

# An Introduction and Comparative Study of the Implementation Approaches of Beijing's Green Belts

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Nawei Wu, Ph.D Student

School of Architecture, Tsinghua University,

Beijing, P. R. China, 100086

Email: [april617@163.com](mailto:april617@163.com)

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## **1\ Introduction**

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# 1 \ Introduction

## ■ Population and Built-up Land Expansion in China's Mega-cities



Beijing



Shanghai



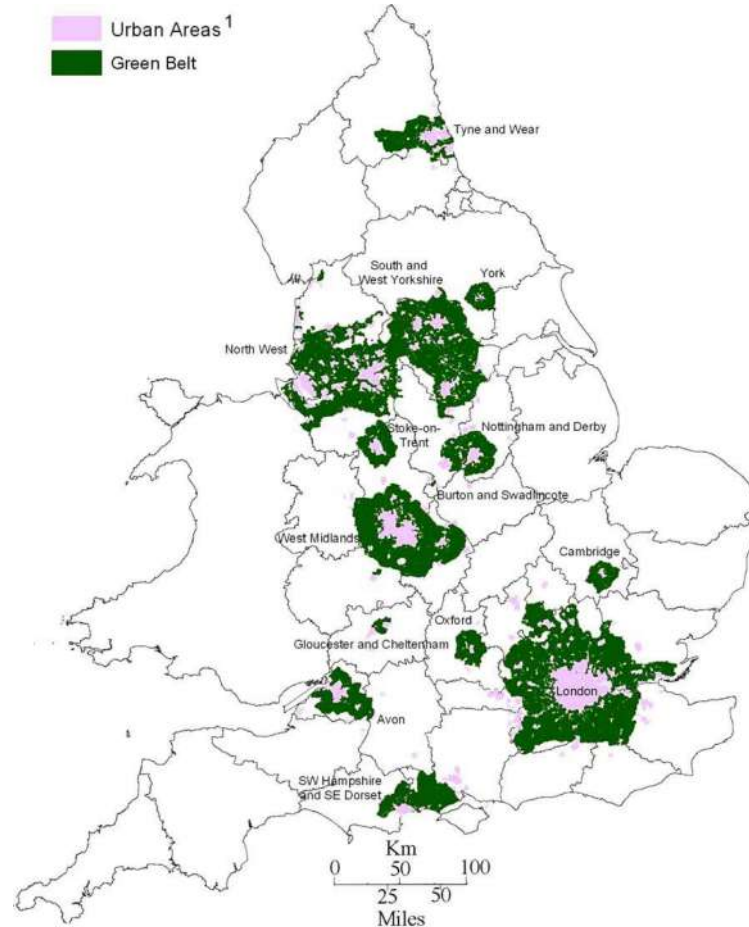
Guangzhou

Picture Source: the internet:

[http://www.kdslife.com/thread\\_1\\_20\\_7681006\\_1\\_TRUE.html](http://www.kdslife.com/thread_1_20_7681006_1_TRUE.html) etc.

# 1 \ Introduction

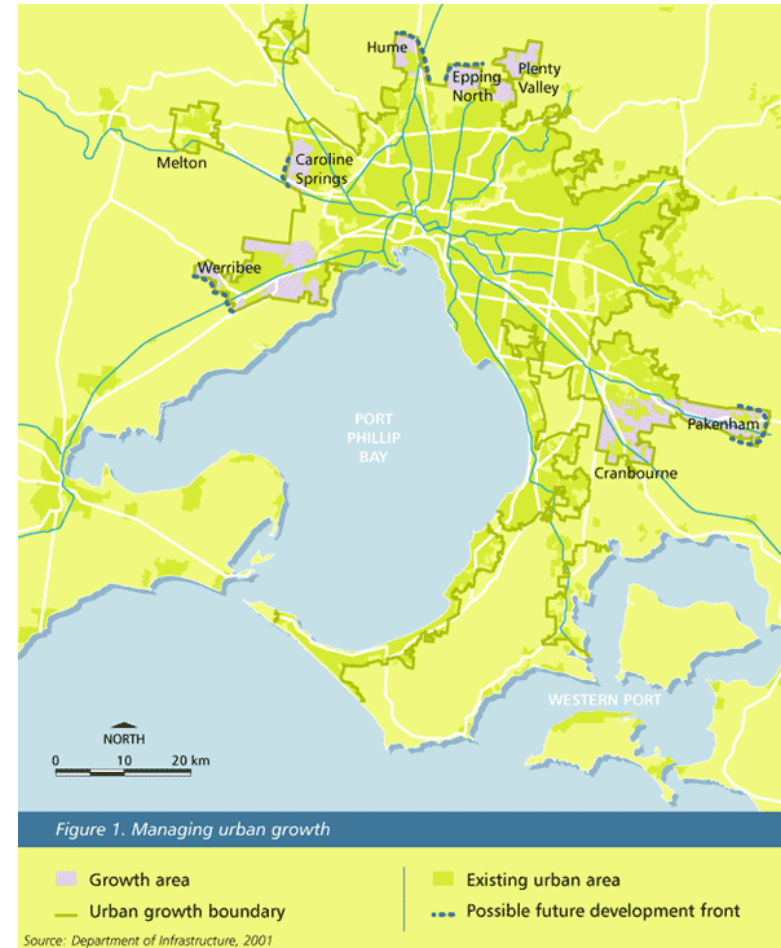
## ■ Green Belt and Urban Growth Boundary As Urban Containment Policies



Green Belts in England

Picture Source:

Amati, Marco and Makoto Yokohari. "Temporal Changes and Local Variations in the Functions of London's Green Belt." *Landscape and Urban Planning* 75 (2006): 125–142.



Melbourne 2030

Picture Source:

[http://www.nre.vic.gov.au/melbourne2030online/content/implementation\\_plans/02a\\_about.html](http://www.nre.vic.gov.au/melbourne2030online/content/implementation_plans/02a_about.html)

# 1 \ Introduction

## Question:

**1 \ How to localize these theories to solve the problems in fast growing Asian (or China's) cities?**

**2 \ How to implement the Urban Containment Policies effectively in urban fringe?**

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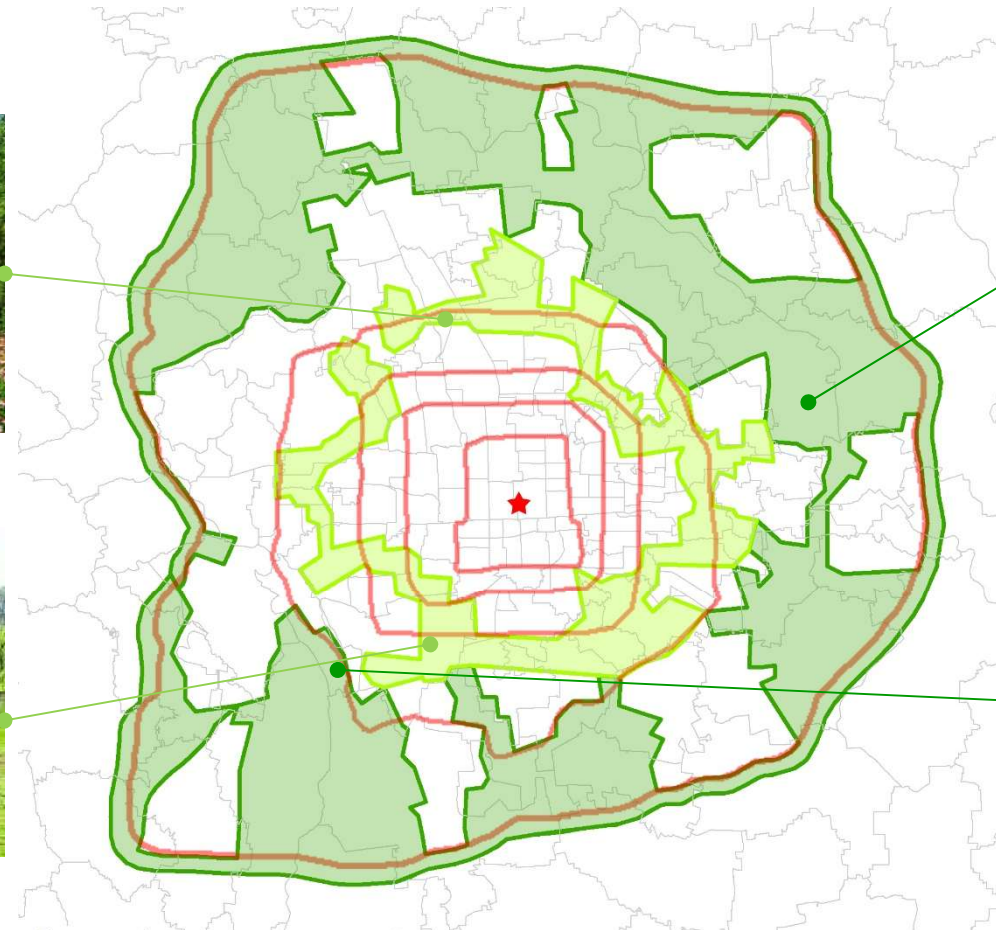
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# 1 \ Policies and Implementation Approaches

## ■ Plan



Public Green Spaces



### Legend

- ★ Tian'anmen, City Center
- Neighbourhood, Town and Township Boundary
- Inner Ring of Green Belt
- Outer Ring of Green Belt
- Ring Road



0 4,500 9,000 18,000 27,000 36,000 Meters

Concept Map of Beijing's Green Belts

Picture Source: by author



Landscape and Farmland

Picture Source: From the Internet



# 1 \ Policies and Implementation Approaches

## ■ Policy

Chronological Beijing's Green Belts Major Policies

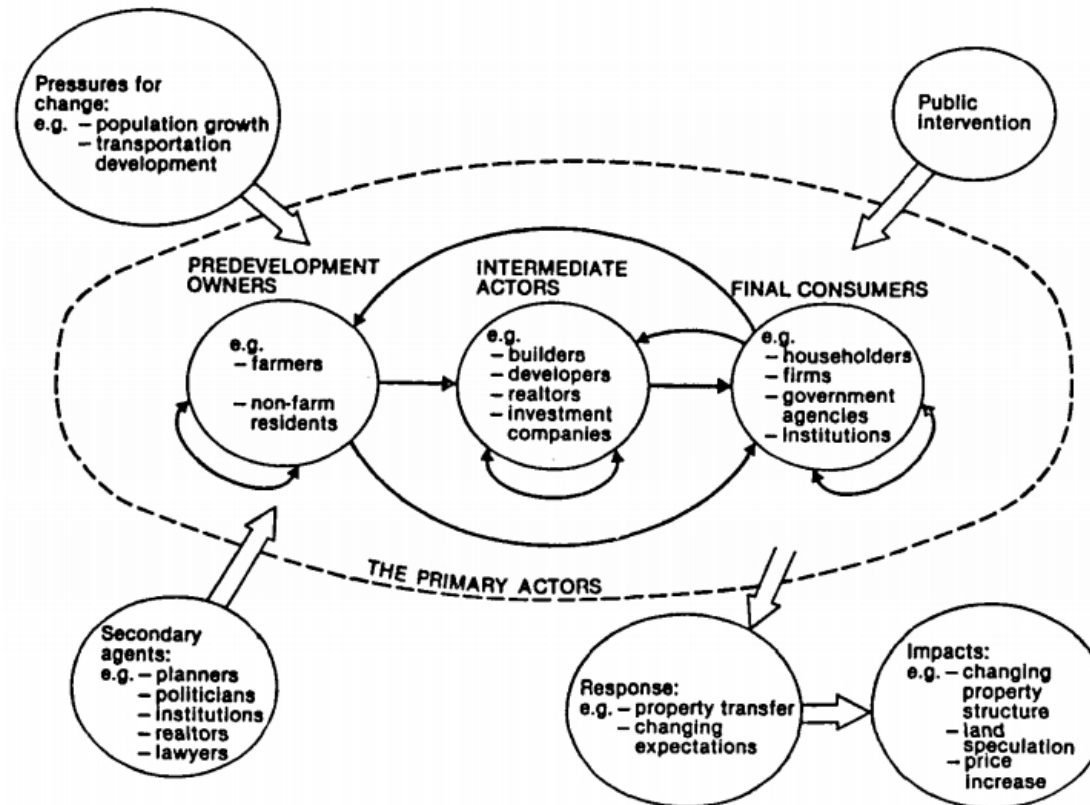
The Year of Enactment	Official Document Code	Main Funding Source	Measure
1986	Capital Planning Committee [1986]2	1 Township and Village Enterprises 2 Nursery Garden	Guidance
1994	Beijing Government [1994]7	1 Township Enterprises 2. Real estate development 3. Commercial projects, like sports fields and recreational facilities	Market Forces and Regulation
2000	Beijing Government Office [2000]20	1. Real estate development 2 Subsidies 3 Loan from financial institution 4 Commercial projects, like sports fields and recreational facilities 5 Green Belts Industrial Land	Subsidies, Market Forces and Regulations
2008	Beijing Government [2008]17	1 Subsidies 2 Green Belts Industrial Land	Subsidies, Market Forces and Regulations

Table Source: by author

# 1 \ Policies and Implementation Approaches

## ■ Implementation

Agent-based Market Model Illustrating the Development Process in Fringe Zones

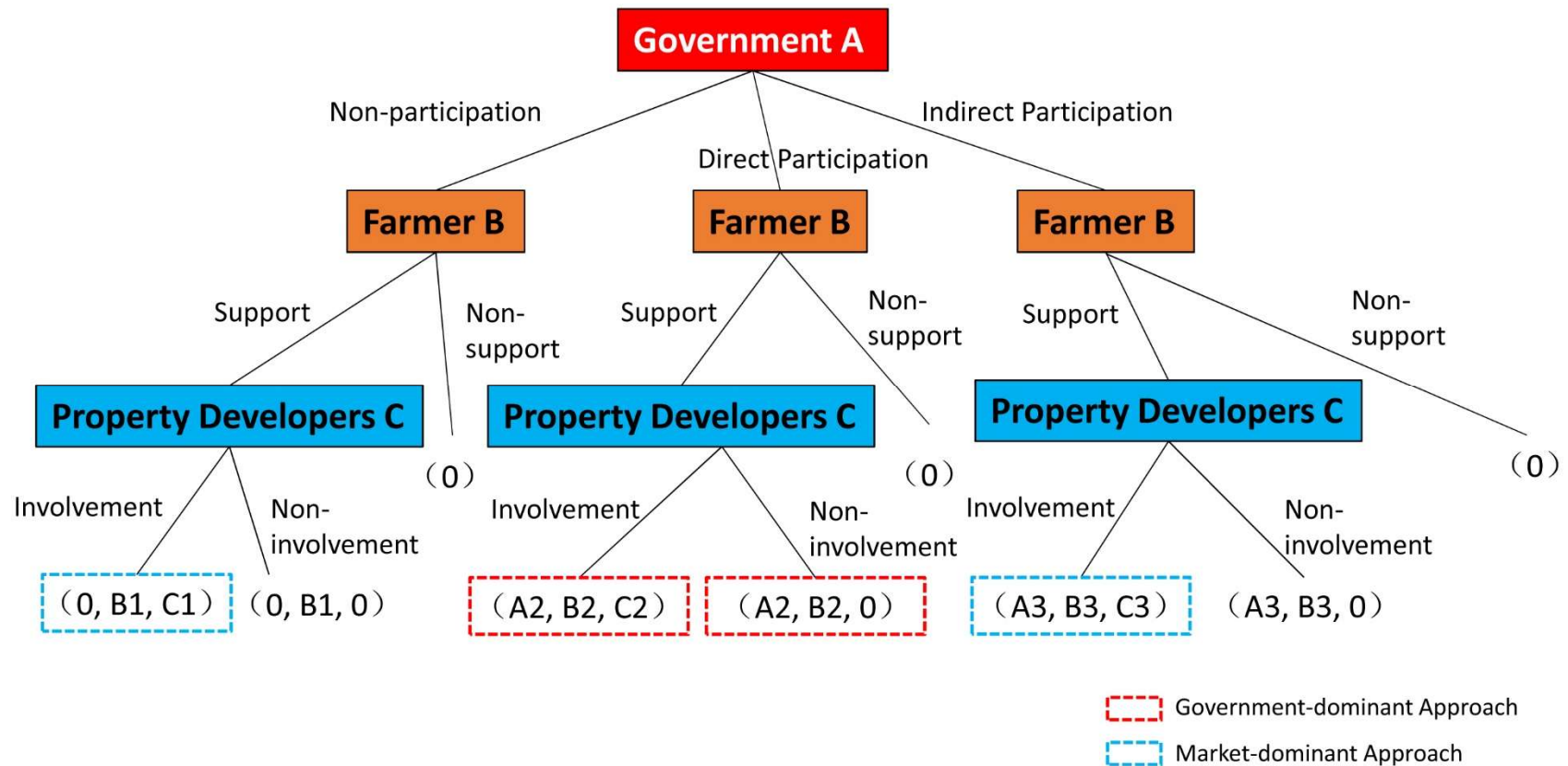


Picture Source: Bryant C R, Russwurm L J, McLellan A G. The City's Countryside, Land and Its Management in the Rural-urban Fringe[M]. London: Longman, 1982. pp.53

# 1 \ Policies and Implementation Approaches

## ■ Implementation

Agent-based Game Analysis of the Development Process in Urban Fringe Zones



Picture Source: Zeng Z. R.; Wang L. S. Research on Land Use and Development Mode of Beijing Urban Fringe under the 'Green Divided' Policy. Urban Development Studies 2014, 21(7), 26. (in Chinese). Translated by author.

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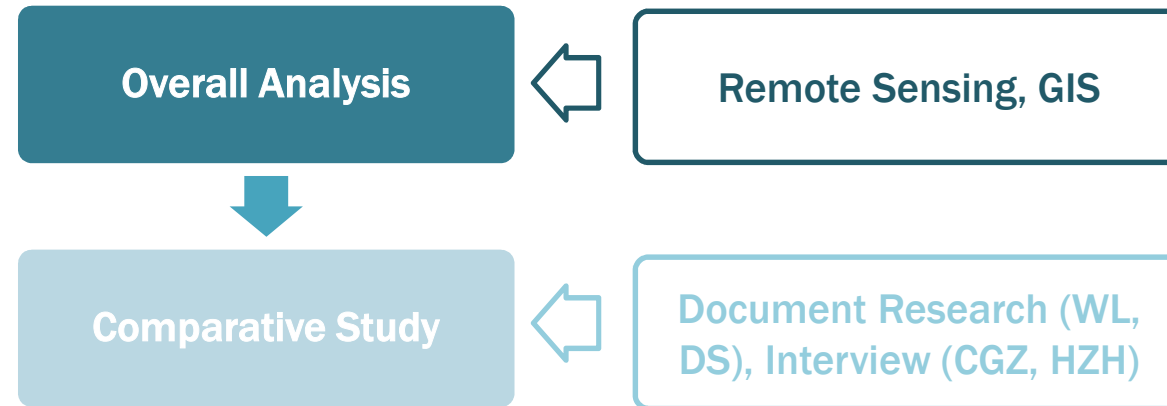
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## 3 \ Methodology and Data

### ■ Methodology



### ■ Data

Remote Sensing Data Description

Data ID	Date of Collection	Longitude (° E)	Latitude (° N)	Cloudage (%)	Sensor	Resolution
LC81230322014279LGN00	2014-10-06	116.72	40.33	1.06	Landsat 8 OLI_TIRS	30*30m
LT51230322003121BJC00	2003-05-01	116.70	40.44	0.0	Landsat 4-5 TM	30*30m

Data Source: USGS, Website: <http://earthexplorer.usgs.gov/>

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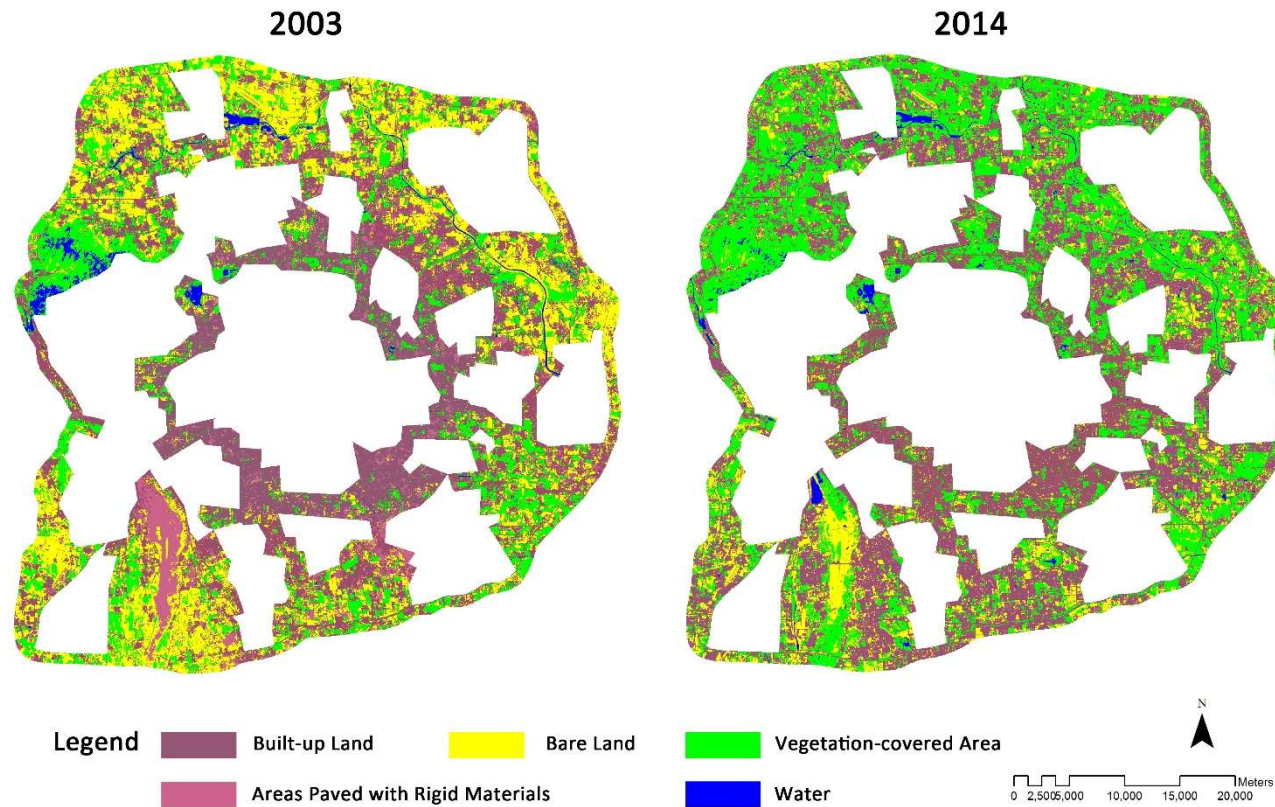
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## 4\ Overall Analysis and Sample Selection

### ■ Step 1: Land Coverage Classification (ENVI 4.8)

Land Use Classification Results

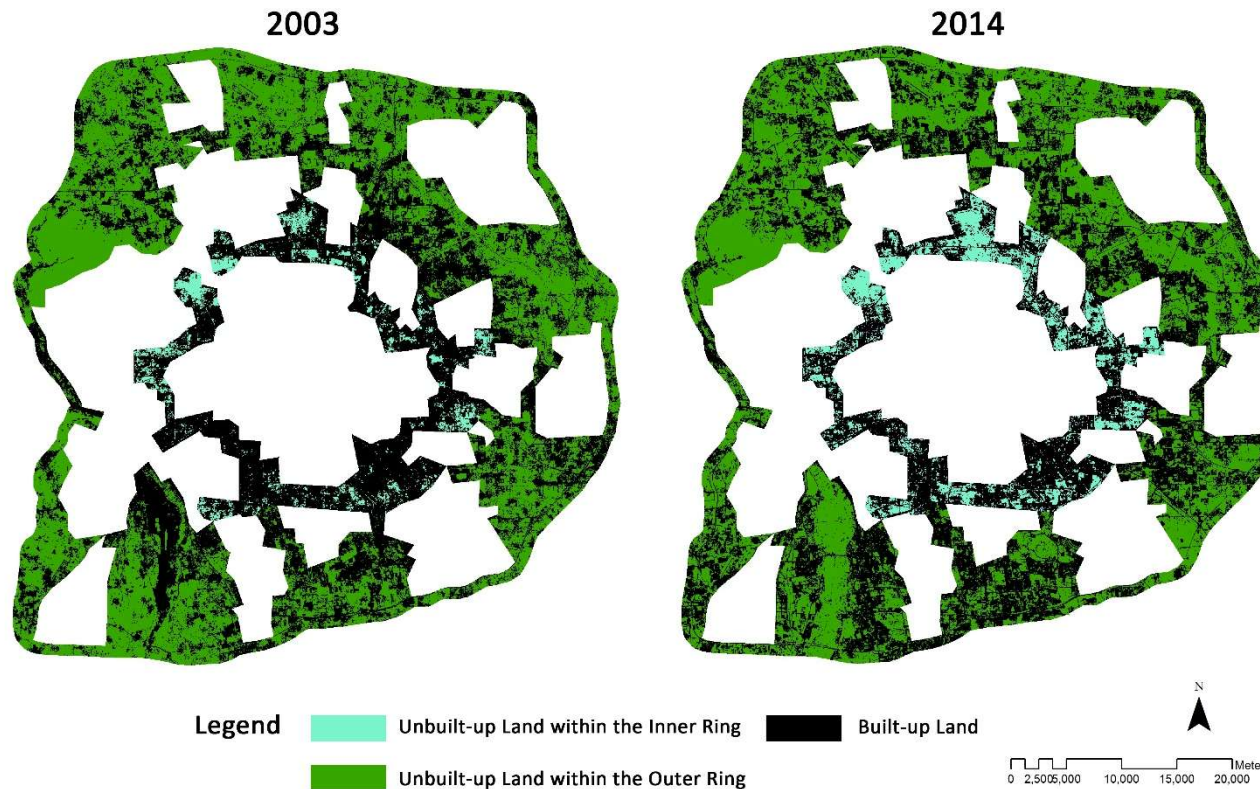


Picture Source: by author

## 4\ Overall Analysis and Sample Selection

### ■ Step 2: Land Use Type Reclassification and Combination (ArcGIS 10)

Built-up Land and Unbuilt-up Land within the Two Rings of Green Belts



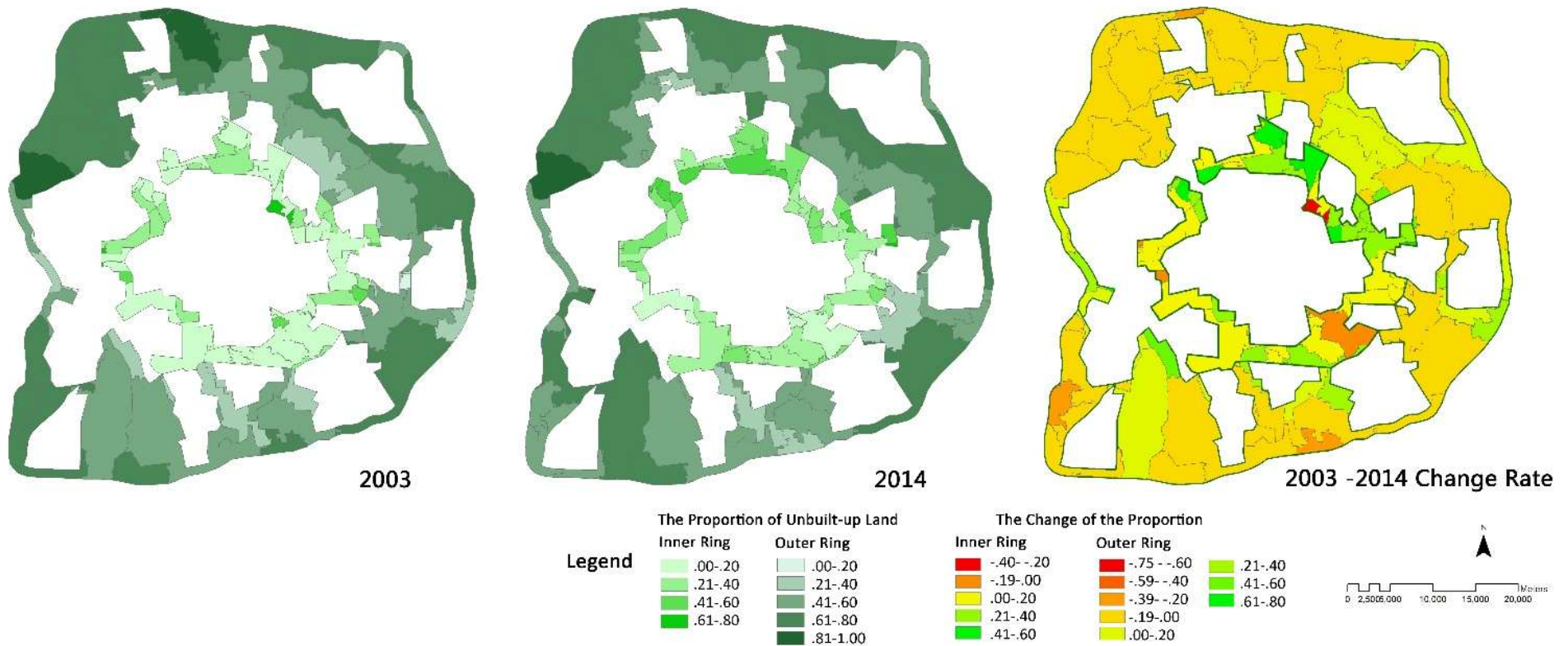
Picture Source: by author



## 4 \ Overall Analysis and Sample Selection

### ■ Step 3: Unbuilt-up Area Proportions Calculation (ArcGIS 10)

The Proportions of Unbuilt-up Area in Towns and Townships



Picture Source: by author

## 4\ Overall Analysis and Sample Selection

### ■ Sample Selection

#### Standard:

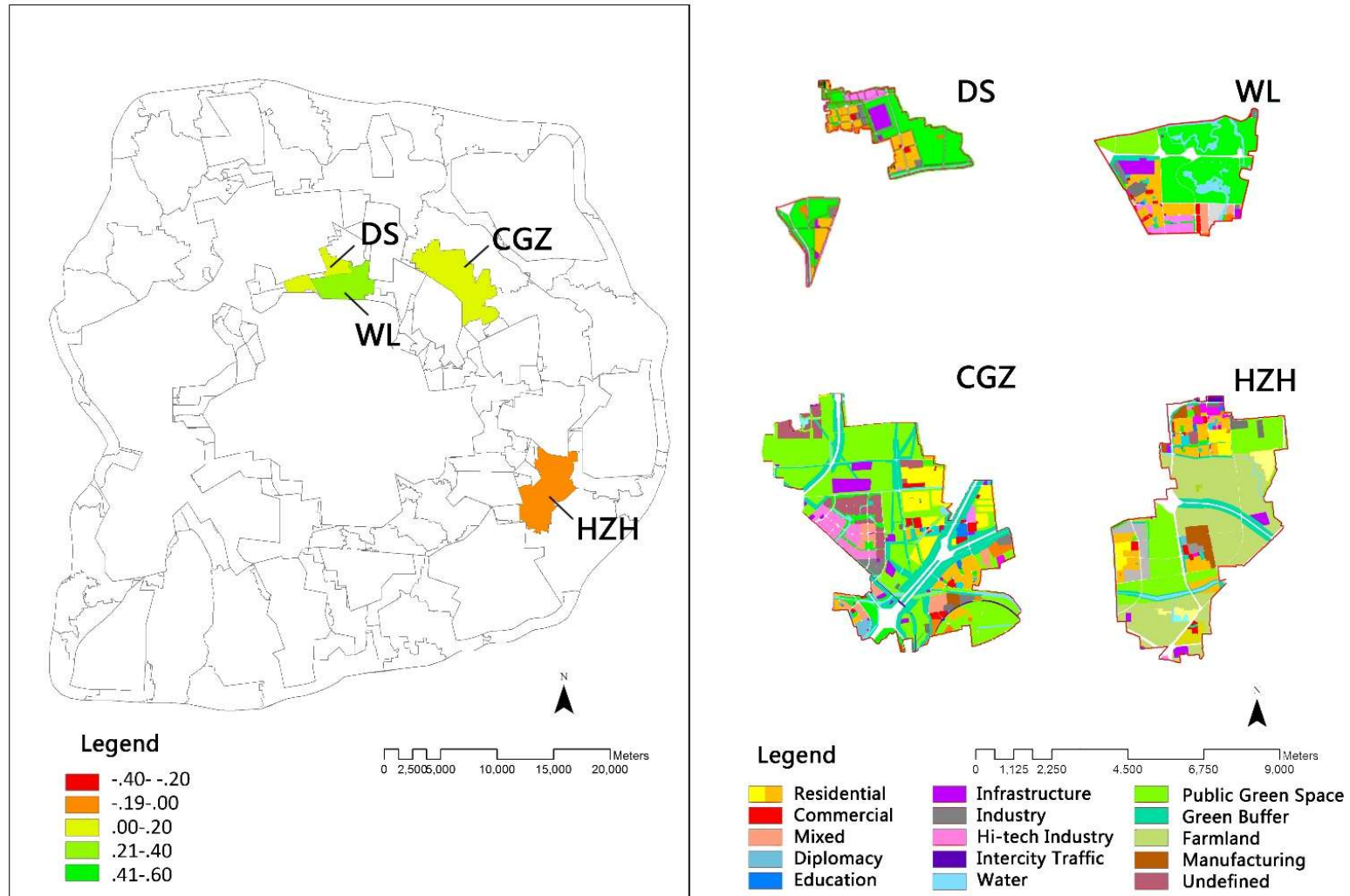
**1\ The sample areas can well represent the four implementation approaches mentioned above.**

**2\ The sample areas involve both the inner and the outer ring and vary in locations.**

## 4\ Overall Analysis and Sample Selection

### ■ Sample Selection

(Left) the locations of selected sample areas. (Right) Land use plans of selected sample



Picture Source: by author

## 4\ Overall Analysis and Sample Selection

### ■ Sample Selection

#### Implementation Approaches and Development Ways of Beijing's Green Belts

<b>Implementation Approach</b>	<b>Specific Development Way</b>	<b>Typical Area</b>
<b>government direct participation – property developer nonintervention</b>	Large Urban Project (e.g. the Olympic Games)	WL*
<b>government direct participation – property developer intervention</b>	Land Banking	CGZ
<b>government nonparticipation – property developer intervention</b>	Townships' Autonomous Cooperation with the Property Developers	DS
<b>government indirect participation – property developer intervention</b>	Higher-level Project Settlement	HZH

Table Source: by author

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## 5\ Comparative Study

### ■ Contextual Elements

#### Similarity

- State or regional elements, e.g. History and Traditions
- Governance style, e.g. governmental structure, planning procedures

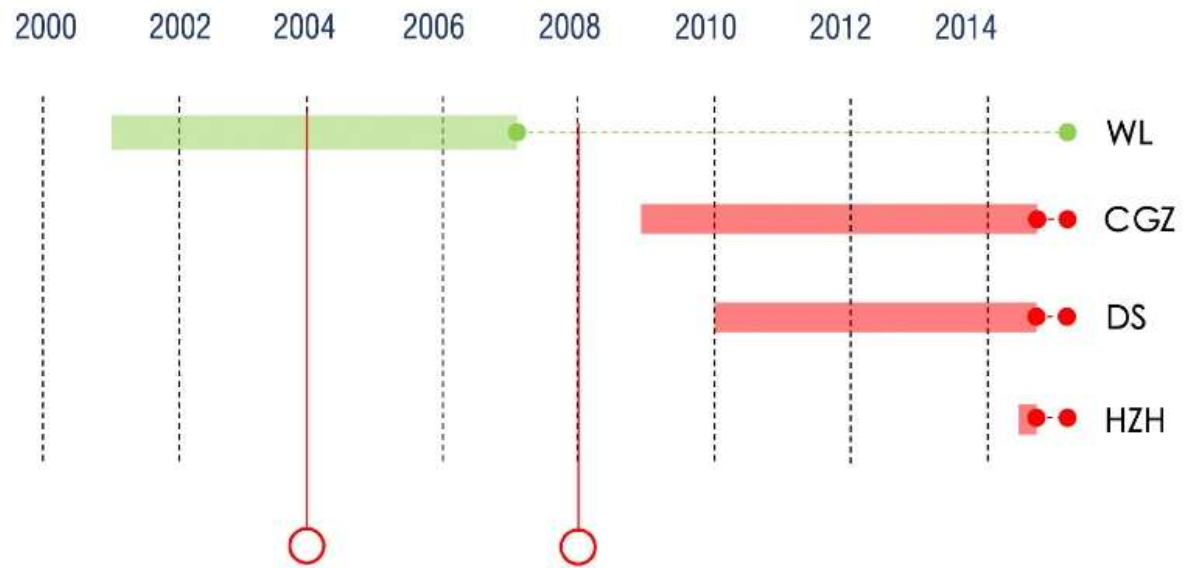
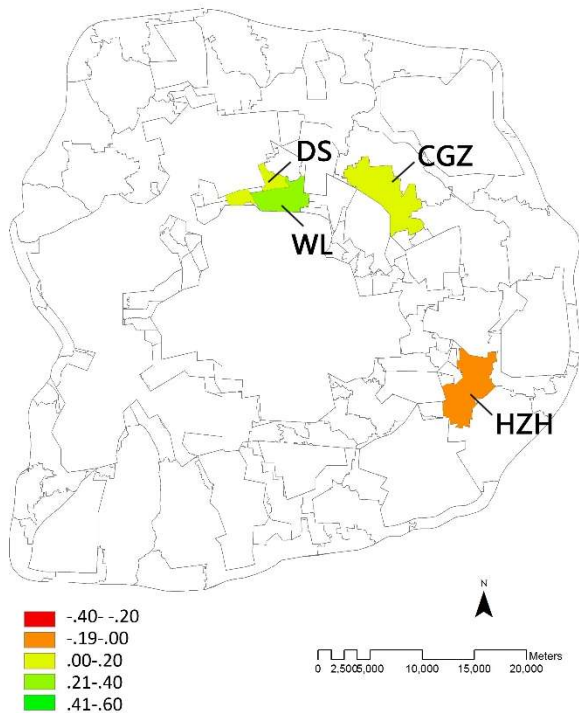
#### Difference

- Economy, including economic activities, industries and property prices
- Quantity and quality of stakeholders, farmers support for implementation

# 5 \ Comparative Study

## ■ Process

Specific Development Way	Typical Area
Large Urban Project (e.g. the Olympic Games)	WL*
Land Banking	CGZ
Townships' Autonomous Cooperation with the Property Developers	DS
Higher-level Project Settlement	HZH



- Beijing City Master Plan (2004-2020) came into effect.

- Beijing 2008 Olympic Games



█ Completed
 █ In process

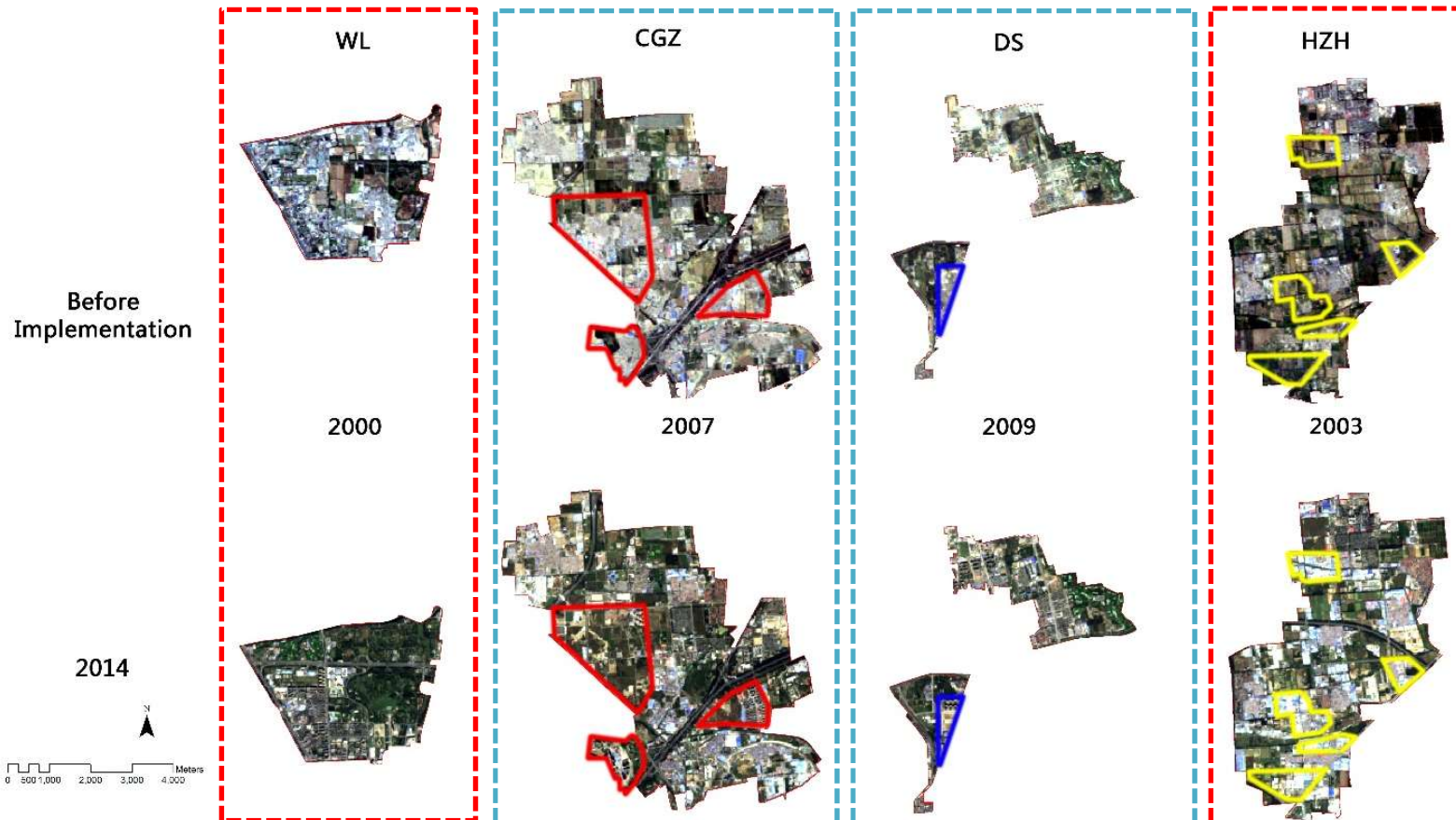
Picture Source: by author

# 5 \ Comparative Study

## ■ Results

Specific Development Way	Typical Area
Large Urban Project (e.g. the Olympic Games)	WL*
Land Banking	CGZ
Townships' Autonomous Cooperation with the Property Developers	DS
Higher-level Project Settlement	HZH

 Government-dominant  
 Market-dominant



Picture Source: by author



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## 6 \ Conclusion and Discussion

Comparison of 4 Implementation Approaches

Implementation Approach	Specific Development Way	Scope of Application	Advantage	Problem
<b>Government direct participation – property developer nonintervention</b>	Large Urban Project (e.g. the Olympic Games)	The townships where a large urban project location is selected.	The plan can be completely implemented.	<ul style="list-style-type: none"> <li>• A heavy burden on fiscal expenditure.</li> <li>• The applicable scope is limited.</li> </ul>
<b>Government direct participation – property developer intervention</b>	Land Banking	The townships involve both urban fringe group and green belts in plan and land prices are high.	Market mechanism is sufficiently used to drive plan implementation and urban regeneration	<ul style="list-style-type: none"> <li>• There exists market failure (e.g. in the proposed built-up area villages can be demolished smoothly, but in green belts area there lacks impetus for demolition and afforestation)</li> </ul>
<b>Government nonparticipation – property developer intervention</b>	Townships' Autonomous Cooperation with the Property Developers	The townships where large urban projects and land banking are not applicable.	Market mechanism is sufficiently used to drive plan implementation and urban regeneration and administrative approval procedures are simplified.	<ul style="list-style-type: none"> <li>• Township government may lack bargain power</li> <li>• The contract execution and plan implementation are hard to guarantee</li> </ul>
<b>Government indirect participation – property developer intervention</b>	Higher-level Commercial Project Settlement	The townships where market forces are weak. (e.g. due to poor location)	The deterioration can be inhibited by the government intervention and fiscal support.	<ul style="list-style-type: none"> <li>• It takes long time for a large project to go through the complicated official process of 'proposal-site location-planning approval-design-build'.</li> </ul>

Table Source: by author

## 6\ Conclusion and Discussion

### ■ To be continued

**1\ How to improve the effectiveness of plan implementation and to decrease the proportion of built-up land under each approach?**

**2\ Whether this kind of project-driven implementation is better than act- or regulation-driven way which is common in western countries?**

**3\ How to make the sample areas more representative and how is the implementation in the other townships?**

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Thank you for your attention!

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