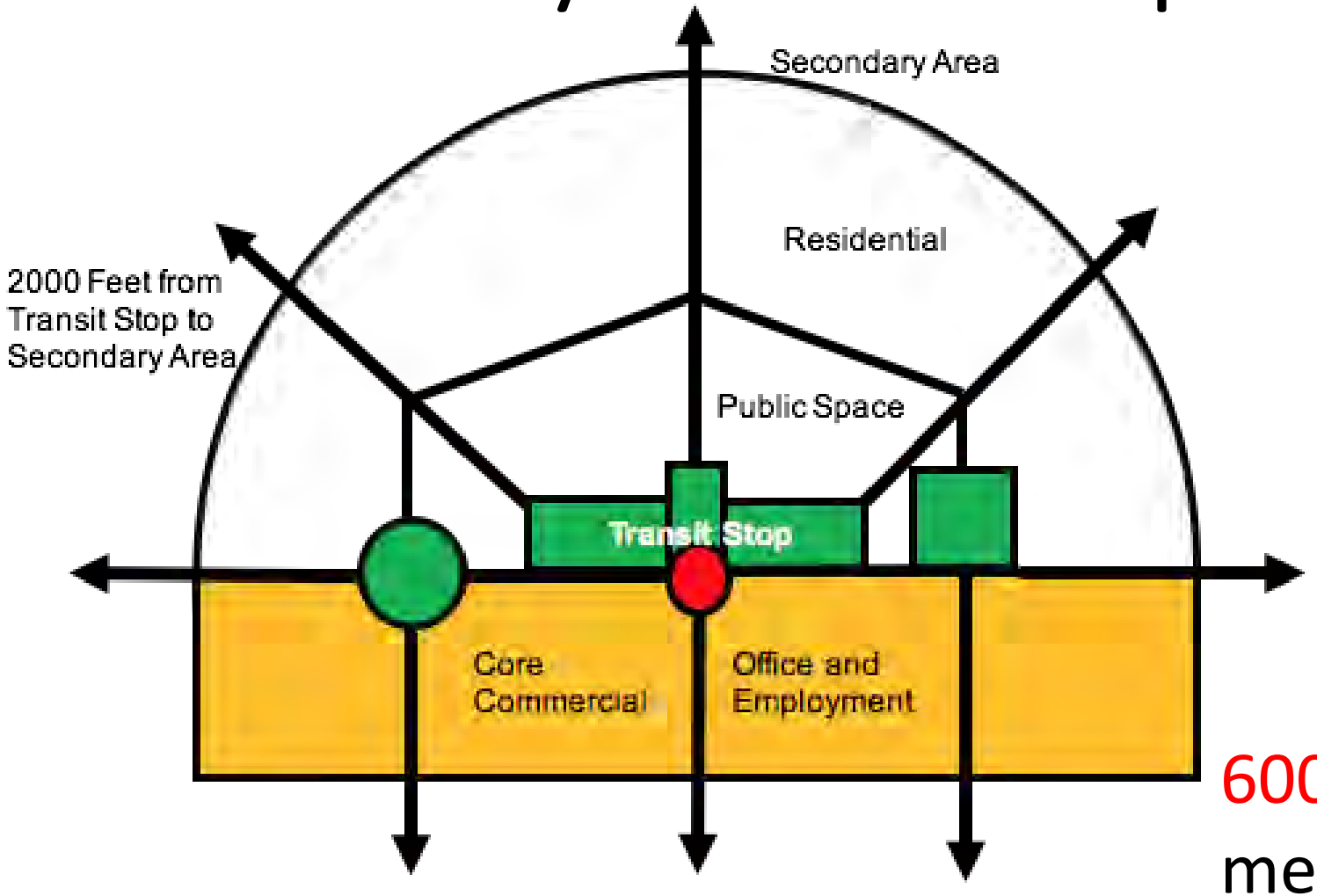
Source: The World Bank Bogota Case Study

Curitiba's Transit Oriented Development

Source:Curitiba



TOD as Envisioned by Peter Calthorpe

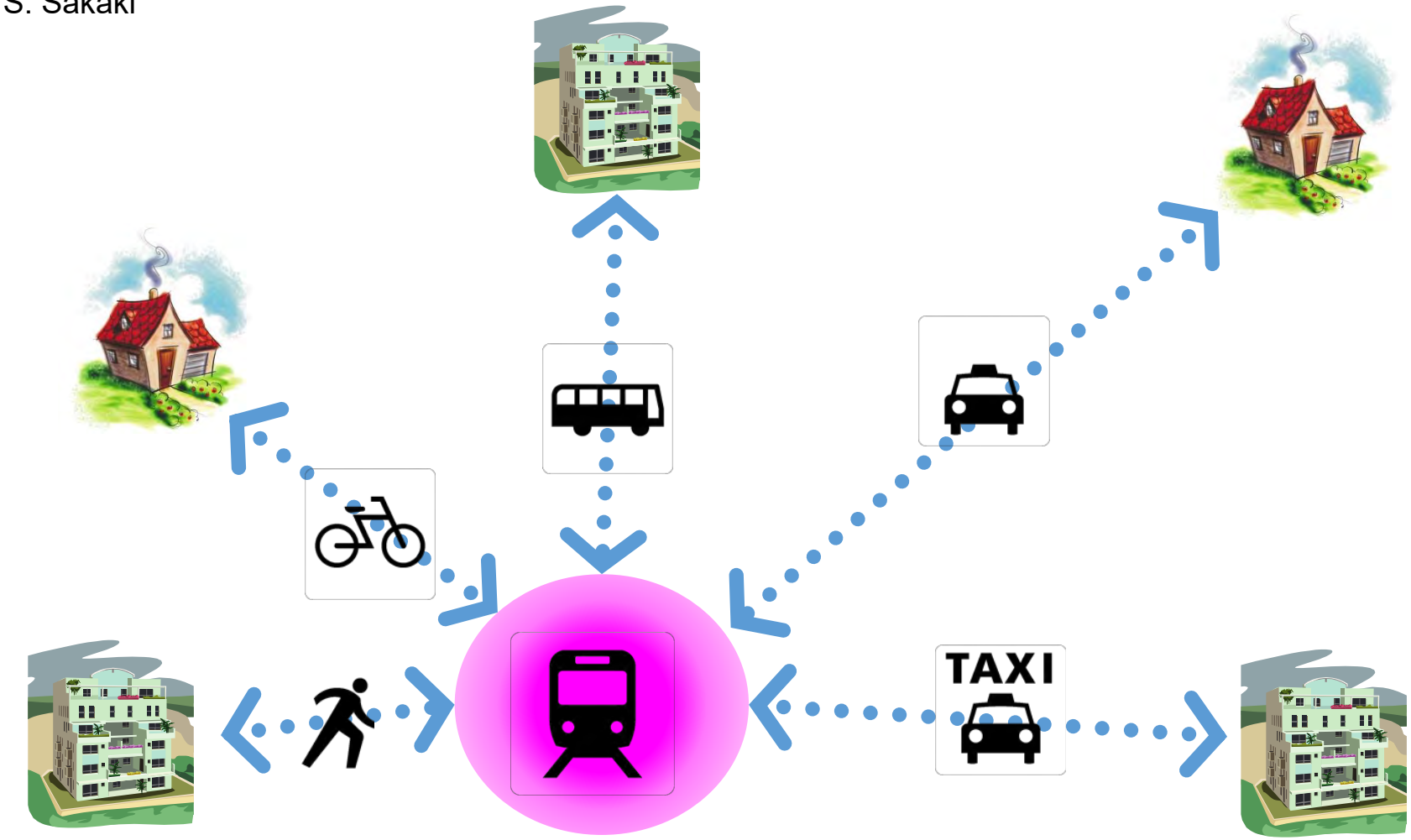


600 meters

A diagram of Peter Calthorpe's vision for TOD

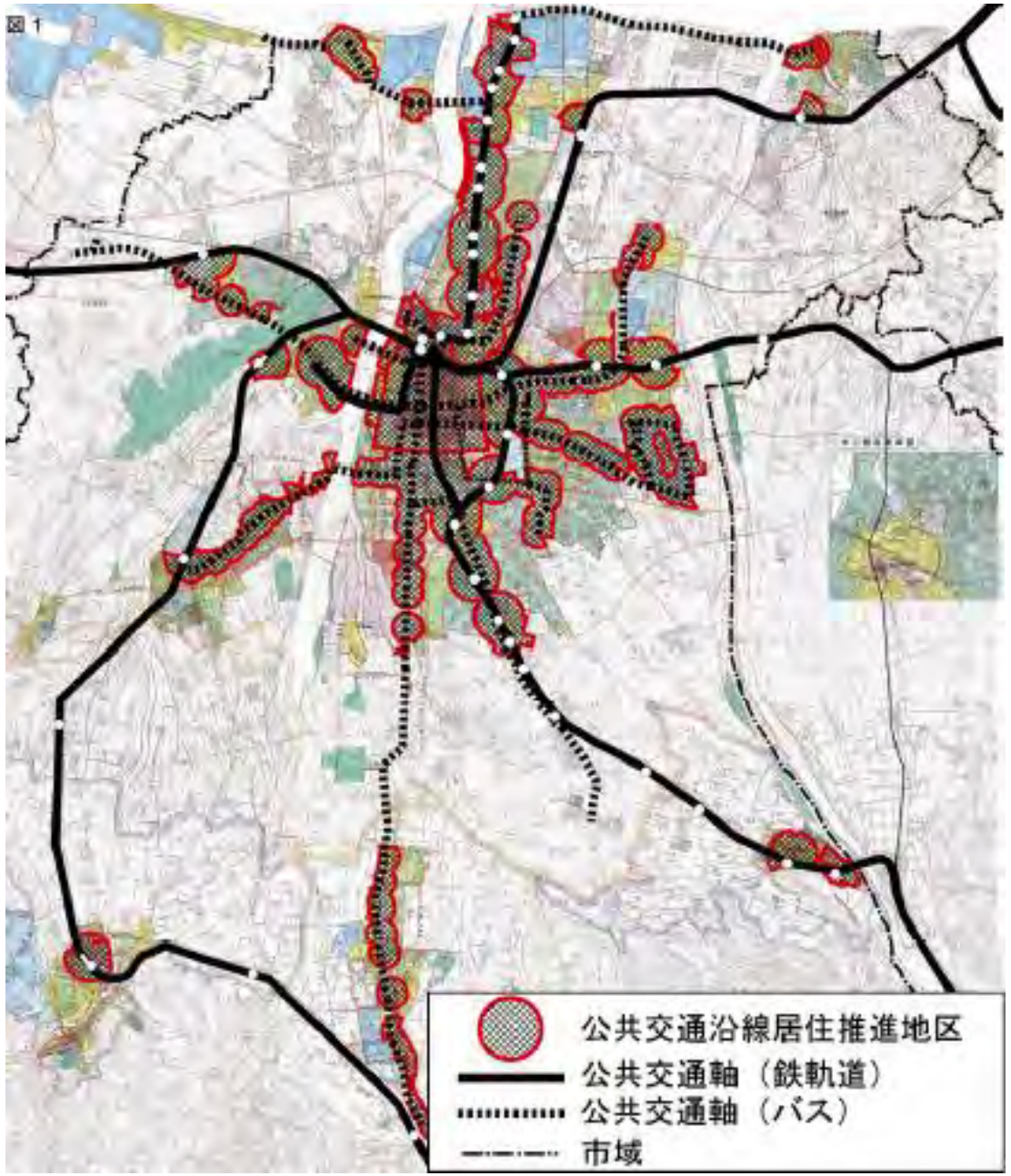
Expand Catchment Area by Various Transport Modes

Source: S. Sakaki



Mode Connectivity At Station

Expand Catchment Area by Rail & Bus Connection



Toyama LRT & Bus
Catchment Area

Catchment

Rail

Bus

Rail enjoys
Economies of Scale

Bus enjoys
Economies of Scope

Source: Toyama City

TOD in Tokyo Metropolitan Area

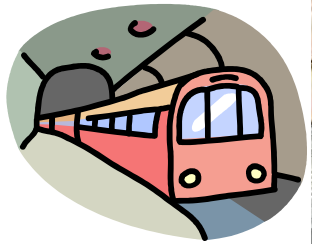
- Mega-Cities in Japan = Chains of Walkable Cells connected by Railways
- A network of 800m radius walk-able areas from each railway station in Tokyo Metropolitan Area

＜Source ： TOKYO2050 fibercity / JA63 / Hidetoshi Ono ＞　※Pink is the author's ideas

Quality Increases Land Value of TOD Areas

Quality Urban Design Enhancing TOD

Transit



Efficient

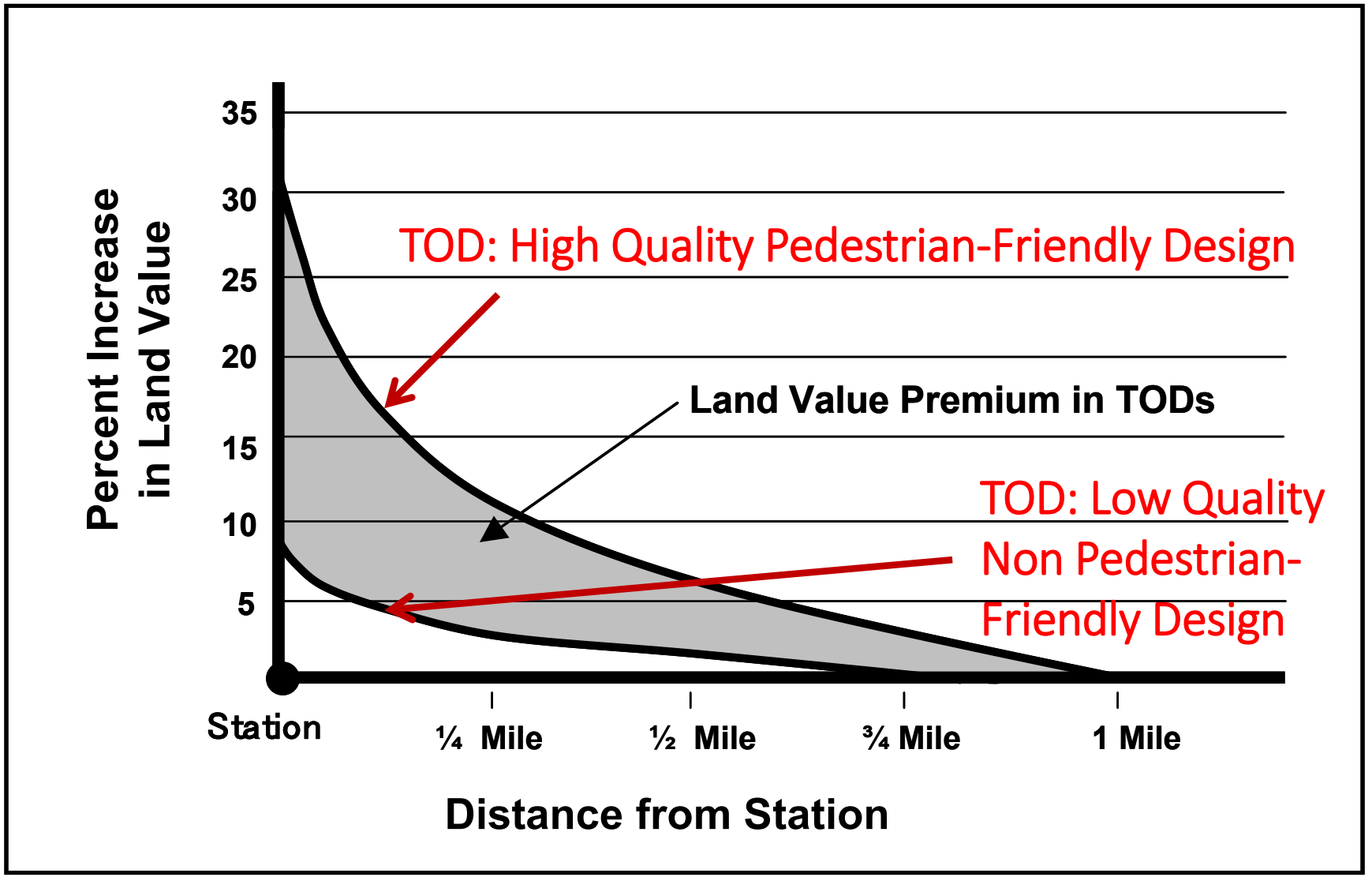
Pleasant

Functional

Vibrant

VC3	Quality
VC2	Quantity: Vertical-Horizontal Expansion-
VC1	Transit Value
OV	Original V

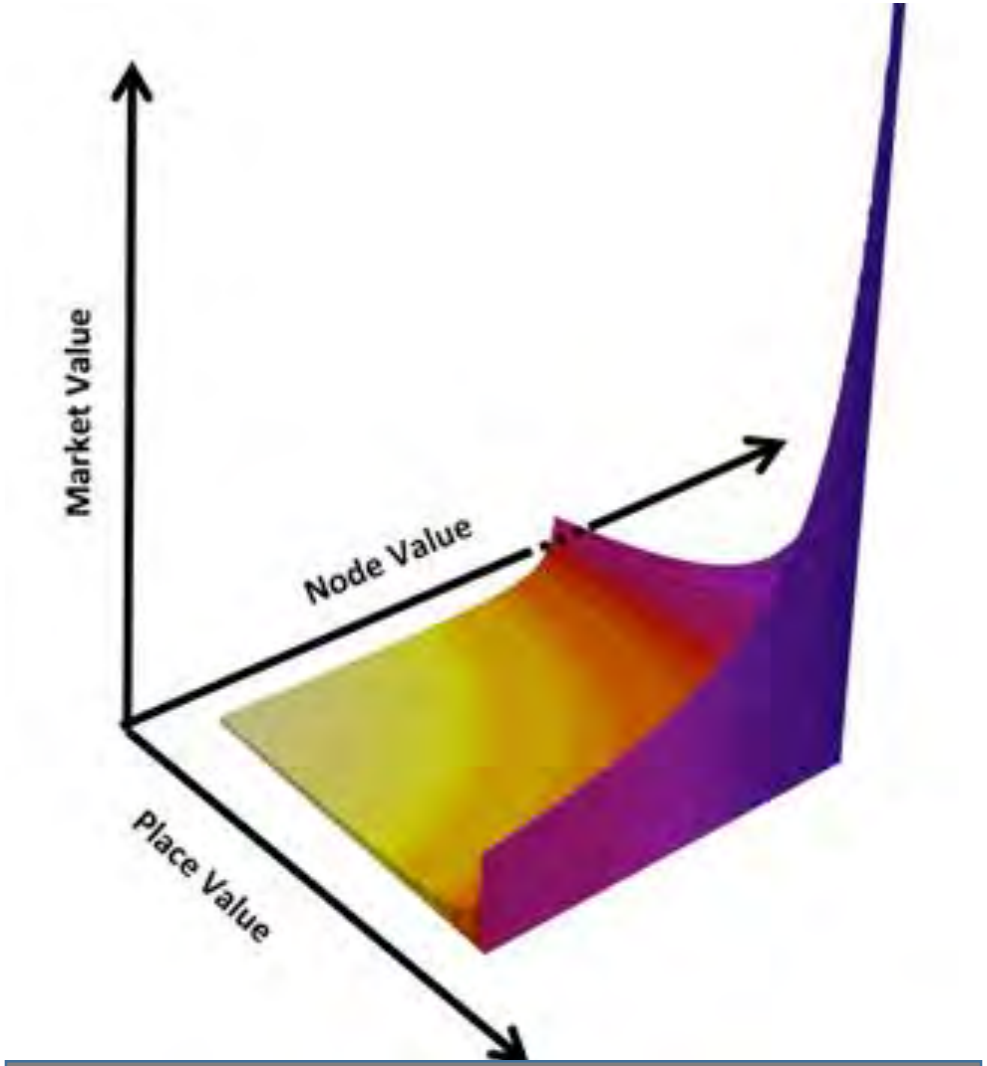
Land Value Premiums of TOD in U.S.



Source: R. Cervero

The “3V Frame WORK”

- Node Value based on its location in the network
- Place Value based on its urban qualities
- Market Value, based on its economic potential



The 3V Framework (Serge Salat, Gerald Ollivier)

Financing TOD with Land Values

Tax

Fairebox Revenues

Land Value Capture (LVC)

Scarcity & Affordability
Political Economy

Economic Rational &
Financial Viability

Transit is Capital Intensive

Tokyo Metro Construction Costs

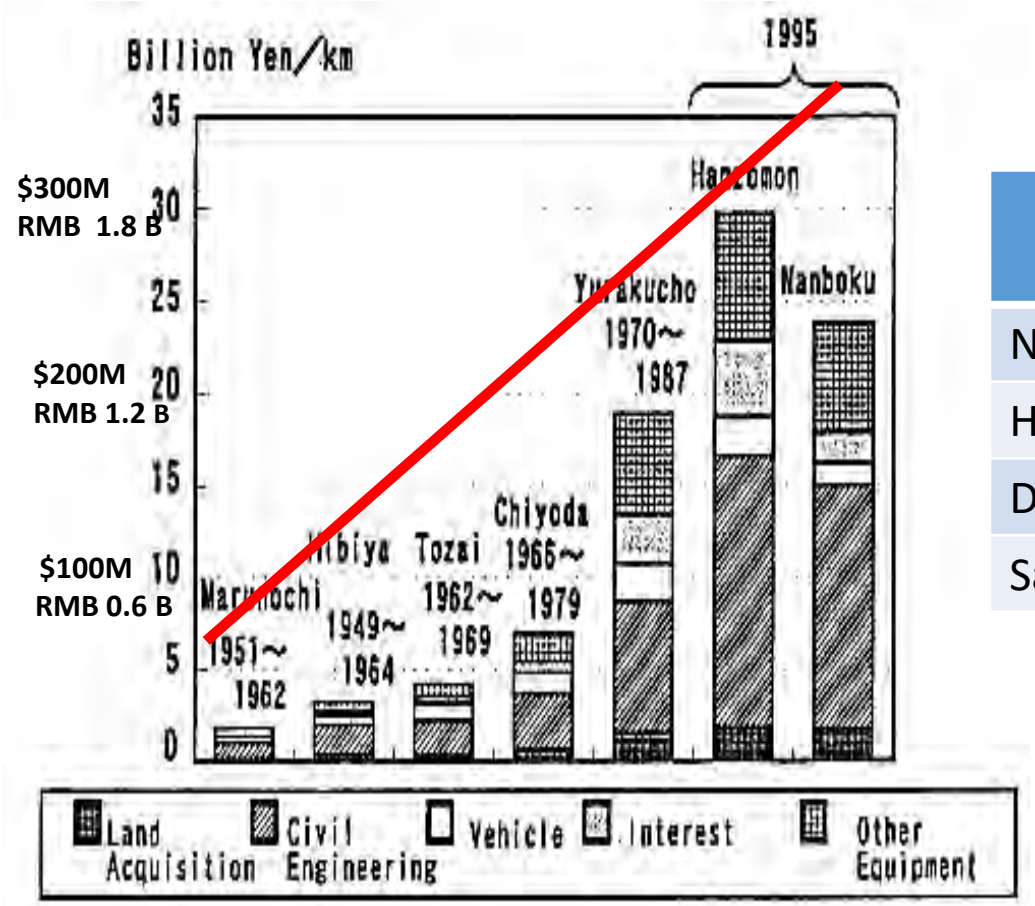


Fig. 7. Construction cost of underground railways in Tokyo (nominal values).

Source: Hitoshi Ieda

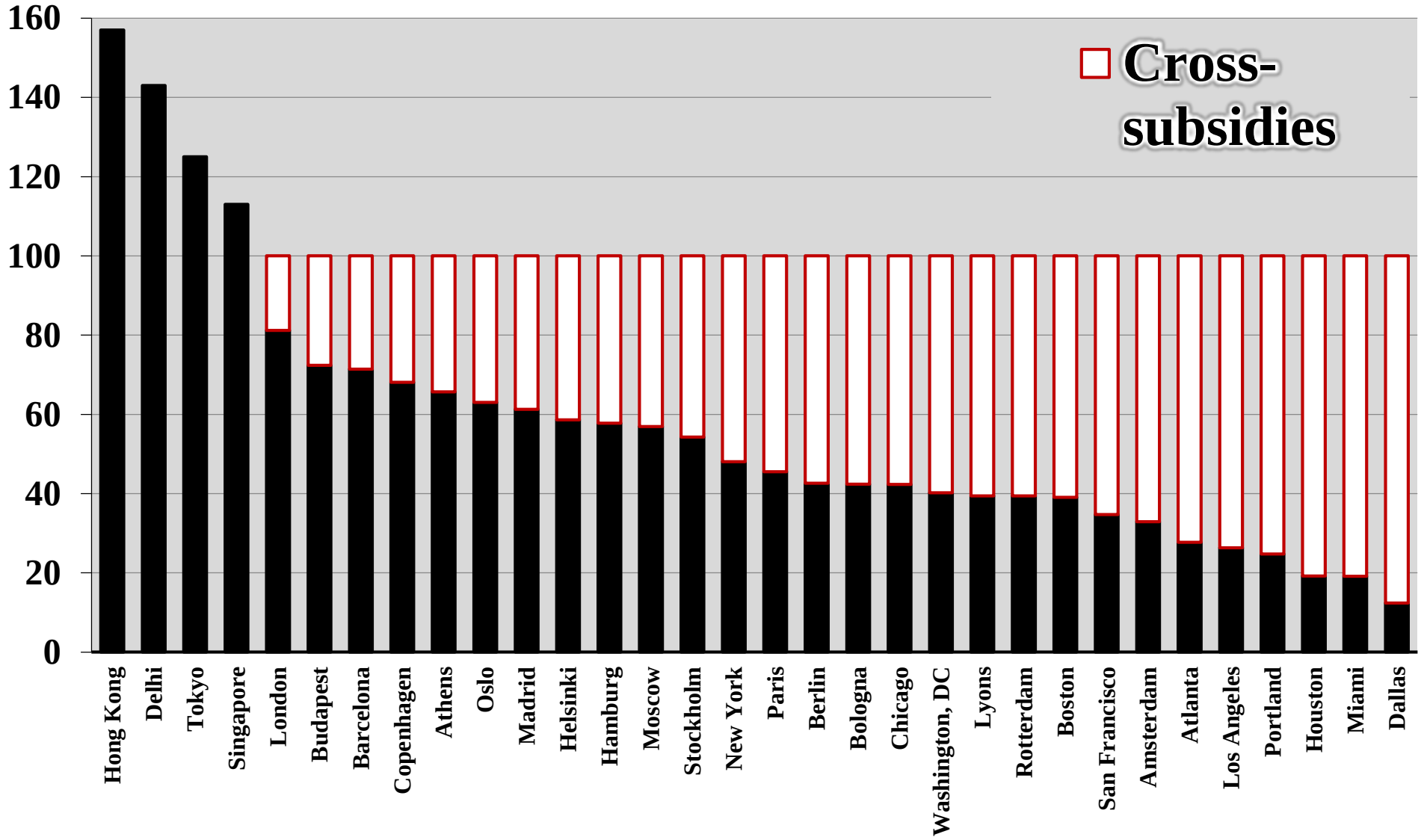
Metro in Developing Countries

Cities	Cost Billion	Length Km
Nanchang Line 2	$2.6	24Km
Hyderabad	$2.6	72 Km
Delhi	$11.7	120Km
Sao Paulo	$30 .0	100Km

Source: World Bank LVC Case Studies

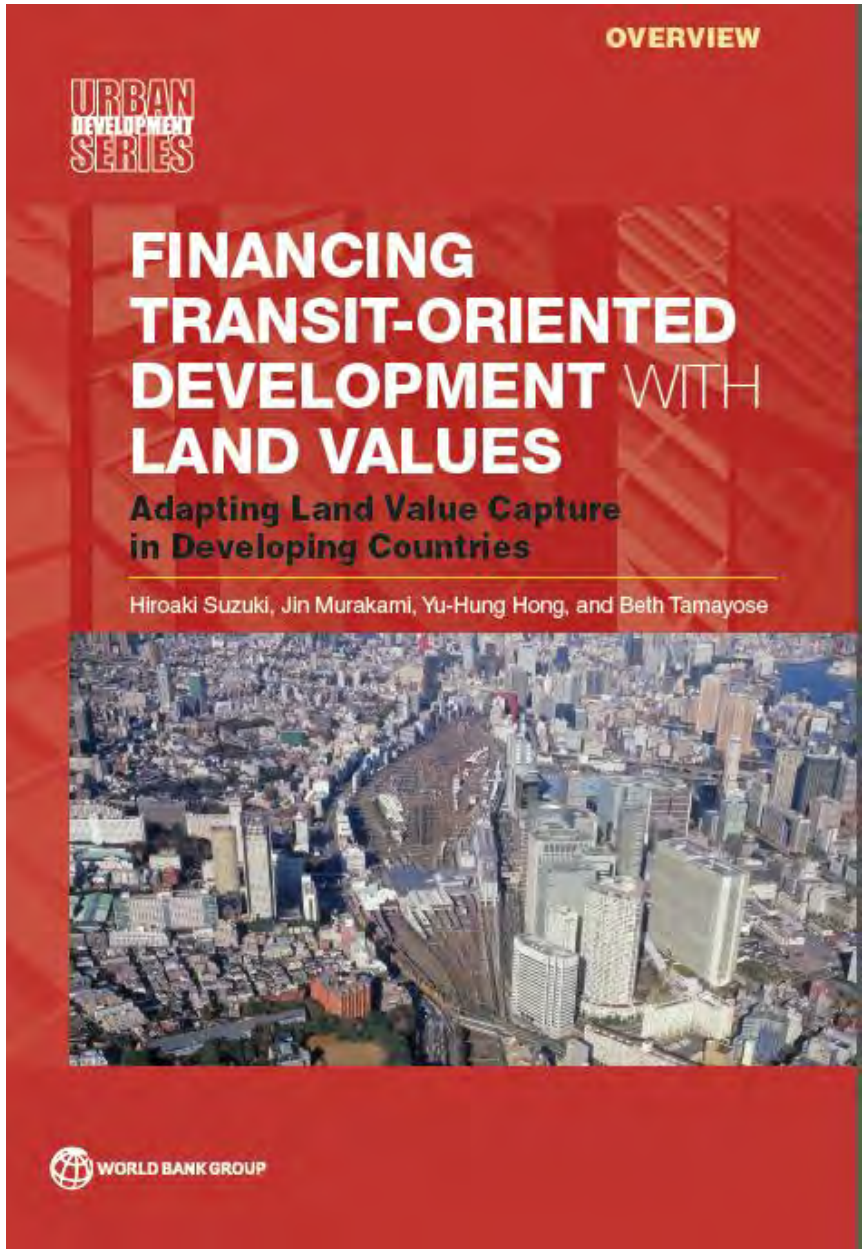
Fare-box Recovery Ratio

Fare Revenues/Operation Expenses (%) – 60 Global Cities



Source: Murakami, Jin. 2012. Transit Value Capture

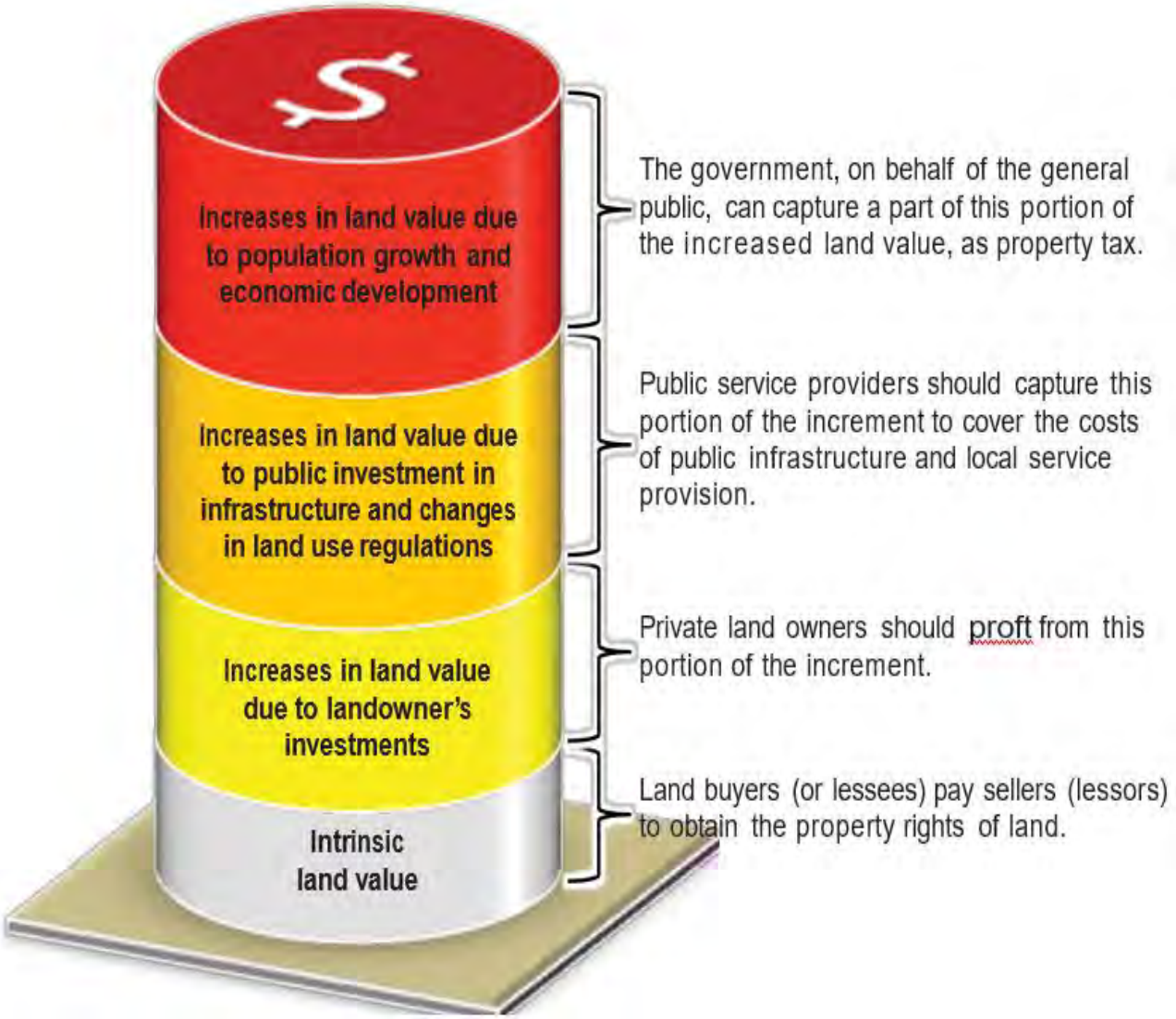
Focus of the WB's New Book



- ✓ Focusing on Development based Land Value Capture (DBLVC) practices in HKSAR and Tokyo as global best cases
- ✓ Seeing DBLVC as a strategic model of both urban finance and planning
- ✓ Discussing how to adapt DBLVC in cities of the developing world

Source: Suzuki, Murakami, Hong and Tamayose, 2014

Concept of Land Value Capture



Source: Adapted from Hong and Brubaker 2010.

Categories of LVC Instruments

"Tax or Fee based" LVC & "Development-based" LVC (DBLVC)

	Instrument
Tax- & Fee-Based	Property and Land Tax
	Betterment Levies and Special Assessments
	Tax Increment Financing (TIF)
Development-Based	Land Sale or Land Lease
	Air Right Sale
	Land Readjustment
	Urban Redevelopment Financing

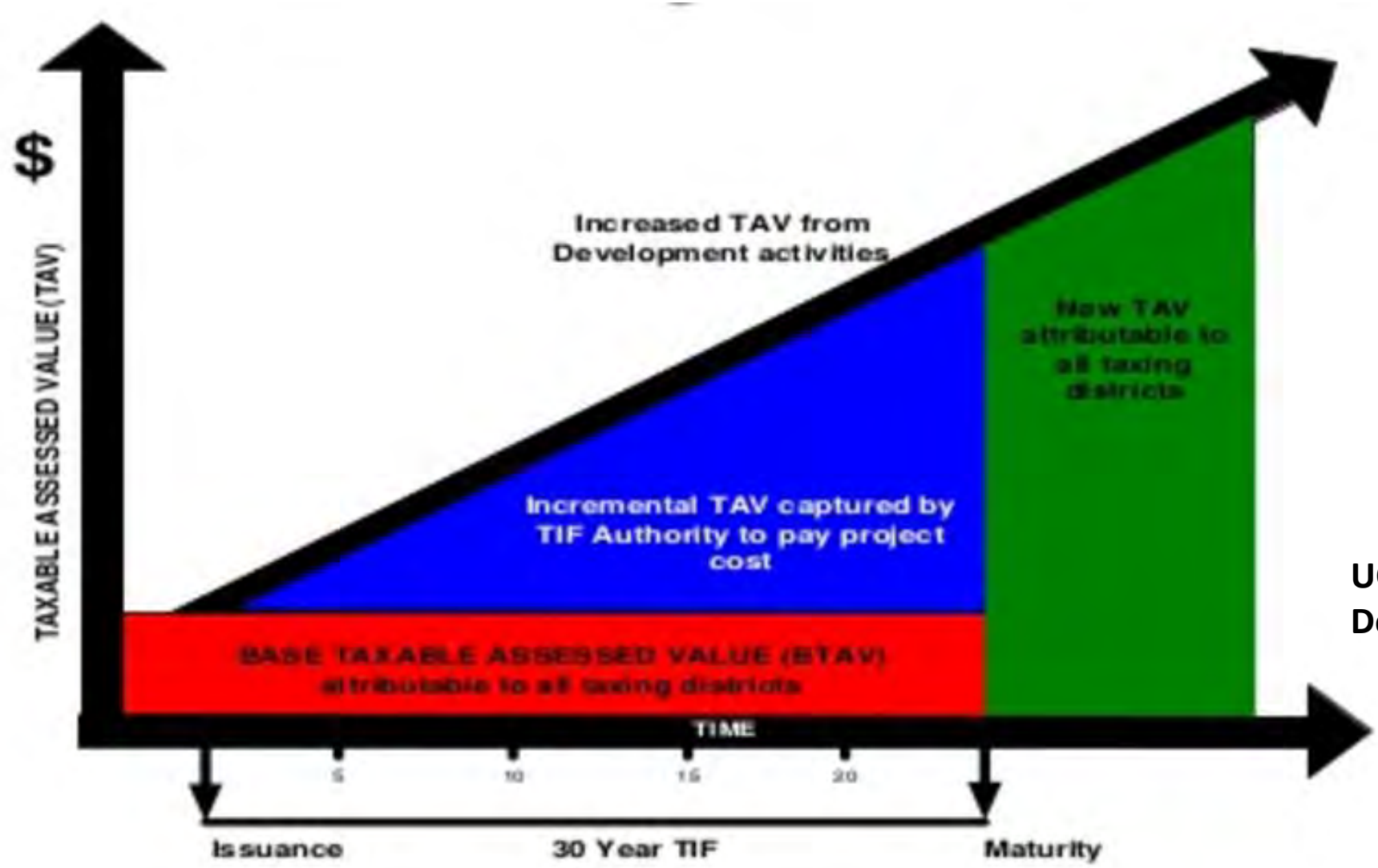
Source: Suzuki, Murakami, Hong and Tamayose, 2014

Betterment Fees/Charges

Colombia

- *Contribución de Valorización* (1921):
  - Cost recovery through betterment charge
- *Participación en Plusvalías* (1997):
  - Broader value capture

Tax Incremental Financing (TIF) US



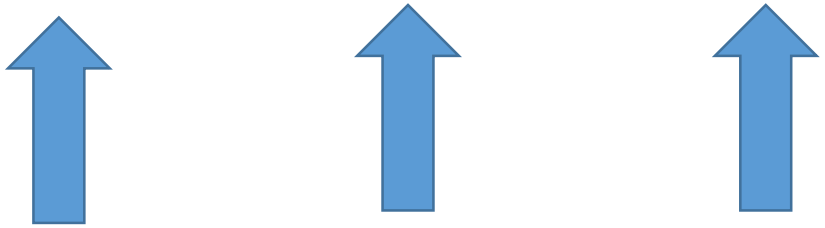
UC Real-estate Development Sireies

Challenges of Tax-Based Land Value Capture

- **Nobody likes tax-Political Economic Problem;**
- **Valuation Method;**
- **Uncertainty**
- **Question of Equity: TIF District and Other Districts;**
- **Tax-Based Land Value Capture instruments are based on Property Tax; and Collection system such as cadastral, which is not often well developed and managed**

Underlying Principe of DBLVC

開発利益還元

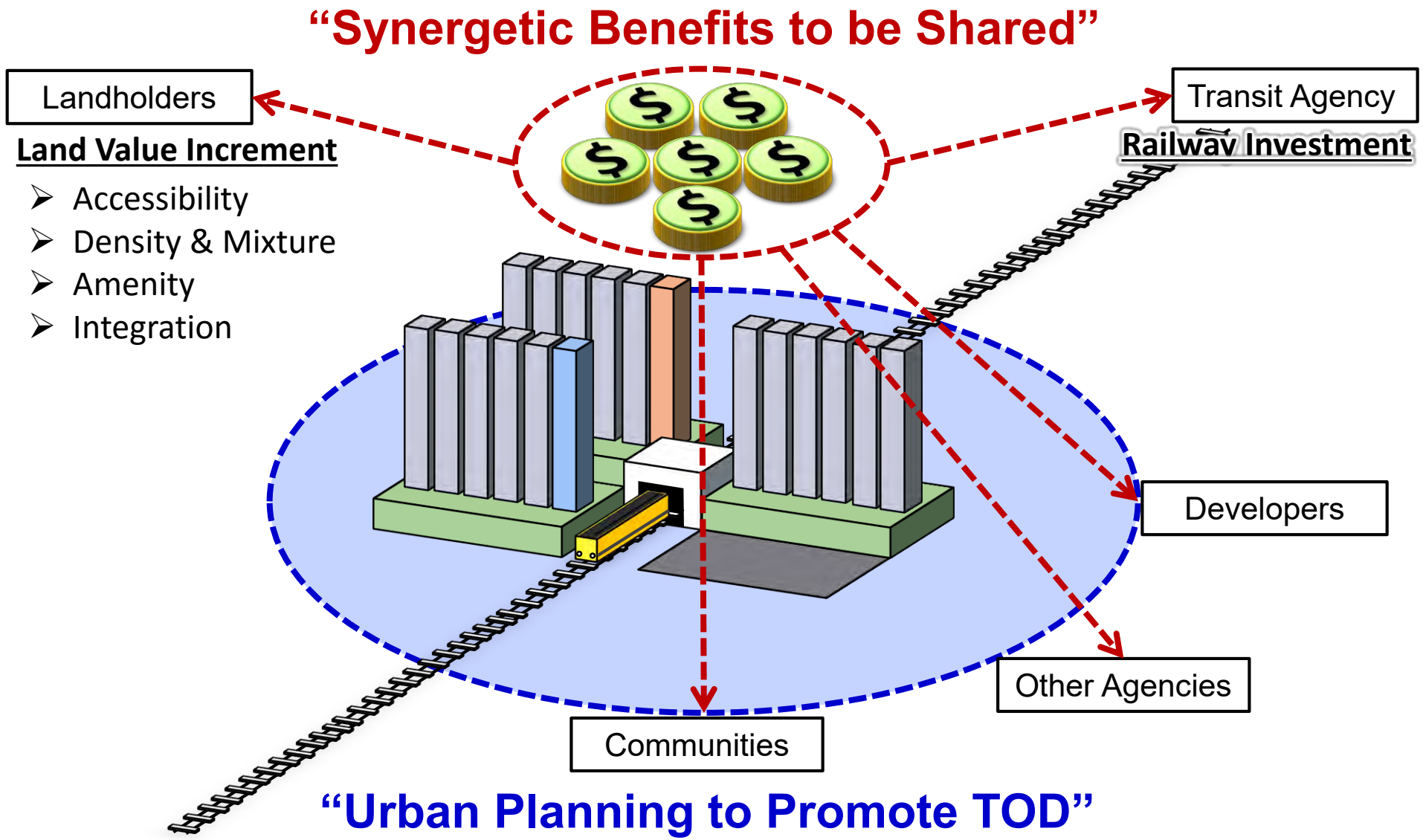


Development Profit Return

VS

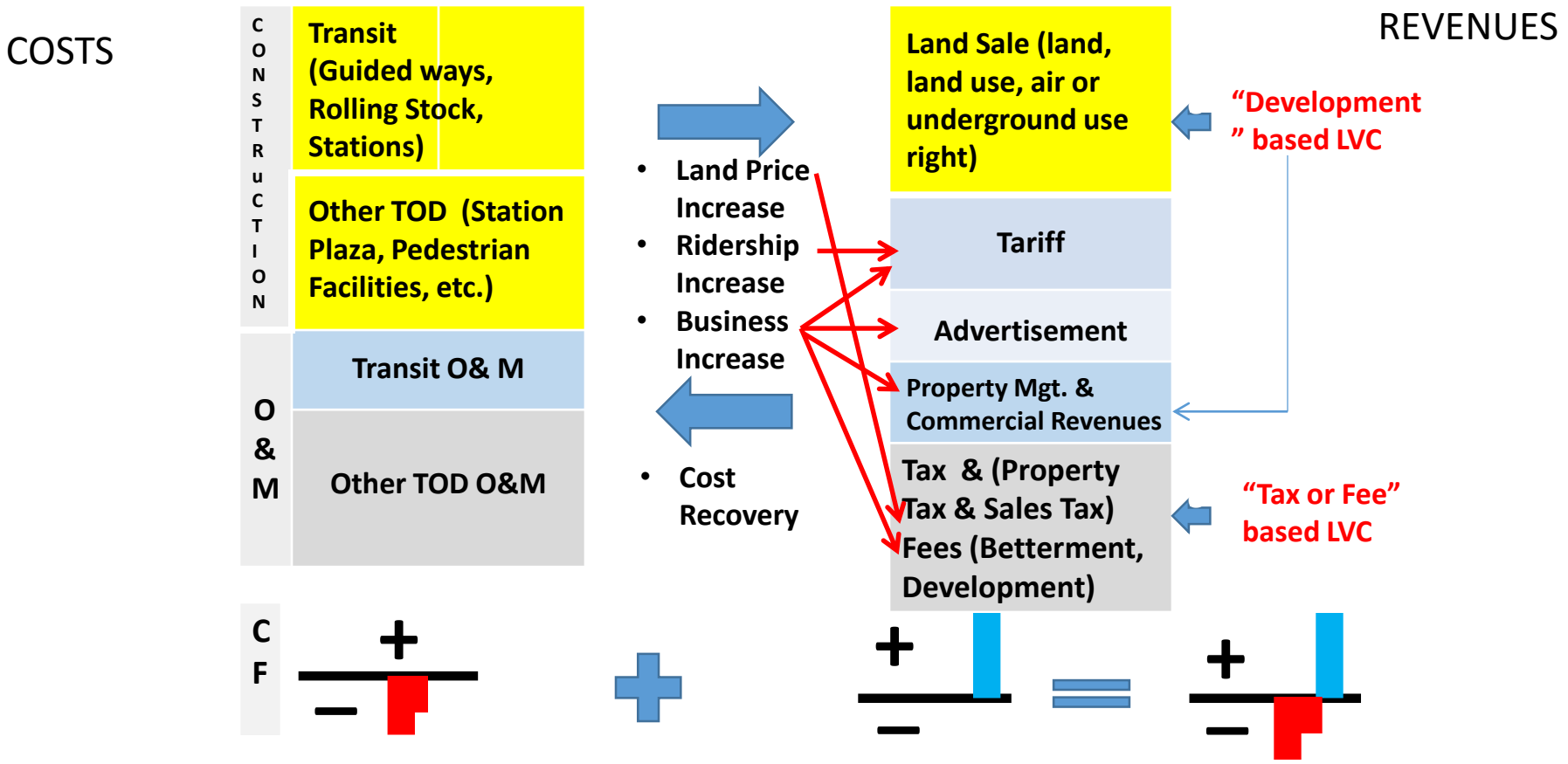
Land Value Capture

LVC for Finance & Planning in TOD



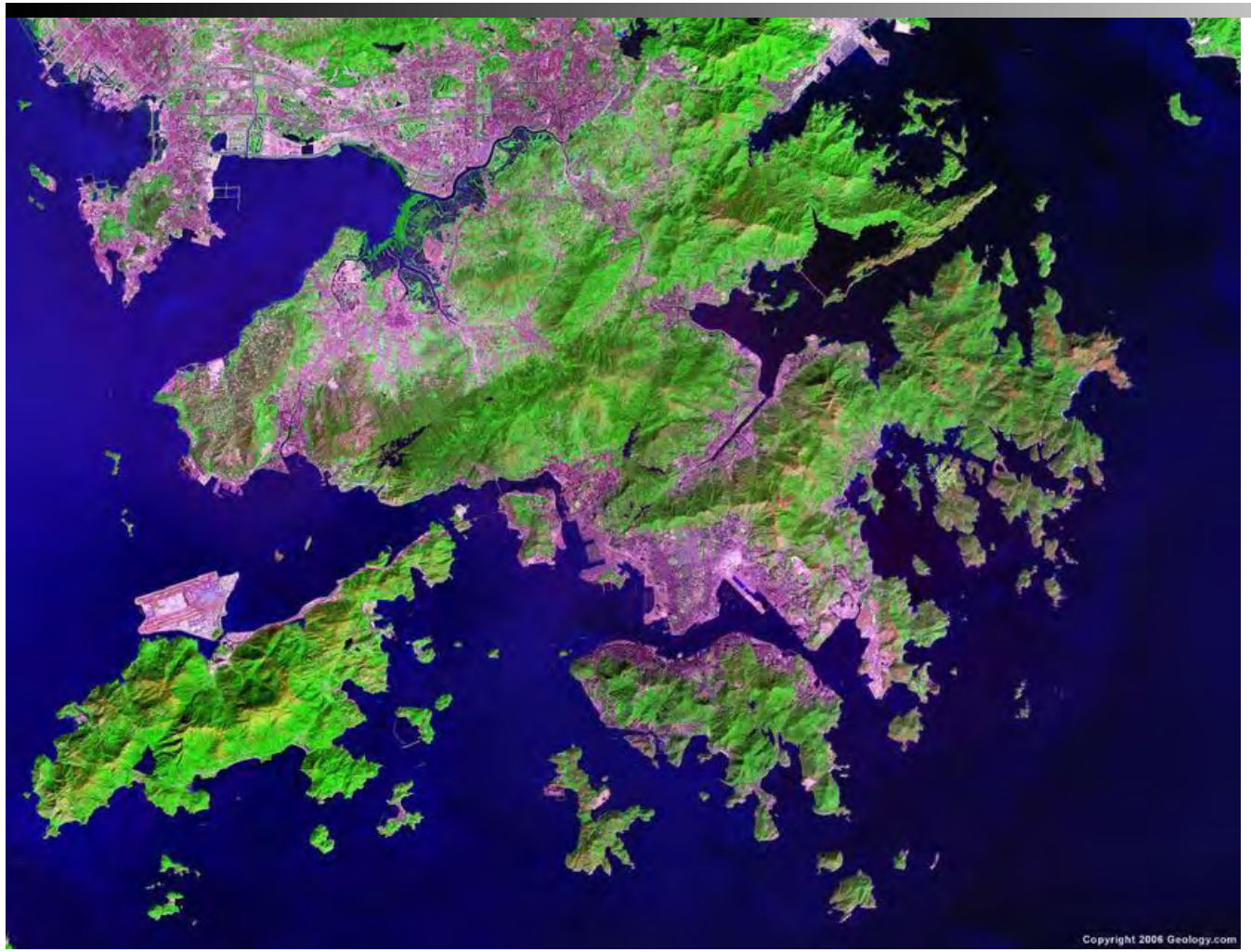
Source: Jin Murakami 2013

Transit/TOD Investment-O&M Costs vs Revenues from Land Sale and Use and Others



Land Value Capture
Global Good Practices: Schemes and Instruments

Hong Kong



Total Land Area

1,104 sq. km

Urban Area

261 sq. km

(**23.6**%)

Population

7 million

Urban Density

26,700 people/sq. km

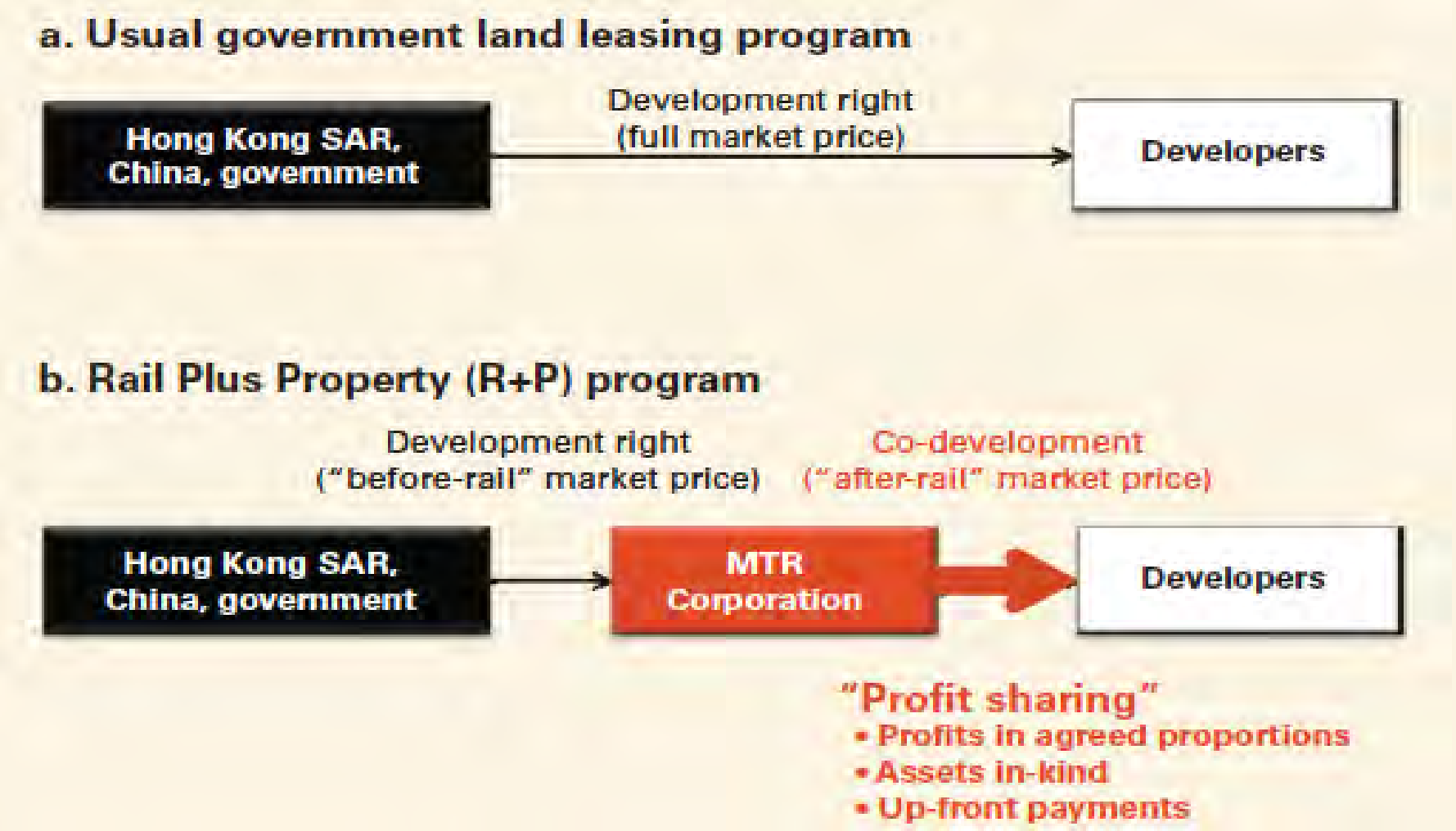
Private Vehicles

60/1,000 residents

MTR is a **"backbone"** of Hong Kong's urban development

Hong Kong's "**urban density**" supports MTR's ridership

HKSAR: R+P Program (1)



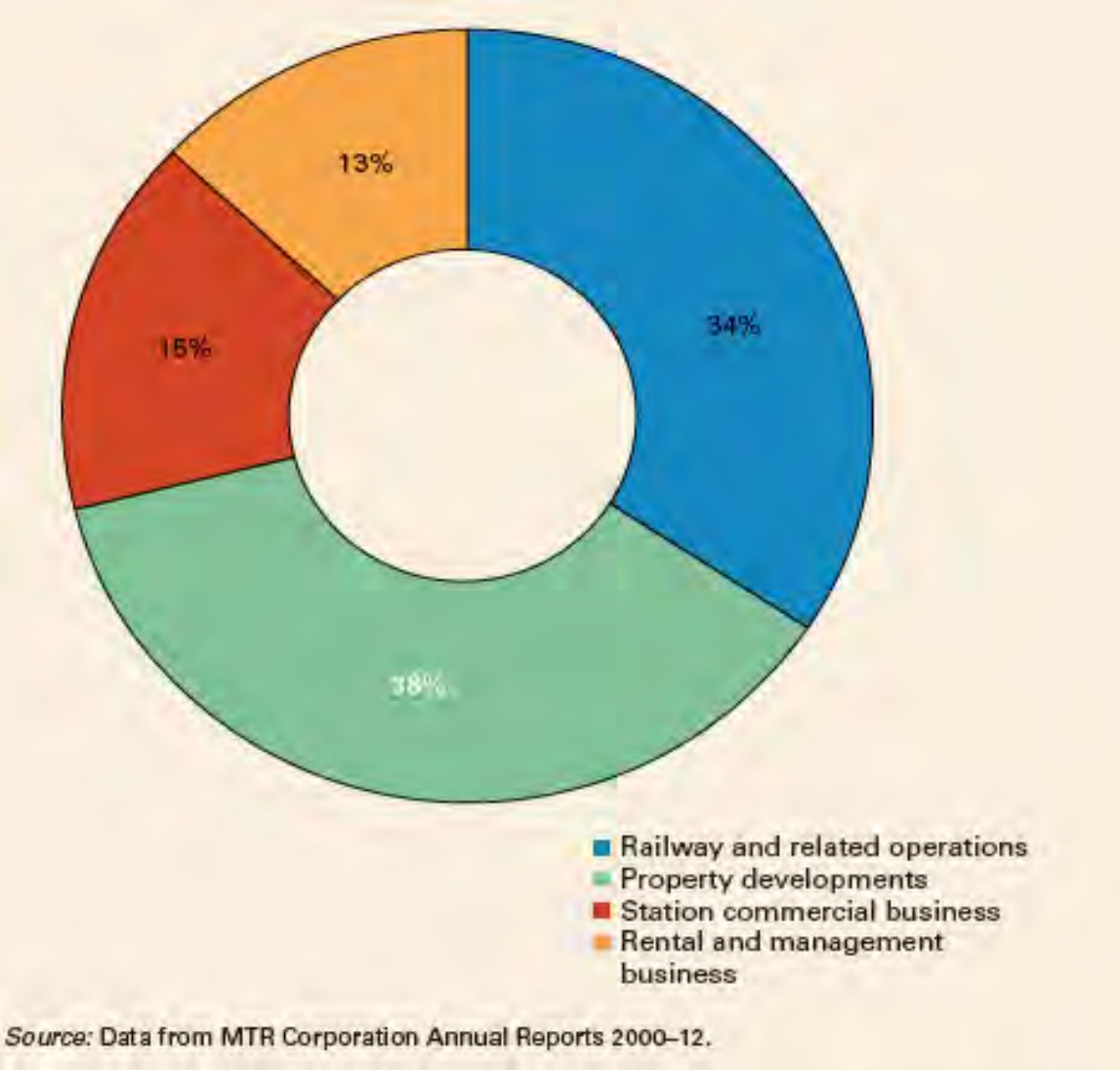
Sources: Based on Cervero and Murakami 2009.
Note: MTR = mass transit railway.

HKSAR: R+P Mechanism (2)

Source: Based on Hong Kong SAR, China, Mass Transit Railway (MTR) route maps and other maps.
Note: R+P = Rail Plus Property.

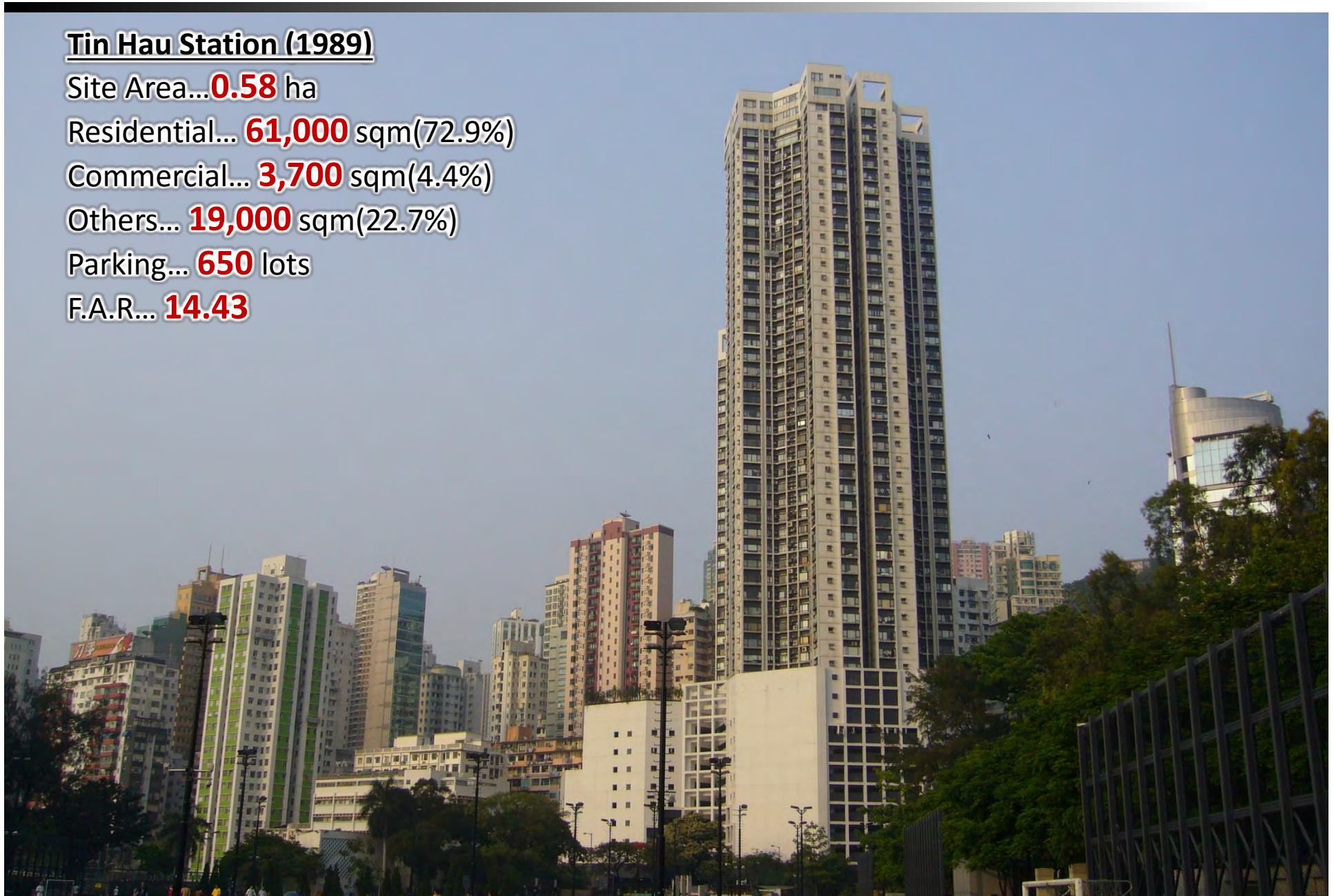
MTR Corporation

MTR Corporation, Revenue Sources, 2000-2010



Source: Hiroaki Suzuki et Al, Financing Transit-Oriented Development with Land Value

Early Generation



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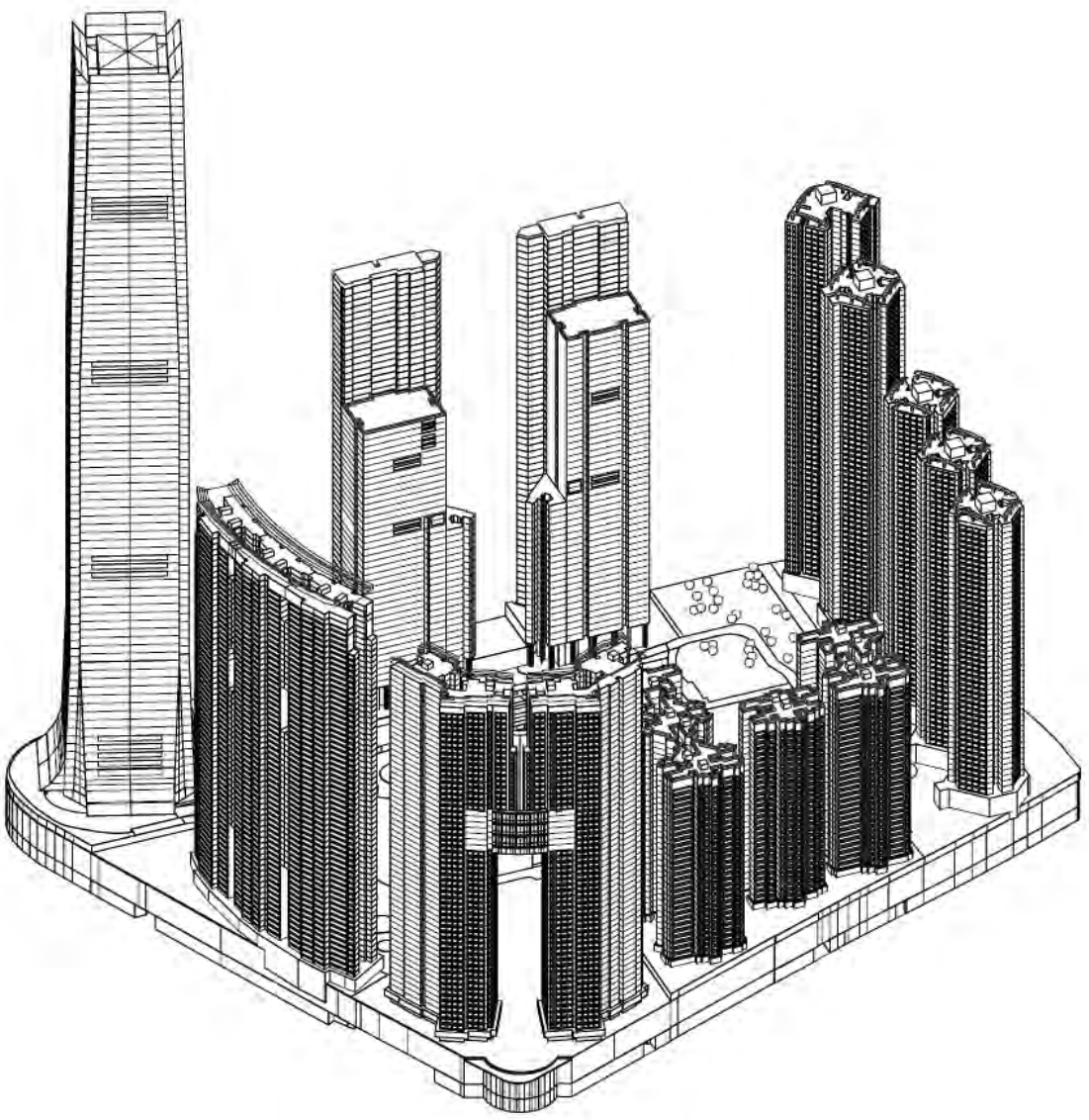
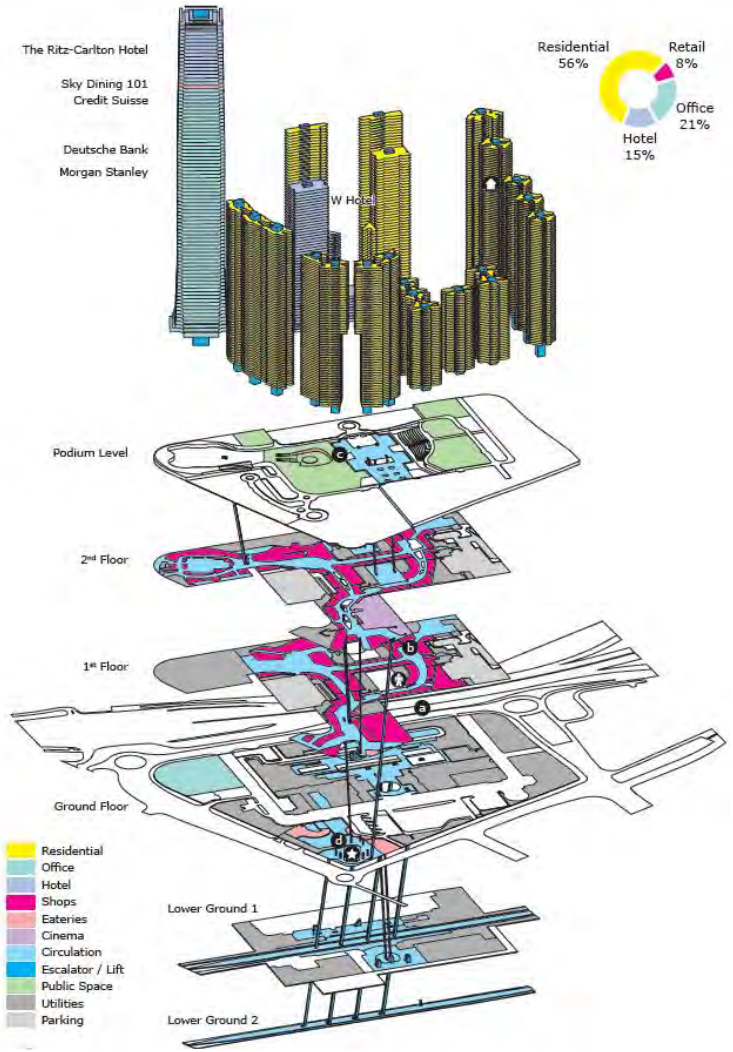
Integrated Development Package

Kowloon Station (1998-2010): 13.5 ha

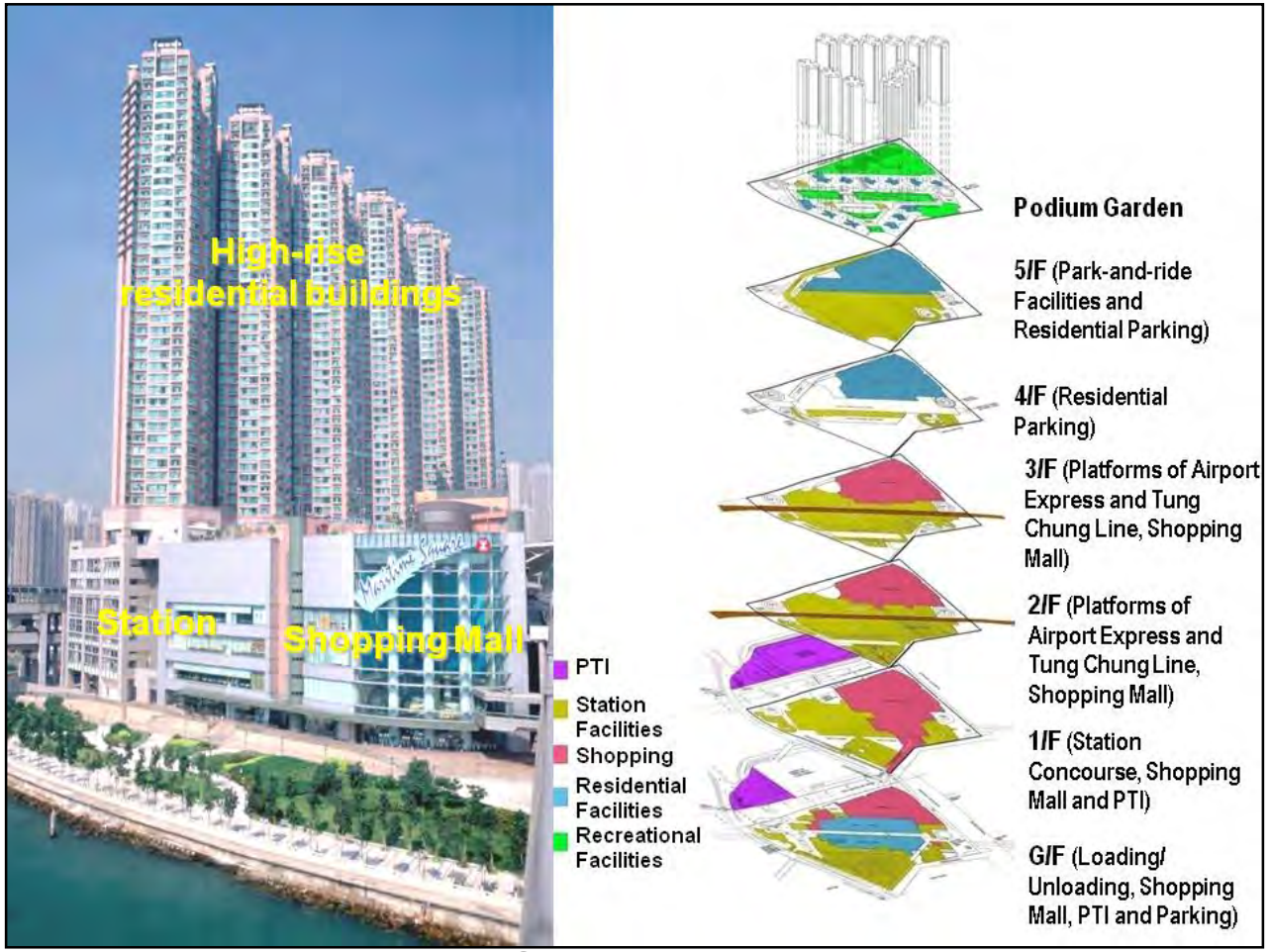




Source: AL Stephan (2013)

Mass Transit Integration

How to Finance Massive Transit Investments?
Explore Possible Land Value Capture Financing



Hong Kong MTR's Maritime Square Residential-Retail Development

Source: Hong Kong MTR

Recent Generation

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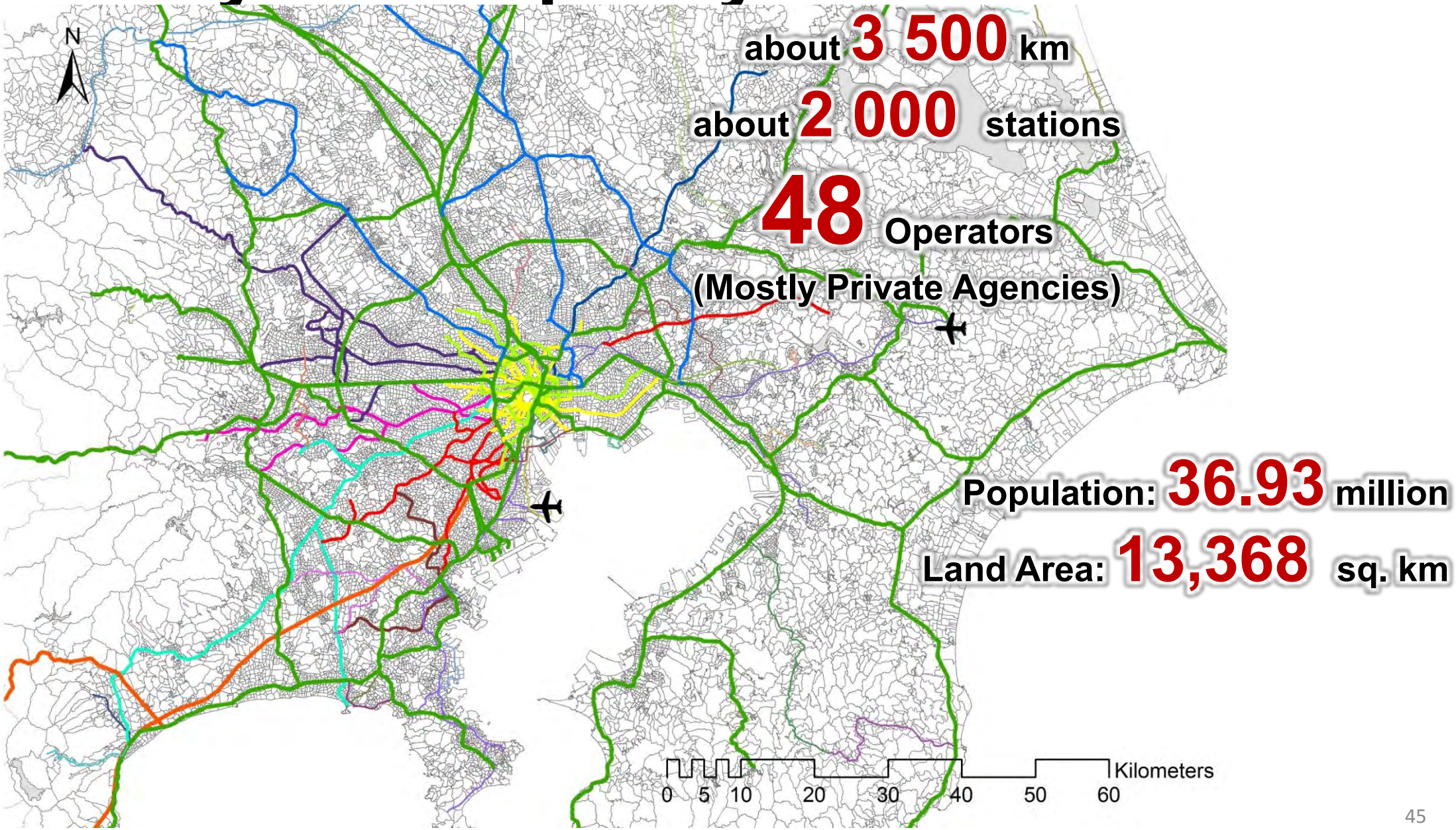
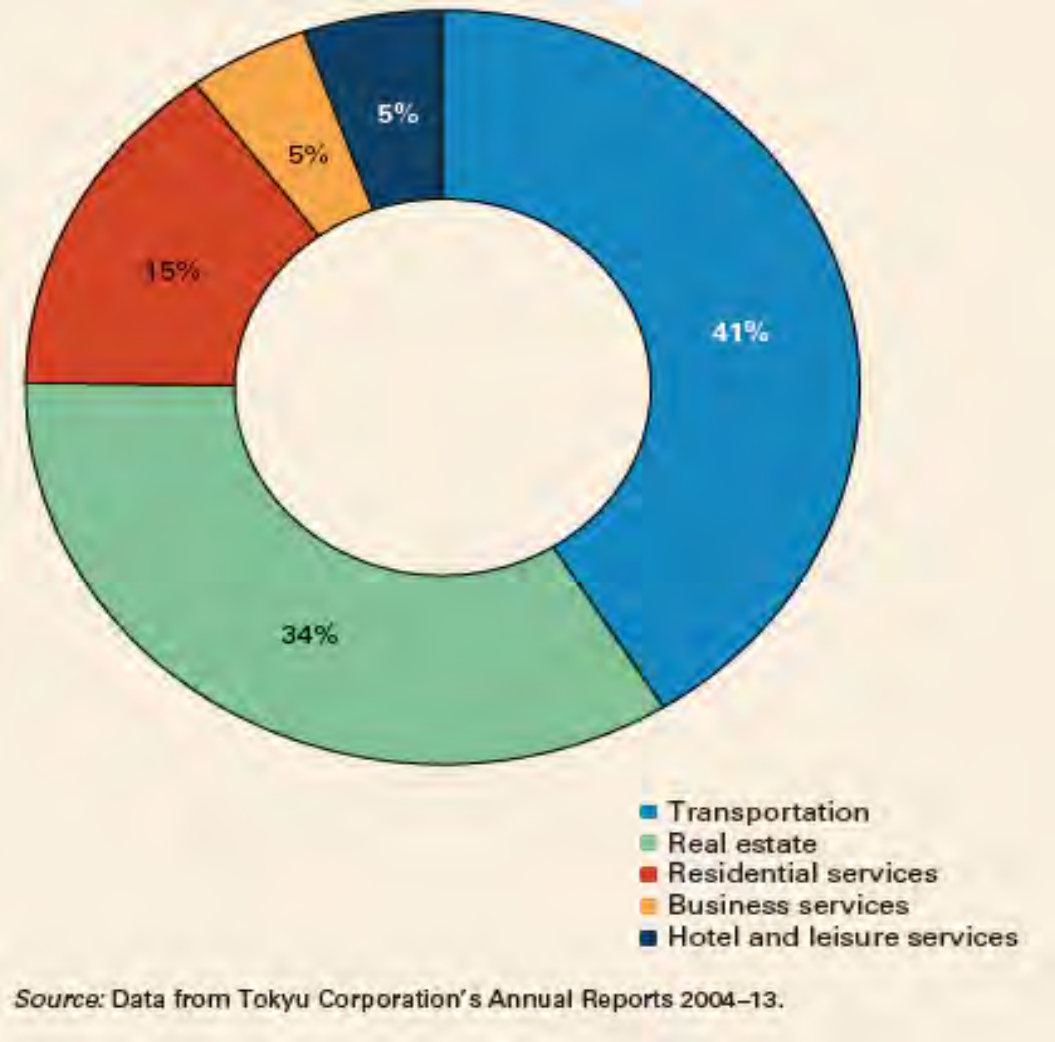
Tokyo: Multiplicity



Source: Based on data from National Land Information, Ministry of Infrastructure, Land, and Transport (MLIT), Japan

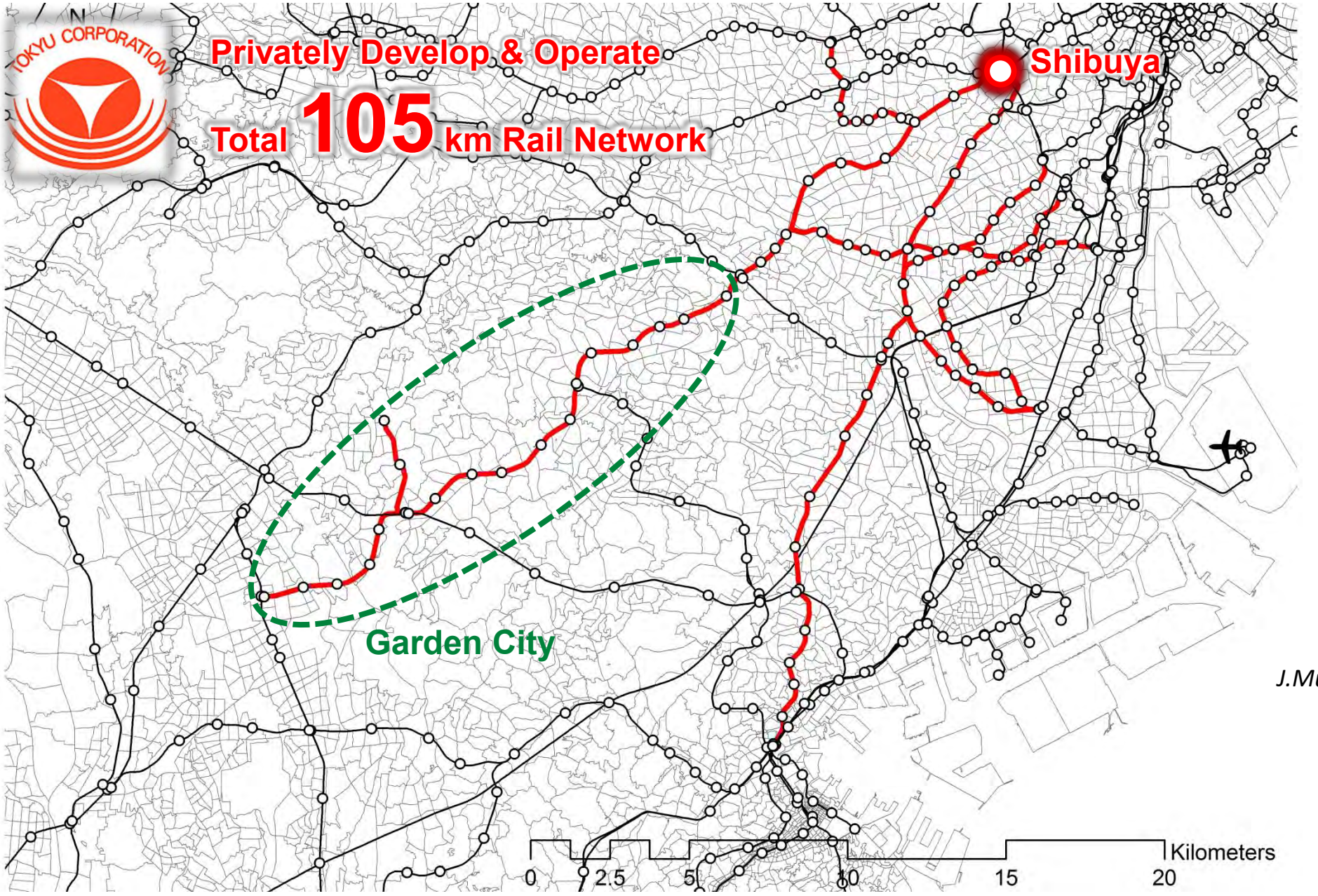
Example 1: Tokyu Corporation (1)

Tokyu Corporation, Revenue Sources 2004-2013



Source: Hiroaki Suzuki et Al, Financing Transit-Oriented Development with Land Value

Example 1: Tokyu Corporation (2)



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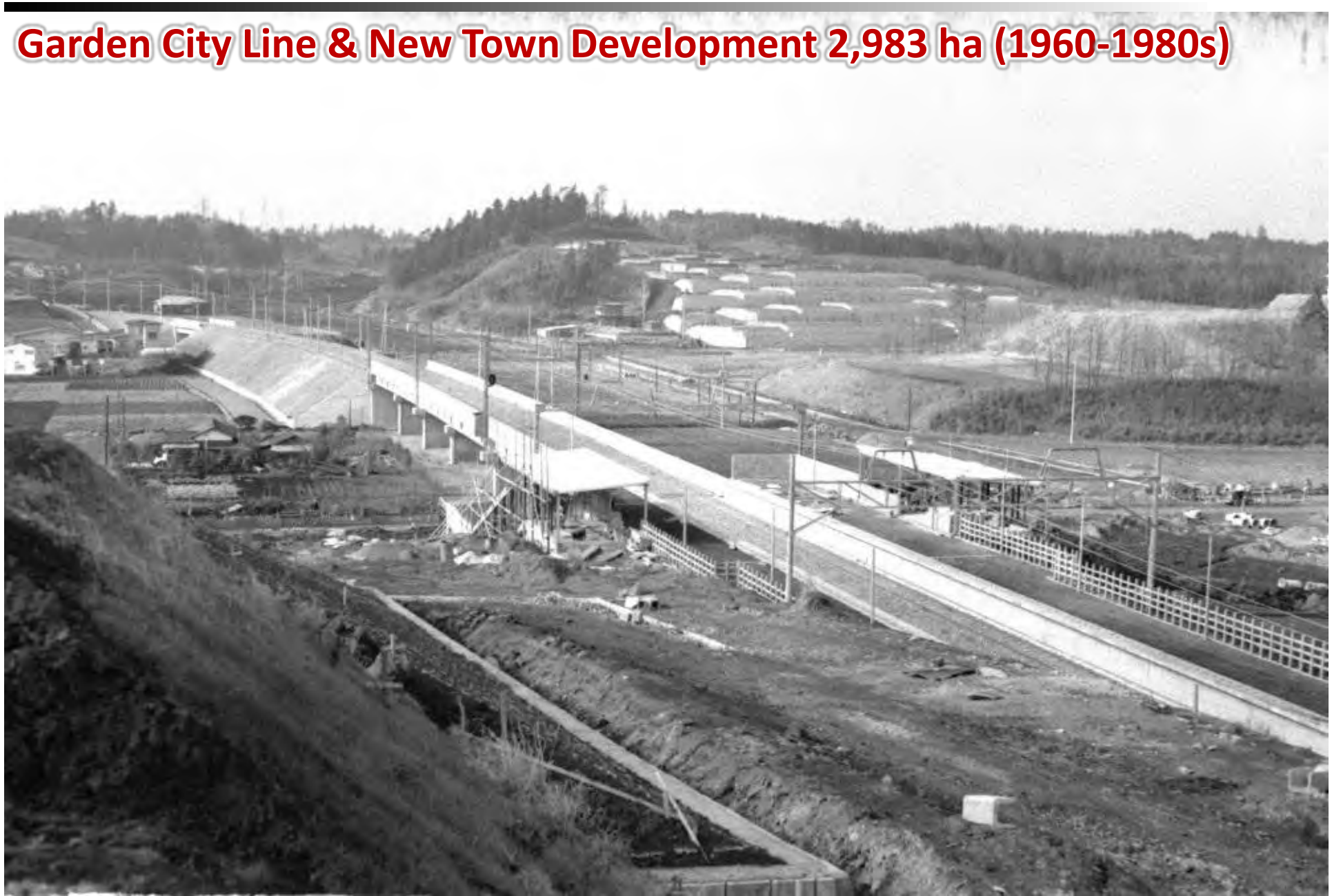
Example 1: Tokyu Corporation (3)

Garden City Line & New Town Development 2,983 ha (1960-1980s)



Tokyu Corporation

Example 1: Tokyu Corporation (4)

Tokyu Corporation

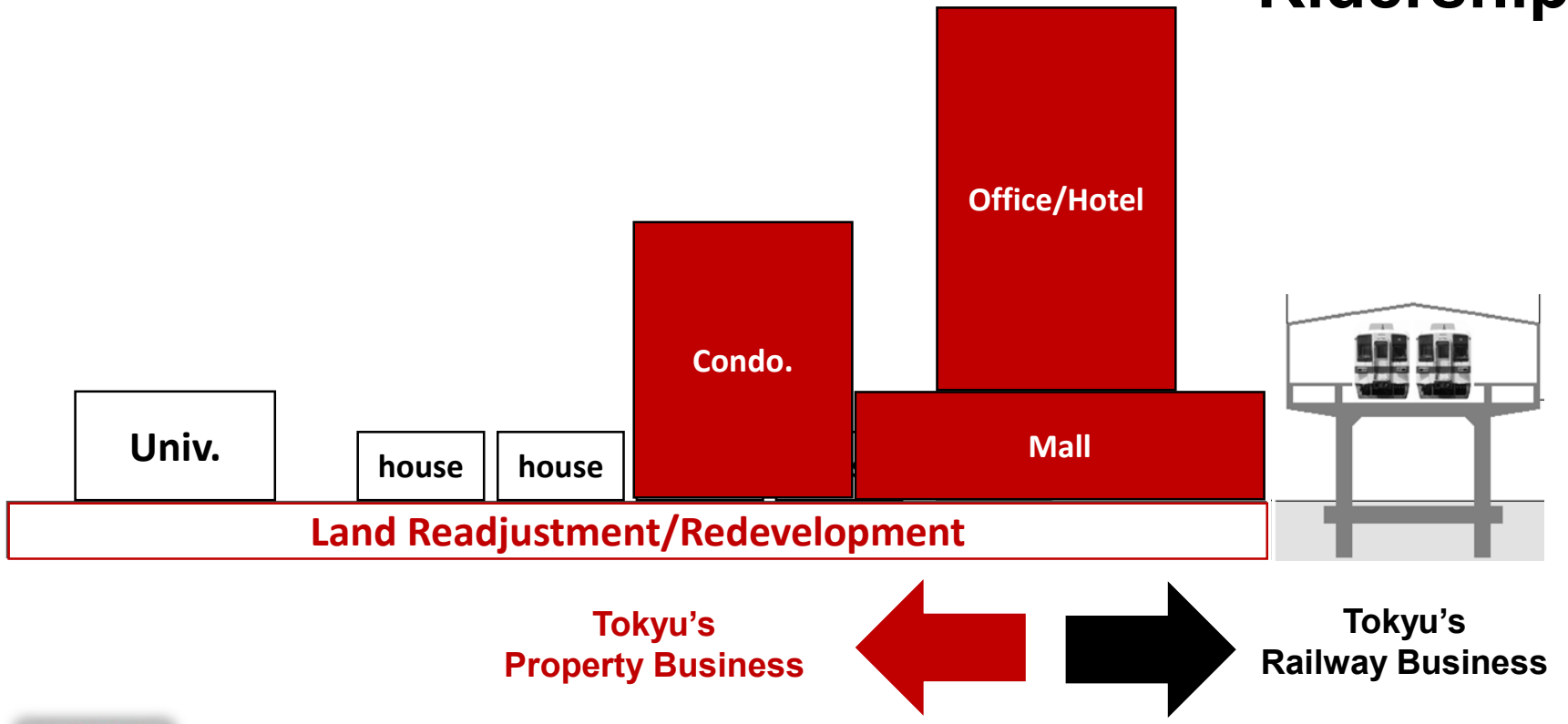
Source: Tokyu Corporation 2013

Example 1: Tokyu Corporation (5)

Corporate Ownership & Stewardship Model

High percentage of the key station areas are owned by Tokyu Corporation

Very High Ridership



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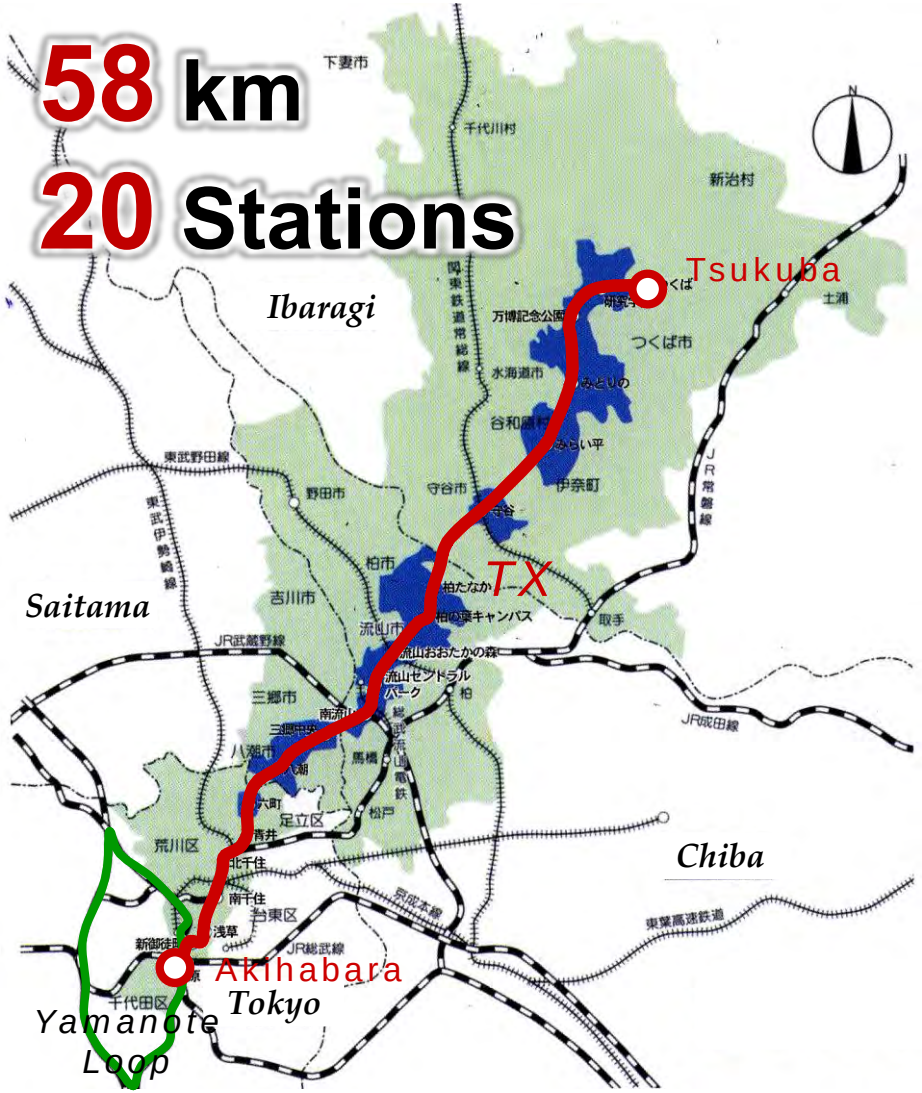
Group's Intergenerational Resource Allocation

Example 2: H-R Integration (1)

Tsukuba Express (1998-2006)



Rail Construction Costs

US$ 9.4 billion

Integrated Housing-Rail Development Act of 1989 Land Readjustment Projects

19 Districts

Total 2,908 ha

Source: Chiba Prefecture 2012

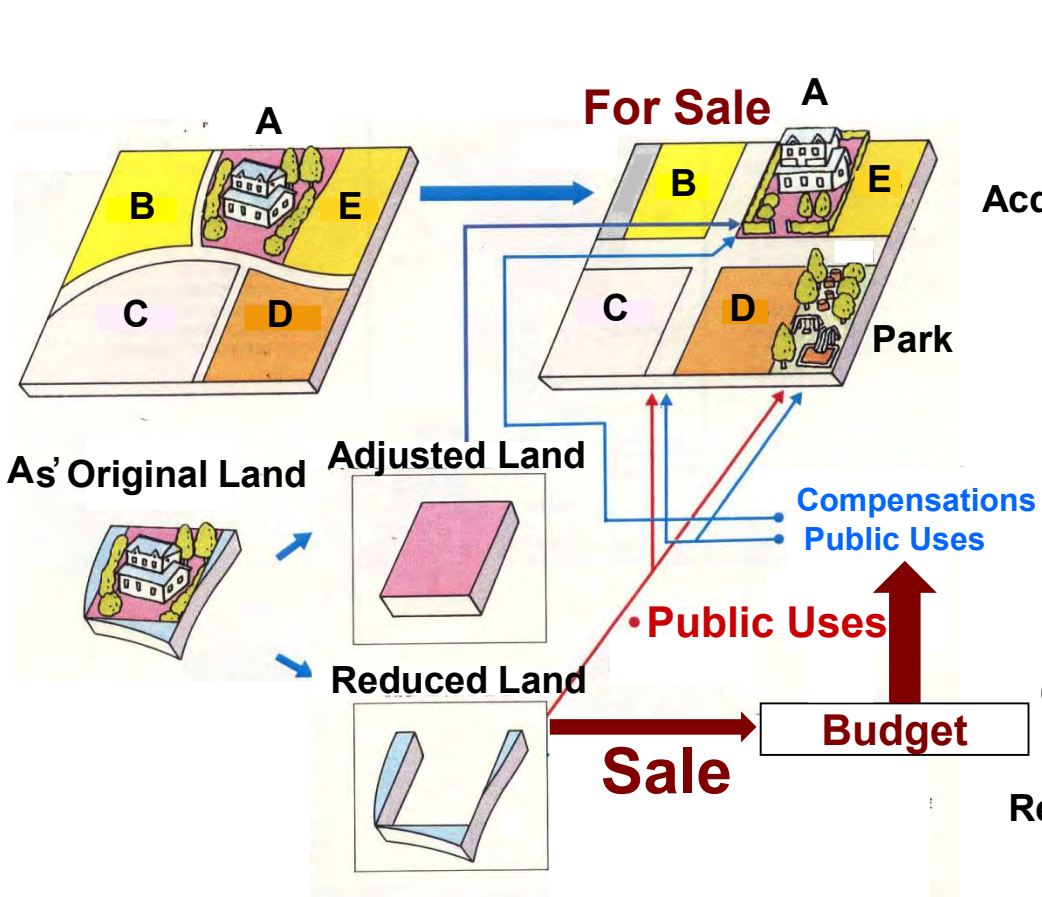
Example 2: H-R Integration (2)

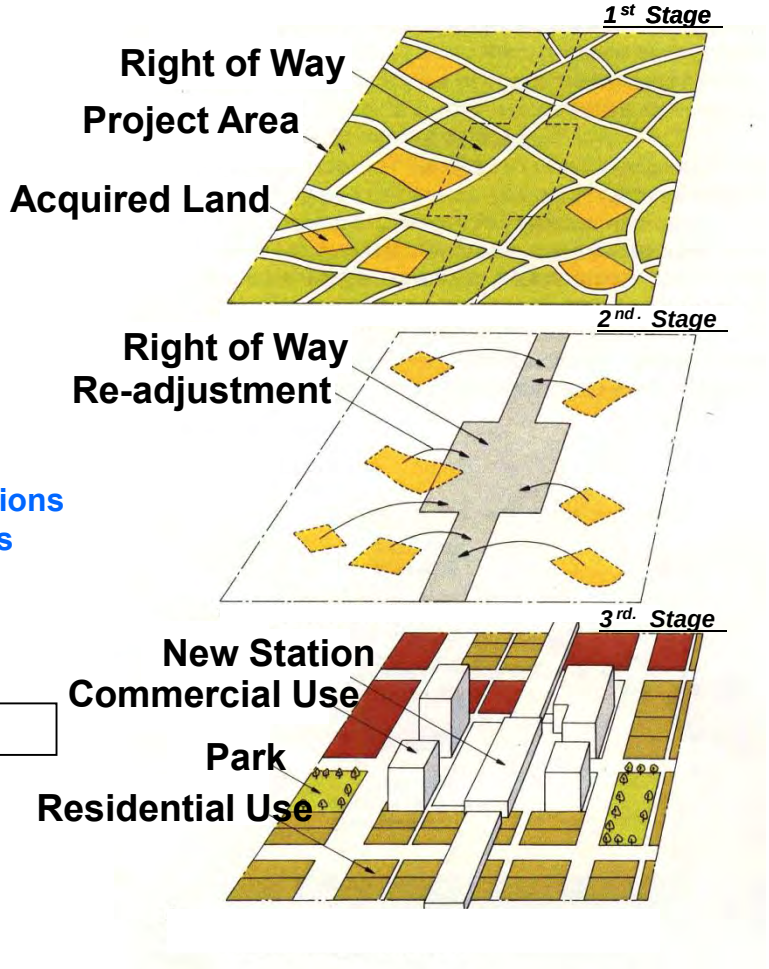
Mistui Fudosan

Example 2: H-R Integration (2)

Integrated H-R Land Readjustment: Mechanism

<Local Governments, Housing Agencies, Land Owners>





Source: Chiba Prefecture 2012

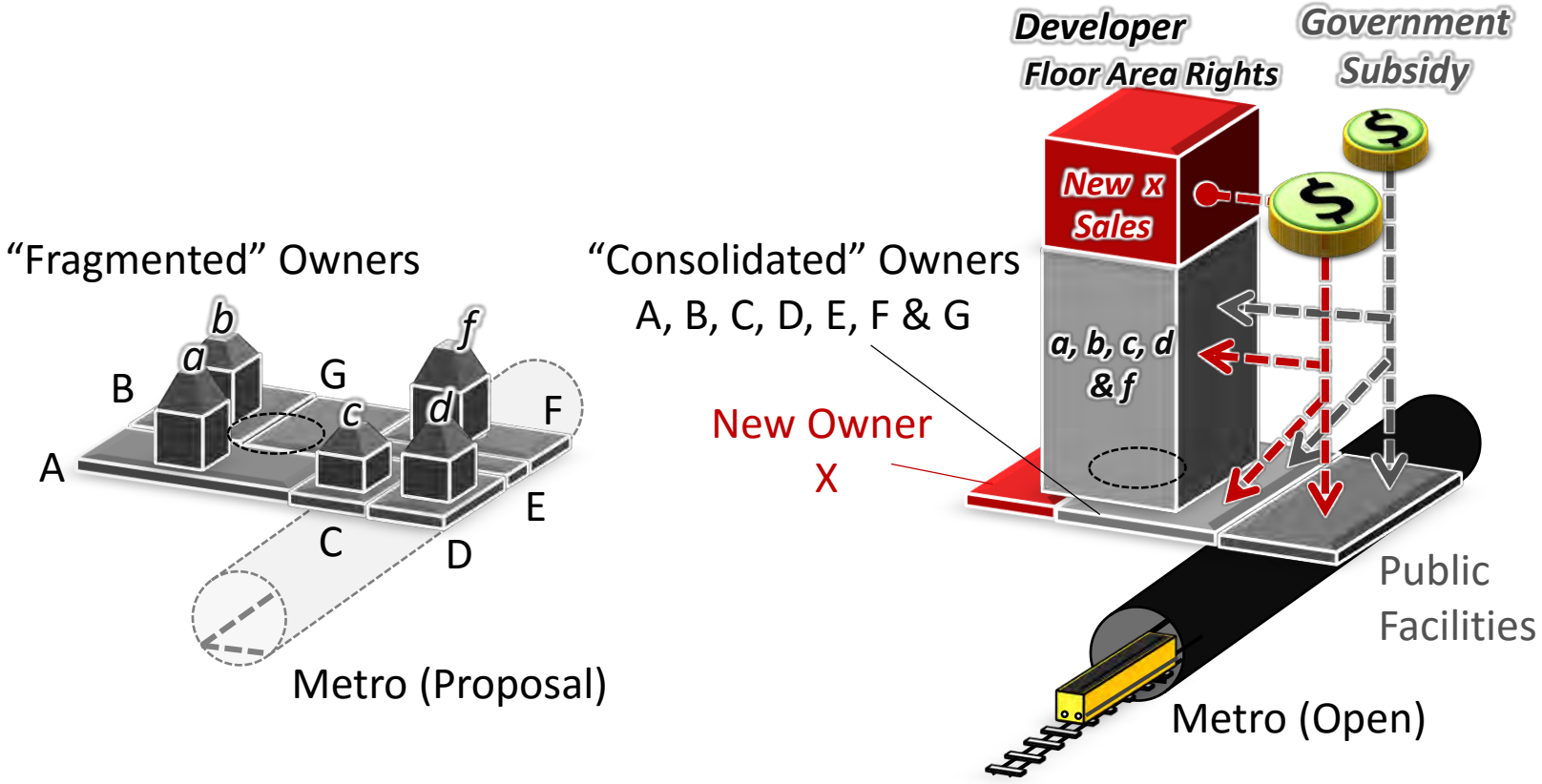
Land Value Capture Instrument (2)

Urban Redevelopment Financing Instrument

Single Use
Maximum FAR: 2.0

Zoning Change

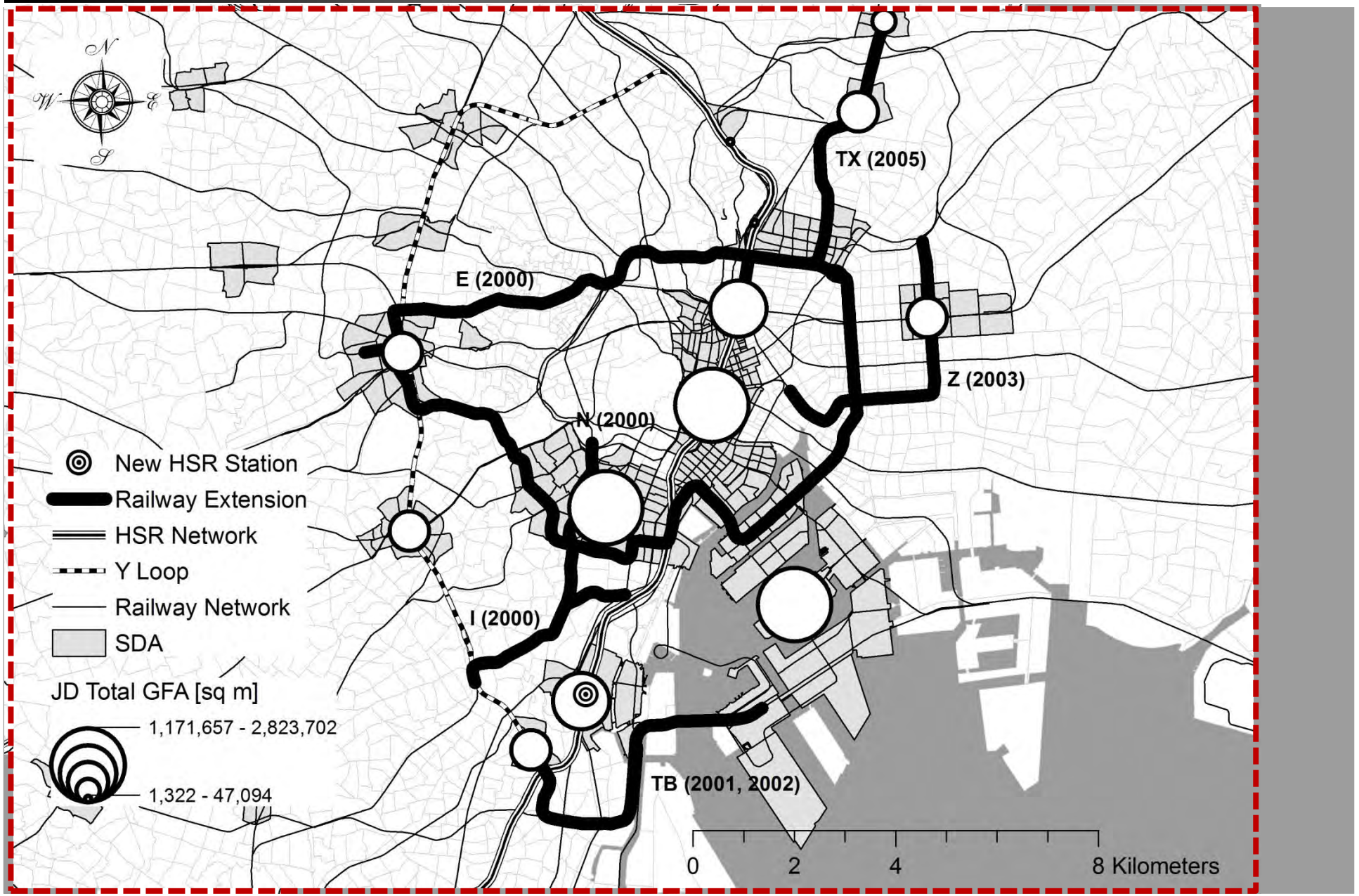
Mixed Use
Maximum FAR: 6.0



Joint Value Creation & Profit Sharing
Urban Redevelopment Financing Instrument

Stakeholders	Contribution	Benefit
Landholders A, B, C, D, E, F & G	Land Parcel for the New Building	Joint Ownership of Land for the New Building (Section A, B, C, D, E, F & G) with higher access and better local infrastructure and service provision
Building Owners a, b, c, d & f	Old Buildings and Housing Units	Ownership of the New Building (Section a, b, c, d & f) with higher access and better local infrastructure and service provision
Developer	Capital and Property Development Expertise	Profit from Section X & from Surplus FAR
Transit Company	Construction of Transit Station	Transit Supportive Environment/Increased Ridership
National Government	Subsides for Land Assemblage and Road Construction	Save Road Construction Costs
Local Government	Change in Zoning Code (from Single Use to Mixed Use with Higher FAR)	Higher Property Tax Revenue Promotes Local Economic Development Builds Townships Resilient to Natural Disasters

Example 3: Depot Redevelopment (1)

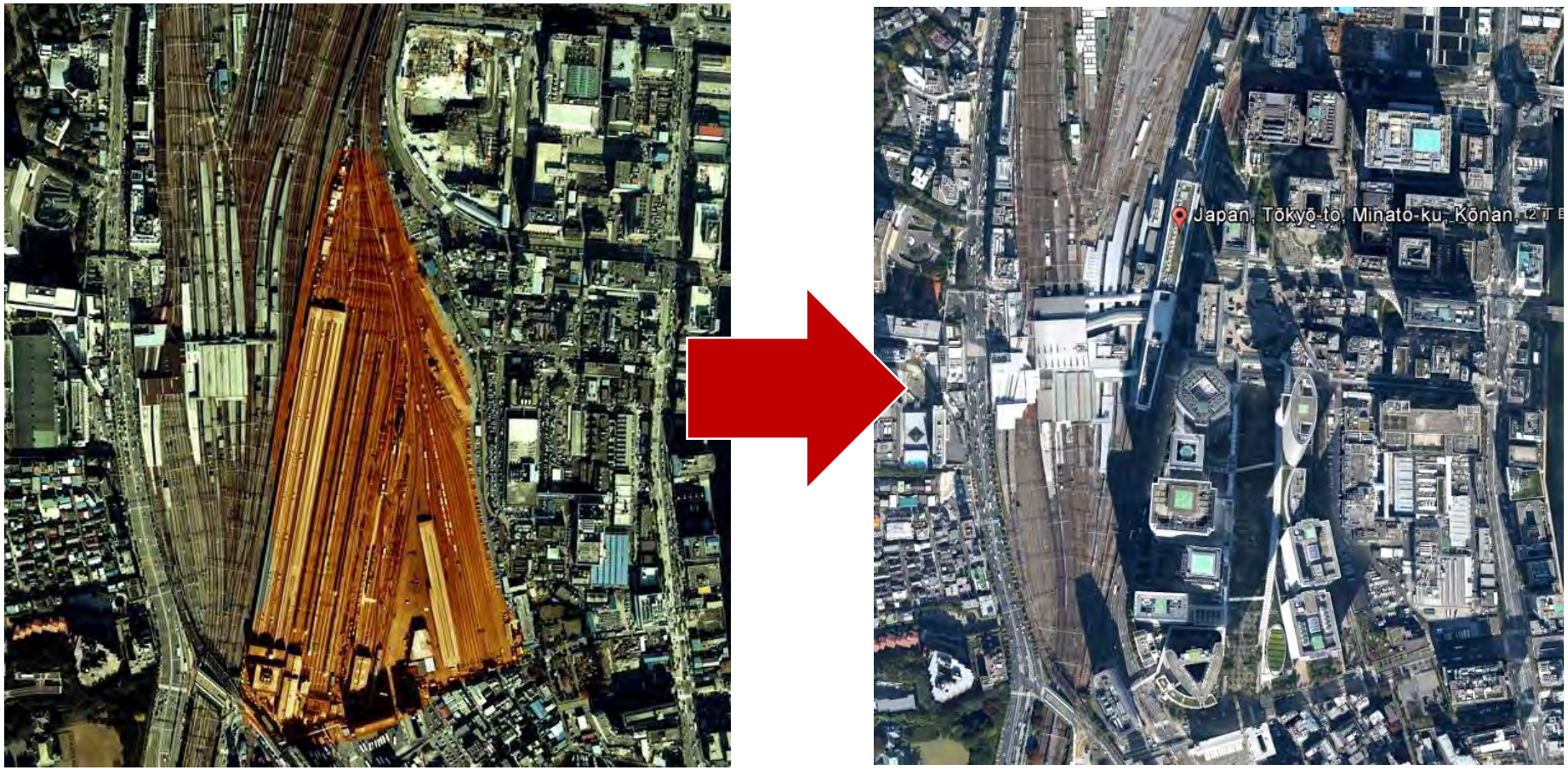


Jin Murakami

Example 3: Depot Redevelopment (2)

JNR Yard: National Land Sales

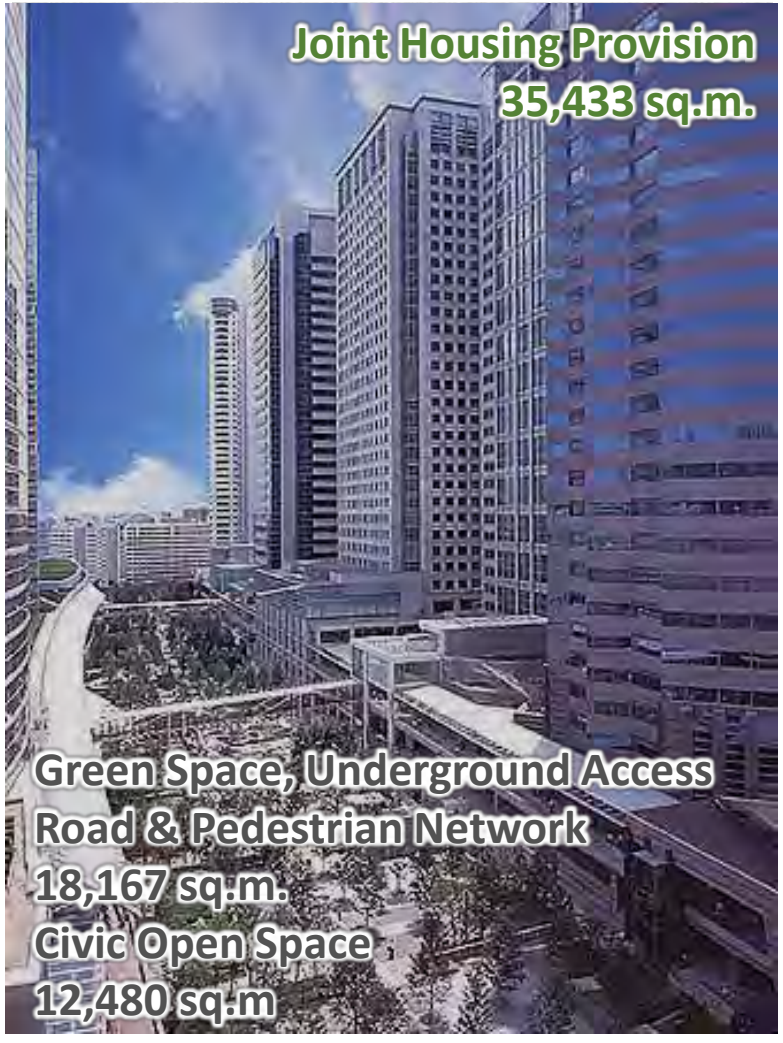
Shinagawa Station 16.2 ha (1992-2008)



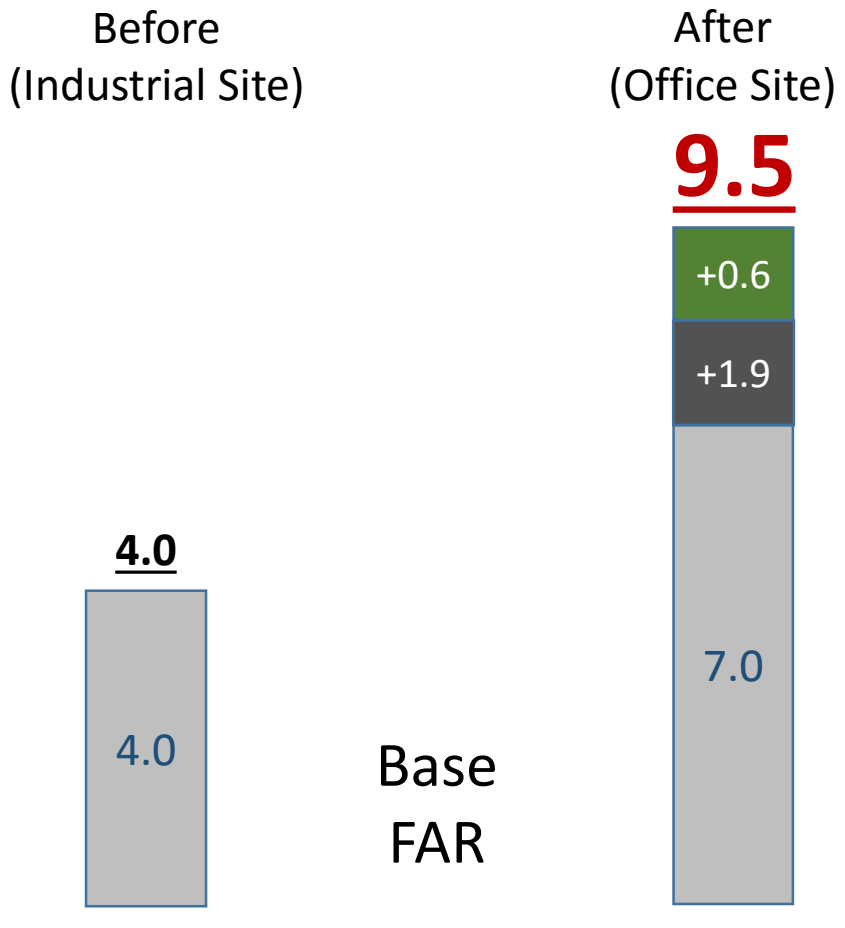
Source: JNR Settlement Corporation 2008

Example 3: Depot Redevelopment (3)

Civic Space Provision & FAR Bonus
(e.g., Case of Shinagawa Station Area)



FAR Assessment



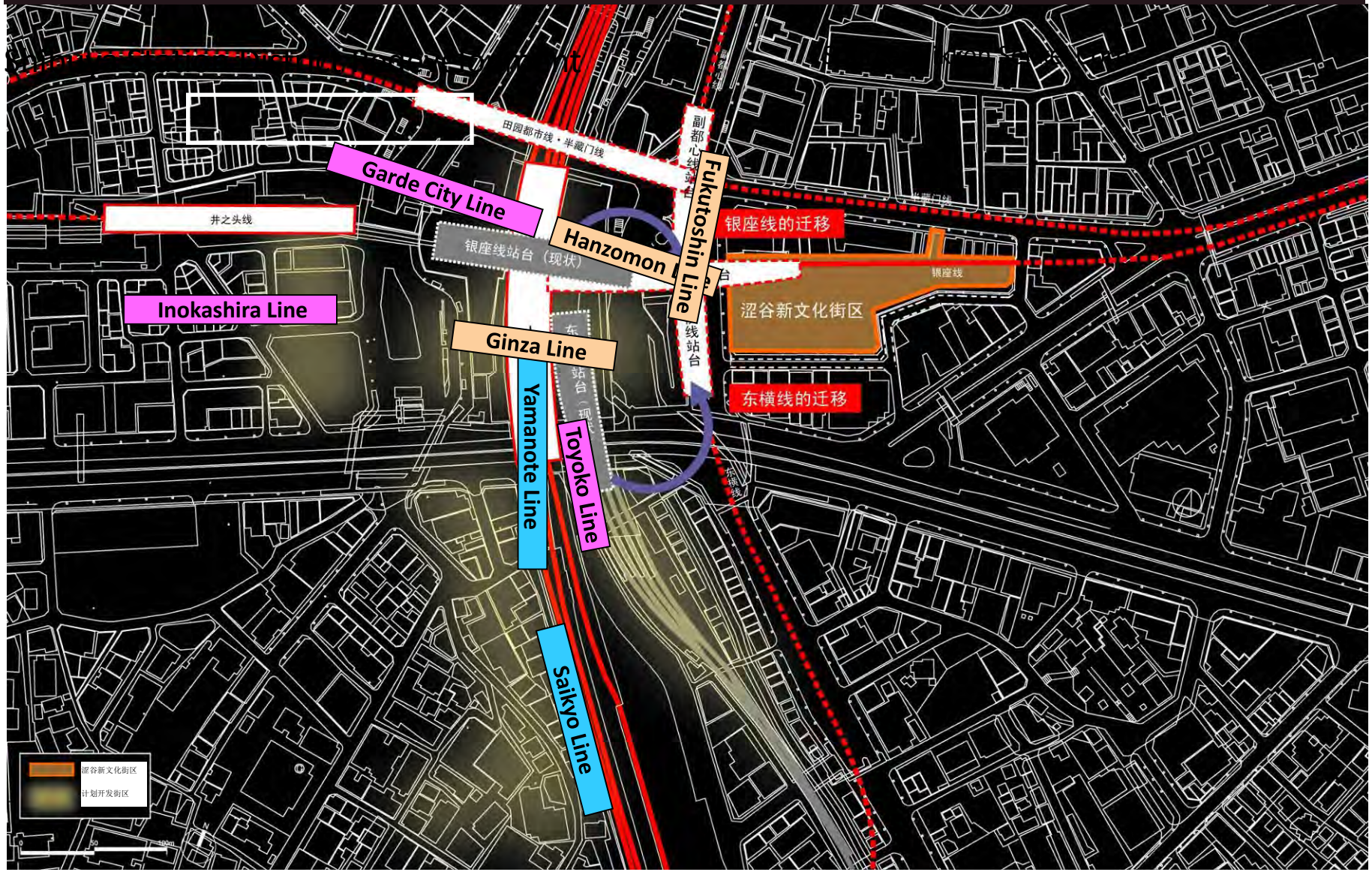
Example 4: Tokyu Shibuya Station District Redevelopment

Consecutive Urban Redevelopments Through Restructuring Station-related Infrastructure

HIKARIE Data

［Completion of construction］ 2012
［Owner］Tokyu　Corporation and others
［Total floor area］ 144,000㎡ approx.
［Number of lines］ 8 lines, 6 stations
［Number of passengers］ 3,000,000 persons per day approx.

Source: Nikken Sekkei Corp.



Source: Nikken Sekkei Corp.

Example 5 Tokyo Railway Renovation by Air Right Sale

Preservation & Restoration

2012 : Restoration to the Original

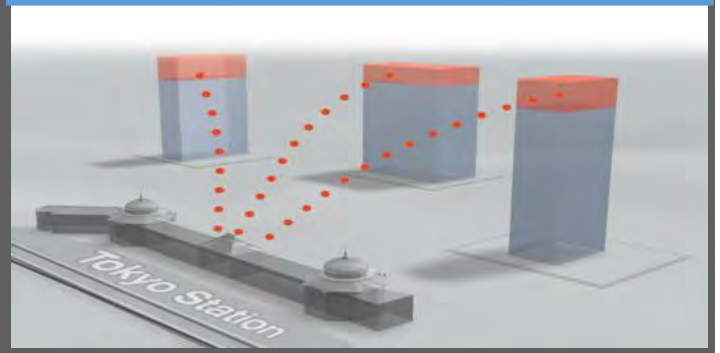
Original 1914

Tokyo Station

Win-Win Structure for Both Public & Private FAR Seller & Buyer

Post War : Temporary Mended Roof

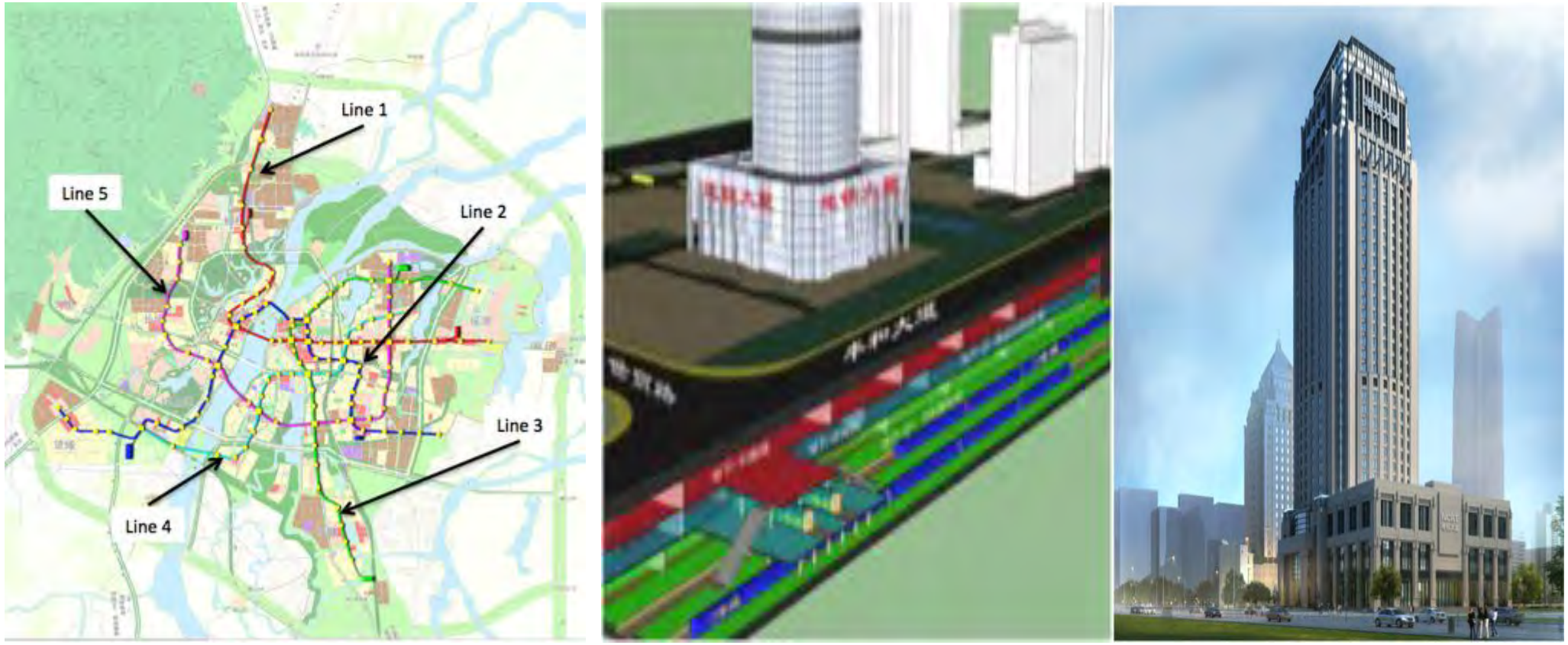
Floor Area Ratio Transfer System



Adopting "FAR Transfer System" to earn restoration costs

61

Nanchang: Public Development Right Sale for New Metro Construction (1)

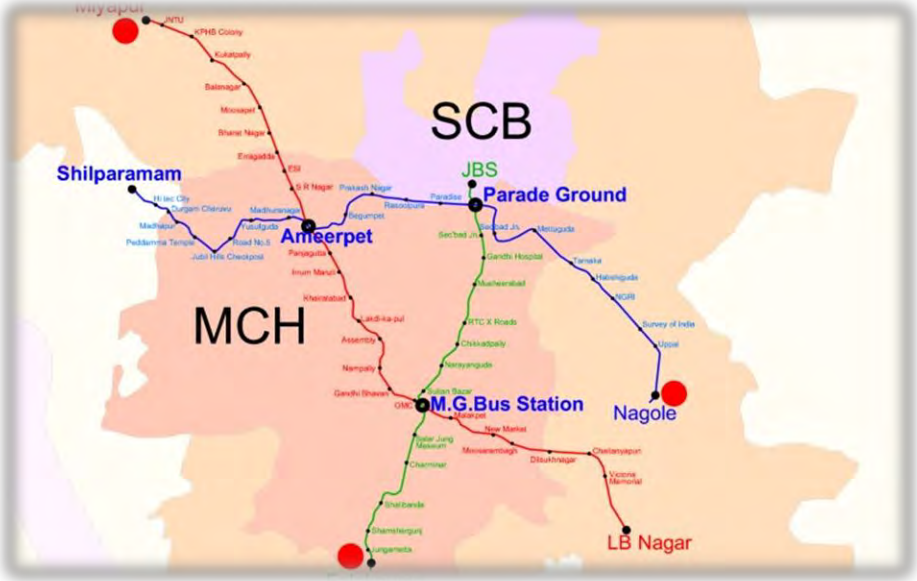


Suzuki, Murakami, Hong and Tamayose, 2014

Nanchang: Public Development Right Sale for New Metro Construction (2)

Suzuki, Murakami, Hong and Tamayose, 2014

Hyderabad: Innovative PPP



Gov. & Special Purpose Vehicle :

- ✓ Land Acquisition
- ✓ Statutory Clearances
- ✓ 10% Max. Gap Fund
- ✓ 300 m TOD zone

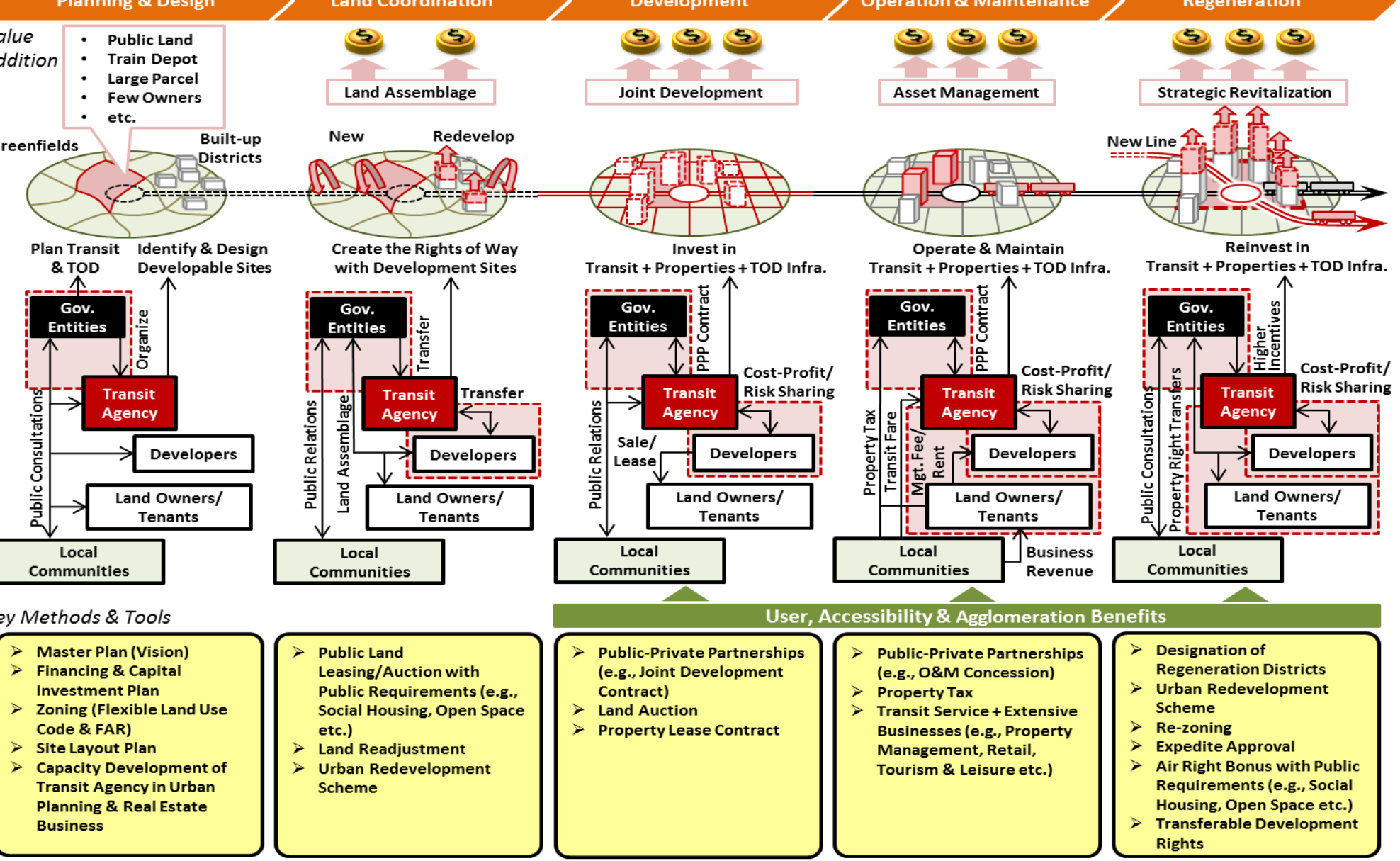
Design-Build-Finance-Operate-Transfer (DBFOT)

Project Revenues (est.):

- Fare Box = 50%
- **Real Estate = 45%**
- Other = 5%

Private Concessionaire :

- ✓ Min. Gap Fund Request
- ✓ Project Period of 35 years
- ✓ Property Development Rights (25 Sites + 3 Depots)



Source: Suzuki, Murakami, Hong and Tamayose, 2015

Critical Factors for Success of LVC in Developing Countries

- Inclusive Land Value Capture: Aim at “Win Win” for All the Stakeholders, including urban poor in the project area;
- Sound planning principle based on Visionary Long-Term Master Plan;
- Intergovernmental collaboration is must, especially at capital city.
- Macro fundamental and regional economic growth is fundamental;
- Public landownership is important, but not absolutely necessary;
- Flexible zoning should be provided by the city planning authority;
- Entrepreneurship is prompted by the transit agency (creating a real-estate development unit by bringing in private business expertise and/or develop partnership with businesses);
- Develop, clear, fair and transparent rules to prevent corruption;
- Loan or other source of financing is still needed as bridge financing till LVC can materialize; and
- LVC is not a silver bullet, explore multiple funding sources, hedging against real-estate market risks

Conclusion

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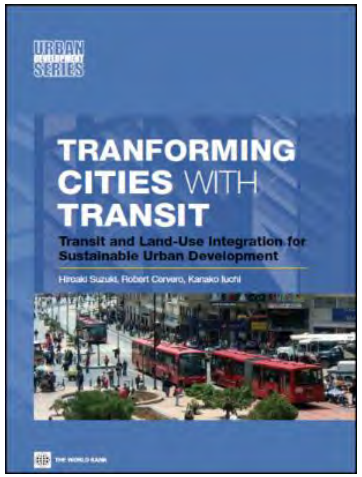
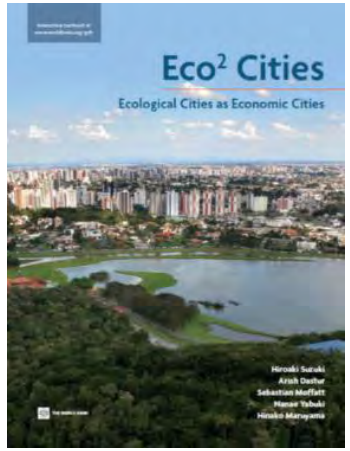
- TOD which creates articulated densities around transit hubs by locating amenities, employment, retail, and housing in close proximity—is one of the most effective ways to achieve sustainable urban development and to increase value.
- Collaborative efforts of national government, municipalities, transit agencies, developers, landowners, and communities can maximize LVC premium. In this joint value-creating and sharing exercise, municipalities and transit agencies can contribute significantly to value creation either through zoning changes (FARs and land use) and through transit investment.
- The rapid population increase and robust economic growth in rapidly growing cities in developing countries, particularly in middle-income countries, are certainly favorable for development-based LVC.

THANKS



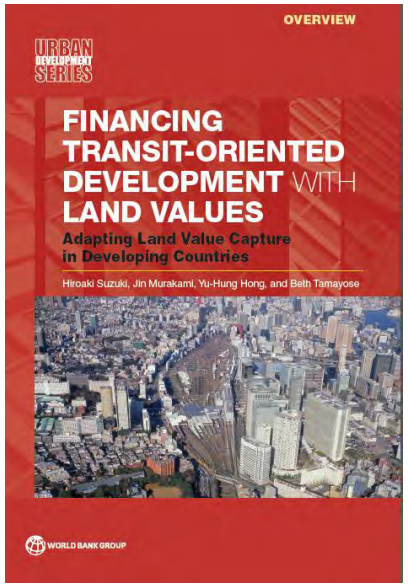
Eco2Cities
Ecological Cities as Economic Cities

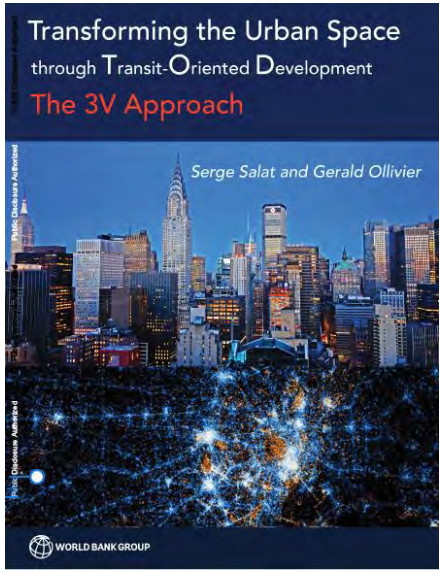


TOD

LVC

Sustainable Urban Development





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