

# **Development & Regeneration of Seoul: Inner city townships, Redevelopment & Environment**

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# **Introduction**

# Introduction

- Past and Present of Seoul



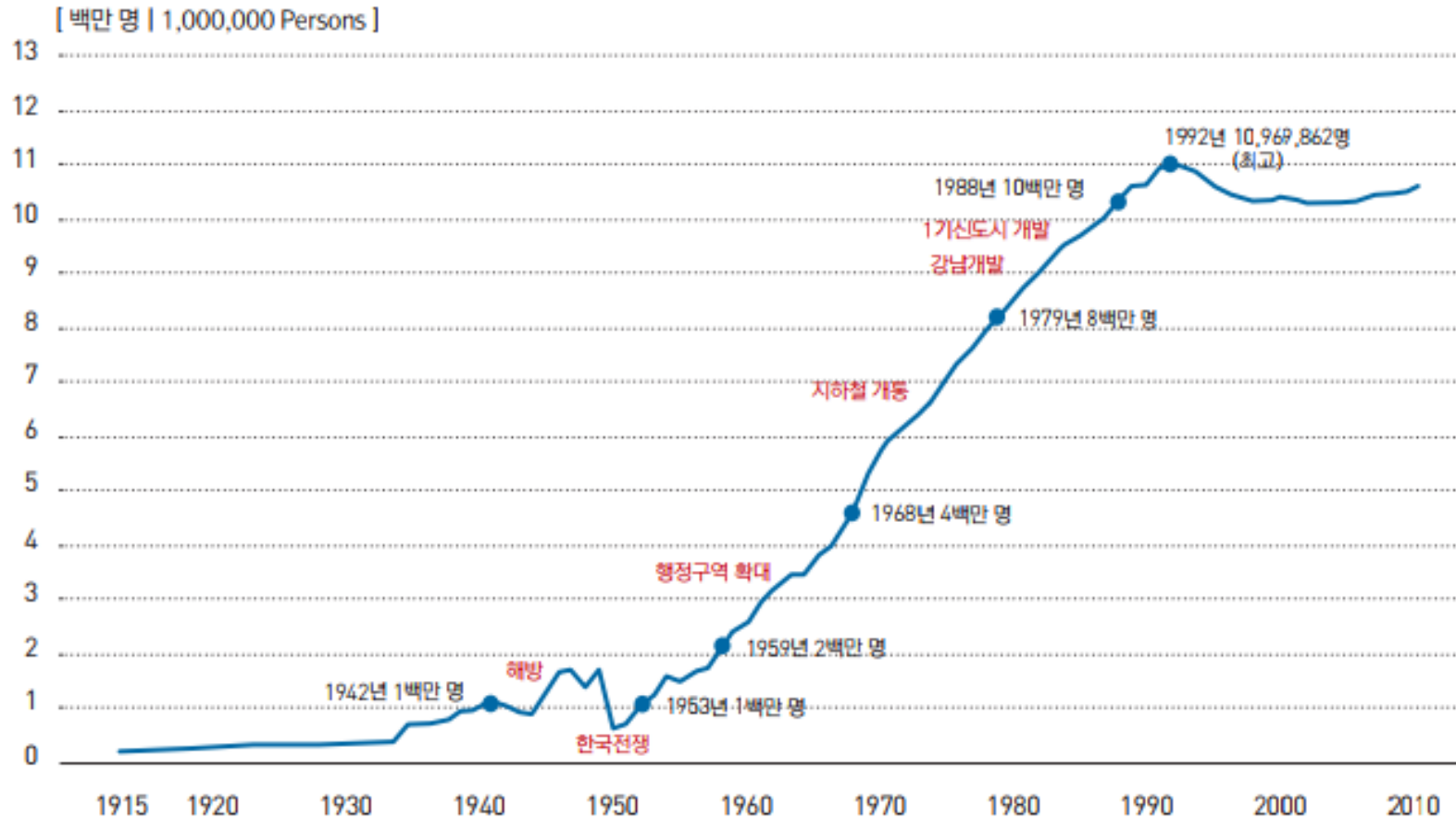
50  
years



# Introduction

- Explosive Population Growth

Population Growth, 1915 ~ 2010



# Introduction

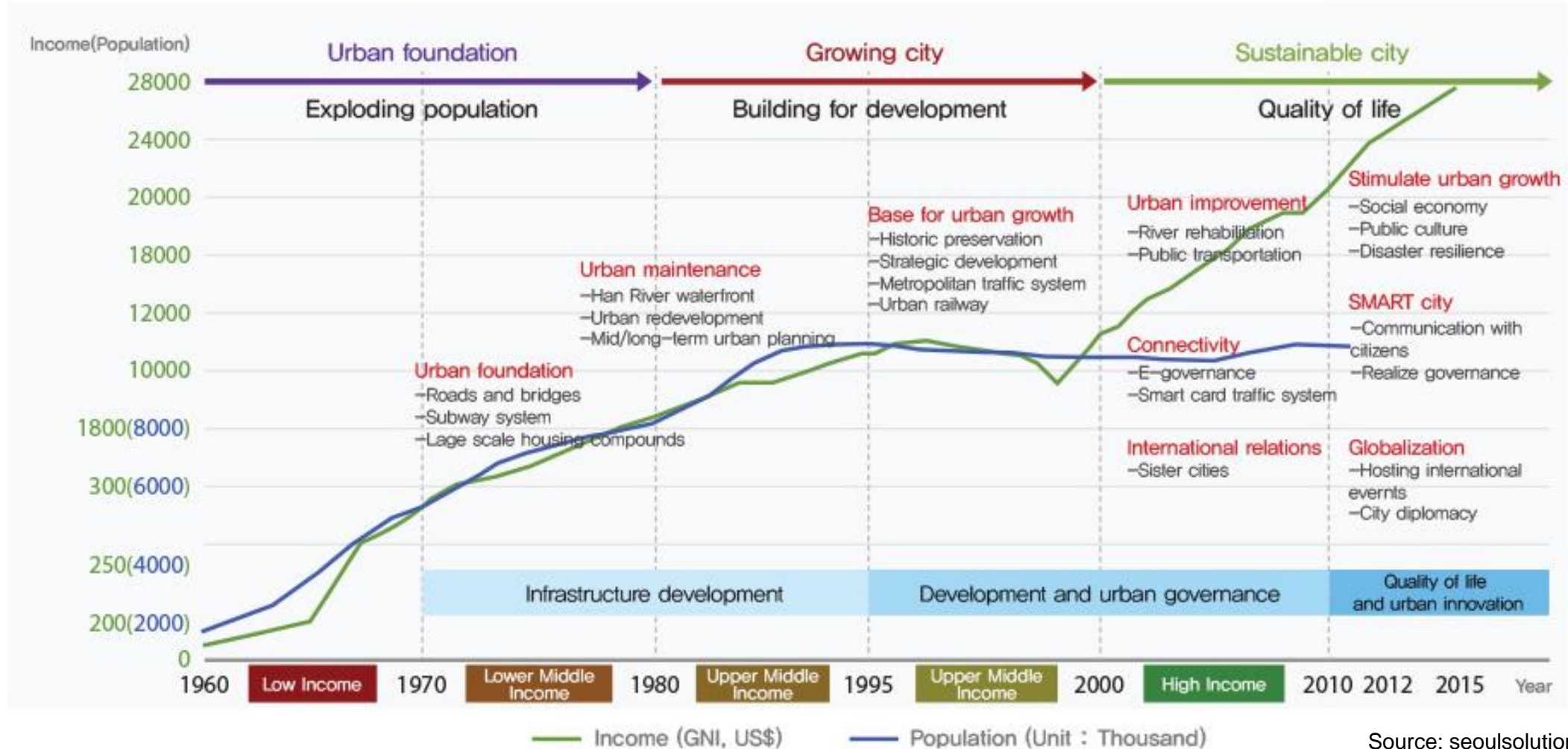
## **Fast urbanization causes various challenges:**

- Shortage of housing and infrastructure
- Inadequate urban basic services like water supply, sanitation and energy
- Unplanned expansion of built-up area
- Prevalence of poverty
- Lack of financial capacity of local governments.....

**Then, how has Seoul achieved the current urban development?**

# Introduction

## Development of Seoul at a Glance

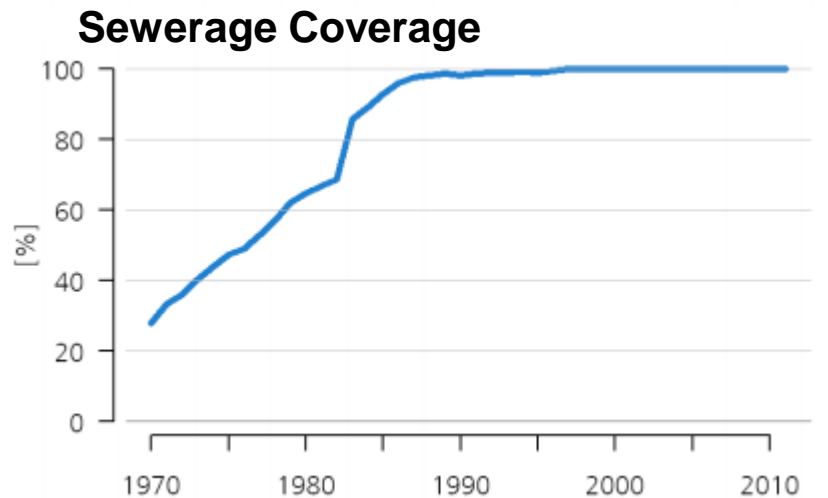
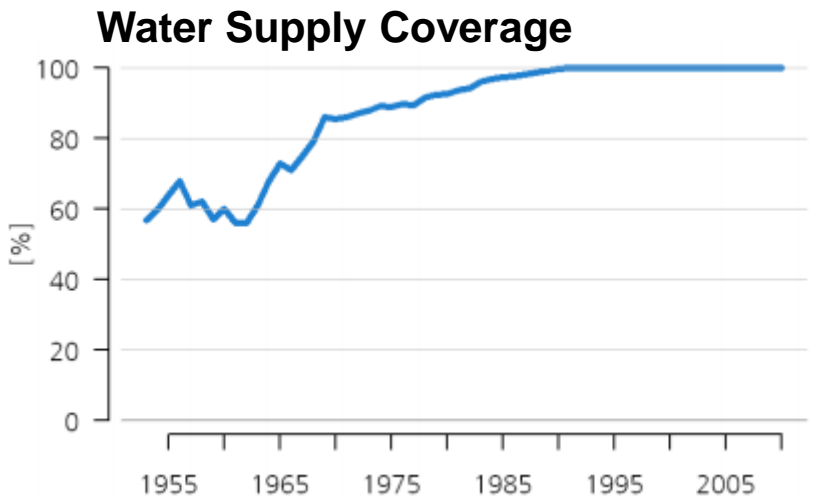
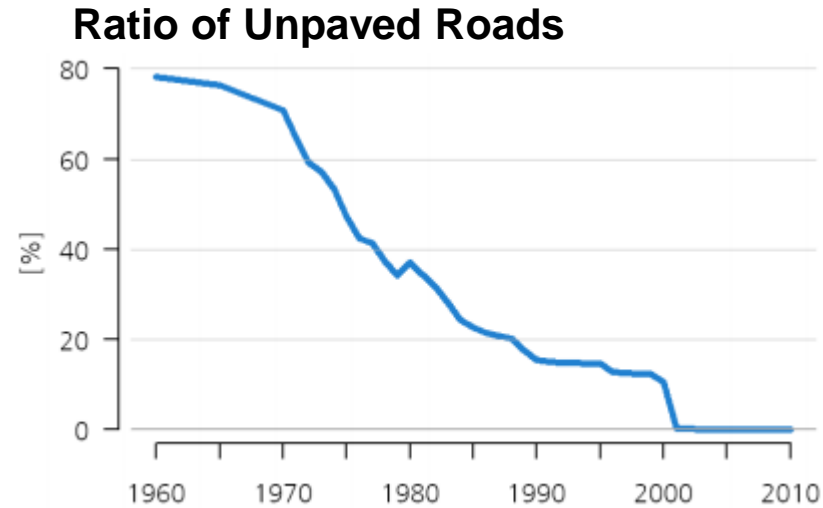
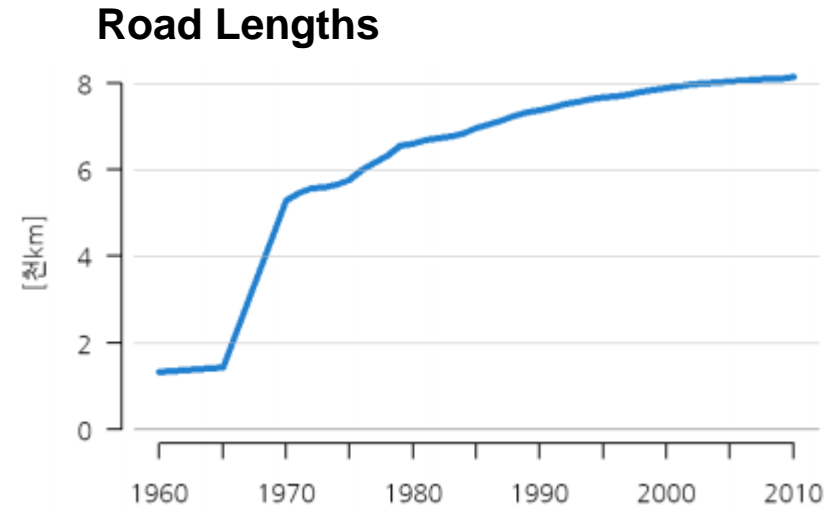


Source: seoulsolution.kr



# Introduction

## ■ Provision of basic service in Seoul

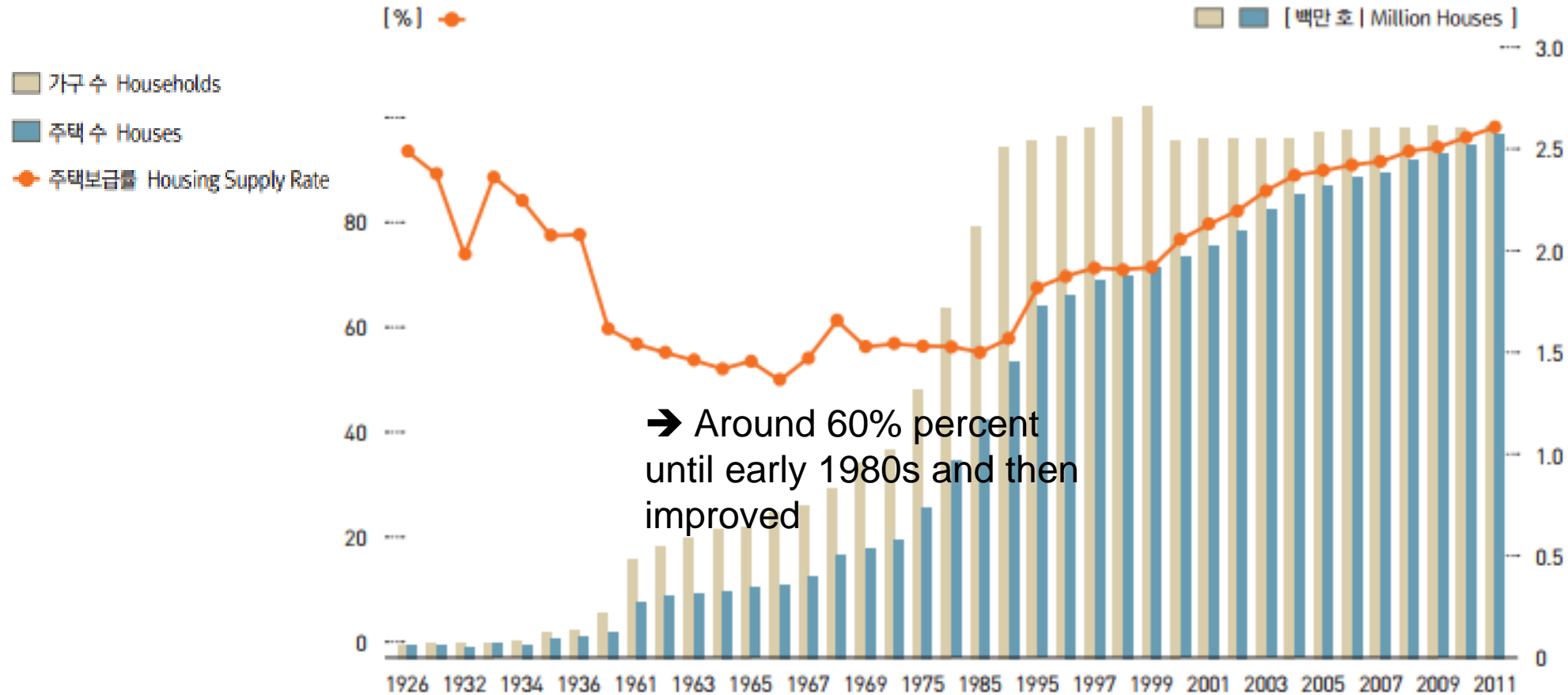


→ Significant improvement in providing basic service since the late 1960s

# Introduction

## ■ Housing Supply in Seoul

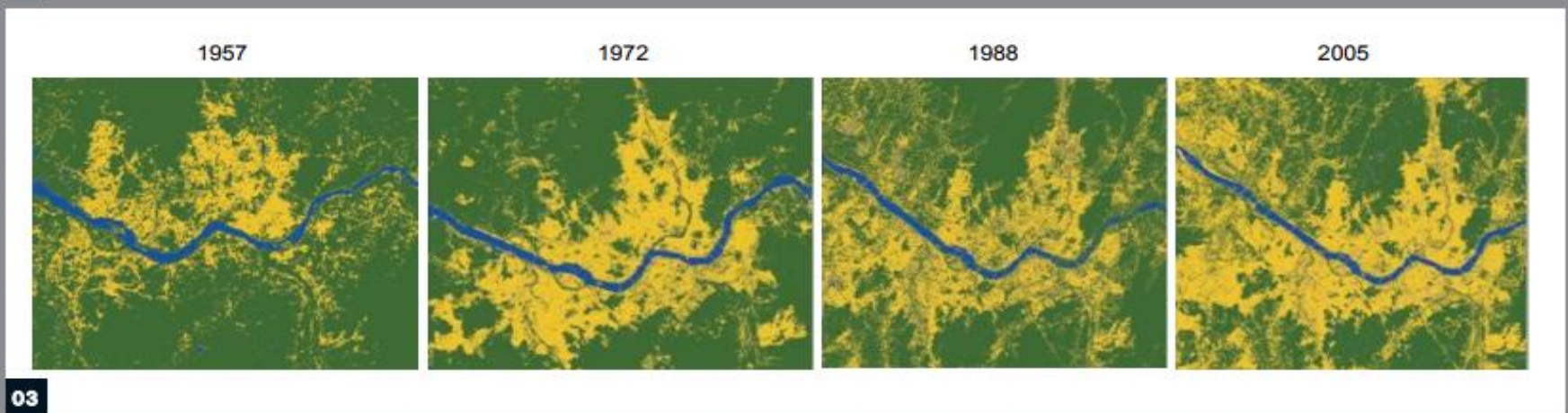
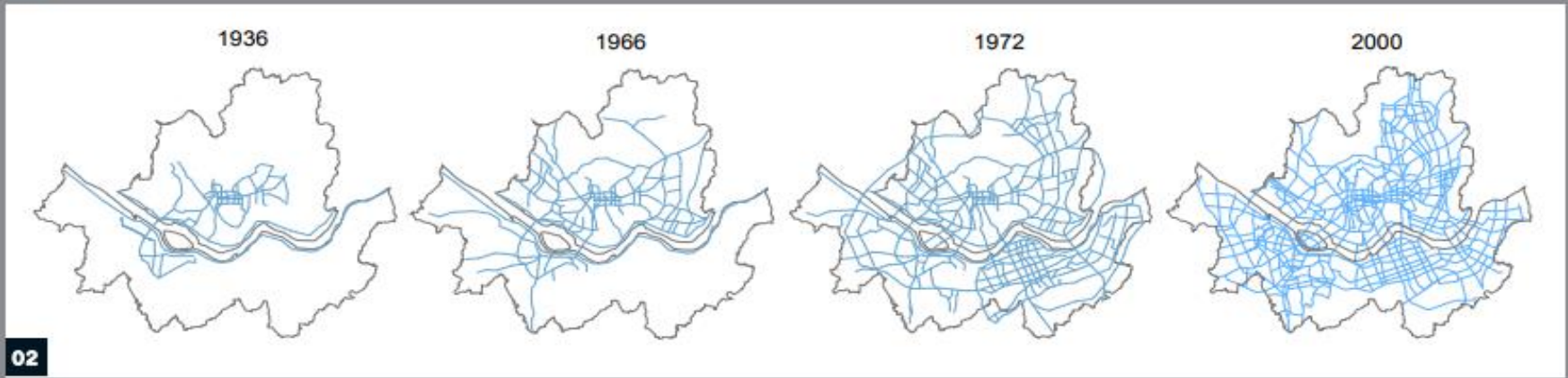
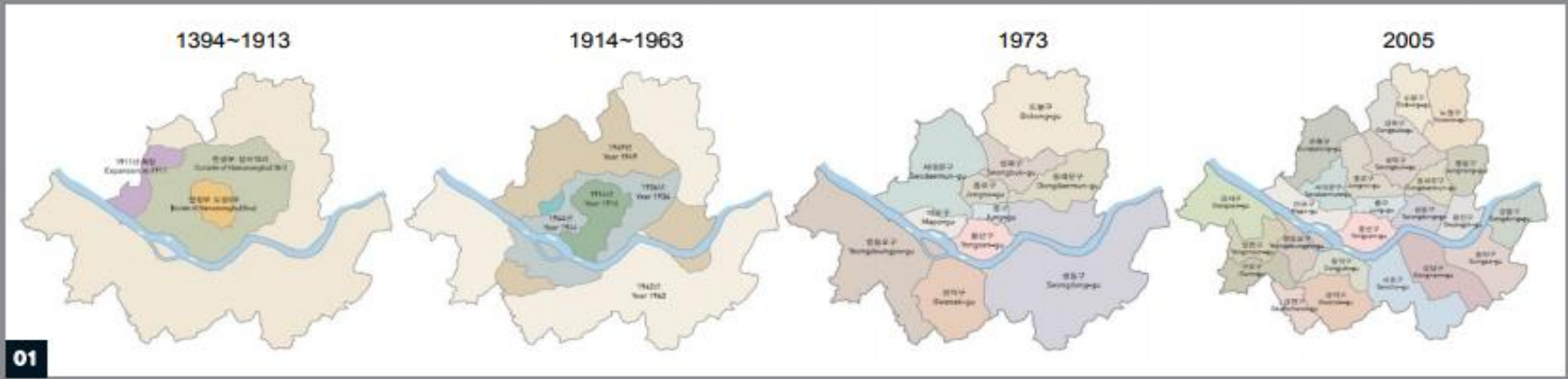
Housing Supply Ratio, 1926 ~ 2011





## Seoul Condition Changes

- 01 Changes in Administrative Boundary
- 02 Development of Road Network
- 03 Urbanization in the Seoul Metropolitan Region (Satellite Image)



# Introduction

- Seoul is now one of the top world-leading cities!

**1st place** of  
World Electronic Government

Awarded for 7 consecutive years (2013-15)  
UN-Rutgers University(SPAA) 2003, 2005, 2007, 2009, 2011, 2013, 2015

**1st place** of  
Mobility and Transportation

IESE Business School Report 2016

**8th place** of  
The City in Motion Index 2016

IESE Business School Report 2016

**7th place** of  
Sustainable Cities Index 2016

ARCADIS Design & Consultancy 2016

**6th place** of  
World's Largest Business Centres and Real Estate Markets

JLL Global 300 Cities 2016

**11th place** of  
Global City Index 2016

A.T.Kearney and Foreign Policy Magazine 2016

**8th place** of  
Business Friendly Country

World Bank 2012

**3rd place** of  
Economic Competitiveness

Newsweek 2011

**6th place** of  
Comprehensive Ranking on Global Power City Index(GPCI)

Awarded for five consecutive years (2012-16)  
The Mori Memorial Foundation 2012, 2013, 2014, 2015, 2016

**5th place** of  
Convention-Friendly Cities

For three consecutive years (2010-12)  
UIA 2012

# Introduction

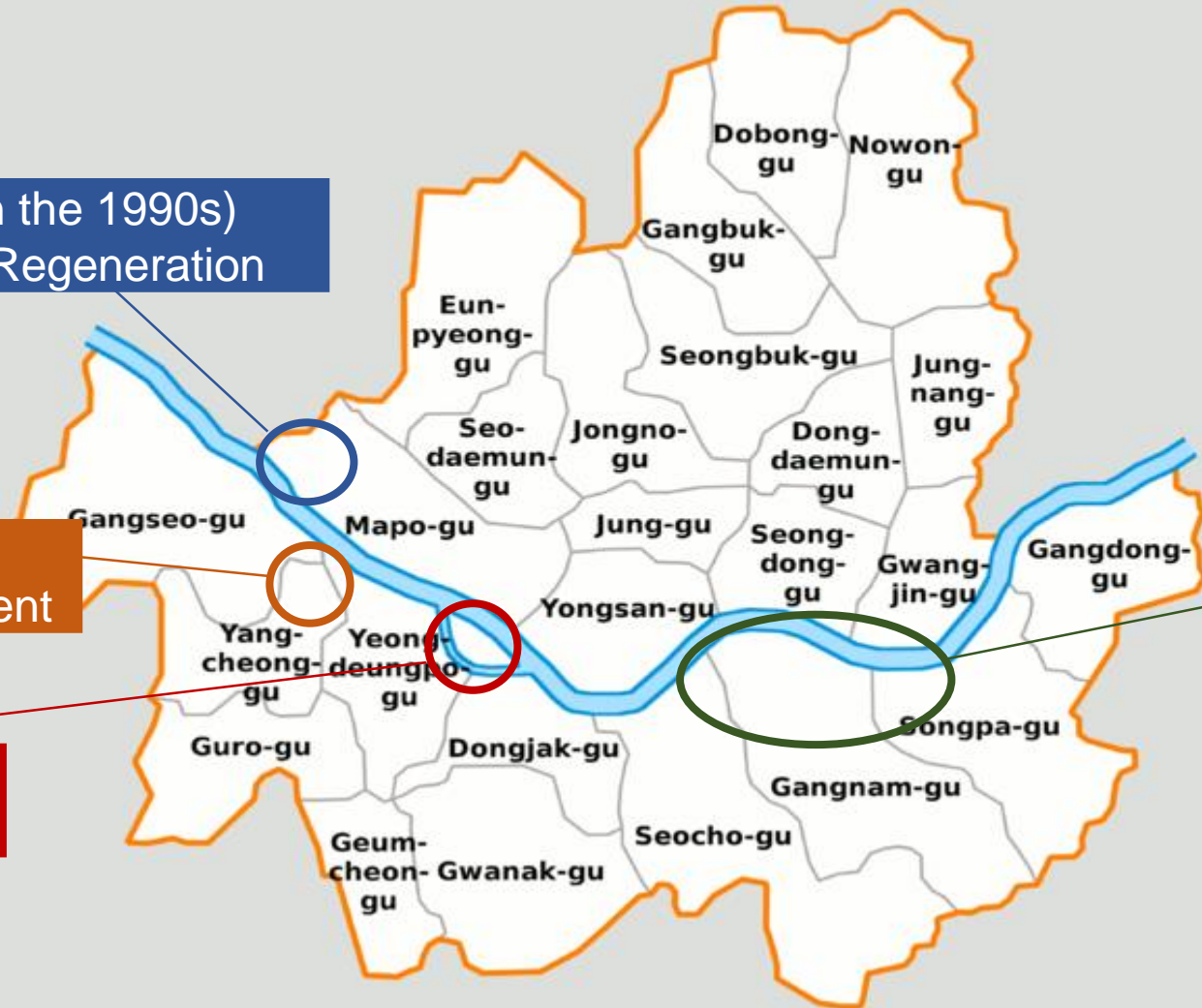
- In this presentation, 4 cases will be introduced:

4. Sang-am (in the 1990s)  
by Ecological Regeneration

3. Mok-dong (in the 1980s)  
by Housing Site Development

1. Yeouido (in the 1960s)  
by Land Reclamation

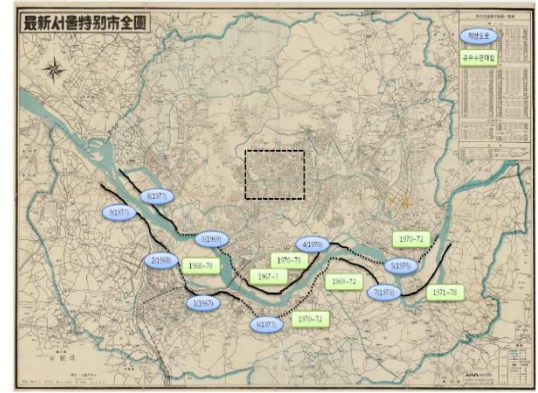
2. Gang-nam (in the 1970s)  
by Land Readjustment



# **Yeouido by Land Reclamation**

(1960s~ 1970s)

# Background



- Increase in the population of Seoul had caused an expansion of settlements even near to the Han river.
- Since the area was vulnerable to frequent flooding, there was an urgent need for good management of the river and sewerage system.
  - There was serious damages due to flooding in the area in 1966.
- ➔ The government decided in 1967 to build embankment **AND**
  - **Reclaim the land** inside the embankment for further development
  - **Build riverside expressway** on the embankment

## Expected Outcomes:

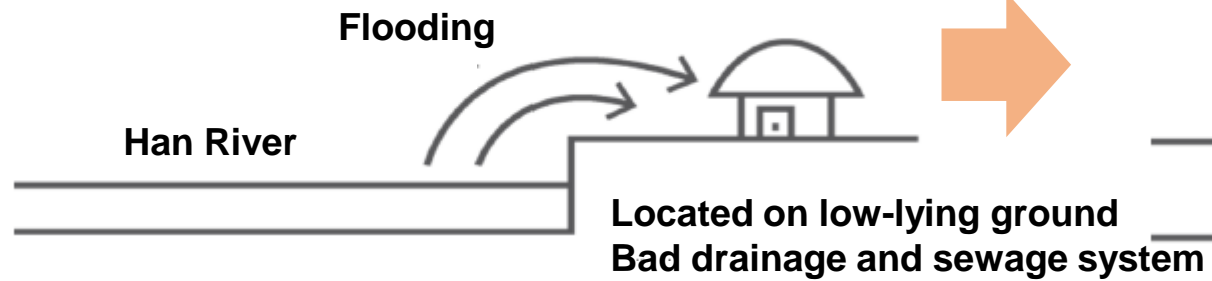
Improved infrastructure + Expanded land + Profit creation by selling the reclaimed land

← “ Han River Development Plan” in 1967

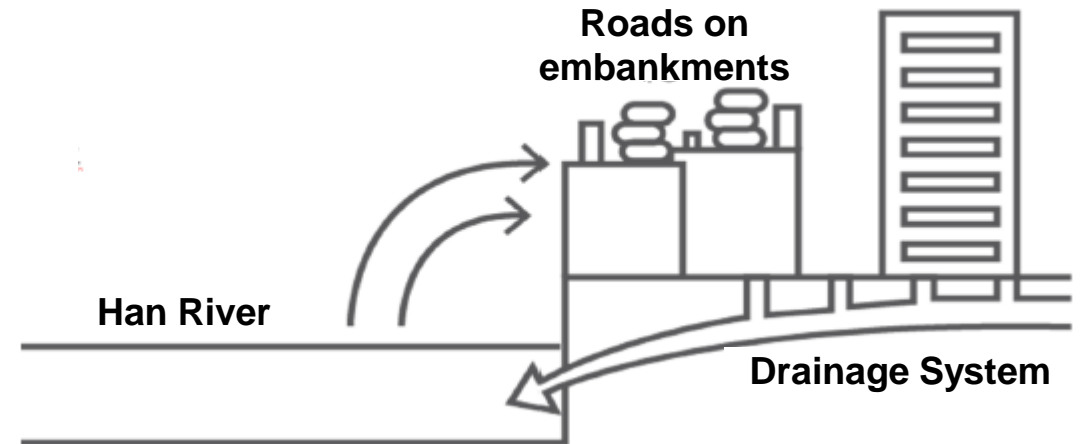


# Mechanism of Land Reclamation

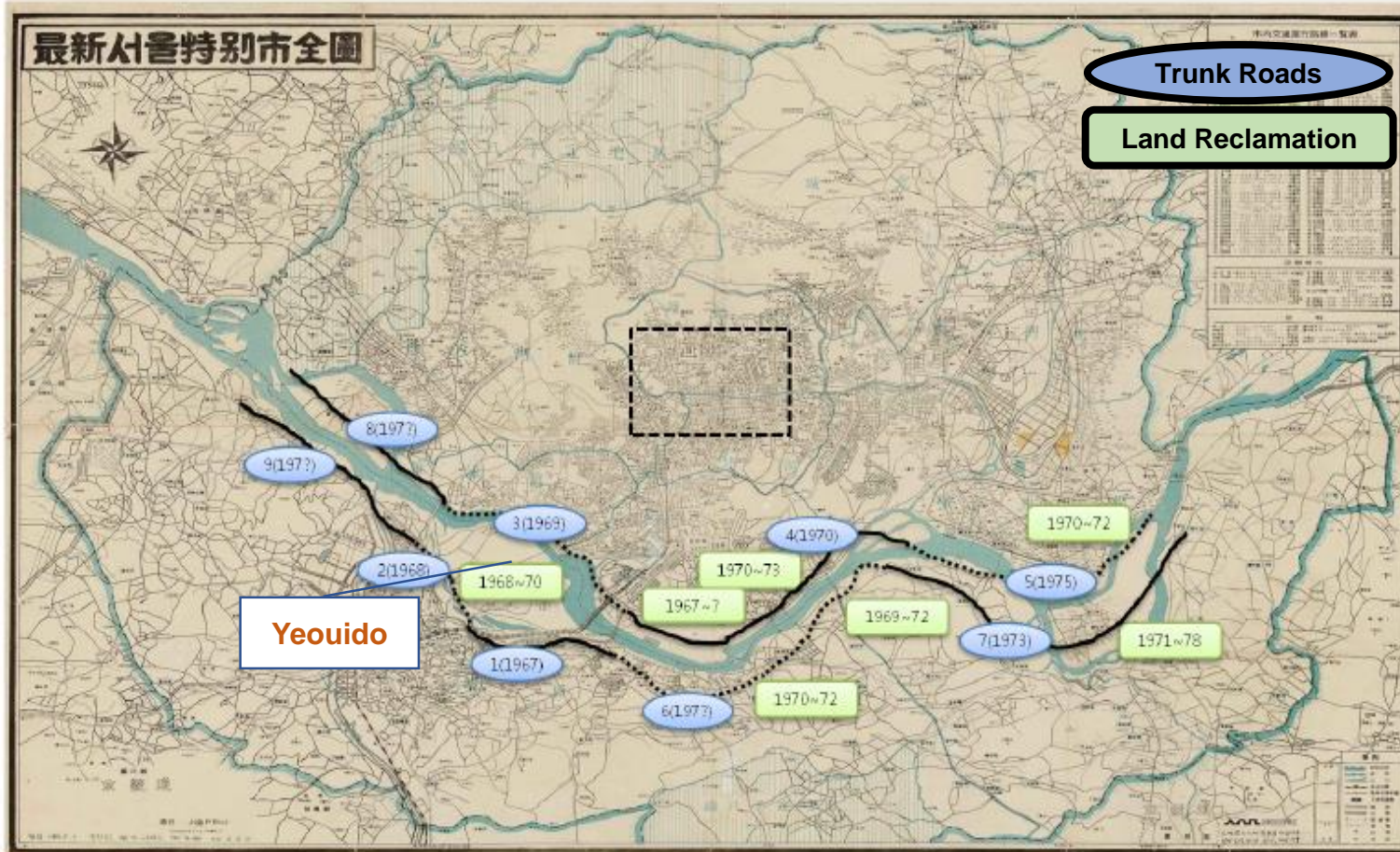
BEFORE



AFTER



# Han River Development Plan in 1967



- Building 74km long four-lane roads on the north and south part of Han river, dividing into 9 sections
- Reclaiming land inside/outside of the embankment
- Selling reclaimed land after finishing one section to finance construction of the next section
- Building a new subcenter of Seoul in **Yeouido**



# Han River in 1960s vs 1970s

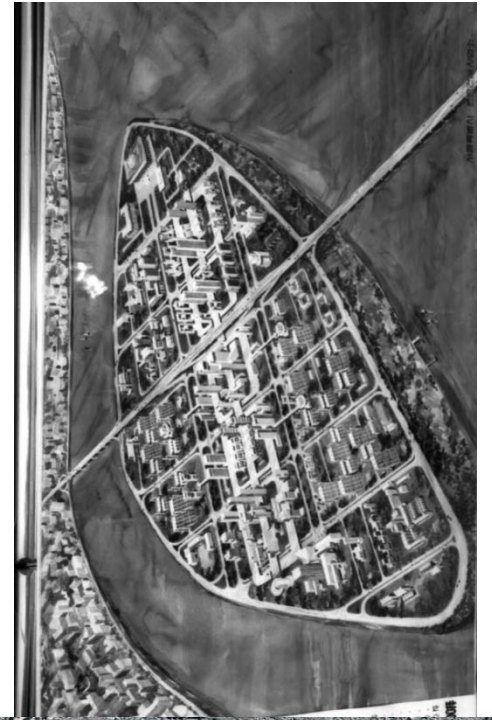


Riverside Expressway



# Overview of Yeouido

- Building 7.6 km long embankment around the Yeouido island and then reclaiming land with 15-meter height (all works within 110 days)
  - Establishment of the total 2.8 km<sup>2</sup> land in 1968
    - Public space: 0.7 m<sup>2</sup>
    - Sold land: 2.1 m<sup>2</sup>
  - The construction cost was recovered by the sales of reclaimed land in 1971 and some left revenue was used to build subway system.
- Becoming the first subcenter of Seoul
- Sharing the functions traditionally performed by the old city center with National Assembly, broad casting companies and business district as well as housings







After building an embankment around Yeouido in 1968







# Lessons Learnt

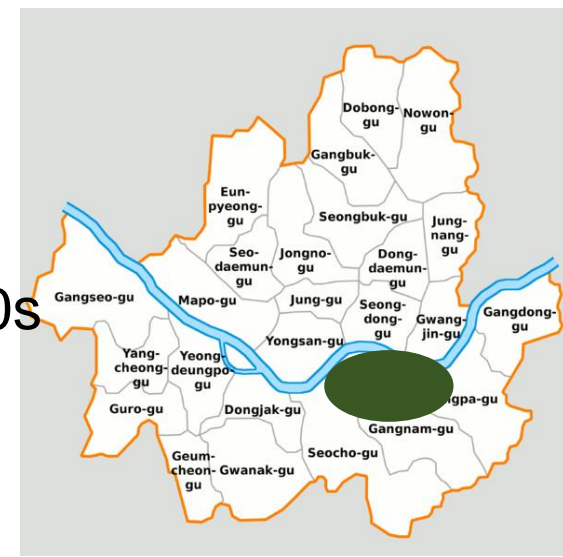
- Land reclamation along the Han River fulfilled multiple purposes including:
  - Improvement in the management of the river
  - Improvement in flood control
  - Securing land for development
  - Creation of financial revenues
- HOWEVER, some of the negative consequences are:
  - Bad accessibility to river due to the embankment and expressways
  - Too many apartments along the river → called “*Republic of Apartments*”

# **Gang-nam by Land Readjustment**

(late 1960s~ 1980s)

# Background

- Explosive population growth vs. Housing shortage in Seoul in 1970s
- During the 1970s, about 3 million people moved in Seoul, which is equivalent to **800 new residents everyday** requiring around 200 houses a day in Seoul
- Urgent need for LARGE scale development



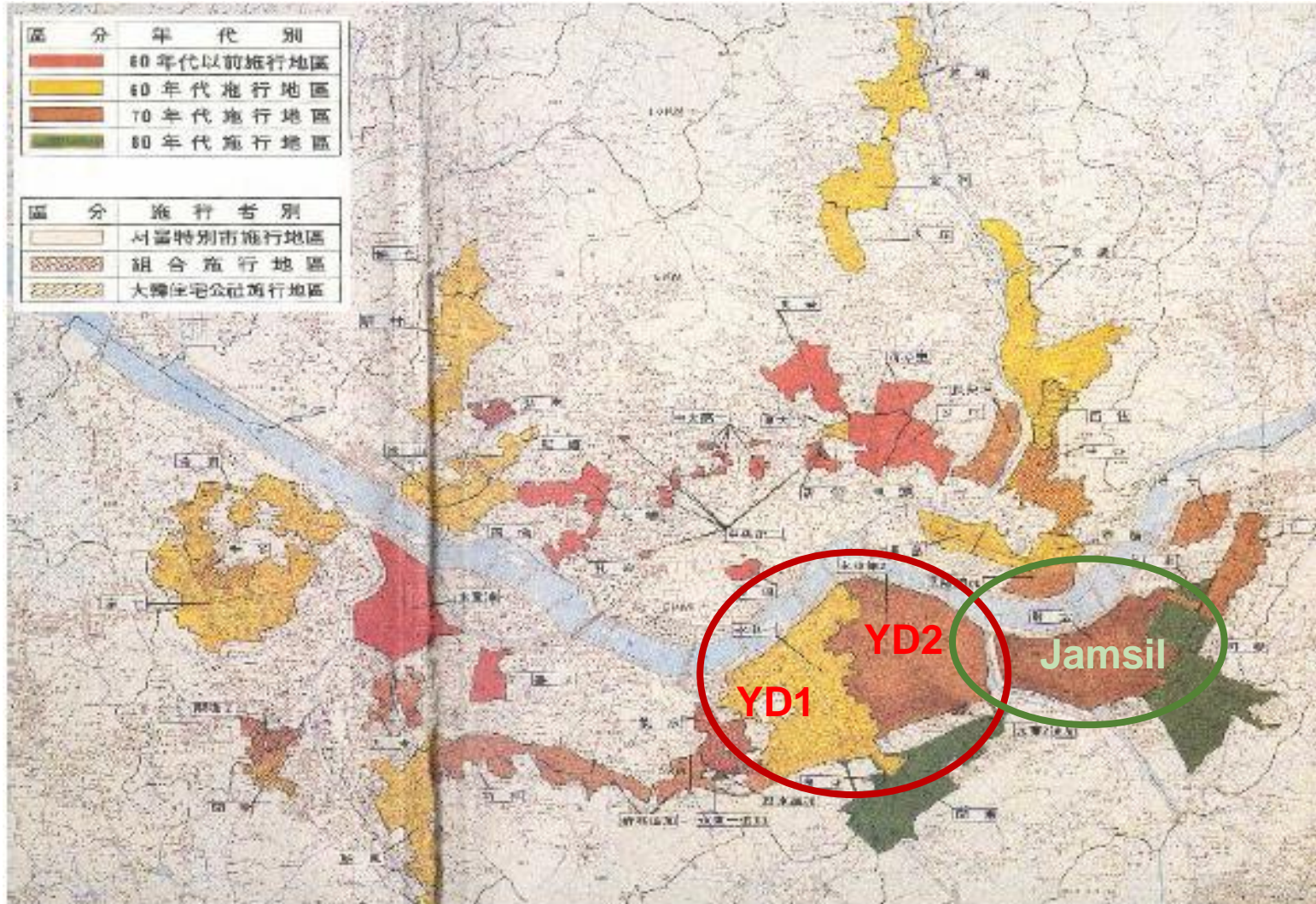
- Increased accessibility to Gang-nam Areas (southern part of Han River) thanks to construction of the Hannam Bridge (1966-1968)
- Policy promoting population dispersal to the south of the Han River
- Need to secure land for the Kyungbu Highway (1967~1970)

Kyungbu Highway





# Location of Gang-nam Projects



- Development of Gang-nam
- Yeongdong District 1
  - Yeongdong District 2
  - Jamsil District

# Mechanism of Land Readjustment

## Land Readjustment Program:

A replotting-based approach, exchanging and subdividing/combining the land without altering the relationship of rights in existence prior to the program



Owner have to provide **land contribution** for public facilities and project finance!

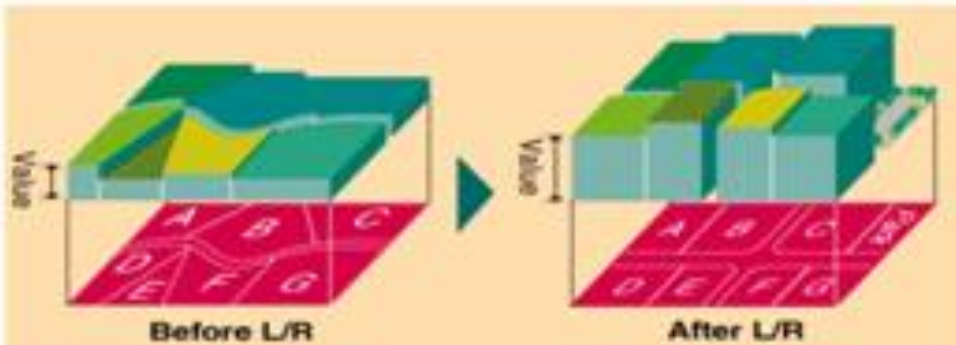
- Size of land contribution: 30~70% of the area depending on estimated land value appreciation



→ Prevent disorderly urban sprawl as the city grew in areas without sufficient financing

→ Acquire public land in new built-up areas in advance

Source: Seele, W, "Land Readjustment In The Republic of Germany., In Doebele, W.A., ed., Land Readjustment: A Different Approach To Financing Urbanization", Lexington Books, USA, 1982

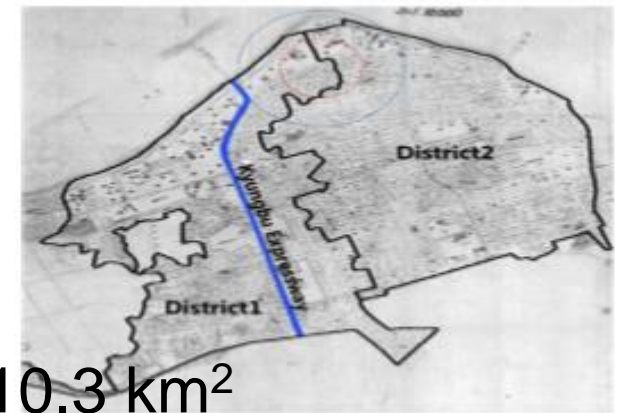




# Process of Land Readjustment Projects in Yeongdong District



# Overview of YD 1 and YD2



- YD1 (Yeongdong District 1)
  - Construction Period: 1968 ~1990, initially plan to develop 10.3 km<sup>2</sup>
  - Originally initiated to secure land for Kyoungbu Highway(7.6km in YD1 → requiring area of 0.3km<sup>2</sup>)
  - The first large-scale land readjustment project (5 to 10 times bigger than the previous projects)
  
- YD2 (Yeongdong District 2)
  - Construction Period: 1974~1986, 13 km<sup>2</sup>
  - Some improvements compared to YD1 in planning with a grid road network structure and larger subdivisions (around 200 m<sup>2</sup> )

# Public Land Secured in YD1 & YD2

Area	Before the Program		After the Program		Land Reduction Rate
Yeongdong District 1	Private Land	94%	Housing Site	53%	39.1%
	National / Public Land	6%	General Land Set Out for Recompense*	5%	
			Public Land	42%	
Yeongdong District 2	Private Land	83%	Housing Site	58%	35.1%
	National / Public Land	17%	General Land Set Out for Recompense*	15%	
			Public Land	27%	

Source: Development of Gang-nam by Myunggu Kang (seoulsolution.kr)

# Challenges and Solutions

- In the early stage of development, YD failed in attracting citizens and investors..
- So the Seoul Metropolitan Government had introduced various measures and policies including
  - Banning constructing new buildings(1970), department stores and bars(1972), new schools (1974) in the old city center
  - Building a new bridge (Yeongdone Bridge) (1970~1973)
  - Introduction of **Apartment District (25% of YD1&2)** to induce high-density development
  - ➔ This became the major trigger for the explosive population growth in Gang-nam area.

# Apartment District



Source: Seoul Metropolitan Government, 2011.

	Year	Size of Area (km <sup>2</sup> )	No. of Households
Low-Density APT District	1976-1979	3.8	50,152
High-Density APT District	1976-1983	7.5	90,957



**Low Density District**



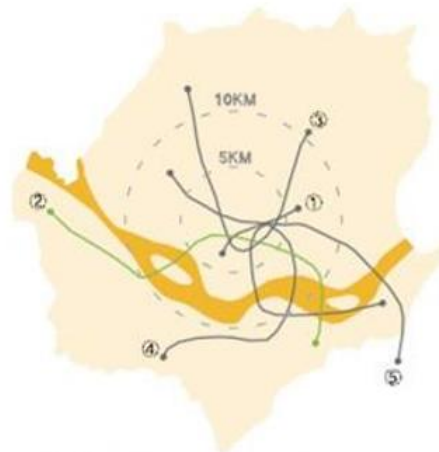
**High Density District**

Source: Spatial Development of Seoul by Jung-Joong Lee

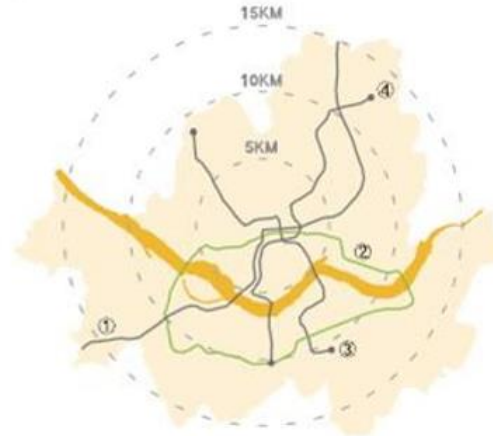


# Provision of Infrastructure & Relocation of Major Facilities

- Modification of subway plan for Line 2 in 1975 (green line in the picture)



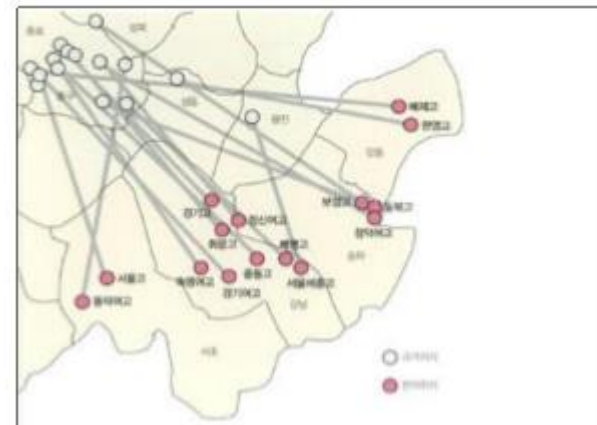
Before the Metro Plan change



After the Metro Plan change

- Road ratio= 24.6% in a grid network
- Arterial roads with a 50 m or wider width and the riverside expressways
- Relocation of major facilities like the prestigious high schools, Supreme Court and the Public Prosecutor's Office, bus terminal and etc.

## Relocation of High Schools



Source: Development of Gang-nam by Myunggu Kang (seoulsolution.kr)

# Lessons Learnt

- 30% of the built-up area in Seoul was developed using land readjustment.
- Land readjustment in Gang-nam contributed to:
  - Total transformation of mostly fields to large urban areas (around 30km<sup>2</sup>)
  - Improvements in infrastructure for public service
  - Provision of high-density housing
- HOWEVER, downsides of the system include:
  - Lengthy project periods between 5 to 10 years, due to the complexity of the readjustment process
  - Increase in the ratio of land contribution required to cover an increase in project costs and increased demand for public space (from 31.6% in 1960s to 55% in 1980s) → escalation in land price
  - Distributional issues since land owners tend to enjoy high land appreciation benefits in many cases.

# **Mok-dong by Housing Site Development**

(1980s~present)

# Background of Housing Site Development

- Need for a new approach due to the high ratio of land contribution in land readjustment projects and exhaustion of reclaimed land areas
- Relatively better financial capability of the government and availability of various financing mechanisms in 1980s
- Still high housing shortage
- ➔ Setting a national plan to build 5 million housing units over 10 years in 1980 (Given the fact that the total stock of housing in 1980 was 5 million, it is a quite ambitious plan!)
- As a powerful measure to achieve the goal, “Housing Site Development Promotion Act” was introduced in 1980.
  - A very strong legal framework to promote government-led development focusing on housing supply and public development

# Housing Site Development Promotion Act

- A comprehensive land development scheme implemented by the public sector through active participation in every stage of the process, including land acquisition, development, supply and management
- Goal: To secure sufficient land for constructing apartment complexes
- Implementation entities: Korea Land Corporation & Korea National Housing Corporation, Local Government Agencies
- Designation of Housing Site Development Projects (as of 2006, units: 1,000m<sup>2</sup>, (%))

Division	Total	Korea Land Corporation	Korea National Housing Corporation	Local Government Agencies
Nationwide	639,674 (100.00)	344,313 (53.83)	171,325 (26.78)	124,036 (19.39)
Metropolitan Areas of Major Cities	336,123 (100.00)	190,042 (56.54)	88,199 (26.24)	57,882 (17.22)
Seoul	37,106 (100.00)	6,438 (17.35)	7,378 (19.88)	23,290 (62.77)

Source: Ministry of Construction & Transportation, 2007; 2007 Housing Business Manual, p.160; Housing Seoul, 2008, Internal Data

**10% of the total built-up area**



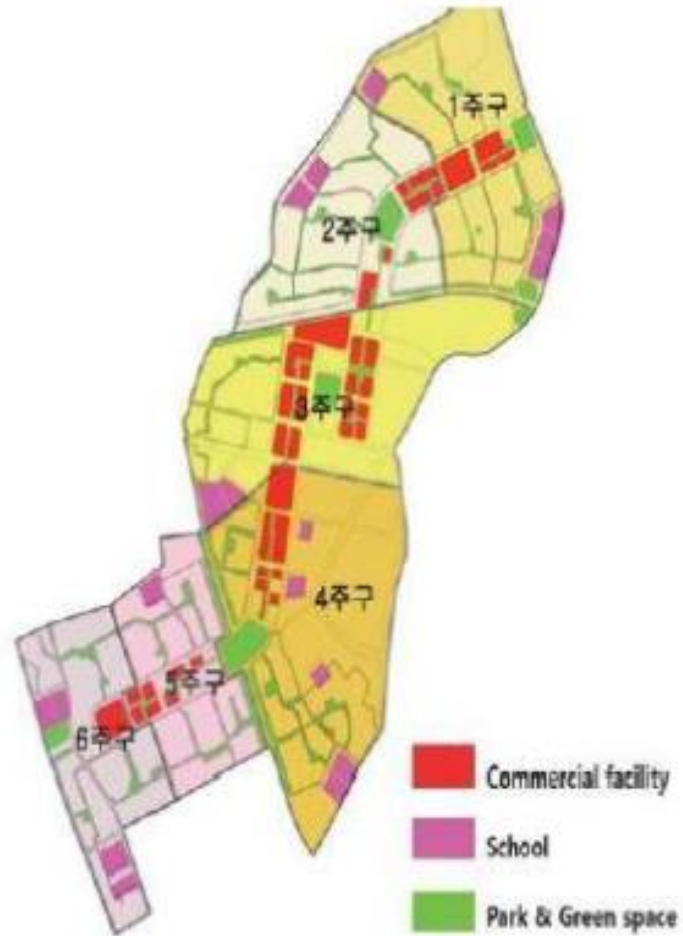
# Overview of Mok-dong

- Development of 4.3km<sup>2</sup> to host 26,629 households (1983~1989), implemented by part of Southwest Regional Development Plan in 1983
- Initially agricultural land and frequently flooded due to its close location to Anyang stream and low-laying land characteristic → low land value
- The major drivers behind the development of Mok-dong include:
  - Supply of housings
  - Vitalization of the southwestern part of Seoul
  - Flood control of Anyang stream
  - Maintenance before 1986 Asian Games & 1988 Olympic Games



Source: A study on experience and performance of Korean Urban Development by LH Institute (2017)

# Overview of Mok-dong Plan



- Planned as a “world-class new town in a city”
    - Self-containment neighborhood with central commercial and business areas, including schools, regional heating from a new combined heat and power plant, parks, cultural and sports facilities
    - 30% of rental housing out of the total 25,000 households
    - Introduction of linear central concept of the Hook new town plan with a central axis
- ➔ Set an example as a framework for a modern new town



# Challenges and Solutions

- Illegal settlements along Anyang stream
  - Before the project, the government did not have exact figure estimations on illegal settlements in the area
  - Compensation for land and building owners but not for renters
  - Later after furious conflicts, renters received a “right for residency” in new apartment.
- Insufficient parking spaces in apartment complex– Currently serious issue

# Lessons Learnt

Housing site development approach has become popular with advantages including:

- Effective tool to realize “urban planning” by designating “soon-to-be developed areas” and developing the area according to the plan
- Prevention of development profit privatization by implemented by public entities, which reinvested the profits in other housing site development projects
- Solution to housing supply shortage by inducing vertical development

But, some of the pre-conditions for the successful implementation are:

- A certain level of financial capacity to purchase land, (so target land with low price and less populated)
- Legal framework for strong enforcement (→ limited participation of residents → conflicts with residents, renters and illegal settlers)

# **Sang-am & World Cup Park by Ecological Regeneration**

(1990s~present)

# Background



- Paradigm shift in urban planning and management from quantity and development-oriented to sustainable development since 1990s
- Sang-am New Millennium Town Project
  - A long-term plan established in 1998 to shape Sang-am as a future city with ecological restoration of a Nanjido landfill site
  - Driven by the decision to build a stadium for the 2002 Korea-Japan World Cup
  - Goal to build a new, sustainable town for the future through environmental renewal and novel technologies with high-tech industry clusters



# Overview of Sang-am New Town Plan

- Announced in 1998
- Total area of 6.3km<sup>2</sup>
  - 1.6km<sup>2</sup> of area by Housing Site Development
  - 2.7km<sup>2</sup> of landfill site and others
- Goal
  - Short-term: construction of world cup stadium and provision of basic infrastructure by 2002
  - Mid-term: Completion of the housing site development project and 1<sup>st</sup> stage of DMC(digital media city) project by 2011
  - Long-term: Finalization of the Millennium city by 2048



# Nanjido Landfill

- Nanjido: Main landfill for Seoul during 1978 ~ 1993  
(Initially expected lifetime until 1984)
  - ✓ 92 million tons of waste dumped on the island
  - ✓ Two 90-meter-high mountains of garbage
  - ✓ Serious environmental and safety concerns





# Transformation of World Cup Park



Before



1970s ~ 1990s  
Unsanitary Landfill

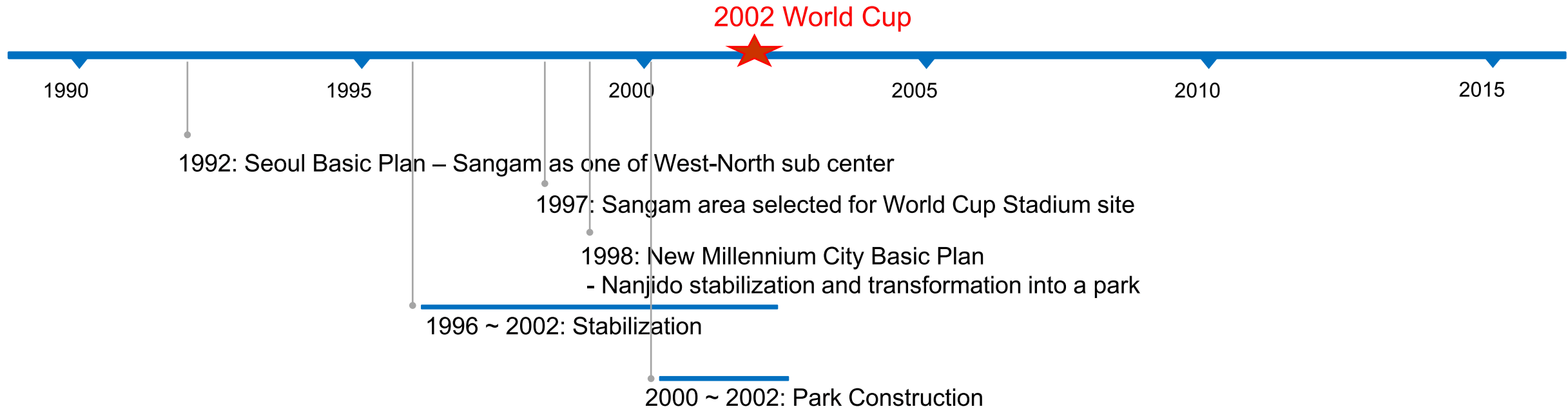


1996 ~ 2002  
Stabilization and Construction



Since 2002  
Ecological waterfront park

# Process of Landfill Transformation

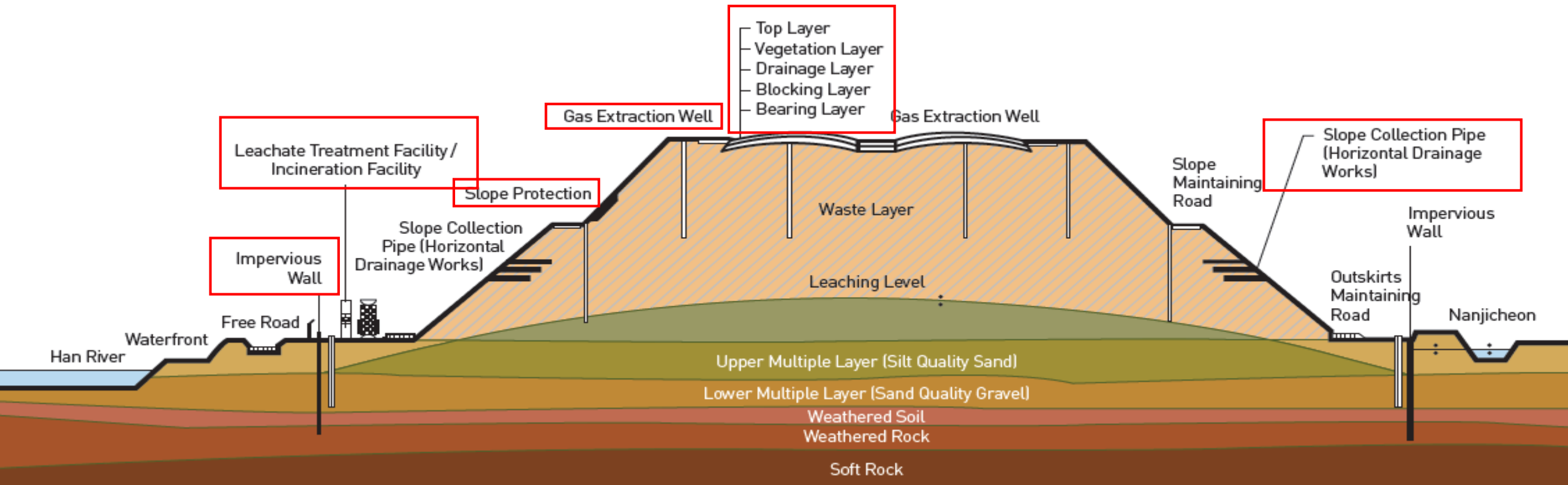


➔ 6 years of stabilization and 1 year of construction



# Overview of the Project

## Stabilization of Landfill



# Overview of the Project

- Leachate and Landfill Gas Treatment  
→ Clean water + Energy Resource



Installation of impermeable walls



Construction of landfill gas transport pipes



Heat production facility using landfill gas



# ***Ecological restoration of the landfill site totally transformed the neighborhood!***





# Lessons Learnt

- **Importance of creative envisioning**
  - Transformation of a mountain of waste into a park
  - ➔ Need to know what your city or country has and make the best use of it!
- **Public space as an effective tool for environmental & economic benefits**
  - In addition to the multiple environmental benefits, creation of public space can create multiple economic benefits as well!



# Conclusions

## Seoul's Approach

Continuous efforts to solve its problems

- Housing
- Basic service
- Public space ...

+  $\alpha$



**“ $\alpha$ ” includes:**

**Vision for future, strong leadership and enforcement, creative envisioning..**

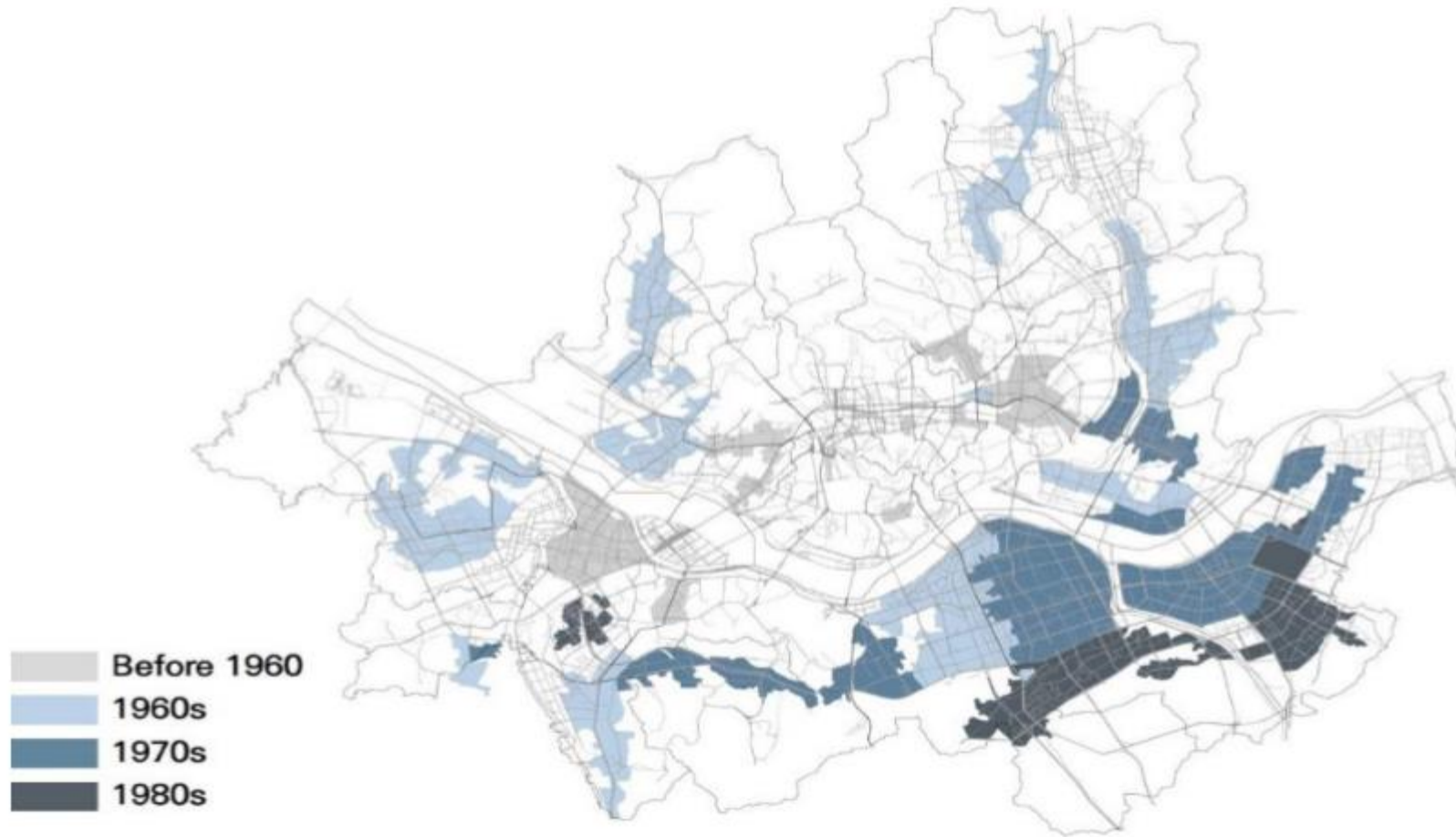
*→ The development of Seoul has been achieved by the combination of continuous rigorous efforts to “keep up with demands of each time period” and “ambitious plan with the vision led by strong leadership”.*

# **Plan & Implement NOW!**

- Tomorrow there will be more citizens and more problems to deal with..

# Land Readjustment

[Figure1] Land readjustment Area in Seoul



Source: Park, *et al.* 2009.

# Land Readjustment

## ◎ Government Initiation

Seoul Metropolitan Government(SMG) was the primary implementing agency.

SMG has carried out 90 percent of the 51 LR projects undertaken in Seoul.

[Table1] Land readjustment performance by implementers

	# of Projects	%	Total Area (m <sup>2</sup> )	%	Average area (m <sup>2</sup> )	Rate of Public Land	Reduction Ratio
Seoul Metropolitan Government	51	87.9%	131,204,428	93.7%	2,572,636	35.3%	45.8%
KNHC	3	5.2%	3,015,615	2.2%	1,005,205	28.4%	44.7%
Land Owners Association	4	6.9%	5,799,336	4.1%	1,449,834	23.7%	40.0%
Total	58	100.0%	140,019,379	100.0%	2,414,127	34.6%	45.5%

Source : Seoul Metropolitan Government, 1990.



# Some of the takeaways

- The development of Seoul has been achieved by the combination of continuous rigorous efforts to “keep up with demands of each time period” and “ambitious plan with the vision led by strong leadership”.
- New development does not always guarantee migration of people into the new area. For the case of Seoul, the government has had played a critical role to make it as an attractive place.
- Creation of sub-centers has been effective in dispersing people.

**Plan & Implement NOW!**

– Tomorrow there will be more citizens and more problems to deal with..