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# The Seoul Institute Research Abstracts 2016

Chang Yi



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## Editor's Note

It is with great pleasure that I present this book, The Seoul Institute Research Abstracts 2016, a collection of English summaries of 37 research studies published in 2016. As the Seoul Institute covers a variety of urban planning disciplines, this book includes policy solutions on many types of urban problems.

The Seoul Institute (SI) was established in 1992 as the Seoul Development Institute to formulate plans for long-term growth and provide policy solutions for the various problems facing Seoul. For more than 20 years, the institute has provided guidance and pointed towards a sustainable future. The SI is a prominent think tank that employs more than 80 PhDs and has conducted comprehensive policy research in diverse areas.

While the SI offers its research reports in Korean, every study contains a 1 or 2 page English summary as an addendum. This book is a collection of these summaries. For each field in urban planning, I have provided a general background so that foreign readers will better understand the research context. Nonetheless it may be difficult for some readers to see the larger picture of each study, since the summaries are very short. Rather, the purpose of this book is to draw your attention to what we have been studying at the SI. I believe that our expertise in urban planning will prove to be of great help to city governments around the world as they work to solve problems that are common to many cities. If any part of this book intrigues you or your colleagues, I will say that I have achieved my purpose, and that it will fulfill the reason I decided to edit this book.

I greatly appreciate the opportunity to share this report with you. It is my sincere wish that our knowledge will assist cities in other nations as we strive together for a sustainable future. I hope that this book will provide the potential opportunities for collaborative research with your institution. If you would like more information, I invite you to contact me at [changyi@si.re.kr](mailto:changyi@si.re.kr).

With best regards,

Chang Yi  
Research Fellow  
The Seoul Institute

## 01 Urban Planning

### Background

In every city, the foundational standard for urban planning is a master plan (comprehensive plan). The master plan for Seoul, the ‘2030 Seoul Plan’ was drafted in 2010 and is presently being implemented. With this new master plan in hand, the next business in order for the Seoul Metropolitan Government is to update its plans for smaller areas within the city. In this context, ‘A Study on Rezoning Urban Centers by the 2030 Seoul Plan’ focuses on commercial areas, expressed in this study as ‘urban centers’. The study points out that while each commercial district has unique characteristics, there is only one set of uniform planning regulations for urban centers. The authors propose a new standard that considers the different features of each commercial area in terms of density and building use. It is a challenging task to create a contextual management scheme that is also consistent with the 2030 Seoul Plan.

One of the criticisms on the urban master plan is that its scheme is too grand, far removed from the lives of ordinary citizens. On the other hand, urban management plans dealing with development of small areas need specific guidelines. However the master plan is too broad to serve this purpose. In this context, the Seoul Metropolitan Government has institutionalized ‘Community Plan’ to focus on the characteristics of 5 sub-regions in the city. Community Plan is an intermediate plan that can link the broad master plan and specific urban management plan. ‘A Planning Monitoring Study on the Community Plan of Seoul’ investigates the process and outcomes of these Seoul Community Plans, and discusses things to consider in drafting them and monitoring the planning process.

The Seoul Institute employs housing experts as well, who follow housing market trends in Seoul. ‘A study on the Changing Housing Market and Policy Implications in Seoul’ analyzes the main causes of the current slump in the housing market in Seoul. By analyzing a variety of datasets such as housing transactions, average monthly rent and housing prices, this study identifies major contributing factors on the housing market trends in Seoul. The researchers also compare housing policies in Tokyo and Seoul, drawing lessons for development of new housing policies for Seoul in an era of low economic growth. Finally the authors recommend that changes in the housing market be closely monitored.

The housing market slump has caused planners to realize that it is no longer wise to demolish low-rise neighborhoods and build high-rise apartment complexes in their place. The Seoul Metropolitan Government has therefore developed ‘Residential Environment Management Projects’ (REMP) to maintain and improve existing low-rise neighborhoods. ‘A Study of the Seoul Residential Environment Management Projects for Sustainable Management of Low-Rise Residential Areas’ makes policy recommendations to sustain and increase the current policy efforts to improve low-rise residential areas.

As you will see in the body of this book, there are many things that urban planners need to concern themselves with. One such thing is the potential for unification of North and South Korea, which would create massive demand for new development. ‘Understanding Urban Planning in the City of Pyongyang’ is a preliminary study that offers basic information regarding the city’s history, urban growth, and architecture. It is interesting to read about a city that was planned according to North Korea’s own socialistic philosophy of ‘Juche,’ espoused by Kim Il Sung and carried on by Kim Jung Il and Kim Jung Un.

## A Study on Rezoning Urban Centers by the 2030 Seoul Plan

Da-Mi Maeng · Nam-Jong Jang · Hye-Rim Yoon

In 2030 Seoul Plan, the central place system by 2020 Seoul plan has changed into 3 International centers, 7 metropolitan centers, and 12 regional centers aiming at urban competitiveness and balanced development for Seoul. Zoning system plays an essential role in achieving the central place system of the Plan. Among different zones, a commercial zone is a core urban management tool to attract people and generate employment in a city.

The commercial zone needs a future vision and specific principle to carry out its key role to manage Seoul in terms of its uniqueness. Even though the commercial zone is specified into central, general, neighborhood, and distribution areas, most of the areas are designated as the general commercial areas applied to the same restrictions for density and building uses. In reality, each commercial area consists of its own characteristics and performs different functions such as business, wholesale, retail, and so on. The density of the commercial areas also varies. For instance, the floor area ratio (FAR) of each commercial area ranges from 100 ~ 1,000%. Although various management tools try to lead differences in building uses & density based on local characteristics, it is difficult to apply tools to a certain area. Recently, Seoul has gone through changes in socio-economic aspects, it requires a flexible principle and implementation for market demand. The city also needs to strategically develop massive developable land.

Therefore, this research aims to examine the issues of the commercial zone in terms of central place system by the 2030 Seoul plan. Then it proposes a long-term roadmap on future vision and management directions of the commercial zone.

First, the current uniform system does not correspond to the rapidly changing circumstances. To address this issue we have to consider the diversity of the area, set the target, and manage the role of the commercial zone. Second, although the

zoning has emphasized to restrict the commercial areas, this research suggests to initiate changes in the management directions into “contextual management of density and building uses based on local characteristics” consistent with the 2030 Seoul Plan and the ongoing Neighborhood Plans. This first requires to establish the principle and standards to differentiate density and uses of the area and then implement them in the long run.



## A Planning Monitoring Study on the Community Plan of Seoul

Jae-Seob Yang · Seon-Hui Nam

The Community Plan of Seoul plays the role of both an intermediate plan and a bottom-up plan in the Seoul Metropolitan Area. As an intermediate plan, the Seoul Community Plan not only materializes the 2030 Seoul Plan or the Urban Comprehensive Plan, but also sets up the guidelines for the Urban Management Plan of Seoul. The Seoul Community Plan consists of a two-tier planning system: the sub-regional plan and the community plan. The Seoul Metropolitan Government is prepared for introducing the planning system since 2012. Currently, it has started the course of establishing the plan throughout the metropolitan area with active participation of approximately 4,000 residents. The plan has significant implications in terms of the planning method and resident participation.

This study aims to monitor the planning process and outcomes of the Seoul Community Plan. We will analyse the process and outcomes while focusing on the following four major events and issues through the planning process: 1) preliminary proposal or advance preparation; 2) outset of plan making; 3) establishing the Sub-regional plan and Community plans; 4) Public Participation. We will suggest the issues and tasks for the Seoul Community Plan. They consist of five parts: 1) Status and Role of the plan; 2) uniformity of planning contents; 3) role of local governments and authority of master planners; 4) representativeness of resident participation groups and management of public workshops; and 5) consistency of the planning process.

The suggestions for policy and planning are as follows. Firstly, it is essential to define the role of the Seoul Community Plan based on the consensus of the resident participation group. It is useful to refer to case studies from foreign countries. In order to set the legal status of the plan, it is necessary to revise the ordinance.

Secondly, it is necessary to establish the community plans in a consecutive order which prioritizes the communities based on significant and urgent planning issues. To streamline the process, it is necessary to comprehensively review and assess the planning and development issues of the communities at the local scale.

Third, the local government within the Seoul Metropolitan Government should take the lead in establishing and administering the community plans in the long term. It is also necessary to authorize the master planners to organize and manage the overall planning contents.

Fourth, a variety of events and programs should be prepared and offered in order to raise public concerns and attract voluntary participation. More preliminary education programs and feedback planning process are required. Establishing the regulations or chartering public involvement to make the residents feel more responsible for the planning process can be considered.

Finally, it is necessary to pay close attention to personnel transfer in the plan-making process for maintaining planning consistency. The authorities and responsibilities of the control tower should also be strengthened.

## A Study on the Changing Housing Market and Policy Implications in Seoul

Won-Seok Nam · Eun-Cheol Park · Ja-Eun Lee · Sun-Hwa Lee

Housing prices in Seoul have been on a downtrend since 2011, but are now stabilizing after showing a small increase. However, for 34 consecutive months (since September 2012) rental prices have been on upward trend, adding to the financial difficulties of the rental residents. The current slowing housing market is attributed to the following factors: the stabilized housing inventory, shrinking trading profit on housing sales, low economic growth, and low interest rates.

Seoul's current housing policies need to be reconstructed to better adjust to the changing market, instead of maintaining the policies that have been applied since the early 2000s.

This study is composed of five parts. The first covers the housing market trend analysis for the past 10 years, focusing on aspects such as demand, supply, price and transaction. In the second part, characteristics of monthly rent and Jeonse transactions are revealed through an analysis of actual housing transaction data. The third part uses surveys discover consumer demands, and how consumers react to those changes in the market.

As a result, the four policy implication are as follows: Based on the characteristics of housing transactions and the demands of different generations, a conclusion could be supporting residents living in rental housing.

Furthermore, findings from an analysis of the characteristics of demands of different generations and a comparison between the housing policies of Tokyo and Seoul can be applied to the development of a generation-friendly housing policy, and housing inventory management for a low-rise residential area. The findings from the study of characteristics of housing transactions and market trends in Seoul suggest that close monitoring should be carried out.

As the current housing market is different from the past, new policies, based on continuous monitoring of the changing housing market should be developed.

## A Study of the Seoul Residential Environment Management Projects for Sustainable Management of Low-Rise Residential Areas

Da-Mi Maeng · Nam-Jong Jang · Ce-Na Baik

Seoul Residential Environment Management Projects(REMPs) aim at improving the low-rise residential areas occupied by detached and multi-family houses. The main purpose of the projects was to establish a sustainable neighborhood through housing renewals and to improve the residential environments in tandem with the government's providing infrastructure and community facilities, and the development of communities by the residents. As of December 2015, the REMPs have been in progress in 63 areas since 2010. This research suggests enhancement plans by monitoring the ongoing procedures of the Seoul REMPs, which can play a key role in the sustainable management of low-rise residential areas.

In 2015, Seoul government has already finished improving infrastructure in 13 project areas. As a result, based on the needs of residents, 10 community facilities have been built as mixed-use buildings.

Planning for the project has also been completed in 22 other areas. Of these, 19 areas have been maintaining community activities operated by the residents. The Seoul government has also been continuously reforming the regulations and policies in order to boost the REMPs.

However, several issues persist in the regulations and operating systems the REMPs. After the initial steps have been implemented by the public sectors, consistent managements for the project areas have not been followed, as the projects are carried out in accordance with Urban and Residential Environment Improvement Act. In particular, housing renewal has been sluggish due to the lack of details of plans and guidelines. Despite diverse physical settings and contexts among project areas, duplicate plans and design have been applied, thus making it less effective. The government has not taken into consideration the fact that empowering inhabitants and vitalizing communities generally takes longer than

improving the built environments, but focusing on organizing community groups.

Seoul REMPs are the only policy that can continuously manage low-rise residential areas and housing stock. In order to differentiate Seoul REMPs from other public-led projects and successfully manage low-rise residential areas, it is crucial that the government re-establish the objectives and goals of the Seoul REMPs. Detailed strategies to enhance the REMPs are as follows : (1) modifying the home improvement system and stipulating guidelines of residential area management in the Urban and Residential Environment Improvement Act and Urban and Residential Environment Improvement Ordinance; (2) categorizing REMPs into two types, Type 1(infrastructure improvement) and Type 2(infrastructure provision), and applying each according to the needs of project areas; (3) phasing in the project objectives based on the residents needs and the context of each area and diversifying the application plans.

In addition, the public sector should systematically involve the residents into the process of the REMPs and provide education, meeting spaces, and financial supports to them. Planning professionals, including master planners or urban regeneration activists, can play a crucial role for the integration required as per the specific needs of each project area.

## Understanding Urban Planning in the City of Pyongyang

Young-Duk Kwon · Do-Sam Rha · Nam-Jong Jang · Hyun-Suk Min · Ji-Han Kang

### Purpose of the Study

This study provides basic data and information on urban planning in the city of Pyongyang, which is needed for academic relationships between Seoul and Pyongyang.

### Research Methods

The study identifies the characteristics, issues, and subjects of urban planning in the City of Pyongyang. A comprehensive understanding allows a cooperative research effort between specialists in urban planning and related fields.

### Research Scope and Main Contents

The study identifies and summarizes the characteristics of urban spatial planning, old history, urban growth, and architectural history after the Korean war, transportation and infrastructure, incorporating the ideas with specialists in the related fields.

### Conclusion

- Pyongyang was newly constructed after the Korean war. It is based on a socialistic urban planning philosophy and the “Juche” idea of Kim, Il-Sung and his son.
- The urban spaces in Pyongyang incorporate parks for relaxation, factories and green areas, small districts with an emphasis on community, utilization of city

axes, and imaginative, educational spaces for system propaganda and ideology, and street-centered built-up areas.

- Historical areas, such as “Dangun”’s tomb of Gojoseon and King “Dongmyeong” tomb of “Goguryeo” have been restored, making Pyongyang a historical center.
- In North Korea, the facilities of Kim, Il-Sung and his son, revolution history sites, and major historical and cultural assets have been preserved.
- Commuting by the citizens of Pyongyang is largely based on public transportation and walking. In Pyongyang, the main streets are accessible to public transportation and foot traffic. High and medium density apartments line the streets. There are no parking lots, because private car ownership is not allowed.



## 02 Transportation Planning

### Background

Transportation planners at the Seoul Institute studied a variety of issues in 2016. ‘Analysis of Seoul Citizen’s Vehicle Ownership and User Characteristics’ analyzes the characteristics of vehicle ownership in Seoul. Through an extensive survey of 1,000 Seoul citizens, this study examines a range of questions including how frequently people drive, how much they spend on traveling, and how many times people travel on a given day. It is a shared belief among planners that sustainability of a city evolves from a set of strategies to reduce car use and encourage people to take public transit. Thus the information uncovered in this study is important, since understanding the behavior of car owners is critical to coming up with policy alternatives that can work.

Encouraging the use of public transit has been the central theme of transportation planning in Seoul. ‘Seoul Subway Congestion Costs and Policy Implications’ introduces a relatively new concept that it is not only roadways that impose social costs on citizens, but subways do as well in terms of the congestion inside subway vehicles. The researchers identify a trade-off between travel time and congestion inside vehicles, since operating a greater number of trains is necessary to ease the crowding inside each train. This would inevitably increase travel time. Interestingly it appears that citizens of Seoul are willing to accept additional travel time for more pleasant subway trips.

The other major axis in public transit in Seoul is the bus system. Here a major issue is the financial status of the bus companies. Especially the amount of subsidies to bus companies has been the subject of much debate. Various Non-Governmental Groups (NGO), as well as the press, have criticized the Seoul Metropolitan

Government for what they feel amount to overly-generous subsidies. ‘Strategies for Improving the Quasi-Public Bus Operating System of the Seoul Metropolitan Government’ proposes to update the current agreement between the city government and the Seoul Bus Association to reduce the financial burden on taxpayers.

Seoul has been striving to become a pedestrian-friendly city for decades. The Seoul Institute produced two research studies to support this keynote of transport policy in 2016. One of the major issues regarding pedestrian policy is that walk trips have not been accurately measured. ‘Improvements of Travel Survey and Statistical Indicators for Walk Trips’ suggests a method to measure and annually update the quantity of pedestrian trips in Seoul. The outcome of this research is imperfect but is a step forward to drafting and monitoring more effective pedestrian policy.

To create pedestrian-friendly city, built environment, which was originally designed to give priority to vehicles, needs to be modified or redesigned to increase pedestrian safety. Pedestrian islands installed at the signalized intersections are a major example of car-oriented physical features in Seoul. ‘Traffic Operation Strategy to Improve Pedestrian Safety at Signalized Intersections’ suggests where and when to remove pedestrian islands and on what conditions. The authors believe that following their recipes could reduce a conflict between users of the road and people walking.

Another important aspect of transport policy is citizen participation as it is always essential in all other policy arenas. Increasingly, transportation planners are realizing the importance of hearing from citizens and reflecting their opinions in transport planning and policies. ‘Establishment of an Annual Reporting Framework for Seoul Transport Complaints’ analyzes civil complaints from citizens using the urban transport system. This study is an effort to better reflect citizen inputs on transportation planning. Similar to this research, ‘Role of Transportation Planning for Urban Regeneration Projects in Seoul’ gives an emphasis on citizen participation

when drafting transportation improvement plans in urban regeneration projects. This study suggests institutionalizing a ‘Master Transportation Planner’ position for every urban regeneration project.

Transportation planners from the Seoul Institute also investigate roadway pavement conditions. ‘The Road Subsidence Conditions and Safety Improvement Plans in Seoul’ looks at the main causes of road subsidence and proposes strategies to prevent further deterioration.

Recently the Seoul Institute has expanded its scope of research, beginning to consult city governments around the world. Our researchers now interact with government employees, researchers and academics in developing countries such as Indonesia, Ghana, and Sri Lanka. The Seoul Institute has become associated with the City of Da Nang in Vietnam and the Da Nang Institute for Socio-Economic Development (DISED). The Seoul Institute visited Da Nang and reviewed what had been done with the transportation system in the city. Based on our analysis, our research staffs made a series of policy recommendations for improvements, with one being the formation of a metropolitan planning organization to cooperate with neighboring cities.

## Analysis of Seoul Citizen's Vehicle Ownership and User Characteristics

Kijung Ahn · Bumsik Kim

In this study, grasping the knowledge of vehicle ownership characteristics and utilization characteristics of Seoul, it is possible to study the factors that affect passenger car ownership and use Seoul citizens. This knowledge will be used for basic data in future traffic demand management policies. For analysis of the present research, a questionnaire survey of 1000 car owners in Seoul was conducted.

As a result, it showed that the average car ownership per house is 1.21, the average number of weekday trips are 3.8, and weekend trip were revealed to be 1.7 day. Passenger car ownership and operating cost can be divided into fixed costs(depreciation cost, automobile tax, insurance) and variable costs(fuel costs, parking fees, tolls, other maintenance costs and designated driver costs). The average vehicle ownership and operation cost of the respondents were 780,000 Korean won per month(9.36 million Korean won per year).

In this study, the type of passenger car used is divided into layers, with further investigation into each individual layer. A large quantity of passenger car use layers consist of business-type, high-vehicle involved, heavy drivers, those within the age range of 20 to 40 years old, of male gender, individuals with a monthly income level of 500~700 million Korean won if married, and the number of foreign car owners using private cars which is statistically and significantly large. However, the type of passenger car used are classified according to reliance on private vehicles, personal recognition/beliefs, and weekday and weekend usage.

Based on the results of this study, the construction of alternative transfer systems, such as car-sharing, in which an individual can utilize a vehicle when needed without owning a car, punctuality of public transportation, ensuring promptness and recognition of fixed costs associated with passenger car ownership of citizens, and mode change of automobile commuters through expansion of congested toll area are all being presented as policy recommendations.

## Seoul Subway Congestion Costs and Policy Implications

Seungjun Kim · Jaehyeon Jeon

Currently, reports on roadway congestion costs have been published annually but the Seoul subway(hereafter, subway) congestion costs were excluded in the reports. Yet, the subway also causes social costs, such as increased travel time during the peak hours, like roadway congestions, and also because of train delays and uncomfortable overcrowding on the trains. Thus, this research assessed the crowding valuation and congestion costs of the Seoul subway.

Subway user surveys were conducted to find out what the actual users thought about the overcrowding on the trains and how willing they were to pay for improving the level of crowding. It was revealed that the users experience a higher level of crowding inside the car than the reported level. Subway users also start to perceive discomfort and inconvenience as the crowding level approaches the passenger capacity(i.e. 100% crowding level). According to the research on the subway crowding valuation, subway users will accept 2.2 minutes of an increase in travel time with a 50% reduction of the crowding level. In other words if one converts that finding into a monetary unit, then this implies that subway users are willing to pay an extra 228 won for a 50% reduction of crowding improvement.

In this research, the subway congestion cost was assessed on two bases: 1) cost because of overcrowding on the trains, and 2) cost because of operational delay. For the qualitative aspect of overcrowding, the annual congestion cost was about 232 billion won while for the quantitative aspect of train delay, the annual congestion cost was about 493 billion won. Therefore, the total congestion cost of the Seoul subway system is about 725 billion won per year. Although this is a small amount(about 9%) of the congestion cost compared with that of roadways, it is reasonable to hypothesize that a large amount of social cost is also being caused also by the subway system.

This research has endeavoured to clarify the thesis that the subway congestion cost should not be overlooked and therefore, the cost ought to be taken into consideration when making various transportation policies.

The change of social cost needs to be reviewed while taking the subway congestion cost into consideration when the subway share increases because of demand management.

When assessing the feasibility of railway projects, additional benefits (decrease of crowding level in the other subway lines) should also be factored in.

Dynamic transit fare schemes for the subway can be set by taking into account to what extent they trigger the shift and change in the crowding level.



## Strategies for Improving the Quasi-Public Bus Operating System of the Seoul Metropolitan Government

Chang Yi · Jee Eun Jang

In 2004, the Seoul Metropolitan Government(SMG) introduced the Quasi-Public Bus Operating System. The purpose was to maximize efficiency while enhancing the quality of transit service at the same time. The most important ingredient building the system was the agreement between the SMG and the Seoul Bus Association, essentially association of bus companies in Seoul. It appears that the agreement has been far too imperfect to achieve initial objectives of the Quasi-Public Bus Operating System. The problems have been frequently noted by media and various Non-Governmental Organizations(NGO).

Most serious problems are threefold. First, the number of buses being operated is greater than the number of vehicles that are most efficient. Second, the Standard Operating Cost, that is a cost standard to subsidize bus companies, is set at an excessive level. Bus companies are being overly compensated. Third, little financial incentives are available to bus companies. Current amount of incentives is not sufficient to induce bus companies improve their service and management.

Citizens of Seoul need a stable operation of the bus system now and in the future. However, the problems above threaten the stability. This study prescribes the following policy changes. First, an accredited institution besides the SMG must estimate a proper number of reserve buses periodically that could meet a pre-set efficiency standard. Based on this information, the number of buses that should be available for malfunction of buses on the roadways can be determined. The authors of this report recommend not compensating surplus reserve buses. This could encourage bus companies to reduce their fleets.

Second, the Standard Operating Cost subsidizes bus companies based on standard prices of the necessary for operation. This way of payment should be converted to the method of providing expenses that each company actually spend.

Third, the present incentives should be expanded. It is only 1.6% of total Standard Operating Cost. Thus, it is difficult to encourage bus companies to maximize efficiency of bus operation. Separate budget account should be established to set up an effective incentive system. This study provides details of how such a strategy can be effectively executed.

Current agreement between the SMG and the Seoul Bus Association needs to be updated to solve the problems above. In a long run, a new municipal ordinance should be drafted to reflect such updates in new agreement.

Alternative policies above may not be realized in the short term. It is because the SMG is not actively exercising the authority of adjusting bus routes. Without a threat of revising or removing bus routes, the SMG is limited in engineering the agreement that could promise social benefits for the entire citizens of Seoul. In essence, the SMG has no bargaining chip. Adjusting bus routes is an extremely hard task for the SMG, since judicial precedents from the supreme court are also favorable to bus companies. Nonetheless, getting back and exercising the right for bus routes may be the only way to reshuffle and improve current bus system.

We should seek long-term solutions. As the first step, this research proposes reinstating a competitive bidding process for each bus line. The process can start with major routes, then gradually expanding to other routes. Highest bidders would be given a license with an expiration date. This way, the SMG can enter into a deal with bus companies that reduce financial burden, and most of all, promote efficiency and equity for citizens of Seoul.

## Improvements of Travel Survey and Statistical Indicators for Walk Trips

Soon-Gwan Kim · Jee Eun Jang · Tae Yoon Park

Current statistical indicators for walk trips in Seoul are produced from household travel surveys and walking population surveys. The household travel survey is conducted every five years and includes only main walk trips. The walking population survey is conducted every year and survey sites are changed each year. This means that both of the surveys cannot track changing trends.

The objectives of this study are to define walk trips and to suggest an improvement framework in order to update the statistical indicators for walk trips yearly.

In this study, the walk trip is categorized as either a ‘Main Walk Trip’ or an ‘Access Walk Trip’. ‘Main Walk Trips’ are trips for which the primary purpose from beginning to end is walking. ‘Access Walk Trips’ are walk trips undertaken with the aim of accessing or egressing to a different mode of transportation.



[Figure 1] Definitions of Walk Trips

The total number of walk trips inside Seoul in 2013 was 27,402 thousand, which consisted of 5,366 thousand major walk trips and 22,035 thousand access walk trips.

**[Table 1]** Walk Trips by Area in Seoul(2013)

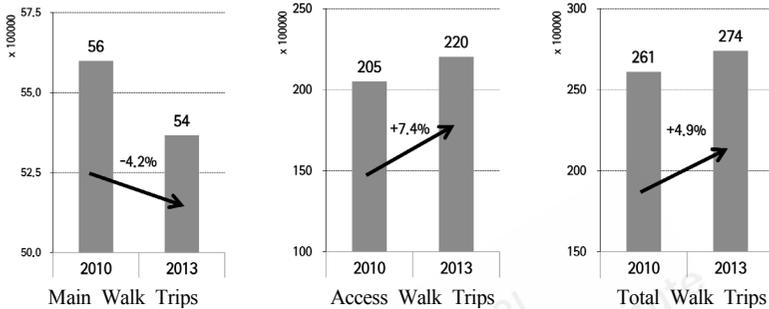
| Area            | Main Walk Trip<br>(A, household travel survey) | Access Walk Trip<br>(B, transit card data) | Total Walk<br>Trip(A+B) |
|-----------------|--|--|-------------------------|
| CBD             | 353,458  | 3,226,163                                  | 3,579,621               |
| East-North Area | 1,692,999                                      | 5,319,514                                  | 7,012,513               |
| West-North Area | 592,577  | 2,371,414                                  | 2,963,991               |
| West-South Area | 1,605,740                                      | 5,950,248                                  | 7,555,988               |
| East-South Area | 1,121,432                                      | 5,168,657                                  | 6,290,089               |
| Total           | 5,366,207                                      | 22,035,996                                 | 27,402,202              |

Identifying yearly changing trends in walk trips is necessary to improve statistical indicators. Starting with 10,000 sites in 2009, the walking population survey sites were reduced and changed every year, dropping to 2,000 sites by 2012. Only 108 permanent survey sites were left in 2014. Because most of the 108 sites represent a large proportion of the walking population, these sites are biased statistically. In this study, 282 new sites including the above 108 sites are selected and evaluated for statistical indicators representing the population.

|                    | Residential | Commercial | Green<br>Zone | Industrial | Total |
|--------------------|-------------|------------|---------------|------------|-------|
| CBD                | 18          | 25         | 1             | 0          | 44    |
| East-North<br>Area | 64          | 8          | 1             | 2          | 75    |
| West-North<br>Area | 40          | 8          | 1             | 0          | 49    |
| West-South<br>Area | 48          | 10         | 1             | 11         | 70    |
| East-South<br>Area | 36          | 7          | 1             | 0          | 44    |
| Total              | 206         | 58         | 5             | 13         | 282   |

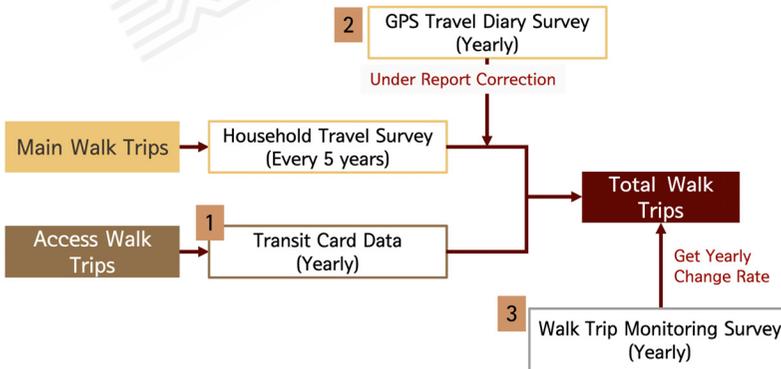
**[Figure 2]** Sites for Walk Trip Monitoring

Fig. 3 shows the changing trends of walk trips in Seoul between 2010 and 2013. Even though the number of main walk trips captured by the household travel survey decreased by 4.2%, access walk trips calculated from transit card data increased by 7.4%. This resulted in an increase of 4.9% for total walk trips.



[Figure 3] Change Trends for Walk Trips in Seoul

Statistical indicators for walk trips cannot be determined by any single survey. Fig. 4 shows a framework that includes multi-processes to improve walk trip statistics.



[Figure 4] Improvement Framework for Walk Trip Statistics

## Traffic Operation Strategy to Improve Pedestrian Safety at Signalized Intersections

Wonho Kim · Woosik Hong

In the past 10 years, Seoul Metropolitan Government(SMG) has demonstrated efforts to vitalize walking, and through this, the walking environment on sidewalks at the city center and the central commercial area has improved. Additionally, large pedestrian spaces, such as pedestrian zones and the transit malls, were secured. However, the walking environment of intersections where conflict occurs between pedestrians and vehicles has not been significantly improved because of lack of policies/infrastructures that protect the pedestrian priority.

According to a survey, 38% of the respondents reported that conflict that occurs with vehicles at crosswalks and community roads is the most inconvenient factor when walking. This indicates that minimizing conflict and securing the continuity and safety of walking are crucial in forming a pleasant walking environment.

Generally, conflicts between vehicles and pedestrians at channelized intersections occur on crosswalks that connect the channelized pedestrian islands and sidewalks. Hence, this study analyzes the social benefits of the operation of pedestrian islands and suggests alternative traffic operation method. Also, this study examines the feasibility of implementing right-turn signal operation, which may aid in eliminating pedestrian-vehicle conflicts on crosswalks.

Pedestrian islands were introduced nationwide in 1988 through transportation system management(TSM) for increasing capacity and reducing traffic delays at intersections. As a result, many pedestrian islands were installed at the intersections of Seoul's main arterials with heavy crossing pedestrian volume. Research and guidelines regarding right-turn pedestrian islands recommend that they should be

installed at intersections with low pedestrian volume and high right-turn vehicle volume, or on intersections with short right-turn radius for large vehicles. Additionally, recent Seoul's pedestrian polices recommend removing unnecessary traffic islands.

To diagnose the effectiveness of pedestrian islands, a conflict estimation model is developed based on field survey data; the right-turn volume, the crossing pedestrian volume, and the frequency of conflict of 48 pedestrian islands of Seoul's CBD. Then the delay of vehicles/pedestrians is analyzed. As a result of the analysis, operation of pedestrian islands is more effective when the right-turn volume is over 260 veh/hour and the pedestrian volume is below 800 ped/hour. After applying this to 48 pedestrian islands located in Seoul's CBD, only 6 traffic islands were found to be more operationally efficient than regular crosswalks.

Since Korea allows right turn on red at signalized intersections, pedestrian-vehicle conflicts occur at the crosswalk when the crosswalk signal is green. Right turn on red has been allowed since 1973 in order to reduce delays due to vehicles turning right at signalized intersections. In this study, the operation of a right-turn signal that can provide complete pedestrian priority during pedestrian green time is examined. To analyze this, right turn volume, crossing volume and frequency of conflict were investigated for 9 intersections located in Seoul's CBD, and based on the results of the field survey, a probabilistic conflict estimation model that considers the signal cycle and crossing behavior of pedestrians was developed, and the change in delay for vehicles/pedestrians was analyzed.

The results show that the operation of a right-turn signal is effective when the right turn volume is less than 240 veh/hour and the crossing volume is more than 200 ped/hour. After applying this to 9 regular intersections, 7 intersections showed results that support the operation of right turn only signals.

## Establishment of an Annual Reporting Framework for Seoul Transport Complaints

Seung-Jun Kim · Jihun Park

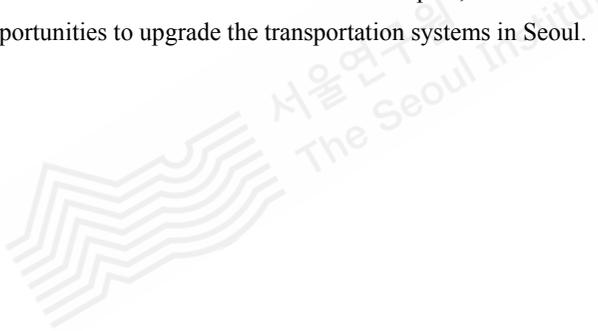
Every year citizens of Seoul file approximately 71 thousand complaints about Seoul transportation system. This means 195 complaints, on average, are filed everyday with respect to transportation services, which are one-third of all civil complaints. Due to this, it is important for transportation planners to carefully monitor citizens' complaints about transportation. Nonetheless, no substantial effort has been made to analyze and properly classify these transportation complaints to understand the real problems people are facing. Further, an administrative system to collect and manage the complaints is fragmented to various city(Seoul Metropolitan Government) agencies.

This study aims to gather the fragmented complaints and proposes a new template that can classify the complaints. Applying a hierarchical classification method, the new template considers 7 categories, 56 divisions specifying important factors including transport modes, facilities, etc.

This research utilized the existing classification tool to organize the previously collected transportation complaints, calling it 'Complaint Report 1.' 'Complaint Report 1' reveals the degree of the complaints with regard to each transport mode and facilities. Despite its merits, Complaint Report 1 has limitation since the classification is based on administrative arrangement of the city's government. Thus, it is difficult for citizens or even analysts to grasp the current status of complaints. Moreover, it is less matching with the new template that this research has developed.

To better analyze transportation complaints, this research extracted samples from each category of the complaints and distributed to the proposed template. This is named ‘Complaint Report 2’. ‘Complaint Report 2’ can analyze the category and frequency of the complaints. Additionally it can conduct a series of detailed analyses focusing on each transport mode and facilities, characteristics of individual civil petitioners, and the purpose and target of complaints. Most of all, city officials are able to evaluate transportation policies with year-by-year comparisons of the complaints.

This study is the first attempt to systematically analyze civil complaints about transportation services. The analysis of transportation complaints is done to respond to the demand of the citizens. In that respect, we believe our findings present opportunities to upgrade the transportation systems in Seoul.



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

Chang Yi · Kwang-Hoon Lee · Soon-Gwan Kim · Shin-Hae Lee · Seongil Shin ·  
Wonho Kim · Seung-Jun Kim · KiJung Ahn · Gyeong-Sang Yoo · Sangmi Jeong

Starting in the 1960s, the fast-growing economy in Korea had fueled the urbanization of Seoul for decades. However, the increasing population called for new housing development and transportation infrastructure. The Seoul Metropolitan Government had dealt with the growing demand by building high-rise apartments and undertaking a large-scale commercial redevelopment projects. In doing so, dilapidated houses were demolished and the existing inhabitants had been forced to leave and live outside of Seoul. Although those strategies produced an improved built environment, it created serious adverse effects including traffic congestion, the destruction of existing communities, and homogeneous urban landscape everywhere. Presently, however, urban regeneration comes into the spotlight among urban planners. This could, in theory, rehabilitate a declining area with a serious consideration of economic and social dimensions, as well as the physical aspect in any redevelopments.

In urban regeneration projects, the physical dimension is still a critical basis to rebuild a community and revitalize the stagnant economy of a decayed area. There is, however, no policy instrument and legal ground to invest in transport infrastructure in urban regeneration efforts. As a result, it is difficult to find completed pedestrian networks established throughout transit-centered areas or public open space connected to transit stations and other key facilities.

Many different kinds of problems are prevalent in decrepit residential complexes such as inadequate pedestrian environment, narrow streets and illegal parking. In essence, we found that many of the problems for the old neighborhoods in Seoul stem from illegal parking. Problems with regard to pedestrian safety and the lack of

public space for residents are largely derived from too many cars parked on the streets. While demand for parking has steadily increased, there is little room for supplying parking spaces in old neighborhoods. In particular, illegal parking creates a serious fire hazard since automobiles double-parked in narrow streets can block the fire lane. At the time of a fire, it is certainly possible that illegal parking can result in the loss of lives.

This study argues for a greater role of transportation planning for the urban regeneration projects in Seoul. We propose to apply the concept of ‘Spatial Transportation Planning’ for redevelopment projects around transit-centered areas. It requires the accurate prediction of travel demand for public transit and pedestrians to provide an adequate level of transport infrastructure. With the Spatial Transportation Planning, it becomes more feasible to set up pedestrian channels connecting ingress and egress of the core areas, elevated pedestrian decks above roadways, and facilities connecting the underground pedestrian spaces to the ground level.

We need a different solution for residential neighborhoods that suffer from an inadequate level of transport infrastructure. As noted, the essence of the problems is the shortage of parking space. This study proposes to draft the District Transportation Planning for every residential regeneration project, with a focus on parking solutions. We argue for introducing the ‘Transportation MP(Master Planner)’ so that the MP can provide guidance to creating a well-drafted and detailed transportation plan.

Most of all, the current legislation with respect to urban regeneration does not allow investing in transport infrastructure, whereas authorizing financial assistance for smaller-scale programs such as establishing neighborhood-based enterprises or repair work for old houses. Therefore, this law should be revised so that the transport infrastructure can be improved.

We are confident that following the recipes in this study would lead to the successful urban regeneration of Seoul.

## The Road Subsidence Conditions and Safety Improvement Plans in Seoul

Yoon-Shin Bae · Sang-Young Shin · Jong-Seok Won · Dae-Heung Lee

The ground subsidence includes sinkhole, settlement, cavity, potholes, and road subsidence. Road subsidence is described as the cavity collapse caused by bearing capacity loss in the ground rather than depression in the ground, etc. in limestone, where a surface stream, disappears underground. The events have been occurred about 677 times. And it increased until 2013 and have decreased recently.

Underground facility damages, management faults, and underwater lowering caused road subsidences in Seoul. Seoul metropolitan government announced special management counterplan to relieve anxieties and make safe road passing(2014.08.28.). it is necessary to precisely manage the construction sites because excavation work induce road subsidence.

This study suggests three plans to prevent road subsidence in Seoul. Firstly, revision about construction method and period road rules are described. Secondly, to prevent road subsidence due to poor compaction and backfill, flow backfill material use is suggested instead of sandy clay. It can also prevent effectively protect underground conduits. Since city's main roads have been investigated and will be checked because of the budget difficulties.

## Strategic Plan for Developing Da Nang Metropolitan Region

Joonho Ko · Inhee Kim · Mookhan Kim · Hyeongyun Ki · Meekyong Song

The Seoul Institute engaged in a joint research, as a part of the megacity knowledge sharing program, with the Da Nang Institute for Socio-economic Development (DISED) to form a Da Nang Metropolitan Region by suggesting a transportation system improvement plan and setting up a metropolitan governance system.

Da Nang is one of the five major cities centrally governed by Vietnam. Da Nang has a higher-than-average population growth rate and high percentage of retail sales of goods and services, which is 53% of its overall industry. This percentage is even higher than other major cities in Vietnam. However, the total revenue of retail sales of goods and services is only 7.4~16.7% of Ho Chi Minh City and Hanoi, which explains the necessity to enlarge the scale of the economy by forming a Da Nang metropolitan region with the surrounding areas.

Currently, the volume of trips between Da Nang and its surrounding area is very low. The ratio of the inter-regional trips is only 7.5% of the total number of trips generated in Da Nang. In addition, the mode share of the motorcycle takes up 72% of the total trips, which is extremely high, meaning that the use of car or public transportation is extremely low. Therefore it is necessary to change the mode share by increasing the percentage of public transportation, preparing for the rapid increase of inter-regional traffic in the future.

To do this, first the regional network such as roads and railways must be expanded within the metropolitan region. If the regional transportation network is efficient, it could reduce the travel time within the metropolitan region in half. Secondly, to change the main transportation mode from motorcycle to public transportation, Bus Rapid Transit (BRT) system needs to be implemented and current operation hours and service frequency should be increased within the city

center. If this restructuring is successful the analysis shows that the current level of traffic flow can be maintained even if the total volume of trips is doubled.

In order to implement the plan, we suggest Da Nang to form a ‘Metropolitan Da Nang Transportation Association (a provisional name)’ in cooperation with neighboring cities. Also it is crucial to receive financial support from the central government for expanding the infrastructure by constructing national highways and freeways. This research was conducted based on the experience of Korea’s regional transportation infrastructure development and the outcome is expected to be used in establishing the vision of Vietnam central region.



## 03 Environmental Planning

### Background

As environmental planning covers a variety of fields, the Seoul Institute research studies on environmental planning are unique in their own fields. The list includes a study on a basic principle. Spatial information about ecosystem is the basis for environmental planning. ‘Environmentally friendly Urban Management Using Biotope Maps’ investigates effective ways for the practical use of biotope maps in environmental planning. The study examines the current status of biotope map usage in environmental planning. Then the authors develop an environmental management technique that can utilize biotope maps. This study will be used to update and improve diverse environmental planning regulations and guidelines.

Natural amenities such as parks and streams have both environmental and recreational benefits. City officials have noticed that streamlets in Seoul have the potential to restore ecosystems and provide places of relaxation for local communities. However streamlets have been largely neglected. They have been dried up and paved over. ‘A Study on Functional Improvement and Management for Streamlets in Seoul’ suggests management schemes to develop the recreational and biological benefits and proposes the drafting of an ordinance to systematically protect and improve the streamlets in the city.

Parks are classified as ‘Urban Planning Facilities’. For instance, if the city government designates a certain piece of land as an urban planning facility (such as a park, a roadway, or a bus depot), physical development is heavily restricted even if the land is owned by private citizens. While this practice was justified in the name of the public interest, it is no longer possible or desirable. Now the Seoul Metropolitan Government needs to purchase a land for public use or otherwise

compensate the owners of land parcels that are desirable for public purposes. In addition, due to the limited financial resources, the city officials need to understand which land most needs to remain for public use. 'A Study on the Plans to Establish Standards for Setting Priorities of Compensation for Unexecuted Urban Planning Facilities Infrastructure in Green Tract of Land' is an attempt to determine these priorities through economic, social and environmental indices.

Policy efforts to preserve natural resources such as parks are partly intended to improve air quality. What affects air quality most directly is gas emission from automobiles. It has recently been determined that emissions from diesel vehicles are particularly detrimental to air quality. Indeed diesel vehicles are responsible for 45% of nitrogen oxide (NO<sub>x</sub>), 43% of particulate matter 10 (PM<sub>10</sub>), and 44% of PM<sub>2.5</sub> in Seoul. 'Policy Options to Manage High-pollution On-road Diesel Vehicles Based on Excessive Emission Grades in Seoul' analyzes the actual emission properties of diesel vehicles. The study then suggests policy options and regulations.

Energy is an important issue for environmental planners at the Seoul Institute. After Seoul experienced a blackout in 2011, maintaining a certain level of electric power reserve has become a critical task. 'A Study on the Utilization of Emergency Generators as a Backup Power System' weighs the pros and cons of utilizing an emergency power generation system in the event of a sudden electric power shortage. The study concludes that generators bring with them high costs but low benefits. A series of economic feasibility analyses follow.

## Environmentally Friendly Urban Management Using Biotope Maps

In-Ju Song · Seong-Gyeong Yoon

Because land planning and environmental planning are now linked as a policy measure, related studies are actively underway along with institutional support for spatial environment planning which can be connected with land planning. The primary basis for spatial environment planning is environmental spatial information, for which national projects are being executed for upgrading this information, including national environmental zoning map and forest-type maps. Additionally, various types of spatial information are currently being created. In 2000, the Seoul Metropolitan Government developed biotope maps as a part of ecological spatial information and has used them for ecological urban management in a number of ways, including standards for development permission and environmental impact assessment. However, the map was largely used as a means of direct regulation or management based on grade and fell short of comprehensively applying environmentally friendly urban planning and management. This research therefore draws up specific and qualitative examination and criteria for biotope maps to enhance the city of Seoul's sustain ability and ensure effective urban management and build the foundation for future ecological planning.

This research largely comprises three parts: current status of environmentally friendly urban management in Seoul; analysis of environmentally friendly urban management associated with biotopes; and development of environmentally friendly urban management that uses biotope maps. First, the study analyzed Seoul's current status of environmentally friendly urban management. Although the topic can be approached from various fronts, the scope of review in this research was limited to the city's existing systems related to biotope maps and an overview

of each system. Research was also conducted on measures that have been implemented in Seoul, including current land use regulation, an environmental review of urban planning, an environmental impact assessment, and green building certification. Second, the study analyzed environmentally friendly urban management associated with biotopes. Policies and current research on spatial environment planning were studied, and the existing studies were classified as nation, city, or district level. Domestic and international environmentally friendly urban management practices that used spatial information were also reviewed. Third, an environmentally friendly urban management technique was developed that used a biotope map. Based on literature analysis and field investigation, an examination method and criteria for the biotope items were drafted and subsequently finalized using an expert survey and consultation.

These research results were applied to improvement of examination method and criteria for biotope items of 「Guideline for Environmental Review of Urban Planning」 and improvement of items for flora and fauna of 「Items and Deliberation Criteria for Environmental Impact Assessment Buildings and Refurbishment Projects」.

The study quantified an environmental review of urban planning with newly applied examination method and new criteria. In Particular, when a biotope worth preserving(biotope type grade Ⅰ) is within or adjacent to a business district, documents that identified the biotope's ecological status such as photos of the site or biotope research data have to be attached. Additionally, when a biotope is inevitably destroyed due to business execution, alternative land has to be designated or a restoration plan has to be submitted for review by related departments. In addition, when a biotope worth preservation is located within or near a business district, a plan for parks and green spaces(an environment plan) has to be devised, applied with biotope examination and criteria laid out in a guideline: the plan then has to be submitted to related departments. In examining biotopes, biotope improvement plans have to be proposed for inside and outside the business district, and a biotope status checklist and examination result table have to be drawn up so

that potential authors could check current status and consequently come up with improvement measures and reviewers could understand and judge overall condition.

In the environmental impact assessment of Seoul, evaluation methods for biotope preservation and alternative land are newly presented with detailed information about the size and spatial range of any alternative land, and tree species for planting. For the tree planting measures, the study suggested a multi-layer planting model, native tree species of Seoul, and vegetative buffers. To create and maintain biotopes, location, size, type, species, outside interference, and maintenance measures were determined and demonstrated in detail for each category.

Therefore, it is necessary to revise the guidelines in order to enhance the effectiveness of environmentally friendly urban management by applying the specific qualitative biotope examination and criteria that are obtained in this research. Spatial planning should be structured around biotope items through applying the suggested examination method and criteria and developed further for ecological planning in Seoul through possible linkage with other environmentally friendly planning techniques such as ecological area rate.

## A Study on Functional Improvement and Management for Streamlets in Seoul

Yong-Mo Cho·Jung-Kyu Jin·Mi-Jin Hong

Streamlets located in the metropolitan city of Seoul, South Korea have only served a limited role as waterways because they have been dried up and closed (e.g., paved). Thus, their roles have been underappreciated, and in some cases, they have been neglected as dead zones. The improvement of streamlets will have many advantages: 1) provide recreational and resting spaces for the local community, 2) restore the ecosystem by mitigating the urban heat island and diversifying biological systems around the surrounding areas.

The purpose of this study is to suggest management solutions and to develop the recreational and biological roles of streamlets in Seoul.

The importance of streamlets is as follows. First, streamlets are the bases of open streams. In recent years, a great deal of attention has been paid to streamlets in providing habitats for various biological and ecological organisms, and creating an environment that acclimates to the waterways. Second, streamlets are channels that connect geological, aquatic, biological, and ecological activities in the community.

The results of this study are as follows.

1. The mapping of water flow paths of 73 streams, including streamlets in Seoul, and DB (data base) construction.
  - Although the of the streams in Seoul have been unavailable in data base form, this study has led to the mapping of water flow paths and the construction of a GIS data base. Seventy-three streams, which were first established as water flow paths, include 4 national streams, 36 local streams, 18 small streams, and 15 streamlets.
2. Analysis concerning the statuses of the ecosystems of streamlets: the results suggest good ecosystems in various streamlets, including Baeksasilcheon.

- Upon examining the property of the ecosystems, we observed the necessity to conserve the competent ecosystems in streamlets such as Baeksasilcheon, Musucheon, Mulpuregolcheon, Jingwannaecheon, Bugyeoncheon, OkryuDongcheon, and upstream of Jihyangcheon.
- 3. The improvement of the roles of streamlets and a proposal for their maintenance.
  - General Directions and Detailed Strategies for the Conservation of Streamlets
  - A Detailed Draft of the “Seoul Metropolitan Government Ordinance on the Functional Improvement and Management of Streamlets” (tentative name)

To pave the way for functional improvement and management of streamlets, the “Seoul Metropolitan Government Ordinance on the Functional Improvement and Management of Streamlets” should be enacted. The ordinance should include the following contents/articles that are listed below.

- 1) Explanations on the background and the purpose of the ordinance.
- 2) A definition of streamlets and description about the relationship between streamlets and small streams.
- 3) Articles explaining the value and importance of streamlets.
- 4) Articles to enable the designation and management of streams with satisfactory ecological ratings as Ecological and Landscape Conservation Areas.
- 5) Articles to enable the establishment of a flood control plan and ecological restoration of streamlets.
- 6) Articles to enable the management of the quantity/quality of water, ecological management based on each streamlet’s features, and establishment of detention ponds and morasses.
- 7) Articles to enable participation of local citizens in the management of streamlets and support for the citizens.
- 8) Articles to enable assessments of the restorability of streamlets based on their conditions and features.
- 9) Articles to enable the installation of signboards and maps showing the pre-existing flow paths to the streamlets.

## A Study on the Plans to Establish Standards for Setting Priorities of Compensation for Unexecuted Urban Planning Facilities Infrastructure in Green Tract of Land

Won-Ju Kim · Jung-Kyu Jin · Kyu-Yi Kang

Long-termed unexecuted urban planning facilities infrastructure is expected to be ineffective as of 2020 under the ‘Act of Sunset’. Despite previous efforts to resolve this issue, the necessity for a solution is becoming an urgent social issue. The purpose of this study was to establish indices and evaluation methods to set priorities of compensation for unexecuted urban planning facilities infrastructure in green tract of land and obtain the relevant, basic data.

Investigations have shown that among the various factors involved, the original and financial limitation and limitation in the process of execution are major causes of long-term unexecuted urban planning facilities. Resolving this issue requires an understanding of conflicting values among the interested parties, which are mostly economic, social and environmental values. Therefore, priorities of compensation should be based on various values and opinions of landowners, citizens who would benefit from the infrastructure and future generations, in order to secure necessity of execution, validity and efficiency.

In this study, 10 green tracts of land and 147 land parcels were evaluated by 15 economic, social and environmental indices to reflect the conflicting values comprehensively. Among the 27 indices used in previous studies, 9 were applicable to this study, and 6 additional indices were newly selected for this study. The units and scope of the values of the corresponding indices were standardized with a single standard by Z-Score and subsequently compared. The priorities of compensation needed were obtained through this process. The study revealed that among 10 green tracts of land, green tract of land in Mapo-Gu had high priority and green tract of land in Seocho-Gu and green tract of land in Seodaemun-Gu generally had low priorities.

However, the methods of evaluation of the above indices may lack practicality because the scope of compensation covers all the land for facilities. Accordingly, a strategic executive plan to compensate for this problem should be selected and applied, considering conditions and situations of corresponding area for establishment and execution of valid facilities' infrastructure in green tract of land, without reducing future demands.

## Policy Options to Manage High-pollution On-road Diesel Vehicles Based on Excessive Emission Grades in Seoul

WoonSoo Kim · Jeong-Ah Kim

In recent years concern about exhaust emissions from motor vehicles has been increasing. In particular, diesel exhaust pollutants would include contaminants classified as human carcinogens by the U.S. Environmental Protection Agency(EPA) and the International Agency for Research on Cancer(IARC) of the UN's World Health Organization(WHO) in 2012. Prior to the recent disclosing Volkswagen company's 'defeat device', diesel vehicles were recognized as cleaner than gasoline cars, due to their greater fuel economy and reduced maintenance requirements. Furthermore, diesel vehicles were supposed to be the answer to high carbon emissions of the transport sector, a lower emitting fuel that was a mature technology unlike electric or hydrogen cars.

The emission characteristics of diesel vehicles, however, are very different, and an increase of diesel vehicles at the expense of gasoline vehicles could have important implications regarding environmental issues including urban air quality, smog formation and global warming. The public-health problems associated with diesel emissions—for example, studies of humans routinely exposed to diesel fumes indicate a greater risk of lung cancer—have therefore led to an intensification of the efforts regarding the development of viable emission-reduction solutions.

Faced with the real-world emission properties of diesel vehicles, there have been much debates: 1) diesel vehicles enrolled in Seoul account for nearly 45% of all nitrogen oxides(NOx), 43% of PM10, and 44% of PM2.5 emissions from Korea's Clean Air Policy Supporting System(CAPSS), 2) diesel car ownership has been increasing year by year, up to 33% in 2014, and 3) portion of the model year of diesel vehicles passing 10 years is about 47% in vans, 42.8% in trucks. These statistics might indicate that, with the recent Volkswagen scandal showing new diesel vehicles are likely to much exceed the limits set by the EURO6 standard,

on-road diesel vehicles be another source of excessive PM and NOx emissions in Seoul.

The aim of this current research is a determination of the actual emission properties of on-road diesel vehicles for the development of policy options that can meet Seoul's ongoing disciplines regarding the city's exhaust-emission-reduction conformity.

Based on the assessment of diesel fume emission test data in 2014, excessive emission scores are calculated and grouped into 5 categories. This could be used to identify target of exhaust emission reducing conformity and select the on-road diesel vehicles by priorities for effectively reducing PM·NOx emissions. In addition, it will be important to ensure that emission levels are maintained throughout the life of the diesel vehicle through assessment of yearly 'excessive emission grades' using periodic emission testing data.

In addition, to make Seoul a cleaner breathable environment for all citizens, more dynamic and flexible policy options are essential. To encourage reduction of excessive emissions from on-road diesel vehicles, the following policy options are recommended: 1) identify excessive emissions from on-road diesel vehicles to select priorities for reducing PM·NOx emissions, 2) add NOx to inspection & checkup emissions of on-road diesel vehicles, 3) adopt OBD test to monitor the function of emission control devices, 4) introduce flexible application of accelerated retirement of old diesel vehicles, 5) adopt NOx emissions standards linked with combined fuel efficiency test including real driving emission test and regulation, 6) withdraw the operation of urban taxi, 7) redesign implementing low emission zone(LEZ), and 8) establish realistic and effective air quality forecast & warning system responding to health and safety.

## A Study on the Utilization of Emergency Generators as a Backup Power System

Hang-Moon Cho · Sung-Hee Yoo

Korea has experienced nationwide power blackout in 2011. Citizens and stakeholders of factories have been making greater efforts to keep proper level of electric power reserve rate. It seems to be a painful process. If local level of power blackout occurs, it may cause the worst type of social disorder due to the failure of information instruments or security systems.

Emergency power generation systems have a high potential of electric power supply and power reserve rate. The total capacity of an emergency generator is 21GW in Korea. Its capacity is equivalent to 21 nuclear power plants. 15,000 emergency generators having the capacity of 4,690MW are installed in buildings and infrastructures in Seoul. There are 970 emergency generators of mega watt scale with a total capacity of 1,370MW in Seoul alone.

The result of questionnaire study shows that operation of a generator causes high costs and low benefit. This is because the price of electricity from an engine generator is higher than the price of electricity from a grid. In general, emergency generators use diesel, and the price per calorie of diesel is higher than that of city gas. If the fuel system of emergency generators could be changed to a gas-diesel mixture, the fuel cost could be reduced drastically. However, it is still not enough to overcome the high cost of electric power production. Further, it would need an engine system modification, which would also incur high costs.

The results of an economic feasibility analysis shows that 1.83 of B/C ratio and 8.1% of IRR are due to diverse benefits, for example, avoidance of power transmission, avoidance of power distribution, avoidance of power generation etc. Financial feasibility studies show that 1.23 of B/C ratio and 6.5% of IRR are due to power production and power cost reduction for peak-cut. However, a long pay-back period is an obstacle to investment on emergency generator modification.

Existing emergency generation systems with ATS(Automatic Transfer Switch) could not avoid momentary blackout. Emergency generators with ESS(Energy Storage System) and CTTS(Closed Transition Transfer Switch) have the potential of realization of an uninterruptible power system. Only a 5 minute power supply capacity of ESS is enough to prevent a blackout of fire-fighting facilities and emergency instruments while a power generator gets started and synchronized.

Security enhancement of electric power supply is a very important issue. Emergency generators with ESS and CTTS can ensure the stability and safety of a power supply without having to worry about a blackout. Emergency generators with ESS and CTTS systems must be adopted as a standard of emergency power system for large buildings.



## 04 Urban Administration

### Background

There are many important issues in terms of the administrative system of local governments in Korea. One of them is to push ahead with decentralization, which will pass greater authority on to municipalities. In a nation where a highly centralized government system is the norm, the national government has made efforts to hand over some administrative power to local governments. In 2014, the Presidential Committee of Local Autonomy Development drafted the ‘Comprehensive Plan for the Decentralization System of South Korea’ that proposes a way to distribute administrative power to local governments. We at the Seoul Institute consider that it is our job to come up with strategies to take full advantage of such a national plan. In that context, ‘A study about the Promotion Strategies of the Decentralization Agendas of the Seoul Declaration’ has been conducted. This study sets up an agenda for the Seoul Metropolitan Government and identifies several projects to increase local autonomy.

Another important aspect of urban administration in relation to the national government is, of course, the budget. All city governments in Korea receive subsidies from the national government. ‘A study on the Estimation Method for the Subsidy Rate for National Subsidies in Social Welfare’ argues that the method to estimate the amount of subsidies for local social welfare programs is unclear. Through expert surveys and quantitative analyses, this study develops the standards to estimate social welfare subsidies for the Seoul Metropolitan Government. The budget on safety programs in Seoul has also received a particular attention after the Sewol Ferry tragedy in 2014. ‘A Study on Defining and Allocating the Safety Budget in Seoul’ investigates the current state and problems of safety budget in Seoul.

From the beginning of his administration, Mayor Park Won Soon assumed a definite attitude that citizen participation should be the core principle of urban policies in Seoul. It has been indeed. Researchers for the study, ‘Searching for the Way to Establish the a Seoul-type Governance’ calls the outcomes achieved thus far from participatory efforts, ‘Collaborative Governance Seoul 1.0’. This study identifies major issues with the current governance structure and programs. The authors then propose steps that need to be taken on the path towards ‘Collaborative Governance Seoul 2.0’.



## A Study about the Promotion Strategies of the Decentralization Agendas of the Seoul Declaration

Chan Dong Kim · Hee Yun Jung

On 8 December 2014, the Comprehensive Plan for the Decentralization System of South Korea was announced by the Presidential Committee of Local Autonomy Development. The Plan was the first official government document approved by the Cabinet Council. This government plan includes most issues concerning the local autonomy of South Korea such as the devolution of power, local autonomy of the neighbourhoods, sound local finance and accountability, local police services, and integration of administrative boundaries. These issues were classified into three categories, core agendas, general agendas, and future agendas.

Within this policy context, this study deals with local responses against the central government's version of the local autonomy development of South Korea. The main purposes of this study are to seek to develop promotion strategies for the greater local autonomy from both the views of the Seoul Metropolitan Government in particular, and the local governments in general. The major findings and contents of the study are summarized as follows.

First, promotion strategies for the decentralization system are described from the perspective of the Seoul Metropolitan Government. Second, Seoul as the capital of South Korea needs to consider four major concerns in dealing with decentralization agendas: 1) better public services from the standpoint of citizens, 2) enhancing democratic values, 3) more balanced development at the national level, and 4) as a major local partner of the central government in the policy making process. Third, bearing in mind those four major considerations, new perspectives are proposed about the relationship between the central government and local government. More specifically, various decentralization issues and agendas announced by the Presidential Committee of Local Autonomy Development are examined from the perspective of the Seoul Metropolitan Government.

As a leading role of Seoul, several projects of Seoul Metropolitan Government for the greater local autonomy development at the municipal level were also suggested: division of administrative roles between city and municipal level and devolution of power, bottom-up and participatory municipal autonomy, institutional structure to enhance local autonomy at the neighborhood level, networking for the greater autonomy at the metropolitan level, Seoul version of master plan for decentralization reform. Policy suggestions for the central government are proposed in the view of the Seoul Metropolitan Government. Secondly, promotion strategies of decentralization system from local government's perspectives in general was explored. Specifically, ways of local government participations in the central government policy making process and various compositions of local government structure were discussed in detail. To vitalize the local autonomy, legislative improvements such as self legislative power, self regulatory power, authorities of organization reform and human resources were discussed and suggested.

## Study on the Estimation Method for the Subsidy Rate for National Subsidies in Social Welfare

Jun-Sik Bae · Bum-Sik Kim · Seong-Moon Park · Dong-Yeol Jang

The purpose of this study is to analyze the adequacy of the subsidy rate and calculation standards for current social welfare government subsidies. As the government has increased social welfare spending, the matching funds for social welfare at local governments have also increased. In other local governments as well as in Seoul, the increasing rate of social welfare expenditure is very high compared with other expenditures. This situation causes both financial pressure and financial inflexibility in local governments.

Under these circumstances, the national subsidy system for social welfare has generated a lot of problems. The current subsidy allocation system is weakening the financial base of local governments and the estimation process is also ambiguous. By disregarding the financial situation of each region, the effectiveness of subsidies is being reduced.

Although the subsidy system has many problems, one of the most significant is that the decision making process for subsidy estimation is not clear. In order to solve this problem, it is necessary to apply a variety of estimation criteria. In this study, we applied the degree of financial independence for the local government, the index of financial capability for the local government, the number of beneficiaries representing social welfare demand and the tax expenditure per capita to the estimation criteria.

Through an expert research survey, these estimation criteria are evaluated. The empirical analysis is conducted in three ways. In the first stage, we used the degree of financial independence for the local government and the social welfare index as explanatory variables for estimating the size of the subsidy. Overall, these variables are quite effective but are not enough to explain the size of the subsidy. In the second stage, we applied the degree of financial independence for the local

government, the index of financial capability for the local government, the number of beneficiaries, and the tax expenditure per capita to the model, resulting in better fitted results. Especially, the number of beneficiaries representing the social welfare demand explains the size of the subsidy perfectly in all area of social welfare. In the third stage, we applied only valid variables to increase the effectiveness of the model. Based on the most effective model, we calculated the rate of subsidy, and found that the subsidy rate from the central government was lower than the rate of subsidy we estimated on average, although it differed each year.

In conclusion, more accurate estimation standards are needed for the calculation of social welfare subsidies, and the decision making process should be clear during the allocation of national subsidies. Specifically, the government should establish more objective estimation standards when allocating social welfare subsidies. Also, different estimation criteria should be applied according to the level of the local government, because they gave different financial circumstances and regional characteristics.

## A Study on Defining and Allocating the Safety Budget in Seoul

Jong-Seok Won · Sang-Gyoon Kim

The Sewol ferry accident led Koreans to have a strong interest in safety budgets, which are necessary for governments to move forward with safety plans. However, the national government and local governments have not yet devised comprehensive safety budgets and money is not being effectively allocated or managed.

Citizens of Seoul, who live in a densely populated area with a high concentration of buildings, are at risk from natural and man-made disasters. So, the Seoul Metropolitan government(SMG) must be responsible for implementing a safety budget. In this study, we propose solutions to the SMG's safety budget problems. We took into account the current state of the SMG safety budget, related cases, strategic elements, discussions with people in charge, and the opinions of professionals.

Our investigations led us to the following conclusions:

- i ) SMG should coordinate the requests of individual departments concerning the safety budget.
- ii ) SMG should consolidate the tasks necessary for the formation and implementation of the safety budget.
- iii ) SMG must continuously upgrade details of the safety budget and disaster plans and provide appropriate training.
- iv ) Statistics on building disasters that match the safety budget to disaster characteristics are needed by SMG, experts, and researchers.
- v ) Allocation of funds must be dependent on disaster management stage.
- vi ) SMG needs to present fair and open measures for planning and executing the safety budget.

## Searching for the Way to Establish the ‘Seoul-type Governance’

Byeong-Sun Jeong · Da-Kyoung Kim · Young-Eun Kim · Hong-Tek Lee

A traditional government-led public administration paradigm met its limitation. Therefore, Seoul Metropolitan Government(hereafter SMG) has set collaborative governance as a keynote policy of the city, and has pursued collaborative governance friendly policies and has established institutional basis for them. In this research, with consideration of the policy environment of Seoul, a new collaborative governance model was developed in order to propel the collaborative policy and institutionalization.

In this research, key policies and institutions were thoroughly analyzed, and the current condition for collaborative governance was examined. Currently, Seoul lies at the ‘Collaborative Governance Seoul 1.0’, and four pending issues were drawn out:

- The existence of perception gap and distrust between the public and the private sector with regard to the collaborative governance
- Re-establishment of institutional grounds support the ‘collaborative governance Seoul’
- Reasonable improvement of the overall structure and operating system of the collaborative governance of Seoul
- Re-establishing convergence oriented collaborative governance in local community

By addressing these pending issues, the 6th mayoral term should proceed to the ‘Collaborative Governance Seoul 2.0’ stage. In order to do this, five strategic policy tasks that are to be dealt urgently were set in this research. Moreover, in order to achieve the objectives of the tasks, several detailed policies were developed.

- Policy task 1: Sharing understanding about a desirable collaborative governance and stimulating mutual trust
- Policy task 2: Seeking an incremental chance towards the collaborative governance
- Policy task 3: Strengthening institutional grounds for enhancing the effectiveness of the collaborative governance
- Policy task 4: Creating an innovative public-private partnership model for developing the collaborative governance
- Policy task 5: Establishing local- and neighborhood-based, convergence oriented collaborative governance model

## 05 The Economy

### Background

Recently, Seoul has suffered from the worldwide low economic growth since the financial crisis began in the United States in 2008. It is important to understand the state of economy and the economic outlook of Seoul. The Seoul Institute publishes the Consumer Survey Index (CSI) every quarter. As you can see in ‘Research on Consumer Index in Seoul’, this indicator has been useful to diagnose the economic conditions of the entire Seoul metropolitan area. The study provides information that can help readers understand the overall economic trends of Seoul.

Most of all, revitalizing the economy and creating jobs are something that the Seoul Metropolitan Governments are very keen on despite their limited authority and resources. ‘Current State and Future Outlook of Geographical Concentrations of Small-Sized Manufacturing Enterprises in Seoul’ selects four municipalities in Seoul (Gu districts) for case studies. After analyzing the industrial structures and the state of manufacturing establishments in these four Gu districts, this study provides policy suggestions for revitalizing small manufacturing enterprises.

Among other things, small manufacturers make goods for various aspects of daily life. Local government policy has been focusing on high technology industries. However, the average citizens in Seoul needs high quality living goods that are not ‘high technology’ in their everyday lives. ‘A Study on Supporting the Living Goods Industry in Seoul, South Korea’ suggests that the Seoul Metropolitan Government should pay more attention to the living goods industry. Passing city ordinances to further this support is one policy recommendation made by the authors.

As occasion demands, the Seoul Institute investigates the economic environment of a specific industry. As mentioned in ‘Analysis of the Food Service Sector in Seoul’, the business environment for the food service sector in Seoul is deteriorating. The changing environment for food businesses has caught the attention of economists at the Seoul Institute. This study offers a better understanding of the current situation and provides information as a basis for programs that can support this important sector.

The Seoul Metropolitan Government does not stop with creating support programs for small businesses, but also directly purchases goods from companies that assist socially-disadvantaged groups. Such businesses are called “Hee-Mang” (meaning “Hope”) businesses which are fulfilling their social responsibilities by employing persons with disabilities, for instance. ‘An Analysis about the Effects of the Seoul Metropolitan Government’s Procurement Policy for the Socially Disadvantaged Business’ analyzes the socioeconomic effects of the city’s policy of purchasing goods from Hee-Mang businesses. Policy recommendations for supporting Hee-Mang businesses are also discussed.

Revitalizing tourism is also a means to revive the regional economy of Seoul. Since Seoul has become a world-class city after hosting the Seoul Olympics in 1988, it has attracted a large number of tourists who now number over 10 million a year. ‘Characteristics and Prospects of South Korea’s Inbound Tourism Markets’ discusses many aspects of tourism in the nation, from the impact of the ‘Korean Wave’ to the implication of our diplomatic relations with Taiwan in relation to the Chinese tourists. Finally the study issues a warning to city officials that the growth of the tourism market will not continue if Korea fails to meet the needs of its tourists.

## Research on Consumer Survey Index in Seoul

HeeSeok Park · JiWon Gwak

It is believed that the Consumer Survey Index (CSI) would be the most useful indicator in understanding the business cycle. In case of South Korea, the national CSI have been released since 1995 by the Bank of Korea. However, it does not inform about the Seoul Metropolitan Area (SMA), which is the most important region in the economy of South Korea. To diagnosis economic conditions of SMA, the Seoul Institute (SI) has been quarterly researching CSI in Seoul since the 4th quarter 2008. These indices are expected to provide primary data for analyzing business cycles and for managing local economic plans as well.

The survey sample of CSI consists of 1,000 households, including those aged from 20 to 69, married or ever married, and living in Seoul. They are selected by a purposive sampling method which is assigned by the proportional distribution of households for each ages and distinctions in Seoul. The survey is conducted by telephone and indexed as a result of the household responses based on the attitudes and expectations of the consumers concerning the present and future state of the economy, household living standard and consumption expenditure plans, and so on.

The CSI is estimated as follows :

$$CSI = \frac{\sum w_i f_i}{n}, i = 1, 2, \dots, 5$$

where the weight is attached to the  $i$ th response such as better ( $w_1$ )=200, good ( $w_2$ )=150, the same ( $w_3$ )=100, bad ( $w_4$ )=50 and worse ( $w_5$ )=0,  $f_i$  is the number of selecting  $i$ th responses, and  $n$  is the total number of sample. The index is based on 100, which means that the number of positive answer is equivalent to the negative.

The main result of the survey is as follows :

Consumer Survey Index in Seoul

|         | CSI  | living conditions |        | business conditions |        | expenditure            |                       |
|---------|------|-------------------|--------|---------------------|--------|------------------------|-----------------------|
|         |      | present           | expect | present             | expect | durable consumer goods | household consumption |
| 1Q 2014 | 97.9 | 84.6              | 99.7   | 63.8                | 95.0   | 95.7                   | 101.5                 |
| 2Q 2014 | 95.1 | 81.8              | 97.5   | 59.5                | 90.7   | 94.5                   | 99.6                  |
| 3Q 2014 | 96.3 | 82.9              | 97.5   | 60.7                | 91.9   | 95.8                   | 99.9                  |
| 4Q 2014 | 92.5 | 79.7              | 91.9   | 59.2                | 81.7   | 94.9                   | 96.1                  |
| 1Q 2015 | 90.6 | 81.0              | 94.9   | 55.6                | 80.0   | 88.0                   | 98.2                  |
| 2Q 2015 | 93.9 | 84.3              | 98.1   | 63.1                | 81.5   | 89.1                   | 96.2                  |
| 3Q 2015 | 95.7 | 86.2              | 100.4  | 65.2                | 83.1   | 89.3                   | 91.0                  |
| 4Q 2015 | 98.3 | 90.8              | 101.4  | 68.9                | 82.7   | 90.9                   | 80.5                  |

Consumer Expenditure Index in Seoul

|         | consumer expenditure index |        | net asset | employment situation | price anticipation |
|---------|----------------------------|--------|-----------|----------------------|--------------------|
|         | present                    | expect |           |                      |                    |
| 1Q 2014 | 119.0                      | 104.2  | 96.4      | 88.6                 | 143.8              |
| 2Q 2014 | 114.5                      | 99.7   | 96.7      | 85.9                 | 134.6              |
| 3Q 2014 | 112.4                      | 99.7   | 96.1      | 86.2                 | 133.6              |
| 4Q 2014 | 107.6                      | 98.4   | 93.7      | 75.3                 | 128.0              |
| 1Q 2015 | 112.5                      | 96.7   | 94.2      | 73.1                 | 130.9              |
| 2Q 2015 | 108.8                      | 93.4   | 96.3      | 73.3                 | 135.3              |
| 3Q 2015 | 106.4                      | 95.0   | 92.4      | 79.0                 | 131.6              |
| 4Q 2015 | 106.5                      | 94.8   | 92.4      | 75.9                 | 130.6              |

## Current State and Future Outlook of Geographical Concentrations of Small-sized Manufacturing Enterprises in Seoul

Bong Choi · Mook-Han Kim · Jai-Ho Kim

It is about time to make sustainable policies for small-sized manufacturing enterprises. In 2013, 92.7% of total manufacturing enterprises are small-sized ones in Seoul. But most industrial policies in South Korea for manufacturing industries are focused on small and medium-sized enterprises and small business owners.

Four out of 25 municipalities of Seoul\_Geumcheon-gu, Guro-gu, Yeongdeungpo-gu, Seongdong-gu\_have been chosen as representative geographical concentrations of manufacturing in Seoul, based on industrial statistics. The current states of the four municipalities are herein summarized with industrial statistics. Furthermore the industrial structures of them are characterized by their similar and different aspects. The municipality with highest number of small-sized manufacturing establishments is Yeongdeungpo-gu, and the one with highest number of workers in small-sized manufacturing establishments is Geumcheon-gu.

Manufacturers all criticize the current industrial policies for have no effective support but many regulations. Thus, there are more suggestions from the manufacturers in the four aforementioned municipalities, which are summarized in detail in the body of the report.

The basic approach for promoting small-sized manufacturing enterprises in Seoul is a customized policy framework for them based on the reality of their situation. Under the framework, policy suggestions in five sub-areas of policy are made, including legal system improvement, financial support, manpower cultivation/residential environment, industrial concentration/ecosystem, public relations, and marketing.

## A Study on Supporting the Living Goods Industry in Seoul, South Korea

Hyungho Youn · Jieyeoun Lee · Jiseon Heo

The living goods industry is defined as one producing final goods used in hobbies, sports, house interior projects, and office works. For example, eyeglasses, toys, jewellery, kitchen goods, and musical instruments, among many others. This industry has been ignored for a long time because of the emphasis on the high technology industry by the South Korean government. As a result, the high-valued goods from Europe and Japan and the low-valued ones from China and other markets have replaced Korean domestic goods, and thus the production capability for those goods is diminished in South Korea.

However, with incomes rising, consumers want more diversity in living goods, and especially with new design and technology, hence, the demand for the living goods is increasing. Thus, the living goods industry has changed from a decaying one to a growing one and has become a high value added product.

Therefore, we suggest a few proposals for fostering the living goods industry. First, the city of Seoul should add the living industry as an industry under its policy discretion, in addition to the existing ones of city manufacturing and strategic industry. Second, the city of Seoul should prepare and promulgate a city ordinance for supporting the living goods industry. Third, the city of Seoul should choose a few promising living goods that are worthwhile to intensively support.

## Analysis of the Food Service Sector in Seoul

Heeseok Park · Hyerim Lee · Tae-Eon Jeong · Seul-Gi So

This research aims to provide information about the status of the food service sector in Seoul and its policy implications by conducting quantitative analysis, field research and consultation meetings.

In 2013, Seoul's food service sector accounted for 10.4% of Seoul's industrial sectors and 6.7% of total employment. Total sales have been growing at an average of 5.7% per annum during 2006~2013. Even though Seoul's food service sector has sustained its growth trend for years, its business environment is getting worse.

From analysis, we found five problems affecting the food service sector in Seoul. First, Seoul's food service sector consists mainly of small scale establishments which are vulnerable to economic change. The percentage of small scale establishments that employ less than 5 employees is 79.3%. Chicken shops (92.4%), noodle houses (90.9%) and Korean style restaurants (82.4%) constitute an especially high proportion of small scale establishments. Second, the business environment for the food service sector is worsening. The growth of sales has been less than that of expenses for years, and it is more severe in the small scale businesses. Third, a low entry barrier results in a huge inflow of newcomers, and thus produces a saturated market that generates a huge outflow of establishments. Fourth, the ratio of distribution cost to food ingredient cost is high, at almost 50%. Fifth, there is a labor shortage issue. The food service sector in Seoul experienced lack of labor force at 4.7% in 2015 compared with 2.1% in all industrial sectors. One reason for the shortage is poor working conditions. On average, employees in Seoul's food service sector work more but paid less compared average for all business.

Some policy implications derived from the analysis are as follows. First, considerable policy support is required for stable and sustainable growth of the food

service sector, such as promoting mentoring programs and firming up qualification processes. Second, development of infrastructures is needed. Supporting construction of logistics centers for food ingredients and a direct system might aid in reducing the cost of food ingredients.. Third, further studies are needed for policy making. The characteristics of the food service sector in Seoul are different at the district level and the restaurant level so that in depth studies will be required to develop policies.

## An Analysis about the Effects of the Seoul Metropolitan Government's Procurement Policy for the Socially Disadvantaged Business

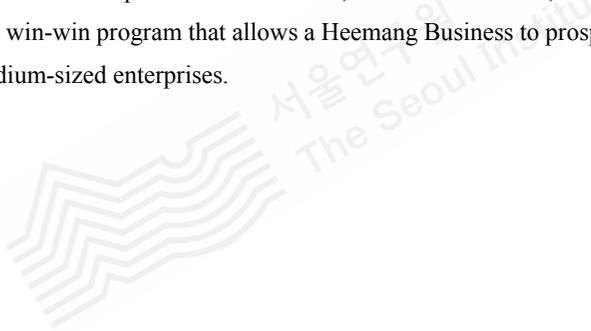
Bum-Sik Kim · Jun-Sik Bae · Yoon-Hyi Jang

In Seoul, Socially Disadvantaged Businesses, the so-called “Heemang Businesses” have difficulties in securing a market share owing to the lack of competitiveness in both the price and quality of the products. Therefore, the Seoul Metropolitan Government has expanded its public purchase on products from Heemang Businesses since 2012, in order to enhance their foundation for growth. This study aims to analyze the social and economic effects concerning the purchasing policy of the Seoul Metropolitan Government for the products of Heemang Businesses, and furthermore to draw policy implications.

The major findings of the analysis are as follows. First, based on the Heemang Businesses' total sales and the amount of transactions between the Seoul Metropolitan Government and them, it is shown that the increase of the amount of trade in 2014 accounts for 10.5% in the Heemang Businesses' total sales growth. Second, 54.3% of those companies, which have experienced an increase in sales in accordance with the Seoul Metropolitan Government's policy to expand its purchases from Heemang Businesses (hereinafter, the Policy), were successful in profit improvement, and also 48.6% showed an increase in employment. Third, the Policy is proven to have a positive influence on realizing social values, such as an expansion in hiring the disabled, and improving general impression toward public service. Fourth, offering preferences to companies that have fulfilled their social responsibility is yet to be fully implemented in practice, yet it shows high feasibility, as the bid ratio reached 62.5%. Fifth, 67.7% of the surveyed companies were not aware of the Seoul Metropolitan Government's policy to support Heemang Business, thus, the general policy perception is shown to be relatively low. Furthermore, it has been determined by an analysis that the main reason for the absence of transaction between Seoul and the surveyed companies is because of the lack of product order

information from the authorities.

In order to enhance the effect of the Policy, the following policies are required. First, it is necessary to establish and manage a tentatively named “Center for Complaints on Public Purchase”, supporting the one-stop settlement of general predicaments that might arise between sellers and buyers, from purchase orders to contractual problems. Second, the Seoul Metropolitan Government must establish a plan that allows prompt provision of information on its public purchases, and active promotion of improvements concerning the Policy. Third, since offering preferences to companies that have fulfilled their social responsibility is at its preliminary stage, it is necessary to concentrate on the current policy and improve its feasibility rather than to add new indices. Fourth, the list of restricted items should be expanded when entering into an online private contract. Fifth, in the medium term, it is necessary to establish a win-win program that allows a Heemang Business to prosper alongside strong medium-sized enterprises.



## Characteristics and Prospects of South Korea's Inbound Tourism Markets

Kiyong Keum · Seulgi So

In 2014 the number of South Korea inbound tourists recorded over 14 millions with an increase of 17 percent compared with the previous year. This annual growth rate was the highest record after the 1988 Seoul Summer Olympic Games. While South Korea recently enjoys a boom in its tourism economy, some Korea inbound markets are mixed up with gloomy or lagging markets. In general, East Asia countries such as China, Japan, and Taiwan rank top among all the Korea inbound tourism markets. South East Asian tourists such as Singapore, Malaysia, and Thailand also show strong growth rates.

Japanese visitors into Korea were once the largest inbound market in South Korea but fell behind Chinese visitors after 2013. According to this study, Japanese tourists into South Korea since 2013 were affected by both a political feud over territorial and historical controversies between the two countries and the exchange rate because of the depreciation policy of the Japanese yen. The Japanese government has had recent flare-ups of long-standing disagreements with South Korea and China over the responsibility for Japanese atrocities during the World War II as well as disputes over territory that Japan appropriated in that colonial era. These lead a decrease in numbers of Japanese visitors into those two countries. On the other hand, recently, the movement patterns between the flow of Japanese tourists to South Korea and the yen depreciation rate are almost the same. As a result, the rapid decrease of Japanese tourists seriously affects the tourism industry of Seoul, particularly luxury hotels whose major customers have been largely Japanese. But, in actuality, Japan is the only gloomy market among the South Korea inbound tourism markets while most of other its inbound markets show increasing patterns.

Taiwanese tourists into South Korea have a high average annual increase of approximately 18 percent in the 2000s. This was a surprising situation because there

had been few Taiwanese tourists after 1992 when the South Korea government announced the severance of official diplomatic relations with Taiwan in order to establish a new diplomatic relation with the People's Republic of China. However, the situation was reversed by a "Korean wave", which was brought about by Korean pop music since 1999. This shows that international political conflicts can be eased through cultural and personal interchanges. This is a value of tourism. Nevertheless, although the inbound Taiwanese tourists stand at third in the Korea inbound tourism markets ranking, its market size is 3.5 times smaller than the second market, Japanese tourists. This implies that Taiwan still has a big potential for the Korean inbound tourism market.

For the top 5 countries of major South Korea inbound tourism markets, the analysis of what factors the South Korea inbound tourists are influenced by shows that the income(real GDP) variable affects all markets but the exchange rate is only significant in Japanese and USA markets. International oil prices were eliminated for all markets as insignificant. In addition, the analysis for future prospects of the South Korean tourism market was carried out with both regression and curve fitting methods. Hence, the estimates for South Korea inbound tourists range from 16.3 to 17 million in 2016 and from 21.6 to 24 million in 2020. From these estimates, this study predicts that Seoul inbound tourists will reach 13.3 to 13.8 million in 2016 and from 17.5 to 19.4 million in 2020.

Consequently, the South Korea inbound tourism market will continue to grow with as China, the biggest market, and other East and Southeast tourism markets keep on growing. However, there is a possibility that the growth will not continue if those tourists will go to other destinations rather than South Korea. That aforementioned situation could easily occur if South Korea fails to meet the needs and wants of inbound tourists and the changing market environment. Accordingly, policies should consider the changes of each market including the tourist' purposes, national situations, inbound and outbound flows, and so on.

06 Social Policy**Background**

Perhaps social policy is an area that Mayor Park administration has made the most progress. One of the major tasks has been to increase and improve welfare services. A research study, 'From Local Government to Citizen Initiative: A Search for Seoul's Model of Self-Governance', introduces recent efforts from the Seoul Metropolitan Government to integrate delivery of diverse types of welfare services to citizens. The Neighborhood Community Service Center was set up to increase accessibility to fragmented welfare services. This study finds that the program has been successful in improving people's self-governing capability of citizens in their daily lives. Policy recommendations for the public sector are also discussed.

Some considers access to cultural amenities as another kind of welfare that citizens want. One of the responsibilities of the Seoul Metropolitan Government is to maintain and develop various forms of cultural resources such as museums, festivals, and artists. This has become more important as the demand for cultural experiences increases among the citizens. 'A Study on Characteristics and Regional Distribution on Seoul's Cultural Resources' examines the policy initiatives and current state of cultural resources in Seoul. Regarding the latter, the researchers find that there is a regional imbalance in geographical distribution of cultural resources. Most cultural facilities are concentrated in downtown Seoul and the city's southeast area. This study also emphasizes the importance of cultural space and events integrated in everyday lives. And thus the study recommends that the Seoul Metropolitan Government invests more resources for cultural amenities accessible within small communities.

The Seoul Metropolitan Government is listening to the demands from various social domains. Encouraging and supporting youth activities is one example, where Seoul Metropolitan Government has proposed a program to provide financial support to selected youth for various activities. ‘A Study on the Support for Promoting the Youth Activities in Seoul’ is an action plan to implement this program and specifies the kinds of activities that can receive support and the criteria for selecting the socially vulnerable youth who will receive financial assistance.

Another hallmark social policy from Mayor Park Won Soon is his labor policy and programs, which are the first of their kind for local governments in Korea. ‘A Study on the Strategy of Labour Policy in Seoul’ evaluates the current policy efforts and proposes a new agenda for the future. With a similar title, ‘A Study on Strategic Labour Policies of Seoul’ suggests a strategic business plan that could specify ‘Seoul Labour Master Plan’ in 2015, which the researchers came up with after surveying individuals from labor organizations, employers and labor policy experts. One of the labor programs presently in operation in the city is one that sets up consulting services for vulnerable workers. Currently, the Seoul Labor Center and four Labor Welfare Centers are available for consultations with workers regarding their labor rights. ‘A Study on the Operation and Roles of Labor Welfare Organizations in Seoul’ plans for effective operation of the centers.

Enactment of a ‘living wage’ is an exemplar of Seoul’s labor policy, one in which the city of Seoul introduced a wage that is above the national minimum wage. While the public sector has fully adopted the living wage in Seoul, the private sector is not yet completely on board. ‘A Policy for Spread of Living Wage in Private Sectors’ refers to the London case, and the study suggests step-by-step approach to spread the living wage in private companies.

## From Local Government to Citizen Initiative: A Search for Seoul's Model of Self-Governance

Joo-Hun Lee · Do-Sam Rah · Jung-Yong Lee

At each stage of urbanization, Seoul has developed different styles of governance systems as well. The newest form of urban governance were introduced to the Seoul citizens with the changed social environment such as global financial crisis, aging society, and social dichotomy.

In 2015, Seoul launched 'Neighborhood Community Service Center' program, which fundamentally transformed the characteristics of social services delivery system. Citizens were expected to be better off with more comprehensive welfare programs, and given more accessibility to public resources with less effort to claim ones.

This Neighborhood Community Service Center program aims to integrate independent services such as welfare, health, and community programs into networked and transdisciplinary ones so that citizens can be given the necessary services on time.

This reform of social service delivery can only be successful when it is loaded on the appropriate institutional infrastructure. In this regard, this study defines this Neighborhood Community Service Center as new institution of local autonomy system, and evaluates the effects of institutional reform on the self-governing capability of the communities in Seoul.

Although these capabilities are not easy to be conceptualized, this study believes that the values of social trust, willingness to participate, and the level of community identity of the citizens can provide the good surrogates.

The result of the analyses shows that the major hypotheses of this study are generally held in most cases, proving that the Neighborhood Community Service Center reform is clearly successful in promoting self-governing capability.

However, this result does not mean that is can be diffused without any criticism.

As the spectrum of service contents widens, the coordination of the parts of the program becomes more difficult to achieve. And the number of stakeholders increases rapidly, which needs coordinating capacity as well. The self-regulating local ecosystem that this reform aims to build cannot exist without proper managing capacity of the local leaders in both public and private sectors. However, it is self-evident that the key to success lies in the wisdoms stemming from the laypersons' experiences. Mobilizing self-interested citizens and enabling them to solve public problems still remain as the fundamental issue. Again, regardless of the quality of the institutions and amount of resources at hand, people is still only hope for the future of the community.



## A Study on Characteristics and Regional Distribution of Seoul's Cultural Resources

Seonhae Baik · Do-Sam Na · Jung-Hyun Lee

This study aims to analyse Seoul's cultural environment in a practical manner through the identification and assessment of its cultural resources. To accomplish this goal, the researchers first examined the spread of cultural resources across Seoul and established a relevant database; based on this database, they further analysed how Seoul's cultural resources are distributed among the different cultural genres and areas of the city. The main findings of this study are as follows.

First, Seoul's cultural environment has been significantly enriched in terms of its cultural resources. The enhancement of Seoul's cultural resources has been witnessed across all genres including historic and cultural resources, art resources, film arts and broadcasting resources, community arts resources, festivals, and artists and cultural workers. In particular, the increase in the number of concert halls and public libraries is notable. As of June 2015, the total number of cultural facilities located in Seoul amounts to 1,959, and there exist 218 more concert halls and 69 more public libraries as compared to 2007. However, most cultural resources are still concentrated in the downtown and southeast areas of Seoul, with the great number of cultural assets located in downtown Seoul particularly accounting for the regional imbalance in cultural resources in Seoul. In addition, many of the cultural resources are also still concentrated in the areas of Jongno, Gangnam, and Hongdae. However, if the focus is put on the relative share of cultural resources distributed in each of the five areas - that is, central, northeast, northwest, southwest, and southeast areas - of Seoul, the level of concentration in downtown Seoul has decreased a little when compared with the situation in 2007. In this sense, the level of concentration in Jongno-gu has fallen. On the other hand, the cultural resources located in the northeast and northwest areas of Seoul are beginning to represent an increasing share of the total cultural assets in Seoul. The facilities for community

arts, however, appear to be rather evenly distributed among the different areas of Seoul.

Second, the policy initiatives to help people enjoy more cultural experiences and the increased level of private investment in the cultural sector are the main factors that have driven the enhancement of Seoul's cultural resources. In particular, the private enterprises' influence in the cultural sector is growing continuously. For instance, it has become common for private companies to build and manage concert halls, and various kinds of cooperation have been sought between public theatres and private companies. In addition, in the case of cinemas, those owned by large multiplex cinema chains are occupying most of the market share, and the situation is quite similar in the case of bookstores, that is, the market share of big bookstore chains has increased significantly. This is why some people worry about the decline of the art market, specifically in non-commercial genres.

Third, the spaces for community arts, that is, cultural spaces integrated into people's everyday lives, have been expanding continuously. Some small libraries have served as cultural centres in culturally isolated areas, and the community art spaces have also grown and become places where people can enjoy culture in their daily lives. The demand for these cultural spaces in which people can participate in cultural activities easily is expected to continue for some time.

## A Study on the Support for Promoting the Youth Activities in Seoul

Byeongsun Jeong · Taek Kim · Bongjo Yi

Recently, Seoul has announced for the ‘2020 Seoul Youth Guarantee Plan’ to solve young people’s difficulties. One of the main contents of this plan is ‘Program for Supporting the Youth Activities’, which includes providing financial support to 3,000 young citizens of Seoul for activities, 3 millions won for 6 months, so called ‘Seoul Youth Guarantee’.

This study makes action plan to implement this program. Firstly, this program should aim to participate in various social activities, especially economic activity. According to this direction, this study suggests that the program needs to support economically, socially vulnerable youth preferentially. For this purpose, this study presents a detailed criteria.

Secondly, the range of activities that the youth perform is also a key factor to implement program. This study suggested the range of activities encompassing the direct and indirect activities necessary to prepare the employment of the candidates. The latter should include costs of food, transportation, communication and so on.

Finally, the program should provide monetary and non-monetary support to enhance the effectiveness of the program. To this end, this study suggested the ‘Youth Consultant Support System’, that is support system for establish and perform of ‘Activity Plan For Preparing Employment’ and connection with field agencies.

## A Study on Strategic Labour Policies of Seoul

Jin-Woo Joo · Kyung-Hee Shin · Jung-Yong Lee

Seoul Metropolitan Government announced the ‘Seoul Labour Master Plan’ in April 2015. According to this plan Seoul metropolitan government derived comprehensive labour policy directions and the basic tasks of Seoul dimension.

Seoul Labour Master Plan is comprehensive that is composed of two policy objectives, four policy issues, 61 unit assignments and 11 core tasks.

This plan is massive and complicated one which is related 26 departments in Seoul metropolitan government.

Seoul metropolitan government needs to decide high-priority areas for effective operation and to develop strategy businesses that can produce synergy by linking businesses in Seoul Labour Master Plan.

To derive a priority in the plan, we conducted a survey of the labour group, employer, labour experts.

According to survey results, Seoul metropolitan government is preferentially focused on strengthening the role of the public exemplary user and protecting vulnerable workers.

Especially in protecting vulnerable workers, survey demonstrated that Seoul metropolitan government needs to prepare policies in the order of small-scale business workers, youth, woman.

The results of evaluating 11 core takes in Seoul Labour Master Plan, the takes that ‘Actively protect vulnerable groups’, ‘Employment Security’, ‘Fair wage compensation’ have a great ripple effect and a necessity, whereas it is difficult to formulate policy for implementation. With consideration for the survey results, the study proposes five Policy Implications.

First, Seoul Metropolitan Government need aggressive efforts for the spread of living wage to indirect employment and private sector.

Second, it is needed the stabilization of employment policy for contracting workers.

Third, the Foundation for Social Welfare Services Workers rights protection is a need to review the establishment.

Forth, employment bureau needs to consider how new unique excavation work area might be developed for a permanent organization.

Fifth, there will be needed a promotion campaign for the formation of social consensus and protecting labour rights.



## A Study on the Strategy of Labour Policy in Seoul

Jin-Woo Joo · Kyung-Hee Shin · Jung-Yong Lee · Chan-Seob Oh · Gwang-Pyo Roh

Since the sixth South Korean local elections in October 2011, the Seoul Metropolitan City first instituted labour policies and a foundation among local government, such as changing a temporary position to a permanent position in the public sector, a Seoul-type “new deal” for jobs, creating a labour policy section and labour ombudsman, etc.

However, labour policies of the Seoul Metropolitan City face many problems because the power of the local government is limited and has no authority over labour policy.

This research aims to evaluate labour policies in effect in the Seoul Metropolitan City and suggests policy agendas, as well as the role of local government for improving labour policy.

Since he was elected in the sixth local elections in 2011, the Mayor Won-Soon Park has consistently implemented many labour policies, including Seoul-type living wages, a Seoul labour centre, workers’ rights protection committee to protect vulnerable workers’ rights, and a Seoul labour master plan.

First, the labour policies of the Seoul Metropolitan City are evaluated at the local government level. That analysis demonstrates a good performance during a short time period. In particular, Seoul Metropolitan City plays a leading role in solving South Korean social problems, such as contingent or temporary employment, vulnerable workers; thus, it affects other local governments and the private sector.

This study also aims to provide a basis for a comprehensive approach and continuing implementation of labour policy that is significant for a local government model; in part, this will entail preparing medium- and long-term plans for the various institutions in a systemic way.

The Seoul Metropolitan City will need to institute a focus on labour areas at the local government level for developing a systematic labour policies model for local government. To ensure this end, it is necessary for the Seoul Metropolitan City to implement an enhanced performance of labour policies in practice and to prepare for better governance between labour and management, as well as government, in order to create continual and stable labour policies.

In particular, it is necessary to protect vulnerable workers rights in the private sector through vigorously ensuring a labour law in Seoul campaign with the participation of related organizations.



## A Study on the Operation and Roles of Labor Welfare Organizations in Seoul

Kyung-Hee Shin · Ji-Won Choi

Seoul metropolitan government established the labor policy department for the first time in 2012, and began to operate Labor welfare institutions for protection of workers' right. Currently, in 2014, four Labor Welfare Centers get support from Seoul, and the Seoul Labor Center is to be established in 2015. The number of Labor Welfare Centers are growing, and the purpose of this study is to suggest effective operational plans for these centers. Fifteen representatives from Labor Welfare Centers and private labor organizations in Seoul were interviewed in depth for this study.

Based on the results of this research, three suggestions were proposed for the basic direction of Labor Welfare services in Seoul. First, Seoul should sets up a cooperative system among the central government, autonomous districts(Gu) and the Seoul administrations in order to expand labor welfare services. Second, a Bottom-up method based on the community will be applied in establishing labor welfare projects. Finally, the participation and capabilities of private labor organizations will be utilized.

The following suggestions were proposed for a policy project in labor welfare services. First, variety of subjects will be participated in Seoul Labor Rights Center Committee and Worker's Rights Protection Committee.

Second, the Seoul Labor Rights Centre Committee should becomes a hub of labor welfare centers and private labor organizations.

Third, the labor welfare centers should function as local hubs for bottom-up labor welfare services. Fourth, Seoul should expands activity programs in order to strengthen the ability and participation of private labor organizations. Fifth, job

training institutions, job support facilities, business incubator centers, lifelong education facilities, youth facilities and community center will be supported to enable labor counseling and labor education programs.



## A Policy for Spread of Living Wage in Private Sectors

Bong Choi · Jung Hyun-Chul

Three years have passed since a living wage was introduced into public sectors. However, with many low-wage workers in private sectors, a living wage has not yet been introduced. Due to its absence, a review to make a policy for the spread of a living wage in private sectors is needed.

This study aims to suggest a policy for the spread of a living wage in private sectors. To this end, we refer to cases in London, UK since there is no relevant reference to the topic of this study in Korea.

Thus, basic policy directions and details of strategies for the spread of a living wage in private sectors need to be established. Basic policy directions are proceeding step-by-step diffusion strategies, improving related institutions of living wages and selecting targets where living wages can be applied.

The details of strategy are composed of three parts. First, strategies that the public sector led for spread of living wages in private sectors was suggested. Second, public sectors are induced to voluntary participation in the private sectors. Third, it was proposed that it should be made up of a governance structure for effective execution of living wages.

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