3+1 Goals of Urban Planning for Building a Smart and Sustainable City - A Case of Seoul -

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Outline

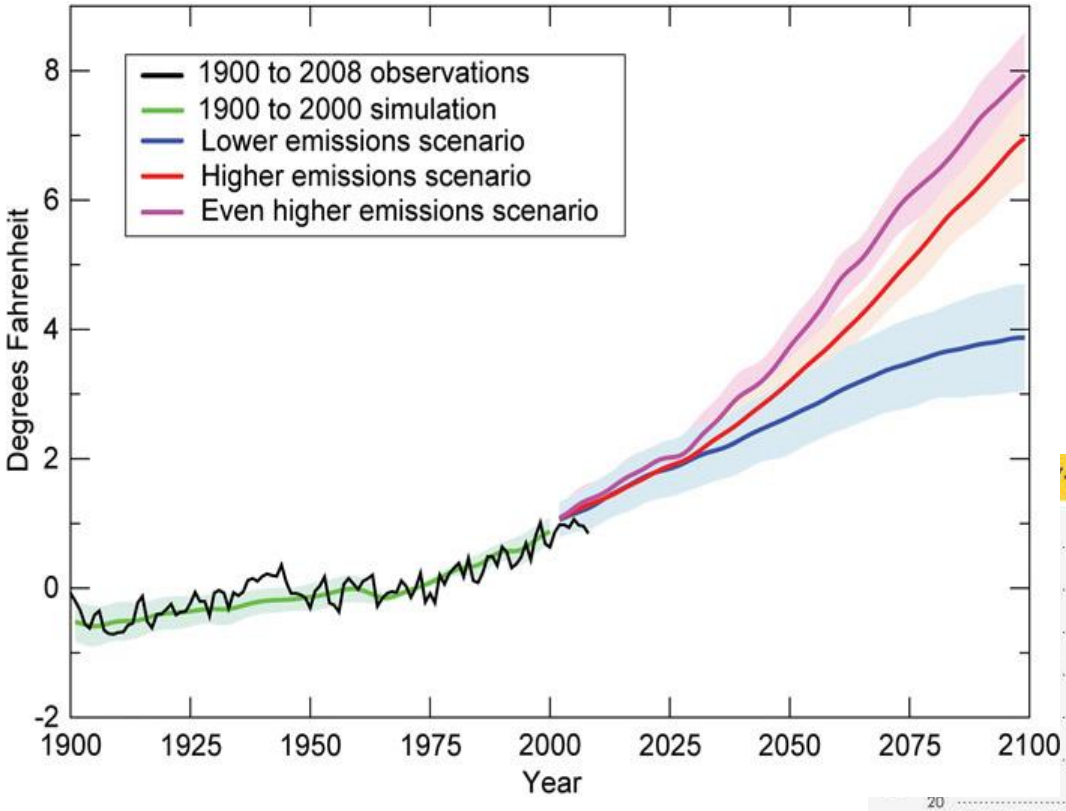
- Background
- What Urban Planning tries to accomplish
  - 3 goals
  - plus 1
- Case of Seoul
  - Land Readjustment
  - Cheonggyecheon (stream) Restoration
- Concluding Remarks

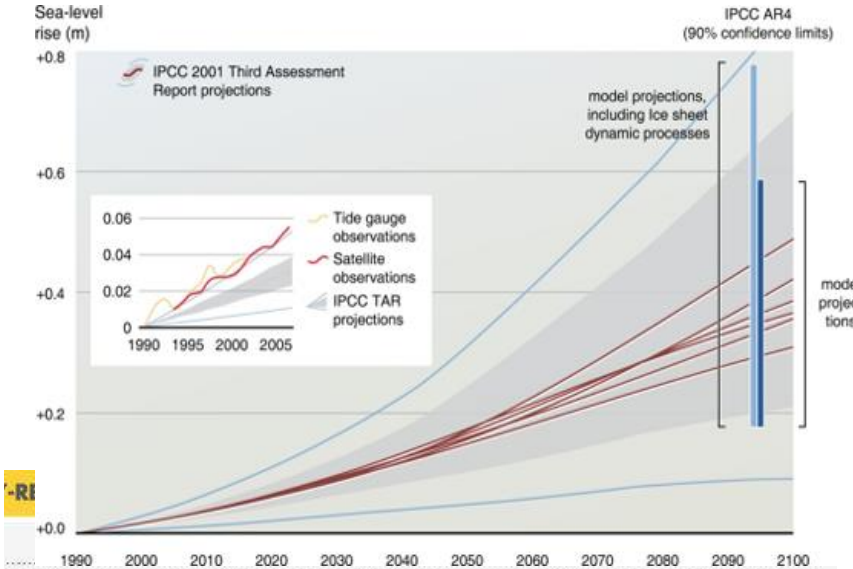
Jakarta Metro Area

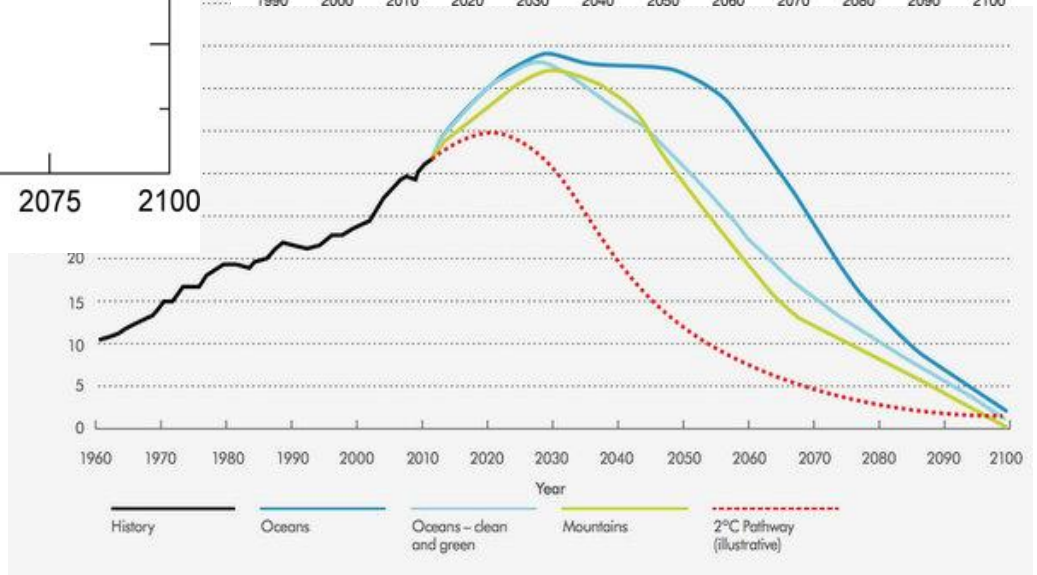
(Pseudo Urbanization has been happeinng)

Gambar 2.10 Perkembangan Lahan Terbangun di DKI Jakarta tahun 1972-2002

Technology alone can't stop Global Warming

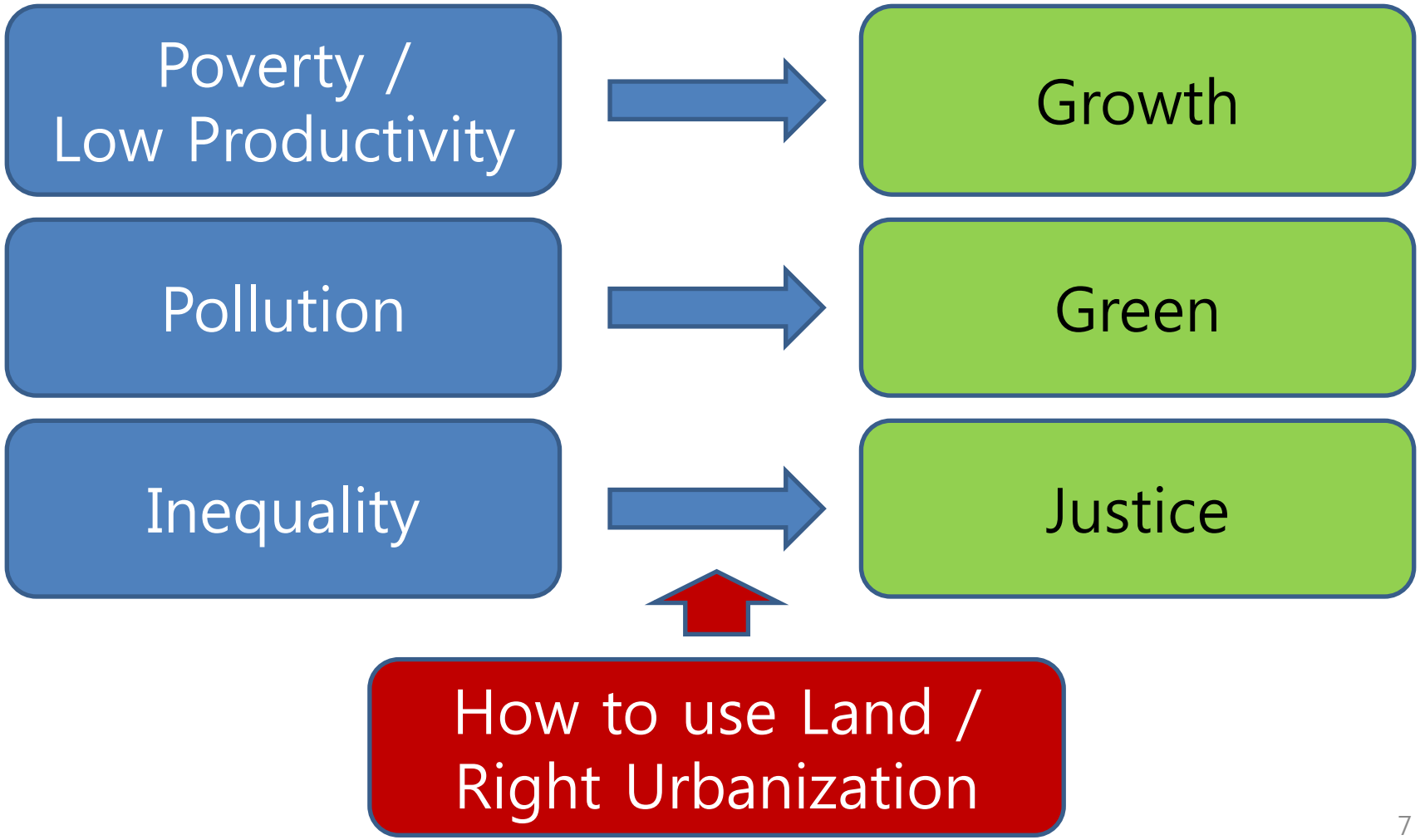




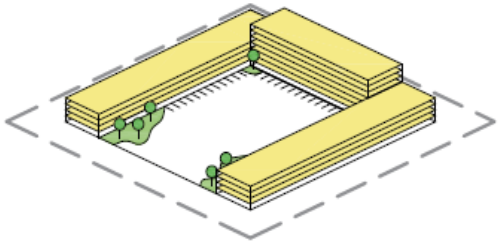


Impact = f(Pop, Prod, Tech, etc)

Three Major Problems and Corresponding Goals

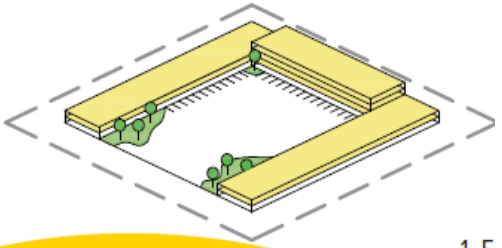


Population	1,000,000
Family size	5
Dwellings	200,000
Dwellings size	60m²
Residential Floor Area	12,000,000m²
Other Floor Area	10,000,000m²
Total Floor Area	22,000,000m²



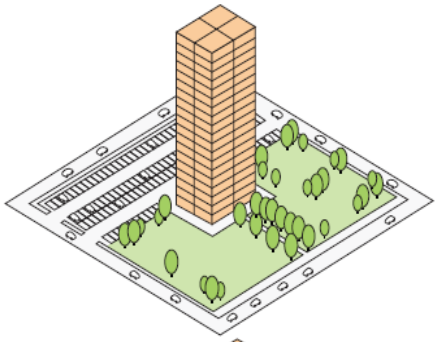
nario 1

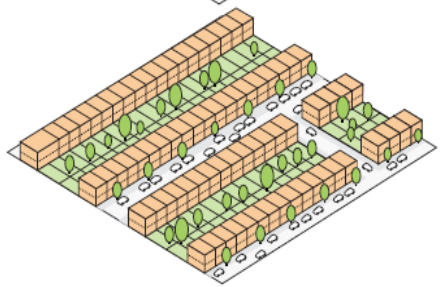
FAR	3.0
Plot Area	733 ha
Public Area	733 ha
Total Area	1,467 ha
Population Density	681,82 people/ha
Residential Density	136 dwellings/ha

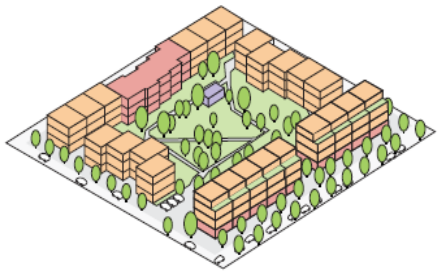


Scenario 2

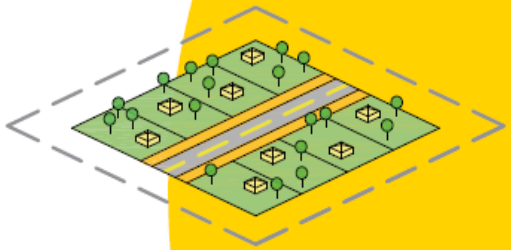
FAR	1.5
Plot Area	1,467 ha
Public Area	1,467 ha
Total Area	2,933 ha
Population Density	340,91 people/ha
Residential Density	68 dwellings/ha





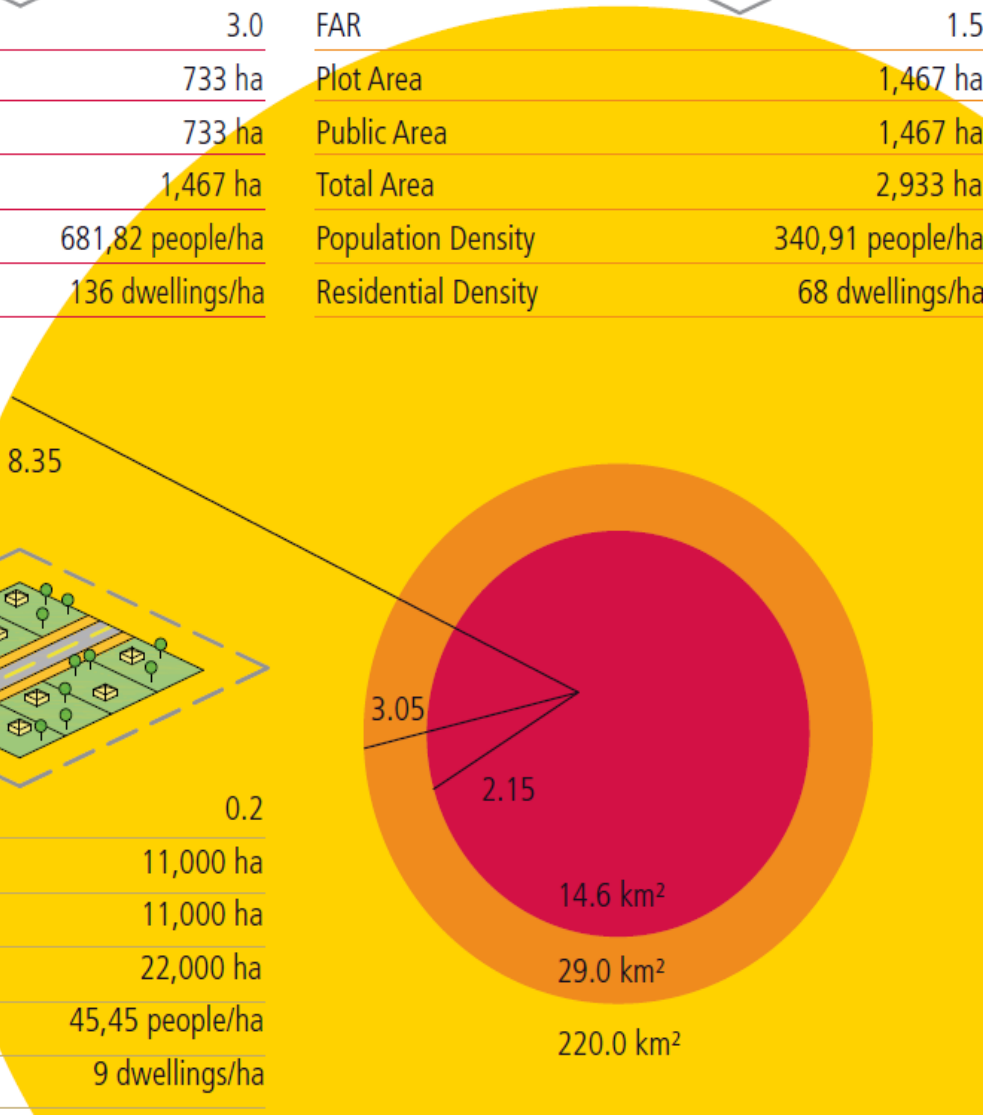


ndez Per (2006), Density: New Collective Housing



Scenario 3

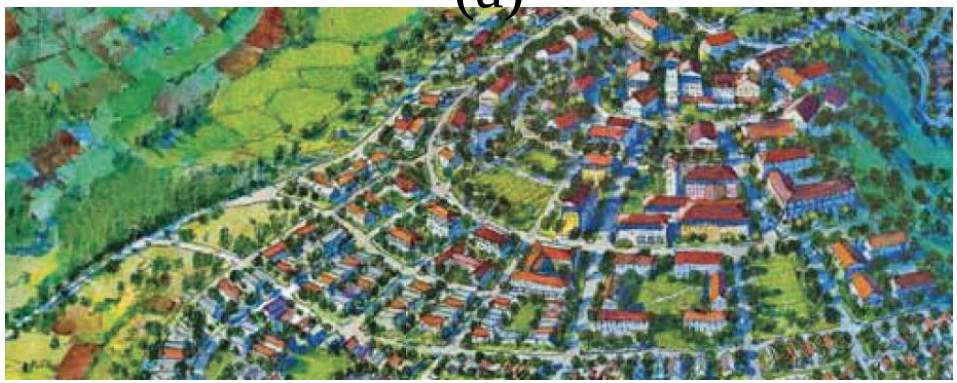
FAR	0.2
Plot Area	11,000 ha
Public Area	11,000 ha
Total Area	22,000 ha
Population Density	45,45 people/ha
Residential Density	9 dwellings/ha



Source: UN-HABITAT (2013)

Which one is greener?

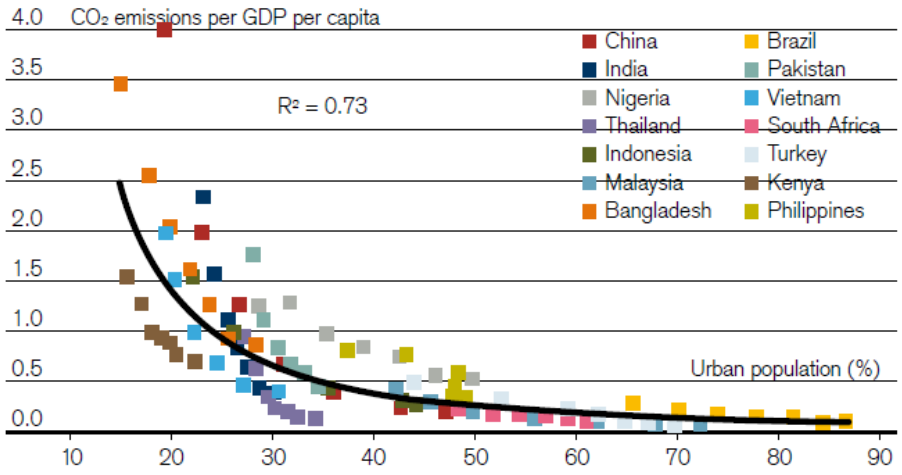
(a)



(b)

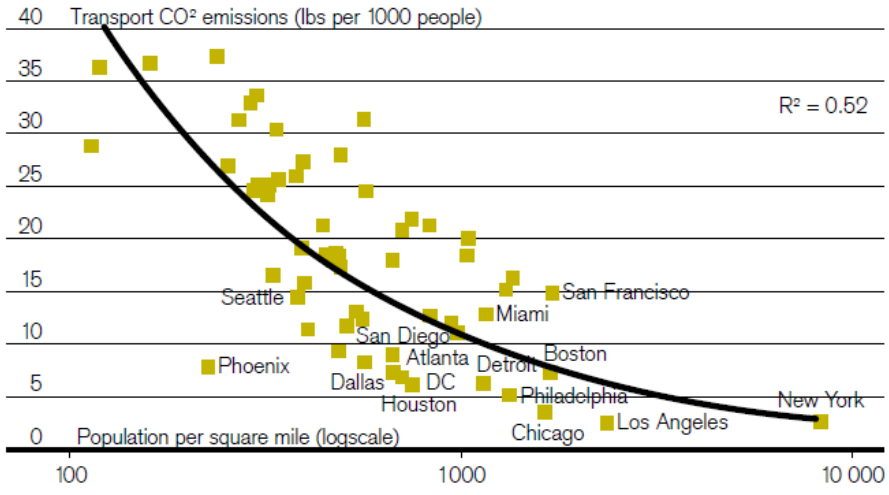
Total CO2 emissions versus urban population rate in emerging markets (1980–2010, 5-year intervals)

Source: World Bank Development Indicators, Population Division of Department of the Economic and Social Affairs of the United Nations Secretariat, Credit Suisse

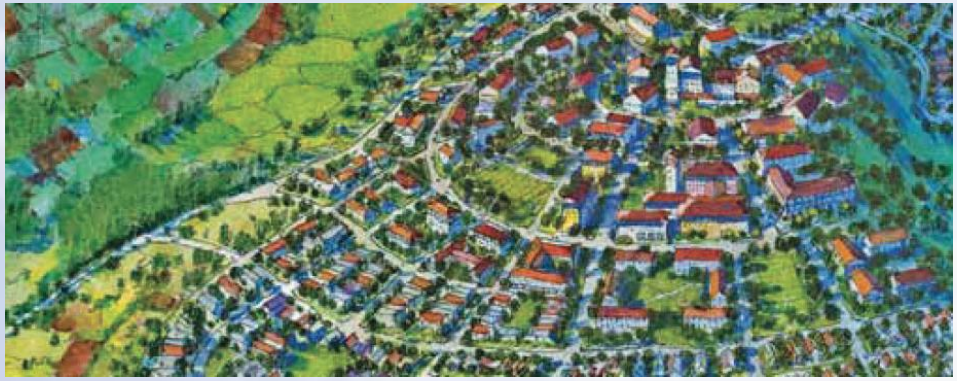


Emissions from transportation (public and private) versus population density for US metropolitan statistical areas

Source: US Census Bureau 2000 Census, Credit Suisse



Invisible Beauty of Seoul: Green by "Proactive" Urban Planning



Walkable City

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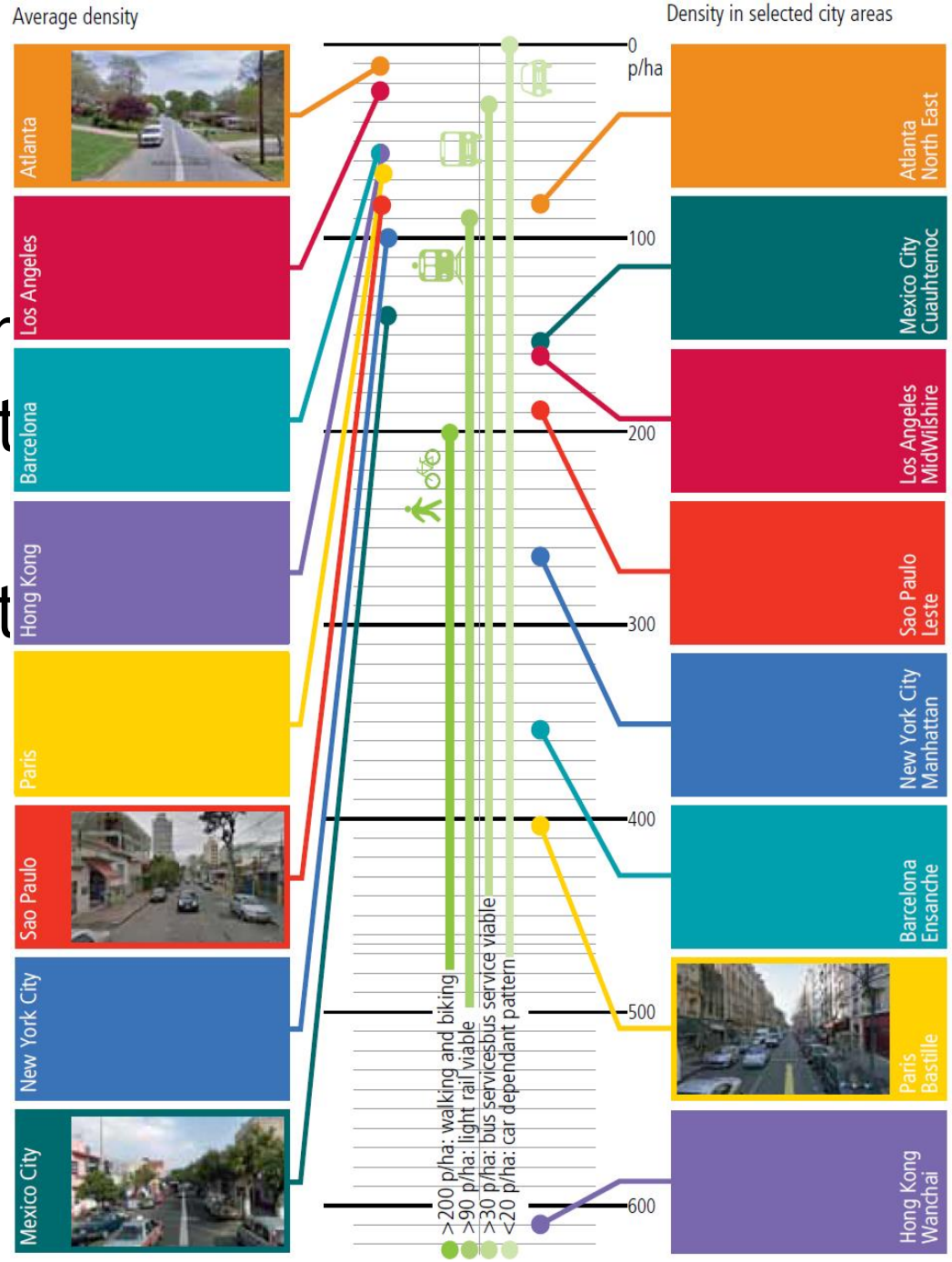
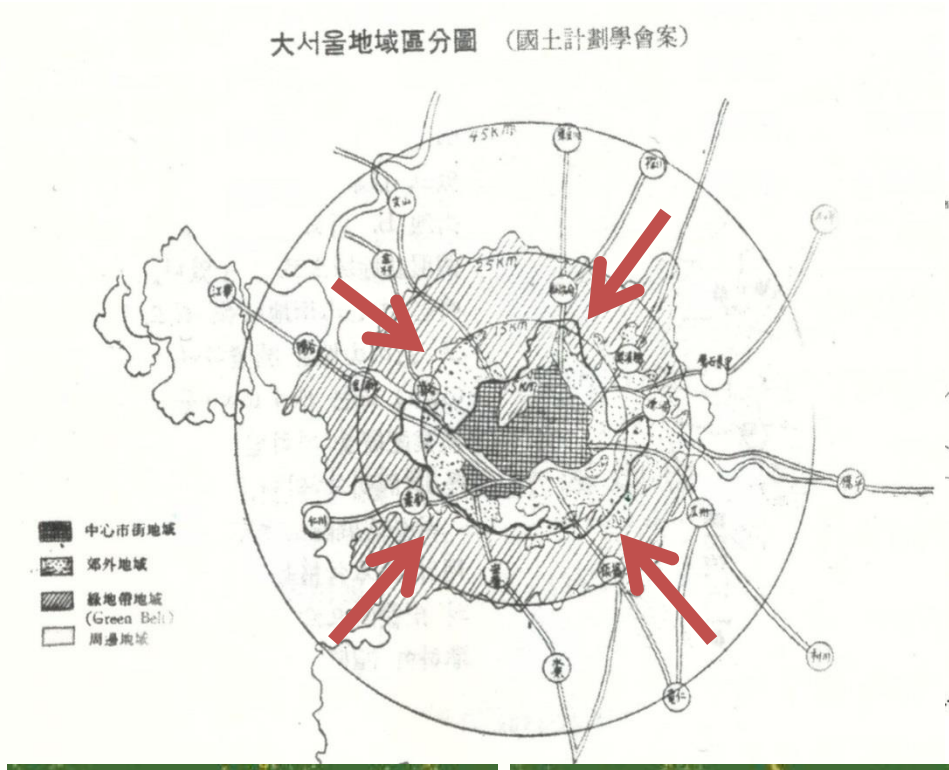
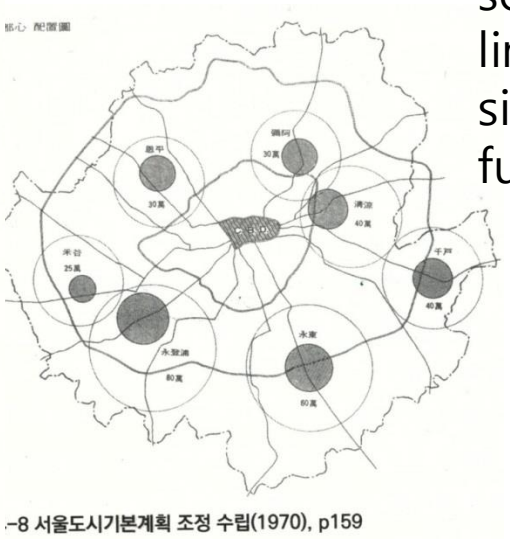
- t
- t



Source: UN-HABITAT (2013)

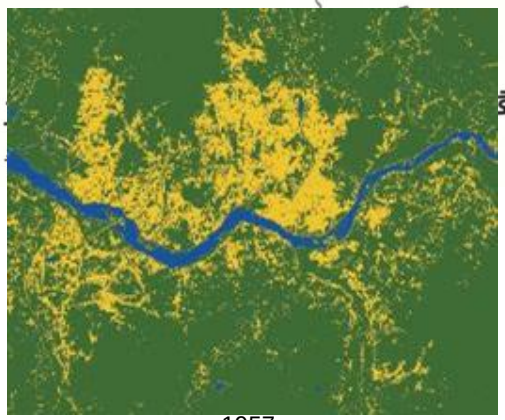
Urban Planning is the First Step
Seoul Metro Area Master Plan (1965)

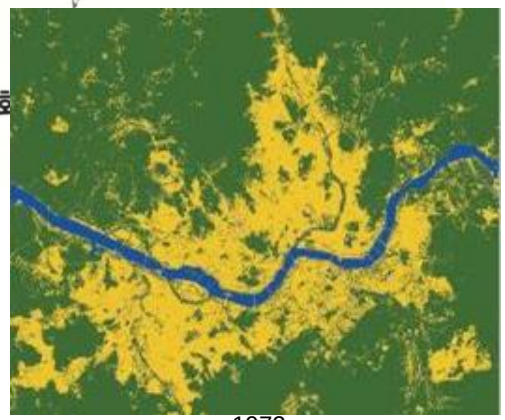




-8 서울도시기본계획 조정 수립(1970), p159

Visioning the ***future***: Time, space, people, scope were not limited by then situation as was the future growth


1957

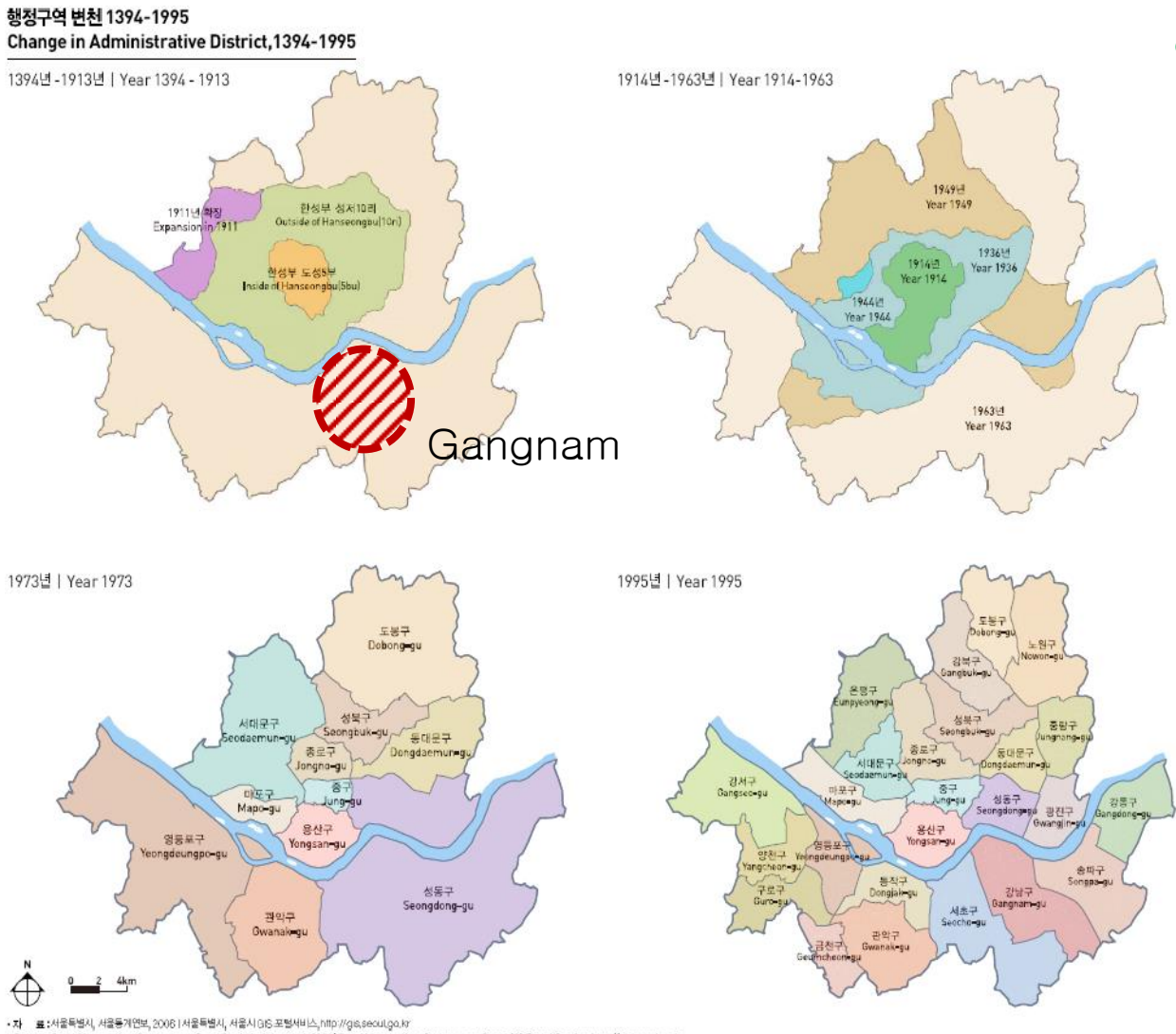

1972


1988


2005

Gangnam was a New Town outside Seoul

Expansion of Boundaries



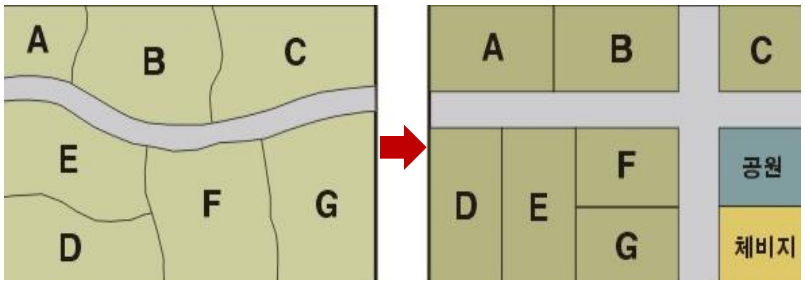
- 자 료 : 서울특별시, 서울통계연보, 2006 | 서울특별시, 서울시 GIS 포털서비스, http://gis.seoul.go.kr
- Source : Seoul Metropolitan Government, Seoul Statistical Yearbook 2006 | Seoul Metropolitan Government, Seoul GIS Portal Service, http://gis.seoul.go.kr

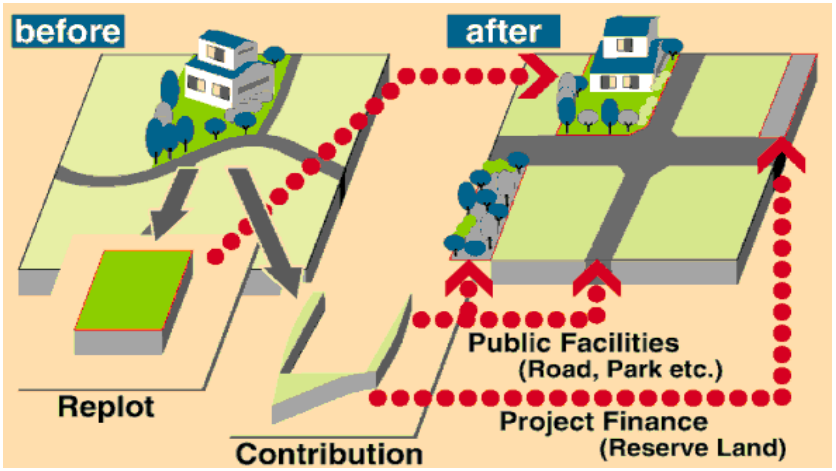
- Seoul doubled its administrative area in 1963 to resolve the urban problems, including southern area of Han river
  (In Korean, Gang means river and Nam means south)

Date	Area(㎢)
1946. 10. 18	136.00
1949. 08. 13	288.35
1963. 01. 01	613.04
1973. 07. 01	627.06
1988. 01. 01	605.40*

*the area did not shrink, but was merely readjusted by survey

Implementation - Land Readjustment: Build Together, Benefit Together

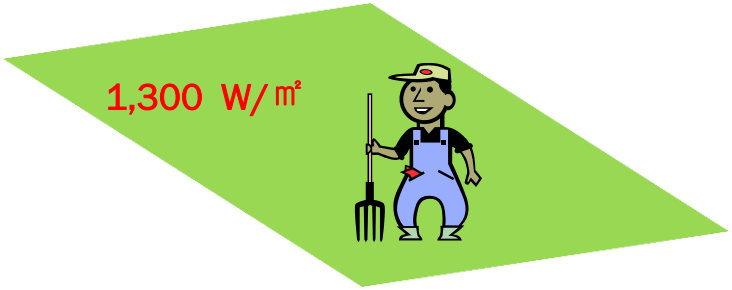


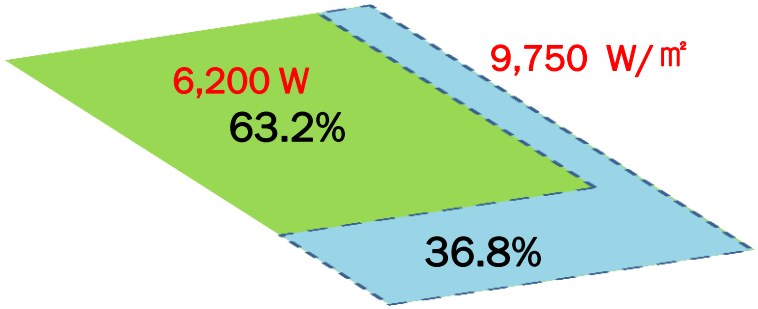


Before
Gangnam Average
Land Price 1,300 W/㎡

After
Price increased by 7.5 times
to 9,750 W/ ㎡

Land Owner
Before: Area 1㎡ & Price 1,300 W
After: Area 0.6 ㎡ & Price 6,200 W

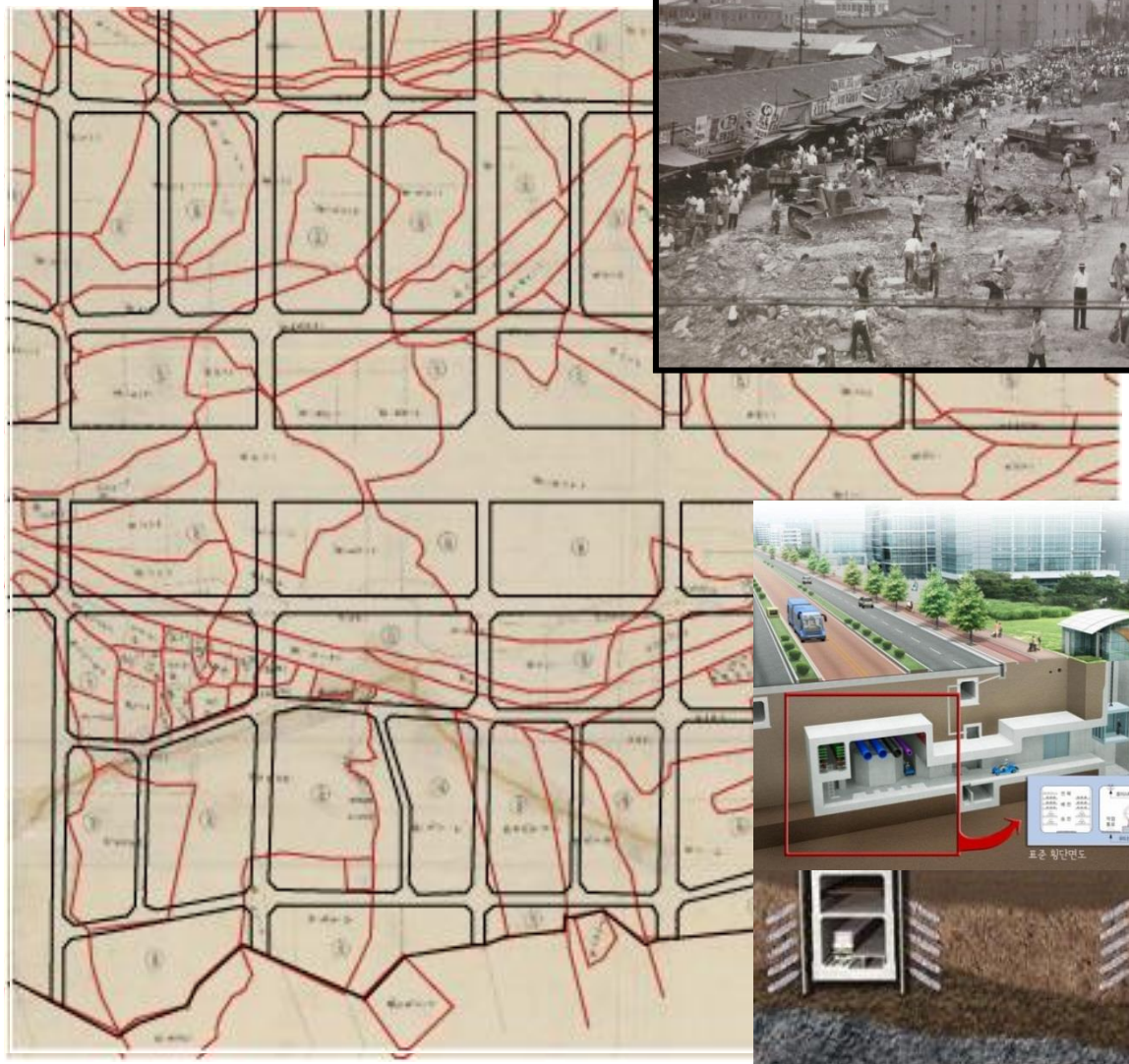


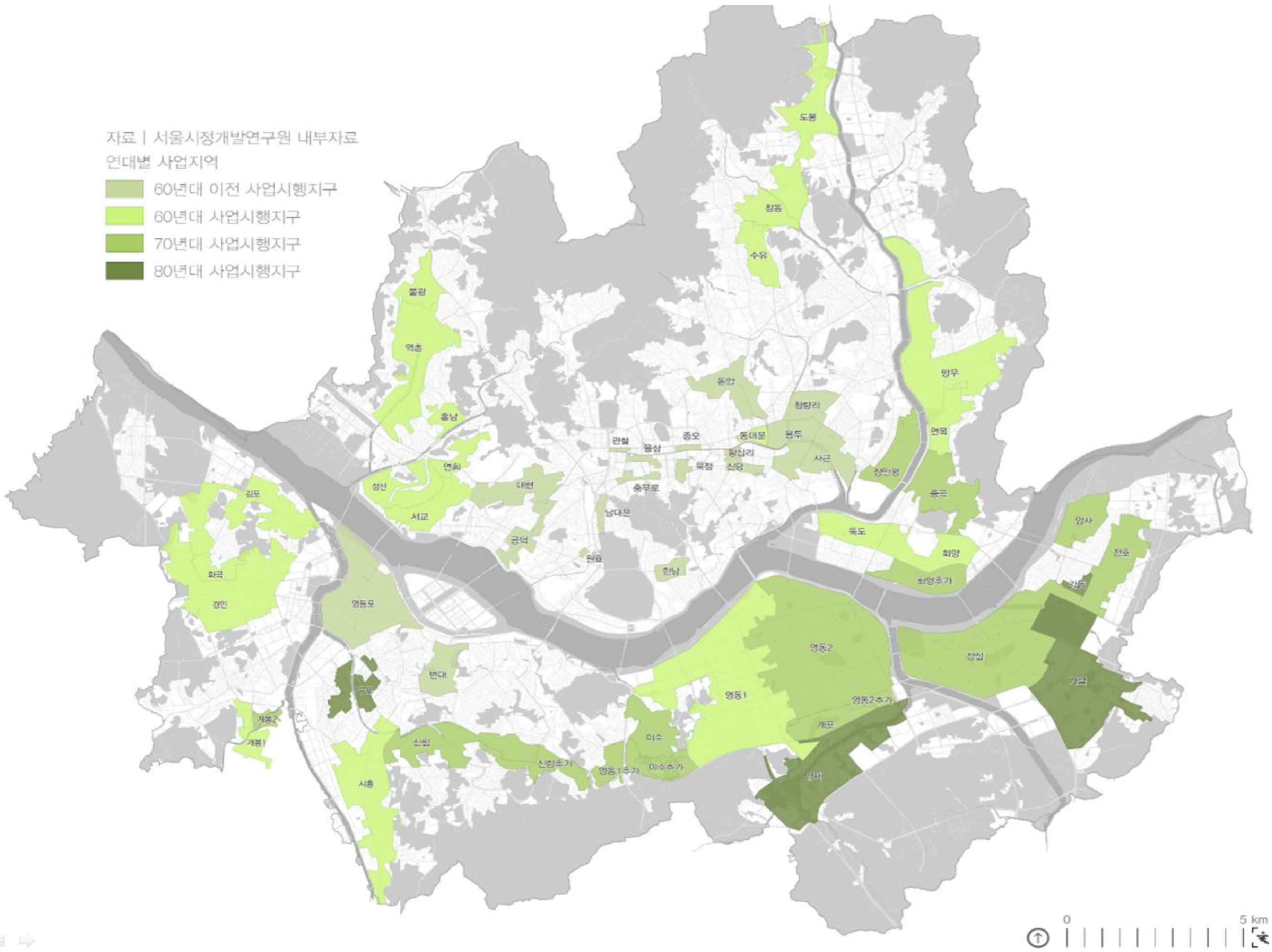


Transforming non-urban into Sustainable Urban Land

Road **is not only surface for cars but also artery (public space for public services) for a city.**

Water,
Sewage
Energy , Gas,
Electricity
Communication
Heat, Cooling,
Subway, etc.





자료 | 서울시정개발연구원 내부자료
연대별 사업지역
60년대 이전 사업시행지구
60년대 사업시행지구
70년대 사업시행지구
80년대 사업시행지구
도봉
창동
수유
불광
역촌
연희
성산
서교
김포
화곡
경인
영등포
대현
공덕
원효
한남
남대문
충무로
동대문
용두
청량리
왕십리
신당
사근
장안평
면목
망우
중곡
뚝도
화양
화양추가
암사
천호
잠실
가락
영동1
영동2
영동2추가
개포
이수
이수추가
영동1추가
신림
신림추가
시흥
개봉1
개봉2
0
5 km

Achievements

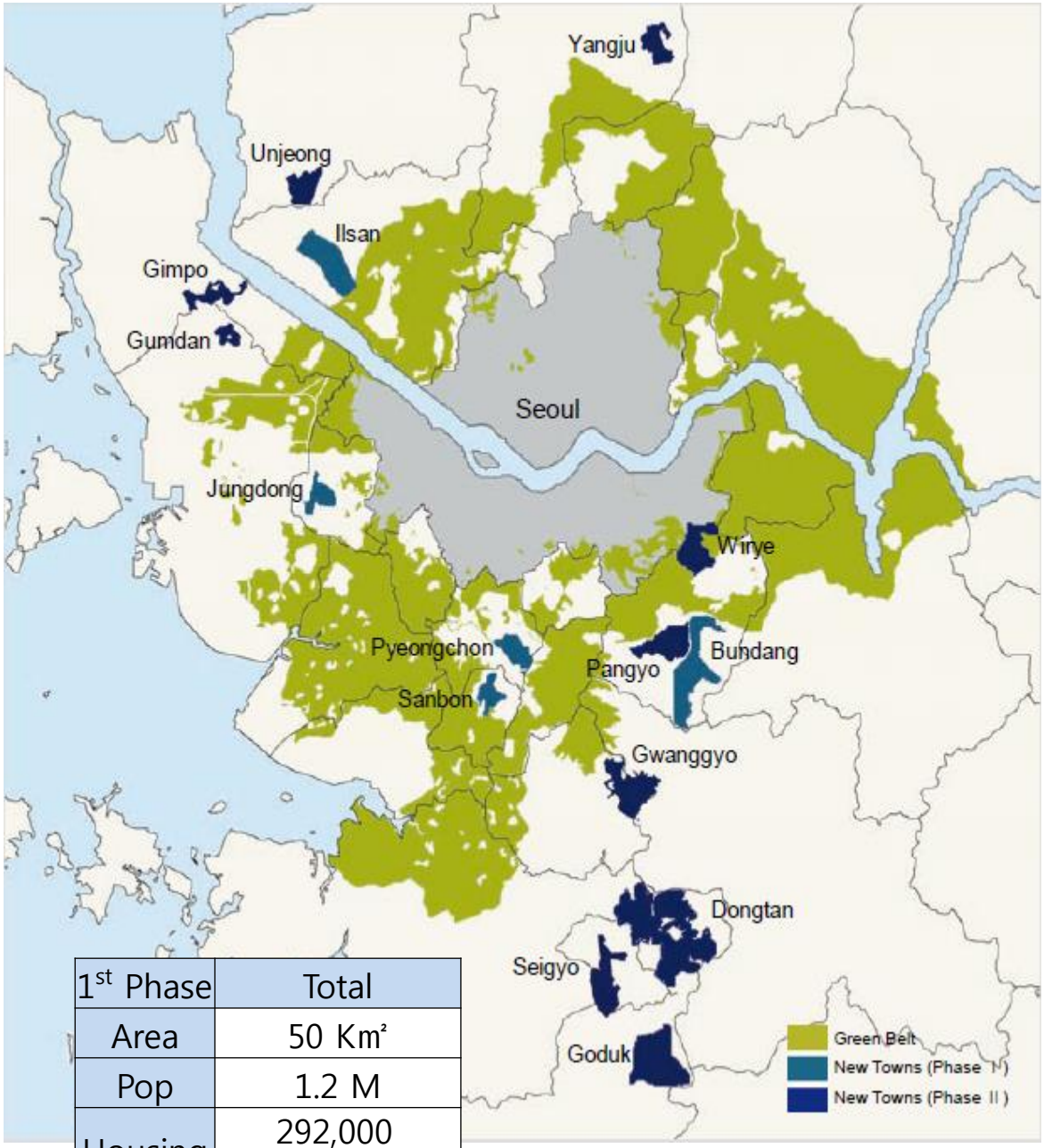
- Set *Land Use Framework* as the Ground of Future Growth
- Secure *Public Space* for *Public Services* (e.g., Transit, Water)
- Set *Growth Limit* for Protecting Nature from Sprawl and Citizens from Disasters (e.g., Flood)
- Provide *Urban Land and Infrastructures* for the Life, Work, and Play of Citizens

Pop in 1960: 2.45 M

	1970	1976	1981
Population (Thousand)	5,509	7,150	7,500
Income per cap (KRW)	138,810	189,580	268,240
Urban Land (㎢)	**130**	**201.7**	**261.7**
Housing (Unit)	593,370	863,970	1,300,000
Hosing Supply Rate (%)	56.8	56.3	56.1
Housing Area per cap (㎡)	6.8	8.2	10.1
Water Prod (10T t/day)	111	210	302
Road Area (㎢)	**34.85**	**44.57**	**55.69**
Road Rate (%)	**9.5**	**12.0**	**15.0**
No. of Cars	61,000	170,000	315,000
Subway (km)	-	26.5	64.0
Green/Park per cap (㎡)	**4.04**	**5.73**	**6.60**

New Towns in 1990's

In the late 1980s, as the situation of housing shortages became worse and the existing available land for large-scale urban development was nearly exhausted, the population began to spillover beyond the green belt.
Faced with limitations in land supply for urban development, the central government began to build several new towns in the Seoul Metropolitan Region including Bundang in Sungnam, Ilsan in Goyang, Pyeongchon in Anyang, Sanbon in Gunpo, and Jungdong in Bucheon.



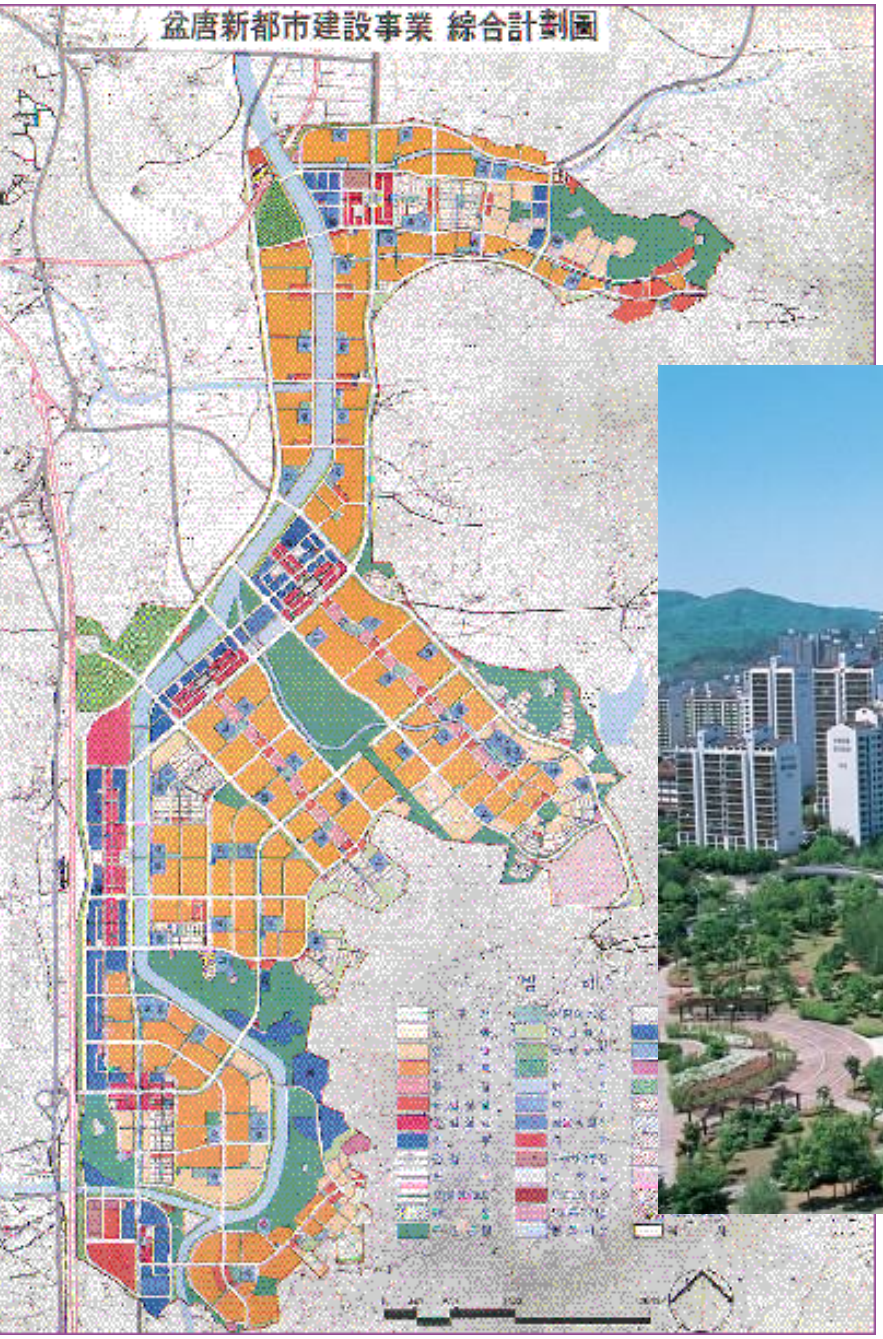
1st Phase	Total
Area	50 Km²
Pop	1.2 M
Housing	292,000 (Condo 281,000)

Land Use Plan

(unit: thousand ㎡, %)

	Total	%	Bundang	Ilsan	Pyung-chon	Sanbon	Jung-dong
Total	50,140	100.0	19,639	15,736	5,106	4,203	5,456
Residential	17,230	34.4	6,350	5,261	1,931	1,811	1,877
Commercial	3,866	7.7	1,640	1,233	247	178	568
Public	29,044	**57.9**	11,649	9,242	2,928	2,214	3,011
Road	10,388	20.7	3,860	3,290	1,187	639	1,412
Green	9,548	19.0	3,810	3,705	801	649	583
Gov't	676	1.3	166	92	150	100	168
School	2,402	4.8	732	584	343	327	416
Etc.	6,030	12.0	3,081	1,571	447	499	432

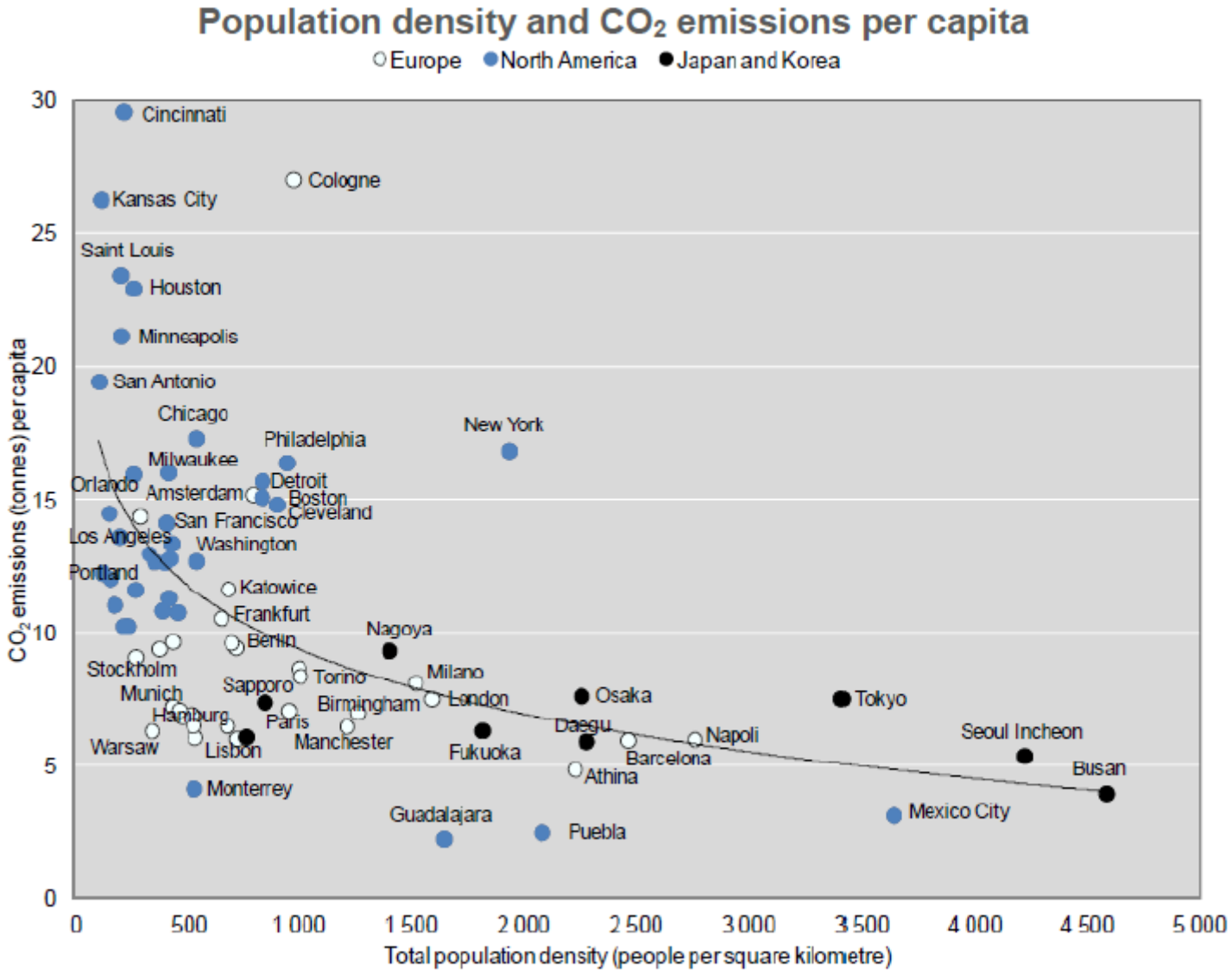
Urban Development Protects Environment



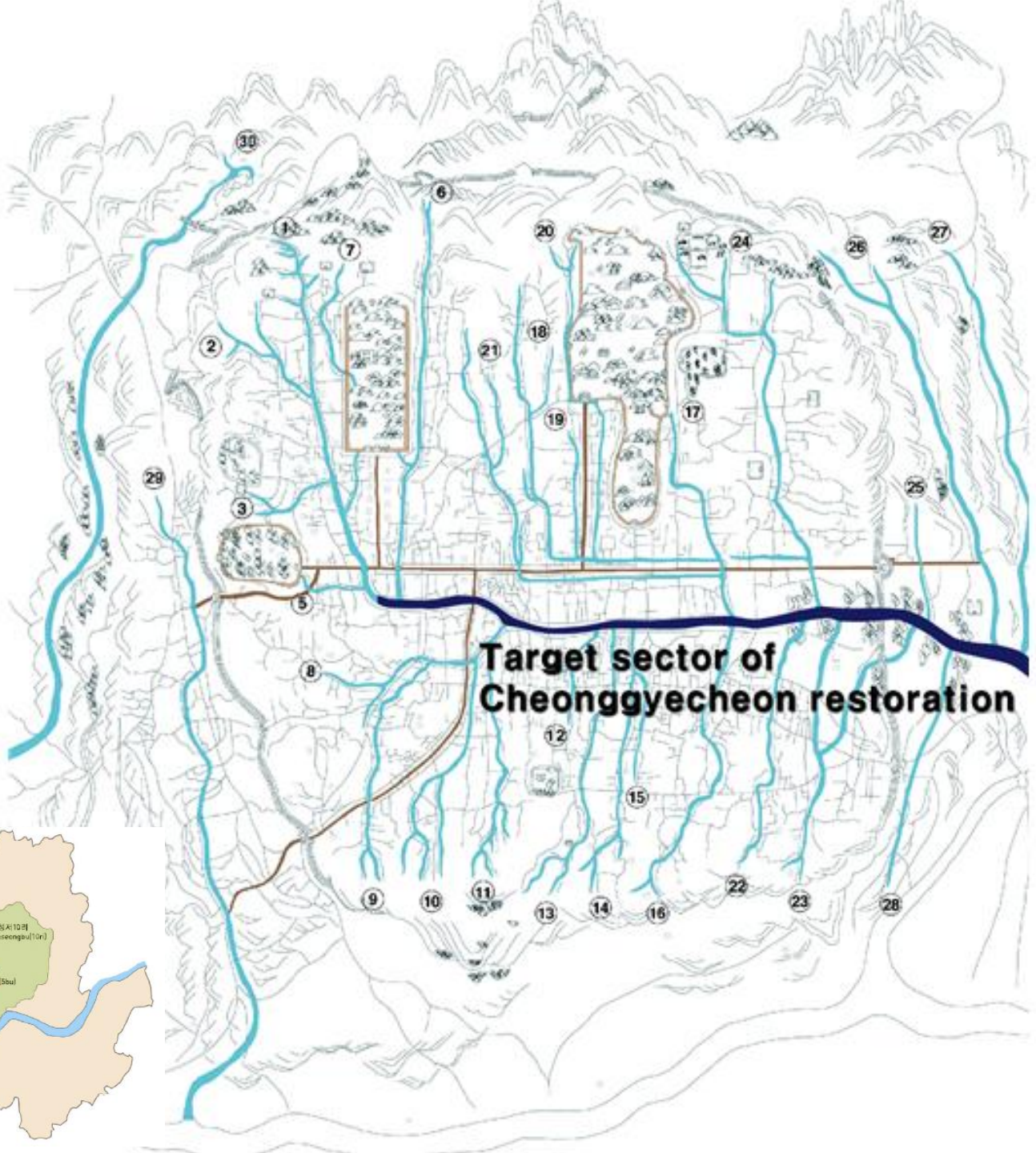
Bundang

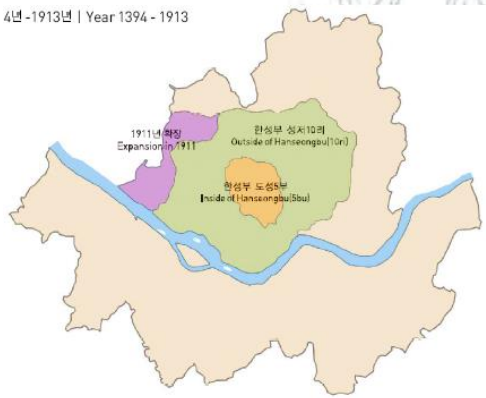
Need to change our cities and behavior

More than 75% of GHG emitted from Cities in 2008



Source: OECD (2012), *Redefining "Urban": A New Way to Measure Metropolitan Areas*, OECD Publishing, doi: *10.1787/9789264174108-en*.


Target sector of
Cheonggyecheon restoration

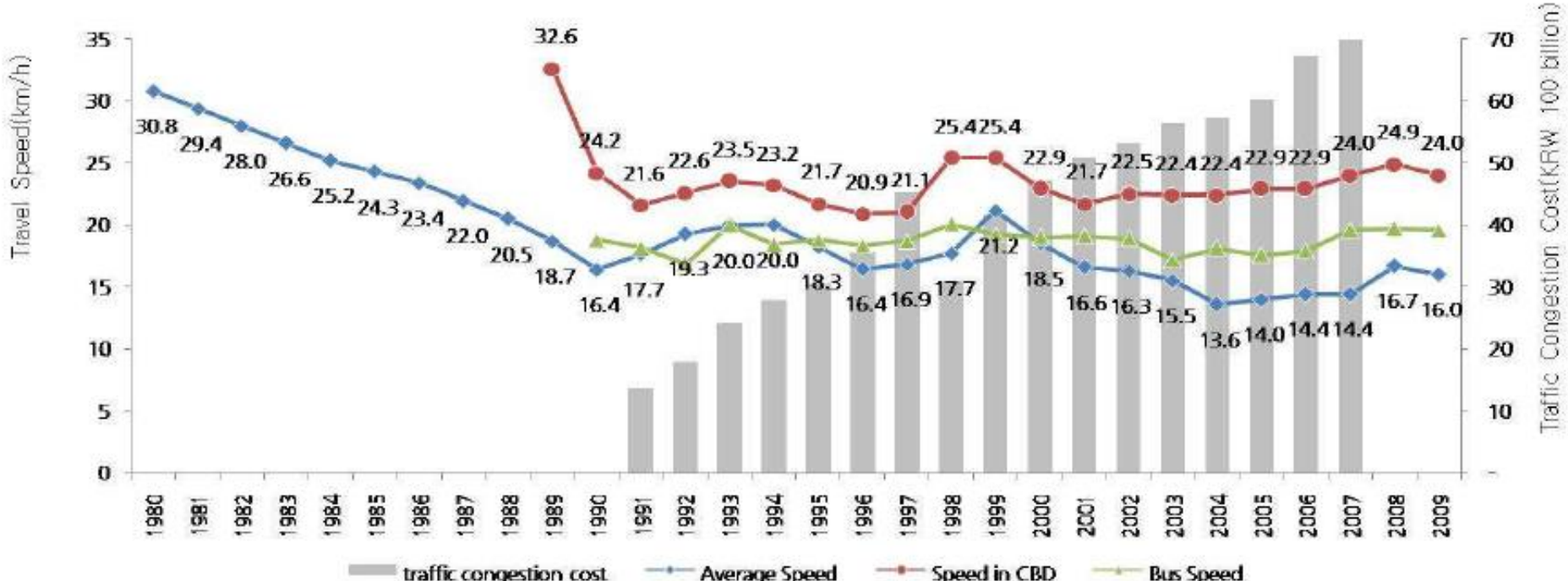

4년 -1913년 | Year 1394 - 1913
1911년 확장
Expansion in 1911
한성부 성저10리
Outside of Hanseongbu(10ri)
한성부 도성5부
Inside of Hanseongbu(5bu)

Cheonggyecheon Elevated Highway

Rising Congestion and Its Cost

- Decreasing Average Travel Speed:
  30.8 km/h in 1980 -> 13.6 km/h in 2004
- Increasing Socio-economic congestion cost:
  over KRW 7 trillion in 2007 (five times that of 1991)

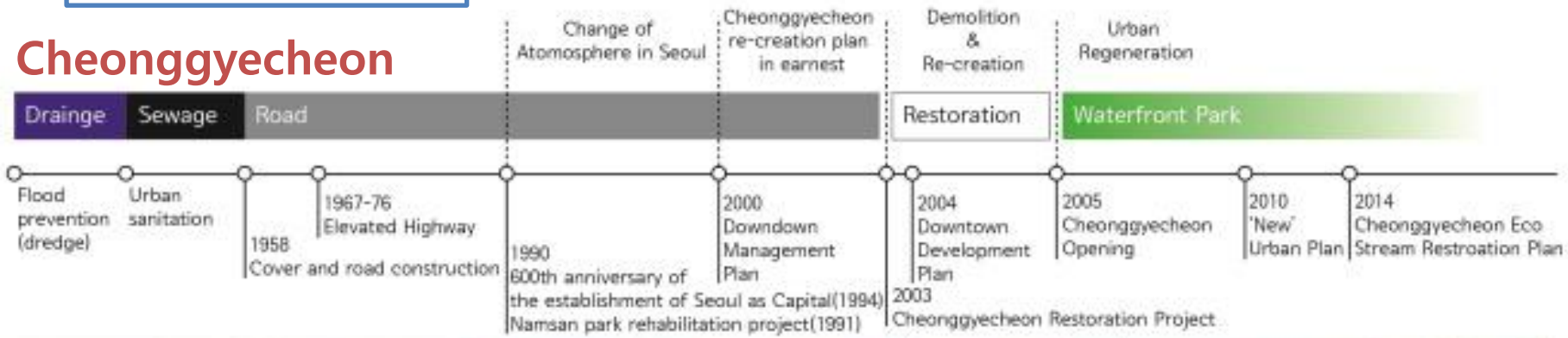
Annual Transport Speed and Congestion Cost Trends



Regeneration by Creative Destruction Construction of (Public) Space

1M **Industrial Economy** Quantity and Efficiency — 10M **Decline** — **Creative Economy** People and Nature

Cheonggyecheon



Green: Env. Sustainability

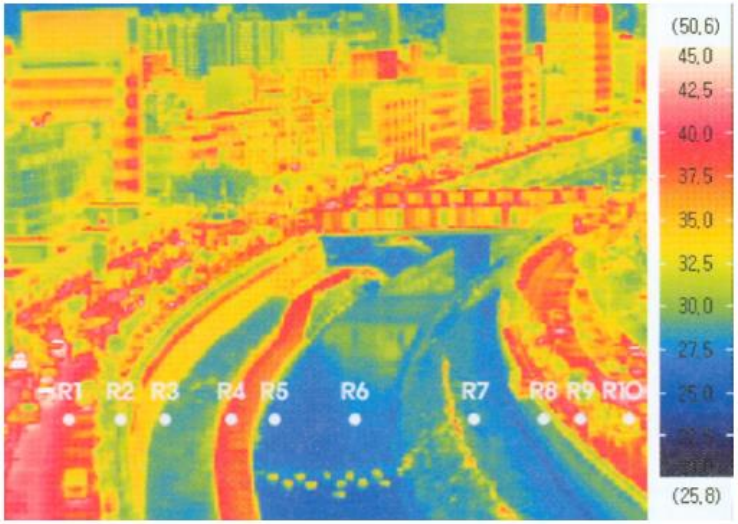
Fish

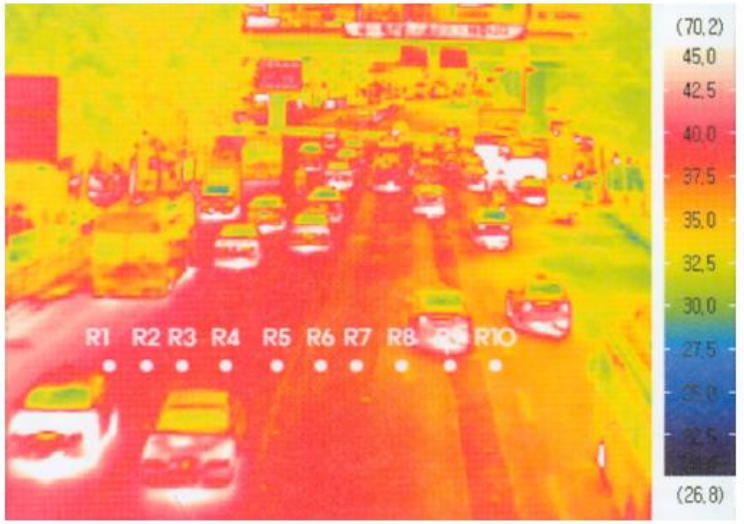
■ 4 –> 15 –> 25 species
('05) ('08)

Birds

■ 6 –> 34 –> 36 species
('05) ('08)

Thermal Images, September 8, 2005

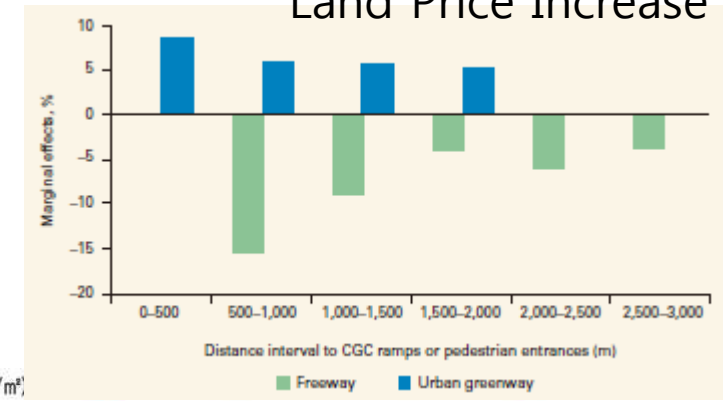




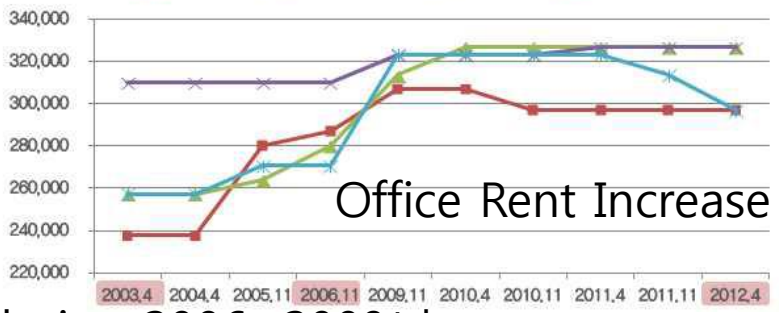
Growth: Competitive City

New Developments

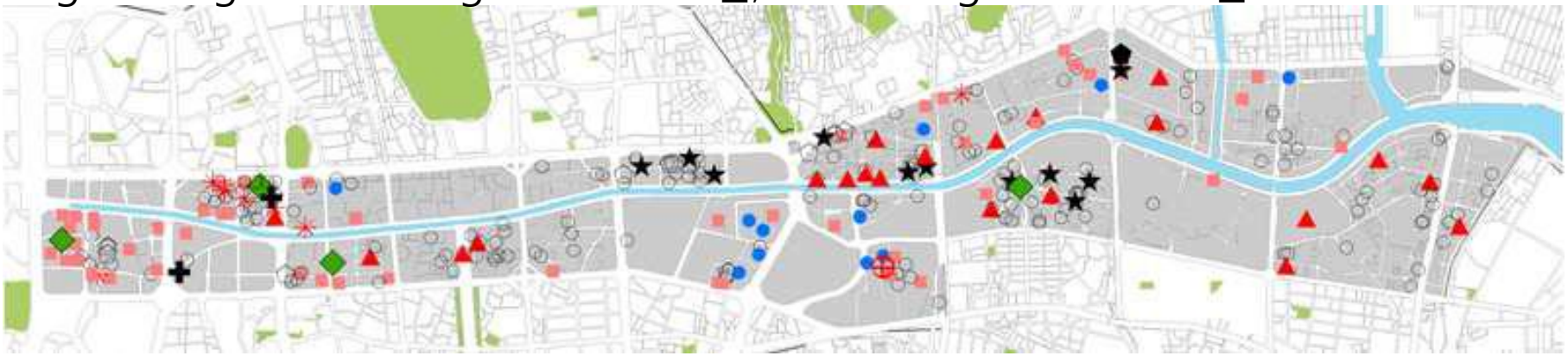
Land Price Increase



Office Rent Increase



Usage Changes: 44 during 2002~2005년; 895 during 2006~2009년



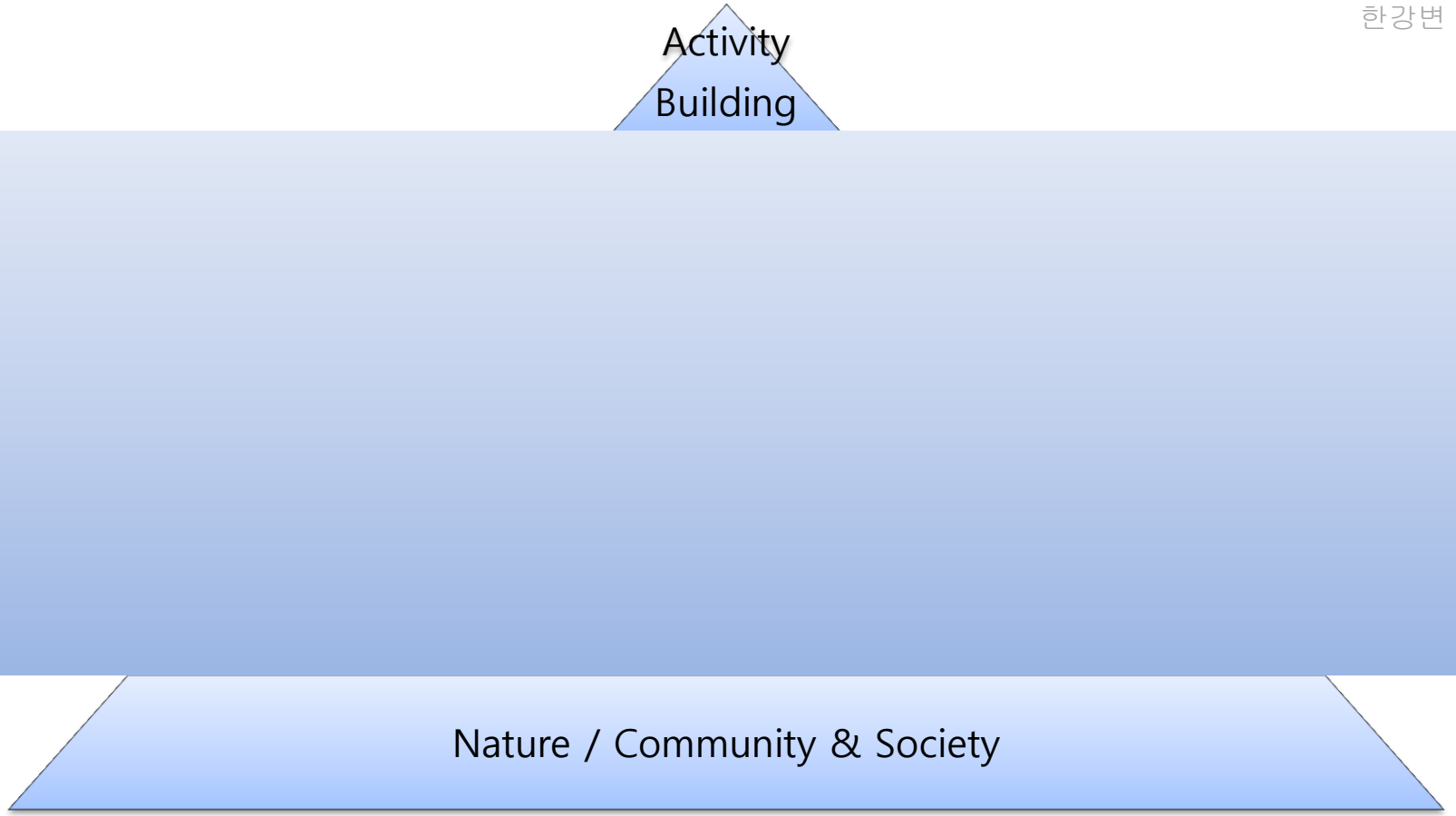
Cheonggyecheon Restoration in Seoul

What Urban Planning does?

Old Days

Few People, Low Density

남산 중턱 주택
한강변 호텔



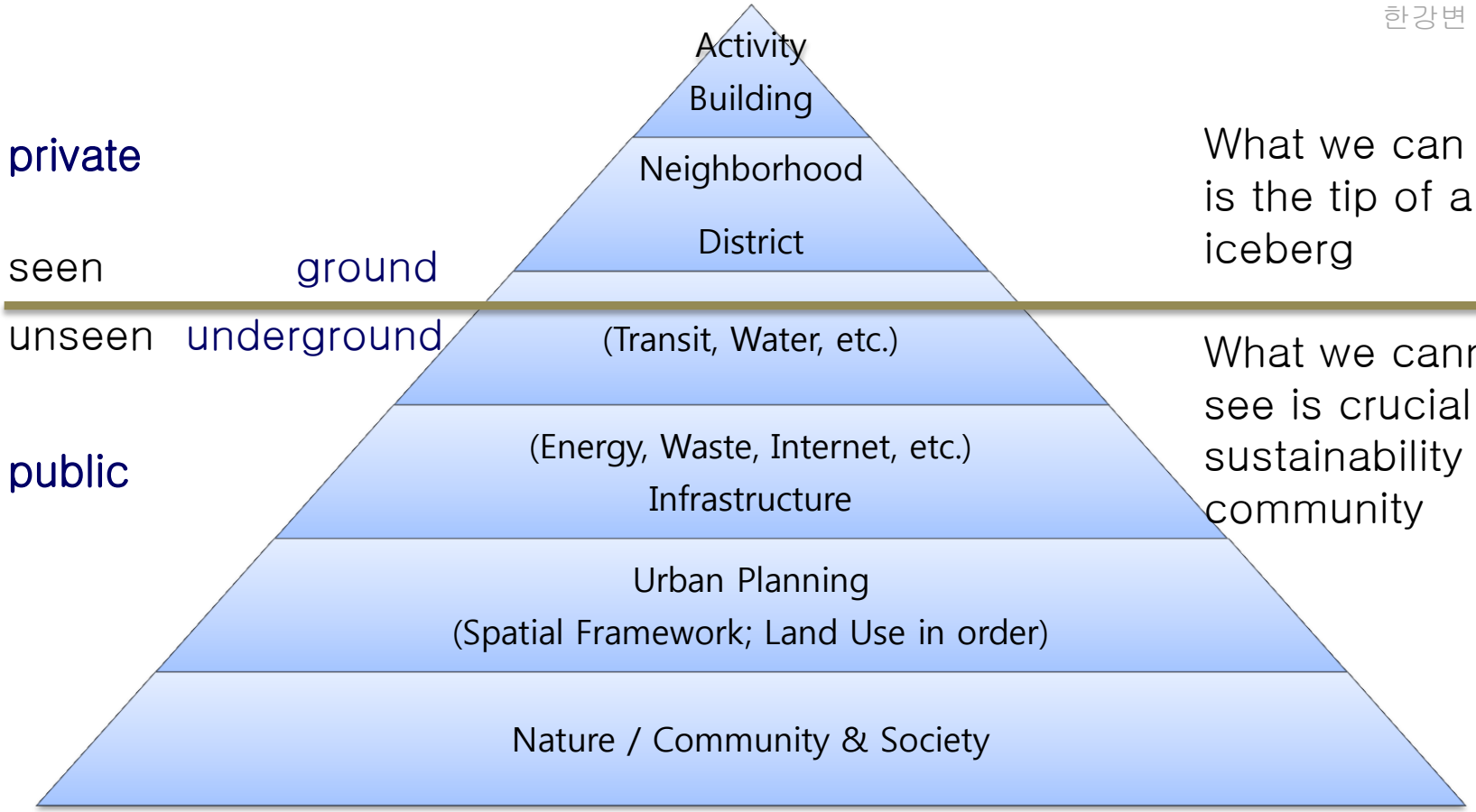
Much freedom of individuals in land use and location is acceptable.

What Urban Planning does?

Old Days Today

Few People, Low Density Many People, High Density

남산 중턱 주택
한강변 호텔



private

seen ground

unseen underground

public

What we can see is the tip of an iceberg

What we cannot see is crucial for sustainability of community

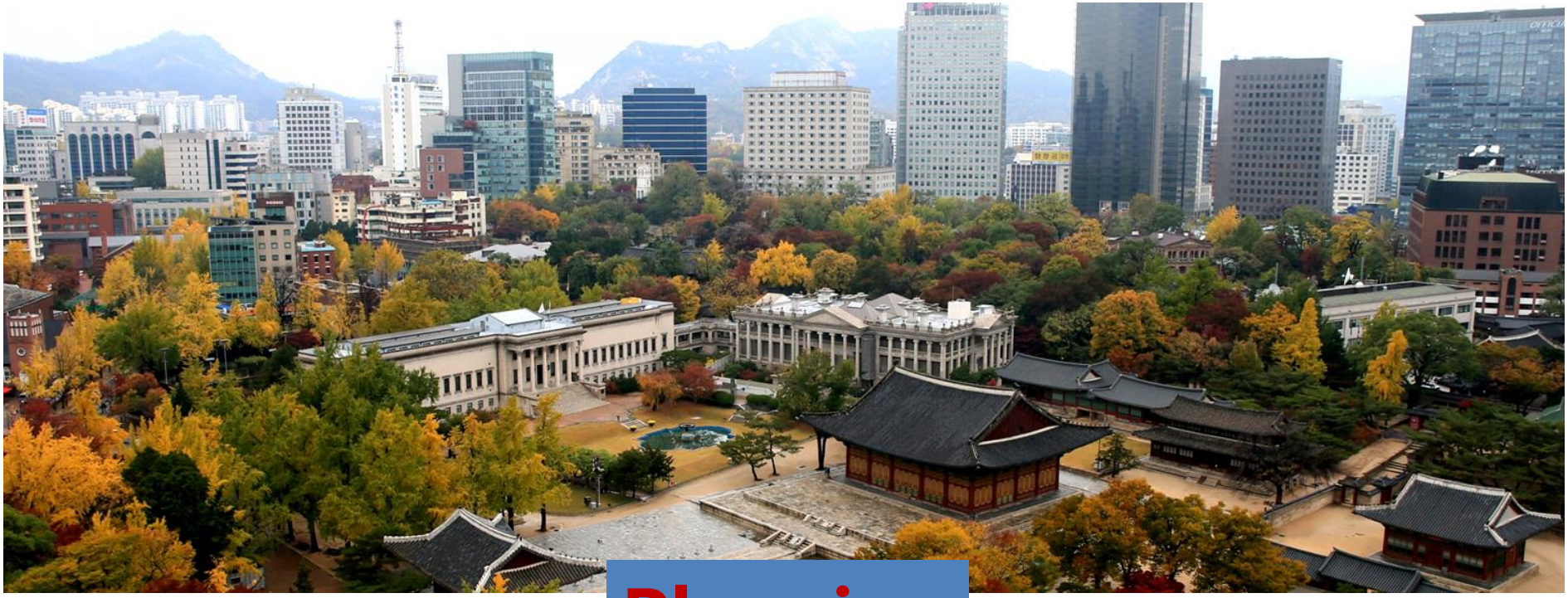
*We need an interface between individual right of freedom and sustainable development of city community – **planning**.*

Smart and Sustainable Urbanization

- With rapid growth of cities; proper **urbanization planning (including infrastructure)** is required
- "Urban planning is **not about images** but is a way to make a difference; it is a **framework** that helps cities transform a **vision** into **reality** using space as a key resource for development and engaging stakeholders along the way." (UN-HABITAT, 2013)
- Urban planning is an important tool for cities to achieve **sustainable development**.
- **Leadership** is crucial.

Smart and Sustainable Urbanization

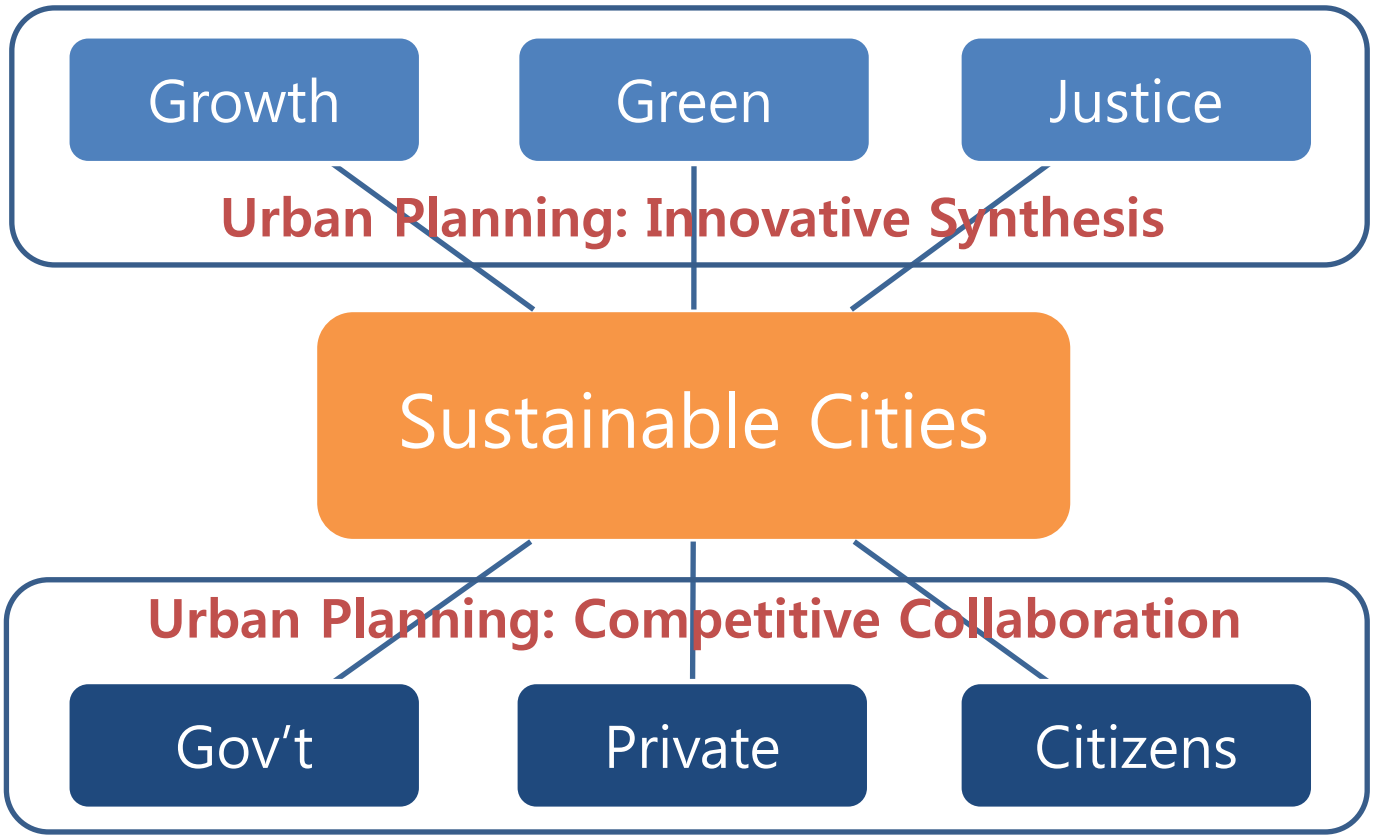
Economic Growth, Social Inclusiveness, and Environmental Health



Planning

- Urban Land Green
- Transp-ortation
- Water Air
- Energy Waste
- Communi-cation
- Housing Architecture

Three plus One (3+1) Goals and Public-Private Competitive Collaboration



Three goals can conflict with each other. This demands **innovative solutions** and **urban planning** for a quality synthesis.

Three parties can conflict with each other. This demands **leadership** and **mutual learning**.

Thank You!

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