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

Jaemin Song, Ph.D.  
(jmsong@uos.ac.kr)

Director General for International Urban Development Collaboration  
Seoul Metropolitan Government
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: seoul solution.kr
Introduction

- Provision of basic service in Seoul

\[\text{Road Lengths}\]
\[\text{Ratio of Unpaved Roads}\]
\[\text{Water Supply Coverage}\]
\[\text{Sewerage Coverage}\]

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

Source: http://data.si.re.kr
Introduction

- Housing Supply in Seoul

Housing Supply Ratio, 1926 ~ 2011

⇒ Around 60% percent until early 1980s and then improved

Source: http://data.si.re.kr
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!
• In this presentation, 4 cases will be introduced:

1. Yeouido (in the 1960s) by Land Reclamation
2. Gang-nam (in the 1970s) by Land Readjustment
3. Mok-dong (in the 1980s) by Housing Site Development
4. Sang-am (in the 1990s) by Ecological Regeneration
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

Flooding
Han River

Located on low-lying ground
Bad drainage and sewage system

AFTER

Roads on embankments
Drainage System

Han River
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

Source: https://citynetmembers.wordpress.com/category/interns/page/3/
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 km² land in 1968
  • Public space: 0.7 m²
  • Sold land: 2.1 m²

• 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)
Location of Gang-nam Projects

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

Source: Spatial Development of Seoul by Jung-Joong Lee
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 has 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

Process of Land Readjustment Projects in Yeongdong District

Source: Development of Gang-nam by Myunggu Kang (seoul solución.kr)
Overview of YD 1 and YD2

• YD1 (Yeongdong District 1)
  - Construction Period: 1968 ~1990, initially plan to develop 10.3 km²
  - Originally initiated to secure land for Kyoungbu Highway (7.6 km in YD1 ➔ requiring area of 0.3 km²)
  - 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 km²
  - Some improvements compared to YD1 in planning with a grid road network structure and larger subdivisions (around 200 m²)
## Public Land Secured in YD1 & YD2

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

*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
  - 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

<table>
<thead>
<tr>
<th>Low-Density APT District</th>
<th>1976-1979</th>
<th>3.8</th>
<th>50,152</th>
</tr>
</thead>
<tbody>
<tr>
<td>High-Density APT District</td>
<td>1976-1983</td>
<td>7.5</td>
<td>90,957</td>
</tr>
</tbody>
</table>

Source: Spatial Development of Seoul by Jung-Joong Lee

Low Density District

High Density District

Provision of Infrastructure & Relocation of Major Facilities

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

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 30km²)
  - 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) \(\Rightarrow\) 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: 1,000m², (%))

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


10% of the total built-up area
Overview of Mok-dong

• Development of 4.3km² 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

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

Source: Housing Site Development Projects by Sun-Wung Kim (seoulsolution.kr)
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)
• 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 6.3km²
  - 1.6km² of area by Housing Site Development
  - 2.7km² 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 1st 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 1890s

1970s ~ 1990s
Unsanitary Landfills

1996 ~ 2002
Stabilization and Construction

Since 2002
Ecological waterfront park
Process of Landfill Transformation

- 1990
- 1995
- 2000
- 2005
- 2010
- 2015

1992: Seoul Basic Plan – Sangam as one of West-North sub center
1997: Sangam area selected for World Cup Stadium site
1998: New Millennium City Basic Plan
   - Nanjido stabilization and transformation into a park
1996 ~ 2002: Stabilization
2000 ~ 2002: Park Construction

⇒ 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!

<table>
<thead>
<tr>
<th>Plants</th>
<th>Wild Birds</th>
<th>Terrestrial Insects</th>
</tr>
</thead>
<tbody>
<tr>
<td>271 species</td>
<td>582 species</td>
<td>114 species</td>
</tr>
<tr>
<td>2013</td>
<td>2013</td>
<td>2013</td>
</tr>
</tbody>
</table>
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 …

“α” 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”.

49
Plan & Implement NOW!

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

[Figure 1] 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.

<table>
<thead>
<tr>
<th>Table 1</th>
<th>Land readjustment performance by implementers</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td># of Projects</td>
</tr>
<tr>
<td>Seoul Metropolitan Government</td>
<td>51</td>
</tr>
<tr>
<td>KNHC</td>
<td>3</td>
</tr>
<tr>
<td>Land Owners Association</td>
<td>4</td>
</tr>
<tr>
<td>Total</td>
<td>58</td>
</tr>
</tbody>
</table>

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.