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# The Seoul Institute Annual Research Digest 2017

Chang Yi · Chaewon Lee



서울연구원  
The Seoul Institute

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**Annual Research Digest 2017**

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## Editor's Note

Greetings from the Seoul Institute.

The Seoul Institute (SI) is a think-tank for the Seoul Metropolitan Government (SMG). Our institute produces policy proposals and recommends new programs for the SMG. More than 80 researchers with Ph.Ds in a variety of urban planning disciplines work tirelessly at the SI. The SI has now been more than 20 years since the SI was established as the Seoul Development Institute in 1992. Since then, Seoul has been a dynamic city. As the city has faced diverse challenges at different periods of time, the role of the SI has changed accordingly.

Recently, it has come to our attention that cities around the world are increasingly becoming interested in Seoul's development experience. Every year, officials from city governments in other countries or international organizations visit the SI, interested in hands-on experience that Seoul can offer to cities around the world. Nowadays, city governments are forming international networks to share their experience in resolving urban issues.

Recently, the SMG has set up an online platform called 'Seoul Solution' ([www.seoulsolution.kr](http://www.seoulsolution.kr)) to share a range of policies that have been implemented in Seoul. At the same time, cities in other nations are interested in original SI policy research studies than policy outcomes per se to the extent that the SMG, before adopting new policies in the field, tends to consult the SI. Unfortunately, we have not offered our research in other languages besides Korean. We have, accordingly, decided to publish English summaries of major research produced in 2017. This book represents our attempt. It contains 20 research studies chosen from over 100 that cover a range of fields in urban planning.

After reading this report, you will see that 2017 was a productive year for the SI. We hope that the year 2018 will be the same.

## A Study on the Promotion Strategy and Specialization Plan of R&D in Seoul

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### Key Message

The Seoul Metropolitan Government (SMG) should reform its R&D policy in three directions: (a) policy should be comprehensive rather than specific only to individual projects, (b) a cooperative R&D system is needed where the SMG can act as a partner, and not only a supporter, and (c) R&D policy tools need to be diversified.

### **Given its weakened status as a leader in R&D, Seoul needs to review its policy**

There is a general consensus among experts that Seoul's status as a leader in research and development (R&D) has been steadily weakening in recent years. Even though the city has gradually increased its R&D investment and workforce, the number of R&D activities in Seoul has shrunk since the late 2000s, more than other regions in Korea. Given that the regional gross productivity of Seoul has been stagnant for years, its weakened status in the R&D sector will lead to declining overall industrial competitiveness. Therefore, the time is right to develop effective policies to make R&D a growth engine for the future of Seoul.

The Seoul Metropolitan Government (SMG) was a pioneer which independently initiated a local R&D project. However, this first-mover advantage has disappeared. It is currently experiencing a sort of "Galapagos Syndrome"<sup>1</sup>, a problem of having

an independent R&D system that differs from any national project. Moreover, while universities and private companies have expanded their investment in Seoul's R&D projects, the SMG's budget for such projects has continued to decrease. This causes skepticism on the projects. This is another reason why the SMG's R&D policy needs an overall review.

This report aims to look at the SMG's current competence in R&D and the policy direction of its projects. Also, considering the issue of securing compatibility with the national R&D project, it suggests ways to transform the current policy focused on individual projects into a more systematic local R&D policy, as part of efforts to promote science and technology.

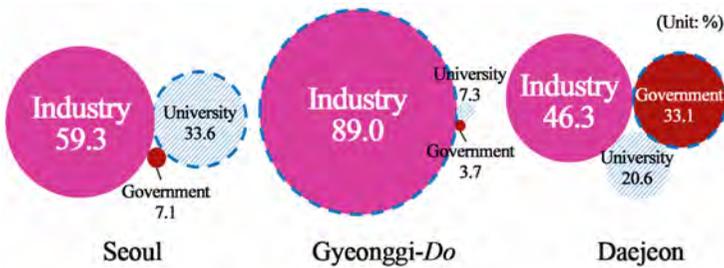
**In terms of Seoul's competence in R&D, universities have shown the highest performance while enterprises and government have been on a gradual decline**

This report compares the characteristics of R&D activities in Seoul, Gyeonggi-Do<sup>2</sup> and Daejeon, the three regions with the largest research workforce of the 17 cities and Do in Korea as of 2013. The main agents of R&D in these three regions were universities, enterprises and public research institutes.

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<sup>1</sup> "Galapagos Syndrome" is a phrase originally coined to describe Japanese cell phones that were so complicated and exclusive to Japan that they were not able to survive anywhere outside their home country.

<sup>2</sup> "Do" is an administrative unit (similar to a province) in Korea. There are eight Do in South Korea, such as Gyeonggi-Do and Gangwon-Do.



[Figure 1] Top 3 Regions with the Largest Research Workforce

Seoul achieved an excellent level of competence in terms of R&D activities at universities. The city ranked first among the 17 cities and *Do* in quantitative indicators such as number of university researchers and research organizations as well as development budgets. This is partly because Seoul is home to a number of prestigious universities. There was a significant growing trend in the city over other regions during the investigation period, which indicates that its dominant position will continue in the foreseeable future.

Seoul ranked second in terms of R&D competence of enterprises and government-funded research institutions, following Gyeonggi-*Do* and Daejeon, respectively. The proportion of total R&D that Seoul accounts for in both sectors has been decreasing more than other regions. Many of the government-funded research institutions in Seoul are expected to relocate outside of the city, according to the central government's balanced regional development policy.

The SMG's R&D strategies should revolve around two axes: (a) better utilization of the already excellent R&D competence of universities and (b) strengthening the relatively poor competence of enterprises and the government. The SMG needs to devise a new R&D policy direction and strategies to achieve these goals.

## **Improving R&D governance and infrastructure is urgently needed to make Seoul more competitive**

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Despite a slightly stronger decline in R&D competence than other regions, Seoul still holds the top spot in competence across the nation. It is essential that the SMG improve its R&D governance and infrastructure to sustain this standing.

For R&D governance, the Industry-Academia Research Cooperation Policy Committee has been operating since 2005, but its roles and activities are limited to joint industry-academia research projects, rather than overall R&D policy of the SMG. The committee needs to be reorganized to encompass all the affairs of industry, academia, and government. Also, the new committee needs to be empowered to propose R&D policies to promote science and technology.

The R&D infrastructure of the SMG is rather insufficient. However, the SMG can utilize related industrial support facilities that it already owns for R&D projects. Currently, it is seeking to build an R&D cluster to improve this infrastructure, in an effort to create a virtuous circle of participation from the private sector.

Towards such improvement, an effective management system is needed just as much as physical infrastructure. The SMG needs to cooperate with hybrid industry-academia-government organizations located in Seoul such as industrial-academic cooperative foundations in universities and technology holding companies.

## **The SMG needs to reduce policy uncertainty and devise policies suitable for each main agent**

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This study held advisory conferences with researchers and experts from enterprises, universities and the government to gather their opinions. The general agreement was that the SMG needs to reduce uncertainty in R&D policy and devise policies that suit each of the main agents, the industry, academia and government. The experts pointed out that the SMG should deal with uncertainty by avoiding such

things as frequent business plan changes and the complex processes of the current R&D system. They suggested that the SMG clearly state the departments or agencies in charge of R&D activities and establish a network with the related parties to regularly gather opinions.

It is necessary to understand policy demands of industry, academia, and government in order to devise customized policies for each agent. Demands from industry differ according to company size. Large enterprises demand little from the SMG in terms of R&D support because most of them already have their own such systems. On the other hand, small and medium-sized enterprises (SMEs), which lack resources, need government support in terms of space and funding.

Many of the prestigious universities located in Seoul have great potential to become R&D hubs. There is also high demand for the SMG to cooperate with agencies in charge of business planning and commercialization of academic research from the universities.

The SMG needs to strengthen cooperation with the central government and secure compatibility with its R&D policy and projects. It is also necessary to strengthen and specialize the R&D project planning capabilities of the SMG and its affiliated organizations.

**Rather than initiating direct investment in R&D, the SMG should revamp its funding policy to provide the specific support needed by each agent**

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The scale of direct investment in R&D made by the central government and the private sector is much greater than that by the SMG. The SMG can use this investment more effectively if it provides customized support for each agent, such as planning, administration, purchasing, and provision of space at the planning/development phase or upon market entry.

## The SMG needs to establish long-term plans and an agency in charge of its R&D policy

To overcome the limitations of its R&D projects, the SMG should reform its R&D policy in three directions: (a) policy should be comprehensive rather than specific only to individual projects, (b) a cooperative R&D system is needed where the SMG acts as a partner, and not only a supporter, and (c) R&D policy tools need to be diversified.



[Figure 2] Policy Direction for SMG R&D policy

For R&D policy to be comprehensive, it is necessary to reorganize existing projects supervised by various departments in the SMG or SMG-funded agencies within an R&D policy framework. To that end, the SMG needs to create long-term R&D plans and establish an institute to be in charge of R&D policy, building a system in which policies and new projects can devise plans that promote science and technology.

To create a cooperative R&D system, the SMG needs to overhaul its existing unilateral support. Rather, it should focus on building partnerships with industry and academia. Reshaping the institutional arrangements of the Industry-Academia Research Cooperation Policy Committee and elevating its organizational status to

grant it more authority in R&D policy should be top priority. The SMG also needs to develop a protocol to effectively manage universities and enterprises when they attract research institutions at home and abroad.

To diversify its R&D policy tools, the SMG needs to expand the scope of its R&D projects, not confining itself to direct investment but employing various methods such as planning & development, guarantee-linked investment, and support for technology startups. To that end, the complex processes involved in R&D projects need to be simplified and standardized. The SMG should also ensure compatibility between policies to connect its R&D projects with those of the central government.

To foster technology entrepreneurship in universities, the SMG can provide space and resources to technology holding companies there. As part of the effort to support SMEs with technology, the SMG needs to connect its procurement to its R&D policy. Moreover, to develop the city's potential as a testbed for new technologies, the SMG needs to designate a special deregulation zone where researchers can verify the stability and marketability of those technologies. Last but not least, we advise that the SMG accelerate its plans to create new R&D hubs and use well-suited plans to revitalize the existing hubs.

## Proposals for “New Manufacture Seoul”

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### Key Message

Pursuing four strategies to boost product value, Seoul will become a leader in manufacturing innovation.

### **Seoul needs to produce strategies for “New Manufacture Seoul” to revitalize its manufacturing sector**

For the last two decades, the service sector of Seoul has expanded while the manufacturing sector has declined. However, most service industries in Seoul are small self-employed operators running businesses such as restaurants. Even high-value service industries such as financial and legal services have limited growth potential. On the other hand, manufacturing industries tend to create more decent, regular jobs, most of which are protected by social insurance, than other industries.

In an effort to promote balanced growth of the service and manufacturing sectors of Seoul and create more jobs, the city government announced on April 26, 2015 an initiative called “New Manufacture Seoul” and a project to support conventional manufacturing of the city’s central business district (CBD). The project includes measures to provide technological support, government subsidies, business facilities, and manpower training for conventional manufacturing areas in Seoul, such as Jongno (jewelry), Dongdaemun (fashion/sewing), Jegi-dong (oriental medicine), Euljiro (printing), and Seongsu-dong (handmade shoes). Unfortunately, specific

action plans have not been prepared yet, and the policy direction does not seem to be clear as a comprehensive support plan for the whole manufacturing sector of Seoul.

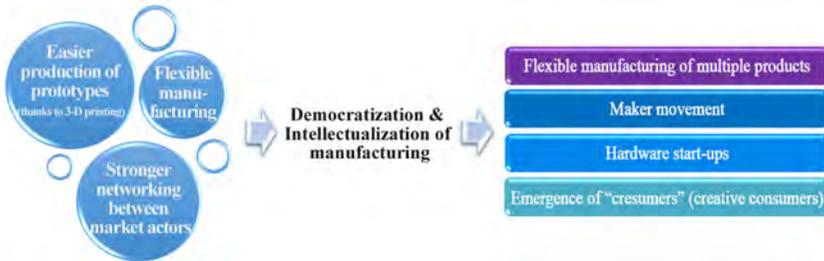
The purpose of this report is to suggest an overall direction for policies needed to revitalize the city's manufacturing sector. This report will review the current status of manufacturing and propose a long-term policy direction for development, rather than suggesting specific plans for manufacturing industries in the CBD.

### **The Fourth Industrial Revolution has shifted the paradigm for manufacturing, enabling new techniques such as small batch production**

Recently, major economic powers such as the US, Japan, Germany, and China have refocused on their manufacturing sectors to increase employment and revitalize industry. A conventional production system was designed to merely improve productivity and reduce cost. New policies of advanced countries for reinvigorating their manufacturing sectors place emphasis on building a new production system. This new system promptly responds to market demands and grants flexibility in the creation of new products.

The new policy trend is in line with the Fourth Industrial Revolution. The Fourth Industrial Revolution refers to an economic paradigm shift where a fusion of artificial intelligence (AI) and information & communications technology (ICT) enables the development of new products as well as the transformation of existing ones. This new revolution is characterized by “smart manufacturing technologies”. Thanks to big data, it is easier to detect market changes and connect the dots between them to better respond to market demand. Contemporary 3-D printing technology makes it possible to produce prototypes quickly and at low cost, helping to realize new ideas. Moreover, process innovation technology, such as smart sensors, can facilitate flexibility in manufacturing by improving equipment connections. The Fourth Industrial Revolution has brought about breakthroughs in manufacturing: (a) enabling flexible manufacturing of multiple products, (b) initiating a “maker

movement”, in which one makes products to realize innovative ideas or meet one’s needs, and (c) facilitating establishment of hardware start-ups thanks to a reduction of initial development costs.



[Figure 3] Transformation to the Fourth Industrial Revolution

### **Major cities around the world are focusing on creating a fertile environment for innovation by supporting development of smart technology and convergence products**

With the emergence of the Fourth Industrial Revolution, the priority in industrial competitiveness has moved to product development ability. Therefore, major cities are focusing on creating a fertile environment for innovation to produce new ideas in a quick, flexible way through smart technology.

Cities such as New York, Shanghai, and Tokyo strive to bolster their manufacturing sectors within this new industry paradigm. They are supporting development of smart technology and convergence products, strengthening network-building by market actors in the cities, and developing the needed human resources.

For example, New York City has established the Liberty View Industrial Plaza in Brooklyn to house the Manufacturing Innovation Hub for Apparel, Textiles & Wearable Tech and a sample-making factory, all designed to help bolster local manufacturing of convergence fashion products. Management of the business and the building is entrusted to a social enterprise known as Manufacture New York.

Moreover, the city provides offline networking opportunities and matching platforms where local product planners, manufacturers, and retailers can connect with each other. It also supports young fashion entrepreneurs, collaborating with Parsons, a prestigious local art and design school.

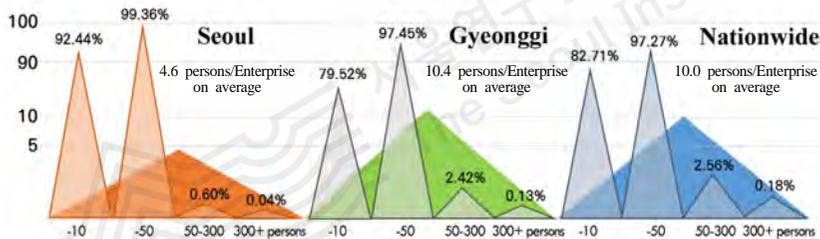
[Table 1] Manufacturing Revival Strategies in International Cities

City	Supporting Development of Smart Technology & Convergence Products	Strengthening Network-building	Developing Human Resources
New York	<ul style="list-style-type: none"> <li>-Liberty View Industrial Plaza: the Manufacturing Innovation Hub for Apparel, Textiles &amp; Wearable Tech, a sample-making factory, collaboration with various agencies</li> <li>-Brooklyn Fashion and Design Accelerator (BF+DA): a 3-D fabrication lab with 3-D printing; work space, a show room, co-working space</li> </ul>	<ul style="list-style-type: none"> <li>-Online value chain matching platforms (e.g. Fashion Manufacturing Initiative (FMI))</li> <li>-Offline networking support (e.g. City Source New York)</li> </ul>	<ul style="list-style-type: none"> <li>Specialized education and training programs: Mini-MBA, NYC Fashion Fellows, NYC Fashion Career Week</li> </ul>
Shanghai	<ul style="list-style-type: none"> <li>-Building manufacturing centers (e.g. R&amp;D center, inspection &amp; testing platforms)</li> <li>-Implementing pilot projects (e.g. a contingent fee for successful commercialization of smart technology devices)</li> <li>-Supporting smart manufacturing (e.g. government funding and loan assistance for “smart factories”)</li> </ul>	<ul style="list-style-type: none"> <li>-Supporting interaction between industry clusters in Pudong Port District</li> </ul>	<ul style="list-style-type: none"> <li>-Social Housing Strategy: Providing affordable public rental housing and apartments for smart technology talent</li> </ul>
Tokyo (Taitou)	<ul style="list-style-type: none"> <li>Joint development project between industry and academia</li> </ul>	<ul style="list-style-type: none"> <li>-Supporting “Atelierization” (strengthening connections between producers and consumers)</li> <li>-Building a Designer Village (enhancing cooperation among producers)</li> </ul>	

## Most manufacturing firms in Seoul are small businesses that make products related to daily life, such as clothes and leather products, which induce high employment

As of 2014, there were 61,219 manufacturing firms in Seoul (15% of the nationwide total) with 283,523 workers (7.2% of the nationwide total).

The most striking feature of the manufacturing sector in Seoul, compared to the sector in other regions, is that the majority of manufacturing firms are small companies. Small companies with fewer than 50 persons accounted for 99.36% of all manufacturing businesses in the capital, higher than that of Gyeonggi *Do* (97.45%) and the nationwide average (97.27%).

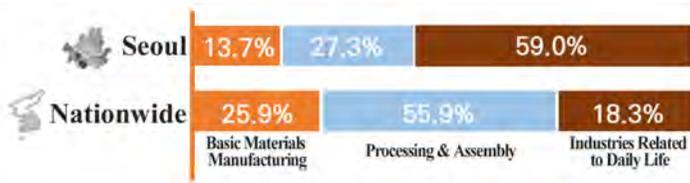


Note: Small Enterprise (with 1 to 9 persons) Small Enterprise (with 1 to 49 persons) Medium Enterprise (with 50 to 299 persons) Large Enterprise (300 or more persons)

Source: Korean Statistical Information Service, Census on Establishments (December 2015)

[Figure 4] Size of Manufacturing Enterprises by Region (2014)

The manufacturing sector is a major source of employment in urban areas. As of 2013, the employment inducement coefficient of the manufacturing sector in Seoul was 11.9 employees per KRW 1 billion, higher than the nationwide average at 8.6 employees per KRW 1 billion. This is because industries that are related to daily life, including production of clothing and leather goods (bags and shoes), and printing are relatively labor-intensive, with lower levels of automation, and account for the largest share of manufacturing in Seoul.



Source: Korean Statistical Information Service, Census on Establishments (December 2015)

[Figure 5] Proportion of Manufacturing by Type



Source: Bank Of Korea, Employment Table (2015)

[Figure 6] Employment Inducement Coefficient of Manufacturing by Region (2013)

### Most manufacturing businesses are concentrated in Seoul's CBD

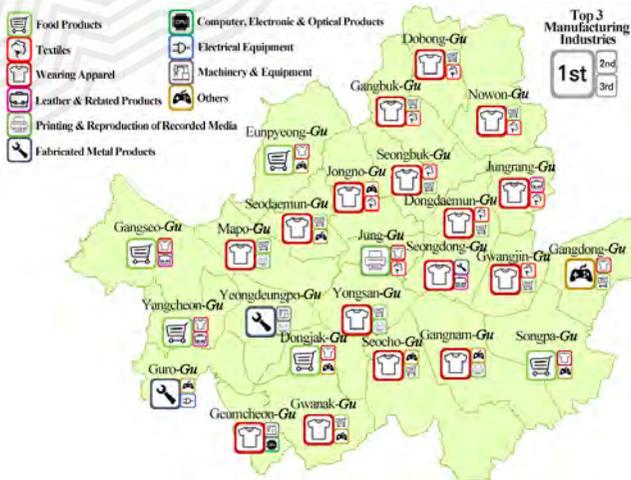
To identify the spread of manufacturing companies in Seoul, the report examined the number of manufacturing sectors based on the Korean Standard Industrial Classification in each *Gu*-district<sup>3</sup>. [Table 2] shows the proportion of top 3 manufacturing industries which have the most businesses by *Gu*-district.

<sup>3</sup> There are 25 districts known as “*Gu*” in Seoul. The head (or governor) of each district is an elected official.

[Table 2] Proportion of Top 3 Manufacturing Industries by *Gu*-district, Based on the Number of Businesses (2014)

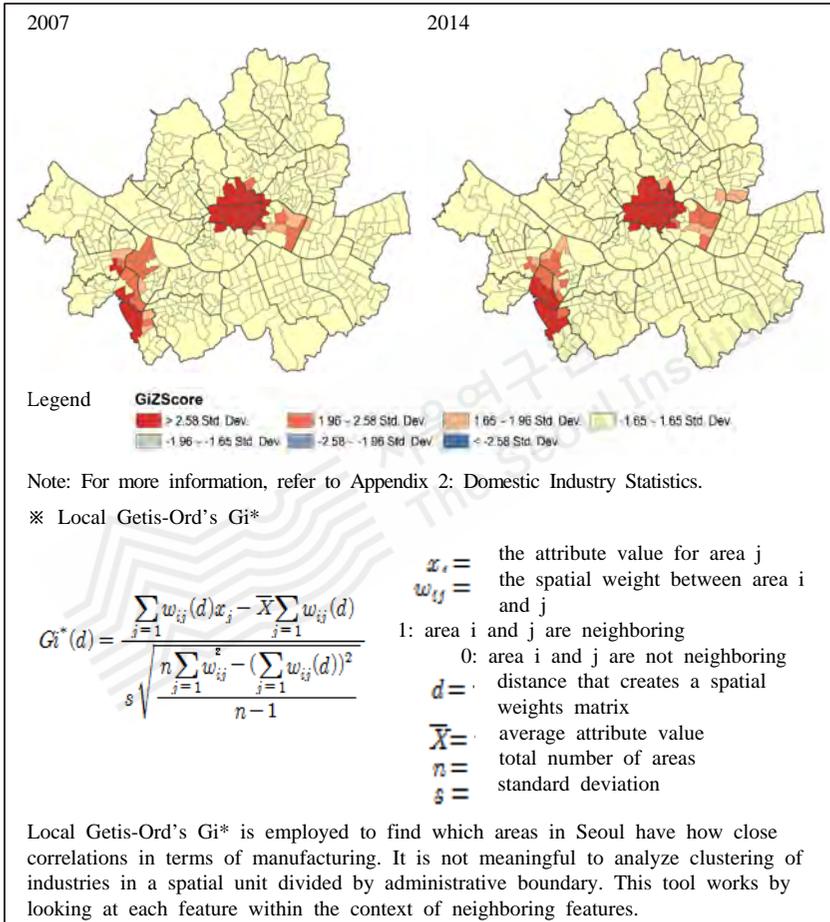
<i>Gu</i> -district	No. of Businesses	Proportion of Top 3 Manufacturing Sectors (%)	<i>Gu</i> -district	No. of Businesses	Proportion of Top 3 Manufacturing Sectors (%)	<i>Gu</i> -district	Number of Businesses	Proportion of Top 3 Manufacturing Sectors (%)
Jongno- <i>Gu</i>	4,163	69.4	Dobong- <i>Gu</i>	1,040	70.1	Geumcheon- <i>Gu</i>	5,021	45.5
Jung- <i>Gu</i>	10,124	77.0	Nowon- <i>Gu</i>	817	56.4	Yeongdeungpo- <i>Gu</i>	4,305	60.0
Yongsan- <i>Gu</i>	1,072	57.6	Eunpyeong- <i>Gu</i>	953	60.0	Dongjak- <i>Gu</i>	641	58.3
Seongdong- <i>Gu</i>	4,570	41.5	Seodaemun- <i>Gu</i>	740	57.8	Gwanak- <i>Gu</i>	1,320	66.3
Gwangjin- <i>Gu</i>	1,924	58.7	Mapo- <i>Gu</i>	1,395	55.2	Seocho- <i>Gu</i>	1,158	42.6
Dongdaemun- <i>Gu</i>	3,418	66.4	Yangcheon- <i>Gu</i>	1,190	50.5	Gangnam- <i>Gu</i>	1,772	57.3
Jungrang- <i>Gu</i>	3,473	71.1	Gangseo- <i>Gu</i>	1,208	39.5	Songpa- <i>Gu</i>	1,467	53.8
Seongbuk- <i>Gu</i>	2,509	75.9	Guro- <i>Gu</i>	3,704	48.9	Gangdong- <i>Gu</i>	1,618	52.9
Gangbuk- <i>Gu</i>	1,616	75.1						

Note: The top 3 manufacturing industries refer to those with the most businesses in each *Gu*-district.  
 Source: Korean Statistical Information Service, Census on Establishments (December 2015)



[Figure 7] The Spread of Top 3 Manufacturing Industries by *Gu*-district

Jongno-Gu and Jung-Gu in the CBD, and Guro-Gu and Geumcheon-Gu in the southwest area of the city have the most manufacturing companies, followed by Yeongdeungpo-Gu and Seongdong-Gu.



[Figure 8] Changes in Manufacturing Industry Agglomeration in Seoul

**The annual per-capita added value of manufacturing in Seoul was USD 47,000: one-third of New York's and half of Tokyo's**

The manufacturing sector in Seoul has a long history. However, as of 2014, the annual per-capita added value of manufacturing in the city was USD 47,000—only one-third of New York's (USD 128,000) and half of Tokyo's (USD 101,000).



Source: OECD Statistics (2010, 2012, and 2013)

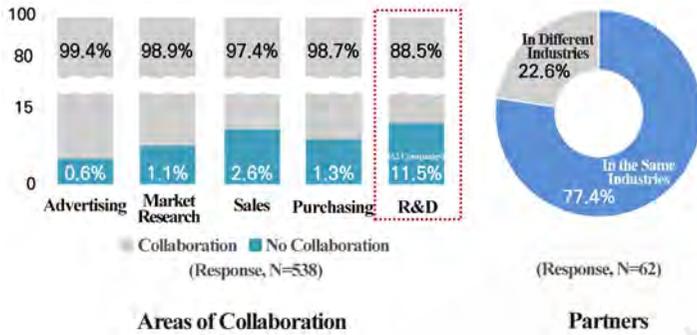
[Figure 9] Added Value of Manufacturing in Seoul & International Cities (2010, 2012, 2013)

**About 90% of manufacturing firms in Seoul develop new products by themselves, with 11.5% collaborating only in R&D**

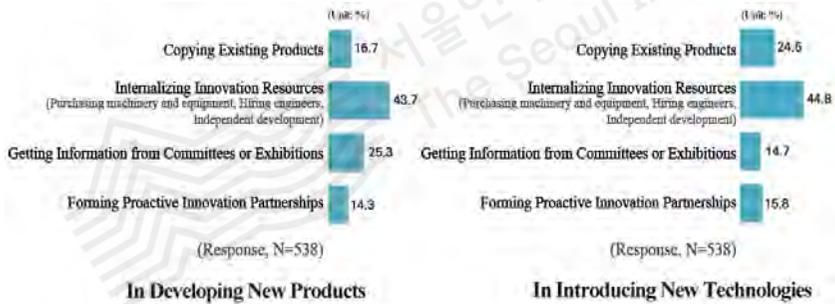
Compared to other cities with similar industrial structures such as New York and Tokyo, Seoul has a lower added-value for manufacturing, as most manufacturing businesses in Seoul remain followers of innovation.

According to a survey, businesses in Seoul rarely cooperate with other companies, with most manufacturing firms planning and developing new products by themselves. The survey conducted in five areas (advertising, market research, sales, purchasing, and R&D) showed that more than 90% of them did not engage in collaborative work, and only about 11.5% cooperated with each other in R&D. Of 62 companies engaging in R&D collaboration, 77.4% cooperated with companies

in the same industry, and only 22.6% in other industries. This shows that research in technological convergence is still in its infancy.



[Figure 10] Types of Collaboration between Manufacturing Companies



[Figure 11] Realities of Product/Process Innovation in Seoul

Another survey was conducted on how manufacturing firms in Seoul pursued innovation in developing new products and introducing new technologies. For new product development, 16.7% of the respondents stated that they copied existing products, while 43.7% said they tried to internalize innovation resources by purchasing machinery and equipment or hiring engineers. Only 14.3% pursued proactive innovation partnerships through collaboration with research institutes, universities, and other firms, or paying royalties for technology.

## Manufacturers are most interested in smart manufacturing technology as it relates to product planning

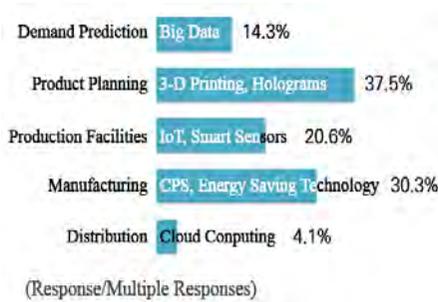
In a survey on manufacturer awareness of smart manufacturing technologies, 60.2% of the respondents said that they had never heard of it, while 25.1% said that they had heard of it but had no information. This shows that manufacturers in Seoul generally lack awareness of smart manufacturing.

When asked whether they were willing to introduce smart technology, 83.8% said no. Pointing to the reason, 34% were content with the status quo, 27.5% lacked enough information, 16.9% had insufficient funds, and 6.5% needed fundamental technology.

However, the manufacturers showed a great interest in smart technology when given information about the eight government-supported smart technologies: big data, 3-D printing, holograms, the Internet of Things (IoT), smart sensors, cyber physical systems (CPS), energy saving technology, and cloud computing. In particular, 37.5% of the respondents were interested in technologies related to product planning (3-D printing and holograms) and 30.3% in manufacturing technologies (CPS and energy saving). Indeed, manufacturing firms in Seoul had greater interest in product planning than in manufacturing process innovation.



[Figure 12] Barriers to Introducing Smart Technology



[Figure 13] Seoul Manufacturer Interest in Smart Manufacturing Technologies

### Manufacturing experts and businesses place emphasis on government support for technological development



[Figure 14] Policy Demand for Growth of the Manufacturing Sector in Seoul

A survey was conducted on what policies experts and businesses most needed to revitalize manufacturing in Seoul. Specifically, experts were asked which policies would be required for Seoul manufacturing companies to strengthen competitiveness in global and domestic markets. Public support for technological development was most needed, as stated by 25.3% of businesses, 40% of global competitiveness

experts and 26% of domestic competitiveness experts. Here, technological development can be interpreted to encompass innovation in both products and manufacturing processes.

When the experts were asked to evaluate the current policy for technological development, half stated that it was not enough. To the question of whether the manufacturing sector needed to pursue convergence with other industries, 84% responded yes. It can be concluded that the manufacturing sector needs to expand the scope of its R&D to different industries, and not only to IT.

### **Seoul needs to implement a “New Manufacture” policy to produce high value-added products for global competitiveness**

In this Fourth Industrial Revolution era, Seoul needs to implement a “New Manufacture” policy, a growth strategy focused on product value, in order to compete with other cities globally. A vision of the “New Manufacture” policy is to boost the competitiveness of Seoul manufacturing by helping its manufacturers become leaders in innovation.

There are two objectives for the “New Manufacture” policy to create new value and innovation: strengthen product development capabilities for Seoul manufacturers and create a manufacturing-friendly environment in Seoul through collaboration with business, universities, and even consumers.

Consequently, the manufacturing sector in Seoul would be able to open up its closed system, and become a leader in innovation rather than a follower. If manufacturers focus on product planning and design and successfully change their outdated image, young workers and entrepreneurs with skills in smart technology will join them. Consequently, manufacturing firms in Seoul will be able to become globally competitive enterprises.

**Vision**

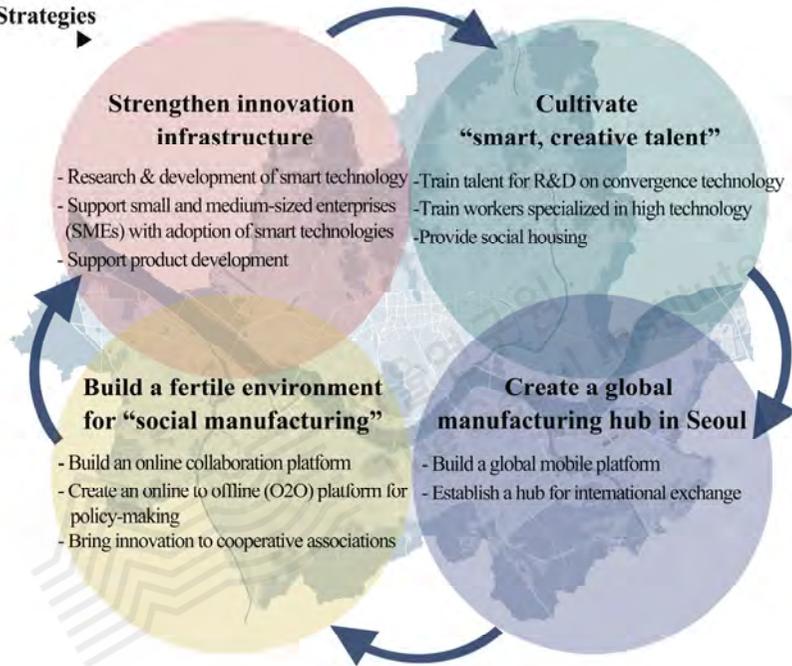
“New Manufacture Seoul” creating value and innovation

**Objectives**

Strengthen product development capabilities

Enhance local capabilities through cooperative governance

**Strategies**



**Present Reality**

Follower in innovation
Closed innovation system
Aging workforce
Enterprises willing to advance into global markets
Weak interaction between manufacturing and services

**Future Possibilities**

Leader in innovation
Open innovation system
Able to attract smart, innovative talent
Globally competitive, small businesses
More integrated, balanced development of manufacturing and service

[Figure 15] Vision, Objectives & Strategies of “New Manufacture Seoul”

### Four strategies to build “New Manufacture Seoul”

We suggest four strategies to build “New Manufacture Seoul”: (a) Strengthen innovation infrastructure, (b) Cultivate “smart, creative talent”, (c) Build a fertile environment for “social manufacturing”, and (d) Create a global manufacturing hub in Seoul. The first strategy is to develop and share smart technologies that manufacturers in Seoul most demand. The second strategy is about developing the human resources needed for technological innovation of the manufacturing sector. The strategy includes cultivation of talent in the long term and providing workers with social housing to ensure residential stability. The third strategy intends to build a collaborative framework to exchange know-how, information, resources, and manpower between local economic agents. The last strategy is to help small manufacturing enterprises advance into global markets. It involves building online/offline platforms and providing opportunities for international exchange to enhance global recognition of products made in Seoul.

[Table 3] Strategies & Major Projects for “New Manufacture Seoul”

Strategies	Actions	Major Projects
Strengthen innovation infrastructure	Support research & development of smart technology	-Develop fundamental technologies (e.g. holograms) -Pursue product innovation (e.g. virtual garment manufacturing system) -Pursue process innovation (e.g. sensor-based testing system)
	Support SMEs with adoption of smart technologies	-Build an information retrieval system to find solution providers -Provide government funding for “smart factories” -Implement pilot projects for introduction of smart technologies
	Support product development	-Support development of new convergence products -Support “microfactories” to test new products (e.g. FabLab, Living Lab) -Implement a “Product Value Plus+” project (connecting manufacturers and service providers, such as big data analysis, designing, and engineering)

Strategies	Actions	Major Projects
Cultivate “smart, creative talent”	Develop talent for R&D in convergence technology	-Support academic departments related to convergence science and technology in Seoul -Create a Seoul R&D Campus
	Train specialized talent in high technology	-Reform training programs in Seoul Institute of Technology & Education -Digital Meister e-training -MOOC (Massive Open Online Courses)
	Provide social housing	-Provide affordable housing for workers
Build a fertile environment for “social manufacturing”	Build an online collaboration platform	-Integrate consumers, designers, and producers -Support information exchanges, learning, and collaborative work
	Create an online to offline (O2O) platform for policy-making	-Gather new ideas online and connect those who have new business ideas with business development service providers or research institutes offline
	Bring innovation to cooperative associations	-Form interactive connections between co-ops -Support integration of different co-ops -Provide learning programs to co-ops
Create a global manufacturing hub in Seoul	Build a global mobile platform	-Implement a pre-order system towards greater manufacturing efficiency -Build a customized product manufacturing system -Provide crowd funding services (for the long term)
	Establish a hub for international exchange	-Hold Convergence Expos by integrating various industries -Develop unique industrial spaces to attract tourists from home and abroad (e.g. a pop-up shipping container shopping mall named COMMON GROUND)

## Measurement and Analysis of Outcomes of Social Enterprises in Seoul

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### Key Message

Overall, social enterprises located in Seoul have produced desirable social outcomes. The SMG needs to devise customized support measures for each type of social enterprises.

### **To evaluate social enterprises, a ratio of input to output was employed**

It has been six years since the Seoul Metropolitan Government (SMG) began to support social enterprises. It is the right time to evaluate their outcomes in an objective way. This study suggests a basic evaluation method to assess social enterprises in Seoul as well as criteria to analyze their outcomes and sustainability. Based on this assessment, we propose policy directions for future support through effective and practical measures.

To assess the outcomes, two indicators were employed in the study: social outcome and sustainability. The indicators were devised after full consideration of the unique goals of social enterprises, sustainability, measurable social value, and comparability with other enterprises.

The basic tool used to assess the outcomes was a ratio of input to output, a variation of the cost-benefit analysis (CBA). Indirect impact was excluded as it is difficult to convert to economic value.

## Two indices to assess social enterprises: social outcome and sustainability

The first indicator, social outcome, represents how well a social enterprise has achieved its social goals. It can be measured using the monetary value of jobs and social services provided to a vulnerable social group. To calculate social outcome, total support funding (including government subsidies and donations from enterprises and individuals) is considered as input and monetary value of jobs and social services provided as output.

This study assumes that true value of social outcomes exists in a range between the minimum and maximum. As a main index for measurement of social outcomes, minimum value represents a social outcome in the narrow sense, considering government subsidies compared to the value of jobs and social services provided only to a vulnerable social group. If the minimum value is more than 1, the social value created is considered to be larger than the subsidies and donations. In this case, the social enterprise merits continuous support.

$$\begin{aligned} &\text{The minimum value of social outcomes} \\ &= \frac{\text{Outputs (Value of jobs \& social services provided to the vulnerable)}}{\text{Inputs (Government subsidies \& donations from individuals and enterprises)}} \end{aligned}$$

[Figure 16] A Formula for the Minimum Value of Social Outcomes

The maximum value of social outcome is an ancillary index, which includes both the vulnerable social group and ordinary citizens as beneficiaries in a broad sense. If the maximum value is less than 1, the subsidies and donations were larger than the value of the jobs and social services created. In this case, the social enterprise can be considered to be underperforming.

$$\begin{aligned} &\text{The maximum value of social outcomes} \\ &= \frac{\text{Outputs (Value of jobs \& social services provided to the vulnerable and ordinary citizens)}}{\text{Inputs (Government subsidies \& donations from individuals and enterprises)}} \end{aligned}$$

[Figure 17] A Formula for the Maximum Value of Social Outcomes

**Here, the minimum and maximum values are the lower and upper limits of the true value**

The second indicator is sustainability. This represents whether a social enterprise can continuously produce similar social outcomes even if the SMG's support program ends. A social enterprise with high sustainability will be able to do so, indicating good performance as an enterprise. Sustainability can be measured by using Return on Investment (ROI), retention ratio, and subsidy ratio.

[Table 4] Formulas for Sustainability

Main Index	Ancillary Index
$\text{ROI} = \frac{\text{Operating Profit}}{\text{Total Capital}}$	$\text{Modified Retention Ratio} = \frac{\text{Earned Surplus}}{\text{Total Capital}}$
	$\text{Subsidy Ratio} = \frac{\text{Total Subsidies}}{\text{Total Capital}}$

ROI is a main index, which uses operating profit. The higher the ROI, the more sustainable the social enterprise. Retention ratio here uses total capital instead of paid-in capital in original retention ratio. It can be used to measure how much capital an enterprise can mobilize by itself. A high retention ratio means that the enterprise has accumulated surplus funds to prepare for the future. The higher the retention ratio, the higher the sustainability. However, it should be noted that retention ratio is not necessarily proportional to future stability.

The subsidy ratio is to measure a social enterprise's dependency on that source of funding. Total subsidies and donations from the central and local governments, private enterprises and individuals are divided by total capital. The higher the subsidy ratio, the higher the dependency on outside assistance. This indicates a low potential for sustainability.

## A survey of 439 social enterprises in Seoul reveals that their social outcomes are at least 12.9 times more than their inputs

The SMG and the central government have implemented a variety of support policies to nurture social enterprises. This study measured the performance of social enterprises in Seoul to verify the effectiveness of these policies. We conducted a survey of 439 enterprises in Seoul, in December 2015.

[Table 5] Characteristics of the Social Enterprises in Seoul Giving Valid Responses

Type of Social Enterprises		Sample	Proportion (%)	Note
Total		101	100.0	
Certified by the authorities	Certified Social Enterprise	63	62.4	
	Preliminary Social Enterprise	38	37.6	Designated by Ministries (10) Designated by the SMG (28)
Purpose	To provide jobs	54	53.5	
	To provide social services	11	10.9	
	To provide jobs and social services	15	14.9	
	To contribute to local community	1	1.0	
	(Other)	20	19.8	
Area of Focus	Education	6	5.9	
	Health/Childcare	3	3.0	Childcare (1), Health (2)
	Social Welfare	6	5.9	
	Environment	19	18.8	Recycling (4), Cleaning (6), House Repair (9)
	Culture/Art/Tourism	17	16.8	
	Nursing/Housework	2	2.0	
	Manufacturing/Wholesale/Retail	20	19.8	
	Publishing/Printing/Copy paper	11	10.9	
	(Other)	17	16.8	Local Development Consulting (5), Logistics (2), Construction (1), Others (9)

Of the 101 valid samples, we analyzed the minimum and maximum values of social outcomes for 81 enterprises that received subsidies. The average minimum value is 12.9, which means that the social value created by these social enterprises is 12.9 times more than the inputs. This result proves that the social enterprises were successful overall.

[Table 6] The Minimum Value of Social Outcomes of Social Enterprises in Seoul

Total Number of Social Enterprises	81	
Number of Social Enterprises (Minimum Value > 1)	59	
Number of Social Enterprises (Minimum Value < 1)	22	
Average	12.9	
Median	1.0	
Minimum Value	0.0	
Maximum Value	77.5	

As noted, the minimum and maximum values of social outcomes suggest the lower and upper limits of the true value of those social outcomes. According to [Table 6], social enterprises whose minimum value is greater than 1 accounted for 72.8% (59 enterprises) of the total, while those less than 1 accounted for 27.2% (22 enterprises). The minimum value represents the social value a social enterprise created for the vulnerable social group based on a rigorous standard. Therefore, we can argue that 59 enterprises achieved their goals as social enterprises. On the other hand, 22 enterprises produced less social value than their inputs warranted. However, the maximum value should be considered to determine whether an enterprise produced meaningful outcomes.

[Table 7] The Maximum Value of Social Outcomes of Social Enterprises in Seoul

Total Number of Social Enterprises	81	
Number of Social Enterprises (Maximum Value < 1)	3	
Number of Social Enterprises (Maximum Value > 1)	78	
Average	29.5	
Median	1.0	
Minimum Value	0.1	
Maximum Value	283.5	

The average maximum value was 29.5, which means that the social value created was 29.5 times greater than the inputs. Social enterprises whose maximum value was less than 1 accounted for 3.7% (3 enterprises), while those greater than 1 accounted for 96.3% (78 enterprises). This means that the overwhelming majority of the social enterprises surveyed produced more social value than the inputs they received. However, three enterprises underperformed even under the broad standard that includes ordinary citizens as well as the vulnerable social group.

### Sustainability of the 101 social enterprises turned out to be at a low level

This study examined sustainability of the 101 social enterprises in Seoul, using four indices.

If the ROI of a social enterprise was greater than 0, the company is sustainable enough to continue to produce social outcomes. On the other hand, if the ROI was less than 0, the company is not sustainable. The higher the retention ratio and the lower the subsidy ratio, the more sustainable the enterprise.

[Table 8] Sustainability of Social Enterprises in Seoul - ROI

Total Number of Social Enterprises	101	
Number of Social Enterprises (ROI<0)	40	
Number of Social Enterprises (ROI>0)	61	
Average (%)	<b>0.3</b>	
Median (%)	0.0	
Minimum Value (%)	-12.8	
Maximum Value (%)	38.7	

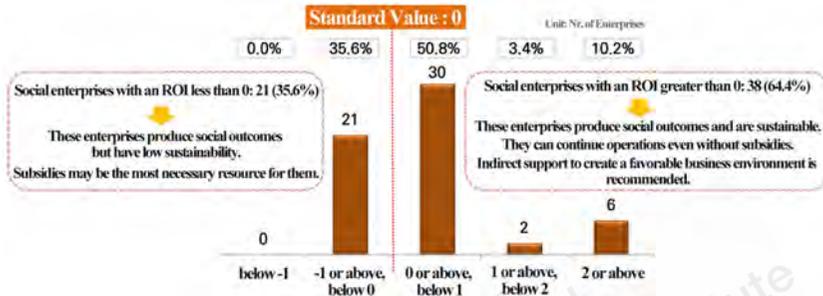
The average ROI of the 101 social enterprises was 0.3%, which means that the enterprises are profitable but their sustainability is weak. Enterprises whose ROI was greater than 0 accounted for 60.4% (61 enterprises) while those less than 0 accounted for 39.6% (40 enterprises). The average retention ratio was 20.6%, while the subsidy ratio was 128.3%.

### **The SMG needs to devise measures to improve sustainability for social enterprises with high social outcomes but low sustainability**

In summary, the social enterprises located in Seoul achieved desirable social outcomes, and support from the SMG can be considered effective. The minimum value of the social outcomes was 12.9, meaning that the enterprises produced at least 12.9 times more outcomes than the inputs they received. Moreover, of 81 social enterprises, 73% had a minimum social value greater than 1, with only 3.7% less than 1. This shows that most of the social enterprises were successful in achieving their goals.

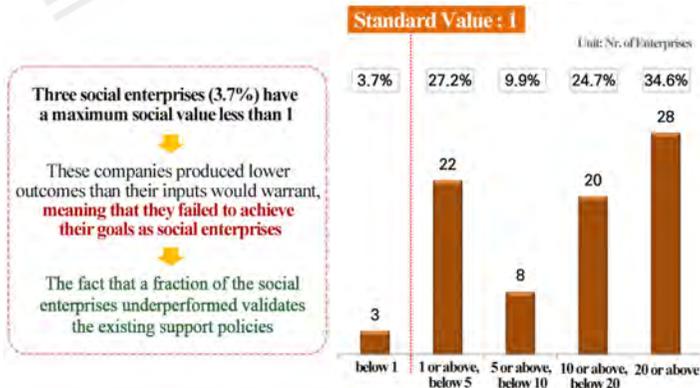
However, it is a concern that about 36% of the enterprises whose minimum value is greater than 1 have weak sustainability. These enterprises need the constant support of the SMG and the central government. However, subsidies and donations can end anytime due to changes in policy and economic circumstances. The authorities need to devise long-term measures to improve sustainability with such companies.

Still it is encouraging that 64.4% of the enterprises are assessed as sustainable without subsidies. For these companies, the SMG should provide indirect support such as providing networks, access to business infrastructure, and a favorable business environment.



[Figure 18] Support Measures for Social Enterprises with Minimum Social Value Greater than 1

Unfortunately, some companies had poor outcomes when compared to the inputs received even though more generous standards were applied. About 3.7% of these enterprises had a maximum social value of less than 1. Moreover, 19 enterprises had maximum values greater than 1 but minimum values less than 1. It is difficult to assess the performance of these companies, and a variety of assessment methods should be employed to decide whether to continue SMG support.



[Figure 19] Support Measures for Social Enterprises with Maximum Social Value Less than 1

## Shopping Tourism in Seoul

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### Key Message

Shopping tourism market in Seoul is highly dependent on Chinese tourists. The market should be diversified to serve tourists from a wider range of countries.

### **Shopping is no longer a mere act of purchasing but an essential part of travelers' experiences**

The definition of shopping tourism includes not only tourists' act of purchasing goods but also having snacks during the tour. Shopping is one of the most important components of tourism. The act of shopping during a tour can be regarded as a leisure activity. The tourists' shopping experience is determined by the quality and prices of products, shopping venues, shopping facilities and service quality of the salespersons.

This study analyzes shopping behaviors of foreign tourists visiting Seoul and suggests policy directions for improving shopping tourism in Seoul.

### **Shopping tourism market in Seoul is disproportionately dependent on Chinese tourists**

Seoul's shopping tourism market is highly dependent on Chinese tourists, who mostly tend to buy cosmetic products at downtown duty-free shops. There is a close

correlation between the act of shopping and the economic circumstances. Indeed, shopping tourism in Seoul is vulnerable to changes in economic and political circumstances of the Chinese. Therefore, there should be a thorough analysis of a market structure and consumer behavior. Given that the Chinese tourists are the biggest consumers in the shopping tourism market in Seoul, the current market structure needs to be changed to ensure sustainability of this market, where the major shopping items and the types of shopping facilities are mostly limited to cosmetic products and downtown duty-free shops.

### **Different shopping behaviors of tourists from different countries need to be analyzed to segment the shopping tourism market**

Foreign tourists from different countries show different preferences and shopping behaviors. For example, foreign tourists in general shopped most often at cosmetics stores in downtown Seoul. However, the second most visited shopping venues were different: tourists from Southeast Asian countries visited traditional markets while Japanese tourists shopped at large retail stores. This suggests that there is a potential to further expand the shopping tourism market by targeting a wider variety of customers. Seoul needs to be prepared to meet the demands of new target customers and provide them with customized services. For example, tourists from the Middle East currently account for only a fraction of foreign visitors to Seoul, but they are the most valuable potential customers with a high purchasing power. In addition, considering that visitors from each of the Southeast Asian countries showed different purchasing behaviors, the shopping tourism strategies need to be segmented based on the behavior of consumers from different countries.

### **New information channels such as smartphones and blogs should be utilized for boosting shopping tourism**

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Smartphones have emerged as one of the most important channels to obtain information about products, prices, and promotional events. Consumers tend to get shopping information from blogs, websites or directly from acquaintances who have first-hand experience of using certain products. Even though more and more visitors to Seoul use online channels to find information, the relevant infrastructure is still not fully equipped to meet such demands. There should be more mobile applications and other tools which can help foreign visitors to shop more conveniently.

### **Foreign shoppers in Seoul prefer middle-priced brands, practical products and unique designs**

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Tourists have shown a tendency to place emphasis on practicality. According to a survey of foreign tourists visiting Seoul, most of the respondents preferred moderately priced brands, practical products and special designs. Low price was not a major determinant of purchasing decision but it was evident that they considered product quality and design as more important than price. To make Seoul a more attractive tourist destination, there should be a world-class shopping infrastructure where customers can purchase unique, traditional products with good quality at affordable prices.

## **A number of sub-center areas of Seoul have emerged as new shopping areas**

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Since the 1970s, the most popular shopping areas in Seoul have been central areas including Namdaemun Market, Myeongdong, and Dongdaemun Market. Of these, Myeongdong has recently re-emerged as a popular shopping area with a wide variety of food stalls as well as a large number of cosmetic and clothing stores. The number of visitors to Namdaemun Market and Dongdaemun Market has been decreasing, while sub-center areas including Hongdae, Garosu-gil, and Coex Mall have become more popular as new shopping destinations in Seoul. In these areas, large retail stores and new cultural spaces are established, thereby appealing to young people from home and abroad. Changes in preference for shopping destinations are closely related to Seoul's urban planning for commercial areas. The Seoul Metropolitan Government (SMG) needs to devise strategies to boost shopping tourism in a comprehensive manner.

## **The most popular shopping items are cosmetics, clothes, and food products**

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On the top of the shopping lists of foreign visitors to Seoul are cosmetic products. Indeed, cosmetics are the highest selling items in downtown duty-free shops, street stores and traditional markets. Clothing products are also popular among the tourists. Despite their good quality and unique designs, domestic clothing brands have failed to grow into global fashion brands. Korean clothing manufacturers need to develop innovative marketing strategies to strengthen their brand image. Alternatively, thanks to the popularity of Korean pop culture, Korean food and snacks have received much attention from foreigners. This market is expected to see a steady growth in the future. The industry should develop various food products that foreign visitors can take back to their countries.

**To spur the growth of shopping tourism in Seoul, manufacturers and retailers should be able to offer competitive products rather than expanding stores or offering temporary promotional discounts**

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Regardless of types of shopping facilities, Korean cosmetics, clothes and food products are popular among foreign visitors. Specifically, thanks to such popularity, cosmetic brands and stores have rapidly increased, intensifying competition in the market. Expanding stores and offering promotional discounts might be effective to boost sales revenues in the short term. However, manufacturers and retailers need to develop new products and devise effective marketing strategies to enhance their market competitiveness. Thus, in addition to shopping infrastructure, more emphasis should be placed on product development and quality management.

**Foreign tourists were satisfied with shopping facilities and products while unsatisfied with customer service**

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Foreign tourists gave positive feedback on product quality, affordable prices, and the variety of new products. They were also impressed with the promotional discounts and appealing product designs. Most of the tourists who purchased cosmetic and clothing products opined that Korean products are of high quality but the prices are relatively low. On the other hand, they pointed out some weaknesses of the shopping environment in Seoul: counterfeit products, poor service of salespeople, inability to communicate product information in foreign languages, excessive congestion in downtown duty-free shops and department stores and lack of rest facilities in shopping areas.

In spite of all these, shopping tourism in Seoul has high potential, given the high product credibility, the large number of shopping channels, competitive pricing and easy communication. Specifically, Asian tourists expressed a high regard for Korean

products in terms of product quality and prices. They perceived that Korean goods are more affordable than Japanese ones. Thanks to excellent IT infrastructure, tourists can easily obtain shopping and tourist information through various online platforms including the SMG website and tourist information centers. Moreover, many tourists pointed out that there were more salespeople who can speak foreign languages including Chinese, Japanese and English when compared to their previous visits. They also said they could communicate with general citizens in English more easily than before.

Nonetheless, there are threats to shopping tourism in Seoul: popularity of only limited types of products, geographically unequal distribution of shopping centers, market dominance of large retail stores and higher prices of luxury-brand products than in other countries. Indeed, only limited types of products have enjoyed high sales, such as cosmetics, clothes, and food products (especially seaweed snacks). This means that the shopping tourism market in Seoul has less diversity than its counterparts in other countries. In addition, tourists perceived that the prices of luxury-brand products in Korea are higher than in Japan.

[Table 9] SWOT Analysis of Shopping Tourism in Seoul

Strength	Weakness
<ul style="list-style-type: none"> <li>- High quality but low prices</li> <li>- A wide variety of new products</li> <li>- Great product designs</li> <li>- Various promotional discounts</li> </ul>	<ul style="list-style-type: none"> <li>- Counterfeit products (cosmetics, leather products)</li> <li>- Poor service of salespeople</li> <li>- Lack of product information in foreign languages</li> <li>- Excessive congestion in shopping areas</li> <li>- Lack of rest facilities in shopping areas</li> </ul>
Opportunity	Threat
<ul style="list-style-type: none"> <li>- High product credibility</li> <li>- Various shopping channels</li> <li>- Price competitiveness (compared to Japan)</li> <li>- Easy communication</li> </ul>	<ul style="list-style-type: none"> <li>- Popularity of only limited types of products</li> <li>- Geographically unequal distribution of shopping centers</li> <li>- Market dominance of large retail stores</li> <li>- Higher prices of luxury-brand products than other countries</li> </ul>

### **There should be efforts to relieve inconvenience in shopping tourism and provide shopping information using smart devices**

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It is important to increase customer satisfaction because shopping tourism is a major determinant in the tourists' decisions about their preferred destinations. To that end, it is imperative to make it easier for foreigners to purchase goods and improve customer service. The SMG can relieve the tourists' inconvenience by providing accurate and accessible information through various channels. Specifically, given that smart devices are the most essential gadgets in today's daily life, the SMG need to find ways to provide shopping information and benefits using smartphones.

### **The SMG needs to redesign the current shopping festivals, attracting a wider range of participants including traditional markets and tourist service agencies**

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One of the prominent trends in cities that promote shopping tourism is holding annual shopping festivals. In its bid to follow suit, Seoul has held several shopping festivals such as Seoul Summer Sale and Korea Grand Sale every year, but only a few tourists seem to be aware of them. The participation rates of businesses in the domestic shopping festivals are also low. Moreover, the majority of the participants are large corporations. The SMG needs to encourage a larger number of businesses in various industries including retailing, manufacturing and tourism to participate in the shopping festivals. There should be incentives to attract small and medium-sized businesses as well as traditional markets to take part in these festivals. To that end, the SMG should be able to suggest a business model where businesses can profit from the festivals.

**To boost shopping tourism in Seoul, the quality of tourists' experience needs to be improved in terms of accommodation, transportation, food, and customer service**

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Shopping tourism is a type of leisure activity as well as an emerging form of tourism. The very act of shopping is an integral part of travelers' experiences. To enhance the competitiveness of Seoul in shopping tourism, providing high quality services in terms of accommodation, transportation, food, tour programs, and customer service not to mention the good quality of products is of utmost importance.



## 02 Administration

### Social Welfare Expenditure of the Autonomous Districts of Seoul Metropolitan City and Its Financial Crisis: A Typological Analysis

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#### Key Message

An analysis of the financial management of welfare in the 25 autonomous *Gu*<sup>4</sup> in Seoul reveals that many have a low level of fiscal autonomy and face financial crisis.

#### **Given the growing demand for welfare services, the Seoul Metropolitan Government (SMG) needs to develop strategies to finance its welfare policies**

Recently there has been conflict between the central and local governments over social welfare expenditures. Local governments expect the central government to increase its financial aid for public projects. The central government expects local governments to better manage their finances to continue providing welfare services without financial aid. Given the growing demand for social welfare due to demographic changes and greater need for welfare services, the Seoul Metropolitan Government (SMG) and autonomous *Gu* offices need to develop related financing strategies. It is therefore necessary to understand the current financial situation of the SMG and *Gu* offices and categorize *Gu* with similar characteristics and crisis

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<sup>4</sup> “*Gu*” is an administrative unit (district) in the cities of Korea. There are 25 *Gu*-districts in Seoul, with the head of a *Gu* popularly elected every four years by local residents.

factors into groups. By doing so, the authorities can determine welfare policy directions and devise financing strategies suitable for each category.

This study aims to provide foundational data on the financial situation of each autonomous *Gu* and the SMG as well as analyze their current welfare financing and characteristics. This report suggests policy tasks that the central government and the SMG will find essential to improving the financial condition of the 25 *Gu* districts in Seoul.

### **Local tax revenues are decreasing while social welfare expenditures are rapidly increasing, placing more burden on local government finances**

Of the total local government general revenues, own-source revenue has been decreasing annually while intergovernmental transfers such as local subsidies or grants-in-aid from the central government have been on the rise. The proportion of intergovernmental transfers first exceeded own-source revenue in 2010. In 2015, intergovernmental transfers accounted for 52.3% of the total general revenue, while own-source revenue accounted for 35%. Of intergovernmental transfers, local subsidies increased while local grants-in-aid decreased. An increasing proportion of intergovernmental transfers means a decrease in revenues that a local government can spend at its own discretion. On the other hand, its mandatory spending is increasing due to a heavier burden of required matching expenditures according to a rise in local subsidies. Notably, while the SMG has had a higher proportion of own-source revenues than any other local government, these have also been rapidly decreasing. For their part, autonomous *Gu* in the city are highly dependent on local subsidies.

The annual total expenditure of local governments nationwide increased by 4.6% on average, from KRW 186 trillion in 2008 to KRW 243 trillion in 2014. Annual social welfare expenditures in the same period increased by 11.1% on average, from KRW 36 trillion to KRW 68 trillion, growing 1.9 times in 6 years. As of 2014, the

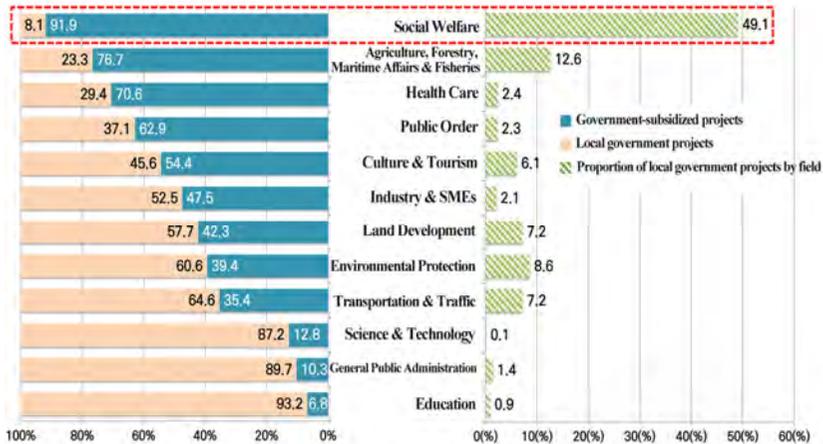
proportion of national social welfare spending by local governments stood at 28.2% while the SMG spent 34.4%. The burden was much heavier for autonomous *Gu* in this area. The national average spent by autonomous *Gu* offices was an average of 48.9% in 2014, increasing by an average of 15.6% on an annual basis over 6 years. This figure is much higher than for cities (24.5%) or *Gun*<sup>5</sup> (15.9%).

### **Government-subsidized projects are a major cause of the increasing welfare expenditures by local governments and in the shrinking of their own welfare programs**

Local governments conduct their own welfare programs as well as government-subsidized projects transferred to them. Government-subsidized projects in this area account for 91.9% while local government projects account for 8.1%. Of total government-subsidized projects, those in social welfare account for 49.1%, which is much higher than any other field. Therefore, if more government-subsidized projects are pursued, the resulting expenditures by local governments will have to rise as well.

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<sup>5</sup> “*Gun*” is an administrative unit which falls within the jurisdiction of metropolitan cities, metropolitan autonomous cities or *Do* (similar to provinces) in Korea.



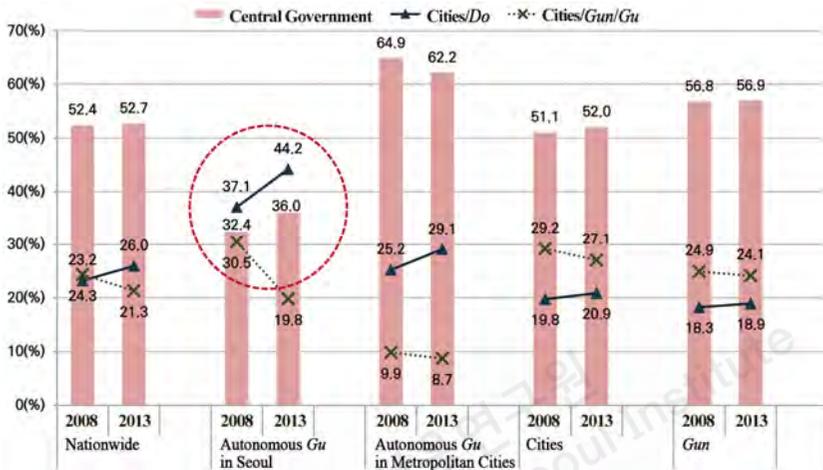
[Figure 20] Proportion of Local Government Projects by Field (2014)

The recent expansion of government-subsidized projects has resulted in the following negative impacts on local government finances or programs. First, an increase in total welfare expenditure has put more financial burden on local governments (as well as the central government). Second, as the subsidies from the central government decrease, this leads to a higher cost-sharing burden for local governments. Third, budget deficits mean that local governments' own welfare programs are reduced or eliminated.

This report analyzes changes in the apportionment of financial burden from government-subsidized projects between the central government, major cities/*Do*<sup>6</sup> and minor cities/*Gun/Gu*. From 2008 to 2013, the burden of major cities/*Do* increased more steeply than it did for the central government. The SMG shouldered an especially heavier burden (44.2%) than the central government (36%) or any other local government. Moreover, expenditures on government-subsidized projects increased an average of 12.3% on an annual basis while that spent on local

<sup>6</sup> “*Do*” is an administrative unit (similar to a province) in Korea. There are eight *Do* in South Korea, such as Gyeonggi-*Do* and Gangwon-*Do*.

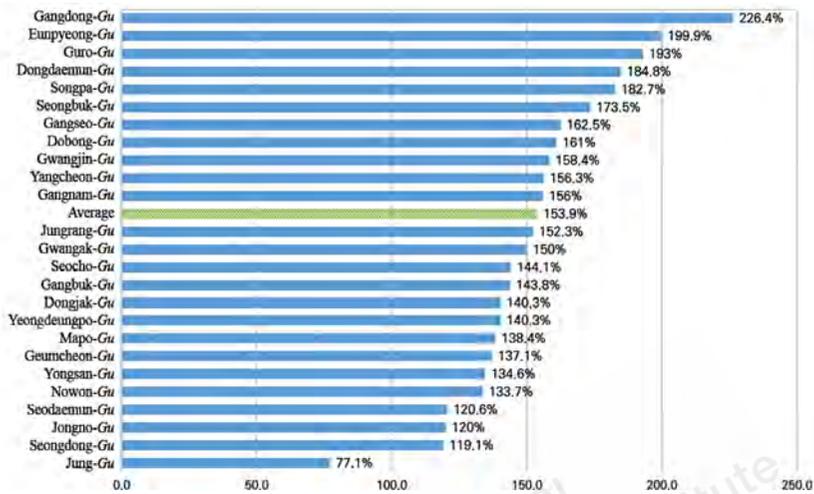
government projects increased by only 6.9%. This means that less was spent on local governments' own projects as a proportion of total social welfare expenditure.



[Figure 21] Changes in Apportionment of Financial Burden for Government-subsidized Projects between the Central Government, Major Cities/Do & Minor Cities/Gun/Gu

### The welfare expenditures of autonomous *Gu* in Seoul have increased sharply over seven-year period

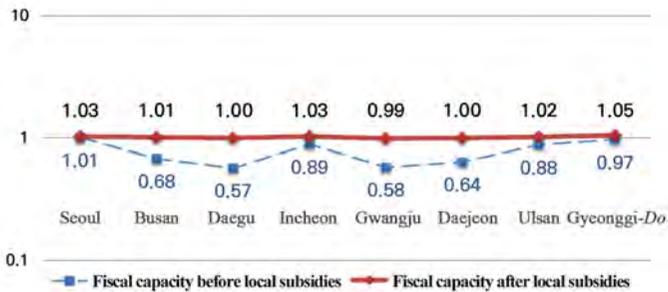
From 2008 to 2015, total expenditures by the SMG increased by 37.3% (KRW 4.9648 trillion) while its social welfare expenditures increased by 134.7% (KRW 3.5175 trillion). Welfare expenditures by the 25 autonomous *Gu* increased an average of 153.9%, which is higher than the SMG. Spending increases by both the SMG and autonomous *Gu* offices outpaced total expenditure increases three- to four-fold. Moreover, there is a large gap between autonomous *Gu* in the scale and rate of increase in welfare expenditures, which are expected to worsen over time.



[Figure 22] Rate of Change in Welfare Expenditures by Autonomous *Gu* in Seoul (2008~2015)

### A low basic subsidy rate is applied to the SMG despite its low real fiscal capacity

A basic rate for national subsidy is differentially applied to the SMG due to its high fiscal capacity index. For example, the basic rate for childcare benefits is about 35% for the SMG, while the rate for other local governments is 65%. In terms of the basic living security program, the basic rate for the SMG is 50% while for other local governments it is 80%. The fiscal capacity index is a ratio of the standard amount of financial demand to the standard amount of financial (tax) revenue. However, if actual revenues including local subsidies are considered, the fiscal capacity of the SMG is not much higher than other local governments. As of 2013, the SMG's fiscal capacity before local subsidies was 1.01, much higher than other municipalities such as Daegu (0.57) and Gwangju (0.58). However, its fiscal capacity after local subsidies was 1.03, lower than Gyeonggi-Do (1.05) and similar to Incheon (1.03), Busan (1.01), Daegu (1.00), Gwangju (0.99), Daejeon (1.00), and Ulsan (1.02).



Note: Log value is applied to the vertical axis

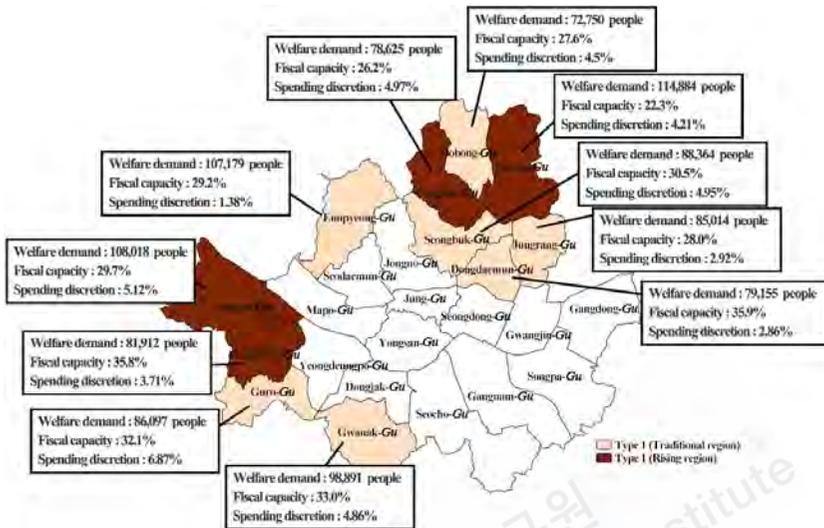
[Figure 23] Fiscal Capacity Indices of Major Local Governments (2013)

#### Four categories of welfare finance management by each autonomous *Gu*

The goal of local governments' welfare finance management is to protect overall fiscal soundness and sustainability as well as provide a certain level of welfare services in response to increasing demand. This study analyzed the characteristics of welfare finance management by each autonomous *Gu* in Seoul, in terms of fiscal risk, increase in welfare expenditures, fiscal pressure, and self-control over financial management. The 25 *Gu* were then categorized into four types on the basis of welfare demand, fiscal capacity, and spending discretion.

##### **Type 1: High Welfare Demand, Poor Fiscal Capacity, Mandatory Spending Required**

Type 1 is characterized by a high number of welfare recipients, a low level of fiscal autonomy and a high proportion of government-subsidized projects. Eleven autonomous *Gu* fit this description and are exposed to high fiscal risk due to high, and rapidly growing, welfare expenditures. They are also heavily burdened with mandatory spending and fiscal pressure.



[Figure 24] Type 1: High Welfare Demand, Poor Fiscal Capacity, Mandatory Spending Required

### Type 2: High Welfare Demand, High Fiscal Capacity, Discretionary Spending allowed

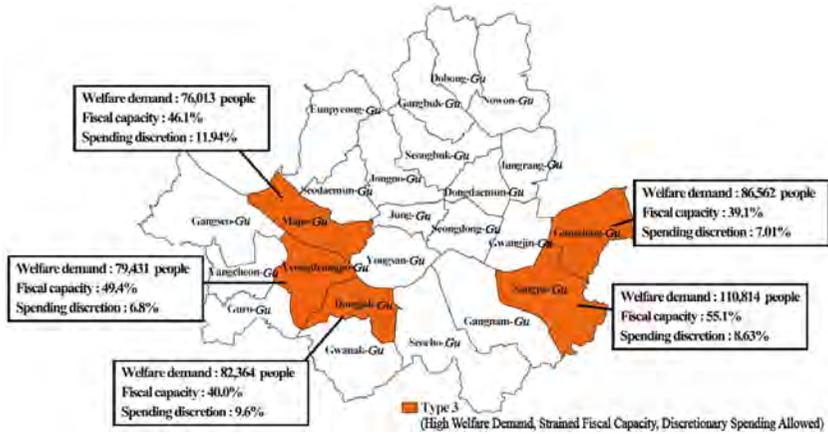
Type 2 is characterized by a high number of welfare recipients, but also a high level of fiscal autonomy and a high proportion of projects carried out by the local *Gu* office. Three autonomous *Gu* fall into this category. They have a sound financial situation thanks to the low level of welfare expenditures. The increase in welfare expenditures is moderate, resulting in less fiscal pressure than other regions. They also have a high level of fiscal autonomy.



[Figure 25] Type 2: High Welfare Demand, High Fiscal Capacity, Discretionary Spending Allowed

### Type 3: High Welfare Demand, Strained Fiscal Capacity, Discretionary spending Allowed

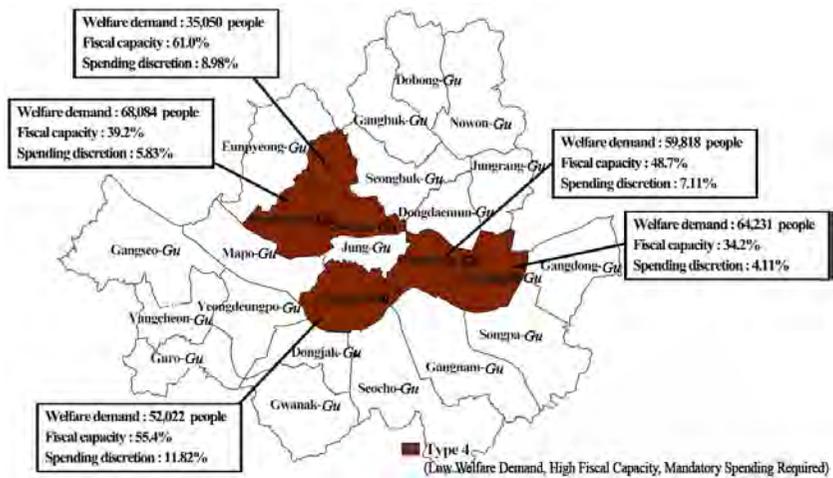
Type 3 is characterized by a high number of welfare recipients and a high proportion of projects coming from the local *Gu* office. Fiscal capacity is rather strained, if not poor, and five autonomous *Gu* fall into this category. Welfare expenditures are at an average level, resulting in sound finances. The increase in welfare expenditures is slightly higher than the average, which leads to slightly more fiscal pressure. However, these *Gu* have a higher level of fiscal autonomy than others, and it is assumed that they have sought to control the increase in welfare spending caused by the rapidly increasing number and scope of government-subsidized projects.



[Figure 26] Type 3: High Welfare Demand, Strained Fiscal Capacity, Discretionary Spending Allowed

#### Type 4: Low Welfare Demand, High Fiscal Capacity, Mandatory Spending Required

Type 4 is characterized by a smaller number of welfare recipients, high fiscal capacity, and a relatively high proportion of government-subsidized projects. Five autonomous *Gu* fit this description and enjoy a sound financial situation. As the increase in welfare expenditures is slightly lower than the average, the fiscal pressure they experience is lower than the average. However, more welfare projects are government-subsidized than are initiated by the *Gu* offices.



[Figure 27] Type 4: Low Welfare Demand, High Fiscal Capacity, Mandatory Spending Required

### Local government problems with financial management of social welfare programs should be dealt with from a broader perspective

The current problems with financing of social welfare projects facing local governments are not issues these governments can resolve by themselves. Social welfare financing is something where budget allocations for other policy areas as well as interests between the central government and local governments are entangled. The problems should be dealt with from a broader perspective. Based on our analysis of all 25 *Gu*, we propose the following policy solutions.

- 1) Clarify the responsibility for management of welfare financing by the central government and by local governments

To effectively respond to an environment of increasing social welfare expenditures, it is necessary to clarify the financial responsibilities of both the central government and the local governments. Under current law, local governments

must make sure that their tasks do not overlap with the central government. However, in reality, jurisdictions overlap, so this often proves difficult, leading to an unclear division of responsibilities in terms of securing funding for welfare programs. Through restructuring of the local government finance system, financial obligations regarding welfare projects should be shared between the central government and local governments in a fair manner. Local governments should take a leading role in defining their roles and responsibilities regarding their own welfare projects as well as those that are government- subsidized.

### 2) Adjust the basic national subsidy for social welfare projects

The basic subsidy is defined by the Enforcement Decree to the Subsidy Management Act, first enacted in 1986. There has been much controversy over the basic subsidy rate, with the central government tending to decide the rate unilaterally and failing to reflect the financial disparities between the local governments. Specifically, the SMG receives a different subsidy rate due to its sound financial status. While it may be true that the SMG has healthier finances than other regions in terms of tax revenue, its real fiscal capacity in terms of welfare expenditures is similar to other local governments. The basic subsidy rate for the SMG should be adjusted preferentially.

### 3) Introduce a financial analysis scheme to monitor the financing systems in Seoul's autonomous *Gu*

The SMG needs to introduce a scheme to examine the financial status of each autonomous *Gu*. Analytic tools and indices should be developed in consideration of the fact that each *Gu* has different financial characteristics and risks according to the local demand for social welfare and its financial situation. For example, a monitoring system can be developed with three status levels: (a) sound & sustainable status, (b) financially pressured status, and (c) status of financial crisis. Such a system will help the SMG and *Gu* offices to effectively respond to the problems of each *Gu* and devise appropriate plans for support.

## Strengthening the Policy Capacity of Seoul Metropolitan Council

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### Key Message

In order to establish a policy support system customized to each local councilor, the Seoul Metropolitan Council needs to strengthen its information network and organizational expertise.

### **The Seoul Metropolitan Council's roles are highlighted to improve citizens' quality of life and to promote democracy**

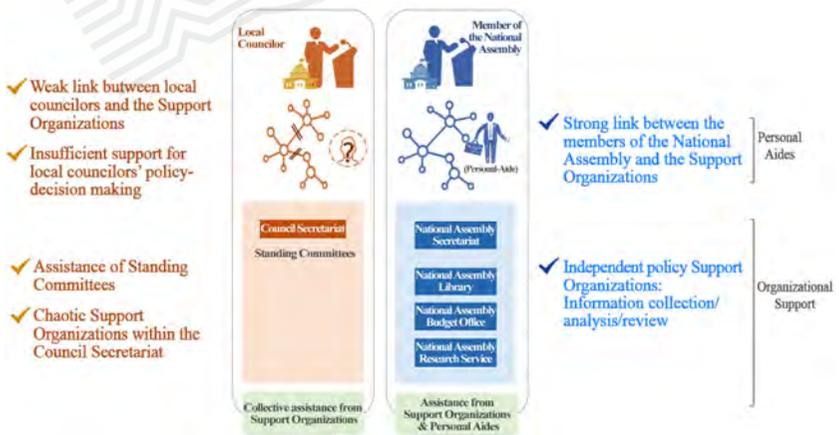
For the last two decades of local autonomy, local councils have expanded their roles and authority—overseeing the performance of administration, deliberating budgets, assessing local governments' policies, affecting local governments' decisions, and suggesting policy directions. As the representative agency of local residents, local councils have developed specialized policy-making capacities. Nevertheless, many residents still raise doubts about the current local councils' policy-making capacities.

The SMC is not an exception. This study examines whether the SMC fully performs its role, such as overseeing the performance of administration and the delivery of public services as well as representing Seoul's citizens. We also analyzed weaknesses of the SMC and measures to improve its policy-making capacity. Indeed, a local council's policy-making capacity is important in that it has great influence on democratic development and on citizens' quality of life. Given that recent attempts to improve the local council system have not produced

any significant outcomes due to socio-political circumstances, the SMC should find measures and tasks to improve its policy-making capacity both in the short and long terms.

**Absence of Personal Aides within local council Support Organizations makes providing policy assistance to each councilor difficult**

Generally, legislature has Support Organizations and Personal Aides to assist its members’ legislative activities. The National Assembly has independent Support Organizations such as National Assembly Secretariat, National Assembly Library, National Assembly Budget Office, and National Assembly Research Service. These Organizations conduct information gathering regarding policies and bills, data analysis, and investigation, to support the National Assembly members’ legislative activities. Also, each member is allowed to hire Personal Aides to perform legislative activities more effectively. Personal Aides help each member receive expert policy knowledge and related services from Support Organizations.

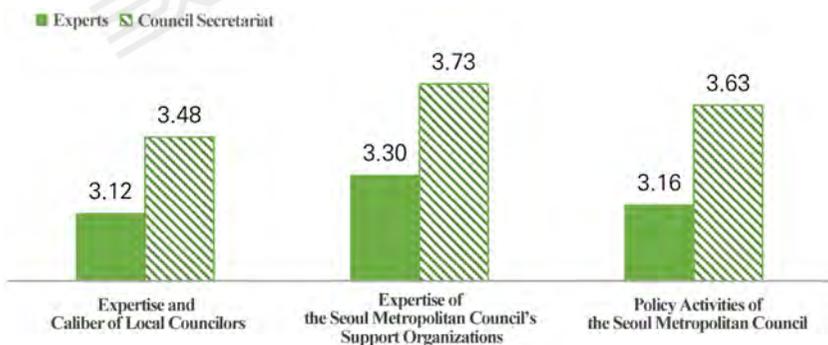


[Figure 28] Policy Capacity Support Systems of the Local Council and the National Assembly

However, there is no Personal-Aide system for local councilors. Most council secretariats have Support Organizations, but there is no distinction between legislative assistance and budget-policy support. This arrangement can impede the effectiveness of local councilors' legislative activities, making obtaining professional expertise regarding policies and bills difficult. Some local councils attempted to introduce a Personal-Aide system but failed because it is not allowed by law. Such a restriction has negative effects on local councilors' activities.

### Experts and the Council Secretariat evaluated that the policy capacity of the Seoul Metropolitan Council is above average

We conducted a survey on the overall policy capacity of the SMC. Experts and the Council Secretariat officers gave positive evaluations. In the survey, policy-making capacity was measured in three categories: (a) expertise and caliber of local councilors, (b) expertise of the SMC's existing Support Organizations, and (c) policy-making activities of the SMC. The result reveals a high appraisal for the expertise of the SMC's Support Organizations.



[Figure 29] The Overall Policy Capacity of the Seoul Metropolitan Council

In the survey, detailed tasks of the SMC regarding policy-making capacity were categorized into four groups: legislation, administrative inspection, deliberation of budgets, and representation of local residents. The respondents showed satisfaction over administrative inspection but were less satisfied with the deliberation of budgets.

[Table 10] Detailed Tasks of the Seoul Metropolitan Council regarding Policy Capacity

(Unit: %)					
	Legislation	Administrative Inspection	Deliberation of budgets	Representation of Local Residents	Total
Experts	27.8	34.7	11.1	26.4	100.0%
Council Secretariat	28.9	32.5	12.0	25.3	100.0%

### The biggest hindrance to the policy-making capacity of the Seoul Metropolitan Council was the absence of Personal Aides for local councilors

We also asked the respondents what they perceived to be hindrances to the policy-making capacity of the SMC. Respondents pointed out the absence of Personal Aides for local councilors as the biggest obstacle (27%), followed by legal restraints (15.3%) and lack of manpower in Support Organizations (12.2%).



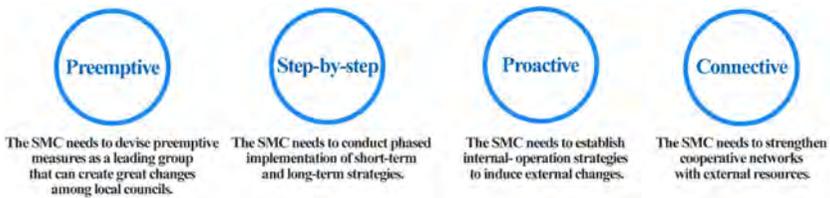
[Figure 30] Hindrances to the Policy-making Capacity of the Seoul Metropolitan Council

Through in-depth interviews, we found that the absence of Personal Aides made receiving customized assistance, collecting necessary information, and effectively communicating with public officials difficult for councilors. Moreover, as local councils have a limited authority over personnel management, securing enough workers with expertise in various fields is difficult. In the long term, this restraint would impede the competence of local councils.

Other hindrances included the following: limited information due to high dependency on the executive departments; the SMC's weak interactions with the Seoul Metropolitan Government-related agencies, the National Assembly, and other local councils at home and abroad; inefficient utilization of the existing Support Organizations; and organizational problems regarding the SMC's human resource management.

### **There should be basic principles to improve the support system of the Seoul Metropolitan Council**

Considering the external conditions and the current level of capacity, basic principles should be established to improve the future support system of the SMC. First, the SMC needs to devise preemptive measures, considering its status as a leading group that can create a great change among other local councils. Second, the SMC needs to develop step-by-step improvement strategies. For example, devising improvement plans for internal operation would be the first task. Legal reforms, which require the cooperation of the National Assembly and other local councils, would be a long-term task. Third, the SMC should establish proactive strategies for internal operation to induce changes rather than responding to changing external conditions. Last, the SMC needs to strengthen cooperative human and material networks with external resources.



[Figure 31] Basic Principles to Improve the Support System of the SMC

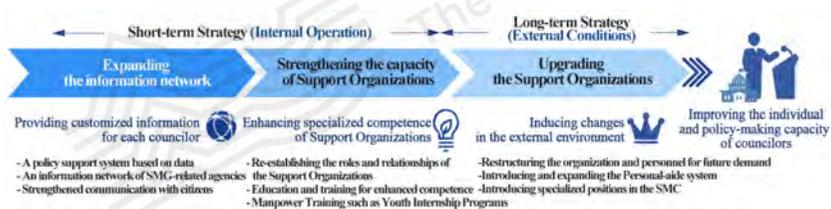
### **Short-term strategy: Expand the information network and strengthen the capacity of Support Organizations**

To strengthen the policy-making capacity of the SMC, there should be short- and long-term strategies that consider the current status and external conditions of the SMC. Specifically, given that there have been many failed attempts to revise law and policy regarding local councils, socio-political conditions should be thoroughly taken into consideration.

In the short term, the internal operation of the SMC needs to be improved through expanding information networks and strengthening the capacity of Support Organizations. First, the information system needs to provide customized materials for each councilor. To secure broader information sources, an information-exchange system among the National Assembly and other local councils needs to be developed. The SMC should communicate more with citizens to provide policy information through public hearings and policy briefing sessions. Also, the information workforce of the SMC needs to be expanded. Second, to ensure internal stability of the SMC's Support Organizations, the organizational functions need to be restructured. By strengthening professional training opportunities and introducing a youth internship program, the SMC should strive to cultivate talented personnel.

### Long-term strategy: Introduce the Personal Aide system for local councilors and restructure related organizations

In the long term, introducing a Personal Aide system should be a top priority. An organizational reform in local councils would be needed to support local councilors' activities. The SMC needs to prepare for changing roles of local councils and external conditions. For example, as the Public Diplomacy Act was implemented in 2016, the role of local councilors in diplomatic activities is expected to increase. Also, the Ombudsman system and the audit committee will be transferred to local councils. Therefore, the SMC's organizational structure should be reformed to respond to such changes. As the SMC alone cannot complete the reform of its organization, cooperation with the National Assembly, other local councils, and civic groups would be essential to implementing the long-term strategy.



[Figure 32] Short- and Long-term Improvement Measures for the SMC

## Retrospect and Prospect of Elected Local Autonomy of Seoul Metropolitan Government in 20 Years: Roles and Challenges to Realize Citizen-Oriented Decentralization

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### Key Message

The Seoul Metropolitan Government (SMG) needs to carry out key tasks (such as providing impetus to constitutional amendment) to lead a paradigm shift toward decentralization.

### **Considering the city's status as the capital of Korea and the largest local government, it is meaningful to review its 20-year history of local autonomy**

The City of Seoul holds a special socioeconomic status as the capital of Korea, as well as serving as the leading push behind decentralization as the largest local government. There are four major goals the city has regarding decentralization: (a) become a partner of the central government as Capital, (b) use its status as the largest city in the country to cooperate with other local governments, (c) improve public administrative services for citizens, and (d) empower citizens towards true citizen autonomy. In line with these goals, this report reviews the 20-year history of the popularly-elected Seoul Metropolitan Government and suggests what roles it should play in the future.

### **Six Key Elements of Decentralization**

This report suggests six elements that are key to decentralization based on our theoretical discussion: (a) autonomous legislation, (b) self-governing organization,

(c) independent financing, (d) division of affairs, (e) cooperative governance, and (f) citizen participation. The first three elements (a) autonomous legislation, (b) self-governing organization and (c) independent financing were suggested in previous studies on local autonomy and decentralization. The element (d) division of affairs is included to analyze changes in roles and authority of the SMG and the central government. Considering the importance of cooperative relationship with local district governments (LDG), *Gu*, in Seoul as well as with the central government and other local governments, (e) cooperative governance is selected as one of the key elements of decentralization. Lastly, (f) citizen participation is to be analyzed in terms of citizen competence as it is the ultimate goal of local autonomy and decentralization.



[Figure 33] Key Elements of Decentralization

### **The 20-year history of the popularly elected SMG<sup>7</sup>: policies developed that reflect the main issues and citizen demands of the time**

In the early 1990s, Korea was at its peak of development, witnessing rapid urban expansion, soaring housing prices, and development of five new towns in the

<sup>7</sup> The Mayor of Seoul was appointed by the President from 1946 to 1994. With a local autonomy system introduced in South Korea, the first popularly elected mayor took office in July 1995.

metropolitan area. The first popularly-elected city government (1995~1998) was launched during a transitional period when people began to question the construction boom after experiencing man-made disasters such as the Seongsu Bridge collapse in 1994 and the Sampoong Department Store collapse in 1995. Therefore, urban safety and disaster prevention became policy priorities of the SMG, and environmental policies such as the Green Seoul Plan were devised. In addition, the SMG began to place emphasis on culture and welfare rather than solely on physical development. Transport policies focusing on public transit and pedestrians began to emerge. Nevertheless, the local autonomy system was in its initial stages and the SMG lacked sufficient local governing capabilities. It was therefore still greatly influenced by the central government.

For the second popularly-elected SMG (1998~2002), economic recovery and restructuring were the most urgent issues due to the aftermath of the 1997 Asian financial crisis. At the same time, the SMG attempted to institutionalize social safety net and welfare policies. The city government reformed its administrative system to make it more transparent through introduction of a computerized administration network and an anti-corruption system. The paradigm of urban planning was shifted from development to management and preservation. Various efforts were made for local city management. The city government created its first Central Business District (CBD) Management Plan (2000) that included regulations on building height, creation of pedestrian-friendly streets, and a basic landscape plan. Also, it specified residential district types through the Seoul Metropolitan Government Ordinance on Urban Planning (2000). While such efforts to strengthen city management and reform the administrative system were made, citizen participation was not fully encouraged.

Between 2002 and 2006, the central government eagerly pursued a balanced regional development policy, including relocation of the capital, plans to build a new administrative city, stronger regulations on the Seoul metropolitan area, and relocation of government agencies and public institutions. This third popularly-elected SMG (2002~2006) still had to respond to the central government's policy

directions. The city initiated policies towards balanced development of the Gangnam and Gangbuk areas of Seoul. It implemented the Cheonggyecheon restoration project, New Town projects, and Balanced Development Promotion district plans, aiming to revitalize regional economies. The city government also created public squares in the CBD (including Seoul Plaza, Sungnyemun Plaza, and Heunginjimun Plaza) and reorganized the city's transit system (including median bus-only lanes). It introduced business management strategies to administration, pursuing efficiency and tangible results. In spite of these achievements, there was criticism that democratic features such as citizen participation were largely absent from the policy-making process.

The fourth popularly-elected SMG (2006~2010) pursued globalization and unlimited competition in municipal administration. It was influenced by the central government's neo-liberal policy and emphasis on the market economy. The SMG put forward as its main policies a "Creative Municipal Administration", re-creation of the CBD, the "Han River Renaissance" project, and "Design Seoul". It strove to build a unique identity for the city and pursued its unique "culturenomics". The city government also focused on active communication with citizens, gaining their participation, and customizing administrative services, as reflected in projects such as "10 Million Idea Oasis" and the Dasan Call Center. However, critics felt that these were more for show, and did not consider policy efficacy.

In an age of low birthrates, rapid aging, and sluggish economic growth, the fifth popularly-elected SMG<sup>8</sup> (2010~2014) prioritized resolution of social problems

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<sup>8</sup> The fifth elected mayor was Oh Se-hoon, who served two consecutive terms. However, when the Seoul Metropolitan Council and the Seoul Metropolitan Office of Education pushed for a universal free-lunch program for students, Mayor Oh was intensely opposed, demanding a referendum on the issue. He pledged to resign if the referendum results disagreed with him or the vote was invalidated (i.e. if voter turnout was less than 33.3%). As the turnout was only 25.7%, Mayor Oh stepped down. In a by-election in October 2011, Park Won-soon became mayor. He has served as mayor of the fifth and sixth popularly-elected SMG.

such as income polarization, youth unemployment, and poverty among the elderly. The SMG concentrated on innovation of the administration to make it more human- and welfare-centered, cooperation between the public and private sectors (NGOs and businesses), and communication with residents. The city government cut college tuition in half (at the University of Seoul), gave non-regular workers regular employment status, supported village communities, and provided free lunches for every elementary and middle school student. It also implemented a variety of community projects and policies closely related to daily life, such as urban regeneration, introduction of a “living wage”, and a strengthened public healthcare safety net. This policy direction has continued in the sixth popularly-elected SMG, which has been in place since 2014. With active citizen participation, projects related to daily life have been devised and implemented based on innovation and cooperative governance.

In sum, for the last two decades, the SMG has left behind its previous identity as a local government dependent on the central government and playing a limited role in administration. Currently, it focuses on the daily lives of its residents, actively embracing and reflecting their demands in its policies. Despite such political achievement and development through local autonomy, there are still many institutional constraints on the autonomy and authority of the SMG in terms of the key elements for decentralization.

**Autonomous Legislation: The SMG has actively served a part in establishing municipal ordinances that meet citizen demands, but the scope and authority of ordinances are still limited**

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There have been three achievements in terms of autonomous legislation for Seoul. First, the volume of citizen-oriented legislation has increased and the quality of that legislation has also improved. Legislation of ordinances increased three-fold, from 284 to 742, during the period between the first and fifth

popularly-elected SMGs. In the initial stages, most ordinances were about institutions and administration implementing physical development projects. However, legislation has expanded to better serve the demands of citizens, including the environment, welfare, culture, and tourism. Second, the SMG has created ordinances that suit the city's characteristics, such as the Seoul Metropolitan Government Framework Ordinance on the Securing of Pedestrians' Right of Way and the Improvement of Pedestrian Environments (1997), the Seoul Metropolitan Government Ordinance on Standards for Atmospheric Environment and Emissions Standards for Industries (2001), the Seoul Metropolitan Government Ordinance on Use and Management of Seoul Plaza (2010), the Seoul Metropolitan Government Ordinance on a Living Wage (2014), and the Seoul Metropolitan Government Ordinance on the Promotion of and Support for Urban Renewal (2014). Such specialized ordinances have set good examples for other local governments. Third, the SMG has legislated ordinances on subjects most needed by its citizens. Some examples include the Seoul Metropolitan Government Ordinance on the Promotion of Urban Improvement (2003), the Seoul Metropolitan Government Framework Ordinance on Participation of Citizens (2011), the Seoul Metropolitan Government Framework Ordinance on Social Economy (2014), the Seoul Metropolitan Government Ordinance on the Protection and Furtherance of Workers' Rights (2014), the Seoul Metropolitan Government Ordinance on Support for Older Citizens' Lives after Retirement (2014), and the Seoul Metropolitan Government Framework Ordinance on Youth (2015).

Nevertheless, there are two limitations to the autonomous legislation of the SMG. First, municipal ordinances cannot run counter to established national law. According to Article 117 of the Constitution, local governments are allowed to legislate municipal ordinances only within the law. Second, municipal ordinances are not sufficiently legally binding. Local governments are not allowed to legislate ordinances by which citizens' rights are limited or obligations are imposed on them. In effect, there is no legal way to punish ordinance violations.

**Self-governing organization: The SMG is more efficient and has gained expertise in organizational management, but uniform guidelines of the central government restrict the autonomy of organization**

There have been three achievements in terms of self-governing organization of the SMG. First, efficiency of organizational management has improved. With no great change in the number of public employees, the SMG has continuously striven to restructure its organization for greater efficiency, reflecting the directions of municipal administration and citizen demands. Second, the city government has gained expertise. To improve its organizational competence, a team-based system was introduced in 1998, a policy advisor program in 2003, a head office in 2007, and a headquarters system in 2010. Third, the SMG has increased citizen participation and communication in policy decisions. It has allowed citizens to propose ordinances, suggest administrative plans, and monitor government performance. To encourage resident participation, the city also runs a variety of citizen groups such as Citizen Committees, and has begun to open itself to ideas from citizens, such as through a civil society innovation initiative.

There are two limitations in the area of self-governing organization. First, the central government's uniform standards and guidelines hinder autonomous organization of a local government. Second, major positions of a local government, such as deputy head and bureau chiefs, are appointed by presidential decree. This makes it difficult for a local government to respond to citizen demands that are unique to the region and improve administrative efficiency.

**Independent financing: the SMG has expanded its financing and leading of projects in response to citizen demands, but has difficulty securing independent financial resources under the current revenue structure**

There have been three achievements in independent financing. First, the SMG’s tax revenues have increased by 24%, from KRW 16.782 trillion in 2004 to 20.926 trillion in 2010. Second, the proportion of projects financed and led by the SMG in response to citizen demands has increased from 8.8% in 2001 to 67.2% in 2008 and 53.6% in 2015. Third, welfare spending for citizens has also expanded from 19.7% in 2008 to 33.6% in 2015.



Note: Data from 2008 to 2014 are separately suggested in the second graph due to changes in items of annual expenditure items.

Source: Graphs produced by the author using original data from the Local Finance Integrated Open System (<http://lofin.moi.go.kr/>)

[Figure 34] Yearly Changes in Projects Financed & Led by the SMG in Proportion to Total Budget

There are two limitations to independent financing of the SMG. First, it is difficult for the SMG to secure independent financial resources under current revenue structure. The SMG does not have the authority to make taxation decisions as local taxes are imposed by national law. Moreover, the central government tends to make decisions unilaterally about such issues, increasing the burden of local governments. Second, as the central government has unilaterally implemented its decisions without consulting local governments, the latter have had difficulty finding independent financing, increasing their dependence on the central government. For example, the central government shifted the financial burden of its universal welfare policies such as free childcare, public education and basic pension onto local governments without any coordination. The SMG consequently had to issue municipal bonds worth KRW 200 billion to implement the required policies.

**Division of affairs: The central government's administrative affairs have gradually been transferred to the SMG, but most are about enforcement and lack autonomous authority**

Over the last two decades, many administrative affairs have been transferred from the central government to the SMG. Generally, these were regarding the economy, industry, social issues, and culture, specifically from the Ministry of Science and Technology, the Cultural Heritage Administration, the Ministry of Culture, Sports and Tourism, the Ministry of Environment, the Ministry of Land, Transport and Maritime Affairs, and the Ministry of Health and Welfare.

However, many challenges remain regarding division of affairs. First, transfers are still slow, and the central government still retains control over most affairs. Second, most of what has been transferred is about enforcement such as management, imposition, collection, issuing corrective orders, and granting permission. Therefore, the SMG still lacks the ability to autonomously plan or decide administrative affairs. Third, the central government has not provided

administrative or financial support for these transfers. Consequently, local governments tend to be overworked, financially burdened and suffer from a lack of expertise. Fourth, the central government continues intervening in the autonomous affairs of local governments. Currently, supervision of the central government over local government affairs is too broad and sometimes redundant, hindering the ability to reflect local government conditions.

**Cooperative governance: The SMG has made efforts toward collaboration with the central government, other local governments and its local district governments, but still lacks institutional support**

There have been three achievements in cooperative governance. First, the SMG participates in cooperative agencies with the central government. Organizations such as the Governors Association of Korea, the National Council Association of Chairmen, and the National Association of Mayors propose legal revisions necessary for local governments. They also deliver local government opinions regarding policy consultations to the National Assembly and the central government. Second, the SMG has bolstered its efforts to lead interchange between Seoul and other regions. It established 18 projects in 5 fields to promote urban-rural exchange and cooperation, such as a food safety campaign, rural community exchange programs, utilization of untapped resources, job creation, and sustainable cooperation networks. In addition, local promotion centers have been created to promote local products and broadcasting of local news. The SMG founded the Center for Local Exchange & Prosperity and the Local Exchange & Prosperity Fund. The city government contributed nearly half of the funds given in 2012 (KRW 164 billion of the total KRW 334 billion). Third, the SMG has cooperated fully with local *Gu*-district governments, towards greater decentralization and local autonomy. Towards establishment of a leading model for decentralization, it declared an initiative entitled “Seoul: Decentralized City” and expanded tax

revenues allocated to local district governments to KRW 280 billion. It also began an autonomy impact assessment in 2016.

Still, there are limitations in cooperative governance. First, in terms of administrative cooperation with the central government, the relationship is still regarded as vertical, not horizontal. Moreover, there is no practical way to impose responsibility for implementing agreements between the two governments, which often leads to a feeling of futility. Second, there is a lack of institutional grounds and understanding of cooperation between local governments. Also, the current collaborative projects lack sustainability. Third, even though the SMG has striven to share administrative affairs and provide financial support to local district governments, cooperation is still in its infancy.

### **Citizen Participation: The SMG has expanded direct citizen participation policies, but actual participation remains weak**

There have been two achievements in terms of citizen participation. First, policies supporting direct participation have been expanded, allowing resident petitions, resident claims for inspections, local referendums, resident lawsuits, and a resident recall system. Second, the SMG has greatly improved in terms of openness, from merely disclosing administrative information to reflecting citizens' suggestions in policy. The city government's efforts are reflected in the Seoul Metropolitan Government Ordinance on Disclosure of Administrative Information for Open City Administration (2000), the resident lawsuit system, the 10 Million Idea Oasis, local referendums, and the Policy Expo/Debate with Citizens.

Three limitations still remain. First, citizens seem less interested in exerting their rights to vote for their political representatives, which is the most powerful and direct way to contribute to their communities. They tend to engage in activities that have an indirect influence on policy making. Second, there is a lack of institutional grounds to reflect resident agreements into actual policy. This can discourage

residents from participating in local activities and eventually bring about political apathy. Third, processes and standards for policies on citizen participation remain rigid and too complicated for citizens to properly benefit. In addition, most people tend to use these participation systems to voice their personal complaints, weakening the purpose of the policies.

### **Roles of the SMG in Realizing Decentralization**

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1) Greater independence needed for the SMG from the central government.

Historically, a centralized system of government has prevailed in Korea. For a paradigm shift to decentralization, it is imperative for local governments to pursue local development for themselves. If history is any guide, given that the relationship between the central government and local governments is perceived as vertical, dependence on the central government cannot change anything. The SMG, which has a political right to participate in national matters, needs to play a leading role in putting decentralization on the national agenda and making it an urgent political issue.

2) The SMG needs to foster a greater sense of citizenship and awareness among city residents of the importance of participation and how a democratic society works.

A democratic political system alone does not constitute a real democracy, but must be supported by democratic understanding and attitudes of the members of a society as well as socio-cultural acceptance. Without a sense of ownership and responsibility as a democratic citizen, it is difficult to encourage people to participate or form social consensus over decentralization. In reality, a lack of a sense of community, political distrust and cynicism, poor political participation, and unreasonable decision-making prevail. Citizens need to understand the importance of being more responsible, critical, and aware of their rights. They also need to have a stronger sense of community and citizenship while seeking broader

opportunities to participate in politics. They can help themselves develop a sense of community and competence as members of a democratic society by engaging in decision-making processes that influence the lives of individuals and local communities.

- 3) The SMG needs to provide administrative services designed for its citizens, which can happen when social consensus is reached on the need for local autonomy.

With major social infrastructure and administrative services in place, local administrative services need to reflect local characteristics and demands of local residents. The conventional approach of comprehensive, universal and one-size-fits-all policies is no longer acceptable to residents. The most effective administrative services require speedy processing, accuracy and expertise, which is why the role of local governments has become more important than ever. The scope of local autonomy needs to be further expanded, if local governments wish to provide such services to residents and if they wish to implement effective new policies. To that end, broader support is needed for local autonomy to become a reality.

- 4) The SMG needs to obtain social consensus on decentralization with the help of representative bodies and the media.

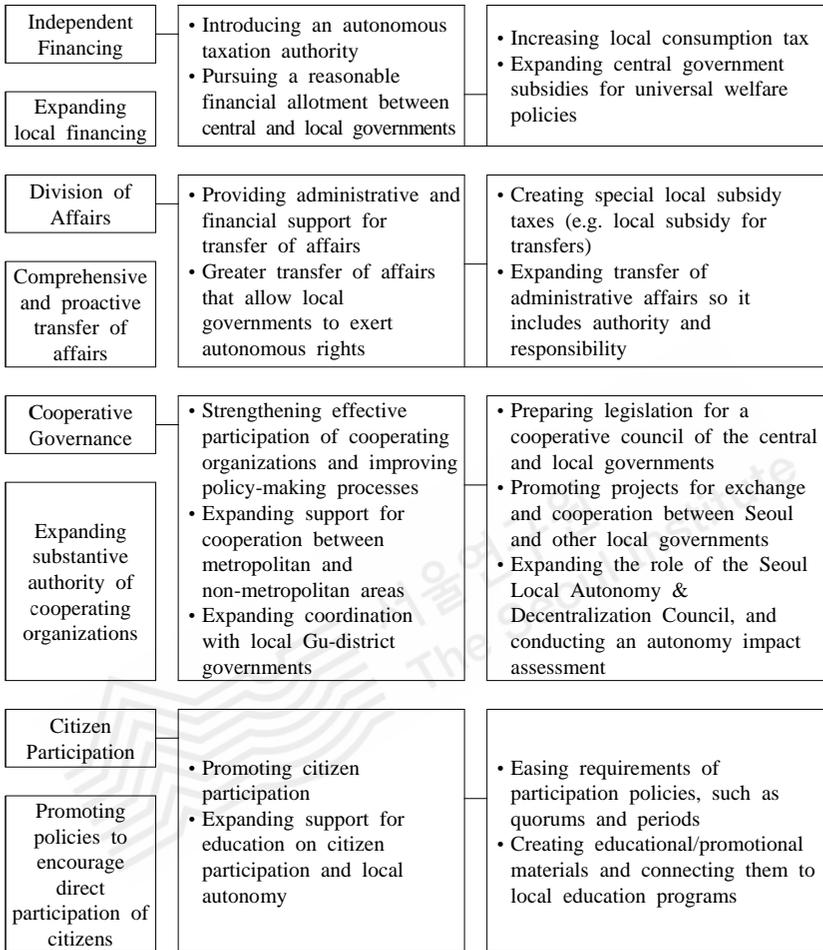
As the regional issues facing each local government are different, and a variety of stakeholders are involved, it is important to form a consensus and sympathy over greater decentralization. The SMG needs to cooperate with the representative bodies of local governments, city councils, the National Assembly, and the media to obtain social consensus. The SMG especially needs to urge the National Assembly to debate greater decentralization and local autonomy. In addition, the city government needs to promote the idea and value of decentralization to the central and other local governments, with the help of organizations such as the Governors Association of Korea, the Association of Metropolitan and Provincial Council Chairs, and the Korean Association of Regional Development Institutes. The media can play a critical role in influencing public opinion and creating a forum for

discussion on local autonomy. The SMG should take the lead in promoting the value and appropriateness of its cause, and be able to suggest strategies to implement local autonomy.

### Key Tasks for Each Element of Local Autonomy and Decentralization

Based on the achievements and limitations of the popularly-elected SMG, this report suggests key tasks for each element of local autonomy and decentralization. It is important for the SMG to have a broader perspective to lead decentralization, avoiding a power struggle with the central government. Instead, it needs to focus on meeting the needs of its citizens and empowering them as members of a democratic society.

Key Element of Local Autonomy & Strategies		Key Tasks
Autonomous Legislation	<ul style="list-style-type: none"> <li>Expanding the scope and authority to legislate ordinances</li> <li>Ensuring sanctions for violation of ordinances</li> <li>Expanding legal grounds for the autonomy system of Seoul</li> <li>Strengthening expertise of city councils</li> </ul>	<ul style="list-style-type: none"> <li>Constitutional amendment for decentralization</li> <li>Introducing penalties (in addition to fines) to strengthen the effectiveness of local legislation</li> <li>Legislating the Seoul Metropolitan Government Ordinance on the Home Rule Charter</li> <li>Reforming the Act on Special Cases Concerning the Administration of Seoul Special Metropolitan City</li> <li>Expanding professional support for city councils</li> </ul>
Elevating the status of local laws and regulations		
Self-governing Organization	<ul style="list-style-type: none"> <li>Expanding autonomous rights regarding organizational structure</li> <li>Expanding autonomous rights to appoint people to major positions</li> <li>Expanding autonomous rights to decide the size of workforce</li> </ul>	<ul style="list-style-type: none"> <li>Reforming standards of the Ministry of Government Administration and Home Affairs regarding local government organizations and major positions</li> <li>Allowing local governments to pass ordinances to adjust workforce size within the standard personnel expenses</li> </ul>
Strengthening organizational autonomy		



[Figure 35] Key Tasks for Each Element of Local Autonomy & Decentralization

## 03 Social & Cultural Issues

### A Study on Improvement of Policies for Seoul Cultural District

Na, Do-Sam(kuber21@si.re.kr)

#### Key Message

The Seoul Metropolitan Government (SMG) should develop more cultural areas in the city by introducing a preliminary cultural district policy, and provide customized support for each cultural area.

#### **The Cultural District Policy was first introduced in 2000 by law, and there are currently five cultural districts across the nation**

The cultural district policy was first introduced and legislated in 2000. There are five cultural districts in Korea, two of which are in Seoul—Insadong and Daehakro. Each local government passed ordinances and created plans to manage its cultural districts. However the results were less than expected. Consequently, since 2010, when Gaehangjang (open port area) in Incheon and Jeoji Artist Village on Jeju Island were respectively designated as the fourth and fifth cultural districts, there have been no newly-designated districts. Even though various cultural areas have emerged and many of them have gone through gentrification, designating new cultural districts has not been discussed as a solution. This means that the cultural district is no longer feasible as a policy alternative for protecting and nurturing cultural areas.

[Table 11] Cultural Districts in Korea

Location	Year	Administrative District	Local Resources	Purpose	Area (m <sup>2</sup> )
Insadong, Seoul	2002	Seoul Metropolitan City	Traditional culture	To preserve and nurture businesses related to traditional culture	175,743
Daehakro, Seoul	2004	Seoul Metropolitan City	Performing arts and culture	To protect and nurture (small) theaters	446,569
Heyri, Paju	2009	Paju City, Gyeonggi Province	Art, exhibition, creation, architecture	To preserve, nurture and vitalize cultural businesses and facilities	505,891
Gaehangjang (open port area), Incheon	2010	Incheon Metropolitan City	Modern history and culture	-To preserve and manage resources of modern history systematically -To vitalize the local economy	537,114
Jeoji Artist Village, Jeju Island	2010	Jeju Special Self-governing Province	Artists, various cultural activities	-To develop and vitalize art and culture -To turn the area into a hub for art and culture	325,100

### **Fifteen years after its introduction, the policy needs to be reformed**

It has been 15 years since the cultural district policy was introduced, but no reform has been attempted. Consequently, the policy cannot but lag behind reality. This report aims at suggesting strategies and tasks to change the policy into an effective, feasible management system for the cultural districts.

### **The cultural district policy was originally devised for Insadong, which is why it is not applicable to other areas**

The cultural district policy was originally devised for Insadong, one of the most popular tourist attractions in Seoul. In the mid- to late 1990s, Insadong went through

intense commercialization and development. The Seoul Metropolitan Government (SMG) sought an institutional solution to alleviate the negative impact of commercialization and protect Insadong's identity. The trigger for the cultural district policy was redevelopment of a building named Yeongbin Garden. In the building, there were twelve stores related to traditional culture, including handicraft and calligraphy frame-making shops. When the building was scheduled to be rebuilt due to a fire, the store owners faced eviction. Civic groups and store owners demanded that the stores be preserved. The SMG responded by designing the cultural district policy. Once the policy was implemented, the owner of the building could be compensated if he agreed to preserve the stores. The shop owners were guaranteed stable business operation. The authorities were able to manage the area more effectively as one of the most prominent cultural areas in Seoul.

According to the policy, various benefits were granted to the area. The building owners were provided with exemptions from tax and expense, and loan support was available for new construction, reconstruction and major repair. The business owners received loan support for the cost of facilities and operation. Where it was necessary to maintain old facilities in the cultural district, the authorities could directly lease a building and let business operators move into the location.

[Table 12] A Building Owner-oriented Support System within the Cultural District Policy

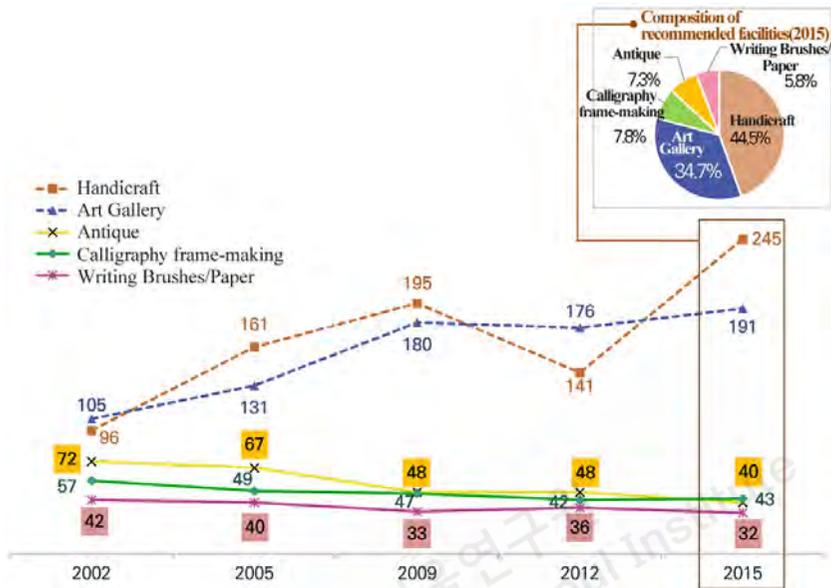
		Owner of Building	Business Operator
Tax and Expense Exemption		Acquisition Tax 50% Property Tax 50% (for 5 years)	-
Loan Support	Scope	Up to KRW 100 million for new construction, reconstruction and major repairs	Up to KRW 100 million for the cost of facilities and operation
	Conditions	3% Annual interest; Level repayment in five years with a one-year grace period	

The problem is that the substance of the policy was enacted as an ordinance. The ordinance is rigid and difficult to apply to other areas, as it does not consider a variety of local characteristics or flexible support measures. For example, the instances of loan support in Daehakro, a major cultural area in Seoul as vibrant as Insadong, has stood at only 12 since 2006. On the other hand, there were 194 cases in Insadong during the same period, which shows that the policy is effectively inapplicable to other areas.

**The policy outcomes in each district were below expectations, whereas the number of commercial art galleries and large theaters soared**

The policy outcomes in each district were far below what was expected. The SMG indicated the types of facilities that should be recommended for operation in each cultural district. The number of recommended facilities increased, but the composition of them greatly changed. For Insadong, the total number of recommended facilities increased 48.1%, from 327 in 2002 to 551 in 2015. However, the number of stores related to culture (antique, writing brush, paper, and calligraphy frame-making shops) shrank 53%, from 171 in 2002 to 115 in 2015. On the other hand, art galleries and handicraft shops increased 81.9% and 155.2% respectively.

Meanwhile, Daehakro also saw a great increase (191.2%) in the total number of theaters, one of the recommended facilities in the area, from 57 in 2004 to 166 in 2015. What is noticeable is that the number of theaters with more than 300 seats soared 300%, from 4 to 16 in this period. Such a large theater can have an enormous impact on the entire area. As a result, Daehakro became a place for large-scale, commercial performances rather than for small, artistic theatrical companies.



Source: Assessment of Seoul Cultural District Management Plan, SMG, 2016, p.52

[Figure 36] Changes in the Number of Recommended Facilities in Insadong Cultural District

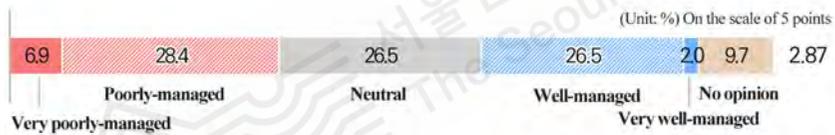
[Table 13] Changes in the Number of Theaters in Daehakro

Number of Seats	2004		2008		2012		2015	
	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage
Fewer than 100	18	31.6	26	23.9	31	21.4	33	20.0
100-199	29	50.9	59	54.1	77	53.1	88	53.0
200-299	6	10.5	14	12.8	25	17.2	29	17.4
300-399	4	7.0	6	5.5	7	4.8	6	3.6
400-499			3	2.8	3	2.1	3	1.8
500 and more			1	0.9	2	1.4	7	4.2
Total	57	100.0	109	100.0	145	100.0	166	100.0

Source: Citing second-hand from Assessment of Seoul Cultural District Management Plan, SMG, 2016, p.162

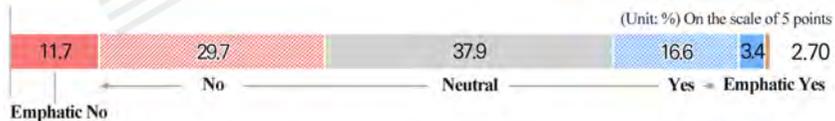
**Merchants in Insadong and Daehakro are not very satisfied with the cultural district policy due to rent hikes**

As seen above, the cultural district policy yielded disappointing results. In a survey, both experts and merchants in Insadong and Daehakro showed dissatisfaction with the policy. Only 28.5% of merchants in Insadong responded that the district was well-managed, while 35.3% said that the district was poorly-managed. The policy scored 2.87 out of 5 in overall satisfaction. A similar survey was conducted in Daehakro. When the merchants there were asked whether management of the cultural district was in accordance with its purpose, only 20.0% of them responded positively. On the other hand, 41.4% of the respondents had negative opinions. Overall satisfaction was 2.70 out of 5 points.



Source: *Assessment of Seoul Cultural District Management Plan*, SMG, 2016, p.127

[Figure 37] Survey of Merchant Satisfaction with the Insadong Cultural District

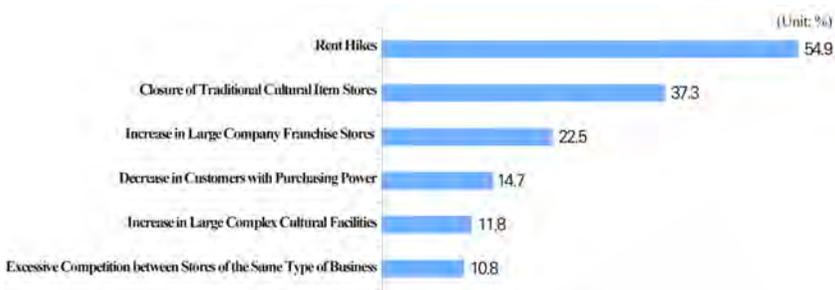


Source: Citing second-hand from *Assessment of Seoul Cultural District Management Plan*, SMG, 2016, p.232

[Figure 38] Survey of Merchants on Whether the Management of Daehakro Cultural District Accords with its Purpose

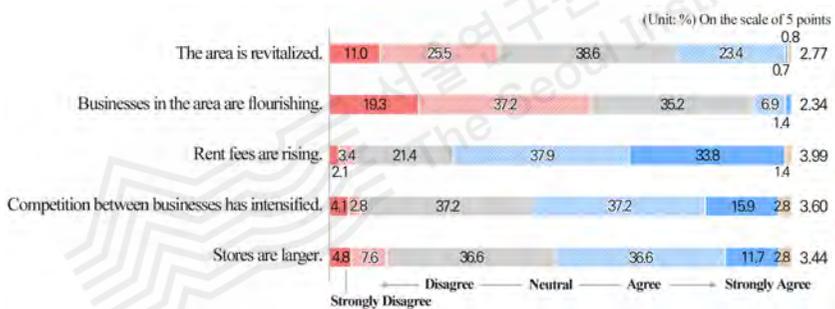
The major cause of dissatisfaction was rent hikes. Merchants in both Insadong and Daehakro pointed to these as the biggest change in their local communities. Merchants in Insadong also said that stores that sold traditional cultural items went out of business while the number of franchise stores of large companies increased.

Merchants in Daehakro complained that competition between stores intensified and stores became bigger.



Source: *Assessment of Seoul Cultural District Management Plan*, SMG, 2016, p.129

[Figure 39] A Survey of Merchants on Problems in the Insadong Cultural District (2015)



Source: Citing second-hand from *Assessment of Seoul Cultural District Management Plan*, SMG, 2016, p.228

[Figure 40] A Survey of Merchants on Changes in the Daehakro Cultural District (2014)

It is difficult to say that the purpose of the cultural district policy has been fully served. On the surface, the districts seem to have improved. However, the policy has increased risks through rent hikes and excessive commercialization of the area. While the policy might once have been appropriate for resolving the problems of Insadong, 15 years later it is no longer applicable in reality. The policy needs total improvement, if it is not going to be scrapped.

### **Experts advise that the goal of policy improvement should be stabilization of the area, and new cultural districts should be designated**

Experts gathered in forums to come up with improvement measures for the cultural district policy. They agreed that the policy should aim at stabilizing the area, not revitalizing it. The policy needs to focus on preserving and further developing a community-based, existing cultural ecosystem. The experts emphasized that emerging cultural areas would need to be designated as new cultural districts so that the policy can be implemented in other areas.

Strategic management and operation is essential to ensuring policy effectiveness. Instead of allocating a fixed annual budget to each district, the authorities need to select local agendas first and then allocate a budget to solve the issues. The experts added that the authorities need to strengthen the monitoring system and reflect the results in planning and improvement of the policy.

They also noted that a variety of solutions to local issues such as gentrification should be adopted in the cultural district policy. In line with a trend of better utilization of local assets, it is necessary to establish a local governance system and local corporations such as cooperatives, so that profits generated in the local area can be returned to the community. The SMG can consider establishing intermediate support organizations where the private sector can play a key role. By doing so, public support can be provided in an indirect and specialized way. The purpose of such organizations is to manage the existing districts more effectively and create more cultural districts in various areas.

## **New institutional tools are necessary for an effective cultural district policy, such as a management system according to the growth stages of a cultural district**

In order to expand the cultural district policy and advance the current managing system, the management of cultural districts needs to be transformed into a human- and activity-oriented format, instead of the current facilities-oriented style. To that end, the entire system should be reformed, including designation, management and operation of a district, and a support system with evaluation, feedback, and governance. The direction of improvement would be as follows:

First, the designation system of cultural districts needs to be changed to cover more diverse areas. Given that various cultural areas have recently emerged, a new designation system is needed to embrace them. In the meantime, a preliminary cultural district policy, as proposed in this report, can be an alternative. Under this policy, a pilot program could be run for areas that have unique cultural features but are as yet difficult to manage as a cultural district. This policy would help to test the potential of various cultural areas and prepare for the launch of a new cultural district.

Currently, *Do*<sup>9</sup> governors or mayors designate the cultural district. The SMG needs to empower autonomous *Gu*<sup>10</sup> governments to designate cultural districts in their regions. It is important to create an environment where each *Gu* autonomously selects their own cultural districts and manages them strategically.

Second, a variety of types of cultural districts need to be developed. The current model for cultural district policy is Insadong, one of the established areas that need to be protected from extreme commercialization. That is to say, a target of the

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<sup>9</sup> “*Do*” is an administrative unit (similar to a province) in Korea. There are eight *Do*-provinces in South Korea, for example, Gyeonggi-*Do* and Gangwon-*Do*.

<sup>10</sup> “*Gu*” is an administrative unit (district) in the cities of Korea. There are 25 *Gu*-districts in Seoul, and the head of a *Gu* is popularly elected every four years by local residents.

policy is limited to those areas which already have a cultural ecosystem and need protection from excessive commercialization.

As in the SMG's initiative, "Vision 2030: Cultural City Seoul", the cultural district policy needs to embrace the unique conditions of various areas. There needs to be a more flexible management system for the policy to respond to specific demands.

Third, the support system also needs to be improved. The current management system revolves around facilities, rather than activities or resources in the area. This should be changed to protect and foster various local resources and activities. For example, the authorities can encourage residents to participate in various activities, preserve local assets, and protect and retain local businesses related to culture in the area.

Last but not least, the cultural district management system needs to be changed to become more strategic. Under the current system, *Do* governors or mayors designate cultural districts, and local *Gu*-district governments can only manage them. Even though annual self-evaluations and three-year evaluations of *Do* governors/mayors have been conducted, nothing much has changed. With limited power to manage the cultural district, local *Gu*-district governments can only try to revitalize the area with local festivals or temporary events.

For more effective management, the SMG and the central government need to support local *Gu*-district governments in various ways. For example, the SMG should identify and deal with problems in cultural institutions and policy, and play a leading role in developing the unique cultural content of the districts.

Rather than providing annual support to a *Gu*-district with no strings attached, the SMG needs to set one-to three-year performance goals through consultation with local *Gu*-district governments when providing necessary support. There should also be a process that better utilizes the feedback from the three-year evaluations of *Do* governors/mayors to improve the cultural district policy.

[Table 14] Suggested Categorical Improvement Strategies of the Cultural Districts

Category	Methods of Improvement	Details
Designation System	Expanding the cultural districts to broader areas	Introducing preliminary cultural districts
	Motivating local <i>Gu</i> governments	Public projects for local <i>Gu</i> -district governments Providing administrative incentives
Management and Operation	Diversifying the operating system to provide each district with customized management and operation	Changing the focus from facilities to community and activities
		Categorizing management systems by each development stage
Support System	Changing the focus of support from facilities to community and activities	Supporting individuals and their activities
		Protecting local assets and businesses related to culture in each area
		Supporting local community networks such as village enterprises
Management System	Creating a cooperative management system	Creating a policy consultation platform
		Operating one-to three-year strategic support programs
	Changing to a strategic management system	Modifying management plans after three-year evaluations

### Related legislative reform and an improved policy platform are necessary

As mentioned above, laws on the cultural district were devised based on the conditions in Insadong and have remained unchanged. To establish stronger legal grounds, the laws need to be adjusted.

First, the target area needs to be revised. Currently, the target area is defined as an area where cultural facilities, folk craft stores or antique shops are concentrated, or such areas are planned. This should be changed to an area where cultural facilities or businesses related to culture are concentrated, creating a cultural landscape, or where such areas are planned.

Second, the ban or restriction on specific facilities needs to be rescinded or revised. For example, in order to retain, protect and vitalize a cultural district, the

authorities could ban or restrict certain types of business or usage, in favor of facilities that are necessary for each cultural district, according to operation plans established by local ordinances.

Third, the scope of administrative and financial support needs to be expanded. Currently, such support is limited to cultural facilities that are recommended for construction or operation in a cultural district. This has to be changed for broader support in the area.

The enforcement decrees also need revision. According to the current decree, a regular inspection and monitoring are conducted every two years. This has to be reduced to a one-year interval. The regulation on evaluating the cultural district management plan needs to be changed to assess the performance of the district every three years. It should also provide appropriate support to excellent districts, and require a change in management plans where necessary. The purpose of such revision is to increase local autonomy in operation of the district and strengthen the management system itself.

In addition, the roles of the Minister of Culture, Sports and Tourism and *Do* governors/mayors must be clearly stated in the law. By stating that all authorities related to the cultural district are responsible for the policy, a comprehensive, cooperative policy platform can be created.

### **Realistic institutional reforms are imperative**

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The current cultural district policy needs a fundamental reform for better management of the existing cultural districts, as well as for the newly-emerging cultural areas across the nation. Customized support for each cultural area, with a monitoring system, needs to be strengthened for continual improvement of management plans. In addition, more support should be guaranteed to excellent cultural districts. By adopting customized strategies to improve the policy, the authorities will be able to make the cultural districts more feasible and sustainable.

## Framework of the Inclusive City Indicators and the Inclusiveness of Seoul

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### Key Message

The Seoul Inclusive City Index is comprised of three areas: Human Inclusiveness, Spatial Inclusiveness, and Governance Inclusiveness. ‘Seoul: An Inclusive City’ should be the city’s vision for the future.

### Why has “Inclusive City” emerged?

Seoul has witnessed signs of economic uncertainty and social unrest. The city has lost its vigor as the growth engine of Korea. Youth unemployment and household debt have escalated to detrimental levels. A rapidly-aging society presents the risk of generational conflict over a variety of issues. The openness of Seoul to foreigners and minorities is far below the level of the city’s global peers, and the city has no clear solutions to its social problems. A question has arisen as to whether its strategy for development into a global city has made our society “better” in a genuine sense. Seoul has entered a new phase, a turning point, which is different from its urban development experiences of the past. In the face of difficult and unpredictable socioeconomic issues, the city needs a new action plan.

## **The Essence of an Inclusive City: Reducing Inequality & Disparity while Increasing Citizen Participation**

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Seoul is not alone in these trends. Other global cities have faced the same question of whether the fruits of economic development have contributed to building a better society. Many cities have recognized the increasing wealth inequality and the prevalence of social exclusion, and cities around the world, as well as the international community as a whole, are paying attention to the concept of the Inclusive City as a solution to today's social problems.

Discussion on the Inclusive City as a way to increase the inclusiveness of a nation or a city must also consider "social exclusion" to better understand the notion of inclusiveness and its meaning. Occurring at both the individual and community level, social exclusion is a normative concept referring to a lack of social participation or benefit and is regarded as a state or process of excluding individuals or groups from participating, in order to accomplish the purposes of, or to realize benefits for the dominant party. It also means exclusion from the fair distribution of economic gains.

Social exclusion is a complicated, multidimensional process. It includes insufficient access to resources, rights, and services in the economic, social, cultural, and political realms, as well as to ordinary relationships and activities available to the majority of people in a society. It results in structuralized poverty, the cause, as well as the result of economic inequality.

## **The European Union (EU), International Organizations, and Global Cities Joining the Discussion on the Inclusive City**

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Many international organizations and global cities are engaged in active discussions of the Inclusive City. To be sure, the concept of the Inclusive City and its interpretation can vary in debates about how to boost inclusive growth and

improve the inclusiveness of a city. While the concept of the Inclusive City first appeared in the late 1990s, it has emerged as a policy agenda for major international organizations since 2006.

These major international organizations have approached the concept in a variety of ways. The World Bank insists on a transition to inclusive growth from shared growth, a concept that places emphasis on the redistribution of income. It argues that urban inclusiveness should be promoted in the spatial, social and economic dimensions. The Organisation for Economic Cooperation and Development (OECD), launched the Inclusive Growth Initiative in 2012, pointing out that global economic development, ironically, has exacerbated inequality. It emphasizes the importance of establishing social institutions for inclusive growth and fair distribution of economic growth, because rising inequality incurs social costs. The United Nations Habitat (UN-Habitat) recommended the Inclusive City as the main theme of the 1999 Global Campaign on Urban Governance. In 2016, the idea of the Inclusive City was adopted as the main agenda for the Habitat III conference. The European Union (EU) calls for inclusiveness to reduce social exclusion, focusing on poverty and the distribution of resources. As a way to eradicate urban poverty, the EU has also proposed policies to develop standards for measurement of poverty and identification of groups vulnerable to social exclusion.

Major global cities have adopted the paradigm of the Inclusive City as a vision for the future. The City of New York initiated the new urban development plan, OneNYC, placing emphasis on growth, sustainability, resilience, and equity. OneNYC is a comprehensive plan to address social exclusion resulting from rising inequality. It underscores that New York City is a thriving, sustainable, resilient, and equitable city. The City of Boston suggested four major goals and strategies to build an inclusive city: (i) Improve the quality of life by strengthening community ownership; (ii) Drive inclusive economic growth; (iii) Promote a healthy environment to cope with climate change; and (iv) Invest in infrastructure, open space and culture.

## **The Seoul Inclusive City Index Comprises Three Areas: Human Inclusiveness, Spatial Inclusiveness, and Governance Inclusiveness, Six Dimensions, and 33 Indicators**

The Seoul Inclusive City Index Framework was developed by The Seoul Institute to reflect the global discussion on the Inclusive City in the administration of Seoul. Our research team first prepared a draft framework of the indices, which was reviewed by experts through brainstorming sessions, and in-depth interviews to confirm its feasibility and propriety. The experts focused on whether the index embraced the context of the OECD Inclusive Growth Initiative, and whether its framework was comparable to other megacities. The potential usefulness of the data was also considered. Then, a survey of Seoul citizens was conducted to garner opinions on the feasibility and significance of the framework, and on individual indicators. After this thorough review, the Seoul Inclusive City Index Framework was finally confirmed.

The index is comprised of 3 areas, and 6 dimensions with 33 indicators. The three areas are Human Inclusiveness, Spatial Inclusiveness, and Governance Inclusiveness. Each area is composed of two dimensions: Economic Competence and Social Well-Being for Human Inclusiveness; Access to Public Services and Access to Neighborhood Infrastructure for Spatial Inclusiveness; and Citizen Participation and Transparency/Responsibility for Governance Inclusiveness. The dimensions of Economic Competence and Social Well-Being deal with the human capacity and the distribution of human resources. Access to Public Services and Access to Neighborhood Infrastructure, deal with the identification of the levels of inclusiveness in terms of regional equity and universal access. Citizen Participation and Transparency/Responsibility assess inclusiveness in terms of institutions and processes.

## How Inclusive is Seoul, Compared to the OECD Average?

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The level of Seoul's inclusiveness was assessed based on the Seoul Inclusive City Index. If it was possible to compare the data, Seoul was compared to the OECD average by each indicator. As expected, the inclusiveness of Seoul varied by category.

Because there were comparable indicators in only some dimensions, there were limitations to fully assessing inclusiveness. Nevertheless, Seoul ranked higher than the OECD average only in the Economic Competence dimension within the Human Inclusiveness area. In all other dimensions, it ranked relatively low.

Taking a closer look, at Human Inclusiveness, Seoul showed higher inclusiveness in Economic Competence, but lower in Social Well-Being. Spatial Inclusiveness was difficult to assess as there were only three indicators comparable to the OECD data, which were in the dimensions of Access to Public Services, and Access to Neighborhood Infrastructure. In the Citizen Participation dimension within the Governance Inclusiveness area, Seoul scored rather poorly.

## Seoul Inclusiveness Rated as Low by Citizens

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Do the citizens of Seoul think their city is on the right path toward an inclusive city? We conducted a survey of Seoul citizens on this subject, and most rated it relatively poorly. About half (49%) responded that economic, and social inequality, had increased in Seoul when compared to five years ago. This figure was more than three times the number of respondents who stated the opposite (16.2%).

The survey also asked how hard the city strived to reduce social discrimination and exclusion. About half of the citizens (49.8%), responded, "The city has made some effort", while the other half (50.2%), responded, "The city has not made sufficient effort". It can be concluded that most citizens think the city of Seoul has not worked hard enough to become more inclusive.

In order for Seoul to become more inclusive, people felt that what was most needed was, “measures to increase the transparency and responsibility of public policy (24.5%)”. This was followed by other inclusive policy suggestions including: policy to create more public service jobs (18.0%); assistance to low income groups and minorities (16.7%); better public services through improving neighborhood infrastructure (16.3%); policy to reduce regional disparity in public facilities (15.9%); and measures to encourage the participation of citizens from all walks of life in public policy (8.7%).

### **If the Seoul Metropolitan Government Wishes Society to be Inclusive, It Needs to Adopt “An Inclusive City” as the city’s Vision for the Future**

Over the past half century, Seoul has grown into a global city through rapid economic development, dubbed “the miracle on the Han River”. As the national growth engine, Seoul has been at the heart of this economic development. The Gross National Income, per capita, has reached almost 30,000 USD annually. Economic growth manifested itself in a boom of apartment construction and car ownership. However, Seoul is now confronted with problems once-hidden by the rapid growth, such as inequality between classes and regions, social polarization, and lack of social transparency and trust. The city needs to tackle a range of social problems, such as having the world’s highest suicide rate, the world’s lowest birthrate, and a rapidly growing aging population. Inequality is at the heart of all of these problems. With thwarted expectations of the fair distribution of economic gains, a majority of citizens have felt a sense of deprivation, envisioning a grim future for themselves as that characterized in, “Hell Joseon<sup>11</sup>”. It is high time for

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<sup>11</sup> Joseon was a Korean kingdom (1392 to 1892) in which Confucian hierarchies and a feudal system were entrenched. “Hell Joseon” is a buzzword used to criticize the unfairness of Korean society where upward social mobility is effectively limited. The term was first coined in the early 2010s.

Seoul to shift the urban development paradigm towards inclusive growth and making itself an inclusive city.

To that end, the city needs to improve this area of Human Inclusiveness, through implementing and expanding policies to mitigate inequality, and disparity among the population. Spatial Inclusiveness also needs to increase, by reducing inequality in housing, and reducing unsafe housing and neighborhoods. Through alleviating the time inequality among its citizens, the city must create an institution where meaningful participation and policy transparency are ensured. It is imperative for the Seoul Metropolitan Government to adopt this idea of an Inclusive City, as future vision for Seoul, if it wishes to build a better society that ensures the well-being of its citizens.



## A Study of Urban Health Indicators in Seoul

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### Key Message

By developing Seoul Urban Health Indicators, the Seoul Metropolitan Government (SMG) will be able to more effectively monitor the city's health status.

### **To improve Seoulites' health, the SMG needs to develop customized urban health indicators**

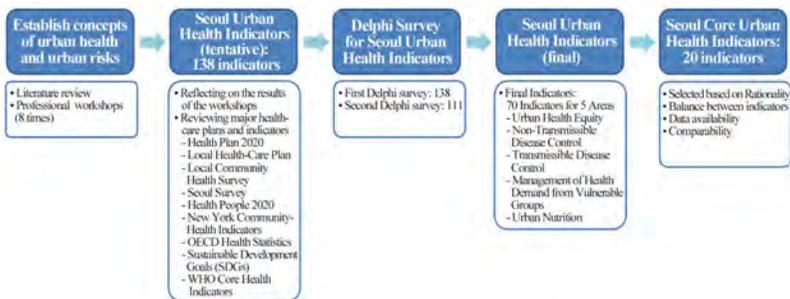
For the last 50 years, Seoul has experienced rapid urbanization; it has transformed into a global mega city with a population of 10 million. Because the majority of Korea's population lives in urban areas, the matter of how urban environment affects city dwellers is of paramount importance. However, our awareness of urban health is still poor. City life may pose numerous risks to citizens' physical and mental health: isolation, easy access to unhealthy food, and unequal distribution of health and medical resources. The adoption of a Western lifestyle leads to growing risks of heart disease, stroke, cancer, sexually transmitted diseases, substance abuse, injuries, violence, and mental disorders. In addition, global migration and climate change are new urban health risk factors. In addition to these problems, Seoul has the lowest fertility rate in the world and suffers from rapid population aging.

Unfortunately, Seoul's current health-monitoring system only focuses on individual behavioral indicators, lacking the concept of urban health. Therefore, in order to manage health risks in urban settings and monitor citizens' health, suggesting the concept of Seoul's overall urban health indicators and developing

urban health indicators is essential. This study presents Seoul's Urban Health Indicators, with consideration of the city's characteristics.

## 70 Seoul Urban Health Indicators

To produce Seoul Urban Health Indicators, we first reviewed previous research and literature on urban health and held professional workshops. Second, we examined domestic and foreign health-care plans and indicators including Seoul Survey, Seoul Local Health Care Plan, Health People 2020, OECD Health Statistics, and WHO Core Health Indicators. Based on the existing indicators and results of professional workshops, we selected urban health indicators related to risks that the city is facing. In the process, some indicators were adjusted to Seoul's characteristics and circumstances. Third, the selected indicators were categorized based on urban health initiatives of WHO (urban health equity, non-transmissible disease control, transmissible disease control, management of health demands from vulnerable groups, and urban nutrition). Fourth, after consulting with experts to confirm the relevance of the indicators, we prepared a Delphi survey. Two rounds of a Delphi survey were conducted to produce the final 70 indicators for five categories. Lastly, after discussions with experts, among the 70 indicators we selected 20 core health indicators that represent the health characteristics of Seoul.



[Figure 41] How Seoul Urban Health Indicators were Produced

[Table 15] Seoul Urban Health Indicators

Area	Category	Indicator	
Urban Health Equity (46)	Common (6)	Life expectancy	
		Disability-adjusted life expectancy	
		Suicide rate	
		Adult smoking rate	
		Percentage of adults who binge drink	
		Percentage of adults who participate in moderate physical activity	
	Infant and Maternal Health (7)	Infant mortality rate	
		Infant vaccination rate	
		Incidence of low birth weight among newborns	
		Total fertility rate	
		Anemia prevalence in women of reproductive age	
		Smoking rate of pregnant women	
	Child and Adolescent Health (4)	Percentage of 10-year-old children with caries experience	
		Adolescent smoking rate	
		Adolescent suicide rate	
		Percentage of adolescents who participate in intense physical activity	
		Self-rated health of seniors living alone	
		Prevalence of dementia	
	Senior Health (5)	Early detection of dementia	
		Suicide rate of adults aged 65 years and older	
		Percentage of adults aged 65 years and older who walk daily	
		Transportation and Residential Environment (8)	Size of neighborhood parks per person
			Number of 24-hour convenient stores per 10,000 persons
			Sense of safety on night streets
	Sense of societal safety		
	Sense of transportation safety		
	Percentage of people who commute by public transit		
	Percentage of schools that open their schoolyards to the public		
	Number of sports facilities per 10,000 persons		
	Violence and Crime (4)	Incidence of five violent crimes per 100,000 persons	
		Domestic violence rate	
		Child violence/abuse rate	
	Health of	Intimate partner sexual violence prevalence	
		Percentage of disabled people who experience	

Area	Category	Indicator
Urban Health Equity (46)	Disabled People (2)	depression
		Percentage of disabled people who receive medical checkups
	Health of Foreigners (3)	Percentage of foreigners who do not receive appropriate medical services
		Percentage of infants and children from international marriages
		Percentage of foreign women, married to Koreans, who receive prenatal care
	Environmental Health (2)	Number of patients suffering thermal diseases in summer
		Noise level of residential areas in the nighttime
	Emergency Medical Care (2)	Average time required to arrive at the emergency room after incidence of illness
		Average response time required to arrive at the scene
	Medical Health Care System (3)	Hospital visits and hospitalization per person
Health-care budget per person		
Medical health-care expenses per person		
Non-Transmissible Disease Control (9)	Cardiovascular Disease (1)	Prevalence of cardiovascular disease
	Cancer (2)	Cancer incidence rate
		Mortality rate from cancer
	Hypertension (2)	Prevalence of hypertension
		Uninterrupted treatment of hypertension
	Diabetes (2)	Prevalence of diabetes
		Uninterrupted treatment of diabetes
Mental Health (2)	Percentage of adults who experience depression	
	Severe mental disorder incidence rate	
Transmissible Disease Control (5)	Tuberculosis (2)	Tuberculosis incidence rate
		Tuberculosis mortality rate
	HIV/AIDS (1)	HIV/AIDS transmission rate
	Hepatitis (1)	Hepatitis B incidence rate
Management of Health Demands from Vulnerable Groups (2)	Accessibility to medical service (2)	Awareness of new diseases
		Number of people who do not receive appropriate medical service due to financial burdens
		Out-of-pocket payment for health (% of total expenditure on health)
Urban Nutrition (8)	Obesity (4)	Proportion of population with healthy weight
		Childhood obesity rate
		Weight-control attempts of overweight/obese people
		Percentage of underweight women in their teen and twenties

Area	Category	Indicator
Urban Nutrition (8)	Food Intake (4)	Fruit intake of low-income groups
		Vegetable intake of low-income groups
		Salt intake of low-income groups
		Sugar intake of low-income groups

### **Designating an agency that will take charge of the systematic management of Seoul Urban Health Indicators is essential**

To ensure the sustainability and credibility of Seoul Urban Health Indicators, there should be an agency that will take charge of its systematic management. In addition, given that some of the indicators are related to urban planning, forming a multi-departmental/multidisciplinary team, joined with Citizens Health Bureau of the SMG, would be effective for monitoring the indicators. Statistical data for the indicators will be produced annually. For some indicators whose cycle is every two years, the most recent data will be applied. Considering that the concept and indicators of urban health can vary according to the characteristics of cities, ongoing efforts should be made to improve Seoul Urban Health Indicators.

### **To improve Seoul Urban Health Indicators, the SMG needs to refer to health indicators in other mega cities and needs to provide a “Seoul Health Map” to citizens**

Everyone should be able to easily access credible health information. Making a “Seoul Health Map” (infographics of health status and risks of the city) is a way to publicize the results of Seoul Urban Health Indicators. The map should be posted on the website of the SMG to allow citizens easy access to the information. This would be effective in terms of health education and promotion of the indicators.

Seoul is a mega city with a population of 10 million. The urban health risks of the

city are different from those of small- and medium-sized cities. When using the indicators, referring to health indicators used in major cities such as Tokyo, Beijing, New York, and London would be helpful. By comparing the indicators and analyzing the differences, the SMG will be able to improve its own indicators as well as devise effective health policies.

### **Seoul Urban Health Indicators should be reflected in the local medical health-care plan and Seoul Plan 2030**

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To ensure consistency of the SMG's health policy, we suggest that Seoul Urban Health Indicators be included in the 7th Local Medical Health-Care Plan (2019-2022). The indicators will allow the SMG to reflect in its plan the common and unique health risks of the city and produce a customized health policy for citizens.

Subsequently, the indicators presented in this study need to be included in Seoul Plan 2030 so the concept of urban health can be applied in Seoul's long-term urban plan. In the current Seoul Plan 2030, there are three strategies for monitoring the city's health: (a) building a public health-care system, (b) providing life-cycle health care, and (c) strengthening environmental disease control and food safety. Unfortunately, the monitoring indicators of these strategies do not correspond with the indicators of urban health. For example, the number of public health centers, one of the indicators for measuring the effectiveness of the public health-care system, has no significance in terms of urban health monitoring because the number is determined by government policy. If some of the Seoul Urban Health indicators related to social infrastructure were included in the master plan, the policy would be highly effective.

## 04 Transportation Planning

### Estimation of Operation Capacity on the Exclusive Median Bus Lane

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#### Key Message

The optimum operational capacity of exclusive median bus lanes needs to be 30% less than the current actual capacity, taking the length of queue into account.

#### **The SMG needs to calculate optimal capacities of exclusive median bus lanes and reflect the findings in bus routes**

The total bus travel time consists of dwell time at a bus stop and travel time between stops. Occupancy time accounts for most of the dwell time, determining bus stop capacity. Travel time is most affected by queuing time at a signalized intersection and upstream of a bus stop. This report analyzes factors that affect dwell time and travel time for bus use and their correlation to calculate optimal capacity of exclusive median bus lanes.

Bus Management System (BMS) data, transportation card data, and variables extracted from on-site investigations were analyzed to understand dwell time and travel time factors. It appears that the influential factor for dwell time is effective green time ( $g/C$ ), while those most affecting travel time are the number of buses and passengers getting on/off.

[Table 16] Correlation between Dwell Time &amp; Speed (8 AM ~ 9 AM)

Variable	R2		Correlation	
	Dwell Time	Speed		
Effective Green Time Ratio	0.31	0.02	Weak	Negligible
Number of Passengers Getting On & Off	0.12	0.09	Low	Low
Number of Buses	0.002	0.08	Negligible	Low
Number of Routes that Use that Stop	0.0	0.13	Negligible	Low

To improve operations in congested segments of the exclusive median bus lanes, it is necessary to adjust effective green time, the number of passengers getting on and off, and the number of buses. Effective green time can be extended by prohibiting left turns at intersections or shortening green time for going straight through. However, such adjustments can cause congestion at the intersection itself. Also, it is of extremely limited benefit to extend effective green time because all possible green time has already been allocated for roads with exclusive median bus lanes. The number of passengers getting on and off is determined by the demand for a bus route, which is not easily adjustable. The number of buses can be decreased by adjusting bus routes, which will cause inconvenience to users. The most realistic alternative is to reduce the number of buses per hour on the lane by adjusting headways. To that end, an optimum operational capacity needs to be calculated for route modifications or establishment of a bus operation plan.

### **Operational capacity should be computed to maintain optimal service for passengers**

The existing computation method for bus lane capacity is to calculate the maximum number of buses that can be operated at a given time. However, this method has limitations as it fails to consider congestion that passengers face and a sharp drop in efficiency that occurs near critical capacity. The exclusive median bus

lanes in Seoul have many sections where operations exceed their capacity, unlike other exclusive lanes at home and abroad. Given the number of passengers getting on and off at bus stops in Seoul, the existing method is not the most effective for calculating an operational capacity that guarantees optimum service levels.

This report suggests a method of calculating capacity that maintains optimum service levels for transit users. A queue of buses approaching a stop causes congestion in the exclusive lane, a main cause of service degradation. To assess the impact of queue length, this report introduces the concept of “service failure”. This is the same as signal failure, which occurs when any car fails to pass an intersection within a traffic signal cycle. The distribution of bus arrivals at a stop is determined by signal operation at the intersection upstream of the stop. Generally, during a green period at an intersection, a group of buses reaches the stop (platoon arrival) and leaves before the next group arrives. If any bus fails to pass the stop during one cycle due to congestion, the bus has to stay until the next cycle, which is defined as service failure in this report.

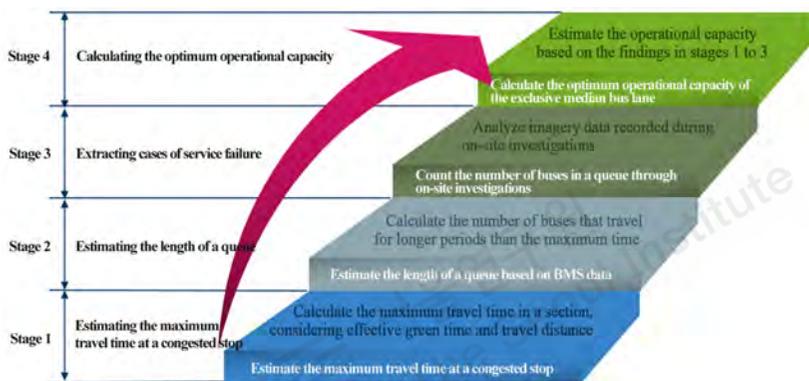
Service failure results in a longer queue of buses at the stop, increasing passenger dwell time and degrading service reliability. Therefore, a critical level of service that passengers can tolerate is assumed to be a level where service failure does not occur. Based on this level, a critical length of queue for each major congested stop is calculated to find their optimum operational capacity.

### **An operational system for exclusive median bus lanes needs to include a monitoring scheme**

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Through an investigation of operational patterns of buses at major stops on the exclusive lane, this study examined the number of buses experiencing service failure and the length of queues. Using BMS data, it also found the length of queues at the most congested bus stops of each arterial corridor in Seoul. Based on this data, it calculated the optimum operational capacity of the exclusive lane in four stages.

This study developed a method that calculates the length of a queue at a congested bus stop, using the data of critical travel time and the length of a queue during the congestion. Moreover, it calculated the critical speed by queue length, using the data collected from on-site investigations, finally suggesting the optimum operational capacity. This capacity was compared with the results computed according to the US Transit Capacity and Quality of Service Manual (TCQSM).



[Figure 42] Four Stages of Calculating Optimum Operational Capacity

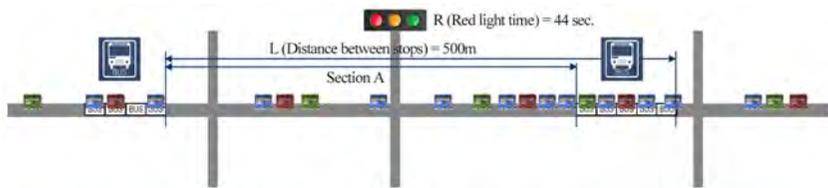
### Stage 1: Estimating the maximum travel time at a congested stop

The first step is to estimate the critical travel time at each stop. This is the maximum travel time that includes a normal delay for passengers occurring in a normal traveling environment (i.e. waiting time for signal change at an intersection). A bus whose travel time is longer can be assumed to be heavily delayed for analytical purposes.

The critical travel time is calculated by adding delay at signal intersections to travel time between stops. The travel speed is set at 60km/h, while the delay at intersection is assumed to be an expected value of time for a red light (The assumed travel speed and expected value is adjustable according to analytic conditions.).

To be more specific, this report will focus on Useong Apartment stop on Gangnam-daero. If it is assumed that a bus moves at 60km/h in Section A (of

[Figure 43]), the travel time is 30 seconds (the distance of Section A (500m)/speed (60km/h) x 3.6) and the delay time at intersection is 22 seconds (the expected value of the red light time, 44 seconds). Therefore, the critical travel time for this section is 52 seconds.



#### Estimating Critical Travel Time

- **Critical Travel Time = travel time between stops + delay time at intersection due to signal**

Ex) If a bus moves at 60km/h in Section A, Travel Time =  $500\text{m}/60\text{km/h} \times 3.6 = 30 \text{ sec.}$

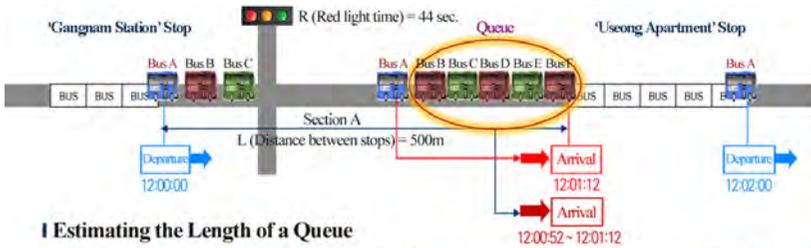
If the expected value is assumed half the red time, 22 sec., the critical travel time is estimated at approximately 52 sec.

[Figure 43] Estimating Critical Travel Time

### Stage 2: Estimating the length of a queue

In Stage 2, the length of a queue (the number of buses) is calculated on the basis of the critical travel time in Stage 1 for estimating an equation for relationship between travel time and queue length. The length of the queue upstream of a stop at a specific point can be estimated by analyzing BMS data. A travel time longer than the critical time can be regarded as delay. Therefore, if a bus arrival time at a stop is later than the sum of its departure time at the previous stop and the critical travel time, the bus can be assumed to stay in a queue for a certain period.

For example, as in [Figure 44], if Bus A left the previous stop at 12:00:00 (with 52 seconds of the critical travel time in Section A) and arrived at the next stop at 12:01:12, Bus A experienced 20 seconds of delay, which is highly likely to occur in a queue. The length of the queue in front of Bus A is caused by buses that arrived at the stop during the period between 12:00:52 (the anticipated arrival time of Bus A) and 12:01:12 (the actual arrival time of Bus A).



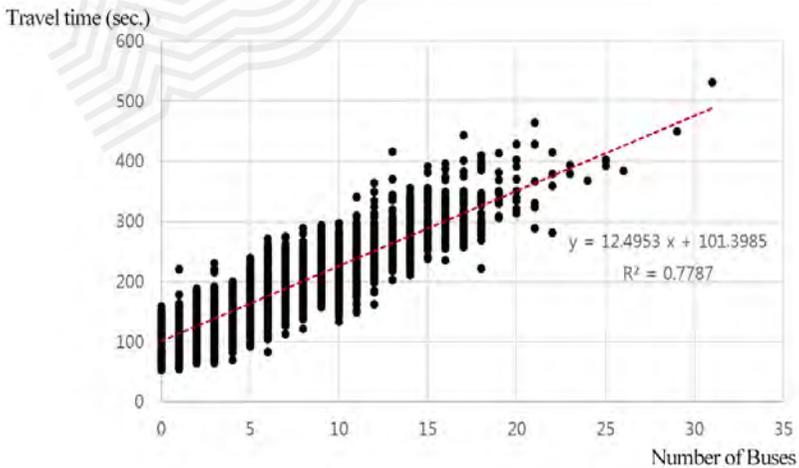
**I Estimating the Length of a Queue**

- The length of a queue = arrival time at a stop > departure time at the previous stop + number of buses that arrive at the stop during the critical travel time period

Ex) If a bus travels at 60km/h in Section A, the maximum travel time between stops is estimated at 52 sec.  
 Buses A - F that arrive later than 12:00:52, the critical travel time, are assumed to form a queue at Useong Apartment stop.

[Figure 44] Estimating the Length of a Queue

The next step is to estimate an equation building a relationship between the travel time and the length of a queue of the buses that traveled longer than the critical travel time (52 seconds), based on BMS data (as in [Figure 45]). The longest travel time was 531 seconds and the length of queue was 31 buses. Then the equation is  $y=12.4495x+101.4$ .



[Figure 45] Equation Between Travel Time and Queue Length

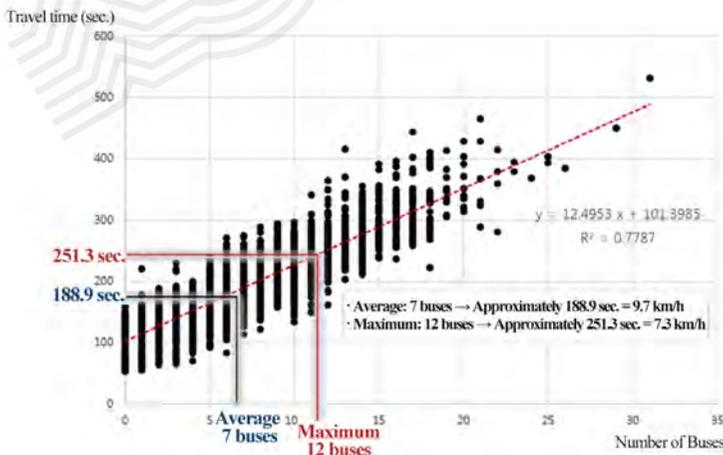
### Stage 3: Extracting cases of service failure

Using video footage gained during on-site investigations, the number of buses in a queue that did not experience service failure was counted. This report analyzed the video recorded during the morning peak time. For example, the maximum number of buses that did NOT experience service failure for a cycle at Useong Apartment stop was 12 buses.

### Stage 4: Calculating optimum operational capacity

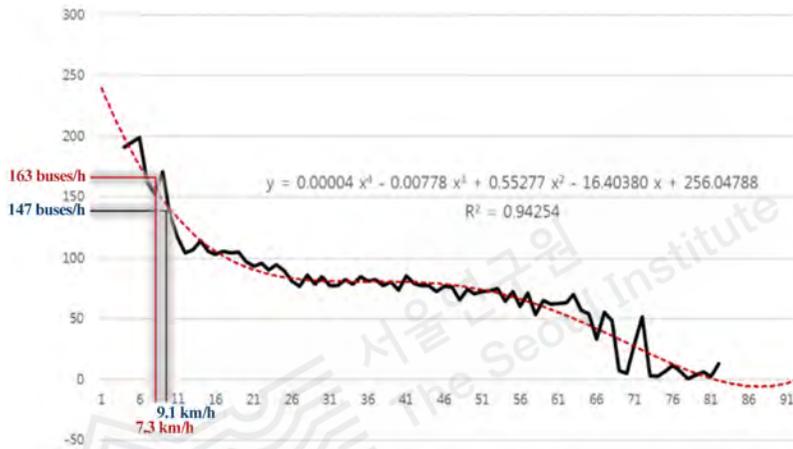
In Stage 4, the length of the queue calculated in Stage 3 was put in the relational expression of Stage 2 to calculate critical speed. Using this speed, the operational capacity of each stop can be computed.

For Useong Apartment stop (as in [Figure 46]), if the length of a queue, 12 buses, is put in the equation, the travel time is about 251 seconds, which is converted into approximately 7.3km/h. This means that when a queue of 12 buses is formed, the speed of the buses is at least 7.3km/h. If a bus runs slower than this, the length of a queue will increase to more than 12 buses, leading to service failure.



[Figure 46] Critical Speed

Using critical speed, hourly operational capacity was calculated. [Figure 47] is a regression line that shows a relationship between travel time at all stops on the exclusive median bus lanes in Seoul and the number of buses at each stop. If the critical speed is put in the functional formula of the trend line, the optimum operational capacity is calculated.



[Figure 47] Hourly Operational Capacity

The formula is  $y=0.0004x^4-0.00778x^3+0.55277x^2-16.4038x+256.05$ . If critical speed at Useong Apartment stop (7.3km/h) is put in, the result is an optimum capacity of 163 buses per hour. In other words, the number of buses in operation at Useong Apartment stop should be 163 or fewer to avoid service failure.

The operational capacity suggested in this report is lower than what is calculated by the TCQSM method. The suggested capacity is about 30% lower than existing capacity, showing a difference of 77 buses on average. In particular, extremely congested stops show smaller differences. Generally, a bus stop that has many bus bays is considered to have a larger capacity. However, the calculation method in this report suggests that the optimum capacity may be lower due to the impact of queues formed by poor efficiency in use of bus bays.

A continuous demand for high-quality public transit will increase use of exclusive median bus lanes, exacerbating congestion to a broader extent. Therefore, building an operational system for these bus lanes is urgently needed, including a monitoring scheme to ensure the optimal level of service. The results of this report are expected to be utilized as guidance for such a system.



## Role of Transportation Planning for Urban Regeneration Projects in Seoul

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### Key Message

One of the most pressing issues in urban regeneration projects is the lack of sufficient parking space. To address this issue, a District Transportation Improvement Plan should be drafted and implemented.

### **The Seoul Metropolitan Government (SMG) is pursuing urban regeneration through the legislated a special act<sup>12</sup> on urban regeneration**

There are limitations to achieving balanced urban regeneration under existing law. The residential area improvement projects of the past were led by the private sector, focusing on increasing the commercial value of target areas. Most redevelopment projects revolved around improving the physical environment and building apartment houses. Consequently, the original residents failed to resettle, losing their local communities.

However, the Special Act on Promotion of and Support for Urban Regeneration, legislated in 2013, includes various projects for revitalizing local communities, such as cultural programs, childcare projects, and community companies<sup>13</sup>. It is important to enhance the residential environment through support for housing

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<sup>12</sup> If two laws govern the same situation, a special law (special act) overrides the other law.

<sup>13</sup> A community company is a company operated by local residents or organizations to improve the living environment, revitalize the local community, and create income and jobs using various resources of the community.

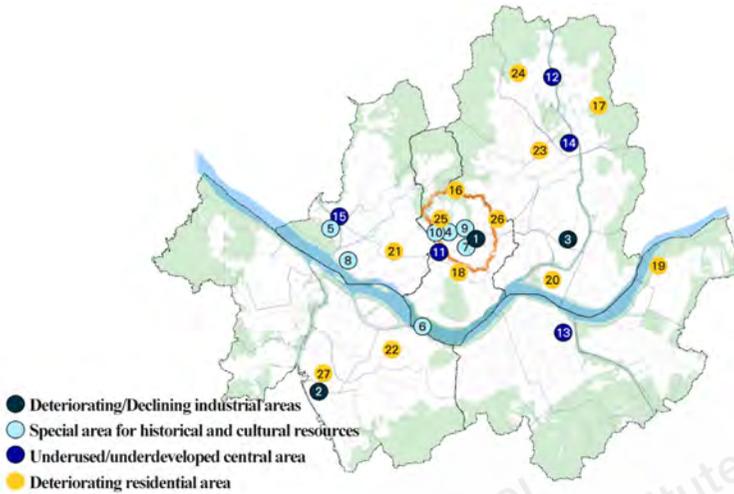
improvement rather than total demolition. The SMG needs to consider physical, economic and social aspects of the dilapidated areas in implementing its urban regeneration projects. Establishment of a basic living infrastructure is essential in such areas to contribute to revitalizing the community. One goal of urban regeneration is to increase residential populations in the areas by reviving local economies. More importantly, the city's urban regeneration projects aim at encouraging residents to participate in the process and finally restore their local communities.

The SMG designated 27 areas in the city as "Seoul Urban Regeneration Leading Areas<sup>14</sup>". These Leading Areas are categorized into four groups: Deteriorating/Declining industrial areas; Special areas of historical and cultural value; Underused/underdeveloped central areas; and Deteriorating residential areas. Twelve Leading Areas fall in the deteriorating residential area category. The basic directions of the project are: (a) improving the residential environment in consideration of local characteristics, (b) small-scale, gradual improvement considering existing community ties, and (c) securing a basic living infrastructure for socially vulnerable groups. Regenerating the deteriorating residential areas is an urgent task, considering the downscaling of New Town redevelopment projects<sup>15</sup> and the sluggish real estate market due to low economic growth.

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<sup>14</sup> Urban Regeneration Leading Areas are areas that require urgent and efficient implementation of urban regeneration policies. These areas have a significant ripple effect on surrounding areas.

<sup>15</sup> The New Town project was designed to redevelop the deteriorating residential areas in Gangbuk region, aiming at resolving the regional economic imbalance. Of 683 target areas in the original plan, 245 were cancelled due to the real estate market downturn.



Source: SMG press release, “The 27 Seoul Urban Regeneration Leading Areas”

[Figure 48] Seoul Urban Regeneration Leading Areas

[Table 17] Seoul Urban Regeneration Leading Areas

Deteriorating/Declining industrial areas : 3 target areas	Special areas of historic/cultural importance : 7 target areas
Underused/underdeveloped central areas : 5 target areas	Deteriorating residential areas : 12 target areas

### Transportation challenges are one of the most urgent obstacles to sustainable urban regeneration

There has been no viable transportation plan for residential area improvement projects. In 2008, after the Urban Traffic Improvement Promotion Act was revised, transportation measures for redevelopment projects were reviewed in the architectural deliberation process rather than by an independent transportation impact assessment committee. Architectural deliberation is carried out when a redevelopment plan is completed, and the focus is on land use or floor area ratios.

This means that a fundamental revision of the transportation measures is impossible.

Transportation infrastructure is essential to maximizing social and economic benefits of urban regeneration. The ultimate goal of such regeneration is to revive local economies and create space for social integration. Transportation infrastructure, which connects the physical structures of the area, is the basis of urban regeneration.

### **The target areas for urban regeneration projects have poor transportation environments**

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The Changsin/Sung-in area, a typical deteriorating residential area in Seoul, was designated as a target area for a residential environment improvement project in the 1990s. The project focused on small scale tasks such as establishing community centers and playgrounds for children. Despite a poor pedestrian environment, lack of parking space and vehicular traffic problems, transportation improvement focused only on repairing old roads.

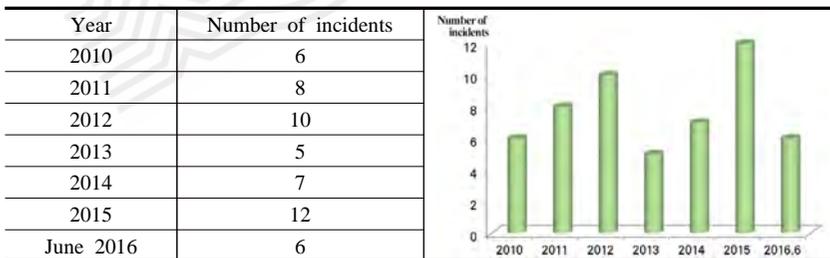
In 2014, an urban regeneration support center in Changsin/Sung-in area established plans that also focused on small-scale tasks, such as installation of streetlights and security cameras, planting trees, and setting up playrooms. The plan also included improvement of the transportation infrastructure such as through installation of safety facilities, sidewalk repair, and repaving of roads. However, the biggest transportation problem in the area was illegal parking. According to our investigation, road connection was poor, and roads narrower than 4m accounted for about 40% of all roads in the area, making vehicular movement difficult. Illegal parking on the roads was one of the most serious problems due to the lack of parking space. The resident parking permit program accommodated only 72 cars while the demand was for 243. Of course, this illegal parking deteriorated the pedestrian environment. The safety of pedestrians was also seriously threatened due to the lack of facilities to help reduce traffic speed.

## Addressing the illegal parking problem is key to the success of an urban regeneration project

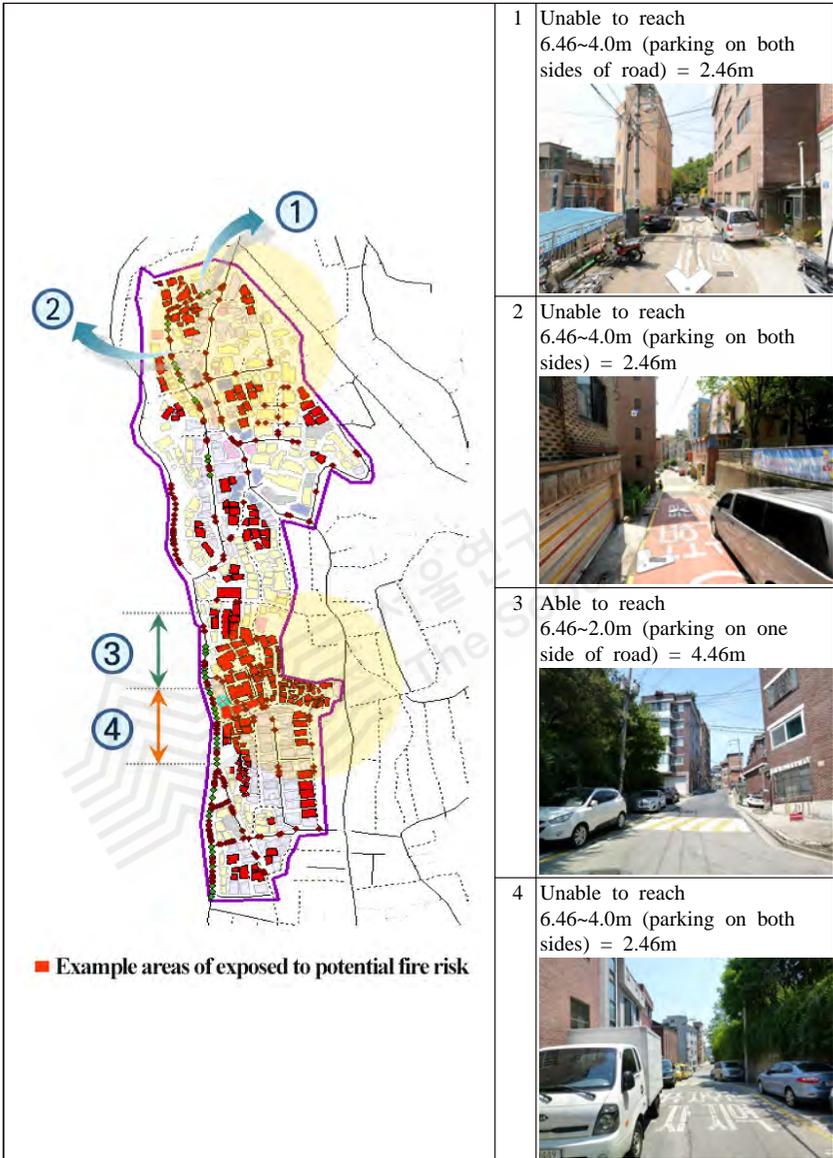
All transportation problems in deteriorating residential areas boil down to a lack of parking space. Thanks to overall income growth, almost every household owns at least one vehicle, even in these deteriorating low-income residential areas. Lack of parking space leads to illegal parking in alleys, threatening the safety of children and the elderly. In addition, neighborhood alleys are supposed to be places where neighbors meet and socialize, but currently serve only as crowded parking spaces.

What is worse, fire trucks have reportedly been unable to reach the scene of fires due to these illegally parked cars blocking their way. Fire personnel had difficulty reaching about one-third of the Changsin area, which increases the risk of fire spreading. The National Emergency Management Agency pointed to illegal parking on community roads as a major reason for the exacerbated fire hazard in residential areas.

[Table 18] Number of Incidents where Fire Trucks Could Not Reach Emergencies Due to Illegal Parking on Community Roads

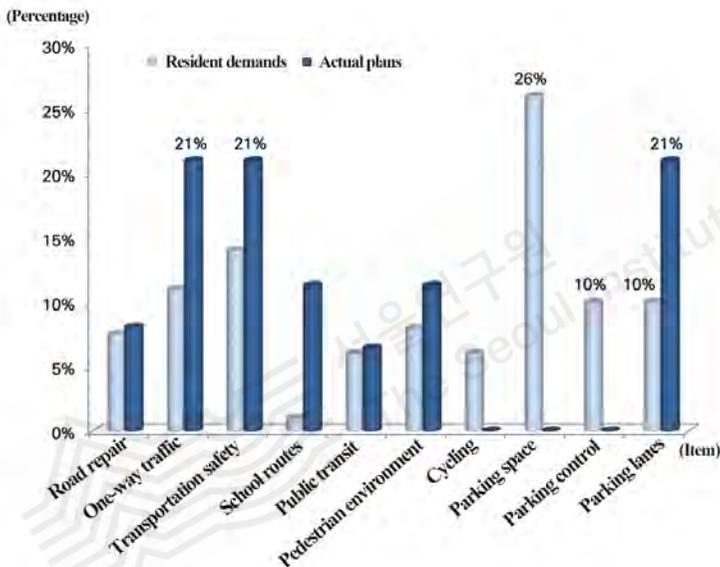


Source: Educational materials for The current status and tasks of parking policy in residential areas in Seoul, Korea Research Institute for Human Settlements (KRIHS), 2015



[Figure 49] Example areas of the residential environment improvement project in Changsin exposed to potential fire risk

Most deteriorating residential areas have problems due to illegal parking. The issue has long been pointed out in the District Transportation Improvement project since the 1990s. In a survey regarding this project, residents demanded more parking space as a top priority. These parking problems have caused conflict among neighbors, harming community integration.



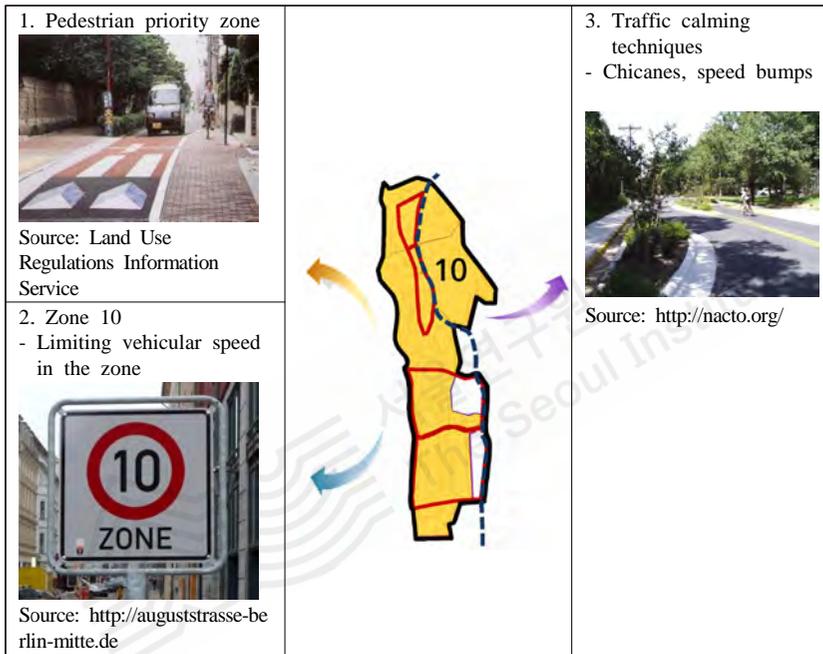
Source: Kum Ki-jung & Park Min-ho, *The study on the Problem Analysis by Before/After Evaluation of Traffic Calming Planning*, 1999

[Figure 50] Resident opinions of the District Transportation Improvement Project

## Addressing illegal parking is essential to restoring neighborhoods as communities

For success in urban regeneration, the SMG needs to make neighborhoods safe, pedestrian-friendly spaces, providing necessary facilities to revive the community. To that end, it needs to employ a variety of methods such as designating target areas

as pedestrian priority zones, using traffic calming techniques, and limiting vehicular speed to 10km/h in neighborhoods (Zone 10). Most importantly, a solution for illegal parking is a prerequisite to creating a pedestrian-friendly neighborhood.



[Figure 51] Methods to create a pedestrian-friendly neighborhood (Changsin/Sungin area)

## Providing more parking space: a key solution

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There are various measures to address the lack of parking space in residential areas, including management of parking demand, provision of parking lots, and sharing of parking space. A parking demand management plan should be implemented as an overall parking policy for the SMG. In fact, limiting car ownership through a motor vehicle registration policy or a proof-of-parking rule<sup>16</sup> would be a fundamental solution to the lack of parking space. However, such plans cannot be enforced only in areas targeted for urban regeneration projects. The overall parking policy of the SMG needs to be redirected for the long term.

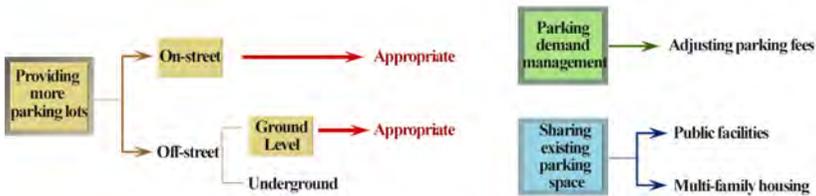
Sharing the existing parking space can be one solution, allowing residents to park in annexed parking lots of shopping areas or office buildings during the night. However, this is not feasible in deteriorating residential areas, which have few commercial/business buildings, and even these have only small parking lots.

The most feasible solution is to create more on-street and off-street parking lots in the area. If the roads are converted to one-way streets, there will be enough room for on-street parking. The SMG can also create off-street parking lots using public land within the community. A mechanical parking lot<sup>17</sup> rather than an underground one would be a practical solution, as the latter costs a tremendous amount of money to build. This measure does not require changes to the existing road networks or urban fabric, which is consistent with the basic direction of the urban regeneration project.

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<sup>16</sup> A proof-of-parking rule requires access to nighttime parking spaces to be secured before registering a vehicle. This policy has been implemented in Japan since 1962. Japanese law requires motorists to prove they have access to a local parking space. To register a car, or when changing address, motorists need to obtain a “parking space certificate” (“garage certificate” or “Shako shomei sho”) from local police. This rule is in place in Jeju Special Self-governing Province, and only applies to mid- and full-sized cars.

<sup>17</sup> A mechanical parking lot is an off-street parking or annexed parking lot in which mechanical parking equipment is set up.



[Figure 52] Measures to address parking problems in residential areas

### **The SMG needs to devise a District Transportation Improvement Plan, focusing on residential block parking management**

The District Transportation Improvement Plan should be established based on three principles: managing residential block parking, classifying road functions, and prioritizing pedestrians. It would be efficient to divide the target area into blocks for parking management, with block size determined by land use or travel behavior. Parking management needs to be adjusted to the characteristics of each block. The authorities need to consider the fact that parking near the house is most preferred by residents. Another key to success is to encourage the local community to participate in establishing this Plan, with the SMG taking the lead in forming resident communities on each block and inducing participation of transportation experts.

The SMG needs to restructure the entire street network by classifying functions of area roads. The purpose of this is to select roads and sites for on- and off-street parking. The authorities would then investigate whether the main roads of the area can function as one-way local beltways, in which on-street parking lots would be built. Such one-way local beltways may cause temporary inconvenience to residents, but it will effectively solve the illegal parking problem and help to create a safe pedestrian-priority zone. Traffic calming techniques will help slow down vehicles in the pedestrian-priority zone.

To guarantee pedestrian safety, parking on neighborhood streets would be allowed only for residents.

[Table 19] Basic Principles of the District Transportation Improvement Plan

Managing residential block parking <ul style="list-style-type: none"> <li>• Form resident communities for each block</li> <li>- Blocks by land use (residence, factory, commercial building)</li> <li>- Blocks small enough to form resident communities</li> <li>→ Will provide off-street parking space</li> </ul>	Classifying functions of roads <ul style="list-style-type: none"> <li>• Define major road network in the area</li> <li>- Examine whether beltways of each block can function as main routes</li> <li>- Operate as one-way roads</li> <li>→ Will provide on-street parking space</li> </ul>	Prioritizing pedestrians <ul style="list-style-type: none"> <li>• Restrict entry of vehicles by each block (local community)</li> <li>→ Designate neighborhood as pedestrian-priority zone</li> </ul>
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Applied to the Changsin area, our improvement plan proved that more on- and off-street parking space helped resolve the parking problem. This report proposes installing on-street parking spaces in broad sections on the beltway. About 10 parking spaces on each block were allocated for loading and unloading of vehicles and freight. Specifically, the plan reflected that one block where sewing factories were concentrated had heavy traffic of two-wheeled vehicles. This study also suggests building five-story mechanical parking lots on public land such as parks and vacant lots. Each parking lot would accommodate 10 cars. If the plan is implemented, a total of 349 parking spaces would be created, which exceeds parking demand for the area (72 legally parked vehicles + 243 illegally parked = 315). The area's parking problems would be resolved without changing the existing road network.

Other than public land, the SMG can buy privately-owned land that is vacant due to the sluggish real estate market to create parking lots. Moreover, the city can substitute public land with private land near main roads, because such land is most suitable for parking. By providing a floor area ratio incentive and permitting development of the public land, the government can induce private land owners to substitute their land.

To reduce car ownership, the SMG should encourage residents of deteriorating areas to use a car-sharing service. According to a study, about 40% of car-sharing

service users were residents living in multi-family houses in an area similar to Changsin. Another study<sup>18</sup> shows that such users are more likely to sell their cars thanks to the service. Therefore, if the SMG helps make the service more convenient for residents, the number of cars they own will decrease.

### **Three policy proposals to address parking problems in deteriorating residential areas**

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This report suggests three policy proposals to address parking problems in deteriorating residential areas.

#### 1) Establish a community-led District Transportation Improvement Plan

There are a number of issues where the District Transportation Improvement Plan needs to reflect resident opinions: designating beltways to be converted to one-way streets, linking the roads with anchor facilities of urban regeneration such as community companies, dealing with demands from owners of commercial buildings near the roads, and operating community roads, which are pedestrian-friendly roads with a few vehicles. To encourage local residents to participate in the plan, a social experiment can be conducted at a specific place and time before implementing traffic calming measures, imposing new transportation rules, and changing road operations. The plan should be modified according to the results of the experiment.

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<sup>18</sup> Joonho Ko, *Seoul Car-sharing Service Evaluation and its Operation Strategies*, 2015, The Seoul Institute



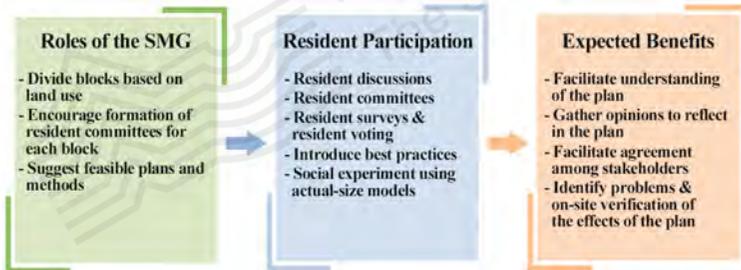
[Figure 53] Social experiment in an area near Turnpike Lane Station in London, England



[Figure 54] Local festival-like experiment near Turnpike Lane Station

Source: Seonghun O & Jihee Namgung, *Urban Design for Pedestrians I*, 2013, p.244

The SMG needs to serve as a guide and suggest a realistic transportation plan and encourage resident participation. It should help establish resident committees on each block and propose measures to deal with parking problems in the plan. These resident committees will discuss the transportation plan and vote to arrive at final decisions.



[Figure 55] Resident Participation in the District Transportation Improvement Plan

2) Revise the Special Act on Promotion of and Support for Urban Regeneration to invest in transportation infrastructure

The current Special Act on urban regeneration does not discuss investment in transportation infrastructure. The urban regeneration special account specified in the law includes funds for rental housing, community companies, and public facilities. However, it does not provide legal grounds for investment in transportation infrastructure. If a local government does not allocate funds, projects to improve

transportation infrastructure will face constant financial difficulty. The law needs to be revised to allow investment in transportation infrastructure towards regeneration of deteriorating residential area projects.

The Special Act does ease parking standards. In effect, providing fewer parking spaces is allowed in regeneration projects to reduce financial burden. Given that the most urgent issue in these projects is illegal parking, the Act will serve to exacerbate the problem. The article regarding such special cases should be deleted to ensure success in efforts to regenerate the urban landscape.

### 3) Empower transportation master planners (MP) to lead the District Transportation Improvement Plan

An urban regeneration plan is a city-wide action plan to implement urban regeneration strategies. The plan should include guidelines for the District Transportation Improvement Plan, which will be applied in regeneration of deteriorating residential areas and ensure policy direction consistency in subsequent regeneration projects. The guidelines include improvement policy directions for each road type, measures to establish parking rules, and plans to create pedestrian-oriented neighborhoods.

Based on these guidelines, transportation master planners should consider characteristics of the residential area as they lead the District Transportation Improvement Plan. It is important for these master planners to listen to residents to ensure that improvements to transportation infrastructure are successful and allow that infrastructure to serve as the basis for revitalization of local economies and communities.

According to a local ordinance on urban regeneration, the mayor of Seoul is empowered to appoint the head of the Urban Regeneration Support Center, who will serve as the master planner of urban regeneration projects. This master planner must have an expert understanding of the overall physical structure and transportation system of target areas. For effective improvement to transportation in these target areas, legal grounds to designate an additional master planner for transportation are also needed.

Analysis of Behavior Change in Passenger Car Users due to Road Space Reorganization in the CBD of Seoul

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## Key Message

Reorganizing road space in Seoul's central business district (CBD) should revolve around improving public transit and deliberating on policies for better management of parking and traffic demand.

### **A car-oriented transport system is not sustainable**

The number of cars registered in Seoul has rapidly increased in the past 25 years, from 1.19 million in 1990 to 3 million in 2015. The ability to provide sufficient roads to accommodate the increasing number of cars has reached a limit. There were 8,215 km of road in Seoul in 2015, yet this length was able to be increased less than 1% on an annual basis in the five years leading up to 2015.

A sharp increase in cars has caused a variety of urban problems, including traffic congestion, air pollution, and degradation of the pedestrian environment. The cost of gridlock increased 25.4% between 2006 and 2012, from KRW 6.7 trillion to KRW 8.4 trillion. The air pollution in Seoul is severe, with fine dust concentrations three times higher than in London. About 46% of the fine dust (PM10) is produced from mobile source emissions. In a survey, 81% of respondents stated that they felt air pollution in Seoul was getting worse.

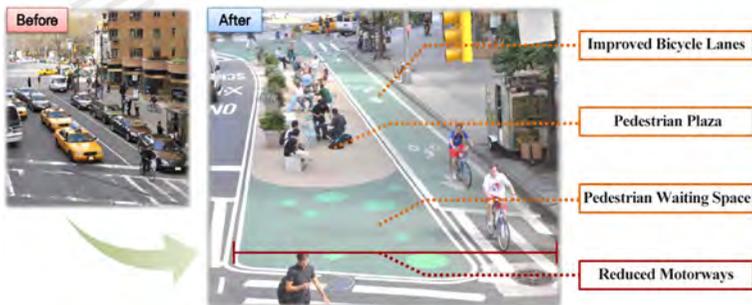


Source: Air Korea by Korea Environment Corporation, 2013 Air Quality Comparison of Major Foreign Cities

[Figure 56] Concentration of Fine Dust in Selected Major Global Cities ( $\mu\text{g}/\text{m}^3$ )

### **An eco-friendly, people-oriented transport policy is needed, with thorough consideration of its microscopic effects**

Since the 2000s, major cities around the world have implemented transport policies focused on pedestrians, bicycles and public transit. For example, New York City created spaces for pedestrians and cyclists in the Broadway area by reducing motorways. Times Square has been entirely closed to motor vehicles and the pavement reserved exclusively for pedestrians and cyclists. As a result, the pedestrian population increased from 6% to 11% and traffic accidents fell by 35%.



[Figure 57] Reorganization of Roads in Broadway, New York City

As another example, London’s Trafalgar Square was expanded after the adjacent six-lane road was closed. Thanks to the reorganization, pedestrian access improved between the square and the National Gallery.

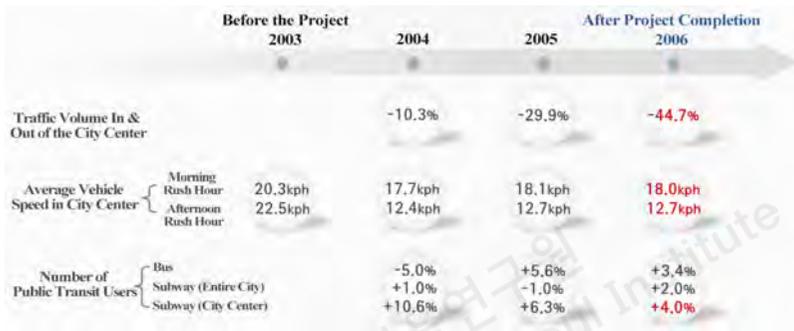
The Seoul Metropolitan Government (SMG) has also joined this paradigm shift in transport policy. It implemented a variety of projects to improve the pedestrian environment using catchphrases such as “Walk-friendly City, Seoul” in 2013 and “Walkable City, Seoul” in 2015. A project named Seoulllo 7017 was designed to transform an elevated highway near Seoul Station into a pedestrian overpass. Other projects include restoration of Namsan Yejangjarak trail, regeneration of Sewoon Shopping Center, and creation of a specialized historical and cultural space on Sejongno.



[Figure 58] SMG Projects for a “Walkable City”

More importantly, the SMG has striven to reorganize the city center by reducing motorways, expanding pedestrian space and creating bus-only lanes on the roads. However, the authorities need to consider that such road reorganization will entail both positive and negative impacts on traffic flow and citizen satisfaction. For

example, after the Cheonggyecheon restoration project, where an elevated highway was demolished and pedestrian space was created, traffic flow to and from the city center decreased by 44.7% while the number of subway users increased by 4%. On the other hand, the average vehicle speed in the city center during the afternoon rush hour decreased by 43.6%, aggravating traffic congestion.

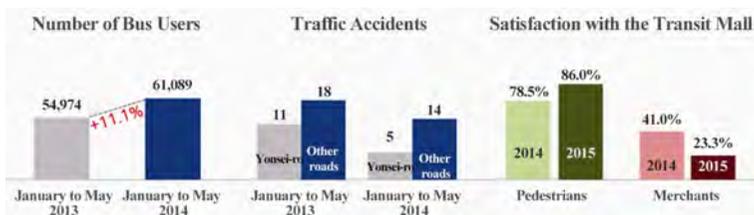


Source: The SMG, 2006, *Monitoring of Urban Structural Changes Following the Cheonggyecheon Restoration Project*

The SMG, 2006, *A White Paper on the Cheonggyecheon Restoration Project*

[Figure 59] Index Changes Before & After the Cheonggyecheon Restoration Project

As another example, after completion of the Yonsei-ro Transit Mall, the number of bus users increased by 11% while traffic accidents decreased. However, the level of merchant satisfaction near Yonsei-ro, which had already been low at 41%, decreased over time to about 23%.



Source: The SMG, 2015, *A Survey on Yonsei-ro Transit Mall*

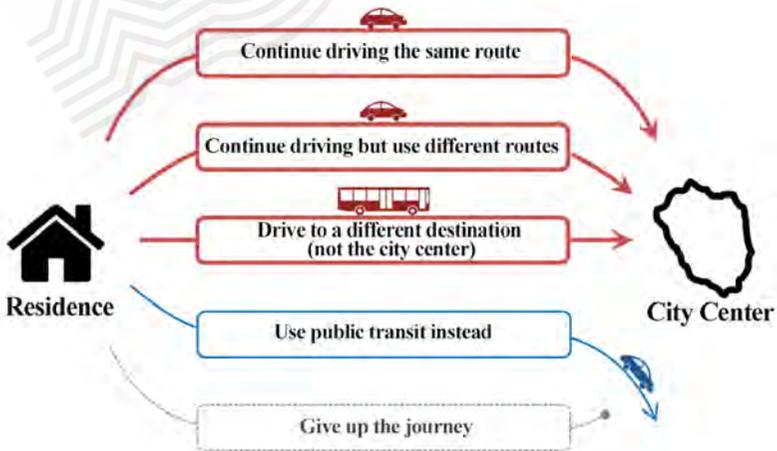
[Figure 60] Index Changes Before and After the Yonsei-ro Transit Mall Project

**Analysis is essential of behavioral changes caused by increasing travel time in the city center**

The number of cars flowing into the city center (areas within the Hanyang City Wall) was about 416,000 a day. Of those, about 288,000 departed from within the city while 128,000 started from the greater metropolitan area. About 22.7% of the traffic volume originated from the city’s southeast. The major purposes for travel were for commuting (44.2%) and for business (27%). In 2016, we conducted a survey of passenger vehicle drivers who travel through the city center.

[Table 20] Overview of the Survey

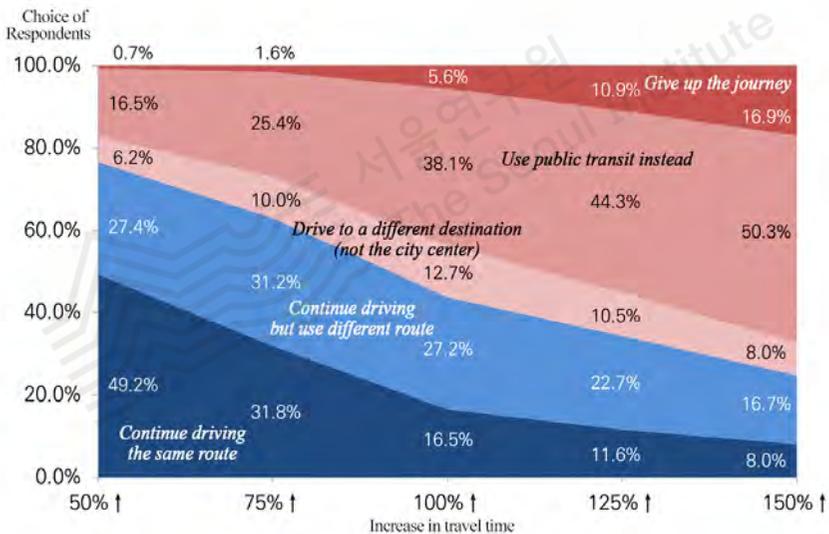
Purpose	To study responses of passenger vehicle drivers if the travel time increases by 50 ~ 150%, with five alternatives given
Respondents	531 passenger vehicle drivers in the city center (449 who travel to the city center, 82 who pass through the city center)
Period	August 22 ~ September 22, 2016
Methods	Online and face-to-face survey



[Figure 61] Five Alternatives

**If the travel time increased by 50%, 16.5% of the drivers who travel to the city center said they would use public transit instead**

About 76% of drivers who travel to the city center said they would continue driving even if travel time increased. About half of respondents were willing to use public transit if the time increased by 150%. However, as high as 24.9% responded that they would change their destination or give up making the trip. In other words, increased travel time may very well limit people’s mobility. Commercial areas in the city center are also expected to be negatively impacted.

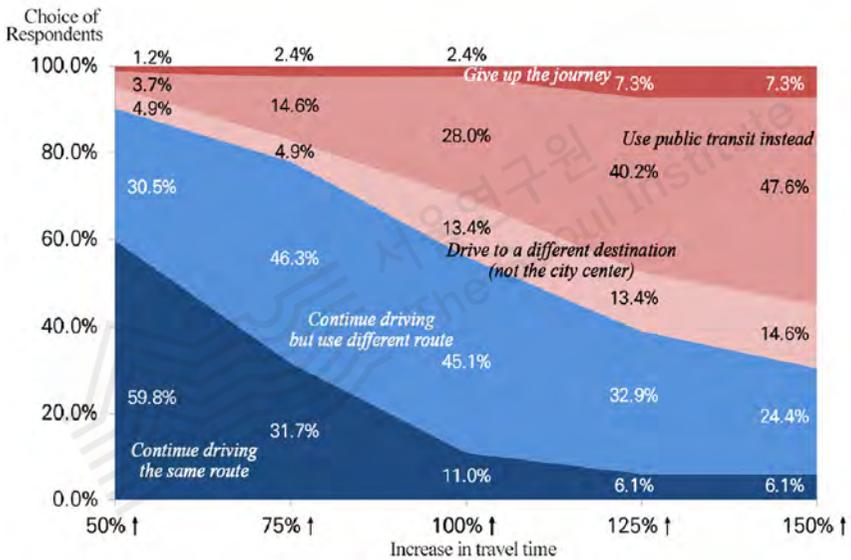


[Figure 62] Breakdown of Alternatives Chosen by Respondents (Those who travel to the city center)

Most respondents who said they would use public transit instead turned out to be housewives and students living in Seoul whose purpose for travel was less compulsory (such as shopping), and those who visit the city center only once or twice a week.

**If the travel time increases by 50%, only 3.7% of drivers passing through the city center said they would use public transit instead**

On the other hand, if the time increased by 150%, 47.6% of the respondents said they would use public transit. As the travel time increases, more respondents would give up driving. However, the proportion of those who would give up the trip itself reached 7.3%, which would therefore represent a limitation on mobility rights.



[Figure 63] Breakdown of Alternatives Chosen by Respondents (Those who pass through the city center)

**The most influential factor behind change in response was the level of convenience that remained for driving**

Drivers who consider driving more convenient than public transit tended to say they would continue driving. Other influential factors in types of responses given

include: gender, purpose for trip, total travel time, parking convenience, and the increase in travel time. Male drivers who must travel and who value the convenience of driving and parking tended to state they would continue using their cars when traveling to the city center. The convenience of driving had a greater influence (about 3.7 times) on driver responses than whether parking was convenient. In other words, those who found driving more convenient than public transit were more likely to say they would continue driving despite any shortage of parking space. This suggests that it would be more effective to improve public transit services rather than implementing policies that restrict parking, to encourage more drivers to use public transit.

**The most influential factors behind a decision to change to public transit were increased travel time to the city center and decreasing convenience of driving**

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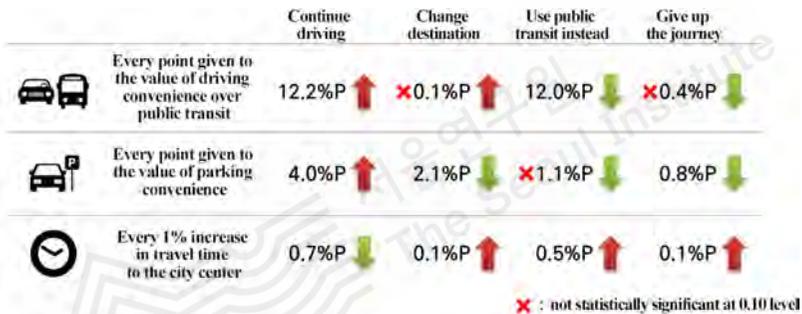
If travel time increases to the city center but drivers continue to place more value on the convenience of driving, they are less likely to change to public transit. Other factors also exist such as the number of transfers and parking convenience. When a number of transfers are required and parking is convenient, drivers are reluctant to change their means of transportation. The purpose of travel and driving convenience have a significant influence on changing the destination or giving up the trip itself.

**For every 1% increase in travel time to the city center, the likelihood drivers will change to public transit increases by 0.5%p**

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Every point given to the higher value of driving convenience over public transit decreases the likelihood for a modal change to public transit by 12%p. This means that if public transit convenience is greater than driving, drivers are more likely to

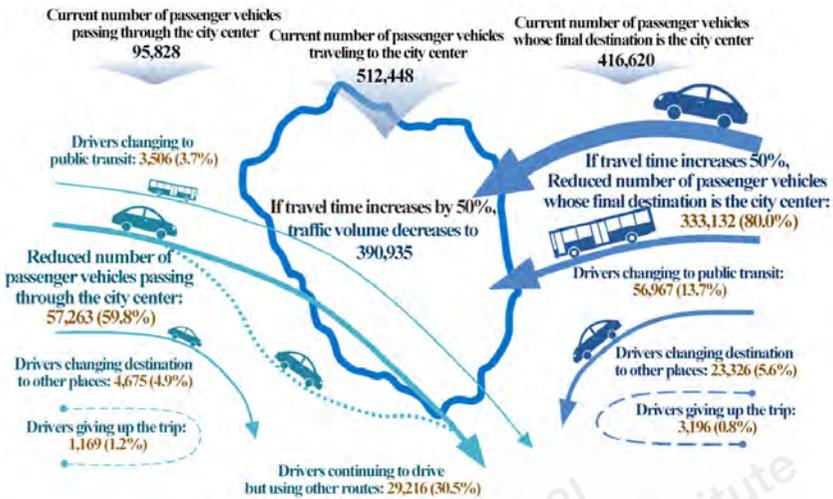
change their means of transportation. Meanwhile, every point given to the value of parking convenience increases the likelihood of driving by 4%p, and decreases the possibility of changing destination by 2.1%p and giving up the journey by 0.8%p. This implies that parking policies, such as increasing parking fees or reducing parking spaces, may limit private car use, but have the unwanted side effects of causing travelers to change destination or give up the journey altogether. Therefore, if the authorities wish to limit the use of private vehicles by reorganizing road space, policy priority must be given to improving public transit services and implementing parking and traffic demand management policies carefully as well.



[Figure 64] Marginal Effect of Selection Probability by Alternative

**If travel time to the city center increased 50%, driving will decrease by up to 23.8%**

The authorities can expect to be better able to manage traffic demand by increasing travel time to the city center through lane reductions. There are 512,000 passenger vehicles coming to the city center every day. The city center is the final destination for 416,000 of these, while the remaining 96,000 pass through it. If travel time increases by 50%, volume will decrease to 390,000 a day, with 333,000 going to the city center and 57,000 passing through.



[Figure 65] Changes in number of passenger vehicles traveling to the city center if travel time increases by 50%

### If travel time to the city center increases by 50%, traffic volume decreases by up to 13.2%

Thanks to the decrease in passenger vehicle volumes, overall traffic volume also falls. There is a total of 653,000 vehicles flowing into the city center. Of these, 360,000 are passenger vehicles, 167,000 are taxis, and 108,000 are trucks. If travel time to the city center increases by 50%, the volume of passenger vehicles will decrease to 275,000, leading to a decrease in overall traffic volume to about 567,000.

[Table 21] Estimated Changes to Traffic Volume Flowing into the City Center

Means of Transportation	Currently		If travel time increases by 50%	
	Arriving	Passing through	Arriving	Passing through
Passenger vehicle	293,394	67,485	234,600	40,326
Taxi	135,878	31,254	135,878	31,254
City bus	11,737	2,700	11,737	2,700
Truck/Other	88,194	20,286	88,194	20,286
Other bus	1,623	373	1,623	373
Total	652,924		566,971 (-13.2%)	

Note: There is an average of 1.42 persons in each passenger vehicle, 1.47 in each taxi, 19.27 in each bus, and 1 person in each vehicle in the truck/other category, as presented in 2014 Seoul Metropolitan Area O/D Matrix from the Metropolitan Transportation Authority.

The suggested numbers represent the maximum result in the most optimal conditions. Actual effects may be smaller. In reality, if the traffic volume flowing into the city center decreases, the travel speed will increase, leading to more traffic to the area.

### Reorganizing road space in the city center should revolve around improving public transit

Reorganization of road space, such as through lane reductions, has both positive and negative effects: increasing travel time to the city center brings about not only the positive effect of reducing passenger vehicle volume, but also reducing population inflow to the area. This could, in turn, lead to a negative impact on the local economy. To minimize this potential, the authorities need to give priority to improving public transit services to motivate drivers not to give up their trips but use public transit instead.

On the other hand, parking policies should be implemented in a careful manner. Policies that make parking inconvenient, such as by raising parking fees or decreasing parking spaces, are effective in deterring the use of passenger vehicles. However, according to this study, drivers had a tendency to express they would

change their destinations rather than give up their journey if parking becomes inconvenient.

The SMG needs to devise measures to deal with passenger vehicle traffic coming from the greater metropolitan area. In concert with the central government, it needs to expand public transit infrastructure and improve related services.

[Table 22] Major Strategies to Reduce Passenger Vehicle Traffic in the CBD

Goals		Tasks
High priority	Improve Public Transit	<ul style="list-style-type: none"> <li>• Improve public transit service               <ul style="list-style-type: none"> <li>- Establish more bus-only lanes and introduce a transit signal priority (TSP) system</li> <li>- Designate transit malls in the city center area</li> <li>- Improve the transfer system (connecting buses and subway lines)</li> <li>- Improve access to transport hubs</li> <li>- Create public transit routes for less accessible areas</li> </ul> </li> </ul>
Low priority	Reorganize Road Space	<ul style="list-style-type: none"> <li>• Reduce road lanes               <ul style="list-style-type: none"> <li>- Manage passenger vehicle traffic by reducing road lanes</li> <li>- Recovered space can be used to improve the pedestrian environment or other more effective uses of the land                   <ul style="list-style-type: none"> <li>※To protect mobility rights, alternative routes should be provided.</li> </ul> </li> </ul> </li> </ul>
	Reduce Parking Convenience	<ul style="list-style-type: none"> <li>• Restrict the number of parking spaces in city center areas               <ul style="list-style-type: none"> <li>- Impose parking quotas and reduce the number of annexed parking lots</li> </ul> </li> <li>• Usage fee increases at public and private parking lots in a step-by-step manner</li> <li>• Tighten parking regulations and increase penalty</li> </ul>
Long-term		<ul style="list-style-type: none"> <li>• Relieve traffic concentration during peak hours               <ul style="list-style-type: none"> <li>- Introduce flextime and staggered hour schemes</li> </ul> </li> <li>• Improve public transit infrastructure in the greater metropolitan area               <ul style="list-style-type: none"> <li>- Construct additional railways connecting the city center and the greater metropolitan area</li> </ul> </li> </ul>

## 05 Environment & Safety Planning

### A Study on Establishing the Infrastructure for Safe Chemical Management in Seoul

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#### Key Message

To better manage hazardous chemicals, the Seoul Metropolitan Government (SMG) needs to locate blind spots in the current management system and create an exclusive organization to supervise them.

#### **Measures are necessary to protect the citizens of Seoul from hazardous chemicals**

There are a wide variety of toxic chemicals harmful to humans and the environment. Chemical-related accidents occur, not only in factories or business facilities, but also through harmful substances which are found in household items. For this reason, the central and local governments have strived to protect people's lives, property, and the environment from harmful chemicals through laws and regulations. However, in Seoul, a city with a population of 10 million, the current preemptive system is insufficient. This report will review the socioeconomic and demographic traits of Seoul and suggest how to build an effective preemptive system to protect its citizens from hazardous chemicals.

### **Different divisions of the Seoul Metropolitan Government (SMG) are in charge of hazardous chemical management, leading to inefficiency**

While there are a few large-scale businesses that use chemicals in Seoul, a number of small businesses that discharge chemicals are scattered across the city. It is thus highly likely to impact the living environment of citizens. These small businesses are not subject to legal control. Due to their small scale, they might not be environmentally-conscious and could be negligent when handling chemicals. Moreover, neighborhood businesses such as hair salons or laundries are located in residential areas. Seoul is a huge metropolis where 20% of the population of the entire country is concentrated. Use of goods that contain hazardous chemicals can greatly affect the life and health of consumers, as in the tragedy of 2011, when a disinfectant for humidifiers turned out to be toxic<sup>19</sup>.

Given the city's regional characteristics, it can be said that there are four types of chemical discharge that might harm citizens: (a) consumer products (b) mid-sized and large factories (c) small factories and (d) neighborhood businesses. First, chemical discharges from (a) consumer products can affect unspecified individuals who purchase them. Second, discharges from (b) mid-sized and large factories and (c) small factories can have an impact on workers and nearby residents. Mid-sized and large factories are subject to legal controls while small factories are not. Lastly, discharges from (d) neighborhood businesses such as hair salons, laundries, and nail salons have a broader impact on the daily lives of citizens than factories do.

Different divisions in the SMG are in charge of managing each type of chemical discharge. The Living Environment Division and the Water Reclamation Facility Division partly deal with factories that use harmful chemicals. The Public Welfare & Economic Policy Division and the Public Health Division are in charge of

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<sup>19</sup> A global company's disinfectant for humidifiers killed scores of Koreans and left hundreds with permanent lung damage in 2011. The Seoul Central District Court ruled that the chief of the company from 1991~2005 was guilty of accidental homicide and of falsely advertising the deadly product as being safe even for children.

consumer product safety. The Public Health Division is also responsible for the environmental safety of daycare centers and kindergartens as well as managing the public hygiene of neighborhood businesses.

The Research Institute of Public Health and Environment conducts investigations into hazardous chemicals contained in consumer products, as well as the pollution levels of businesses, in collaboration with the Public Health Division, the Public Welfare & Economic Policy Division, and the Living Environment Division. The Seoul Green Environmental Center provides technical support to small and medium-sized enterprises (SMEs) to reduce environmental pollutants, cooperating with the Water Reclamation Facility Division.

Management of facilities and consumer products that might discharge toxic chemicals is dispersed throughout different divisions of the SMG, and some tasks even overlap. The current organizational system needs to be changed to better manage harmful substances without loopholes.

### **How other cities manage harmful chemical substances**

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Other cities such as San Francisco, Toronto, and Stockholm have legislated ordinance for the citizens' right to know. They have also established exclusive management organizations to provide information about hazardous chemicals to the public and operate pilot projects.

The city government of San Francisco has established a list of green products, the SF Approved List, for government procurement. This list is available to the public to encourage safe production and consumption. The city provides subsidies and support for neighborhood businesses such as laundries and nail salons, encouraging them to use less harmful chemicals. It also helps to promote such businesses by uploading information about them on its website and/or publishing in its newsletters. In addition, the city provides training programs to promote the use of more green products by cleaning companies.

The City of Toronto requires local businesses and facilities to annually track and report on the use and release of 25 priority substances as per its Environmental Reporting and Disclosure Bylaw. Under this bylaw, even SMEs have to report the use and release of chemicals, which is stricter than Canada's national regulations. To relieve the burden on businesses and allow a preparatory period, the city divided target businesses and facilities into three groups and allows them to report in three phases. When preparing the report, businesses can detail how much chemicals they use and release. The reports are disclosed on the city's website to provide the public with information on the key chemicals in their communities. Toronto is a good example for Seoul, which also has many small businesses and facilities.

Considering the complexity and gravity of chemical issues, the City of Stockholm, Sweden established an exclusive organization for chemical management, the Chemicals Centre, to support operational units of the city government. The Centre gives advice and guidance in formulating requirements for procurement, and coordinates issues regarding chemicals in construction materials, as well as supporting supervision and law enforcement.

Here at home, local governments recently started to legislate ordinances regarding environmental health and chemicals. Most such ordinances focus on management of the businesses and facilities that use and release chemical substances, in order to protect the business sites and neighboring areas. The Chungcheongnam-*Do*<sup>20</sup> Government's Environmental Health Ordinance deals not only with chemicals but also a broad range of environmental problems. The ordinance includes protective measures for sensitive population groups such as children, the elderly, and pregnant women. It also contains management plans for regions vulnerable to environmental degradation, such as industrial complexes and closed mine areas. After reviewing other local government ordinances, the SMG needs to legislate its own to secure legal grounds for harmful chemical management.

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<sup>20</sup> "*Do*" is an administrative unit (similar to a province) in Korea. There are eight *Do* (provinces) in South Korea, for example, Gyeonggi-*Do* and Gangwon-*Do*.

## **Most Seoul citizens point out that they lack access to credible information about chemicals**

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An online survey of 642 citizens conducted for this report showed that citizens have great concern over harmful chemicals, but they lack access to credible and comprehensive information about them.

Only 12.1% responded that the information on chemicals currently provided to citizens was sufficient. Of the others, 39.5% said it was hard to get necessary information; 25.9% said the information received was insufficient; and 20.7% said the information was not reliable. It is urgent that the SMG provide comprehensive and reliable information on chemicals to the public.

Citizens (41.9%) said household items that contain harmful chemicals need to be given top priority in terms of chemical management, followed by baby and children's goods (19.6%). On the other hand, management demand for neighborhood businesses (5%) ranked lowest. It seems that the recent tragedy caused by the toxic disinfectant for humidifiers has raised public concerns over the safety of chemicals used in daily products and children's goods.

Most respondents (48.3%) thought that the government should regulate the use of harmful chemical substances by imposing stricter regulations, strengthening on-site monitoring, and punishing violators severely. Citizens also demanded that the government should provide accurate information about chemicals in order to prevent accidents. Therefore, the SMG needs to bolster its regulations on chemical use and devise measures to gather and distribute information on harmful substances.

Another survey of 522 civil servants and members of environmental NGOs confirmed a need for a specialized, exclusive organization to deal with the complicated issue of chemical substances. About 39% of the respondents said there should be more overseers for stricter regulation. About 24% responded that grasping the current situation and gathering information about chemical uses would be important. In terms of organizational improvement, 60% said a specialized organization would be necessary.

### **The SMG needs to come up with customized management measures based on types of chemical discharge**

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The central government manages the safety of chemical materials and products by law. For example, the government grants businesses approval and regularly and randomly inspects facilities that use and release chemicals. It also operates a website to provide information about chemicals.

Local governments need to manage blind spots in laws and policies, as well as carry out responsibilities entrusted to them by the central government. In terms of chemical management, the SMG should set policy direction, considering the characteristics of four types of chemical discharge. To better manage chemicals in consumer products, the SMG needs to provide information about harmful products and green products in a more integrated way, rather than providing each piece of information separately. To that end, the authorities need to understand the problems and limitations of the existing website and devise measures to increase citizen accessibility to information. For mid-sized and large factories that are subject to legal controls, new ordinances and follow-up measures are necessary for the SMG to effectively carry out the tasks assigned by the central government. Small factories that are not subject to legal controls and neighborhood businesses are a weak spot in the chemical control system. The SMG should analyze the current conditions of such businesses and facilities, and then provide them with professional consulting, education, and support.

### **Proposing an environmental health ordinance that reflects the socioeconomic and demographic characteristics of Seoul**

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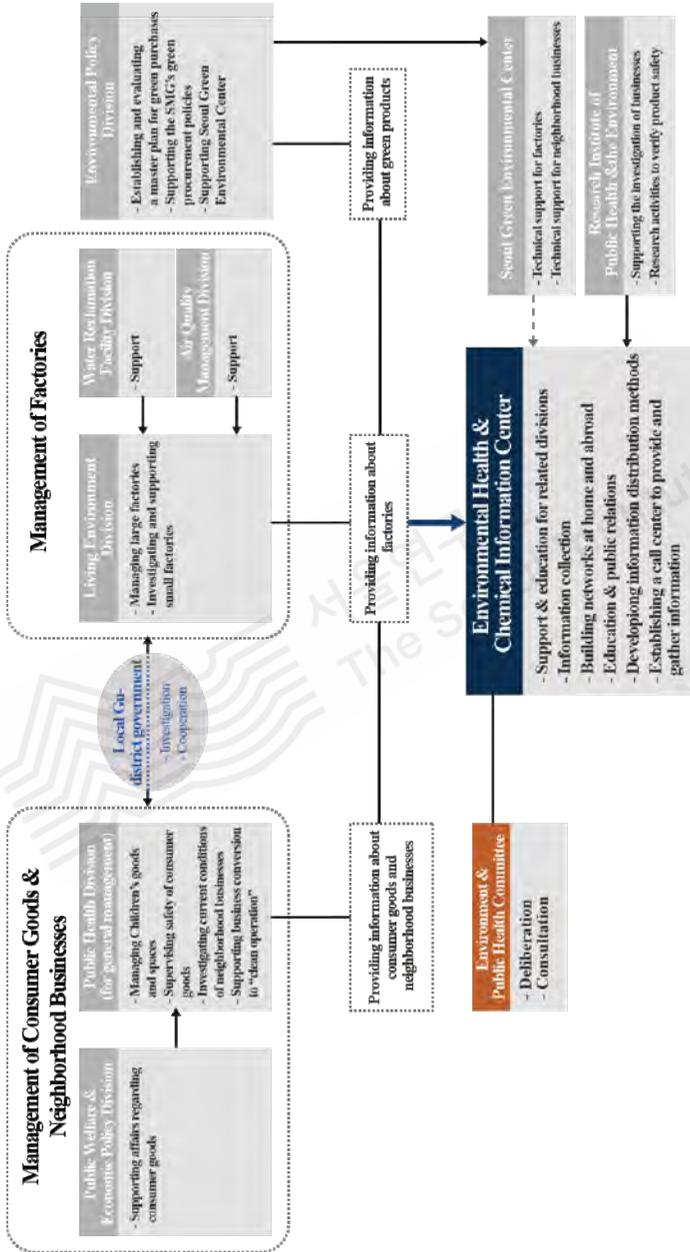
New ordinances from the SMG regarding chemical management need to reflect the characteristics of Seoul: a city with few large facilities that release chemicals, a number of small businesses and facilities, and high use of consumer products.

Legislating an environmental health ordinance that includes chemical management would be a more efficient way to deal with the issue. Therefore, this report suggests that a bill be passed that considers citizens' right to know, after reviewing other local ordinances on environmental health and chemical management. The bill should contain articles on the following: (a) securing basic data and building research material platforms for monitoring, (b) management of children's spaces and goods, (c) operation of the Environmental Health Committee, (d) establishment and operation of an Environmental Health & Chemicals Information Center for collecting and disseminating information, education, and public relations, and (e) information disclosure, education and promotional activities on citizens' right to know.

### **The SMG needs to establish an exclusive organization for chemical management**

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There should be an exclusive division within the SMG to manage hazardous chemicals. If it is impossible to create a new division in the short term, the SMG should maintain the current organizational system while placing one particular division in charge of a general management function and strengthening cooperation between the related divisions. Moreover, the SMG needs to set each division's scope of duties to avoid unnecessary redundancy. The Environmental Health & Chemical Information Center, as mentioned above, needs to collect and distribute information, and should function as an educational institute with professionals to train related divisions and communicate with citizens.



[Figure 66] Short- & Mid-term Organizational Strategy

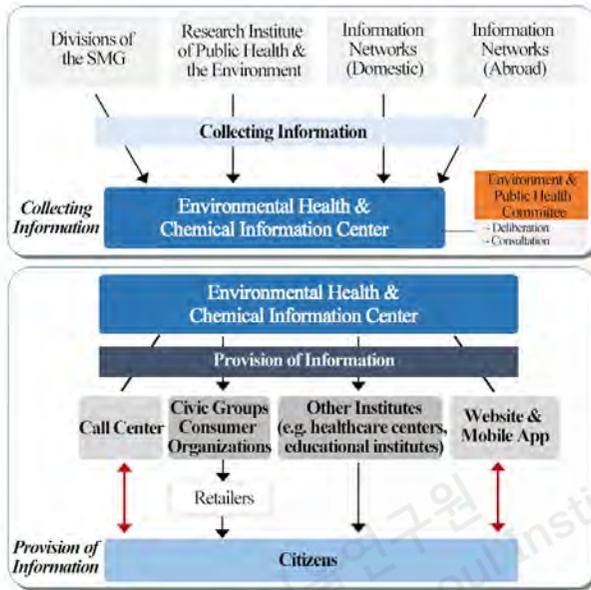
### Environmental Health & Chemical Information Center as an information hub

The Environmental Health & Chemical Information Center needs to be a hub of information collection and distribution. Related divisions and the Research Institute of Public Health & the Environment should closely cooperate with one another to produce information and verify existing knowledge through basic research and data analysis. To provide accurate information, it should be mandated that the Center hold a preliminary review session of information disclosure, such as expert reviews and deliberation/consultation with the Environment & Public Health Committee. A website, mobile application, call center and educational/promotional programs are also needed.

The Center should collaborate with civic groups and consumer organizations to promote participation by businesses. It should also distribute information through healthcare centers, educational institutes and retailers. Using tools such as a website and a mobile app, the Center should not only provide information to citizens, but also receive opinions from the public, with bilateral communication.



[Figure 67] Long-term Organizational Strategy



[Figure 68] Information Delivery System

## Activating Management for Creation of the Waterway in Seoul

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### Key Message

To create a pleasant urban environment, guidelines are needed for creation and maintenance of urban waterways.

### **Seoul is becoming drier due to the increasing size of impervious areas and increases in temperature**

The environment of Seoul has been degraded due to rapid urbanization and economic growth over the past five decades. According to data from the Seoul weather station, the annual average temperature was 11.4°C in 1970. This increased by 2.2°C to 13.6°C in 2015. The rate of increase is 2.9 times higher than the average change in the Earth's surface temperature during the period from 1880 to 2012.

Similarly, the percentage of impervious area in the city was 7.8% in 1960, increasing by 40%p to 47.7% by 2012. In particular, over 80% of the impervious area was residential areas. The increasing size of impervious area leads to a decrease in the amount of evapotranspiration, the levels of underground water, and streamflow. If urban streams dry up, this will further exacerbate the city's thermal environment. Therefore, Seoul is in urgent need of measures to create a more pleasant living environment.

### **The Seoul Metropolitan Government (SMG) has conducted urban waterway projects rather hastily, leading to a number of problems**

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Since 2008, the SMG has implemented a number of urban waterway projects using the discharged underground water. The projects were designed to improve the city's climate control capabilities and provide a more pleasant living environment. Urban waterways include natural streamlets and those constructed as part of a drainage system. By 2017, nine waterways had been completed, with 13 fountains, 3 wall fountains, 1 cascade, and 12 ponds. The total length of the waterways equals 6 km, with waterside space equivalent to 11.6km<sup>2</sup>, or about 2.3% of the total developed area (496.7km<sup>2</sup>). Thanks to these projects, about 190,000 citizens can relax and enjoy a bit of nature at the water's edge.

Unfortunately, despite its good intentions, the projects were implemented in a hasty manner, without setting or adhering to criteria for selection of locations or installation of facilities. This has led to numerous operational and maintenance problems and inconvenience. The purpose of our study is to suggest measures to improve these urban waterway projects by examining their present conditions. This report is expected to contribute to creating a more pleasant environment for citizens and improving water circulation for the city as it adapts to climate change.

### **The majority of surveyed waterway users agreed to the purpose of the projects, while roughly one-quarter expressed dissatisfaction due to poor maintenance**

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In a survey of 600 waterway users, 77% expressed satisfaction, with about 25% viewing waterways as cool places in summer and 24% viewing them as comfortable places to relax. Overall, citizens recognize the waterways as pleasant places to spend a bit of free time.

About 87% of users agreed to the purpose of the projects. Of these, 51% supported the idea of providing a place for relaxation and culture while 29% agreed

to the goal of creating a pleasant urban environment (including mitigating the “urban heat island” effect).

On the other hand, 23% of users expressed dissatisfaction, pointing to poor sanitation (34%) and odor (23%). Respondents gave relatively lower scores to items regarding operation and maintenance such as safety facilities (62 points), water quality (64 points), facility maintenance (70 points), and landscaping management (71 points). These scores are lower than the overall satisfaction score (71.1 points).



Source: The SMG, 2015, Survey on Urban Waterway Users' Experience

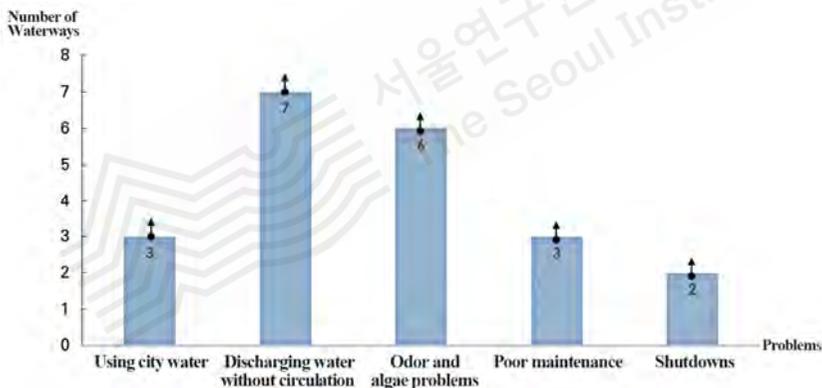
[Figure 69] Reasons for Citizen Dissatisfaction with Urban Waterways

### **As the surrounding areas are not in consideration, most waterways suffer from poor accessibility, usefulness and sustainability**

The nine waterways were created without thorough consideration of the surrounding areas. Consequently, three of them have few visitors due to the poor accessibility. Four are located in places near natural streamlets or other waterside space, where demand for them is low. The waterways were supposed to be maintained using underground water discharged from nearby subway stations. However, many are located far from any stations, which makes use of that water impossible. Some use city water while others are deserted due to the lack of water.

### **There are no standardized guidelines for creation and operation of urban waterways, which leads to poor service and problems with sanitation**

The existing waterways were created and have been operated without standardized guidelines regarding operation methods, times and appropriate workforce. Thus, they fail to provide their intended services to citizens and have multiple operational problems in terms of water quality and provision. Most waterways are maintained with city water, which is discharged into sewers or streams without circulation. Moreover, the amount of water flowing into waterways is so limited that it is easily contaminated by pollutants from the road surface, causing odor and algae problems.



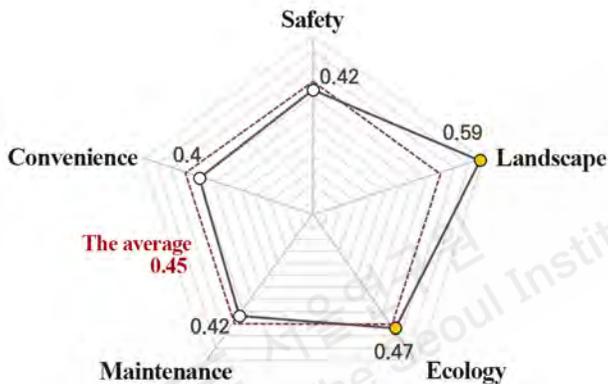
[Figure 70] Waterway Operational Problems

### **Assessing the nine waterways using five waterway planning elements**

This study developed five indicators (safety, landscape, ecology, convenience, and maintenance) for each waterway to assess it by extension unit (meter).

The landscape indicator of the nine waterways marked 0.59, higher than the median and the average (the overall index). However, the other indicators scored

below the median: safety, maintenance, and convenience were below the average, and convenience was among the lowest. The nine waterways lacked resting facilities easily accessible to citizens. Only two waterways had guideboards. Action is needed to improve the waterways so they properly fulfill their intended purpose and functions.

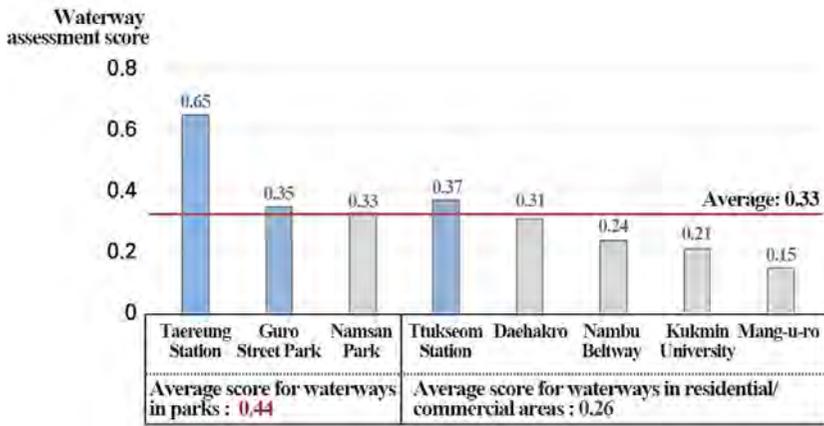


[Figure 71] Five Indicators to Assess the Nine Waterways

### The overall indices of eight waterways were below the median

Eight of the nine waterways scored below the median. Those created in parks turned out to be better than those in residential/commercial areas. This latter group was far below the average, and improvement was greatly needed. Because each type of the waterways is in different locations, has different characteristics, and different methods of implementation, improvement tasks should be carried out only after considering the local characteristics and citizens' views.

One waterway was excluded from our assessment as it failed to serve the intended purpose as a waterway, with waterscape facilities but no water channel, limited accessibility, and city water used to maintain it.



[Figure 72] Assessment Scores for the Waterways

### **Comprehensive guidelines are needed for waterways to fulfill their functions of climate control and environmental improvement**

As mentioned above, the absence of guidelines has led to a number of problems regarding waterway location and maintenance. The SMG needs to devise comprehensive guidelines to ensure that these waterways serve the public interest such as by assisting with climate control and environmental improvement. This report suggests the following basic directions:

- (i) Waterways should be created to restore water circulation and create pleasant environments.
- (ii) Waterways need to be created in accessible locations and remain constantly in service.
- (iii) An abundant amount of clean water needs to flow into each waterway. This water should be from recycled sources, such as underground water discharged from nearby subway stations.
- (iv) Waterways should function as urban artificial waterside spaces in a sustainable way.

## Guidelines for siting new waterways are needed to maximize project effectiveness

Waterways are needed in Seoul in places accessible to many citizens, places that suffer from urban environmental problems, and where a water circulation system needs to be restored. To be more specific, candidate areas need to have a minimum average daily walking population of at least 500 and an average temperature of at least 27°C from 2 p.m. to 4 p.m. in summer (June to September). At least 80% of the surface needs to be impervious and the nearby station should discharge at least 300m<sup>3</sup> of underground water on a daily basis. Moreover, there should be no other waterside space near the candidate area to prevent overlap.

[Table 23] Criteria for Waterway Candidate Areas

Purpose	Criteria	Indicators	General Standards
Climate Control	Usefulness	Walking population	Average daily floating population of 500 or more
	Environmental Value	Temperature	Average temperature of 27°C or higher from 2 p.m. to 4 p.m. in summer (June to September)
		Percentage of impervious area	At least 80% of the surface
	Water Circulation	Amount of underground water discharged from nearby station	The nearby station should discharge at least 300m <sup>3</sup> of underground water daily.

We have established guidelines for installation and maintenance of waterways, considering their environmental value, safety, convenience and sustainability. The guidelines include general standards for sustainable maintenance of the waterways as well as optional standards regarding the purpose for installation, location, size, and form, depending on local characteristics. The suggested guidelines can be seen in the following [Table 24].

[Table 24] Guidelines for Installation &amp; Maintenance of Waterways

Purpose	Criteria	Indicators	General Standards	Optional Standards
Environmental Value	Landscape	Waterscape facilities	<ul style="list-style-type: none"> <li>• 0.01 facilities per extension unit (m)</li> <li>• 10 facilities per km</li> </ul>	Considering demand and available funds
		Form of waterway	<ul style="list-style-type: none"> <li>• Curvy waterway considering ecology and landscape</li> </ul>	Within the range that does not invade pedestrian passage
	Ecology	Riparian vegetation	<ul style="list-style-type: none"> <li>• 0.31m<sup>2</sup> per extension unit (m)</li> <li>• 310m<sup>2</sup> per km</li> </ul>	Depending on the waterway form
		Aquatic vegetation	<ul style="list-style-type: none"> <li>• 0.1m<sup>2</sup> per extension unit (m)</li> <li>• 100m<sup>2</sup> per km</li> </ul>	Depending on the waterway form
Safety & Convenience	Pedestrian safety	Pedestrian safety at night	<ul style="list-style-type: none"> <li>• 0.05 lighting facilities per extension unit (m)</li> <li>• 50 lighting facilities per km</li> </ul>	-
		Pedestrian convenience & pedestrian safety in case of rain	<ul style="list-style-type: none"> <li>• Width of pedestrian passage should be 5m</li> <li>• Rainwater drainage facilities</li> </ul>	-
	User convenience	Signboards	<ul style="list-style-type: none"> <li>• 0.002 facilities per extension unit (m)</li> <li>• 2 facilities per km</li> </ul>	-
		Resting facilities	<ul style="list-style-type: none"> <li>• 0.03 facilities per extension unit (m)</li> <li>• 30 facilities per km</li> </ul>	-
Sustainability	Water quality & water resource for maintenance	Methods of water quality management	<ul style="list-style-type: none"> <li>• Installing pollution control facilities, depending on use type and functions</li> </ul>	-
		Water quality management	<ul style="list-style-type: none"> <li>• BOD 5mg/L</li> </ul>	<ul style="list-style-type: none"> <li>-For a swimmable waterway: 3mg/L</li> <li>-For non-swimmable waterway: 5mg/L</li> </ul>
		Amount of water resource for maintenance	<ul style="list-style-type: none"> <li>• At least 350m<sup>2</sup> per day</li> </ul>	-

Purpose	Criteria	Indicators	General Standards	Optional Standards
	Cleaning & maintenance	Maintenance workforce	<ul style="list-style-type: none"> <li>• 0.01 persons per extension unit (m)</li> <li>• 10 persons per km</li> </ul>	-
		Cleaning	<ul style="list-style-type: none"> <li>• At least once a month</li> </ul>	<ul style="list-style-type: none"> <li>-For waterways in residential/commercial areas: 7 times a month</li> <li>-For waterways in parks: once a month</li> </ul>
	Management system	Direct management	<ul style="list-style-type: none"> <li>• Flexible arrangement of workforce for maintenance, provision of information, and emergencies</li> <li>• Management ledger</li> </ul>	Considering demand and possibilities of emergencies
		Indirect management	<ul style="list-style-type: none"> <li>• Consignment contract with specialized maintenance service firms</li> <li>• Regular assessment of contractors</li> </ul>	Allowing local residents and civic groups to participate in monitoring and management

### **Thirteen candidate areas for new waterways were selected according to these guidelines and for this report**

We selected 13 candidate areas according to our guidelines. The areas fulfill the necessary conditions: usefulness (an average daily floating population of 500 or more), environmental value (average temperature of 27°C from 2 p.m. to 4 p.m. in summer and 80% of the surface is impervious), and sustainability (at least 300m<sup>3</sup> of underground water discharged from the nearby station). The total area of these candidate waterways in Seoul is 15.2km<sup>2</sup>. About 300,000 people will be able to enjoy these waterside spaces. New waterways will contribute to improving the urban environment, fulfilling demand, and restoring the city's water circulation system with reused water resources.



[Figure 73] Thirteen Candidate Areas Meeting Suggested Guidelines

To sum up, there are three tasks needed to solve the problems of the existing nine waterways: (a) Establish guidelines for creation and maintenance of waterways to ensure sustainability, (b) Select candidate areas according to the guidelines, considering demand, and (c) Calculate the costs of construction and maintenance to ensure reasonable budget allocations.

The guidelines suggested in this report are expected to contribute to managing high temperatures, fulfilling the demand for enjoyable waterside space, and creating a more pleasant urban environment.

## A Study on Urban Safety Indicators for Seoul

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### Key Message

The Seoul Metropolitan Government (SMG) needs to develop urban safety indicators customized for the city to understand the current status of urban safety and develop effective safety policies.

### **The current Seoul Urban Safety Indicators tend to give too much emphasis on specific risks and safety management**

Urban Safety Indicators represent a variety of information about urban risks, a city's safety management activities, and any changes in conditions. These indicators serve a crucial role in helping the authorities establish and assess their safety policies, as well as provide relevant information to citizens that raises their awareness and understanding of safety.

The indicators used in urban planning in Seoul include the risks of both natural and man-made disasters. However, the indicators tend to be concentrated on safety management and specific risks, and lack comprehensiveness, making their representative nature questionable. The current system is comprised of fragmentary input and output indicators that are limited in their usefulness for the SMG's key policies and projects. If policy priorities are changed or the projects are completed, such indicators will likely become obsolete. The current indicator system includes only a few outcome indicators, making it difficult for the SMG to establish goal-oriented policies. Due to the lack of subjective indicators that represent citizens' awareness of safety, the authorities have trouble reflecting the views of

those citizens in their policies. The data provided for measurement are insufficient, less accurate, and less up-to-date. Even though the Seoul Survey and the Seoul Statistical Information System have provided periodic statistical data on urban safety, the city has no consistent indicator management system.

### **Urban Safety Indicators from the central government cannot fully reflect the unique features of Seoul's urban safety**

Several central government agencies use indicator systems to compare levels of urban safety in the major cities of Korea. Such systems cannot fully reflect the urban safety features unique to Seoul. For example, the Ministry of Public Safety and Security operates the Local Safety Index, where city and region safety levels are expressed as comprehensive indices by field, with detailed indicators developed from a national point of view. This means the indicators fail to fully reflect the characteristics of disasters and accidents that more frequently occur in Seoul. Revising the indicators is necessary if they are to become more useful for assessing the city's safety level. For example, the indicators should be based on the size of built-up areas, not population, as is the present situation.

The Ministry of Land, Infrastructure and Transport provides analysis of vulnerability to natural disasters with Census Output Area (OA) as a unit. Despite such a small spatial unit, the analytic results are not necessarily accurate or precise. The analytical method needs to be improved on if better urban planning is the goal.

Other urban safety indicators used by the Ministry of Land, Infrastructure and Transport include those regarding natural disasters and crime. However, they are still insufficient to capture various other aspects of urban safety.

This study reviewed a variety of urban safety indicator systems at home and abroad. We suggest measures to build an urban safety indicator system suitable for Seoul as well as to make better use of the system in the city's safety management policies.

### **Urban Safety Indicators in foreign mega cities include concrete indicators such as risk indices**

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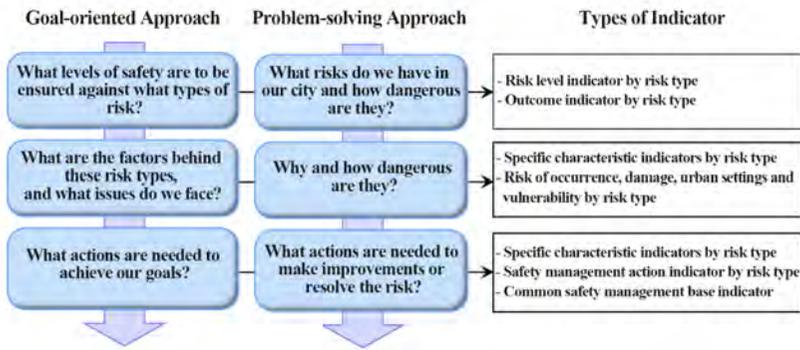
International organizations' urban safety indicators used to compare mega cities across the world include a wide variety of those related to health, poverty, national security, terrorism, and cyber security. However, in cities where urban safety indicators are part of a comprehensive city evaluation system, only two to five safety indicators are included. These are not enough to assess the safety level of a city and in most cases are not applicable to Seoul. In addition, most of the urban safety indicators used by international organizations are qualitative, making operational definition and measurement of the indicators difficult.

Foreign mega cities have developed detailed and concrete urban safety indicators to enhance urban safety policy, including risk indices and the capacity to respond to accidents and disasters. For example, New York City publishes the annual PlaNYC Progress Report, which includes indicators on the resilience of urban space (land use, construction, and infrastructure) to natural disasters. London runs a program called the London Community Risk Register to assess the risk of natural and man-made disasters on a regular basis. Tokyo has also developed a risk index for earthquakes to evaluate its capability to deal with such disasters every five years.

### **The SMG needs to develop an indicator system that is goal-oriented and problem-solving, and that reflects the specific risks Seoul faces**

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An urban safety indicator system needs to be comprehensive, structural, and reflective of the types of risk found in Seoul. The SMG needs to design the system and detailed indicators to be goal-oriented and problem-solving. First, it must clearly define the goal of enhancing urban safety and tasks the city needs to accomplish in a step-by-step manner. Then indicators that best represent the issues and questions at each stage should be designed to achieve that goal.



[Figure 74] Goal-oriented, Problem-solving Approaches to Developing Urban Safety Indicators

To ensure sustainability and consistency, the indicators need to be applicable even with passage of time. A standardized assessment method should also be determined. In addition, more subjective output and outcome indicators that reflect the views of both citizens and policy makers are needed. The current urban safety indicators used by the SMG are mostly short-term, fragmentary input and output indicators, reflecting only the views of administrative personnel and agencies. The SMG also needs to develop its own index of risk that measures those relevant to Seoul.

### **There are 90 basic Urban Safety Indicators in total, including both subjective and objective items**

Towards preparation of urban safety indicators suitable for Seoul, we reviewed urban safety plans, projects, and cases from both Korea and abroad. Through consultations with experts, we selected tentative indicators and examined qualitative requirements of those indicators. We analyzed the characteristics of accidents and disasters that had occurred in Seoul, public awareness of urban safety, urban settings and the prospects for change.

As a result, 90 basic urban safety indicators were selected, consisting of subjective and objective items. The objective items are comprised of indicators in five risk categories (natural disasters, man-made disasters, transportation safety, safety in daily life, and safety from crime) and a safety management infrastructure. These objective indicators deal with potential for occurrence & damage from each type of accident and disasters, urban settings & vulnerability, safety countermeasures, and risk levels. The safety management infrastructure indicators are applicable to any risk category, indicating disaster control, resident participation & administrative capacity, and administrative capacity & support.

The subjective items are indicators regarding public awareness of urban safety. They measure the public's awareness of risk, priorities in terms of risk, satisfaction with safety management, and priorities by safety management area (prevention/reaction).

[Table 25] Seoul Urban Safety Indicators

Natural Disaster Indicators	
Potential for Occurrence & Damage	Damage caused by natural disaster
	Cost of recovering from natural disaster
	Number of fatalities from natural disaster
	Number of injured from natural disaster
	Number of houses damaged by flooding
	Surface area stricken by flooding
Urban Settings & Vulnerability	Number of persons suffering from thermal conditions
	Number of special weather reports
	Number of flood forecasts
	Amount and intensity of rainfall
	Number of heat wave days
	Number of nights with temperature exceeding 25°C
	Amount of snowfall
	Size of low-rise built-up areas
	Size of built-up areas on slopes
	Percentage of impervious area
	Extension of design frequency of sewer pipes
	Number of facilities for river stage measurement
Number of facilities for measurement of sewer system levels	
Man-made Disaster Indicators	
Potential for Occurrence & Damage	Number of man-made disasters
	Number of casualties from man-made disasters

	Damage caused by man-made disasters
	Number of accidents involving dangerous substances
Urban Settings & Vulnerability	Number of specific fire-fighting objects
	Number of publicly-used establishments
	Number of vulnerable residential units
	Level of structural deterioration
	Level of deterioration by type of facility
	Number of specifically-managed facilities vulnerable to disaster
	Level of earthquake-proof performance
	Number of high-rise buildings (taller than 120m) and super high-rise buildings (taller than 200m)
	Depth distribution of underground space
	Number of dangerous facilities
	Number of fire water facilities
Transportation Safety Indicators	
Potential for Occurrence & Damage	Number of traffic accidents
	Number of casualties from traffic accidents
	Number of traffic accidents involving pedestrians
	Number of casualties from traffic accidents involving pedestrians
	Number of traffic accidents involving two-wheeled vehicles
	Transportation safety index (Korea Road Traffic Authority)
	Transportation culture index (Korea Transportation Safety Authority)
Urban Settings & Vulnerability	Road length & road ratio
	Number of registered vehicles
	Number of Child Protection Zones
	Number of Senior Citizen Protection Zones
Safety in Daily Life Indicators	
Potential for Occurrence & Damage	Number of accidents in daily life
	Number of casualties from accidents in daily life
	Number of food poisoning cases
	Number of persons admitted to hospital for food poisoning
	Number of persons with infectious diseases
	Number of fatalities from infectious disease
	Number of suicides
Urban Settings & Vulnerability	Number of food hygiene violations by businesses
	Number of medical personnel in medical agencies
	Number of beds in hospitals
Crime & Safety Indicators	
Potential for Occurrence & Damage	Number of five specific crimes committed (homicide, robbery, rape or sexual assault, other violence, theft)
	Number of cases of domestic violence
	Number of crimes committed by foreigners

Urban Settings & Vulnerability	Number of adult entertainment establishments
	Number of CCTVs placed to prevent crime
	Number of police officers
	Number of police substations and patrol units
	Average time required to arrive at a crime scene
	Number of members in neighborhood watch groups
Safety Management Infrastructure Indicators	
Disaster Control	Number of emergency services provided
	Number of people rescued by paramedics
	Number of emergency cases where paramedics were dispatched
	Number of cases and patients transported by paramedics
	Number of people using emergency services per 10,000 persons
	Number of cases where firefighters arriving at the scene within 5 minutes
	Number of cases where Life Safety Services officers arriving at the scene within 5 minutes
	Number of paramedics arriving at the scene within 5 minutes
	Number of CPR dummies retained
Resident Participation & Administrative Capacity	Number of participants in citizen safety training
	Number of individuals completing first aid training
	Number of Citizen Safety Guards
	Number of participants in daily life safety governance
	Number of Civil Defense Corps members
	Total budgeted funds related to urban safety
Citizen Awareness Indicators (subjective)	
Public awareness of risk	Level of public awareness of urban risks
	Level of public awareness of change in urban risks
	Level of fear of crime
	Public awareness of risk in the urban environment
	Risks to family safety
Risk priorities	Priorities in terms of urban safety
	Priorities by risk type
Satisfaction over safety management	Level of satisfaction over administrative agencies' safety management activities and initiatives
Priorities in terms of safety management	Priorities in terms of safety management activities
	Priorities by safety management area (prevention/reaction)

### **Seoul needs its own Risk Index that reflects its unique circumstances and assists in development of city-specific policies**

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A risk index is a composite list that represents the probabilities of specific risks and their future consequences. The estimation process can be much more complicated than the Seoul Urban Safety Indicators proposed above, depending on the intended purposes and methods.

In the short term, the SMG can refer to the risk indices of other cities at home and abroad. In the long term, however, it needs to develop a risk index that is customized to the city's specific circumstances for greater utility in designing effective safety policies. If the SMG intends to develop a new risk index, it will, in fact, need two indices: one to support safety management policy and one for comparing itself with other cities. Priority should be given to the former.

Risk assessment models and methods can vary by type of disaster or accident that Seoul is actually vulnerable to, including storms and flooding, collapse of facilities and structures, fire, traffic accidents, and crime.

It is important to note that a risk index is useful to determine the overall level of existing risk of specific accidents and disasters while it is difficult to examine the concrete causes and characteristics. To compensate for this, a risk index needs to be presented along with individual elements of risk.

### **Case 1: Of large cities in Korea, Seoul has the highest rates of man-made disasters and crime**

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We used the indicators detailed above to compare natural disasters, man-made disasters, accidents and the aforementioned five specific crimes that occurred in seven of Korea's largest cities (Seoul, Busan, Daegu, Incheon, Gwangju, Daejeon, and Ulsan). In terms of natural disasters, Seoul had larger numbers of dead and injured people from flooding in 2010 and 2011 than other cities, while the amount of damage and the cost of recovery were relatively small.

In terms of man-made disasters and accidents, Seoul ranked in the middle or near the bottom when assessed per 100,000 persons, but ranked highest when assessed per square kilometer of built-up area. Specifically, Seoul recorded the most train and subway accidents, collapses, and waterborne disasters (e.g. drowning), and the related fatalities of the seven cities.

The five specific crimes (homicide, robbery, rape or sexual assault, other violence, and theft) were committed most often in Seoul when assessed per square kilometer of built-up area. Seoul had the dubious distinction of ranking top for rape or sexual assault, and ranked second highest for violence.

It is noteworthy that, because Seoul has a higher population density than any other Korean city, there should be a huge gap in results depending on whether the assessment was based on population or the size of built-up area. In addition, when comparing autonomous *Gu*<sup>21</sup>-districts in Seoul, it is important to consider that the results can be overrepresented or underrepresented depending on the location (city center or residential areas).

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<sup>21</sup> "*Gu*" is an administrative unit (district) in Korean cities. There are 25 *Gu*-districts in Seoul, with the head of a *Gu* popularly elected every four years by local residents.

## **Case 2: Seoul has higher rates of traffic-related fatalities than foreign mega cities**

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We compared Seoul's indicators regarding traffic accidents and the five crimes to those of Tokyo, Singapore, New York, Los Angeles, London, and Paris. In terms of traffic accidents, Seoul was positioned in the middle in the number of cases, but ranked highest in death rates and among the highest in the injured. This means that reducing fatality rates due to traffic accidents should be a policy priority for the SMG.

In terms of the five crimes, Seoul had lower-end and mid-level ranking in crime rate when compared to the foreign mega cities, which entitled Seoul to the labeling as a relatively "safe" city. Still, rape, sexual assault and other forms of violence occurred rather frequently. However, there are differences between countries in extent and data collection methods. This means that much attention is needed to thoroughly examine the indicators for more accurate analysis.

## **Urban safety indicators should be utilized to regularly monitor urban safety and related information should be provided to the public**

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Urban safety indicators can be utilized for several purposes: (a) to analyze a city's urban safety and identify problems with which the city struggles, (b) to provide support to establishing urban safety goals and plans, (c) to provide a logical basis for determining investment and budget allocation priorities for urban safety, (d) to monitor and assess the city's safety, and (e) to provide information on urban safety to citizens.

Given that the relevant statistics are updated every year, identification of urban safety should be done on an annual basis to allow the authorities to keep track of safety levels. However, risk indices and subjective indicators may be updated every two to five years considering that they require analysis of enormous amounts of data and additional surveys. A comprehensive analysis of indicators should be done every two to five years and a report published.

### **The SMG needs to improve and regularly update its database on urban safety**

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The existing database on urban safety should be incorporated in or shared with the integrated urban safety database. The data should be accurate, consistent and up-to-date. Individual materials and data on urban safety retained by different administrative departments need to be annually collected and transferred to the general office that manages urban safety affairs. The office should build and update the database on a regular basis.

The statistical data used in designing urban safety indicators should be secured in quantity while data quality in terms of such things as accuracy, consistency, completeness, validity, and timeliness, needs to be ensured. Specifically, there is insufficient data on man-made disasters and accidents, requiring official efforts to secure adequate data of suitable quality.

### **The SMG needs to strive to strengthen the legal basis for urban safety**

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A law regarding urban safety statistics and indicators and the SMG's ordinance on the Management of Disasters and Safety were recently revised. The SMG needs to place more emphasis on "safety" rather than "disaster", when revising related ordinances. Moreover, in terms of statistical data, it should build an urban safety information system, a data-sharing system between administrative departments, and an information disclosure scheme for the general public.

To increase the effectiveness of urban safety indicators and the risk index, the SMG needs to insert additional articles in its ordinances, on such topics as development and operation of indicators and indices, related agencies' provision of urban safety data, and entrusting monitoring and other indicator-related tasks to research institutes. To that end, a research project to plan for such an initiative should be conducted.

## A Study of Conservation Plan of Farmland in Seoul

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### Key Message

An information database on urban farmland needs to be established so that the authorities can provide better support to farmers and improve the agricultural infrastructure.

### **Despite benefits in urban farming, farmland in Seoul has been increasingly diverted to different uses**

With the concept of a quality life changing as time goes by, more attention is paid to urban farming, which provides ecological benefits as well as leisure. However, most farmlands in urban areas were converted into commercial or residential land lots due to the large scale of development. Farmlands provide various benefits including food provision, healthy ecological environment and disaster prevention. Despite such benefits, the land prices are relatively low than other land lots, which is why it can provide higher economic benefits when developed. Because the area of farmlands tends to be large in general, farmland lots are suitable for large-scale development. Therefore, farmlands in urban areas have been frequently converted to lots for either commercial or housing purposes. Seoul has lost wider areas of farmlands than any other city in Korea, which is why the Seoul Metropolitan Government (SMG) needs to make efforts to protect the remaining farmland.

The purpose of this study is to propose protection measures of urban farmland, the social demand for which has been on the rise.

**Farmland in Seoul, recording 480 hectares by 2014, decreased by 93% for 39 years, the highest decreasing rate across the nation**

According to the annual data on farmland area provided by Statistics Korea, the total farmland of the country was about 2.24 million hectare (ha) in 1975, decreasing by 24.5% to 1.69 million ha by 2014. During the same period, farmland in Seoul decreased by 93.1% from 6,922ha to 480ha. This was because most farmland was converted into housing lots or urban planning facilities.

[Table 26] Change in Farmland Area

(UNIT: ha)

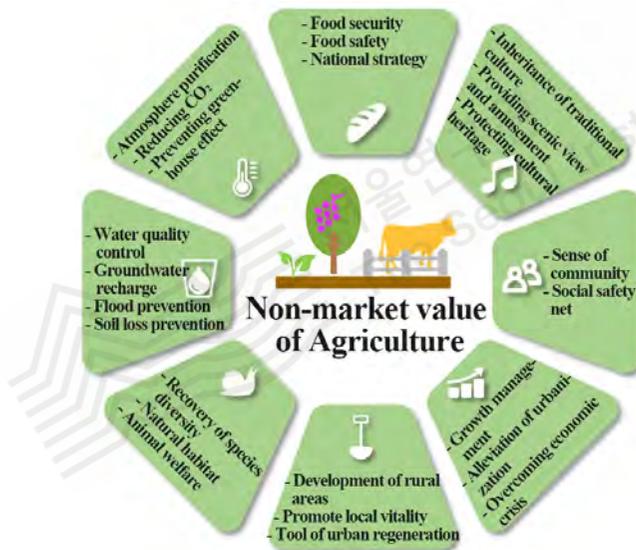
Region	1975	2014	Change	Change Rate
Nationwide	2,239,692	1,691,113	-548,579	-24.5%
Seoul	6,922	480	-6,442	-93.1%
Gyeonggi-Province	300,267	176,028	-124,239	-41.4%
Non-metropolitan areas	1,932,504	1,494,505	-437,999	-22.7%

Source: Statistics Korea, Farmland Area Data (2014)

Seoul has experienced population increase since the 1950s. Large manufacturing sector infrastructure is most concentrated in the city. This is why Seoul needs more land lots for residence, production and service facilities rather than farmland. Moreover, weak competitiveness of agriculture resulted in decreasing incomes of farmers and aging farming population, all of which accelerates diversion of farmland. Specifically, because the overall land prices of Seoul are higher than in other cities, agricultural environment is poor, and it is difficult to secure a certain size of farmland. Various efforts need to be made to protect farmlands.

## Farmland has characteristics as both private and public goods

Generally, a farmland tends to produce both market and non-market value, having characteristics of private as well as public properties. Agricultural products from the farmland create economic value. In this process, farmland provides a wide variety of environmental services such protecting quality of air and water and prevention of loss of flood and soil. Moreover, it creates positive external effects including inheritance of traditional culture and developing community spirit.



[Figure 75] Positive Functions of Farmland

However, the general perception of agriculture tends to be limited only to the economic value of products. The positive side effects of agriculture are often regarded to be irrelevant and are not fully acknowledged by the public. Recently, however, there has been a more vocal appreciation of the public functions of agriculture and the need to provide fair compensation for the public benefits it provides. Some even argue that the government needs to play a leading role in

compensating the public role of urban farming because the positive functions provided by agriculture cannot be created by the market. The benefits and value of agriculture provide enough reason for preserving farmland in urban areas.

### **Under the current law, it is difficult to preserve farmland in urban areas but relatively easy to divert land use**

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There are some legal factors that make it difficult to manage farmland in urban areas.

Firstly, by law, the purposes of land are determined by a zoning system. Thus, farmland can be located in a residential area, a commercial area, an industrial area, a scenic district, a conservation district, or a settlement district. The zoning system has more priority under the law as far as land management is concerned, which makes it difficult to manage farmlands scattered across various zones in a comprehensive manner.

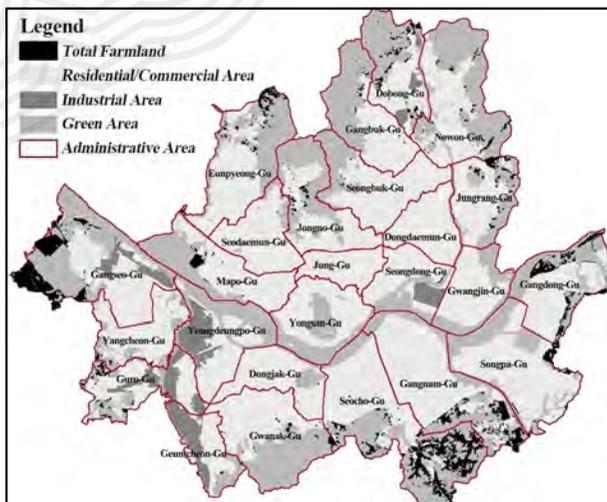
Secondly, the law mandates an urban master plan. In nature, the master plan has a limit to anticipate future changes of the city and therefore, predicts excessive demand for residential and commercial lots. Consequently, farmland lots are easily diverted for such purposes. An established urban master plan is difficult to change, which makes it difficult to respond to social and economic changes quickly.

Thirdly, the current law regarding farmland protection focuses on superior farmland in rural areas and is therefore inappropriate for preserving small urban farmland. Moreover, under the name of efficient farmland use, requirements for converting farmland were simplified and the extent of diversion was expanded.

### Characteristics of farmland in Seoul can be analyzed according to land category, specific-use area, and current status of land use

To analyze the characteristics of farmland in Seoul, we investigated whether the land was designated as a development restriction zone or as an urban development and planning zone. Based on land area and the number of land lots, detailed information about farmland was also reviewed. Firstly, biotope analysis was employed to examine agricultural competitiveness of farmland, measuring the degree of public functions and necessity of preservation of the land. Site investigations and interviews were also conducted.

According to the data from the Ministry of Land, Infrastructure and Transport, the farmland area of Seoul was about 1,580ha (with a total number of 15,082 land lots), most of which were green areas (about 1,440ha, 91.9%) and in the greenbelt zone (about 1,255ha, 79.4%). It can be concluded that the existing farmland in Seoul can be naturally preserved as long as there is no urban development project or implementation of urban planning facilities.



[Figure 76] Farmland in Seoul by specific-use area

Mostly, the size of each lot was smaller than 0.1ha, which is utilized as a field. The vast majority of the farmlands for rice fields in Seoul was converted or disappeared during the housing land development in the 1970s and 1980s. The remaining farmland exists in a scattered form and lies across the outskirts of Seoul. Most of the development restriction zones are designated in the mountain areas on the periphery of Seoul. Therefore, it is only natural that dry field farming is more common than rice farming.

The average price of farmland is about KRW 330,000 per square meter, which is not affordable for most farmers. By law, a farmer needs to cultivate at least 1,000m<sup>2</sup> of field to receive subsidies. Therefore, it would be difficult for most farmers in Seoul to own their farmland because of the high prices.

### **Farmland in Seoul can be utilized for various purposes such as a farming experience program**

The analysis reveals that most farmland in Seoul experienced price hikes due to development pressure, leading to low agricultural competitiveness and making it difficult for farmers to own their farmland. Based on the results of investigating agricultural conditions of the farmland, it can be assumed that there are more farmers who rent farmland than those who own the land. Except a few areas, small-sized lots are scattered across the city, which makes large-scale farming almost impossible. Farming in Seoul is an activity for pastime as well as for livelihood. Most of the farmland is located on the hillsides, which is why dry-field farming is common.

Moreover, a number of farming households cannot receive governmental supports because they do not fit into the criteria of subsidies. Otherwise, they illegally occupy or lease the farmland. Another problem of farming households in Seoul is that they have no place to sell their products. Farmers who produce small amounts of agricultural products tend to sell them on the street. Even those who

produce crops in a large scale have difficulty in reaching out to consumers.

On the other hand, some of the farmlands appear valuable for educational or leisure purposes because they are located near residential areas and educational facilities. In addition, most of the existing farmlands have a sound ecological environment, which houses endangered species. We could confirm that despite inferior agricultural environment, farmland in Seoul has potential to be competitive through organic farming, thanks to its superior natural environment. Moreover, it can provide public good, such as green spaces in urban settings.

### **Farmland preservation policies should be implemented step by step, in consideration of its urgency and linkages with other relevant policies**

There are four obstacles to farmland preservation in Seoul. Firstly, the current law and institutions do not reflect urban conditions and place emphasis on superior farmland in rural areas. Secondly, the standards of farmland management are unclear. The current zoning system assigns multiple purposes to land and, therefore, impedes consistent management and preservation of farmland. As small farmland lots in different specific-use zones are managed by different authorities, it is also difficult to establish a comprehensive farmland managing policy. Thirdly, agricultural competitiveness of urban farming is weak. The farmland prices in Seoul are unaffordable for farmers. The majority of farming households are low-income families. If their livelihood becomes worse, they are more likely to give up farming, leading to loss of farmland. Farmland preservation is also hampered by insufficient support policies for urban agricultural environment. The market for small-scale farmers is underdeveloped, making it difficult to trade agricultural products. Absence of technological support is also a problem that hinders urban farmers from improving their competitiveness.

The major purpose of farmland preservation is to sustain the land use for agriculture. To achieve this purpose, it is imperative to improve the economic status

of the farming households. Specifically, the current system from which most of the urban farmers do not receive any help should be overhauled. It would be socially beneficial to compensate farmers who provide public good through agricultural activities.

Policies for farmland preservation should be implemented step by step, considering the urgency of the matter, feasibility of the measures undertaken and the linkages with other relevant policies. The policies should be developed with both short-term and long-term measures.

The first short-term measure is to establish a comprehensive information system that can provide current status of farmland and agricultural activities in Seoul. Such information would provide a solid base for a more efficient support for farm households.

Secondly, it is imperative to provide financial support for farmers who rent the farmlands. Given that the main purpose of farmland conservation is to use the land for agricultural activities, it is absolutely necessary to improve the living conditions and competitiveness of farmers in Seoul.

Thirdly, there should be more agricultural infrastructure to increase productivity. As most farmlands in Seoul are located on mountainsides with a gentle slope, water supply for agricultural use is unstable. Currently, water is drawn from the mountain streams but the supply is unstable, especially during the dry season.

Finally, a distribution network for agricultural products from small farmland lots needs to be established. Most farmland lots in Seoul are small-sized and the number of products is also small, which makes it difficult for most farmers in Seoul to find distributional channels. The SMG needs to provide commercial venues for such agricultural products and publicize them, thereby connecting producers and consumers.

There are long-term measures as follows: firstly, a farmland (agriculture) policy committee should be organized. The issue of farmland needs to be seen as an agenda for the agriculture industry and must not be limited as an issue of land. Expertise in various fields should be gathered to devise a policy that would cover the areas of

administration, crops, agricultural production, agro-business management and economic status of farming households.

Secondly, farmland management law needs to be revised to reflect the current reality. For example, farmland leasing is prohibited under the current law that mandates that farmland should be owned only by a person who uses it for his own agricultural management. Given that farmland leasing is inevitable in reality, an exception clause should be added to allow leasing, albeit with thorough rules and principles. Moreover, the qualifications for becoming eligible for government subsidies need to be improved. In addition to the size of farmland lots, additional criteria like farming methods, farming periods and locations of farmland should be included when selecting the beneficiaries. By doing so, the SMG can more efficiently provide compensation for farmers, who have been providing social benefits. The SMG also needs to enact municipal ordinances to support a wide variety of farmers to promote urban agriculture.



서울연구원  
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## 06 Urban Planning

### Affordable Rented Housing Strategies in Seoul

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#### Key Message

Strategies for affordable rental housing need to aim at fulfilling the older generation's desire to earn income with their properties as well as guaranteeing housing stability for the younger generation. To that end, a housing policy that promotes cross-generational integration is needed.

#### **Strategies for affordable rental housing need to consider the national environment of low growth, low fertility, and population aging**

During the period of rapid economic growth, Korea seemed able to effectively respond to housing demand caused by rapid urbanization and population growth. Many problems accompanied this however, such as high housing prices, a volatile housing market, and weak policies on housing welfare. The younger generation today suffers from the aforementioned housing problems in the midst of a sluggish economy, low fertility, and population aging, while the older generation, the home owners, wants to use its assets as a stable source of income. This report suggests affordability strategies to respond effectively to these challenges.

## Seoul has quantitatively expanded available housing since the late 1980s, but quality has not kept pace

The quantitative limitations of housing in Seoul have greatly improved: the housing inventory in 2015 increased 2.3 times over 1990; actual diffusion ratio of housing is estimated to exceed 100%. Still, this has not been enough, considering that much is aging, substandard housing, and that Seoul is becoming home to an increasing number of foreigners. The number of dwellings per 1,000 persons is lower than other metropolitan cities in advanced countries.

The price-to-income ratio (PIR) is 11.2, which means that the average citizen of Seoul has to save his entire income for 11 years to buy housing. The rent-to-income ratio (RIR) is currently 18.4%, but if *Jeonse*<sup>22</sup> lease contracts are converted to monthly rent, that number will soar to 29.4%. Tenants are poised to face a greater cost-of-housing burden in the future.

The percentage of households living in substandard dwellings was 7.1% in 2014, which is among the highest in the country. If the housing standards regarding building structure, safety, and hygiene were strictly enforced, this number would be even higher. The number of households living in non-dwellings<sup>23</sup> increased from 71,000 in 2005 to 129,000 in 2010 and to 194,000 in 2015. With “officetels<sup>24</sup>” excluded from non-dwellings, the number increased more than six-fold from 12,000 in 2005 to 79,000 in 2015.

<sup>22</sup> *Jeonse* is a type of housing/building lease in Korea, in which the lease contract states the lessee should pay the lessor around 60~70 percent of the real estate price as a lump sum deposit. The lessor then can invest the deposit for yield. The lessee does not pay monthly rent and can receive the deposit money back once the contract expires and the lessee chooses to move out (which is usually after two years).

<sup>23</sup> Types of non-dwellings include officetels, motels, hotels, greenhouses, dormitories, religious facilities, and PC rooms.

<sup>24</sup> An “officetel” is a South Korean typology, a variation on the live-work unit that brings together small, affordable studio-type apartments with communal facilities and work spaces. It is considered a non-dwelling.

Recently, sale prices of dwellings in Seoul have stabilized while *Jeonse* prices are soaring. This is natural because *Jeonse* is only realistic in an environment where the real estate value goes up with high interest rates. However, low interest rates, especially since the 2008 financial crisis, have caused many owners to convert their *Jeonse* contracts to monthly rent while many are still eager for places offering *Jeonse*. Seoul is very likely to face a new housing shortage in the near future. Even though the quantitative problem in housing has been somewhat resolved, soaring rents may result in a shortage of affordable housing. It is therefore an important policy agenda to relieve the cost-of-housing burden for tenants living in private rental housing.

### **The older generation fears housing price declines while the younger generation suffers from housing instability**

Currently, 61% of people aged 55 and older are homeowners. Real estate accounts for 77% of their total assets. They want to use their properties as a stable source of income after retirement. Given the low interest rate environment and a stagnant real estate market, they fear housing price declines, and therefore prefer charging monthly rent rather than *Jeonse* so that they can secure a stable rent income. On the other hand, the younger generation is suffering from the worst unemployment in recent Korean history and employment instability as well as the increasing lack of affordable housing and other related problems. In many cases, young Koreans give up buying their own homes because they cannot afford the high prices. About 86% of people aged 34 and younger are tenants. Therefore, there is a pressing need for policy that can integrate the generations, in addition to a housing policy based on income and asset levels.

The authorities need to utilize the older generation's assets to provide affordable housing for the younger generation. That is, the government, public agencies or NGOs would lease the older generation's assets to sublease to younger people at

affordable prices. Moreover, the government needs to provide incentives to owners of private rental housing to stabilize rents.

**A new housing policy that promotes cross-generational integration is needed to respond to low growth, low fertility and population aging**

In a slumping economy, housing welfare policy needs to be strengthened, which is related to decommodification of housing. As more landlords convert to monthly rent due to the sluggish economy, the cost of housing on the younger generation and low-income groups is rapidly increasing. This makes it difficult for such people to get on the property ladder, aggravating the already stagnant real estate market. Before monthly rent becomes the new norm in Korea, the authorities need to improve affordability for the younger generation and low-income groups as well as housing performance.

Low fertility and rapid population aging are exacerbated in Seoul, where the total fertility rate is lower than the national average. The demand for housing, therefore, will continue to decline. The generational gap in asset ownership and income has widened, with the younger generation spending much more time and money on education than before, but having difficulty finding decent jobs to earn the money they need to purchase housing for themselves. Consequently, most young people have no choice but to rent. On the other hand, a majority of the older generation owns housing but is highly dependent on debt. This means that their assets are sensitive to downward changes in market conditions.

With the growing asset gap between the generations, there are concerns about generational conflict over housing. Indeed, some young people even harbor resentment toward older people who they believe are responsible for rising housing costs. Therefore, a new housing policy that promotes cross-generational integration is needed to fulfill the older generation's need for income and relieve the younger generation's cost-of-housing burden. The authorities need to use the vitality of the

private housing market to provide rental housing in a way that is consistent with public goals. The government needs to regulate the terms of lease instead of providing incentives to lessors to stabilize rents.

Such a policy for generational integration is expected to have a positive influence on the economy and society as a whole. The older generation, the home owners, can maintain the quality of housing with public subsidies as well as enjoy a stable retirement thanks to steady earnings from leasing. The younger generation, new tenants, can have more disposable income thanks to affordable housing, which may lead to a higher chance of marriage and childbirth. Moreover, expanded availability of rental housing may help restore a city’s vitality, as well as provide a soft foundation for a fall in the housing market.



[Figure 77] A New Model for Cross-generational Integration towards More Affordable Housing

**The SMG needs to expand affordable rental housing through intensive use of land around station areas**

The city center and station areas in Seoul have not been fully developed as residential areas. Spatial structure and land use in the city needs to be altered to provide housing. It is impossible to build housing units in large numbers as in the past due to the lack of land available for housing. Housing for residential stability of

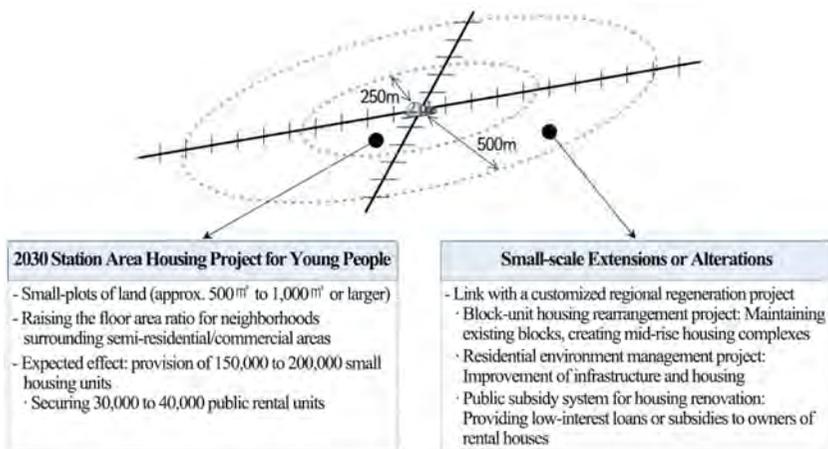
non-homeowners is long overdue, and even an urgent task. The SMG needs to specialize each station area according to its regional characteristics and allow intensive use of the surrounding land as a way to revitalize the areas.

Intensive land-use development towards provision of rental housing needs to be implemented as a subsequent mid-term project over 5~10 years. Then SMG needs to implement a “2030 Station Area Housing Project for Young People”, which will provide them with rental housing within a 250m radius around a transit station. The SMG will need to conduct small-scale extensions or alterations of buildings within 250 to 500m from a station. Moreover, existing public rental housing programs, such as the Long-term *Jeonse* Housing project (also called Shift)<sup>25</sup> and the New Stay project<sup>26</sup>, need to be minimized or ended, as they lack equity and a public nature in terms of their requirements for leasing and rent levels.

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<sup>25</sup> The Long-term *Jeonse* Housing project (Shift) is operated by the SMG and Korea Land & Housing Corporation (LH). The *Jeonse* deposit for the house provided by this project is less than 80% of the *Jeonse* market prices in the surrounding area. A tenant can rent the house for up to 20 years by renewing the contract, with an annual rent increase capped at 5%. However, the requirements for leasing are so strict and complicated that a wide range of people have not been able to benefit.

<sup>26</sup> New Stay is a private long-term rental housing program. The central government provides land at lower prices to private construction companies to build rental houses. The companies can enjoy the benefit of decreased regulations and the change in the status of the designated land. A tenant can lease the house for at least 8 years, with annual rent increases capped at 5%. There are no limitations on initial rents, unit size, or leasing requirements. However, the rent is usually higher than market prices, leading to market distortions.



[Figure 78] A Model for Rental Housing in Station Areas

The 2030 Station Area Housing Project for Young People would be able to supply a considerable number of affordable rental units to young adults by raising the floor area ratio. The SMG needs to propose to the central government a measure to decrease rents by providing subsidies to rental house owners. The project should be implemented as a temporary one for 5 to 10 years to prevent land price rises. Moreover, the proportion of residential areas in each target area needs to be adjusted according to the Seoul Plan 2030<sup>27</sup>, the urban master plan, to prevent excessive development. The candidate areas for the project are those close to subway stations where two or more lines cross each other, or areas that have 30m-wide roads. This is to minimize the negative effects of the construction.

Low-rise dwellings in an area within 250 to 500m from a station need minor extension or alteration such as remodeling, in line with a customized regeneration project. The SMG would devise a support program to provide a subsidy of 20~40% of the related costs to encourage more residents to turn their old or vacant housing into affordable rental units. Governance focused on the local community would be

<sup>27</sup> The Seoul Plan 2030 defines the spatial structure of the city: three city centers, seven sub-centers, and twelve regional centers.

another important element to promote resident participation in local area regeneration and improvement. In pursuit of spatial improvement of each local community, it is essential to improve decrepit infrastructure as well as provide public funding for new construction of housing and remodeling.

### **Equity and affordability of housing welfare policy need to be enhanced through better management and operation of public rental housing and more housing subsidies**

The SMG will need to secure more affordable rental housing not only with more public rental units but also through support with private rental housing. Currently, public rental housing inventory in Seoul accounts for 6.3% of the total number of households. The target number is 10% by 2026. Moreover, current public rental housing policy is excessively complex and rather unfair. Indeed, there is a wide variation in rents depending on types of public rental housing. These types need to be integrated in the interest of greater fairness and effectiveness of the policy. To that end, it will be necessary to simplify the qualifications to lease. Low-income families who fall in the first to fourth income brackets should be given priority. The rent system should be reformed to be in line with income levels as well as market rents. For example, the target rent for low-income families should be 50 to 60% of market rates, or about 15% of their income. In addition, towards better housing service and more effective management, the SMG needs to encourage lessees to participate in management of this public housing.

Current housing subsidies, including housing benefits and the energy voucher<sup>28</sup> and housing voucher<sup>29</sup> programs, cover only 3.3% of housing cost. The goals of

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<sup>28</sup> The central government provides vouchers to low-income households for any form of energy (electricity, city gas, district heating, LPG, briquettes, kerosene) during the winter season.

housing subsidies should be the following: (a) pursue housing stability for low-income families who are not living in public rental housing, (b) improve affordability of housing for low-income households, and (c) increase the quality of the existing housing inventory. The energy voucher program needs to be integrated into the housing benefits program, in the interest of policy effectiveness. For those who own their houses, the government would provide subsidies for lighting and heating expenses and conduct a housing improvement project. For tenants, it would provide subsidies for lighting and heating expenses and rents as well as have remodeling done by the Korea Energy Foundation to improve energy efficiency. Such improvement and remodeling projects will extend housing life as well as provide decent, affordable housing.

Quasi-public rental housing is private rental housing that receives financial support and tax advantages from the government. However, this form of rental housing does not fully serve the public good due to the lack of limits on the amount of initial rent. To compensate for the program's shortcomings, measures are needed to ensure affordable rents, reasonable rent increases, and accessibility to low-income households. Through consultation with the central government, the SMG needs to improve and expand quasi-public housing as well as provide further support in areas such as rent subsidies for tenants, loan support for lessors, renovation/remodeling of dilapidated houses, and affordable public land lease.

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<sup>29</sup> The SMG subsidizes rents of low-income families when they exceed a certain proportion of their income.

### **The SMG will need to increase housing lifespan through scheduled repair and remodeling, as well as expand provision of multi-family housing units divided into separate households**

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To secure a pleasant dwelling environment and preserve asset value, housing needs to be repaired and maintained in a timely manner. A plan is needed to maintain structural function and durability, and schedule repairs, improvements and remodeling. The plan should be implemented for all types of houses. Recently, an increasing number of retirees have been purchasing and remodeling multi-family houses to create stable lease income. The authorities need to help with the remodeling of such houses to promote generational integration. Those houses should be leased to younger people at affordable prices.

To provide more rental housing, policy is needed to provide multi-family housing units divided into separate households, which refers to a housing unit where the inner space is structured for each household to live separately. Ownership of such a house is not shared. Currently, it is rather easy to build this type of housing when housing buildings are constructed through housing redevelopment or reconstruction. However, there are regulatory limitations on remodeling existing units into multi-family housing units divided into separate households. Considering the sluggish economy where redevelopment or reconstruction projects are rare, the government needs to ease these regulations, and reform the related laws to allow division of a large house into smaller units and leasing those units at affordable prices.

### **The system of housing finance needs to focus more on support for residents and rental housing providers**

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A housing finance system focused on residents has not taken root in Korea for two reasons: (a) the institution of *Jeonse* has prevailed, (b) family members (usually parents) financially support their children in buying or renting in most cases. Even

though mortgage loan products have been increasing since the 2000s, these existing practices remain widespread. The housing finance system needs to be adjusted to allow long-term loans at low interest to residents and rental housing providers.

For residents, long-term mortgage loans can be strengthened and support given for first-time home buyers. The mortgage loan system itself needs to be redesigned to facilitate settlement of debt. The authorities will need to verify a borrower's income and increase monitoring of the loan repayment.

To encourage the private sector to make rental housing more affordable, financial support is needed for owners as well. The authorities need to offer long-term, low-interest loans to private owners in return for an agreement to lease the units to low-income families at affordable prices until the owners have repaid the loan. In operation of the Housing and Urban Fund, financing for rental housing construction and housing improvement should be expanded while support for the *Jeonse* deposit system is reduced. Moreover, long-term, low-interest loans for social housing and private rental housing should be included in the fund's support scheme for construction of rental housing. In addition, interest-free loans for housing improvement are needed for owners of multi-family houses to run them as affordable rentals.

### **The authorities need to strengthen collection of rental income tax and reform the real estate tax system to provide more affordable rental housing**

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The current real estate tax system revolves around imposing heavy tax on owners of multiple houses selling them or other high-value properties. The government has frequently changed housing policies either to control speculation or stimulate the economy, losing credibility and policy equity. Moreover, taxation on rental income and stricter collection of general property tax have been delayed, while they have been implemented in most advanced countries.

To improve the housing market and promote affordability, the authorities need to

normalize taxation on rental income from housing properties. Under current law, rental income tax is imposed on only 1~2% of all rental houses. Of course, a more comprehensive rental income tax might lead to rent increases, placing a heavier burden on tenants. Therefore, the government needs to devise a tax scheme where rental house owners who set rental fees lower than market rents can have their taxes reduced.

**To boost policy effectiveness, the government needs to implement a package that includes a rental housing registration system and a cap on rent increases**

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To promote affordability, more rental houses are needed, and rents kept lower than market value. A policy package that includes a rental housing registration system and a cap on rent increases will be particularly effective. A rental housing registration system would be a prerequisite for normalization of rental income taxation and capping rent increases. The system will help the authorities to better understand the housing lease market and come up with data-based measures. Without information on the characteristics of rental units and lease contracts, it will prove impossible to impose such taxes and caps.

A cap on rent increases needs to be implemented on each rental house, rather than the lessor as is the case under the existing system. Currently, rent must not increase more than 5% per year, which simply often encourages the lessor to avoid renewing a contract with existing lessees despite their right to claim such renewal. The new policy will need to be implemented in a way that guarantees fair income for the lessor as well as improving affordability for the lessee. To be effectively enforced, policy on rent increases needs to be in line with other indicators such as the rate of inflation. Moreover, lessors should be allowed to raise their rents in a reasonable manner once the rental unit has been renovated.

Current Condition and Policy Direction for Low-Rise Residential Areas in Seoul

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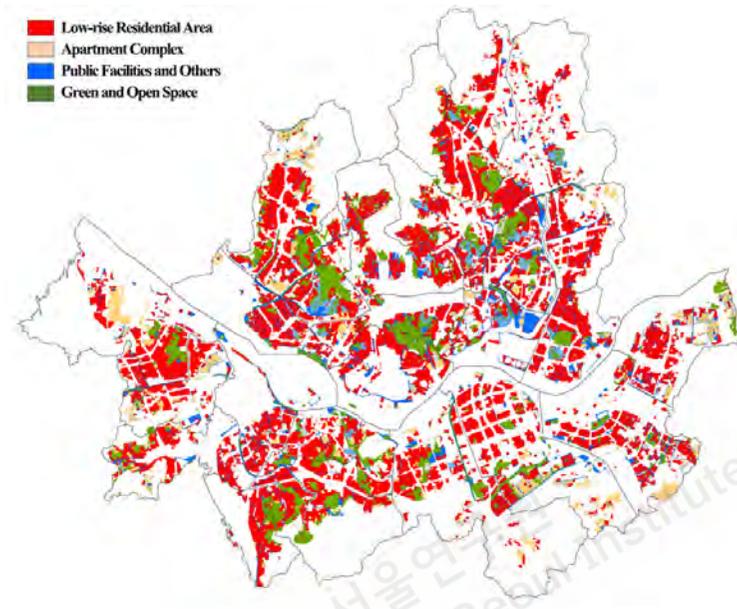
## Key Message

A customized management system for each low-rise residential area that suits its local characteristics is needed to improve living environments.

### **Elderly and single-person households make up a high proportion of low-rise residential areas across the city**

Low-rise residential areas in Seoul are those with concentrations of buildings of five stories or less. These areas are characterized by dilapidated housing and deteriorating infrastructure. This report examines the current conditions of these residential areas and categorizes them according to their characteristics, suggesting solutions and policy directions.

Low-rise residential areas sit on 124.5km<sup>2</sup>, or 38.2% of the city's land. There are a total of 337,000 residential buildings in these areas, with 46% as detached housing and 54% as multi-dwelling buildings. The buildings are 26 years old on average, 47% of which were built before 1990 and 16% after the first decade of the 2000s. Detached housing is 35 years old on average.



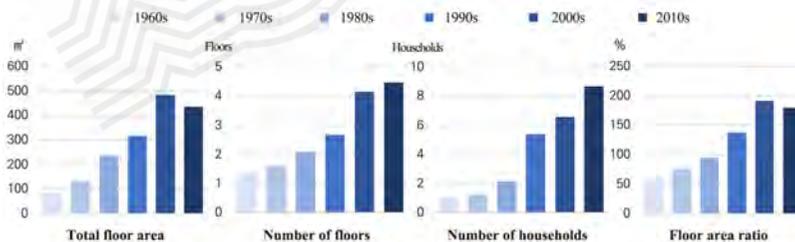
[Figure 79] Low-rise Residential Areas in Seoul

The average population density of low-rise areas is 42,000 persons/km<sup>2</sup>, less than apartment complexes, which stands at 66,000 persons/km<sup>2</sup>. Still, density is high, considering the height and size of the buildings. The average age of the residents in such areas is 38.3, which is older than for all of Seoul (37.9). In terms of population aging, low-rise areas have more elderly people than those younger than fifteen years old. Also, most low-rise areas are made up of single-person households. Most residents in such areas are tenants, having lower rates of home-ownership than apartment complexes.

### The housing density of low-rise residential areas has continuously increased without significant improvement in infrastructure such as roads, parks, and parking lots

During Korea's years of rapid economic growth, building and parking regulations as part of housing provision policy were relaxed, leading to more new construction in low-rise residential areas. The total floor area, floor area ratio, and the number of households in these areas increased while infrastructure, such as roads, parks, and parking lots, remained unchanged between the 1960s and 1980s. This was the period when residential development projects were implemented. Consequently, the existing infrastructure could not keep up with the increasing demand, for instance, for more parking space.

Total floor area in these low-rise areas increased 1.8 times by the 2010s than they had been in the 1980s. The number of floors built in the 2010s increased 2.1 times more than in the 1980s, while the number of households in each building increased 4.1 times. Notably, the floor area ratio of buildings in the 2010s (186%) is more than twice that in the 1980s (98%), showing a steep increase in housing density.



[Figure 80] Housing Density

About 27% of lots in low-rise areas adjoin roads narrower than 4m. This means that nearby road conditions are not desirable for new housing or improvement. This also shows that the residential environment has deteriorated because building density increased without additional infrastructure, including open space, being put in place.

### **Dilapidated houses older than 30 years account for 31.5% of residential buildings in low-rise residential areas. Housing units built since the 2000s were mostly multi-dwelling**

Housing in low-rise residential areas has become dilapidated. About one-third of the dwellings are older than 30 years, most of which are detached houses. New construction has been carried out in lots that fulfill the desirable conditions in terms of street frontage, shape and size of lot. However, dilapidated housing in poor condition lots remain neglected. Specifically, houses on small lots tend to have high lot coverage ratio and poor street frontage conditions, which makes it difficult to build new houses on the lot.

To facilitate provision of multi-dwelling housing, the central government relieved building regulations and provided financial support and tax benefits. Many of the detached houses were turned into multi-dwelling units, which result in higher profits. Especially in the 2000s, multi-dwelling units standing on pillars were built in most low-rise areas, creating bland neighborhoods. However, there is no management body for this type of housing, as there is for apartment complexes. If residents do not maintain and manage their dwellings by themselves, such buildings can easily deteriorate, making for slum-like areas.

### **Four types of low-rise areas based on formation of residential areas and level of housing deterioration**

We examined the characteristics of general low-rise residential areas and categorized them into four groups to aid in designing customized solutions for each.

△Type 1: Naturally-formed residential areas with high concentration of dilapidated housing

These areas were naturally formed, spreading across the outer regions of the city in the northeast, northwest, and southwest. Overall infrastructure is extremely

deteriorated, with most dilapidated housing on small, irregular lots.

△ Type 2: Naturally-formed residential areas with mixed types of housing

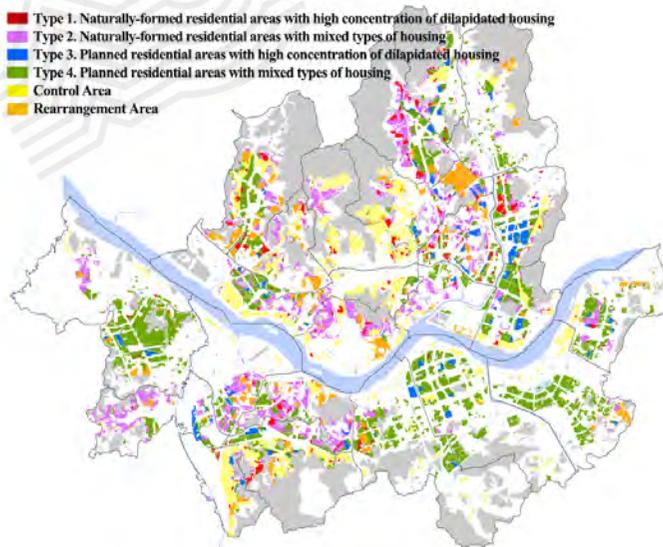
These areas were naturally formed, spreading in the north and southwest regions of the city. The conditions of infrastructure and lots are similar to Type 1, but some areas have fair conditions as they were redeveloped. Consequently, there is a mix of dilapidated and new housing in the areas.

△ Type 3: Planned residential areas with high concentration of dilapidated housing

These areas were formed in the northeast and southwest regions by earlier government housing provision plans, but infrastructure was not fully constructed from the beginning. These areas are characterized by dilapidated housing concentrations and high density, and an absence of new construction.

△ Type 4: Planned residential areas with mixed types of housing

These areas account for the largest swaths of land in Seoul, spreading in the southeast and southwest regions. Because of the fair infrastructure and lot conditions, these areas have seen continuous development, with mixed types of housing.



[Figure 81] Distribution of the Four Types of Low-Rise Residential Areas

## **All low-rise residential areas should be included as targets of housing redevelopment/improvement projects**

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During the period of high economic growth, small multi-dwelling units were provided in large quantities in low-rise residential areas, where much of the residential redevelopment was conducted during this period. Therefore, the rest of these areas were neglected as the expectations were that they would also be redeveloped. Such areas were not the target for housing improvement policies and no management standards were devised for them. Moreover, as regulations were relaxed to support greater housing supply, housing density increased in the areas without infrastructure improvement, further degrading the residential environment.

Today's changing social and economic conditions, including sustained low growth, low fertility rates, population aging, and increasing appearance of single-person households, require a new policy view on these low-rise residential areas. The areas are flexible for diversifying demands for housing due to social and economic changes. They also have intangible benefits such as historical value and potential as robust communities. Rather than the existing residential improvement projects focused on dilapidated housing, the authorities need to take a new approach to preserve and manage these particular areas.

Although there have been several attempts to improve residential areas, such projects were conducted in only some low-rise areas. All such areas should be included as targets of improvement projects, which should be devised to promote pleasant residential environments rather than simply fulfilling minimal standards.

Following are some of the problems for each type and suggested solutions.

### **Type 1: Naturally-formed residential areas with high concentration of dilapidated housing**

The overall infrastructure and land conditions are decrepit in these areas. Because of the cheap, poor housing, the area has a high percentage of low-income residents. Without public support or intervention, residents cannot afford to

improve the environment on their own. Without systematic management, the residential environment will continue to degrade to a serious level due to a widening gap between new buildings and old. The Seoul Metropolitan Government (SMG) should take the lead in improving infrastructure and housing.



[Figure 82] Naturally-Formed Residential Areas with High Concentration of Dilapidated Housing

### **Type 2: Naturally-formed residential areas with mixed types of housing**

Some areas with good street frontage conditions have been redeveloped while detached housing in areas with poor conditions have deteriorated. Due to the different developmental conditions even within the same residential areas, there is a wide gap between houses in terms of this deterioration. Specifically, houses in hilly areas or those with narrow roads are the worst off.

The top priority for these areas is to expand street width. Then the authorities need to employ various housing improvement methods which allow individual land owners to redevelop their lots under a mutual agreement between the SMG and the owners. The authorities should also induce residents to take a leading role in improvement projects.



[Figure 83] Naturally-Formed Residential Areas with Mixed Types of Housing

### **Type 3: Planned residential areas with high concentration of dilapidated housing**

There are subcategories for this type: (a) areas where dilapidated multi-dwelling units are concentrated and (b) designated zones for residential environment improvement. The areas of Type 3(a) are packed with deteriorated multi-dwelling units constructed before the 1990s as well as roads narrower than 4m. Housing is affordable, but many residents live in poor conditions, such as semi-basements or rooftop dwellings. The SMG needs to improve infrastructure in these areas and support the residents with repair and remodeling of their houses. Street expansion is a prerequisite for housing improvement. The authorities also need to provide guidelines for improvement projects to minimize negative environmental impact.



[Figure 84] Areas where Dilapidated Multi-dwelling Units are Concentrated

Designated zones for residential environment improvement by the SMG, Type 3(b), refers to low-income residential areas redeveloped in the 1990s. Housing density in these areas is higher than in Type 3(a), and deterioration has already set in. The most common form of housing is multi-family with multiple home owners and stakeholders, which makes it difficult to reach agreement for improvement. The floor area ratio is already so high that further new construction is impossible. Improvement projects should revolve around repairing existing housing and upgrading infrastructure.



High Floor Area Ratio & Lot Coverage Ratio Poor Road Conditions

Narrow Physical Distance between Buildings

Dilapidated Housing

[Figure 85] Project Zones for Residential Environment Improvement

**Type 4: Planned residential areas with mixed types of housing**

These areas are advantageous for construction in that they have grid street networks and regular-shaped lots and other conditions. Therefore, new construction has frequently occurred in lots of low-rise detached housing. However, there is no expansion of streets, parking lots, open spaces or other forms of infrastructure leading to high housing density.

For this type, a Local Community Plan is necessary to prevent the residential environment from deteriorating due to sprawling development. The Local

Community Plan is a follow-up to the master plan, Seoul Plan 2030, consisting of sub-regional plans for different areas. While the master plan articulates the vision and broad strategies for the future, it lacks detailed guidelines which address specific planning issues at the local level and provide the basis for implementation of infrastructure and development. The Local Community Plan fills this gap between Seoul Plan 2030 and the detailed local management plan. Detailed guidelines should be devised to regulate density, number of floors, housing types and use of building ground level. In addition to public intervention, it is important to manage these residential areas through resident agreements. These areas are major targets for small-scale improvement projects and the authorities need to intervene to prevent deteriorated housing from being isolated in a block. For long-term management of the areas, a District Unit Plan for residential areas would be effective.



New construction within a block thanks to abolishment of setback requirements



Construction of seven-story buildings within low-rise residential areas



Combination of lots



Isolated low-rise buildings on small lots

[Figure 86] Planned Residential Areas with Mixed Types of Housing

### **Customized management systems are needed for each type of low-rise residential area**

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Customized management systems need to be devised to ensure effective improvement of residential environments in accordance with each type of low-rise residential area reviewed above. First of all, the Local Community Plan should be utilized as a policy tool to manage these areas, and should be able to suggest basic directions for long- and short-term strategies for area improvement. Detailed guidelines for residential redevelopment, such as new construction, remodeling, and change in building use, are needed to promote harmony with the surrounding environment.

When establishing the Local Community Plan, the authorities need to thoroughly examine the current conditions of the target areas such as concentration of dilapidated housing, street frontage conditions, and specific-purpose areas. Based on this information, the SMG can better identify target area demands and carry out more effective projects for each community. However, as residents may perceive the planning as more regulations, the authorities should provide information about the policy and garner opinions from the public in advance.

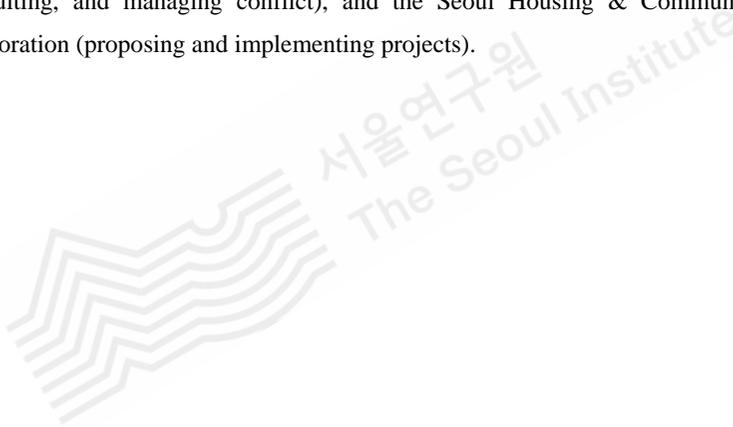
### **The authorities need to play multiple roles of consultant, negotiator, and manager**

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The authorities should take an active role in providing, maintaining, and managing infrastructure. Public projects need to be implemented in areas where improvement is urgently necessary. Moreover, it is essential to achieve “spatial welfare” so that it leads to a comprehensive welfare policy that encompasses a variety of sectors such as housing, education, children and senior citizens. The authorities will need to play multiple roles to manage residential areas more effectively. Rather than limiting itself to approvals, the government needs to

consider ways to serve as consultant, coordinator, negotiator, and manager.

A new act concerning small-scale housing improvement projects is to be enacted in February 2018. This law may bring about negative side effects such as high housing densities and sprawling development in target areas. Also, the Act might not be effective without practical guidelines. Considering these anticipated problems, the SMG needs to devise the comprehensive housing management system mentioned above. It should also come up with a public consulting system and guidelines for small-scale housing improvement projects as well as individual houses. More importantly, there should be clear division of roles between the SMG (providing policy guidelines), autonomous *Gu*<sup>30</sup> offices (implementing projects, consulting, and managing conflict), and the Seoul Housing & Communities Corporation (proposing and implementing projects).



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<sup>30</sup> “*Gu*” is an administrative unit (district) in the cities of Korea. There are 25 *Gu*-districts in Seoul, with the head of a *Gu* popularly elected every four years by local residents.

## The Issues and Implications of Commercial Gentrification in Seoul

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### Key Message

Legal institutions should be improved to protect the rights of lessors and specific use of buildings and types of business need to be managed at a local level.

### **Commercial gentrification is attributed to changing consumer behavior and increasing self-employment**

Commercial gentrification has been one of the emerging urban problems of Seoul in recent years. Due to low economic growth and low interest rates, commercial property has become one of the most popular investment vehicles, along with stocks and bonds. Consumers tend to prefer high-end products and switch to other brands or products when their preferences change. Such consumer behavior also encourages commercial gentrification. There are other factors too. Consumers can share a wide variety of information through social media, thereby accelerating emergence of new commercial areas. Furthermore, growing job instability in the labor market including factors like early retirement, youth unemployment and an increasing number of non-regular jobs led to an increase in self-employment. Consequently, some types of small businesses, such as coffee shops and diners that require fewer resources have proliferated in the market. High demand for such facilities led to commercial gentrification.

This study examined how and why commercial gentrification occurred in the major commercial areas in Seoul and the issues and implications related to

commercial gentrification. We suggest methods by which the authorities can tackle this problem to minimize the negative effects of commercial gentrification.

### **With demand for commercial buildings increasing, some property owners raised the rent unreasonably**

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As a commercial street develops, demand for commercial buildings grows as well. Some property owners have taken advantage of this situation, making unreasonable demands to tenants.

Some property owners refused to fulfill the duty of accepting the tenant's request to extend a lease. Despite a law that regulates the rate of increase of monthly rent of a commercial building, some land owners demanded an unreasonably high rent from existing tenants. There were also some cases where building owners even tactically attracted well-known stores from other areas or buildings, providing favorable lease conditions initially. When the value of their property increased, thanks to these stores that operated in their buildings, they raised the rent excessively. Other property owners even evicted the existing tenants in collusion with real estate agents.

There were other cases where building owners changed their residential buildings into commercial ones and passed the major repair and licensing cost on to the tenants. Other property owners even took the advance deposits that should have been given back to the former tenant, or obstructed the transaction.

### **A zero-sum game: concentration of similar types of businesses has increased competition, leading to poor revenues**

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Most buildings in the gentrified areas are owned by people who do not live in those areas. They purchase and manage the buildings through real estate agents

because their main purpose is to earn revenues from the increasing value of the assets. Real estate agents tend to trade properties at high prices for higher commissions, which naturally lead to an increase in rent. Only a few types of businesses that can afford the excessively high rents can survive in the commercial area. Consequently, a number of similar businesses face severe competition, finding themselves in a zero-sum game. Some shop owners who cannot even get back the initial investment seek to earn profits by receiving premiums. Such behavior can create a price bubble in the local real estate market, thereby disturbing the local business community.

### **Touristification: the unique local culture and identity disappear because of changing business environment and types of businesses**

Commercial gentrification occurs in residential areas in most cases. A large number of stores operate in the areas that attract more visitors, causing problems such as lack of parking space, illegal littering, and noise. Moreover, stores that the residents frequently visit in their day-to-day lives, such as grocery stores and laundry, tend to be changed into coffee shops or restaurants for tourists, causing inconvenience for the residents.

Severe competition among similar businesses creates tension in the local community. The local business owners in the area tend to form a closely-knit community. However, most shop owners in a gentrified area are not the residents of the community and have a rather weak sense of community spirit.

For example, diners for taxi drivers who have been operating for three decades in a recently gentrified area have experienced a sharp drop in revenues because an increasing number of tourists caused parking space issues for drivers. Unfortunately, rents were increased excessively at the same levels as the adjacent commercial buildings, forcing them to move to other areas.

Essentially, commercial gentrification turned a residential area into a tourist spot

(touristification). The unique characteristics of the residential area disappear in the gentrification process, which transforms the community into one that has the characteristics of communities in other commercial areas.

### **A guideline to tackle gentrification needs to be devised for effective policy making**

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A commercial area forms naturally, expanding and moving outside. If the authorities attempt to impose regulations in a specific area, a balloon effect might result, prompting the commercial area to move to an adjacent area. It is difficult to implement regulations to all the regions where gentrification is expected. Therefore, the authorities need to devise preventive measures in a thorough manner, considering the probability of a balloon effect occurring.

It takes enormous time and money to devise such measures for monitoring the gentrification process and tackling the problems that ensue. Given that commercial gentrification occurs swiftly, the administrative processes should be further simplified. A guideline to tackle the issue needs to be prepared.

To enhance the policy effectiveness, the authorities need to devise inducements to involve the property owners also in the preventive measures. This might be disadvantageous to them. When creating a resident council, representatives of craftsman's organizations, social entrepreneurs, artists and local activists should be included in addition to residents, landlords, and tenants.

## Disclosing the actual real estate prices and rental values of commercial buildings will contribute to normalization of the real estate transactions

The authorities need to disclose the actual real estate prices and rental values of commercial buildings to normalize the real estate transaction practices. Such information disclosure will protect tenants from making unfair lease contracts due to lack of information and will serve as a deterrent against sharp rent increase.

Currently, the actual real estate prices of residential buildings are to be mandatorily reported by the real estate agents as well as the contracting parties. The same scheme can be applied for transactions of commercial buildings as well. The data can be collected by computerizing a written lease submitted to the competent tax office or by mandating the lessee to report the prices online.

The collected data can be made available to the public through the Open Information System of Real Estate Prices run by Ministry of Land Infrastructure and Transport or the Seoul Metropolitan Government (SMG)'s Analytical Service of Local Commercial Area. By providing accurate price information to potential buyers and tenants, the authorities can resolve information asymmetry and effectively prevent unfair contracts.



[Figure 87] The SMG's Analytical Service of Local Commercial Area

### **Local governments should decide a cap on the rent increase rates and the period of lease based on local circumstances**

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Under the current law, lessors can request to renew the lease contract up to five years including the initial contract period. This is shorter than in France (9 years) and in the UK (7 years). In France, the UK, Germany and Japan, the lessees are mandated to repay the costs of building improvement to the lessors or compensate for their right of business when the contract is terminated. Following suit, we need to provide legal ground for reasonable compensation in case the tenants fail to recover the initial investment costs.

However, in some dilapidated areas, extending the minimum lease period to protect the right of business might hurt the local economy. The cap on the minimum lease period or rent increase rates should be determined by each local government, considering the unique circumstances that are prevalent in those areas.

Given the short lease period guaranteed by the current law, the only way the lessors can recover the initial investment costs is by getting high premiums from the subsequent lessors. In many cases, the amount of premiums is determined rather unreasonably, depending on the market transaction price. The authorities need to provide a standardized compensation system for such lessors.

### **The use and size of commercial buildings should be controlled using the District Unit Plan**

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The current specific-use zoning system permits a wide range of use for buildings located in general residential areas. This range of use is difficult to be controlled at the local level. Class I District Unit Planning zones are designated to secure a decent environment or to boost functions and scenic value of the area. The SMG can designate such zones by issuing an ordinance to control the use and size of buildings, which can contribute to deterring or at least delaying the gentrification

process. However, it requires a great deal of time and money to designate such planning zones. A guideline to simplify the time-consuming administrative process is imperative.

### **Considerations regarding the SMG's comprehensive measures to deal with commercial gentrification**

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The SMG plans to make a mutual agreement among the lessee, the lessor and the local government in gentrified areas. The agreement mandates that the lessees shall freeze rent and protect the lessor's right to receive premiums, the lessors shall refrain from cheating the customer, and the local government shall provide the requisite administrative support. However, the agreement does not hold legally and it is impossible to impose punishment when conditions of the agreement are flouted. To ensure the sustainability of the agreement, there should be reasonable incentives for the stakeholders.

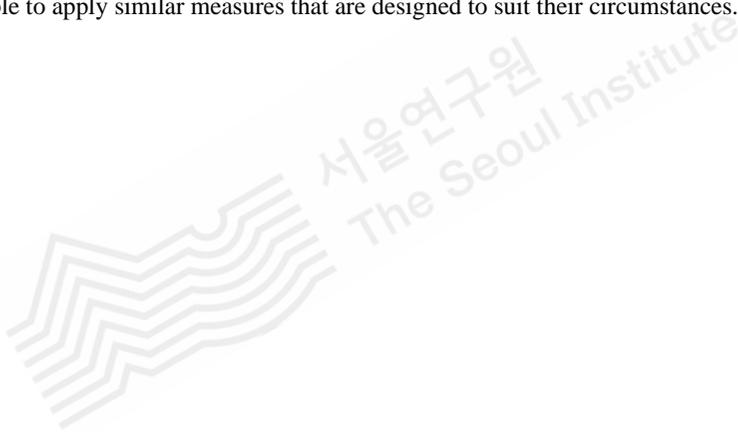
The SMG also plans to provide anchor facilities as part of preventive measures against gentrification. The SMG purchases or leases properties using public fund and provide space to small business holders and artists at lower costs than the market price. However, such a plan entails several issues. Firstly, the extent of beneficiaries is unclear. Secondly, such anchor facilities can disturb the market. Thirdly, the authorities should carefully select right business types and locations of the anchor facilities. Another plan is to induce the lessees to freeze rents and guarantee a long-term lease in return for subsidies for remodeling expenses of old commercial buildings. It would be an attractive incentive for lessees but might have only a temporary effect.

The SMG's comprehensive plan to prevent gentrification contains a plan to provide loan support for lessors so that they can purchase the properties at a lower interest than the market rate. The interest rate will be one percent lower than the market rate, up to 15 years of the repayment period and a KRW 80 million credit

line. However, the effectiveness of the plan is in question as far as property prices and business sustainability is concerned.

To provide lessors with legal support, the SMG is planning to form a legal support team comprised of 33 lawyers and 27 tax accountants for local residents. Such a measure will contribute to resolving conflicts between the lessee and the lessor. Nevertheless, there would be some unreasonable cases outside the purview of law. For example, in case the owner of a commercial building is changed, the lessors' rights regarding contract renewal or rent increases cannot be protected.

All the preventive measures explained above will be included in a new ordinance on protection of lessors of commercial buildings. Other local governments would be able to apply similar measures that are designed to suit their circumstances.



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